



भारतीय कृषि  
ICAR

INDIAN COUNCIL OF  
AGRICULTURAL RESEARCH

# DISTRICT WISE CONTINGENCY PLAN TO DEAL WITH **EL NIÑO**

PREPAREDNESS | RESPONSE | RESILIENCE



BUILDING A  
DROUGHT RESILIENT  
ODISHA



PADDY



GREEN GRAM



BLACK GRAM



MAIZE



EARLY WARNING  
& MONITORING



WATER  
MANAGEMENT



SUSTAINABLE  
AGRICULTURE



COMMUNITY  
PARTICIPATION

**TOGETHER, LET'S BUILD A RESILIENT ODISHA**  
PREPARE TODAY • PROTECT TOMORROW • PROSPER TOGETHER

## **Odisha**

Odisha is one of the major agricultural states of eastern India, where agriculture is the principal source of livelihood for a large proportion of the rural population. The sector contributes significantly to the state's economy by supporting food security, employment, and agro-based industries. Nearly 60 per cent of the state's population depends directly or indirectly on agriculture and allied activities. Possesses diverse agro-climatic zones, ranging from the coastal plains to the central tablelands and northern plateau, allowing cultivation of a wide range of crops under varying climatic conditions. Agriculture is predominantly rainfed and largely dependent on the timely onset and adequate distribution of the southwest monsoon. Paddy is the principal crop of Odisha and occupies nearly two-thirds of the total cropped area, making the state one of the major rice-producing states in India. Other important Kharif crops include maize, finger millet, pigeon pea, black gram, green gram, groundnut, sesame, cotton and various minor millets. During the Rabi season, pulses, oilseeds, vegetables, sunflower, mustard and maize are extensively cultivated. Odisha is also an important producer of groundnut, pulses, spices, cashew, coconut and horticultural crops. The state receives an average annual rainfall of approximately 1400–1600 mm, with nearly 75–80 per cent of the rainfall received during the Southwest Monsoon (June to September). Agriculture in Odisha is therefore highly dependent on the timely onset, distribution, and intensity of monsoon rainfall. El Niño-induced monsoon variability often results in delayed rainfall, prolonged dry spells and seasonal moisture deficits, adversely affecting crop establishment, growth and productivity. Districts such as Malkangiri, Nabarangpur, Deogarh, Sundargarh, Kendujhar and Mayurbhanj are highly vulnerable to drought conditions associated with El Niño. Adoption of crop-specific contingency measures, drought-tolerant varieties, efficient soil moisture conservation practices and protective irrigation is therefore essential to minimize production losses and enhance the resilience of Odisha's agriculture during El Niño years.

### **Historical Impact of El Niño on Odisha**

Odisha is highly vulnerable to El Niño-induced monsoon variability despite receiving relatively high annual rainfall. During El Niño years, the state frequently experiences delayed monsoon onset, prolonged dry spells, uneven rainfall distribution and below-normal seasonal rainfall. Rainfed agriculture, which covers a substantial proportion of cultivated land, is particularly susceptible to moisture stress during critical crop growth stages.

Rainfall deficits during El Niño years adversely affect nursery raising, transplanting, flowering, grain filling and pod development in major crops. Water scarcity also reduces reservoir storage, affects irrigation availability and increases the occurrence of agricultural drought in western and southern districts. Coastal districts may receive isolated heavy rainfall events, but overall seasonal rainfall deficiency generally leads to reduced agricultural productivity and farm incomes.

### Effects on Major Crops

- **Paddy:** Delayed nursery raising and transplanting, poor tillering, reduced grain filling and lower yields.
- **Maize:** Delayed sowing, poor cob development and reduced grain filling.
- **Groundnut:** Poor germination, reduced peg formation and lower kernel development.
- **Pulses (Black gram, Green gram, Pigeon pea):** Flower drop, poor pod setting and reduced productivity.
- **Finger Millet:** Better drought tolerance but reduced ear formation under prolonged moisture stress.
- **Cotton:** Reduced boll formation, increased moisture stress and poor lint yield.
- **Sesame:** Reduced capsule formation and poor seed filling during prolonged dry spells.
- **Minor Millets:** Relatively drought tolerant but yield reductions occur under severe moisture deficit.

### Contingency Plans for Major Crops Grown in Odisha

| Crop  | El Niño Situation                        | Recommended Contingency Measures                                                                 |
|-------|------------------------------------------|--------------------------------------------------------------------------------------------------|
| Paddy | Delayed monsoon or delayed transplanting | Community nursery, direct-seeded rice (DSR), short-duration varieties, staggered nursery raising |
|       | Water scarcity and drought               | Alternate Wetting and Drying (AWD), protective irrigation, mulching                              |
| Maize | Delayed sowing                           | Adopt short-duration hybrids and drought-tolerant cultivars                                      |

|                      |                                |                                                                         |
|----------------------|--------------------------------|-------------------------------------------------------------------------|
|                      | Mid-season drought             | Earthing up, mulching, foliar spray of 2% KCl                           |
| <b>Groundnut</b>     | Delayed onset of monsoon       | Use short-duration varieties, ridge and furrow planting, seed treatment |
|                      | Dry spells                     | Protective irrigation, gypsum application, foliar nutrition             |
| <b>Black gram</b>    | Delayed sowing                 | Shift to short-duration varieties                                       |
|                      | Moisture stress                | Foliar spray of 2% DAP or urea, moisture conservation                   |
| <b>Green gram</b>    | Late Kharif sowing             | Adopt early maturing varieties                                          |
|                      | Drought conditions             | Foliar nutrition and protective irrigation                              |
| <b>Pigeon pea</b>    | Delayed monsoon                | Use medium-duration varieties and intercropping systems                 |
|                      | Dry spells                     | Mulching and life-saving irrigation                                     |
| <b>Finger Millet</b> | Rainfall deficit               | Promote drought-tolerant varieties, moisture conservation               |
| <b>Sesame</b>        | Failure of paddy establishment | Use as contingency crop in low-rainfall situations                      |
| <b>Cotton</b>        | Delayed monsoon                | Use drought-tolerant hybrids and recommended spacing                    |
|                      | Moisture stress                | Mulching, protective irrigation, foliar spray of 2% KCl                 |
| <b>Minor Millets</b> | Severe rainfall deficit        | Shift to drought-resilient millets as contingency crops                 |

Agriculture forms the backbone of Odisha's rural economy and is vital for ensuring food and livelihood security. However, the predominance of rainfed agriculture makes the state highly vulnerable to El Niño-induced climatic variability, particularly during the Kharif season. Delayed monsoon onset, prolonged dry spells, erratic rainfall distribution and increased temperatures during El Niño years can significantly reduce agricultural productivity, particularly in Kharif crops such as paddy, maize, groundnut and pulses. Timely implementation of contingency measures such as the use of drought-tolerant and short-duration varieties, gap filling, moisture conservation practices, foliar nutrient application, inter-cultivation and protective irrigation can substantially reduce the effects

of rainfall deficiency on major crops. Strengthening district-specific contingency plans, promoting climate-resilient crop varieties, expanding irrigation coverage, encouraging water conservation practices, and improving weather-based agro-advisory services are essential for enhancing the resilience of Odisha's agriculture against future El Niño events.

### Area under major crops

| Crop       | Area (Lakh ha) |
|------------|----------------|
| Paddy      | 38.34          |
| Green gram | 2.35           |
| Black gram | 1.01           |
| Maize      | 0.86           |

### Districts vulnerable to El Nino

| High                                                                            | Medium                | Low |
|---------------------------------------------------------------------------------|-----------------------|-----|
| Malakanagiri,<br>Nabarangapur,<br>Deogarh, Sundargarh,<br>Kendujhar, Mayurbhanj | Khordha,<br>Rayagarha | Nil |



# Actionable Comprehensive Plans for Contingency

|       |        |          |         |
|-------|--------|----------|---------|
| State | ORISSA | District | DEOGARH |
|-------|--------|----------|---------|

## Rainfall info (mm)

| Month/season | Normal rainfall (mm) | Expected deficiency, % | Expected rainfall (mm) |
|--------------|----------------------|------------------------|------------------------|
| June-Sep     | 1175.6               | More than 19%          | Less than 952.236      |
| June         | 201                  |                        |                        |
| July         | 348.3                |                        |                        |
| August       | 345.6                |                        |                        |
| September    | 280.7                |                        |                        |

Forecast probability for the season (as per IMD): Below Normal

## Irrigation info:

|                     |       |                       |       |
|---------------------|-------|-----------------------|-------|
| Net irrigated area: | 2996  | Gross irrigated area: | 3428  |
| Net Rainfed area    | 38220 | Gross rainfed area    | 39078 |

## Source wise irrigation area details (ha)

| Source of irrigation | Net  | Gross |
|----------------------|------|-------|
| Canals               | -    | 923   |
| Wells                | -    | 2476  |
| Tanks                | -    | 29    |
| Other sources        | 2996 | -     |

## Crop Profile (Kharif)

### Cereals

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Rice      | 27447           | 775                 | 26672             |
| 2    | Jowar     | -               | -                   |                   |
| 3    | Maize     | 115             | 7                   | 108               |
| 4    | Bajra     | -               |                     |                   |
| 5    | Ragi      | 51              | 1                   | 50                |

#### Pulses& Oilseeds

| S.No | Crop name      | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|----------------|-----------------|---------------------|-------------------|
| 1    | Arhar/ Redgram | -               |                     |                   |
| 2    | Groundnut      | 336             | 226                 | 110               |
| 3    | Sesamum        | 560             | 201                 | 359               |
| 4    | Soyabean       | -               |                     |                   |
| 5    | Sunflower      | -               |                     |                   |
| 6    | Castor         | -               |                     |                   |

#### Fibre

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Cotton    | -               |                     |                   |
| 2    | Jute      | -               |                     |                   |
| 3    | Mesta     | -               |                     |                   |
| 4    | Sunhemp   | -               |                     |                   |

#### Other crops

| S.No | Crop name          | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|--------------------|-----------------|---------------------|-------------------|
| 1    | Sugarcane          | 15              | 15                  | 0                 |
| 2    | Tobacco            | -               |                     |                   |
| 3    | Guar seed          | -               |                     |                   |
| 4    | Other Fodder crops | -               |                     |                   |
|      |                    |                 |                     |                   |
|      |                    |                 |                     |                   |



| Condition                            |                                                            |                                | Suggested Contingency measures                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|--------------------------------------|------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Early season drought (delayed onset) | Major Farming situation                                    | Normal Crop / Cropping system  | Change in crop / cropping system including variety                                                                                                                                                                                                    | Agronomic measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Remarks on Implementation                                                                                                                                                    |
|                                      | Low rainfall lateritic soils :<br>Unbunded rainfed uplands | <b>Sole crops</b>              | Varietal substitutions of drought tolerant varieties of the sole crops i.e                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|                                      |                                                            | Sesamum (Uma)                  | Nirmala and Prachi                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>When the mortality of seedlings is less than 50% gap filling should be done and if more than 50% mortality, resow the crop with short duration high yielding low water requiring crops like green gram, black gram, horsegram (Urmi), Niger (Deomali) cow pea, sesamum and castor after receiving the rainfall.</li> <li>Cultivate vegetables like okra, brinjal, tomato.</li> <li>Complete hoeing, weeding followed by ridging to the base of the root crop at 20 DAS for in-situ moisture conservation in vegetable and groundnut crop.</li> </ul> | Intercultural farm implements such as rotary peg weeder, wheel finger weeder and power weeder under RKVY. Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC). |
|                                      |                                                            | Green gram (K 851,Chaita Muga) | Sujata, Durga, PDM-11& 54                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|                                      |                                                            | Black gram (T9)                | Pant U-19 &30,Ujala,Sarala                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|                                      |                                                            | Groundnut (AK12-24)            | Smruti,Devi, TMV-2,TAG-24                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|                                      |                                                            | Rice ( Ekchhupi, malati)       | Hira, JHU, Pathara, Bandana, Khandagiri, Arnapura                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|                                      |                                                            | Tomato (Utkal Deepti)          | Utkal Kumari, Utkal Raja (determinate type)                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|                                      |                                                            | Brinjal (Blue star)            | Utkal Anushree, Utkal Tarini                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|                                      |                                                            | Cow pea (SEB 2)                | Utkal Manika                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|                                      |                                                            | Lady's finger (Anamika)        | Utkal Gourav                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|                                      |                                                            | Chilli (Barsati lanka)         | Kuchinda local, Utkal ava                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|                                      |                                                            |                                | Intercropping of arhar + groundnut (2 : 5)<br>Arhar var. ICPL 87, UPAS 120, TUR N-2<br>Arhar + Sesamum (2:4)<br>Maize + Cow pea (2:2)<br>Maize var. Navjot (HQPM-1)Cow pea (Utkal Manika)<br>Yam : (Orissa Elite, Pusa Hemlata)<br>Arrararoot (White) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                              |
|                                      | <b>Sole crops under rainfed medium lands</b>               | Rice                           | Lalat, Manaswini, Naveen, Vijeta, MTU 1010, Konark, Jogesh and Surendra                                                                                                                                                                               | <ul style="list-style-type: none"> <li>If rice population is less than 50% resow the sprouted seeds in line through pre-germinated seed drill or fresh seedlings.</li> <li>Select short to medium duration varieties ( 90-120days)</li> <li>Raise community</li> </ul>                                                                                                                                                                                                                                                                                                                      | Pre-germinated seed drill under RKVY. High yielding rice varieties under NFSM. Paddy transplanter, marker and cono weeder under RKVY                                         |

|                                           |                    |                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|-------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                                           |                    |                                                                                                                 | nursery of both short duration rice varieties at reliable water source to save further delay of transplanted rice through transplanter saving of 50% seed requirement or through SRI method (@5kg seeds/ha). <ul style="list-style-type: none"> <li>• Do not top dress nitrogen in nursery</li> <li>• Apply life saving irrigation to maintain nursery seedlings.</li> </ul>                              |  |
| Sole crops under rainfed medium low lands | Rice               | Swarna, Pratikshya,Rani dhan, Sidhanta and Mahsuri                                                              | <ul style="list-style-type: none"> <li>• If rice population is more than 50% carryout weeding and maintain the plant population by <i>Khelua</i> operation (removing and distributing the hills)</li> <li>• Raise community nursery of both short duration rice varieties at reliable water source to save further delay of transplanted rice.</li> <li>• Do not top dress nitrogen in nursery</li> </ul> |  |
|                                           | Cropping system 1: |                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|                                           | Rice-onion         | Rice variety: Medium duration (120days) Lalat, Manaswini, Naveen, Vijeta, MTU 1010, Konark, Jogesh and Surendra |                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|                                           |                    | Medium late (140-145 days)                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                           |  |

|  |                                     |                                                                                                        |                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                   |  |
|--|-------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |                                     |                                                                                                        | Swarna,<br>Pratikshya,Rani dhan,<br>Sidhanta and Mahsuri                                                                                                                                                |                                                                                                                                                                                                                                                                                                                   |  |
|  |                                     |                                                                                                        | Onion variety : Nasik<br>Red, N-53, Bhima<br>Red.                                                                                                                                                       | 10 kg seeds/ha,<br>sowing time Nov-<br>Dec, NPK 60:60;50<br>kg/ha as basal. 60 kg<br>N and 60 kg K <sub>2</sub> O<br>top dressed at 21<br>DAS followed by<br>weeding hoeing and<br>earthing up                                                                                                                    |  |
|  |                                     | Cropping system 2:                                                                                     |                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                   |  |
|  | <b>Rainfed<br/>medium<br/>lands</b> | Rice - fallow                                                                                          | Rice -<br>greengram/blackgram/<br>water melon<br>Greengram variety :<br>(Dhauli, Kamdev,<br>Durga)<br>Black gram: (Sarala,<br>Prasad, Ujala)<br>Water melon:<br>(Sugarbaby, Sugar<br>pack, Black magic) | 25 kg seeds/ha, full<br>NPK 20:40:40 kg/ha<br>and PMS 500 kg/ha<br>as full basal, line<br>sowing 30X10cm<br><br>2kg seeds/ha,<br>sowing time Jan,<br>spacing<br>120cmX120cm,<br>NPK 30:30:100<br>kg/ha                                                                                                            |  |
|  |                                     |                                                                                                        |                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                   |  |
|  | Rainfed<br>rolling<br>topography    | Plantation crops (fruits<br>local varieties)                                                           | Improved varieties                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                   |  |
|  |                                     | Litchi                                                                                                 | Seedless early,<br>Mumbai early                                                                                                                                                                         | Planting time Jun-<br>July, spacing<br>7mX7m, pit size<br>1mX1mX1m, pit<br>manuring : 60g N +<br>16g P + 60g K                                                                                                                                                                                                    |  |
|  |                                     | Citrus                                                                                                 | Cino mandarine                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                   |  |
|  |                                     | Mango                                                                                                  | Amrapali, Malika                                                                                                                                                                                        | Planting time July,<br>spacing 5mX5m, pit<br>size 1mX1mX1m,<br>pit manuring : 80g<br>N + 100g P + 60g<br>K                                                                                                                                                                                                        |  |
|  |                                     | Custard apple                                                                                          | Local improved                                                                                                                                                                                          | Planting time Jun-<br>July, spacing<br>5mX5m, pit size<br>50cmX50cmX50cm,<br>pit manuring : 250g<br>N + 125g P + 125g<br>K                                                                                                                                                                                        |  |
|  |                                     | Pisciculture in farm ponds<br>with locally available<br>species with inappropriate<br>stocking density | Composite<br>pisciculture in farm<br>ponds<br>Indian major carps<br>(Rohu, Mirgal, Catla<br>plus exocotic carps<br>(Silver/ grasscarp)                                                                  | 10,000 fry/ha or<br>5,000 fingerlings<br>feeding 10% of the<br>body weight i.e<br>2kg/day (twice<br>during morning and<br>evening) mix with<br>multivitamin @ 2<br>tea spoon / kg feed.<br>Cow dung 2.5q /ha<br>should be applied in<br>10-15 days interval<br>for 5-6 times<br>depending on the<br>growth of the |  |

|  |  |  |  |                                                                                                                                                                                                                              |  |
|--|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  |  |  | planktons. Using Cifax @ 1 lit/ha or lime and turmeric powder (10:1) ratio applied @ 200 kg/ha during the month of November and January to control Ulcerative disease syndrome (UDS) and Epizootic ulcerative syndrome (EUS) |  |
|--|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

| Condition                                                                          |                                                            |                             | Suggested Contingency measures                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
|------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation                                    | Normal Crop/cropping system | Crop management                                                                                                                                                                                                                     | Soil nutrient & moisture conservation measures                                                                                                                                                                                                                                                                                                                                                              | Remarks on Implementation |
| At vegetative stage                                                                | Low rainfall lateritic soils :<br>Unbunded rainfed uplands | <b>Sole crops</b>           | Varietal substitutions of drought tolerant varieties of the sole crops                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Inter-cultivation (Soil mulching)</li> <li>• Conservation furrow</li> <li>• Organic mulching with previous crop residues</li> <li>• Scooping</li> <li>• Compartmental bunding</li> <li>• Follow ridge and furrow method of planting for groundnut and vegetable crops.</li> <li>• Follow strip cropping in rolling topography for moisture conservation</li> </ul> |                           |
|                                                                                    |                                                            | Sesamum (Uma)               | Nirmala and Prachi                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
|                                                                                    |                                                            | Green gram (K 851)          | Sujata, Durga, PDM-11& 54                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
|                                                                                    |                                                            | Black gram (T9)             | Pant U-19 &30,Ujala,Sarala                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
|                                                                                    |                                                            | Groundnut (AK12-24)         | Smruti,Devi, TMV-2,TAG-24                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
|                                                                                    |                                                            | Rice ( Ekchhupi, malati)    | Hira, JHU, Pathara, Bandana, Khandagiri, Arnapura                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
|                                                                                    |                                                            | Tomato (Utkal Deepti)       | Utkal Kumari, Utkal Raja (determinate type)                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
|                                                                                    |                                                            | Brinjal (Blue star)         | Utkal Anushree, Utkal Tarini                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
|                                                                                    |                                                            | Cow pea (SEB 2)             | Utkal Manika                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
|                                                                                    |                                                            | Lady's finger (Anamika)     | Utkal Gourav                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
|                                                                                    |                                                            | Chilli (Barsati lanka)      | Kuchinda local, Utkal ava                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
|                                                                                    |                                                            |                             | Intercropping of arhar + groundnut (2 : 5)<br>Arhar var. ICPL 87, UPAS 120, TUR N-2<br>Arhar + Sesamum (2:4)<br>Maize + Cow pea (2:2)<br>Maize var. Navjot (HQPM-1)<br>Cow pea (Utkal Manika)<br>Yam : (Orissa Elite, Pusa Hemlata) |                                                                                                                                                                                                                                                                                                                                                                                                             |                           |

|  |  |                                                  |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|--|--|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  |                                                  | Arrararoot (White)                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|  |  | Sole crops under rainfed medium lands : Rice     | Lalat, Manaswini, Naveen, Vijeta, MTU 1010, Konark, Jogesh and Surendra                                            | <ul style="list-style-type: none"> <li>• Weed out the field</li> <li>• Go for gap filling using seedling of same age.</li> <li>• Strengthen the field bunds and close the holes</li> <li>• Provide life saving irrigation</li> </ul>                                                                                                                                                                           |  |
|  |  | Sole crops under rainfed medium low lands : Rice | Swarna, Pratikshya, Rani dhan, Sidhanta and Mahsuri                                                                | <ul style="list-style-type: none"> <li>• Seedling of 45 days old can be transplanted or gap filled.</li> <li>• Do not practice beushaning</li> <li>• Weed out the field</li> <li>• Follow plant protection measures</li> <li>• Provide protective irrigation through harvested rain water</li> <li>• Withhold N application</li> <li>• Apply Potassic fertilizer</li> <li>• Strengthen field bunds.</li> </ul> |  |
|  |  | Rice-onion                                       | Rice variety:<br>Medium duration (120days) Lalat, Manaswini, Naveen, Vijeta, MTU 1010, Konark, Jogesh and Surendra |                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|  |  |                                                  | Medium late (140-145 days)<br>Swarna, Pratikshya, Rani dhan, Sidhanta and Mahsuri                                  |                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|  |  |                                                  | Onion variety : Nasik Red, N-53, Bhima Red.                                                                        | 10 kg seeds/ha, sowing time Nov-Dec, NPK 60:60:50                                                                                                                                                                                                                                                                                                                                                              |  |

|  |                             |                                                                                               |                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                              |  |
|--|-----------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |                             |                                                                                               |                                                                                                                                                                                       | kg/ha as basal. 60 kg N and 60 kg K <sub>2</sub> O top dressed at 21 DAS followed by weeding hoeing and earthing up                                                                                                                                                                                          |  |
|  | <b>Rainfed medium lands</b> | Rice - fallow                                                                                 | Rice – greengram /blackgram/ water melon<br>Greengram variety : (Dhau, Kamdev, Durga)<br>Black gram: (Sarala, Prasad, Ujala)<br><br>Water melon: (Sugarbaby, Sugar pack, Black magic) | 25 kg seeds/ha, full NPK 20:40:40 kg/ha and PMS 500 kg/ha as full basal, line sowing 30X10cm<br><br>2kg seeds/ha, sowing time Jan, spacing 120cmX120cm, NPK 30:30:100 kg/ha                                                                                                                                  |  |
|  | Rainfed rolling topography  | Plantation crops (fruits local varieties)                                                     | Improved varieties                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                              |  |
|  |                             | Litchi                                                                                        | Seedless early, Mumbai early                                                                                                                                                          | Planting time Jun-July, spacing 7mX7m, pit size 1mX1mX1m, pit manuring : 60g N + 16g P + 60g K                                                                                                                                                                                                               |  |
|  |                             | Citrus                                                                                        | Citrus mandarin                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                              |  |
|  |                             | Mango                                                                                         | Amrapali, Malika                                                                                                                                                                      | Planting time July, spacing 5mX5m, pit size 1mX1mX1m, pit manuring : 80g N + 100g P + 60g K                                                                                                                                                                                                                  |  |
|  |                             | Custard apple                                                                                 | Local improved                                                                                                                                                                        | Planting time Jun-July, spacing 5mX5m, pit size 50cmX50cmX50cm, pit manuring : 250g N + 125g P + 125g K                                                                                                                                                                                                      |  |
|  |                             | Pisciculture in farm ponds with locally available species with inappropriate stocking density | Composite pisciculture in farm ponds<br>Indian major carps (Rohu, Mirgal, Catla) plus exotic carps (Silver/ grasscarp)                                                                | 10,000 fry/ha or 5,000 fingerlings feeding 10% of the body weight i.e 2kg/day (twice during morning and evening) mix with multivitamin @ 2 tea spoon / kg feed. Cow dung 2.5q /ha should be applied in 10-15 days interval for 5-6 times depending on the growth of the planktons. Using Cifax @ 1 lit/ha or |  |

|  |  |  |  |                                                                                                                                                                                         |  |
|--|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  |  |  | lime and turmeric powder (10:1) ratio applied @ 200 kg/ha during the month of November and January to control Ulcerative disease syndrome (UDS) and Epizootic ulcerative syndrome (EUS) |  |
|--|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

| Condition                           |                                                         |                                              | Suggested Contingency measures                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|-------------------------------------|---------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Mid season drought (long dry spell) | Major Farming situation                                 | Normal Crop/cropping system                  | Crop management                                                                                                                                                                                                                                           | Soil nutrient & moisture conservation measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Remarks on Implementation |
| At flowering/ fruiting stage        | Low rainfall lateritic soils : Unbunded rainfed uplands | <b>Sole crops</b>                            | Varietal substitutions of drought tolerant varieties of the sole crops                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>Spray 2% KCl + 0.1 ppm boron to non paddy crops to overcome drought.</li> <li>Foliar application of 2% urea at pre-flowering and flowering stage to pulses and oilseeds is helpful.</li> <li>Remove and destroy pest and disease affected plants</li> <li>Provide irrigation at critical stages at flowering and grain filling stage.</li> <li>Crops like cow pea, green gram, black gram, maize and vegetables may be harvested at physiological maturity.</li> <li>Under situation of complete failure of Kharif crop, dismantle it and sow pre-rabi crops minor pulses like horse gram (var. Urmi), Niger (Deomali)</li> <li>Need based plant protection measures to be taken.</li> </ul> |                           |
|                                     |                                                         | Sesamum (Uma)                                | Nirmala and Prachi                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|                                     |                                                         | Green gram (K 851)                           | Sujata, Durga, PDM-11& 54                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|                                     |                                                         | Black gram (T9)                              | Pant U-19 &30,Ujala,Sarala                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|                                     |                                                         | Groundnut (AK12-24)                          | Smruti,Devi, TMV-2,TAG-24                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|                                     |                                                         | Rice ( Ekchhupi, malati)                     | Hira, JHU, Pathara, Bandana, Khandagiri, Arnapura                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|                                     |                                                         | Tomato (Utkal Deepti)                        | Utkal Kumari, Utkal Raja (determinate type)                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|                                     |                                                         | Brinjal (Blue star)                          | Utkal Anushree, Utkal Tarini                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|                                     |                                                         | Cow pea (SEB 2)                              | Utkal Manika                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|                                     |                                                         | Lady's finger (Anamika)                      | Utkal Gourav                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|                                     |                                                         | Chilli (Barsati lanka)                       | Kuchinda local, Utkal ava                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|                                     |                                                         |                                              | Intercropping of arhar + groundnut (2 : 5)<br>Arhar var. ICPL 87, UPAS 120, TUR N-2<br>Arhar + Sesamum (2:4)<br>Maize + Cow pea (2:2)<br>Maize var. Navjot (HQPM-1)<br>Cow pea (Utkal Manika)<br>Yam : (Orissa Elite, Pusa Hemlata)<br>Arrararoot (White) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
|                                     |                                                         | Sole crops under rainfed medium lands : Rice | Lalat, Manaswini, Naveen, Vijeta, MTU                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>Advised to spray Tricyclazone (Beam/Team) 0.06-0.1% at 10-12 days</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                           |



|  |                                                  |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                            |
|--|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                                                  | 1010, Konark, Jogesh and Surendra                                                                                                                                                                                   | <p>interval to control blast and brown spot diseases in rice during this period.</p> <ul style="list-style-type: none"> <li>• To control stem borer and Gandhi bug, spray methyl demeton/dimethioate</li> <li>• Provide life saving irrigation.</li> </ul> |
|  | Sole crops under rainfed medium low lands : Rice | Swarna, Pratikshya,Rani dhan, Sidhanta and Mahsuri                                                                                                                                                                  | <ul style="list-style-type: none"> <li>• For late transplanted rice 2 spraying at 10 days interval with Validamycin 0.3% to control sheath blight.</li> <li>• Provide life saving irrigation.</li> </ul>                                                   |
|  | Cropping system 1:                               |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                            |
|  | Rice-onion                                       | Rice variety: Medium duration (120d) Lalat, Manaswini, Naveen, Vijeta, MTU 1010, Konark, Jogesh and Surendra                                                                                                        |                                                                                                                                                                                                                                                            |
|  |                                                  | Medium late (140-145 d) Swarna, Pratikshya,Rani dhan, Sidhanta and Musuri                                                                                                                                           |                                                                                                                                                                                                                                                            |
|  |                                                  | Onion variety : Nasik Red, N-53, Bhima Red.                                                                                                                                                                         | 10 kg seeds/ha, sowing time Nov-Dec, NPK 60:60:50 kg/ha as basal. 60 kg N and 60 kg K <sub>2</sub> O top dressed at 21 DAS followed by weeding hoeing and earthing up                                                                                      |
|  | Cropping system 2:                               |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                            |
|  | <b>Rainfed medium lands</b>                      | <p>Rice - fallow</p> <p>Rice - greengram/blackgram/ water melon<br/>Greengram variety : (Dhali, Kamdev, Durga)<br/>Black gram: (Sarala, Prasad, Ujala)</p> <p>Water melon: (Sugarbaby, Sugar pack, Black magic)</p> | <p>25 kg seeds/ha, full NPK 20:40:40 kg/ha and PMS 500 kg/ha as full basal, line sowing 30X10cm</p> <p>2kg seeds/ha, sowing time Jan, spacing 120cmX120cm, NPK 30:30:100 kg/ha</p>                                                                         |
|  | Rainfed rolling topography                       | Plantation crops (fruits local varieties)                                                                                                                                                                           | Improved varieties                                                                                                                                                                                                                                         |
|  |                                                  | Litchi                                                                                                                                                                                                              | Seedless early, Mumbai early<br><br>Planting time Jun-July, spacing 7mX7m, pit size 1mX1mX1m, pit                                                                                                                                                          |

|  |  |                                                                                               |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|--|--|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  |                                                                                               |                                                                                                                          | manuring : 60g N + 16g P + 60g K                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|  |  | Citrus                                                                                        | Cino mandarine                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|  |  | Mango                                                                                         | Amrapali, Malika                                                                                                         | Planting time July, spacing 5mX5m, pit size 1mX1mX1m, pit manuring : 80g N + 100g P + 60g K                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|  |  | Custard apple                                                                                 | Local improved                                                                                                           | Planting time Jun-July, spacing 5mX5m, pit size 50cmX50cmX50cm, pit manuring : 250g N + 125g P + 125g K                                                                                                                                                                                                                                                                                                                                                                                              |  |
|  |  | Pisciculture in farm ponds with locally available species with inappropriate stocking density | Composite pisciculture in farm ponds<br>Indian major carps (Rohu, Mirgal, Catla plus excecotic carps (Silver/ grasscarp) | 10,000 fry/ha or 5,000 fingerlings feeding 10% of the body weight i.e 2kg/day (twice during morning and evening) mix with multivitamin @ 2 tea spoon / kg feed. Cow dung 2.5q /ha should be applied in 10-15 days interval for 5-6 times depending on the growth of the planktons. Using Cifax @ 1 lit/ha or lime and turmeric powder (10:1) ratio applied @ 200 kg/ha during the month of November and January to control Ulcerative disease syndrome (UDS) and Epizootic ulcerative syndrome (EUS) |  |

| Condition                                         |                                                            |                             | Suggested Contingency measures                                             |                                                                                                                                                            |                           |
|---------------------------------------------------|------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Terminal drought<br>(Early withdrawal of monsoon) | Major Farming situation                                    | Normal Crop/cropping system | Crop management                                                            | Rabi Crop planning                                                                                                                                         | Remarks on Implementation |
| At vegetative stage                               | Low rainfall lateritic soils :<br>Unbunded rainfed uplands | Sole crops                  | Varietal substitutions of drought tolerant varieties of the sole crops i.e | Utilization of residual moisture for early sowing of pre-rabi crops like Cow pea (SEB – 2, Utkal Manik), horse gram (Urmi), green gram (Durga), black gram |                           |
|                                                   |                                                            | Sesamum (Uma)               | Nirmala and Prachi                                                         |                                                                                                                                                            |                           |
|                                                   |                                                            | Green gram (K 851)          | Sujata, Durga, PDM-11& 54                                                  |                                                                                                                                                            |                           |
|                                                   |                                                            | Black gram (T9)             | Pant U-19 &30,Ujala,Sarala                                                 |                                                                                                                                                            |                           |
|                                                   |                                                            | Groundnut (AK12-24)         | Smruti,Devi, TMV-2,TAG-24                                                  |                                                                                                                                                            |                           |

| Condition                                         |                                                  |                                                                                                                 | Suggested Contingency measures                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                        |                           |
|---------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Terminal drought<br>(Early withdrawal of monsoon) | Major Farming situation                          | Normal Crop/cropping system                                                                                     | Crop management                                                                                                                                                                                                                                           | Rabi Crop planning                                                                                                                                                                                                                                                                                                                                     | Remarks on Implementation |
|                                                   |                                                  | Rice ( Ekchhupi, malati)                                                                                        | Hira, JHU, Pathara, Bandana, Khandagiri, Arnapurna                                                                                                                                                                                                        | (Ujala), Niger (Deomali,ONS-15) tomato Utkal Raja, Utkal Kumari, Utkal Urbasi. Cabbage (Pride of India, Golden Acre, Konark, Sujata, Vijay, Cauliflower (Snow ball, Improved Japanese, Himani), Okra (Utkal Gourab, Arka Anamika), and leafy vegetables to be sown to conserve soil moisture. And provide life saving irrigation as and when necessary |                           |
|                                                   |                                                  | Tomato (Utkal Deepti)                                                                                           | Utkal Kumari, Utkal Raja (determinate type)                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                        |                           |
|                                                   |                                                  | Brinjal (Blue star)                                                                                             | Utkal Anushree, Utkal Tarini                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                        |                           |
|                                                   |                                                  | Cow pea (SEB 2)                                                                                                 | Utkal Manika                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                        |                           |
|                                                   |                                                  | Lady’s finger (Anamika)                                                                                         | Utkal Gourav                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                        |                           |
|                                                   |                                                  | Chilli (Barsati lanka)                                                                                          | Kuchinda local, Utkal ava                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                        |                           |
|                                                   |                                                  |                                                                                                                 | Intercropping of arhar + groundnut (2 : 5)<br>Arhar var. ICPL 87, UPAS 120, TUR N-2<br>Arhar + Sesamum (2:4)<br>Maize + Cow pea (2:2)<br>Maize var. Navjot (HQPM-1)<br>Cow pea (Utkal Manika)<br>Yam : (Orissa Elite, Pusa Hemlata)<br>Arrararoot (White) |                                                                                                                                                                                                                                                                                                                                                        |                           |
|                                                   | Sole crops under rainfed medium lands : Rice     | Lalat, Manaswini, Naveen, Vijeta, MTU 1010, Konark, Jogesh and Surendra                                         | Provide life saving irrigation, from harvested rain water at reproductive stage and conserve soil moisture harvest the crop at physiological maturity stage                                                                                               |                                                                                                                                                                                                                                                                                                                                                        |                           |
|                                                   | Sole crops under rainfed medium low lands : Rice | Swarna, Pratikshya,Rani dhan, Sidhanta and Musuri                                                               | Provide life saving irrigation, and monitoring of pest surveillance, <i>paira</i> cropping of blackgram and greengram                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |                           |
|                                                   | Cropping system 1:                               |                                                                                                                 |                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                        |                           |
|                                                   | Rice-onion                                       | Rice variety: Medium duration (120d)<br>Lalat, Manaswini, Naveen, Vijeta, MTU 1010, Konark, Jogesh and Surendra |                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                        |                           |
| 2) Farming situation:                             |                                                  | Medium late (140-145 d)<br>Swarna, Pratikshya,Rani dhan, Sidhanta and Mahsuri                                   |                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                        |                           |

| Condition                                         |                            |                                                                                               | Suggested Contingency measures                                                                                                                                                       |                                                                                                                                                                                             |                           |
|---------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Terminal drought<br>(Early withdrawal of monsoon) | Major Farming situation    | Normal Crop/cropping system                                                                   | Crop management                                                                                                                                                                      | Rabi Crop planning                                                                                                                                                                          | Remarks on Implementation |
|                                                   |                            |                                                                                               | Onion variety : Nasik Red, N-53, Bhima Red.                                                                                                                                          | 10 kg seeds/ha, sowing time Nov-Dec, NPK 60:60:50 kg/ha as basal. 60 kg N and 60 kg K <sub>2</sub> O top dressed at 21 DAS followed by weeding hoeing and earthing up                       |                           |
|                                                   |                            | Cropping system 2:                                                                            |                                                                                                                                                                                      |                                                                                                                                                                                             |                           |
|                                                   | Rainfed medium lands       | Rice - fallow                                                                                 | Rice - greengram/blackgram/ water melon<br>Greengram variety : (Dhau, Kamdev, Durga)<br>Black gram: (Sarala, Prasad, Ujala)<br><br>Water melon: (Sugarbaby, Sugar pack, Black magic) | 25 kg seeds/ha, full NPK 20:40:40 kg/ha and PMS 500 kg/ha as full basal, line sowing 30X10cm<br><br>2kg seeds/ha, sowing time Jan, spacing 120cmX120cm, NPK 30:30:100 kg/ha                 |                           |
|                                                   | Rainfed rolling topography | Plantation crops (fruits local varieties)                                                     | Improved varieties                                                                                                                                                                   |                                                                                                                                                                                             |                           |
|                                                   |                            | Litchi                                                                                        | Seedless early, Mumbai early                                                                                                                                                         | Planting time Jun-July, spacing 7mX7m, pit size 1mX1mX1m, pit manuring : 60g N + 16g P + 60g K                                                                                              |                           |
|                                                   |                            | Citrus                                                                                        | Cino mandarine                                                                                                                                                                       |                                                                                                                                                                                             |                           |
|                                                   |                            | Mango                                                                                         | Amrapali, Malika                                                                                                                                                                     | Planting time July, spacing 5mX5m, pit size 1mX1mX1m, pit manuring : 80g N + 100g P + 60g K                                                                                                 |                           |
|                                                   |                            | Custard apple                                                                                 | Local improved                                                                                                                                                                       |                                                                                                                                                                                             |                           |
|                                                   |                            | Pisciculture in farm ponds with locally available species with inappropriate stocking density | Composite pisciculture in farm ponds<br>Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/ grasscarp)                                                                | 10,000 fry/ha or 5,000 fingerlings feeding 10% of the body weight i.e 2kg/day (twice during morning and evening) mix with multivitamin @ 2 tea spoon / kg feed. Cow dung 2.5q /ha should be |                           |

| Condition                                         |                         |                             | Suggested Contingency measures |                                                                                                                                                                                                                                                                                                          |                           |
|---------------------------------------------------|-------------------------|-----------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Terminal drought<br>(Early withdrawal of monsoon) | Major Farming situation | Normal Crop/cropping system | Crop management                | Rabi Crop planning                                                                                                                                                                                                                                                                                       | Remarks on Implementation |
|                                                   |                         |                             |                                | applied in 10-15 days interval for 5-6 times depending on the growth of the planktons. Using Cifax @ 1 lit/ha or lime and turmeric powder (10:1) ratio applied @ 200 kg/ha during the month of November and January to control Ulcerative disease syndrome (UDS) and Epizootic ulcerative syndrome (EUS) |                           |

#### Drought - Irrigated situation: Not experienced

| Condition                                              |                                                            |                               | Suggested Contingency measures |                                                                                                                                                                                                   |                                            |
|--------------------------------------------------------|------------------------------------------------------------|-------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
|                                                        | Major Farming situation                                    | Normal Crop/cropping system   | Change in crop/cropping system | Agronomic measures                                                                                                                                                                                | Remarks on Implementation                  |
| Delayed release of water in canals due to low rainfall | Low rainfall lateritic soils :<br>Unbunded rainfed uplands | Cropping system 1: rice-onion | Rice-onion                     | Manaswini, Pratikshya, Navin, Hybrid: (Ajaya, Rajlaxmi)<br>Onion: Nasik Red, N-53, Bhima Super, Agrifound Light Red                                                                               | Assured irrigation through shallow tanks   |
|                                                        |                                                            | Cropping system 2:rice-fallow | Rice-Sunflower                 | Manaswini, Pratikshya, Navin, Hybrid: (Ajaya, Rajlaxmi)<br>Sunflower (KBSH-1) 5kg seeds/ha, spacing 60cmX30 cm, Gypsum 250kg/ha, 60:80:60 kg N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O/ha | Assured irrigation through deep bore wells |

#### Resource management technologies

- Desilting of water harvesting structures for augmentation of water storage, recharging ground water and for critical irrigation during kharif and for cropping intensification during rabi
- In-situ moisture conservation through ridge and furrow method in radish and cowpea
- Green manuring with dhaincha to improve soil fertility

- Soil test based nutrient application for higher yield and to rationalize fertilizer application
- System of Rice Intensification with improved rice variety Pratikshya
- Vermicomposting using crop residues for soil health improvement and to rationalise application of chemical fertilizers
- Drought tolerant paddy var. Sahbhagi Dhan to minimize risk and enhance yields
- Crop diversification with hybrid maize and sweet corn variety- Sugar-75 from traditional rice in upland conditions
- Short duration green gram variety-IPM 02-03 after rice crop for cropping intensification
- Crop diversification from rice to groundnut (var. Devi) and okra (var. Pusa) under limited moisture availability
- Staggered planting in community nursery for delayed onset of monsoon
- Introduction of high yielding varieties of vegetables brinjal var. Swarna Shyamali, tomato var. Arka Rakshak, onion var. Bhima Super and cabbage var. Golden Acre for higher income with harvested water
- Short duration drought tolerant varieties of rice, Jogesh and Mandakini for upland conditions
- Colour synthetic poultry: Rainbow rooster and Vanaraja for higher egg laying capacity and for higher returns
- Khaki Campbell for higher body weight gain and egg laying capacity compared to desi ducks
- Breed up gradation of local goat with Black Bengal for minimising risk and better profitability
- Introduction of hydroponic fodder cultivation to reduce dependence on high cost concentrates
- Low cost goat housing for reducing mortality and to reduce heat stress
- Cultivation of Hybrid Napier (CO4) for increasing green fodder availability during lean season
- Supplementation of mineral and vitamin mixture during lean season to enhance milk productivity
- Low cost Azolla production as supplementary cattle feed during lean season
- Composite fish culture of Catla, Rohu and Mrigal with harvested water in farm ponds

# Actionable Comprehensive Plans for Contingency

|       |        |          |           |
|-------|--------|----------|-----------|
| State | ORISSA | District | KENDUJHAR |
|-------|--------|----------|-----------|

## Rainfall info (mm)

| Month/season | Normal rainfall (mm) | Expected deficiency, % | Expected rainfall (mm) |
|--------------|----------------------|------------------------|------------------------|
| June-Sep     | 1138.9               | More than 19%          | Less than 922.509      |
| June         | 239.5                |                        |                        |
| July         | 302.5                |                        |                        |
| August       | 320.1                |                        |                        |
| September    | 276.8                |                        |                        |

Forecast probability for the season (as per IMD):Below Normal

## Irrigation info:

|                     |        |                       |        |
|---------------------|--------|-----------------------|--------|
| Net irrigated area: | 18502  | Gross irrigated area: | 18837  |
| Net Rainfed area    | 158846 | Gross rainfed area    | 162688 |

## Source wise irrigation area details (ha)

| Source of irrigation | Net   | Gross |
|----------------------|-------|-------|
| Canals               | -     | 3245  |
| Wells                | -     | 15375 |
| Tanks                | -     | 217   |
| Other sources        | 18502 | -     |

## Crop Profile (Kharif)

### Cereals

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Rice      | 144403          | 6867                | 137536            |
| 2    | Jowar     | -               | -                   |                   |
| 3    | Maize     | 2802            | 15                  | 2787              |
| 4    | Bajra     | -               |                     |                   |
| 5    | Ragi      | 1281            | 68                  | 1213              |

### Pulses& Oilseeds

| S.No | Crop name      | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|----------------|-----------------|---------------------|-------------------|
| 1    | Arhar/ Redgram | -               |                     |                   |
| 2    | Groundnut      | 669             | 133                 | 536               |

|   |           |     |     |     |
|---|-----------|-----|-----|-----|
| 3 | Sesamum   | 680 | 267 | 413 |
| 4 | Soyabean  | -   |     |     |
| 5 | Sunflower | -   |     |     |
| 6 | Castor    | -   |     |     |

#### Fibre

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Cotton    | -               |                     |                   |
| 2    | Jute      | 432             |                     | 432               |
| 3    | Mesta     | -               |                     |                   |
| 4    | Sunhemp   | -               |                     |                   |

#### Other crops

| S.No | Crop name          | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|--------------------|-----------------|---------------------|-------------------|
| 1    | Sugarcane          | 2               | 2                   | 0                 |
| 2    | Tobacco            | -               |                     |                   |
| 3    | Guar seed          | -               |                     |                   |
| 4    | Other Fodder crops | -               |                     |                   |

#### Crop Plan- Beginning of the season

Info for different cropping/farming systems ( 4 weeks delay) as available in the plan be copied here.

| Condition                      |                         |                      | Suggested Contingency measures |                    |                           |
|--------------------------------|-------------------------|----------------------|--------------------------------|--------------------|---------------------------|
| Early season drought (delayed) | Major Farming situation | Normal Crop/cropping | Change in crop/cropping system | Agronomic measures | Remarks on Implementation |



|                                                         |                                                               |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                  |
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| <p>Delay by 4 weeks</p> <p>July 2<sup>nd</sup> week</p> | <p>Medium elevation medium rainfall Lateritic soil Upland</p> | <p>Rice-fallow</p> | <ul style="list-style-type: none"> <li>• Select extra early upland Rice variety like Heera</li> <li>• Crop diversification of non-Paddy crops like Pulses (Arhar, Greengram, Blackgram), Oil seeds (Niger, Groundnut), vegetables (Okra, Brinjal .Tomato Cow pea, Cucurbits), Tuber crops(Sweetpot ato,Yam)etc.</li> <li>• Shortdurationvaritiesof Maize can be grown.</li> <li>• Arhar:UPAS-120,ICPL-87,TURN-2</li> <li>• Green gram: Dhali, Kamdev,Durga</li> <li>• Black gram: Sarala,Prasad,Ujala</li> <li>• Niger:Utkalniger-1</li> <li>• Groundnut:TMV-2,Devi,Smruti</li> <li>• Yam:(Orissa Elite,PusaHemlata)</li> <li>• Sweet potato: Gouri /Kishan</li> <li>• Tomato :Utkal Kumari, Utkal Raja Blue star,Brinjal: Green star, Utkal Anushree, UtkalTarini</li> <li>• Cowpea: UtkalManika</li> </ul> | <ul style="list-style-type: none"> <li>• Building soilorganicmatter by applicationofFYM</li> <li>• Insitu soilwaterconservation measurelikesummerploughing, ploughingacrosstheslope, contour farming, ridge and furrowmethodofplanting, mulching,</li> <li>• Seed treatment of pulses with CaCl<sub>2</sub> solution 0.2% for 20 hoursforimprovingdrought resistanceinplants</li> </ul> | <p>RKVY,NFSMand ATMA.Forawareness generation,trainin gandtimesupplyof inputs</p> |
|---------------------------------------------------------|---------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|

|  |  |                                |                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                     |
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|  |  | Rice-<br>Black gram/Horse gram | <ul style="list-style-type: none"> <li>• Select extra early up land Rice variety like Heera</li> <li>• Growing pulses like Black gram, Greengram or vegetablelike off-season Radish</li> <li>• Green gram: Dhali, Kamdev, Durga</li> <li>• Black gram: Sarala, Prasad, Ujala</li> <li>• Horse gram: Urmi</li> <li>• Radish: Pusachetki, Delhiwhite</li> </ul> | <ul style="list-style-type: none"> <li>• Building soil organic matter by application of FYM</li> <li>• In situ soil water conservation measure like summer ploughing, ploughing across the slope, contour farming, ridge and furrow method of planting, mulching,</li> <li>• Seed treatment with CaCl<sub>2</sub> solution 0.2% for 20 hours for improving drought resistance in plants in pulse crops</li> </ul> | RKVY, NFSM and ATMA. For awareness generation, training and timely supply of inputs |
|--|--|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|

|  |  |                 |  |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                        |                                                                                    |
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|  |  | Maize<br>-Toria |  | <ul style="list-style-type: none"> <li>• Grow short duration Maize varieties like Navjot, Kiran, VL16,DHM-109</li> <li>• Adopt maize based inter cropping system like Maize+Cowpea(2:2)</li> <li>• Maize+Runnerbean(2:2)</li> <li>• Cowpea: SEB-2,UtkalManik</li> <li>• Runnerbean: Suphala</li> <li>• Improved Toria variety like M-27</li> </ul> | <ul style="list-style-type: none"> <li>• Summer ploughing across the slope, bio-fertilizer inoculation,</li> <li>• Building soil organic matter by application of FYM</li> <li>• Seed treatment with CaCl<sub>2</sub> solution 0.2% for 20 hours for improving drought resistance in plants</li> </ul> | RKVY,NFSM and ATMA. For awareness generation, training and timely supply of inputs |
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|  |                        |                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                     |
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|  | Medium<br>land/Lowland | Rice-Chick<br>pea/Fieldpea |  | <ul style="list-style-type: none"> <li>Go for transplanting of 95-100 days duration variety like Khandagiri, Parihata, Jogesh, Bandana</li> <li>Growing Fieldpea (Rachana), Lentil and Chickpea (JG 11/JAKI-9218) after paddy as a intercrop.</li> <li>Bund planting with Arhar, Cowpea, Greengram, Black gram etc.</li> <li>Adopt agroforestry with bund plantation with Gmelina arborea, Leucaena leucocephala, L. diversifolia, Gliricidia sepium, Annona squamosa etc.</li> <li>Grow grasses like Stylosanthes, Dactyloctenium aegyptium etc. in the field bunds for fodder purpose.</li> </ul> | <ul style="list-style-type: none"> <li>Raising community nursery in the vicinity of water sources like village tanks and delay transplanting</li> <li>Sowing of paddy nursery at 15 days interval. More area may be put under nursery</li> <li>Apply life saving irrigation to maintain nursery seedlings.</li> <li>Application of vermicompost/bio-fertilizer in the nursery for early seedling growth</li> <li>Go transplanted paddy and avoid burning of rice</li> <li>Repair and strengthen field bunds.</li> <li>Heightening of field bunds to conserve rainwater</li> </ul> | RKVY, NFSM and ATMA. For awareness generation, training and timely supply of inputs |
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|--|--|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  | Rice-Toria/Linseed | <ul style="list-style-type: none"> <li>• Selection of short duration variety like Lalat, Manaswini, Naveen,, MTU1010, Konark, and Surendra</li> <li>• Bund planting with Arhar, Cowpea, Green gram, Black gram etc.</li> <li>• Growing Linseed, Toria after paddy.</li> <li>• Linseed variety: Kiran</li> <li>• Toria variety: Anuradha, Parvati</li> <li>• Adopt agroforestry with bundplantation with Gmelina arborea, Leucaena leucocephala, L. diversifolia, Gliricidia sepium, Ananas comosus etc</li> </ul> | <ul style="list-style-type: none"> <li>• Raising community nursery in the vicinity of water sources like village tanks</li> <li>• Sowing of paddy nursery at 15 days interval. More area may be put under nursery</li> <li>• Apply life saving irrigation to maintain nursery seedlings</li> <li>• Application of fertilizer and vermin compost/ bio-fertilizer in the nursery for early seedling growth and sowing of pre-germinated seed.</li> <li>• Application of FYM to increase the WHC of soil.</li> <li>• Repair field bunds to protect seepage loss.</li> </ul> | RKVY, NFSM and ATMA. For awareness generation, training and timely supply of inputs |
|--|--|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|

#### Contingency measures- Mid season

Info for different cropping/farming systems ( mid season) as available in the plan be copied here.

| Condition                                                                         |                                  |                             | Suggested Contingency measures                                                                                        |                                                |                           |
|-----------------------------------------------------------------------------------|----------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5mm) period) | Major Farming situation          | Normal Crop/cropping system | Crop management                                                                                                       | Soil nutrient & moisture conservation measures | Remarks on Implementation |
| At vegetative stage                                                               | Medium elevation medium rainfall | Rice-fallow                 | <ul style="list-style-type: none"> <li>• Thinning of excess plants, weeding, mulching and maintain optimum</li> </ul> | Life saving irrigation                         | NFSM, ATMA                |

|  |                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |
|--|---------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | Lateritic<br>Upland |  | <p>plant population<br/>Lime and FYM<br/>application</p> <ul style="list-style-type: none"> <li>•Apply Monocortophus @ 2 ml/liter of water to control mealy bug and thrips</li> <li>•Water stress during August and September may lead to severe incidence of blast and brown spot.<br/>Application of tricyclazole @ 0.6 ml/liter of water or Kasuagamycin @ 2ml/liter of water at 15 days interval</li> </ul> <p>Will reduce the incidence of blast.</p> |  |  |
|--|---------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

|  |  |                                              |                                                                                                                                                                                                                                                                                                                                                           |                                                     |           |
|--|--|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------|
|  |  | Rice-<br>Pulses(Blackgram)<br><br>Horsegram/ | <ul style="list-style-type: none"> <li>• Maintain optimum land population ,Lime and FYM application</li> <li>• Apply Monocrotophus @2ml/liter of water to control mealybug and thrips</li> <li>• Application of tricyclazole@ 0.6 ml/liter of water or Kasugamycin@2 ml/liter of water at 15 days interval will reduce the incidence of blast.</li> </ul> | Life saving irrigation<br>Weeding,<br><br>Mulching  | NFSM,ATMA |
|  |  | Maize-Toria                                  | <ul style="list-style-type: none"> <li>• Complete hoeing and weeding to provide dust mulch</li> <li>• Lime and FYM application</li> <li>• Ridge and furrow method of Planting</li> </ul>                                                                                                                                                                  | Life saving irrigation<br><br>Compartmental bunding | NFSM,ATMA |
|  |  |                                              | <ul style="list-style-type: none"> <li>• Soil application of chloropyrifus @ 2 ml/liter of water to prevent termite attack</li> <li>• Foliar application of mancozeb@3 g/liter of water against Tarsicum leaf blight</li> </ul>                                                                                                                           |                                                     |           |

|  |  |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                 |               |
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|  |  | Mediumland/Lowland<br>Rice-Pulse(Chickpea/Field<br>Pea/Lentil) | <ul style="list-style-type: none"> <li>Avoid beushaning (blind cultivation) in Rice, if the crop is morethan45daysold.</li> <li>Weed out the field without waiting for rainfall.</li> <li>Go for gap filling using seedling of sameageorclonaltillerstoha vea uniform distribution of plant.</li> <li>Withhold N fertilizer application up to receipt of rainfall.</li> <li>Foliar spray of 2% ureasolution</li> <li>Apply Monocortophus@2ml/liter of water to control mealy bug and thrips</li> <li>Application of tricyclazole@ 0.6 ml/liter of water or Kasuagamycin@2 ml/liter of water at 15 days interval will reduce the incidence</li> </ul> | On-farm water harvesting structures&Lifesavingirrigation<br><br>Strengthen the fieldbunds and closetheholestocheckseepage loss. | NFSM,A<br>TMA |
|  |  | Mediumland/Lowland                                             | -do-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | On-farmwaterharvestingstructures &Lifesaving                                                                                    | NFSM,A<br>TMA |
|  |  | Rice-Oilseed<br>(Toria/Linseed)                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Irrigation.                                                                                                                     |               |

| Condition                          |                            |                             | SuggestedContingencymeasures |                                             |                            |
|------------------------------------|----------------------------|-----------------------------|------------------------------|---------------------------------------------|----------------------------|
| Mid seasondro ught (long dryspell) | Maj orFa rmin gsitu atio n | NormalCrop/croppi ng system | Cropmanagement               | Soilnutrient&moi sture conservationmea sure | Remarks on Implementatio n |



|                                 |                                                                                 |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                      |            |
|---------------------------------|---------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| At flowering/<br>Fruiting stage | Medium<br>elevation<br><br>Medium<br>rainfall<br><br>Laterite<br>soil<br>Upland | Rice-fallow | <ul style="list-style-type: none"> <li>• Provide protective irrigation through recycling of harvest drainwater. Provide irrigation at critical stages such as flowering, grain filling etc.</li> <li>• Incidence of Rice mealybug may occur. Apply methyl demeton@ 500ml/ha or Imidaclopid@ 100ml/ha</li> <li>• Grass hopper incidence may also occur. Dusting of chlorpyrifos@ 25kg/ha in the field bunds recommended.</li> <li>• Termite incidence may occur apply chlorpyrifos@ 1lit/ha</li> <li>• Application of tricyclazole@ 0.6 ml/liter of water or Kasugamycin @ 2 ml/liter of water at 15 days interval will reduce the incidence of blast</li> </ul> | <ul style="list-style-type: none"> <li>• Judicious use of water from farm pond</li> <li>• Life saving irrigation</li> <li>• Strengthening of field bunds.</li> </ul> | NFSM, ATMA |
|---------------------------------|---------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|

|  |                          |                                        |                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                          |           |
|--|--------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|  |                          | Rice-pulse<br>(Black gram/Chick pea)   | –<br>do-                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>•Judicious use of water from farm pond</li> <li>•Life saving irrigation</li> <li>•Strengthening of field bunds.</li> </ul>                                                                                                                                                        | NFSM,ATMA |
|  |                          | MaizeToria                             | <ul style="list-style-type: none"> <li>•Termite incidence may occur apply chloropyriphus@2ml/ liter of water</li> <li>•If drought occurs at early maturing stage, harvest the green cobs and sell in the market.</li> <li>•Foliar application of mancozeb@ 3 g/liter of water against Tercicum leaf blight</li> </ul>                                                                              | <ul style="list-style-type: none"> <li>•Provide protective irrigation through recycling of harvested rainwater.</li> <li>•Provide irrigation at critical stages such as flowering, grain filling etc. in alternate furrows in wide spaced crops.</li> <li>• Organic mulching</li> <li>Manual weeding or apply</li> </ul> | NFSM,ATMA |
|  | Medium land/<br>Low land | Rice-Pulse(Chick pea/Field Pea/Lentil) | <ul style="list-style-type: none"> <li>•Provide protective irrigation through recycling of harvested rain water.</li> <li>•With hold N fertilizer application up to receipt of rainfall.</li> <li>•Apply Potassic fertilizers wherever soil moisture allows or wait up to receipt of rainfall.</li> <li>•Strengthen the field bunds and close the drainage holes to check seepage loss.</li> </ul> | <ul style="list-style-type: none"> <li>•Judicious use of water from farm pond</li> <li>•Life saving Irrigation</li> </ul>                                                                                                                                                                                                | NFSM      |
|  |                          | Rice-oilseed (Toria/ Linseed)          | -do-                                                                                                                                                                                                                                                                                                                                                                                               | -do-                                                                                                                                                                                                                                                                                                                     | -do-      |

# Contingency measures- End of the season

Info for different cropping/farming systems ( terminal drought) as available in the plan be copied here.

| Condition                                                                  |                                                                     |                                      | SuggestedContingencymeasures                                                                                                                                                                                                                                                                                                                                             |                      |                                 |
|----------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------|
| Termin<br>al<br>droug<br>ht<br>(Early<br>withdra<br>wal of<br>monso<br>on) | MajorFarmingsitu<br>ation                                           | NormalCrop/cro<br>pping system       | Cropmanagement                                                                                                                                                                                                                                                                                                                                                           | Rabi<br>Cropplanning | Remarkson<br>Implementat<br>ion |
|                                                                            | Medium elevation<br><br>Medium rainfall<br>Lateritic soil<br>Upland | Rice-fallow                          | <ul style="list-style-type: none"> <li>• Provide protective irrigation through recycling of harvested rain water. Provide irrigation at critical stages such as flowering, grain filling etc.</li> <li>•Application of tricyclazole@ 0.6 ml/literofwaterorca suagamycin@2 ml/liter of waterat10 daysintervaltoprev ent outbreak of foliar, node and neckblast</li> </ul> |                      | NFSM, ATMA                      |
|                                                                            |                                                                     | Rice-Pulse<br>(Blackgram/Horse gram) | <ul style="list-style-type: none"> <li>•Provide protectiveirrigation through recyclingof harvestedrainwater r. Provide irrigation at criticalstages such as flowering, grain filling etc.</li> <li>•Application of tricyclazole@ 0.6 ml/liter of water or casuagamycin@2 ml/liter of water at 10</li> </ul>                                                              |                      |                                 |
|                                                                            |                                                                     | UplandMaize-Toria                    | <ul style="list-style-type: none"> <li>• Provide protective irrigation through recyclingofharve stedrain water. Provide irrigationatcritic alstages such as flowering, grain fillingetc.</li> </ul>                                                                                                                                                                      |                      |                                 |

|  |                     |                                        |                                                                                                                                                                                      |                                                                                                                |  |
|--|---------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--|
|  | Mediumland/Low land | Rice-Pulse(Chick pea/Field pea/Lentil) | <ul style="list-style-type: none"> <li>• Provide protective irrigation</li> <li>• Arrange of crop insurance in case of crop failure</li> </ul>                                       | Sow seeds for paira cropping of blackgram, lentil, chickpea, lathyrus, before 15 days of rice crop harvesting. |  |
|  |                     |                                        | • Strengthen the field bunds                                                                                                                                                         |                                                                                                                |  |
|  |                     | Rice-Oilseed (Toria/Linseed)           | <ul style="list-style-type: none"> <li>• Provide protective irrigation</li> <li>• Arrange of crop insurance in case of crop failure</li> <li>• Strengthen the field bunds</li> </ul> |                                                                                                                |  |

#### Under drought for irrigation condition

Drought-Irrigated situation

| Condition                                                    |                                                                            |                                       | Suggested Contingency measures                                                                                                                                                              |                                                                                                                                                                                                                                                                                                              |                           |
|--------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
|                                                              | Major Farming situation                                                    | Normal Crop/cropping system           | Change in crop/cropping system                                                                                                                                                              | Agronomic measures                                                                                                                                                                                                                                                                                           | Remarks on Implementation |
| Delayed release<br>Of water in<br>Canals due to low rainfall | Medium elevation<br><br>Irrigated<br>Lateritic soil<br>Mediumland/Low land | Rice-Pulse(Chickpea/field pea/Lentil) | <ul style="list-style-type: none"> <li>• Prefer Varieties like Khandagiri, Sahabagi Dhan</li> <li>• Utilization of water from other sources like pond water, harvested rainwater</li> </ul> | <ul style="list-style-type: none"> <li>• Raise community nursery of Rice for transplanting to save time.</li> <li>• Apply FYM to increase the WHC of soil.</li> <li>• Reduction of conveyance losses during irrigation</li> <li>• Weed management</li> <li>• Irrigation at critical growth stages</li> </ul> | -                         |

|  |  |                                  |                                                                                                                                                                                                                      |                                                                                                                                                                       |           |
|--|--|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|  |  | Rice-Oil seed<br>(Toria/Linseed) | <ul style="list-style-type: none"> <li>•Prefer varieties like Khandagiri, Sahabhagi Dhan</li> <li>•Utilization of water from other sources like pond water, harvest drain water</li> <li>•Weed management</li> </ul> | <ul style="list-style-type: none"> <li>• Raise community nursery of rice for transplanting to save time.</li> <li>• Apply FYM to increase the WHC of soil.</li> </ul> | RKVY,NFSM |
|--|--|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|

| Condition |                         |                             | Suggested Contingency measures        |                                                   |                           |
|-----------|-------------------------|-----------------------------|---------------------------------------|---------------------------------------------------|---------------------------|
|           | Major Farming situation | Normal Crop/cropping system | Change in crop/cropping system        | Agronomic measures                                | Remarks on Implementation |
|           |                         |                             | •Irrigation at critical growth stages | •Reduction of conveyance losses during irrigation |                           |

| Condition                                              |                                                                |                                        | Suggested Contingency measures                                                                                                                                                                                                        |                                                                                                                                                                                  |                           |
|--------------------------------------------------------|----------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
|                                                        | Major Farming situation                                        | Normal Crop/cropping system            | Change in crop/cropping system                                                                                                                                                                                                        | Agronomic measures                                                                                                                                                               | Remarks on Implementation |
| Limited release of water in canals due to low rainfall | Medium elevation irrigated Lateritic soil/ Medium land/Lowland | Rice-Pulse (Chickpea/field pea/Lentil) | <ul style="list-style-type: none"> <li>•Varieties like Khandagiri, Sahabhagi dhan,</li> <li>•Utilization of water from other sources like pond water, harvested rain water</li> <li>•Motivate the tail end farmers to grow</li> </ul> | -do-                                                                                                                                                                             | RKVY,NFSM                 |
|                                                        |                                                                | Rice-Oil seed(Toria/Linseed)           | -do-                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>• Raising community nursery</li> <li>• Apply FYM to increase the WHC of soil.</li> <li>• Reduction of conveyance losses during</li> </ul> |                           |

| Condition |                         |                             | Suggested Contingency measures |                    |                           |
|-----------|-------------------------|-----------------------------|--------------------------------|--------------------|---------------------------|
|           | Major Farming situation | Normal Crop/cropping system | Change in crop/cropping system | Agronomic measures | Remarks on Implementation |

|                                                                                                      |                                                                               |                                              |                                                                                                                                                                                                                                                         |      |           |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------|
| No release of<br>Water in<br>canals<br>underde<br>layed<br>onsetof<br>monsoo<br>nin<br>catchme<br>nt | Medium elevation<br><br>Irrigated<br>Lateritic soil<br>Mediumland/<br>Lowland | Rice-<br>Pulse(Chickpea/field<br>pea/Lentil) | <ul style="list-style-type: none"> <li>•Varsities like Khandagiri, Sahabagidhan,</li> <li>•Utilization of water from other sources like pond water, harvested rainwater</li> <li>•Motive farmersto grow low duty cropslikepulsesandoilseeds.</li> </ul> | -do- | RKVY,NFSM |
|                                                                                                      |                                                                               | Rice-Oilseed<br>(Toria/Linseed)              | -do-                                                                                                                                                                                                                                                    | -do- |           |

| Condition                                                                             | MajorFarmingsituation                                               | NormalCrop/<br>cropping<br>system                             | SuggestedContingencymeasures                                               |                                 |                                         |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------|-----------------------------------------|
|                                                                                       |                                                                     |                                                               | Changeincrop/cropp<br>ingsystem                                            | Agronomicm<br>easures           | Remarks<br>on<br><br>Implemen<br>tation |
| Lackofinflows<br><br>intotanksduetoinsufficient<br><br>/delayedonsetof<br><br>monsoon | Mediumelevation<br><br>irrigatedLateriticsoilMediu<br>mland/Lowland | Rice-<br>Pulse(Chickpea/field<br>pea/Lentil)                  | Go for short duration<br>varieties like<br><br>Khandagiri,<br>Sahabagidhan | Raising<br>community<br>nursery | RKVY,NFS<br>M                           |
|                                                                                       |                                                                     | Mediumland/Lowland<br><br>Rice-Oilseed<br><br>(Toria/Linseed) | -do-<br><br>-                                                              | -<br>d<br>o<br>-                | -<br>do<br>-                            |

| Condition                                          |                                                              |                                         | SuggestedContingencymeasures                                                                                                                                                                  |                                                                                                                                                                              |                          |
|----------------------------------------------------|--------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
|                                                    | MajorFarming situation                                       | NormalCrop/cropping system              | Changeincrop/croppings ystem                                                                                                                                                                  | Agronomicmeasures                                                                                                                                                            | Remarkson Implementation |
| Insufficient groundwater rechargeduetolo wrainfall | Medium elevation irrigatedLateritic soil/Medium land/Lowland | Rice- Pulse(Chickpea/fi eld pea/Lentil) | <ul style="list-style-type: none"> <li>Sow drought tolerant non paddy crops like, Greengram, Blackgram, Cowpea in place of Rice</li> <li>Harvestingatphysiolog icalmaturity stage.</li> </ul> | <ul style="list-style-type: none"> <li>Ground water recharges through developme nt of percolation tankand farm ponds.</li> <li>Mulching to conserve soil moisture</li> </ul> | NREG A, ATMA, RKVY, NFSM |

| Conditio n |                           |                              | SuggestedContingencymeasures   |                                                                                  |                          |
|------------|---------------------------|------------------------------|--------------------------------|----------------------------------------------------------------------------------|--------------------------|
|            | Major Farmin g situatio n | NormalCrop/croppin g system  | Change in crop/croppingsyste m | Agronomic measures                                                               | Remarkson Implementation |
|            |                           |                              |                                | <ul style="list-style-type: none"> <li>Takesoilconservation measures.</li> </ul> |                          |
|            |                           | Rice-Oilseed (Toria/Linseed) | -do-                           | -do-                                                                             |                          |

#### Resource management technologies

- Desilting of water harvesting structures for augmentation of water storage, recharging ground water and for critical irrigation during kharif and for cropping intensification during rabi
- In-situ moisture conservation through ridge and furrow method in radish and cowpea
- Green manuring with dhaincha to improve soil fertility
- Soil test based nutrient application for higher yield and to rationalize fertilizer application
- System of Rice Intensification with improved rice variety Pratikshya
- Vermicomposting using crop residues for soil health improvement and to rationalise application of chemical fertilizers
- Drought tolerant paddy var. Sahbhagi Dhan to minimize risk and enhance yields
- Crop diversification with hybrid maize and sweet corn variety- Sugar-75 from traditional rice in upland conditions
- Short duration green gram variety-IPM 02-03 after rice crop for cropping intensification

- Crop diversification from rice to groundnut (var. Devi) and okra (var. Pusa) under limited moisture availability
- Staggered planting in community nursery for delayed onset of monsoon
- Introduction of high yielding varieties of vegetables brinjal var. Swarna Shyamali, tomato var. Arka Rakshak, onion var. Bhima Super and cabbage var. Golden Acre for higher income with harvested water
- Short duration drought tolerant varieties of rice, Jogesh and Mandakini for upland conditions
- Colour synthetic poultry: Rainbow rooster and Vanaraja for higher egg laying capacity and for higher returns
- Khaki Campbell for higher body weight gain and egg laying capacity compared to desi ducks
- Breed up gradation of local goat with Black Bengal for minimising risk and better profitability
- Introduction of hydroponic fodder cultivation to reduce dependence on high cost concentrates
- Low cost goat housing for reducing mortality and to reduce heat stress
- Cultivation of Hybrid Napier (CO4) for increasing green fodder availability during lean season
- Supplementation of mineral and vitamin mixture during lean season to enhance milk productivity
- Low cost Azolla production as supplementary cattle feed during lean season
- Composite fish culture of Catla, Rohu and Mrigal with harvested water in farm ponds



# Actionable Comprehensive Plans for Contingency

|       |        |          |         |
|-------|--------|----------|---------|
| State | ORISSA | District | KHORDHA |
|-------|--------|----------|---------|

## Rainfall info (mm)

| Month/season | Normal rainfall (mm) | Expected deficiency, % | Expected rainfall (mm) |
|--------------|----------------------|------------------------|------------------------|
| June-Sep     | 1087.4               | More than 19%          | Less than 880.794      |
| June         | 181.3                |                        |                        |
| July         | 311.4                |                        |                        |
| August       | 305.6                |                        |                        |
| September    | 289.1                |                        |                        |

Forecast probability for the season (as per IMD):Above Normal

## Irrigation info:

|                     |       |                       |       |
|---------------------|-------|-----------------------|-------|
| Net irrigated area: | 24706 | Gross irrigated area: | 30497 |
| Net Rainfed area    | 62668 | Gross rainfed area    | 77048 |

## Source wise irrigation area details (ha)

| Source of irrigation | Net   | Gross |
|----------------------|-------|-------|
| Canals               | -     | 27568 |
| Wells                | -     | 2853  |
| Tanks                | -     | 76    |
| Other sources        | 24706 | -     |

## Crop Profile (Kharif)

### Cereals

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Rice      | 86343           | 23097               | 63246             |
| 2    | Jowar     | -               | -                   |                   |
| 3    | Maize     | 8               | 1                   | 7                 |
| 4    | Bajra     | -               |                     |                   |
| 5    | Ragi      | 40              | 11                  | 29                |

## Pulses& Oilseeds

| S.No | Crop name      | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|----------------|-----------------|---------------------|-------------------|
| 1    | Arhar/ Redgram | -               |                     |                   |
| 2    | Groundnut      | 86              | 86                  | 0                 |
| 3    | Sesamum        | 111             | 102                 | 9                 |
| 4    | Soyabean       | -               |                     |                   |
| 5    | Sunflower      | -               |                     |                   |
| 6    | Castor         | -               |                     |                   |

## Fibre

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Cotton    | -               |                     |                   |
| 2    | Jute      | -               |                     |                   |
| 3    | Mesta     | -               |                     |                   |
| 4    | Sunhemp   | -               |                     |                   |

## Other crops

| S.No | Crop name          | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|--------------------|-----------------|---------------------|-------------------|
| 1    | Sugarcane          | 20              | 20                  | 0                 |
| 2    | Tobacco            | -               |                     |                   |
| 3    | Guar seed          | -               |                     |                   |
| 4    | Other Fodder crops | -               |                     |                   |

## Crop Plan

| Condition                                  |                                                                                                            |                                                         | Suggested Contingency measures                                                                                                                                                                                                                                                                                                |                                                                                                                                 |                                                             |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Early season drought (delayed onset)       | Major Farming situation <sup>a</sup>                                                                       | Normal Crop/cropping system <sup>b</sup>                | Change in crop/cropping system <sup>c</sup>                                                                                                                                                                                                                                                                                   | Agronomic measures <sup>d</sup>                                                                                                 | Remarks on Implementation <sup>e</sup>                      |
| Delay by 4 weeks (July 3 <sup>rd</sup> wk) | 1) Lateritic upland situation (Bhubaneswar,Jatni, Begunia, Bolagarh,Parts of Banapur,Tangi,Chilika Blocks) | a) Rice-fallow<br>b) Paddy-black gram/ green gram/Arhar | i. Grow extra early paddy var. Kalinga-III, Heera, Rudra, Pathara, Neela.<br>ii)Crop substitution with non paddy crops like ragi (Divyasingh, Champabati, Neelachal), Maize(Navot, Pragati,Shakti-1,Ganga-6,Ganga-11), Black gram (Pant U- 30, Ujala, Sarala,Prasad),Green gram ( Sujata, Durga, PDM 54,Kamdev), sesame (Uma, | i.Summer ploughing, land shaping, bunding & conserving soil moisture<br>ii. Apply full P, K and 20% N of recommended dose along | Supports through NFSM, NREGS, IWMP, ISOPOM can be provided. |

|  |                                                                                                                 |                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                             |  |
|--|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |                                                                                                                 |                                            | Nirmala and Prachi) and arhar (UPAS120).<br>Iii)Intercropping of Rice + Arhar, Maize + Cowpea                                                                                                                                                                                                                                                                                                                                                                                               | with FYM in seed row.<br>iii.Inter cropping of Rice + Arhar (5:2) & Maize + Cowpea (2:2)<br>iii. Ridging in maize.                                                                                                                                                          |  |
|  |                                                                                                                 | c)<br>Vegetable<br>s- Fallow               | i.Plant Yam (Hatikhoj, Orissa Elite) and Elephant Foot Yam (Gajendra) in field bunds<br>ii.Grow bittergourd (Nakhara improved, Prachi, Vivek,Preeti), bottle gourd (P.S.P.R.), ridge gourd(Satapatri), pumpkin (cvVaidyabati, Guamal), guar (cv. Pusa Mausumi) , Sweet potato( Pusa Safed, Samrat ) ,Brinjal (Utkal Keshari, Bluestar,Green Long Improved),Chilli (Utkal Ava, Suryamukhi), Okra (Utkal Gaurav, OH152,OH016,Mahyco-10) ,Cow pea (Utkal Manika,Maharani), Guar (PusaMausumi). | i. More FYM to be applied in seed row<br>ii.Adoption of closer spacing<br>iii. Life saving irrigation<br>iv.Interculture operations viz. weeding and thinning to maintain adequate plant population per unit area of the crop.<br>v.Soil mulching by polythene/ plant parts |  |
|  | 2) Lateritic medium land situation (Bhubaneswar,Jatni, Begunia, Bolagarh,Parts of Banapur,Tangi,Chilika Blocks) | a) Paddy - Black gram / Green gram /Sesame | I.Transplant age old seedlings of paddy (120-130days) varieties like, Lalat, Surendra, MTU-1010, Swarna, Pratikshya, Chandan, Padmini.                                                                                                                                                                                                                                                                                                                                                      | i. Delay the sowing date in the nursery beds.<br>ii. Strengthening field bunds dykes<br>iii. Sow of peregrinated paddy seeds                                                                                                                                                |  |
|  |                                                                                                                 | b) Colocassia-Green gram/Black gram        | I. Colocassia can be transplanted in the main field after onset of normal monsoon<br>II. Transplant Colocassia var. Kujanga kuji and Muktakeshi when sufficient rain water in the main field.                                                                                                                                                                                                                                                                                               | i.Apply black polythene mulch in inter row spacing to avoid weed growth and moisture loss.                                                                                                                                                                                  |  |
|  | 3) Lateritic low land situation (Bhubaneswar,Jatni, Begunia, Bolagarh, Parts of Banapur,Tangi,Chilika Blocks)   | a) Paddy-Green gram / Black gram           | If the seedlings are well in nursery then go for planting of the sown varieties. If fresh nursery seeds are to be sown then go for little early varieties like Gayatri, Savitri, Sarala, Pooja.                                                                                                                                                                                                                                                                                             | i.Delay the sowing date in nursery<br>Strengthen field bunds and gullies.                                                                                                                                                                                                   |  |
|  | 4) Alluvium up land situation                                                                                   | a) Paddy-Fallow                            | i.Use Short duration Paddy varieties like Khandagiri/                                                                                                                                                                                                                                                                                                                                                                                                                                       | i.Bed & furrow system of                                                                                                                                                                                                                                                    |  |

|  |                                                                                     |                                                             |                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                    |  |
|--|-------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | (Baliana,Balipatana & parts of Bhubaneswar Block)                                   |                                                             | Jogesh/ Vandana / Parijata / Ghanteswari / Satabdi / Kalinga- II                                                                                                                                                                                                                                                                                                                                             | planting geometry.<br>ii.Full P&K & 20% N at basal along with FYM at seed row<br>iii.Delay sowing in paddy nursery.                                                                                                                                                                                                |  |
|  |                                                                                     | b) Vegetables – Fallow                                      | i.Grow Cucurbits like bittergourd(Nakhara improved), Cucumber ( Poinsett, Barsha Mangal), Ridge gourd(Satapatri), Pumpkin (Vaidyabati, Guamal),<br>ii. Brinjal (Utkal Keshari,Green long improved), Chilli (Utkal Ava, Utkal Rashmi) , Okra(Utkal Gaurav,Arka Anamika, Mahyco10,OH 016, Panchali)<br>iii.Plant Yam (Hatikhoj, Orissa Elite) and Elephant foot Yam (Gajendra) as sole crop or in field bunds. | i.More FYM to be applied in seed rows/planting pits.<br>ii.Soil mulching by polythene/ plant parts<br>iii.Sow pre-germinated seeds of bittergourd<br>iv.Treat the tubers of Yam / Elephant foot yam in coddung slurry mixed with Ridomyl MZ & Monocrotophos @ 2ml & 1.5 ml / lit.water<br>v.Life saving irrigation |  |
|  | 5) Alluvium medium land situation (Baliana,Balipatana & parts of Bhubaneswar Block) | a)Paddy-Green gram/ Black gram /orse gram/sesame /Groundnut | i.Grow Paddy varieties like Swarna, Pratikshya, Surendra, Padmini, Lalat, Naveen , Gouri,Konark<br>ii. Black gram (Pant U-19 & 30, Ujala, Sarala), green gram (Sujata, Durga, PDM-11& 54), Sesame (Uma, Nirmala and Prachi), horse gram ( Urmi).<br>iii. Groundnut AK-12-24, Smruti                                                                                                                          | i.Delay sowing in nursery.<br>ii.Strengthen field bund and dykes to conserve rain water<br>iii.Sow of pre-germinated paddy seeds.<br>iv. Seed Inoculation with rhizobium @ 20-25gm/kg prior to sowing in pulses & groundnut<br>v. Transplant 3-4 seedlings/hill with closer spacing                                |  |
|  |                                                                                     | b) Colocassia –green gram/black                             | i.Transplant colocassia                                                                                                                                                                                                                                                                                                                                                                                      | i. Black polythene/paddy straw                                                                                                                                                                                                                                                                                     |  |

|  |                                                                                   |                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |  |
|--|-----------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |                                                                                   | gram/ Horse gram                                                       | (Muktakeshi, Jhankadi, Topi) in the main field after onset of normal monsoon<br>ii. Black gram (Pant U-19 & 30, Ujala, Sarala), green gram (Sujata, Durga, PDM-11& 54).                                                                                                                                                                                                                                                                               | mulching should be applied in the inter row spacing to avoid weed growth and moisture loss.<br>ii. Sow pregerminated corm/cormels<br>iii. Seed Inoculation with rhizobium @ 20-25gm/kg prior to sowing in pulses |  |
|  | 6) Alluvium low land situation (Baliana, Balipatana & parts of Bhubaneswar Block) | a) Paddy - Green gram/ Black gram/ Sesame<br>b) Sole crop of Colocasia | I. If the seedlings are well in nursery then plant the seedlings.<br>II. Substitute very long duration paddy varieties with little early varieties like Gayatri, Savitri, Sarala, Pooja.<br>III. Sow black gram (Pant U-19 & 30, Ujala, Sarala), green gram (cv- Sujata, Durga, PDM-11& 54), cow pea (cv- SEB- Z, Utkal Manika), guar (cv. Pusa Mausumi), sesame (cv- Uma, Nirmala and Prachi)<br>iii. Plant Colocasia (Pani Saru-1 & 2) as sole crop | Delay the sowing date in nursery                                                                                                                                                                                 |  |
|  | 7) Coastal Alluvial, Saline upland situation (Parts of Tangi, Chillika Block)     | a) Sole crop of Black gram in unbundled upland                         | i. Black gram (Pant U-19 & 30, Ujala, Sarala)                                                                                                                                                                                                                                                                                                                                                                                                         | i. Ploughing of soil across the slope.<br>ii. Delay sowing date to onset of monsoon.<br>iii. Seed Inoculation with rhizobium @ 20-25gm/kg prior to sowing                                                        |  |
|  |                                                                                   | b) Paddy - Black gram                                                  | i. Use short duration varieties of paddy like Khandagir/ Sneha/ Vandana/ Shahabagi in less saline areas<br>ii. Sow drought tolerant non paddy crops like ragi (Chillika, Bhairavi, Sarada), Black gram (Pant U-19 & 30, Ujala, Sarala), Castor (Kranti, Jyoti), Sunflower (KBSH-1, Prosun-09) in place of rice.<br>iii. Grow Ragi, Horse gram in saline pockets.                                                                                      | i. Bed & furrow system of planting geometry.<br>ii. In-situ rain water conservation<br>iii. Full P&K & 20% N at basal along with FYM at seed row.<br>iv. Delay the sowing date in the nursery bed                |  |
|  |                                                                                   | c) Vegetable - Fallow                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |  |

|  |                                                                                               |                                  |                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                         |
|--|-----------------------------------------------------------------------------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                                                                                               |                                  | iv. Grow tomato (Utkal Deepti, Utkal Kumari), Urinal (Utkal Madhuri, Utkal Kesari, Local cultivar) & Cow pea (Utkal Manika, Maharani), Radish (Pusa Chetki)                                                                                                                        | v. Plant the tomato seedlings on ridges                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                         |
|  | 8) Coastal Alluvial, Saline Medium land situation (Parts of Tangi, Chillika Block)            | a) Paddy-Black gram / horse gram | i. Grow paddy varieties like Swarna, Pratikshya, Ranidhan in less saline areas.<br>ii. Grow salt tolerant paddy varieties CSR-10, CSR-13, CST-7-1 in more affected areas.<br>iii. Black gram (Pant U-19 & 30, Ujala, Sarala), Horse gram (Urmi), sesame (Uma, Nirmala and Prachi), | i. Delay the sowing date in the nursery beds.<br>ii. Strengthening field bunds dykes<br>iii. Sow of peregrinated paddy seeds                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).</li> <li>Intercultural farm implements under RKVY.</li> </ul> |
|  | 9) Coastal Alluvial, Saline Medium low to low land situation (Parts of Tangi, Chillika Block) | a) Paddy – Black gram            | i. Transplant paddy var. Varshadhan, Durga, Panidhan after onset of rainfall.<br>ii. In highly saline affected areas grow saline tolerant varieties like Sunamani, Lunishree, CSR-27, Rashamanjari                                                                                 | i. Delay the sowing date in nursery.<br>ii. <i>In-situ</i> moisture conservation measures by scooping the field.                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>Supply of seeds through OSSC &amp; NSC.</li> </ul>                                                                               |
|  | 10) Mixed Black & Alluvium up land situation (Parts of Tangi, Banapur, Chillika Block)        | a) Paddy-Blackgram               | i. Use Short duration Paddy varieties like Kayalini, Heera, Kalinga-III, Rudra, Sankar, Satabdi / Kalinga-II<br>ii. Black gram (Pant U-19 & 30, Ujala, Sarala)                                                                                                                     | i. Bed & furrow system of planting geometry.<br>ii. In-situ rain water conservation, harvesting of excess runoff for recycling and ground water recharge<br>iii. Seed treatment and proper plant protection measures should be taken to avoid any germination failure because sowing has already got delayed because of late onset of monsoon.<br>iv. Full P&K & 20% N at basal along with FYM at seed row |                                                                                                                                                                         |

|  |                                                                                             |                                |                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|--|---------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |                                                                                             |                                |                                                                                                                                                                                                                                                                                                                                                                                | v.Delay sowing in paddy nursery.<br>vi.Seed Inoculation with rhizobium @ 20-25gm/kg prior to sowing in pulses                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|  |                                                                                             | b) Vegetables – Fallow         | i.Grow Cucumber ( Poinsett, Barsha Mangal,Himangi), Ridge gourd (Satapatri), Snake gourd ( Sweta,CO-1,MDU-1)<br>ii. Brinjal (Utkal Keshari, Utkal Madhuri,Green long improved), Okra(Utkal Gaurav,Arka Anamika, Mahyco10,OH 016, Panchali) & Cowpea ( Utkal Manika)<br>iii.Plant Yam (Hatikhoj, Orissa Elite) and Elephant foot Yam (Gajendra) as sole crop or in field bunds. | i. More FYM to be applied in seed rows/planting pits.<br>ii.Soil mulching by polythene/ plant parts<br>iii. Transplnt the hardened brinjal seedlings after root dip treatment with Ridomyl MZ & Plantomycin @ 2gm & 1.0gm / lit.water<br>iv.Treat the tubers of Yam / Elephant foot yam in cowdung slurry mixed with Ridomyl MZ & Monocrotophos @ 2gm & 1.5 ml / lit.water<br>v. Provide life saving irrigation to the newly planted seedlings<br>vi. Soak the okra seeds in water for 10-12hrs before sowing for better germination |  |
|  | 11) Mixed Black & Alluvium Medium land situation<br>(Parts of Tangi,Banapur, Chillika Block | a)Paddy-Green gram/ Black gram | i.Grow Paddy varieties like Swarna, Pratikshya, Surendra, ,Surendra, Padmini, Lalat, Naveen , Gouri,Konark<br>ii.Black gram (Pant U-19 & 30, Ujala, Sarala), Green gram (Sujata, Durga, PDM-11& 54)                                                                                                                                                                            | i.Delay sowing in nursery.<br>ii.Strengthen field bund and dykes to conserve rain water<br>iii.Sow of pre-germinated paddy seeds.                                                                                                                                                                                                                                                                                                                                                                                                    |  |

|  |                                                                                           |                                                                       |                                                                                                                                                                                                                                                            |                                                                                                                                                                                       |  |
|--|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |                                                                                           |                                                                       |                                                                                                                                                                                                                                                            | iv. Seed Inoculation with rhizobium @ 20-25gm/kg prior to sowing in pulses<br>v. Transplant 3-4 seedlings/hill with closer spacing                                                    |  |
|  | 12) Mixed Black & Alluvium Low land situation<br>(Parts of Tangi, Banapur, Chillika Block | a) Paddy - Green gram/<br>Black gram<br><br>b) Sole crop of Colocasia | i. Transplant paddy var. Sabitri, CR1014, Mahanadi, Pooja, Tula si, Ramachandi after getting sufficient rainfall<br>ii. Black gram (Pant U- 30, Prasad), Green gram (Sujata, Durga, Jyoti, Kamdev)<br>iii. Plant Colocasia (Pani Saru- 1 & 2) as sole crop | i. Delay the sowing date in nursery according to onset of rain<br>ii. Sow pre-germinated corm /cormels<br>iii. Seed Inoculation with rhizobium @ 20-25gm/kg prior to sowing in pulses |  |

| Condition                                                                          |                                      |                                          | Suggested Contingency measures |                                                             |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------|--------------------------------|-------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup> | Crop management <sup>c</sup>   | Soil nutrient & moisture conservation measures <sup>d</sup> | Remarks on Implementation <sup>e</sup> |



|                     |                                                                                                                 |                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                  |
|---------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| At vegetative stage | 1) Lateritic upland situation<br>(Bhubaneswar, Jatni, Begunia, Bolagarh, Parts of Banapur, Tangi, Chika Blocks) | a) Rice-fallow<br><br>b) Paddy-black gram/ green gram/Arhar | I. Broadcasting sprouted seeds of short duration varieties.<br><br>II. Resowing/transplanting with shorter duration varieties in severely damaged field with >50% mortality.<br><br>III. Thin out excess population from unit area /hill & redistribute in the crop field for gap filling                                                                                                                                                        | i. Spraying of 2% urea<br>ii. Broad bed and furrow planting for <i>in-situ</i> moisture conservation<br>iii. Rain water harvesting and recycling<br>iv. Top dressing the crop after receipt of rain.<br>v. Check seepage loss by plugging the holes.<br>vi. Application of potassic fertilizer.<br>vii. Plug all seepage outlets.<br>viii. Seed priming by treating with 0.25% CaCl <sub>2</sub> at 20 hrs before sowing. | CLDP, IWMP, NREGS, ISOPOM & NFSM |
|                     |                                                                                                                 | c) Vegetables – Fallow                                      | i. Complete hoeing, weeding and earthing up at 20 DAS for moisture conservation for vegetable crops<br>ii. Do manual weeding from the inter rows.<br>iii. Give life saving irrigation at the rhizosphere (basin).<br>iv. Transplant old seedlings with higher nitrogen and potash application so as to induce fast growth after rain.<br><br>Prepare stand by nursery on community basis to mitigate complete crop failure and catch the season. | i. Complete hoeing weeding and earthing up at 20 DAS for moisture conservation for vegetable crops<br>ii. Give mulching of the inter row space in the transplanted crops<br>iii. Give seed priming by treating with 0.25% CaCl <sub>2</sub> solution at 20hrs before sowing.<br>iv. Give organic mulching                                                                                                                 |                                  |
|                     | 2) Lateritic medium land situation<br>(Bhubaneswar, Jatni, Begunia, Bolagarh, Parts of                          | a) Paddy - Black gram / Green gram                          | i. Grow extra early paddy var. Kalinga-III, Heera, Rudra, Pathara, Neela.<br>ii. Gap filling if mortality is <50% and re-sowing if mortality is >50%.<br>iii) Broadcast sprouted seeds of short duration varieties.                                                                                                                                                                                                                              | i. Summer ploughing, land shaping & bunding for conserving soil moisture                                                                                                                                                                                                                                                                                                                                                  |                                  |

|  |                               |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|--|-------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | Banapur,Tangi,Chilika Blocks) |                                     | <p>iv) Apply herbicide to control weed in paddy field.</p> <p>v) Reseed nursery beds</p> <p>vi. Seed Inoculation with rhizobium @ 20-25gm / kg prior to sowing in pulses</p>                                                                                                                                                                                                                                                                    | <p>ii. Foliar application of 2% urea at pre flowering and flowering stage of green gram.</p> <p>iii. Top dress 25% urea and potash after receipt of the rain to upland rice.</p> <p>v. Spray of 2% DAP at flowering &amp; pod filling stage in black gram</p>                                                                                                                                                                            |  |
|  |                               | b) Colocassia-Green gram/Black gram | <p>i.Plant Yam and Elephant Foot Yam in field bunds</p> <p>ii. Treat the tubers of Yam / Elephant foot yam in cowdung slurry mixed with Ridomyl MZ &amp; Monocrotophos @ 2gm &amp; 1.5 ml / lit.water</p> <p>iii. Transplant old seedlings with higher nitrogen and potash application so as to induce fast growth after rain.</p> <p>iv.Transplant Sprouted corn/cornels of colocasia, if sufficient water availability in the main field.</p> | <p>i. Cultivate in ridge and furrow method.</p> <p>ii.Complete hoeing and weeding to provide dust mulch</p> <p>iii.Adoption of closer spacing</p> <p>v. Conserve water by scooping soil on to the root zone.</p> <p>vi.Soil mulching by polythene/ plant parts</p> <p>vii.The field should be free of weeds for utilization of water and nutrients by the crops</p> <p>viii.Application of higher quantity of FYM and organic manure</p> |  |

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|  | 3) Lateritic low land situation<br>(Bhubaneswar, Jatni, Begunia, Bolagarh, Parts of Banapur, Tangi, Chhili ka Blocks) | a) Paddy-Green gram / Black gram | <p>i. Transplant available age old seedlings of paddy var. Gayatri, Savitri, Sarala @ 5-6 per hill.</p> <p>ii. If rice population is more than 50% carry out weeding and adjust the plant population by redistribution of hills (<i>Khelua</i>)</p> <p>iii. If nursery is damaged then go for fresh nursery raising of comparatively shorter duration varieties viz. Swarna , Pratikshaya , Ranidhan , Surendra , Ajaya, Rajlaxmi</p> <p>iv. Treat the paddy seed with tricyclazole @ 1gm/kg before nursery raising</p> <p>v. Prefer direct seeding to transplant in low lands</p> <p>vi. Sow seeds in <i>Punji method</i></p> <p>vii. Apply herbicide to control weed in paddy field</p> <p>viii. Treat the Black gram ,green gram Sesame seeds with Thiram 2-3gm/ kg</p> <p>ix. Seed Inoculation with rhizobium @ 20-25gm/kg prior to sowing in Blackgram &amp; Greengram</p> | <p>i. Summer ploughing &amp; strengthening the field bunds for moisture conservation.</p> <p>ii. Go for green manuring with dhanicha before transplanting in paddy.</p> <p>iii. Do not beushan the crop, remove weeds and top dress N after</p> <p>iv.. Spray of 2% DAP at flowering &amp; pod filling stage in black gram</p> |  |
|  | 4) Alluvium up land situation<br>(Balia, Balipatana & parts of Bhubaneswar Block)                                     | a) Paddy-fallow                  | <p>i. Broadcasting sprouted seeds of short duration varieties.</p> <p>ii. Resowing/transplanting with shorter duration varieties in severely damaged field with &gt;50% mortality.</p> <p>iii. Thin out excess population from unit area /hill &amp; redistribute in the crop field for gap filling</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>i. Conserve rainwater by increasing bund height</p> <p>ii. Do not beushan the crop, remove weeds and top dress N after dry spell.</p>                                                                                                                                                                                       |  |
|  |                                                                                                                       | b) Vegetables – Fallow           | <p>i. Grow Cucurbits like bittergourd, Cucumber, Ridge gourd, Pumpkin</p> <p>ii. Urinal, (Utkal Keshari, Green long improved), Chilli (Utkal Ava, Utkal Rashmi) , Okra (Utkal Gaurav, Arka Anamika, Mahyco10, OH 016, Panchali), Guar (Pusa Mausumi)</p> <p>iii. Plant Yam (Hatikhoj, Orissa Elite) and Elephant foot Yam (Gajendra) as sole crop or in field bunds</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>i. Sowing across the slope in developing ridges</p> <p>ii. Apply sufficient FYM in the planting pits of cucurbits</p> <p>ii. Give live mulch of dry plant parts / paddy straw</p> <p>iii. Apply life saving irrigation from any available source.</p>                                                                       |  |

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|  | 5) Alluvium medium land situation<br>(Balianta,Balipatana & parts of Bhubaneswar Block) | a)Paddy-Green gram/ Black gram /Horse gram/Sesame /Groundnut          | i. Transplant available age old seedlings of paddy at closer spacing @ 5-6 per hill .<br>ii. Sprouted seeds may be direct seeded in lines or fresh seedlings of comparatively shorter duration may be raised for transplanting after treating the paddy seed with tricyclazole @ 1gm/kg .<br>iii. Treat the Black gram ,green gram Sesame seeds with Thiram 2-3gm/ kg before sowing                                                                                                                                                                                                                                                                                                | i.Close the drainage holes and check the seepage loss in direct sown medium land rice.<br>ii. Withhold N fertilizer (top dressing) application in broadcasted paddy up to receipt of rainfall.<br>iii. Inoculation with rhizobium @ 20-25gm/kg prior to sowing in Black gram, Green gram & Groundnut.<br>iv. Rain water storage in the farm ponds or tanks.<br>v. Apply FYM & SSP in the planting furrow of colocasia |  |
|  |                                                                                         | b) Colocassia – green gram/black gram/ Horse gram                     | i.Transplant sprouted corm/cormels of colocasia in the main field if water is there in the farm ponds (or) any available source.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|  | 6) Alluvium low land situation<br>(Balianta,Balipatana & parts of Bhubaneswar Block)    | a) Paddy - Green gram/ Black gram/Sesame<br>b) Sole crop of Colocasia | i. Transplant available age old seedlings of paddy at closer spacing @ 5-6 per hill.<br>ii. Sprouted seeds may be direct seeded in puddle lands or fresh seedlings of comparatively shorter duration may be raised for transplanting after treating the paddy seed with tricyclazole @ 1gm/kg<br>iii. Treat the Black gram ,green gram Sesame seeds with Thiram 2-3gm/ kg before sowing<br>iv. Transplant sprouted corm/cormels of colocasia in the main field if water is there in the farm ponds (or) any available source.<br>v.Apply chemical herbicides like Butachlor, Pretilachlor as pre emergence of the paddy crop<br>vi. Never wait for beusaning, go for hand weeding. | i. Delay the sowing date in nursery.<br>ii.Plant the existing over aged seedlings and apply 40-50% N as basal dose.<br>iii.If rice population is less than 50% gap filling may be done.<br>iv.Close the drainage holes and check the seepage loss in direct sown                                                                                                                                                      |  |
|  | 7) Coastal Alluvial, Saline upland situation<br>(Parts of Tangi, Chillika Block)        | a) Sole crop of Black gram<br>b) Paddy -Black gram                    | i. If rice plant population is less than 50%, gap filling may be done with available age old seedlings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | i. In-situ rain water conservation                                                                                                                                                                                                                                                                                                                                                                                    |  |

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|  |                                                                                               |                                  | <ul style="list-style-type: none"> <li>ii. Grow extra early paddy var. like Kalinga-III, Heera, Dhala Heera etc.</li> <li>ii. Never wait for beusaning, go for hand weeding in direct seeded rice.</li> <li>iii. Sow drought tolerant non paddy crops like ragi, Sunflower in place of rice.</li> <li>iv. Treat the Black gram, green gram seeds with Thiram 2-3gm / kg before sowing.</li> <li>v. Grow Ragi, Horse gram in saline pockets.</li> <li>vi. Grow tomato, Brinal &amp; Cow pea &amp; Radish</li> </ul> | <ul style="list-style-type: none"> <li>ii. Harvesting of excess runoff for re-use and ground water recharge</li> <li>iii. Raising bund height to conserve the rain water.</li> <li>iv. Apply sufficient FYM in the planting furrow/root zone of the vegetable crops</li> <li>v. Provide life saving irrigation &amp; live mulch to the vegetable crops already transplanted</li> </ul>                                                                                |  |
|  | 8) Coastal Alluvial, Saline Medium land situation (Parts of Tangi, Chillika Block)            | a) Paddy-Black gram / horse gram | <ul style="list-style-type: none"> <li>i. If rice population is less than 50% then resow the crop</li> <li>ii. Select early maturing varieties &lt;100days</li> <li>iii. Sprouted seeds may be direct seeded in lines</li> <li>iv. Grow salt tolerant paddy varieties CSR-10, CSR-13, CST-7-1 in more affected areas.</li> <li>v. Treat the Black gram, Horse gram seeds with Thiram 2-3gm / kg before sowing.</li> </ul>                                                                                          | <ul style="list-style-type: none"> <li>i. Plug drainage holes for checking seepage loss and to provide life saving irrigation as and when necessary.</li> <li>ii. Raising bund height to conserve the rain water</li> <li>iii. Withhold N fertilizer (top dressing) application up to receipt of rainfall.</li> <li>iv. Use of sufficient organic matter / FYM / Compost</li> <li>v. Do not beushan the crop, remove weeds and top dress N after dry spell</li> </ul> |  |
|  | 9) Coastal Alluvial, Saline Medium low to low land situation (Parts of Tangi, Chillika Block) | a) Paddy - Black gram            | <ul style="list-style-type: none"> <li>i. Transplanting with clonal tillers for uniform population.</li> <li>ii. If rice plant population is less than 50% , fresh seedlings may be transplanted</li> </ul>                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>i. Already sown nursery should be given life saving irrigation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                     |  |

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|                                                                                           |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | iii. Prefer direct seeding to transplanting in low lands.<br>iv. Sow 5-7 seeds ( <i>Punji</i> ) per hill.<br>v. Prefer closer spacing<br>vi. In highly saline affected areas grow saline tolerant varieties like Sunamani, Lunishree, CSR-27, etc.<br>vii. Treat the Black gram, Horse gram seeds with Thiram 2-3gm / kg before sowing. | ii. Use of bulky organic manures during land preparation.<br>iii. Conserve rainwater by increasing bund height<br>iii. Green manuring (Dhaincha) as pre-kharif crop<br>iv. Spray of 2% DAP at flowering & pod filling stage in black gram |  |
| 10) Mixed Black & Alluvium up land situation<br>(Parts of Tangi, Banapur, Chillika Block) | a) Paddy-Blackgram     | i. Fresh nursery raising of extra early paddy varieties like Kalinga-III, Heera, Rudra etc. after treating the paddy seed with tricyclazole @ 1gm/kg .<br>ii. If population of rice plant is more than 50% in the mainfield & availability of water is there, then go for weeding & <i>khelua</i> operation for clonal propagation in direct seeded paddy.<br>iv. Use sprouted seeds for direct seeding @ 10 seeds at 20X10cm spacing<br>v. Treat the Black gram seeds with Thiram 2-3gm / kg before sowing. | i In-situ rain water conservation, harvesting of excess runoff for recycling and ground water recharge<br>ii. Full P&K & 20% N with FYM as basal<br>iii. Delay sowing in paddy nursery.<br>iv. Seed Inoculation with rhizobium @ 20-25gm/kg prior to sowing in pulses                                                                   |                                                                                                                                                                                                                                           |  |
|                                                                                           | b) Vegetables – Fallow | i. Grow Cucumber ( Poinsett, Barsha Mangal, Sheetal, Himangi), Ridge gourd (Satapatni), Snake gourd ( Sweta, CO-1, MDU-i)<br>ii. Brinjal (Utkal Keshari, Utkal Madhuri, Green long improved), Okra (Utkal Gaurav, Arka Anamika, Mahyco10, OH 016, Panchali) & Cowpea (Utkal Manika).<br>iii. Plant Yam (Hatikhoj, Orissa Elite) and Elephant foot Yam (Gajendra) as sole crop or in field bunds.                                                                                                             | i. Apply FYM in seed rows/planting pits.<br>ii. Soil mulching by polythene/ plant parts<br>iii. Transplnt the hardened brinjal seedlings after root dip treatment with Ridomyl MZ & Plantomycin @ 2gm & 1.0gm / lit. water                                                                                                              |                                                                                                                                                                                                                                           |  |

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|  |                                                                                               |                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>iv. Treat the tubers of Yam / Elephant foot yam in cowdung slurry mixed with Ridomyl MZ &amp; Monocrotophos @ 2gm &amp; 1.5 ml / lit. water</p> <p>v. Provide life saving irrigation to the newly planted seedlings</p> <p>vi. Soak the okra seeds in water for 10-12hrs before sowing for better germination.</p> |  |
|  | 11) Mixed Black & Alluvium Medium land situation<br>(Parts of Tangi, Banapur, Chillika Block) | a) Paddy-Green gram/ Black gram                                           | <p>i. Grow Paddy varieties like Swarna, Pratikshya, Naveen etc.</p> <p>ii. If rice plant population is less than 50%, fresh seedlings may be transplanted</p> <p>iii. Sprouted seeds may be direct seeded in lines.</p> <p>iv. Transplant 3-4 seedlings/hill with closer spacing.</p> <p>v. Grow salt tolerant paddy varieties CSR-10, CSR-13, CST-7-1 in affected areas.</p> <p>vi. Treat the Black gram seeds with Thiram 2-3gm / kg before sowing.</p>                                                           | <p>i. Strengthen field bund and dykes to conserve rain water</p> <p>ii. Use of bulky organic manures before sowing.</p> <p>iii. Seed Inoculation with rhizobium @ 20-25gm/kg prior to sowing in pulses</p> <p>iv. Spray of 2% DAP at flowering &amp; pod filling stage in black gram</p>                              |  |
|  | 12) Mixed Black & Alluvium Low land situation<br>(Parts of Tangi, Banapur, Chillika Block)    | <p>a) Paddy - Green gram/ Black gram</p> <p>b) Sole crop of Colocasia</p> | <p>i. If rice plant population is less than 50%, transplant with clonal tillers for uniform population</p> <p>ii. Prefer direct seeding to transplanting in low lands resowing is necessary.</p> <p>iii. Transplant 3-4 seedlings/hill with closer spacing</p> <p>iv. Treat the Black gram seeds with Thiram 2-3gm / kg before sowing</p> <p>iii. Plant Colocasia (Pani Saru-1 &amp; 2) as sole crop</p> <p>v. Transplant sprouted corm/cormels of colocasia in the main field if sufficient water is available</p> | <p>i. Strengthen field bunds to conserve rain water</p> <p>ii. Seed Inoculation with rhizobium @ 20-25gm/kg prior to sowing in pulses</p> <p>iii. Apply FYM, full P, 50% N &amp; K in the planting furrow of colocasia</p>                                                                                            |  |

| Condition                           |                                                                                                                        |                                                             | Suggested Contingency measures                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                   |                                        |
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| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup>                                                                                   | Normal Crop/cropping system <sup>b</sup>                    | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                                        | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                       | Remarks on Implementation <sup>e</sup> |
| At flowering/ fruiting stage        | 1) Lateritic upland situation<br>(Bhubaneswar, Jatni, Begunia, Bolagarh, Parts of Banapur, Tangi, Chilika Blocks)      | a) Rice-fallow<br><br>b) Paddy-black gram/ green gram/Arhar | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff ness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.                                                         | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows<br>iii. Check seepage loss by plugging the holes.                                                                            |                                        |
|                                     |                                                                                                                        | c) Vegetables – Fallow                                      | i. Withhold nitrogen application rather apply some potassic fertilizer if soil moisture permits.<br>ii. Get ready for a catch crop in case of severe mortality.<br>iii. Give intermittent spray of water to keep the micro climate moist.<br>iv. Spray 2%KCl + 0.1ppm boron to non paddy crops to overcome drought. | i. Give life saving irrigation at the rhizosphere (basin).<br>ii. Provide mulch to the vegetable crops already transplanted ( basins & inter row spaces)<br>ii. Give light hoeing to disturb capillaries for checking evaporation |                                        |
|                                     | 2) Lateritic medium land situation<br>(Bhubaneswar, Jatni, Begunia, Bolagarh, Parts of Banapur, Tangi, Chilika Blocks) | a) Paddy - Black gram / Green gram /Sesame                  | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff ness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.                                                         | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                |                                        |
|                                     |                                                                                                                        | b) Colocassia- Green gram/Black gram                        | i. Remove excess side suckers in colocasia.<br>ii. If the colocasia crop is about to matured, then harvest the same & sow Green gram/Black gram with residual moisture condition.                                                                                                                                   | i. Inter row space mulching by dry grass / leaves/ paddy straw / plant parts in colocasia                                                                                                                                         |                                        |
|                                     | 3) Lateritic low land situation<br>(Bhubaneswar, Jatni, Begunia, Bolagarh, Parts of                                    | a) Paddy-Green gram / Black gram                            | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff ness of grains                                                                                                                                                                                              | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when                                                                                                                                                        |                                        |



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|  | Banapur,Tangi,Chilika Blocks)                                                          |                                                              | iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.                                                                                                                                                                                                                                         | ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                                                                                           |  |
|  | 4) Alluvium up land situation<br>(Baliana,Balipatana & parts of Bhubaneswar Block)     | a) Paddy-fallow                                              | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff ness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>i. Sow pulses if paddy crop is severely affected by drought condition.                                                                                                                | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows<br>iii. Check seepage loss by plugging the holes.                                                                            |  |
|  |                                                                                        | b) Vegetables – Fallow                                       | i. Withhold nitrogen application rather apply some potassic fertilizer if soil moisture permits.<br>ii. Get ready for a catch crop in case of severe mortality.<br>iii. Give intermittent spray of water to keep the micro climate moist.<br>iv. Spray 2%KCl + 0.1ppm boron to non paddy crops to overcome drought.                                                       | i. Give life saving irrigation at the rhizosphere (basin).<br>ii. Provide mulch to the vegetable crops already transplanted ( basins & inter row spaces)<br>ii. Give light hoeing to disturb capillaries for checking evaporation |  |
|  | 5) Alluvium medium land situation<br>(Baliana,Balipatana & parts of Bhubaneswar Block) | a)Paddy-Green gram/ Black gram /Horse gram/Sesame /Groundnut | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff ness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.<br>v. Sprinkling of water through sprinklers to avoid hardening of soil which decreases pegging in groundnut. | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                |  |
|  |                                                                                        | b) Colocassia – green gram/black gram/ Horse gram            | i. Remove excess side suckers in colocasia.<br>ii. If the colocasia crop is about to matured,                                                                                                                                                                                                                                                                             | i. Inter row space mulching by dry grass / leaves/ paddy                                                                                                                                                                          |  |

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|  |                                                                                                |                                                                      | then harvest the same & sow Green gram/Black gram with residual moisture condition.                                                                                                                                                                                                                                                                                                                                                              | straw / plant parts in colocasia                                                                                                                                                                                                                                                |  |
|  | <b>6) Alluvium low land situation<br/>(Balia, Balipatana &amp; parts of Bhubaneswar Block)</b> | a) Paddy -Green gram/ Black gram/Sesame<br>b) Sole crop of Colocasia | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff loss of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.<br>i. Remove excess side suckers in colocasia.<br>ii. If the colocasia crop is about to matured, then harvest the same & sow Green gram/Black gram with residual moisture condition. | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.<br>i. Inter row space mulching by dry grass / leaves/ paddy straw / plant parts in colocasia |  |
|  |                                                                                                |                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                 |  |
|  | <b>7) Coastal Alluvial, Saline upland situation<br/>(Parts of Tangi, Chilika Block)</b>        | a) Sole crop of Black gram                                           | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff loss of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.                                                                                                                                                                                      | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                                                              |  |
|  |                                                                                                | b) Paddy -Black gram                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                 |  |
|  |                                                                                                | c) Vegetable - Fallow                                                | i. Withhold nitrogen application rather apply some potassic fertilizer if soil moisture permits.<br>ii. Get ready for a catch crop in case of severe mortality.<br>iii. Give intermittent spray of water to keep the micro climate moist.<br>iv. Spray 2%KCl + 0.1ppm boron to non paddy crops to overcome drought.                                                                                                                              | i. Give life saving irrigation at the rhizosphere (basin).<br>ii. Provide mulch to the vegetable crops already transplanted ( basins & inter row spaces)<br>ii. Give light hoeing to disturb capillaries for checking evaporation                                               |  |
|  | <b>8) Coastal Alluvial, Saline Medium land situation<br/>(Parts of Tangi, Chilika Block)</b>   | a) Paddy-Black gram / horse gram                                     | i. Life saving irrigation should be applied, if available.                                                                                                                                                                                                                                                                                                                                                                                       | i. Recycling of harvested rain water                                                                                                                                                                                                                                            |  |

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|  |                                                                                                                 |                                 | ii. Sprinkling of water to minimize chaff ness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.                                                                                                                       | ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                                                        |  |
|  | <b>9) Coastal Alluvial, Saline Medium low to low land situation</b><br><b>(Parts of Tangi, Chillika Block)</b>  | a) Paddy - Black gram           | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff ness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.                                                         | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                |  |
|  | <b>10) Mixed Black &amp; Alluvium up land situation</b><br><b>(Parts of Tangi, Banapur, Chillika Block)</b>     | a) Paddy-Blackgram              | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff ness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.                                                         | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                |  |
|  |                                                                                                                 | b) Vegetables – Fallow          | i. Withhold nitrogen application rather apply some potassic fertilizer if soil moisture permits.<br>ii. Get ready for a catch crop in case of severe mortality.<br>iii. Give intermittent spray of water to keep the micro climate moist.<br>iv. Spray 2%KCl + 0.1ppm boron to non paddy crops to overcome drought. | i. Give life saving irrigation at the rhizosphere (basin).<br>ii. Provide mulch to the vegetable crops already transplanted ( basins & inter row spaces)<br>ii. Give light hoeing to disturb capillaries for checking evaporation |  |
|  | <b>11) Mixed Black &amp; Alluvium Medium land situation</b><br><b>(Parts of Tangi, Banapur, Chillika Block)</b> | a) Paddy-Green gram/ Black gram | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff ness of grains                                                                                                                                                                                              | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil                                                                                                                                              |  |

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|  |                                                                                                              |                                                                   | iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.                                                                                                                                                                                                                                                                                                                | moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                                                                                                                                                    |  |
|  | <b>12) Mixed Black &amp; Alluvium Low land situation</b><br><b>(Parts of Tangi, Banapur, Chillika Block)</b> | a) Paddy -Green gram/ Black gram<br><br>b) Sole crop of Colocasia | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff ness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.<br>v. Remove excess side suckers in colocasia.<br>vi. If the colocasia crop is about to matured, then harvest the same & sow Green gram/Black gram with residual moisture condition. | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.<br>iv. Inter row space mulching by dry grass / leaves/ paddy straw / plant parts in colocasia |  |

| Condition                                         |                                                                                                                                 |                                                             | Suggested Contingency measures                                                                                                                                                                                                                                                                   |                                                                                                                                                        |                                        |
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| Terminal drought<br>(Early withdrawal of monsoon) | Major Farming situation <sup>a</sup>                                                                                            | Normal Crop/cropping system <sup>b</sup>                    | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                     | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                            | Remarks on Implementation <sup>e</sup> |
|                                                   | <b>1) Lateritic upland situation</b><br><b>(Bhubaneswar, Jatni, Begunia, Bolagarh, Parts of Banapur, Tangi, Chilika Blocks)</b> | a) Rice-fallow<br><br>b) Paddy-black gram/ green gram/Arhar | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaff ness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. If the standing crop fails then go for horse gram/green gram/ black gram/ toria as pre <i>rabi</i> crop. | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows<br>iii. Check seepage loss by plugging the holes. |                                        |
|                                                   |                                                                                                                                 | c) Vegetables – Fallow                                      | i. Withhold nitrogen application rather apply some potassic fertilizer if soil moisture permits.<br>ii. Get ready for a catch crop in case of severe mortality.                                                                                                                                  | i. Give life saving irrigation at the rhizosphere (basin).<br>ii. Provide mulch to the vegetable crops already transplanted (                          |                                        |

|  |                                                                                                                               |                                             |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                    |  |
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|  |                                                                                                                               |                                             | iii. Give intermittent spray of water to keep the micro climate moist.<br>iv. Spray 2%KCl + 0.1ppm boron to non paddy crops to overcome drought.<br>v. Remove and destroy pest and disease affected plants<br>vi. Prepare stand by nursery on community basis to mitigate complete crop failure and catch the season | basins & inter row spaces)<br>ii. Give light hoeing to disturb capillaries for checking evaporation                                                                                |  |
|  | <b>2) Lateritic medium land situation</b><br>(Bhubaneswar, Jatni, Begunia, Bolagarh, Parts of Banapur, Tangi, Chilika Blocks) | a) Paddy - Black gram / Green gram / Sesame | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaffness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.                                                           | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes. |  |
|  |                                                                                                                               | b) Colocassia-Green gram/Black gram         | i. Remove excess side suckers in colocasia.<br>ii. If the colocasia crop is about to matured, then harvest the same & sow Green gram/Black gram with residual moisture condition.                                                                                                                                    | i. Inter row space mulching by dry grass / leaves/ paddy straw / plant parts in colocasia                                                                                          |  |
|  | <b>3) Lateritic low land situation</b><br>(Bhubaneswar, Jatni, Begunia, Bolagarh, Parts of Banapur, Tangi, Chilika Blocks)    | a) Paddy-Green gram / Black gram            | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaffness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.                                                           | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes. |  |
|  | <b>4) Alluvium up land situation</b>                                                                                          | a) Paddy-fallow                             | i. Life saving irrigation should be applied, if available.                                                                                                                                                                                                                                                           | i. Recycling of harvested rain water                                                                                                                                               |  |

|  |                                                                                         |                                                               |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                   |  |
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|  | (Baliana, Balipatana & parts of Bhubaneswar Block)                                      |                                                               | ii. Sprinkling of water to minimize chaffness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. If the standing crop fails then go for horse gram/green gram/ black gram/ toria as pre <i>rabi</i> crop.                                                                                                                                        | ii. Apply potassic fertilizer when ever soil moisture allows<br>iii. Check seepage loss by plugging the holes.                                                                                                                    |  |
|  |                                                                                         | b) Vegetables – Fallow                                        | i. Withhold nitrogen application rather apply some potassic fertilizer if soil moisture permits.<br>ii. Get ready for a catch crop in case of severe mortality.<br>iii. Give intermittent spray of water to keep the micro climate moist.<br>iv. Spray 2%KCl + 0.1ppm boron to non paddy crops to overcome drought.                                                      | i. Give life saving irrigation at the rhizosphere (basin).<br>ii. Provide mulch to the vegetable crops already transplanted ( basins & inter row spaces)<br>ii. Give light hoeing to disturb capillaries for checking evaporation |  |
|  | 5) Alluvium medium land situation<br>(Baliana, Balipatana & parts of Bhubaneswar Block) | a) Paddy-Green gram/ Black gram /Horse gram/Sesame /Groundnut | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaffness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.<br>v. Sprinkling of water through sprinklers to avoid hardening of soil which decreases pegging in groundnut. | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                |  |
|  |                                                                                         | b) Colocassia –green gram/black gram/ Horse gram              | i. Remove excess side suckers in colocasia.<br>ii. If the colocasia crop is about to matured, then harvest the same & sow Green gram/Black gram with residual moisture condition..                                                                                                                                                                                       | i. Inter row space mulching by dry grass / leaves/ paddy straw / plant parts in colocasia                                                                                                                                         |  |
|  | 6) Alluvium low land situation                                                          | a) Paddy -Green gram/ Black gram/Sesame                       | i. Life saving irrigation should be applied, if available.                                                                                                                                                                                                                                                                                                               | i. Recycling of harvested rain water                                                                                                                                                                                              |  |

|  |                                                                                    |                                  |                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                        |  |
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|  | (Balianta,Balipatana & parts of Bhubaneswar Block)                                 | b) Sole crop of Colocasia        | <p>ii.Sprinkling of water to minimize chaff ness of grains</p> <p>iii. Harvest the crop at physiological maturity stage.</p> <p>iv. Sow pulses if paddy crop is severely affected by drought condition.</p> <p>i. Remove excess side suckers in colocasia.</p> <p>ii. If the colocasia crop is about to matured, then harvest the same &amp; sow Green gram/Black gram with residual moisture condition.</p> | <p>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.</p> <p>iii. Check seepage loss by plugging the holes.</p> <p>i. Inter row space mulching by dry grass / leaves/ paddy straw / plant parts in colocasia</p> |  |
|  | 7) Coastal Alluvial, Saline upland situation (Parts of Tangi, Chillika Block)      | a) Sole crop of Black gram       | <p>i. Life saving irrigation should be applied, if available.</p> <p>ii.Sprinkling of water to minimize chaff ness of grains</p> <p>iii. Harvest the crop at physiological maturity stage.</p> <p>iv. If the standing crop fails then go for black gram/ toria as pre <i>rabi</i> crop.</p>                                                                                                                  | <p>i. Recycling of harvested rain water</p> <p>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.</p> <p>iii. Check seepage loss by plugging the holes.</p>                                                      |  |
|  |                                                                                    | b) Paddy -Black gram             |                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                        |  |
|  |                                                                                    | c) Vegetable -Fallow             | <p>i. Withhold nitrogen application rather apply some potassic fertilizer if soil moisture permits.</p> <p>ii. Get ready for a catch crop in case of severe mortality.</p> <p>iii. Give intermittent spray of water to keep the micro climate moist.</p> <p>iv. Spray 2%KCl + 0.1ppm boron to non paddy crops to overcome drought.</p>                                                                       | <p>i. Give life saving irrigation at the rhizosphere (basin).</p> <p>ii. Provide mulch to the vegetable crops already transplanted ( basins &amp; inter row spaces)</p> <p>ii. Give light hoeing to disturb capillaries for checking evaporation</p>   |  |
|  | 8) Coastal Alluvial, Saline Medium land situation (Parts of Tangi, Chillika Block) | a) Paddy-Black gram / horse gram | <p>i. Sow Rhizobium inoculated pulse seed if paddy crop is severely affected by drought condition.</p> <p>ii.Foliar application of 2% urea at pre-flowering and</p>                                                                                                                                                                                                                                          | <p>i. Recycling of harvested rain water</p> <p>ii. Apply potassic fertilizer when ever soil moisture allows</p>                                                                                                                                        |  |

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|--|-----------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |                                                                                                           |                                 | flowering stage to pulses                                                                                                                                                                                                                                                                                           | (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                                                                                                                     |  |
|  | <b>9) Coastal Alluvial, Saline Medium low to low land situation<br/>(Parts of Tangi, Chillika Block)</b>  | a) Paddy - Black gram           | i. Apply life saving irrigation should be applied.<br>ii. Sprinkling of water to minimize chaffness of grains                                                                                                                                                                                                       | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                |  |
|  | <b>10) Mixed Black &amp; Alluvium up land situation<br/>(Parts of Tangi, Banapur, Chillika Block)</b>     | a) Paddy- Blackgram             | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaffness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. If the standing crop fails then go for black gram/ toria as pre <i>rabi</i> crop.                                            | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.                                                |  |
|  |                                                                                                           | b) Vegetables – Fallow          | i. Withhold nitrogen application rather apply some potassic fertilizer if soil moisture permits.<br>ii. Get ready for a catch crop in case of severe mortality.<br>iii. Give intermittent spray of water to keep the micro climate moist.<br>iv. Spray 2%KCl + 0.1ppm boron to non paddy crops to overcome drought. | i. Give life saving irrigation at the rhizosphere (basin).<br>ii. Provide mulch to the vegetable crops already transplanted ( basins & inter row spaces)<br>ii. Give light hoeing to disturb capillaries for checking evaporation |  |
|  | <b>11) Mixed Black &amp; Alluvium Medium land situation<br/>(Parts of Tangi, Banapur, Chillika Block)</b> | a) Paddy-Green gram/ Black gram | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaffness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is                                                                                                  | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.                                                                                                  |  |



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|  |                                                                                                  |                                                                   | severely affected by drought condition.                                                                                                                                                                                                                                                                                                                                                                                                         | iii. Check seepage loss by plugging the holes.                                                                                                                                                                                                                                   |  |
|  | <b>12) Mixed Black &amp; Alluvium Low land situation (Parts of Tangi, Banapur,Chillika Block</b> | a) Paddy -Green gram/ Black gram<br><br>b) Sole crop of Colocasia | i. Life saving irrigation should be applied, if available.<br>ii. Sprinkling of water to minimize chaffness of grains<br>iii. Harvest the crop at physiological maturity stage.<br>iv. Sow pulses if paddy crop is severely affected by drought condition.<br>v. Remove excess side suckers in colocasia.<br>vi. If the colocasia crop is about to matured, then harvest the same & sow Green gram/Black gram with residual moisture condition. | i. Recycling of harvested rain water<br>ii. Apply potassic fertilizer when ever soil moisture allows (or) after receipt of rain.<br>iii. Check seepage loss by plugging the holes.<br>iv. Inter row space mulching by dry grass / leaves/ paddy straw / plant parts in colocasia |  |

#### Drought - Irrigated situation-Not experienced.

| Condition                                                     | Major Farming situation <sup>f</sup>                                                   | Normal Crop/cropping system <sup>g</sup> | Suggested Contingency measures              |                                                                                                                                                                                                                                                                                                                                                                                                     |                                        |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
|                                                               |                                                                                        |                                          | Change in crop/cropping system <sup>h</sup> | Agronomic measures <sup>i</sup>                                                                                                                                                                                                                                                                                                                                                                     | Remarks on Implementation <sup>j</sup> |
| <b>Delayed release of water in canals due to low rainfall</b> | <b>1)Coastal-Irrigated Alluvium up land situation (Balipatana &amp; Baliana Block)</b> | a) Paddy-fallow / vegetables             | a) Paddy-fallow / vegetables                | i. Raise the paddy nursery near available water source (or) utilising ground water source<br>ii. Grow Short duration Paddy varieties like Khandagiri/ Jogesh/ Vandana / Parijata / Ghanteswari / Satabdi / Kalinga- II<br>iii. Treat the corm/cormels of colocasia variety Jhankadi, Topi, Muktakesi with Ridomyl MZ & Monocrotophos @ 2ml & 1.5 ml / lit.water & sow in nursery bed for sprouting. |                                        |

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|  |                                                                                                   |                                                   |                                                   | <p>iv. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N &amp; K when sufficient irrigation water is available</p> <p>v. Transplant the brinjal seedlings &amp; provide life saving irrigation (in planting basin)</p> <p>vi. Grow Yam (Orissa Elite, Hatikhoj) at field bunds.</p>                            |  |
|  | <p><b>2)Coastal-Irrigated Alluvium Medium land situation (Balipatana &amp; Baliana Block)</b></p> | <p>a) Rice - greengram / blackgram/ sesame</p>    | <p>a) Rice - greengram / blackgram/ sesame</p>    | <p>i. Raise the paddy nursery near available water source (or) utilising ground water source</p> <p>ii. Grow Paddy varieties like Swarna, Pratikshya, Surendra, Padmini, Lalat, Naveen , Gouri, Konark</p> <p>iii. Raise Dhanicha as green manure crop &amp; puddled it prior to transplanting of paddy</p>                                              |  |
|  |                                                                                                   | <p>b) Colocassia –green gram / black gram</p>     | <p>b) Colocassia -green gram / black gram</p>     | <p>i. Treat the corm/cormels of colocasia variety Jhankadi, Topi, Muktakesi with Ridomyl MZ &amp; Monocrotophos @ 2ml &amp; 1.5 ml / lit. water &amp; sow in nursery bed for sprouting.</p> <p>iv. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N &amp; K when sufficient irrigation water is available</p> |  |
|  | <p><b>3)Coastal-Irrigated Alluvium Low land situation (Balipatana &amp; Baliana Block)</b></p>    | <p>a) Rice-rice<br/>b) Sole crop of Colocasia</p> | <p>a) Rice-rice<br/>b) Sole crop of Colocasia</p> | <p>i. Raise the paddy nursery near available water source (or) utilising ground water source</p> <p>ii. Grow paddy var. Swarna, Pratikshya, Sabitri, CR1014, Mahanadi, Pooja, Tulasi, Ramachandi</p>                                                                                                                                                     |  |

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|  |  |  |  | iii. Raise Dhanicha as green manure crop & puddled it prior to transplanting of paddy<br>iv. Treat the corm/cormels of colocasia variety Pani Saru-1 & 2, local cultivars with Ridomyl MZ & Monocrotophos @ 2ml & 1.5 ml / lit. water & sow in nursery bed for sprouting.<br>iv. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N & K when sufficient irrigation water is available |  |
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| Condition                                              | Major Farming situation <sup>f</sup>                                          | Normal Crop/cropping system <sup>g</sup> | Suggested Contingency measures              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                        |
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|                                                        |                                                                               |                                          | Change in crop/cropping system <sup>h</sup> | Agronomic measures <sup>i</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Remarks on Implementation <sup>j</sup> |
| Limited release of water in canals due to low rainfall | 1) Coastal-Irrigated Alluvium up land situation (Balipatana & Baliauta Block) | a) Paddy-fallow / vegetables             | a) Paddy-fallow / vegetables                | i. Grow little early paddy varieties like Khandagiri/ Pathara / Vandana / Parijata / Ghanteswari/Kalinga-III<br>ii. Raise the paddy nursery near available water source (or) utilising ground water source<br>iii. Treat the corm/cormels of colocasia variety Jhankadi, Topi, Muktakesi with Ridomyl MZ & Monocrotophos @ 2ml & 1.5 ml / lit. water & sow in nursery bed for sprouting.<br>iv. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N & K when sufficient irrigation water is available<br>v. Transplant the brinjal seedlings & provide life saving irrigation (in planting basin)<br>vi. Grow Yam (Orissa Elite, Hatikhoj) at field bunds.<br>vii. Intercrops of Paddy + Green gram (PDM 54, Sujata ) (4:2), Paddy + Black gram (T9, Pant U -19, PU – 30) (4:2). |                                        |
|                                                        | 2) Coastal-Irrigated Alluvium                                                 | a) Rice - greengram / blackgram/ sesame  | a) Rice - greengram /                       | i. Raise the paddy nursery near available water source (or) utilising ground water source                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                        |

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|  | Medium land situation<br>(Balipatana & Baliana Block)                            |                                           | blackgram/<br>sesame                      | ii. Grow Paddy varieties like MTU-1010, Indira, Daya, Lalat, Naveen, Konark, Daya, Satabdi, MTU1001<br>iii. Raise Dhanicha as green manure crop & puddled it prior to transplanting of paddy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|  |                                                                                  | b) Colocassia –green gram / black gram    | b) Colocassia - green gram / black gram   | i. Treat the corm/cormels of colocasia variety Jhankadi, Topi, Muktakesi with Ridomyl MZ & Monocrotophos @ 2ml & 1.5 ml / lit. water & sow in nursery bed for sprouting.<br>ii. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N & K when sufficient irrigation water is available<br>iii. Apply sufficient FYM to the colocasia crop field prior to planting                                                                                                                                                                                                                                                                           |  |
|  | 3) Coastal-Irrigated Alluvium Low land situation<br>(Balipatana & Baliana Block) | a) Rice-rice<br>b) Sole crop of Colocasia | a) Rice-rice<br>b) Sole crop of Colocasia | i. Raise the paddy nursery near available water source (or) utilising ground water source<br>ii. Grow paddy var. Swarna, Pratikshya, Padmini, Tapaswini, Rajlaxmi, Moti<br>iii. Raise Dhanicha as green manure crop & puddled it prior to transplanting of paddy<br>iv. Treat the corm/cormels of colocasia variety Pani Saru-1 & 2, local cultivars with Ridomyl MZ & Monocrotophos @ 2ml & 1.5 ml / lit. water & sow in nursery bed for sprouting.<br>v. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N & K when sufficient irrigation water is available<br>vi. Apply sufficient FYM to the colocasia crop field prior to planting |  |

| Condition                      | Suggested Contingency measures                  |                                          |                                             |                                                                                |                                        |
|--------------------------------|-------------------------------------------------|------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------|
|                                | Major Farming situation <sup>f</sup>            | Normal Crop/cropping system <sup>g</sup> | Change in crop/cropping system <sup>h</sup> | Agronomic measures <sup>i</sup>                                                | Remarks on Implementation <sup>j</sup> |
| Non release of water in canals | 1) Coastal-Irrigated Alluvium up land situation | a) Paddy-fallow / vegetables             | a) Paddy-fallow / vegetables                | i. Grow extra early paddy varieties like Kalyani-II/ Hira / Satari / Dhalahira |                                        |

|                                                                            |                                                                                  |                                           |                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
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| under delayed onset of monsoon in catchment                                | (Balipatana & Baliana Block)                                                     |                                           |                                           | <p>ii. Use of high organic matter to conserve moisture <i>In-situ</i>.</p> <p>iii. Raise the paddy nursery near available water source (or) utilising ground water source</p> <p>iv. Judicious use of water</p> <p>v. Dry seeding in nursery bed</p> <p>vi. Reduction of conveyance losses while irrigating the crops</p> <p>vii. Treat the corm/cormels of colocasia variety Jhankadi, Topi, Muktakesi with Ridomyl MZ &amp; Monocrotophos @ 2ml &amp; 1.5 ml / lit. water &amp; sow in nursery bed for sprouting.</p> <p>viii. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N &amp; K when sufficient rain water is available</p> <p>ix. Transplant the brinjal seedlings &amp; provide life saving irrigation (in planting basin)</p> <p>x. Grow Yam (Orissa Elite, Hatikhoj) at field bunds.</p> <p>xi. Intercrop with extra early paddy varieties of Paddy + Arhar (5:2)</p> |  |
|                                                                            | 2) Coastal-Irrigated Alluvium Medium land situation (Balipatana & Baliana Block) | a) Rice - greengram / blackgram/ sesame   | a) Rice - greengram / blackgram/ sesame   | <p>i. Raise the paddy nursery near available water source (or) utilising ground water source</p> <p>ii. Grow Paddy varieties like MTU-1010, Indira, Daya, Lalat, Naveen, Konark, Daya, Satabdi, MTU1001</p> <p>iii. Delay seeding of Dhanicha as green manure crop &amp; puddled it when sufficient rain water is received prior to transplanting</p> <p>iv. Reduction of conveyance losses while irrigating the crops</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| Non release of water in canals under delayed onset of monsoon in catchment |                                                                                  | b) Colocassia –green gram / black gram    | b) Colocassia - green gram / black gram   | <p>i. Treat the corm/cormels of colocasia variety Jhankadi, Topi, Muktakesi with Ridomyl MZ &amp; Monocrotophos @ 2ml &amp; 1.5 ml / lit. water &amp; sow in nursery bed for sprouting.</p> <p>ii. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N &amp; K when sufficient rain water is available</p> <p>iii. Apply sufficient FYM to the colocasia crop field prior to planting</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                            | 3) Coastal-Irrigated Alluvium Low land situation                                 | a) Rice-rice<br>b) Sole crop of Colocasia | a) Rice-rice<br>b) Sole crop of Colocasia | i. Raise the paddy nursery near available water source (or) utilising ground water source                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |

|  |                              |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|--|------------------------------|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | (Balipatana & Baliana Block) |  |  | ii. Grow paddy var. Swarna, Pratikshya , Padmini, Tapaswini, Rajlaxmi, Moti<br>iii. Delay seeding of Dhanicha as green manure crop & puddled it when sufficient rain water is received prior to transplanting<br>iv. Treat the corm/cormels of colocasia variety Pani Saru-1 & 2, local cultivars with Ridomyl MZ & Monocrotophos @ 2ml & 1.5 ml / lit. water & sow in nursery bed for sprouting.<br>v. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N & K when sufficient irrigation water is available<br>vi. Apply sufficient FYM to the colocasia crop field prior to planting<br>vii. Reduction of conveyance losses while irrigating the crops<br>viii. Conserve the rain water in the field |  |
|--|------------------------------|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

| Condition                                                                | Major Farming situation <sup>f</sup>                                         | Normal Crop/cropping system <sup>g</sup> | Suggested Contingency measures              |                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                        |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
|                                                                          |                                                                              |                                          | Change in crop/cropping system <sup>h</sup> | Agronomic measures <sup>i</sup>                                                                                                                                                                                                                                                                                                                                                                                                                | Remarks on Implementation <sup>j</sup> |
| Lack of inflows into tanks due to insufficient /delayed onset of monsoon | 1) Coastal-Irrigated Alluvium up land situation (Balipatana & Baliana Block) | a) Paddy-fallow / vegetables             | a) Paddy-fallow / vegetables                | i. Delay nursery raising of extra early paddy<br>ii. Raise paddy nursery under SRI method<br>iii. SRI method of cultivation<br>iv. Use of high organic matter to conserve moisture <i>In-situ</i> .<br>v. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N & K when sufficient rain water is available<br>vi. Transplant the brinjal seedlings & provide life saving irrigation (in planting basin) |                                        |

| Condition                                                                | Major Farming situation <sup>f</sup>                                            | Normal Crop/cropping system <sup>g</sup>  | Suggested Contingency measures              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
|                                                                          |                                                                                 |                                           | Change in crop/cropping system <sup>h</sup> | Agronomic measures <sup>i</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Remarks on Implementation <sup>j</sup> |
|                                                                          | 2)Coastal-Irrigated Alluvium Medium land situation (Balipatana & Baliana Block) |                                           |                                             | vii. Provide organic mulching in planting basins<br>viii. Apply irrigation in skip row pattern                                                                                                                                                                                                                                                                                                                                                                                              |                                        |
|                                                                          |                                                                                 | a) Rice - greengram / blackgram/ sesame   | a) Rice - greengram / blackgram/ sesame     | i.Delay nursery raising & raise paddy nursery under SRI method<br>iii. SRI method of cultivation<br>iv. Dry seeding in in main field<br>iv. Use of high organic matter to conserve moisture <i>In-situ</i> .                                                                                                                                                                                                                                                                                |                                        |
|                                                                          |                                                                                 | b) Colocassia – green gram / black gram   | b) Colocassia -green gram / black gram      | i. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N & K when sufficient rain water is available<br>ii. Apply irrigation in skip row pattern<br>iii. Provide organic mulching in the inter row spaces                                                                                                                                                                                                                                             |                                        |
|                                                                          |                                                                                 |                                           |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |
| Lack of inflows into tanks due to insufficient /delayed onset of monsoon | 3)Coastal-Irrigated Alluvium Low land situation (Balipatana & Baliana Block)    | a) Rice-rice<br>b) Sole crop of Colocasia | a) Rice-rice<br>b) Sole crop of Colocasia   | i. Raise the paddy nursery near available water source (or) utilising ground water source<br>ii. Delay seeding of Dhanicha as green manure crop & puddled it when sufficient rain water is received prior to transplanting<br>v. Transplant the sprouted corm / cormels of colocasia variety Pani Saru-1 & 2, local cultivars with basal application of full P, 50% N & K when sufficient rain water is available<br>vi. Apply sufficient FYM to the colocasia crop field prior to planting |                                        |
|                                                                          |                                                                                 |                                           |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |

| Condition | Major Farming situation <sup>f</sup> | Normal Crop/cropping system <sup>g</sup> | Suggested Contingency measures              |                                                                                                              |                                        |
|-----------|--------------------------------------|------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------|
|           |                                      |                                          | Change in crop/cropping system <sup>h</sup> | Agronomic measures <sup>i</sup>                                                                              | Remarks on Implementation <sup>j</sup> |
|           |                                      |                                          |                                             | vii. Reduction of conveyance losses while irrigating the crops<br>viii. Conserve the rain water in the field |                                        |

| Condition                                             | Major Farming situation <sup>f</sup>                                        | Suggested Contingency measures              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        | Normal Crop/cropping system <sup>g</sup> |
|-------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------------|
|                                                       |                                                                             | Change in crop/cropping system <sup>h</sup> | Agronomic measures <sup>i</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Remarks on Implementation <sup>j</sup> |                                          |
| Insufficient groundwater recharge due to low rainfall | 1)Coastal-Irrigated Alluvium up land situation (Balipatana & Baliana Block) | a) Paddy-fallow / vegetables                | i).Delay nursery raising of extra early paddy<br>ii.Raise paddy nursery under SRI method<br>iii. SRI method of cultivation<br>iv. Use of high organic matter to conserve moisture <i>In-situ</i> .<br>v. Transplant the sprouted corm / cornels of colocasia with basal application of full P, 50% N & K when sufficient rain water is available<br>vi. Transplant the brinjal seedlings & provide life saving irrigation (in planting basin)<br>vii. Provide organic mulching in planting basins<br>viii. Apply irrigation in skip row pattern |                                        | a) Paddy-fallow / vegetables             |



| Condition | Major Farming situation <sup>f</sup>                                            | Suggested Contingency measures              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                     | Normal Crop/cropping system <sup>g</sup>  |
|-----------|---------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------|
|           |                                                                                 | Change in crop/cropping system <sup>h</sup> | Agronomic measures <sup>i</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Remarks on Implementation <sup>j</sup>              |                                           |
|           | 2)Coastal-Irrigated Alluvium Medium land situation (Balipatana & Baliana Block) | a) Rice - greengram / blackgram/ sesame     | Delay nursery raising of extra early paddy<br>ii. Raise paddy nursery under SRI method<br>iii. SRI method of cultivation<br>iv. Use of high organic matter to conserve moisture <i>In-situ</i> .<br>v. Transplant the sprouted corm / cormels of colocasia with basal application of full P, 50% N & K when sufficient rain water is available<br>vi. Transplant the brinjal seedlings & provide life saving irrigation (in planting basin)<br>vii. Provide organic mulching in planting basins<br>viii. Apply irrigation in skip row pattern                                                               |                                                     | a) Rice - greengram / blackgram/ sesame   |
|           |                                                                                 | b) Colocassia -green gram / black gram      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Application of irrigation at critical growth stages | b) Colocassia – green gram / black gram   |
|           | 3)Coastal-Irrigated Alluvium Low land situation (Balipatana & Baliana Block)    | a) Rice-rice<br>b) Sole crop of Colocasia   | i. Raise the paddy nursery near available water source (or) utilising ground water source<br>ii. Delay seeding of Dhanicha as green manure crop & puddled it when sufficient rain water is received prior to transplanting<br>v. Transplant the sprouted corm / cormels of colocasia variety Pani Saru-1 & 2, local cultivars with basal application of full P, 50% N & K when sufficient rain water is available<br>vi. Apply sufficient FYM to the colocasia crop field prior to planting<br>vii. Reduction of conveyance losses while irrigating the crops<br>viii. Conserve the rain water in the field |                                                     | a) Rice-rice<br>b) Sole crop of Colocasia |

## Actionable Comprehensive Plans for Contingency

|       |        |          |              |
|-------|--------|----------|--------------|
| State | ORISSA | District | MALAKANAGIRI |
|-------|--------|----------|--------------|

### Rainfall info (mm)

| Month/season | Normal rainfall (mm) | Expected deficiency, % | Expected rainfall (mm) |
|--------------|----------------------|------------------------|------------------------|
| June-Sep     | 1272.7               | More than 19%          | Less than 1030.887     |
| June         | 193                  |                        |                        |
| July         | 395.6                |                        |                        |
| August       | 385.3                |                        |                        |
| September    | 298.8                |                        |                        |

Forecast probability for the season (as per IMD):Below Normal

### Irrigation info:

|                     |        |                       |        |
|---------------------|--------|-----------------------|--------|
| Net irrigated area: | 4091   | Gross irrigated area: | 4110   |
| Net Rainfed area    | 119568 | Gross rainfed area    | 129818 |

### Source wise irrigation area details (ha)

| Source of irrigation | Net  | Gross |
|----------------------|------|-------|
| Canals               | -    | 3786  |
| Wells                | -    | 280   |
| Tanks                | -    | 44    |
| Other sources        | 4091 | -     |

### Crop Profile (Kharif)

#### Cereals

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Rice      | 106355          | 0                   |                   |
| 2    | Jowar     | -               | -                   |                   |
| 3    | Maize     | 810             | 17                  | 793               |
| 4    | Bajra     | -               |                     |                   |

|   |      |      |  |      |
|---|------|------|--|------|
| 5 | Ragi | 2335 |  | 2335 |
|---|------|------|--|------|

#### Pulses& Oilseeds

| S.No | Crop name      | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|----------------|-----------------|---------------------|-------------------|
| 1    | Arhar/ Redgram | -               |                     |                   |
| 2    | Groundnut      | 2342            | 2342                | 0                 |
| 3    | Sesamum        | 3924            |                     | 3924              |
| 4    | Soyabean       | -               |                     |                   |
| 5    | Sunflower      | -               |                     |                   |
| 6    | Castor         | -               |                     |                   |

#### Fibre

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Cotton    | -               |                     |                   |
| 2    | Jute      | -               |                     |                   |
| 3    | Mesta     | -               |                     |                   |
| 4    | Sunhemp   | -               |                     |                   |

#### Other crops

| S.No | Crop name          | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|--------------------|-----------------|---------------------|-------------------|
| 1    | Sugarcane          | -               |                     |                   |
| 2    | Tobacco            | -               |                     |                   |
| 3    | Guar seed          | -               |                     |                   |
| 4    | Other Fodder crops | -               |                     |                   |

#### Crop Plan- Beginning of the season

Info for different cropping/farming systems (4 weeks delay) as available in the plan be copied here.

| Condition                            |                                      |                                   | Suggested Contingency Measures              |                                 |                                        |
|--------------------------------------|--------------------------------------|-----------------------------------|---------------------------------------------|---------------------------------|----------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Crop/cropping system <sup>b</sup> | Change in crop/cropping system <sup>c</sup> | Agronomic measures <sup>d</sup> | Remarks on Implementation <sup>e</sup> |

|                                                  |                                              |                                                                 |                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                  |
|--------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Delay by 4 weeks<br>(July 2 <sup>nd</sup> week)* | Medium rainfall, red soils undulated uplands | a) Rice<br><br>b) Ragi /Maize<br><br>c) Sesamum<br>d) Groundnut | Varietal substitutions of drought tolerant varieties of maintain nursery the sole crops i.e. JHU, Pathara, Bandana, Sneha<br><br>Ragi: Bhairabi, Chillika, Maize: Kargil-633,Ganga11,Novjot, Nabin<br><br>Uma, Nirmala, Prachi<br><br>Smuruti, Devi, JL-24 | <ul style="list-style-type: none"> <li>Apply life saving irrigation to drought tolerant varieties of maintain nursery</li> <li>When the mortality of seedlings is less than 50% gap filling should be done and if more than 50% mortality, resow the crop with short duration paddy variety after receiving the rainfall. In-situ rain water conservation ,summer ploughing, interculture, tillage practices, weed control and unbunded uplands converted to banded uplands</li> <li>Complete hoeing, weeding followed by ridging to the base of the root crop at 20 DAS for in-situ moisture conservation in groundnut crop</li> </ul> <p>Follow ridge and furrow method of planting for groundnut and vegetable crops</p> | Supply of seeds through OSSC , through NFSM                                                      |
|                                                  | Medium rainfall, red soils and laterite      | Rice                                                            | Growing of Medium duration rice varieties: MTU 1010, Konark, Jogesh, Lalat, Manaswini, Naveen, Bejeta, Surendra, Lalat, Masoori                                                                                                                            | <ul style="list-style-type: none"> <li>Nursery can be raised for transplanting after Use of bulky organic manures with full P,K and 20% N of recommended dose for basal application.</li> <li>Maintain more plant population for direct seeded rice.</li> <li>When the mortality of seedlings is less than 50%, gap filling should be done and if more than 50% mortality, resow the crop with short duration paddy variety after receiving the rainfall.</li> </ul>                                                                                                                                                                                                                                                        |                                                                                                  |
|                                                  |                                              | Greengram                                                       | Sujata, Durga, PDM-11& 54                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>In-situ rain water conservation by elevating the bund.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                  |
|                                                  |                                              | Maize                                                           | Kargil-633,Ganga11,Novjot, Nabin<br>Intercropping of Arhar + Sesamum (2:4)<br>Maize + Cow pea (2:2)<br>Arhar var. ICPL 87, UPAS 120, TUR N-2                                                                                                               | <ul style="list-style-type: none"> <li>Complete hoeing, weeding followed by ridging to the base at 20 DAS for in-situ moisture conservation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                  |
|                                                  | High rainfall, red soils                     | Rice- Greengram                                                 | Growing of short duration Paddy varieties like JHU, Pathara, Bandana and Sneha.<br>Greengram var. Sujata, Durga,                                                                                                                                           | <ul style="list-style-type: none"> <li>If rice population is more than 50% do khelua operation.</li> <li>Raise community nursery of short duration rice varieties at reliable water sources to save delay in</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Seeds from NHM<br/>Supply of seeds from OSSC, OUAT</p> <p>Seeds may be procured from NFSM</p> |

|  |  |                      |                                                                                                                         |                                                                                                                                                                                                                                                                                   |  |
|--|--|----------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  |                      | PDM-11& PDM- 54.<br>Grow cover crops like<br>Cucumber, Sweet<br>Potato,<br>Cowpea in the bunds to<br>conserve moisture. | transplanting.<br>• Do not top dress nitrogen<br>in nursery<br>• Complete hoeing, weeding<br>followed by ridging to the<br>base of the root crop at 20<br>DAS for in-situ moisture<br>conservation<br>Follow strip cropping in<br>rolling topography for<br>moisture conservation |  |
|  |  | Groundnut-<br>Fallow | Prefer G.nut varieties<br>Smruti,<br>JL 24,Devi                                                                         |                                                                                                                                                                                                                                                                                   |  |
|  |  | Greengram-<br>Fallow | Prefer Greengram<br>varieties<br>PDM-11, Durga                                                                          |                                                                                                                                                                                                                                                                                   |  |

#### Contingency measures- Mid season

Info for different cropping/farming systems ( mid season) as available in the plan be copied here.

| Condition                                                                          |                                                    |                                               | Suggested Contingency Measures                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                        |
|------------------------------------------------------------------------------------|----------------------------------------------------|-----------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup>               | Crop/cropping system <sup>b</sup>             | Crop management                                                          | Soil nutrient & moisture conservation measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Remarks on Implementation <sup>e</sup> |
| <b>At vegetative stage</b>                                                         | Medium rain fail, red soil with undulated up lands | Rice<br>Maize<br>Ragi<br>Sesamum<br>Groundnut | Foliar application of nutrients 2% Urea or 2% DAP or 1% KNO <sub>3</sub> | <ul style="list-style-type: none"> <li>Weed out the field.</li> <li>Strengthen the field bunds &amp; close the holes</li> <li>Provide life saving irrigation.</li> <li>Inter-cultivation (Soil mulching).</li> <li>Open conservation furrow(give distance/interval)</li> <li>Organic mulching with previous crop residues.</li> <li>Scooping</li> <li>Compartmental bunding</li> <li>Follow ridge and furrow method of planting</li> <li>Follow strip cropping in rolling topography for moisture conservation.</li> </ul> |                                        |
|                                                                                    | Medium rain fail, red and laterite soil            | Rice<br>Greengram<br>Maize                    | Foliar application of nutrients 2% Urea or 2% DAP or 1% KNO <sub>3</sub> | <ul style="list-style-type: none"> <li>Weed out the field.</li> <li>Strengthen the field bunds &amp; close the holes</li> <li>Provide life saving irrigation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                   |                                        |

|  |                                             |                                                                                    |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                             |                                          |
|--|---------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
|  |                                             |                                                                                    |                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>• Inter-cultivation (Soil mulching).</li> <li>• Conservation furrow(give distance/interval)</li> <li>• Organic mulching with previous crop residues.</li> <li>• Scooping</li> <li>• Compartmental bunding</li> </ul> |                                          |
|  | High rainfall, red soils                    | Rice- Greengram<br>Groundnut-Fallow<br>Greengram-Fallow                            | <ul style="list-style-type: none"> <li>• Withhold N application</li> <li>• Apply Potassic fertilizer</li> <li>• Seedling of 45 days old can be transplanted or gap filled.</li> <li>• Do not practice beushaning</li> </ul> | <ul style="list-style-type: none"> <li>• Weed out the field</li> <li>• Provide protective irrigation through harvested rain water</li> <li>• Strengthen field bunds.</li> <li>• Follow ridge and furrow method of planting for groundnut crops.</li> </ul>  | Good quality seeds through NFSM and OSSC |
|  | Low rain fall, red and black laterite soils | Rice<br>Maize<br>Sesamum<br>Vegetables:<br>(Brinjal/ Chilli/<br>Tomato/<br>Cowpea) | -do-                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>• Weed out the field</li> <li>• Follow plant protection measures</li> <li>• Provide protective irrigation through harvested rain water</li> <li>• Strengthen field bunds.</li> </ul>                                 |                                          |

| Condition                                                                          |                                      |                                   | Suggested Contingency Measures |                                               |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|-----------------------------------|--------------------------------|-----------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Crop/cropping system <sup>b</sup> | Crop management                | Soil nutrient & moisture conservation measure | Remarks on Implementation <sup>e</sup> |

|                       |                                                    |                            |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|-----------------------|----------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| At reproductive stage | Medium rain fall, red soils With undulated uplands | Rice                       | <ul style="list-style-type: none"><li>Foliar application of 2% urea at pre-flowering and flowering stage to pulses and oilseeds. Remove and destroy pest and disease affected plants</li><li>Spray Tricyclazole (Beam/Team) 0.06-0.1% at 10-12 days interval to control blast and brown spot diseases in Rice</li><li>Spray methyl demeton/ dimethioate to control stem borer and Gundhi bug</li></ul> | <ul style="list-style-type: none"><li>Provide irrigation at flowering and grain filling stage.</li><li>Gulli plugging and recycling of rain water</li><li>Provide life saving irrigation.</li><li>Incase of complete failure of Kharif crop, go for pre-rabi crops/ minor pulses like Horsegram (var. Urmi).</li></ul>                                                                                                        |  |
|                       |                                                    | Maize                      | <ul style="list-style-type: none"><li>Spray 2% KCl + 0.1 ppm boron to non paddy crops to overcome drought</li></ul>                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|                       |                                                    | Ragi                       |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|                       |                                                    | Sesamum                    |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|                       |                                                    | Ground nut                 |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|                       | Medium rain fall red and laterite soils            | Rice<br>Greengram<br>Maize | <ul style="list-style-type: none"><li>Take need based plant protection measures</li><li>Spray 2% KCl + 0.1 ppm boron to non paddy crops to overcome drought.</li></ul>                                                                                                                                                                                                                                 | <ul style="list-style-type: none"><li>Provide irrigation at flowering and grain filling stage.</li><li>Gulli plugging and recycling of rain water</li><li>Provide life saving irrigation.</li><li>Incase of complete failure of Kharif crop, go for pre-rabi crops/ minor pulses like Horsegram (var. Urmi).Crops like Cow pea, Greengram, Blackgram, Maize may be harvested.</li><li>Crops like Cowpea, Greengram,</li></ul> |  |

|  |                                                  |                                                                                    |                                                                                                                                                                                                                                                                             |                                         |  |
|--|--------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--|
|  |                                                  |                                                                                    |                                                                                                                                                                                                                                                                             | Blackgram,<br>Maize may be<br>harvested |  |
|  | High rainfall,<br>red soils                      | Rice- Greengram<br>Groundnut-Fallow<br>Greengram-Fallow                            | Spray 2% KCl + 0.1<br>ppm boron to non<br>paddy crops<br>Spray Tricyclazole<br>(Beam/Team)<br>0.06-0.1% at 10-12<br>days interval to<br>control blast and<br>brown spot diseases in<br>rice Spray methyl<br>demeton/ dimethioate<br>to control stem borer<br>and Gundhi bug | -do-                                    |  |
|  | Low rainfall,<br>red and black<br>laterite soils | Rice<br>Maize<br>Sesamum<br>Vegetables:<br>(Brinjal/ Chilli/<br>Tomato/<br>Cowpea) |                                                                                                                                                                                                                                                                             | -do-                                    |  |

#### Contingency measures- End of the season

Info for different cropping/farming systems ( terminal drought) as available in the plan be copied here.

| Condition        |                                                    |                                               | Suggested Contingency Measures                                                                                                                                                                            |                                                                                                                                                                 |                                                     |
|------------------|----------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| Terminal drought | Major Farming situation <sup>a</sup>               | Crop/cropping system <sup>b</sup>             | Crop management <sup>c</sup>                                                                                                                                                                              | Rabi Crop planning <sup>d</sup>                                                                                                                                 | Remarks on Implementation <sup>e</sup>              |
|                  | Medium rain fall, red soils with undulated uplands | Rice<br>Ragi<br>Maize<br>Sesamum<br>Groundnut | Harvesting at physiological maturity                                                                                                                                                                      | Utilization of residual moisture for early sowing of pre-rabi crops like Cowpea (SEB – 2, Utkal Manik), Horsegram (Urmi), Greengram (Durga), Blackgram (Ujala), | Farm ponds from NREGS, RKVY<br>Seeds from NHM, OSSC |
|                  | Medium rain fall red and laterite soils            | Rice                                          | Reduction of conveyance losses while irrigating the light textured soils. Spread a polythene sheet in the field channel before irrigating the field and then roll it back for irrigating the other field. | Raise Brinjal seedlings for rabi, which may withstand moisture stress condition.<br><br>Grow Cowpea, Field bean, Horsegram, Blackgram,                          | Farm ponds through IWSM programme                   |



|  |                                            |                                                      |                                                                                   |                                                                                                              |                                   |
|--|--------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------|
|  |                                            |                                                      | Harvesting of Rice at physiological maturity will realize 80-85% of normal yield. | Linseed in the month of October<br><br>Grow crucifer vegetables & other high yielding Solanaceous vegetables |                                   |
|  |                                            | Greengram                                            | Harvesting at physiological maturity.                                             |                                                                                                              |                                   |
|  |                                            | Maize                                                | Harvesting of plants for fodder purpose if cob formation hampered.                |                                                                                                              |                                   |
|  | High rainfall, red soils                   | Rice-Greengram                                       | Harvesting at physiological maturity                                              | Grow Cowpea, Carrot, Sunflower, Horsegram, Blackgram, Linseed in the Month of October                        | Seeds from NHM/NFSM               |
|  |                                            | Groundnut                                            |                                                                                   |                                                                                                              |                                   |
|  |                                            | Greengram                                            |                                                                                   |                                                                                                              |                                   |
|  | Low rainfall, red and black laterite soils | Rice                                                 | Harvesting at physiological maturity.                                             | Plan for short duration high yielding oilseed crops especially Sesamum & pulse crops                         | Farm ponds through IWSM programme |
|  |                                            | Maize                                                |                                                                                   |                                                                                                              |                                   |
|  |                                            | Sesamum                                              |                                                                                   |                                                                                                              |                                   |
|  |                                            | Vegetables:<br><br>(Brinjal/ Chilli/ Tomato/ Cowpea) | Vegetables approaching maturity may be harvested for marketing                    | Vegetables like Potato, Carrot. Radish, Cabbage, Cauliflower.                                                |                                   |

#### Under drought for irrigation condition

Drought- Irrigated situation

| Condition                                                       |                                           |                                   | Suggested Contingency Measures                                                                                                             |                                                                                                                   |                                        |
|-----------------------------------------------------------------|-------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Delayed/ limited release of water in canals due to low rainfall | Major Farming situation <sup>a</sup>      | Crop/cropping system <sup>b</sup> | Change in crop/cropping system <sup>c</sup>                                                                                                | Agronomic measures <sup>d</sup>                                                                                   | Remarks on Implementation <sup>e</sup> |
|                                                                 | Canal irrigated red soils in medium lands | Rice-Rice                         | Rice-Groundnut/Sesamum                                                                                                                     | Limited & life saving irrigation, alternate furrow irrigation, drip irrigation, mulching, Irrigation in root zone | Seeds through OSSC, NFSM, NHM          |
|                                                                 |                                           |                                   | Rice: MTU 1010, Konark, Jogesh, Manaswini, Naveen, Bejeta, Surendra, Masoori<br>Groundnut: Smruti, JL-24, Devi<br>Sesamum: Amrit,Uma, GT-2 |                                                                                                                   |                                        |

| Condition |  |  | Suggested Contingency Measures |
|-----------|--|--|--------------------------------|
|-----------|--|--|--------------------------------|

| Lack of inflows due to insufficient/delayed onset of monsoon | Major Farming situation <sup>a</sup> | Crop/cropping system <sup>b</sup> | Change in crop/cropping system <sup>c</sup> | Agronomic measures <sup>d</sup> | Remarks on Implementation <sup>e</sup> |
|--------------------------------------------------------------|--------------------------------------|-----------------------------------|---------------------------------------------|---------------------------------|----------------------------------------|
|                                                              | NA                                   |                                   |                                             |                                 |                                        |

| Condition                                              |                                      |                                                    | Suggested Contingency Measures                                                             |                                                                                                                                          |                                                                                  |
|--------------------------------------------------------|--------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Insufficient ground water recharge due to low rainfall | Major Farming situation <sup>a</sup> | Crop/cropping system <sup>b</sup>                  | Change in crop/cropping system <sup>c</sup>                                                | Agronomic measures <sup>d</sup>                                                                                                          | Remarks on Implementation <sup>e</sup>                                           |
|                                                        | Borewell<br>Irrigated red soil       | Vegetable-<br>Vegetable<br>Pointed<br>guard(local) | Short duration vegetables as detailed below:<br>Brinjal :Utkal<br>Anushree,Utkal<br>Tarini | Alternate furrow irrigation,<br><br>Limited & life saving irrigation, sprinkler/ Drip irrigation, use Mulching, Irrigation in root zone. | Seeds through OSSC, NFSM, NHM<br><br>Intercultural implements through NHM, ATMA, |
|                                                        |                                      |                                                    | Okra BO-2, NP10                                                                            |                                                                                                                                          |                                                                                  |
|                                                        |                                      |                                                    | Chilli: Pusa jwala, Utkal<br>ava                                                           |                                                                                                                                          |                                                                                  |
|                                                        |                                      |                                                    | Tomato: Utkal Kumari, Utkal<br>Raja                                                        |                                                                                                                                          |                                                                                  |

#### Resource management technologies

- Desilting of water harvesting structures for augmentation of water storage, recharging ground water and for critical irrigation during kharif and for cropping intensification during rabi
- In-situ moisture conservation through ridge and furrow method in radish and cowpea
- Green manuring with dhaincha to improve soil fertility
- Soil test based nutrient application for higher yield and to rationalize fertilizer application
- System of Rice Intensification with improved rice variety Pratikshya
- Vermicomposting using crop residues for soil health improvement and to rationalise application of chemical fertilizers
- Drought tolerant paddy var. Sahbhagi Dhan to minimize risk and enhance yields
- Crop diversification with hybrid maize and sweet corn variety- Sugar-75 from traditional rice in upland conditions
- Short duration green gram variety-IPM 02-03 after rice crop for cropping intensification
- Crop diversification from rice to groundnut (var. Devi) and okra (var. Pusa) under limited moisture availability
- Staggered planting in community nursery for delayed onset of monsoon
- Introduction of high yielding varieties of vegetables brinjal var. Swarna Shyamali, tomato var. Arka Rakshak, onion var. Bhima Super and cabbage var. Golden Acre for higher income with harvested water
- Short duration drought tolerant varieties of rice, Jogesh and Mandakini for upland conditions
- Colour synthetic poultry: Rainbow rooster and Vanaraja for higher egg laying capacity and for higher returns
- Khaki Campbell for higher body weight gain and egg laying capacity compared to desi ducks
- Breed up gradation of local goat with Black Bengal for minimising risk and better profitability
- Introduction of hydroponic fodder cultivation to reduce dependence on high cost concentrates
- Low cost goat housing for reducing mortality and to reduce heat stress
- Cultivation of Hybrid Napier (CO4) for increasing green fodder availability during lean season
- Supplementation of mineral and vitamin mixture during lean season to enhance milk productivity
- Low cost Azolla production as supplementary cattle feed during lean season
- Composite fish culture of Catla, Rohu and Mrigal with harvested water in farm ponds

# Actionable Comprehensive Plans for Contingency

|       |        |          |            |
|-------|--------|----------|------------|
| State | ORISSA | District | MAYURBHANJ |
|-------|--------|----------|------------|

## Rainfall info (mm)

| Month/season | Normal rainfall (mm) | Expected deficiency, % | Expected rainfall (mm) |
|--------------|----------------------|------------------------|------------------------|
| June-Sep     | 1206.3               | More than 19%          | Less than 977.103      |
| June         | 272.8                |                        |                        |
| July         | 310.3                |                        |                        |
| August       | 328                  |                        |                        |
| September    | 295.2                |                        |                        |

Forecast probability for the season (as per IMD):Below Normal

## Irrigation info:

|                     |        |                       |        |
|---------------------|--------|-----------------------|--------|
| Net irrigated area: | 62827  | Gross irrigated area: | 66055  |
| Net Rainfed area    | 246003 | Gross rainfed area    | 250762 |

## Source wise irrigation area details (ha)

| Source of irrigation | Net   | Gross |
|----------------------|-------|-------|
| Canals               | -     | 33985 |
| Wells                | -     | 18742 |
| Tanks                | -     | 13328 |
| Other sources        | 62827 | -     |

## Crop Profile (Kharif)

### Cereals

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Rice      | 294495          | 51501               | 242994            |
| 2    | Jowar     | -               | -                   |                   |
| 3    | Maize     | 249             | 57                  | 192               |
| 4    | Bajra     | -               |                     |                   |
| 5    | Ragi      | 160             | 64                  | 96                |

### Pulses& Oilseeds

| S.No | Crop name      | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|----------------|-----------------|---------------------|-------------------|
| 1    | Arhar/ Redgram | -               |                     |                   |
| 2    | Groundnut      | 2044            | 2010                | 34                |
| 3    | Sesamum        | 165             | 143                 | 22                |
| 4    | Soyabean       | -               |                     |                   |
| 5    | Sunflower      | -               |                     |                   |
| 6    | Castor         | -               |                     |                   |

#### Fibre

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Cotton    | -               |                     |                   |
| 2    | Jute      | -               |                     |                   |
| 3    | Mesta     | -               |                     |                   |
| 4    | Sunhemp   | -               |                     |                   |

#### Other crops

| S.No | Crop name          | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|--------------------|-----------------|---------------------|-------------------|
| 1    | Sugarcane          | -               |                     |                   |
| 2    | Tobacco            | -               |                     |                   |
| 3    | Guar seed          | -               |                     |                   |
| 4    | Other Fodder crops | -               |                     |                   |

#### Crop Plan- Beginning of the season

| Condition                                                            |                                                                                                                          |                                                                                                                             | Suggested Contingency measures                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                 |                                                                                                                               |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Early season drought (delayed onset)                                 | Major Farming situation <sup>a</sup>                                                                                     | Normal Crop/cropping system <sup>b</sup>                                                                                    | Change in crop/cropping system <sup>c</sup>                                                                                                                                                                                                                                                        | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                 | Remarks on Implementation <sup>e</sup>                                                                                        |
| <b>Delay by 4 weeks (Specify month)</b><br>July 2 <sup>nd</sup> week | 1 )Farming situation:<br>1.Low rainfall red soils<br>2. Medium rainfall Laterite soils.<br>3. Medium rainfall red soils. | Sole crops under unbunded rainfed uplands<br><br>➤ Paddy<br><br>➤ Arhar<br>➤ Maize<br>➤ Blackgram<br>➤ Greengram<br>➤ Niger | Sow non paddy crops like ragi, greengram, blackgram, cowpea, guar, sesame, castor in place of upland rice.<br><br>Adopt intercropping / mixed cropping system as mentioned below:<br>Arhar+greengram/blac kgram (2:3), Arhar + Ragi (2:4), Arhar + Rice (2:5), Maize + Arhar (2:2), Maize + Cowpea | Apply lime @ 0.15 to 0.25 LR (500 kg lime) mixed with FYM @ 5.0 t/ha in furrows at the time of sowing in acid soils.<br><br>• Apply full P, K and 20% N of recommended dose along with well decomposed organic matter for early seedling vigor. | <ul style="list-style-type: none"> <li>Seed drill under RKVY.</li> <li>Supply of seeds through ATMA, OSSC and NFSM</li> </ul> |

|  |                                  |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                              |                                                                                                                                   |
|--|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
|  | 4. High rainfall laterite soils. | <ul style="list-style-type: none"> <li>➤ Horsegram</li> <li>➤ Kharif vegetables               <ul style="list-style-type: none"> <li>• Brinjal</li> <li>• Tomato</li> <li>• Cow pea</li> <li>• Sweet potato</li> <li>• Chilli</li> </ul> </li> </ul> | (2:2), Maize + Runner Bean (2:2), Raddish + Rice (2:4), Okra + Rice (2:4)<br>Adopt integrated farming system. Apart from crop component, include animal components and some ancillary enterprises like bee keeping, mushroom cultivation, Goatery, poultry, planting fruit trees, timber species will diversify production and impart stability to production system. | <ul style="list-style-type: none"> <li>• In-situ rain water conservation</li> </ul>                                                                                                                                                                                                          |                                                                                                                                   |
|  |                                  | Sole crops under rainfed medium lands : Rice                                                                                                                                                                                                         | Grow varieties such as Lalat, Manaswini, Naveen, Kharvela , MTU 1010, Konark & Surendra                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• Apply full P, K and 20% N of recommended dose along with well decomposed organic matter for early seedling vigor,</li> <li>• In-situ rain water conservation.</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>• Seed drill under RKVY.</li> <li>• Supply of seeds through ATMA, OSSC and NFSM</li> </ul> |
|  |                                  | Sole crops under rainfed medium low lands : Rice                                                                                                                                                                                                     | Swarna, Pratikshya, Rani dhan and Mahsuri                                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>• Devote 10% of the cultivable area for storing excess rain water</li> <li>• Apply full P, K and 20% N of recommended dose along with well decomposed organic matter for early seedling vigor,</li> <li>• In-situ rain water conservation.</li> </ul> | <ul style="list-style-type: none"> <li>• Seed drill under RKVY.</li> <li>• Supply of seeds through ATMA, OSSC and NFSM</li> </ul> |
|  | 2) Farming situation:            | <b>Cropping system 1</b>                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                              |                                                                                                                                   |
|  |                                  | Rice-blackgram                                                                                                                                                                                                                                       | <b>Rice varieties</b><br>Medium duration (120d)<br>Lalat, Manaswini, Naveen, Bejeta, MTU 1010, Konark, Jogesh and Surendra<br><b>Blackgram varieties</b><br>Sarala, Prasad, Ujala                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>• Devote 10% of the cultivable area for storing excess rain water</li> <li>• Apply full P, K and 20% N of recommended dose along with well decomposed organic matter for early seedling vigor,</li> <li>• In-situ rain water conservation</li> </ul>  |                                                                                                                                   |
|  |                                  | <b>Cropping system 2</b>                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                              |                                                                                                                                   |
|  |                                  | Rice-greengram                                                                                                                                                                                                                                       | Medium late (140-145 d)                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• Devote 10% of the cultivable area for</li> </ul>                                                                                                                                                                                                    |                                                                                                                                   |

|  |  |  |                                                                                                           |                                                                                                                                                                                       |  |
|--|--|--|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  |  | Swarna,<br>Pratikshya,Rani dhan,<br>Sidhanta and Mahsuri<br><b>Greengram varieties</b><br>TARM-2,Kamadev. | storing excess rain water<br>• Apply full P, K and 20% N of recommended dose along with well decomposed organic matter for early seedling vigor,<br>• In-situ rain water conservation |  |
|--|--|--|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

#### Contingency measures- Mid season

| Condition                                                                          | Major Farming situation <sup>a</sup>                                                                                                                         | Normal Crop/cropping system <sup>b</sup>               | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                      |                                        |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
|                                                                                    |                                                                                                                                                              |                                                        | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                          | Remarks on Implementation <sup>e</sup> |
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) |                                                                                                                                                              |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                      |                                        |
| <b>At vegetative stage</b>                                                         | 1 )Farming situation:<br>1.Low rainfall red soils<br>2. Medium rainfall Laterite soils.<br>3. Medium rainfall red soils.<br>4. High rainfall laterite soils. | Sole crops under unbunded rainfed uplands<br><br>Paddy | <ul style="list-style-type: none"> <li>❖ Do not practice <i>beushaning</i> (blind cultivation) in rice, if the crop is more than 45 days old.</li> <li>❖ Weed out the field without waiting for rainfall.</li> <li>❖ Go for gap filling using seedling of same age or clonal tillers to have a uniform distribution of plant.</li> <li>❖ Strengthen the field bunds and close the holes to check seepage loss.</li> <li>❖ Withhold N fertilizer application up to receipt of rainfall. Close up drainage lines and reduce run off losses to recharge ground water table.</li> <li>❖ Provide protective irrigation through recycling of harvested rain water.</li> <li>❖ Remove the weeds and follow plant protection measures against blast in the nursery if existing.</li> <li>❖ Withhold N fertilizer application up to receipt of rainfall/ Foliar spray of 2% area.</li> <li>❖ Apply Potassic fertilizers wherever soil moisture allows or wait up to receipt of rainfall.</li> </ul> | Store rain water to use as life saving irrigation. On-farm water harvesting structures lined with 6:1 soil: cement mortar of 6 cm thickness in 10% land area helps to harvest the rain- water for providing protective irrigation. Provide mulching. | Convergence with NREGS, RKVY           |

|  |  |                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                        |                                     |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
|  |  |                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>❖ Strengthen the field bunds and close the holes to check seepage loss.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                        |                                     |
|  |  | <p>Sole crops under unbunded rainfed uplands</p> <p>Arhar</p> <p>Maize</p> <p>Blackgram</p> <p>Greengram</p> <ul style="list-style-type: none"> <li>➤ Niger</li> <li>➤ Horsegram</li> <li>➤ Kharif vegetables <ul style="list-style-type: none"> <li>• Brinjal</li> <li>• Tomato</li> <li>• Cow pea</li> <li>• Sweetpotato</li> <li>• Chilli</li> </ul> </li> </ul> | <p>Carryout weeding operation</p> <ul style="list-style-type: none"> <li>❖ Complete hoeing and weeding in non paddy crop fields to provide dust mulch.</li> <li>❖ Weeding groundnut after 45 days of sowing disturbs the pegging process. Under such a situation prune the weeds with the help of sickle</li> <li>❖ Apply post emergence spray of quizalofop ethyl 5% EC @ 0.05 kg/a.i. (ha in 500 litre of water) at 20-25 day after sowing to control grassy weeds in groundnut.</li> </ul> <p>Spray 2% KCl + 0.1 ppm boron to blackgram to overcome drought situations.</p> <ul style="list-style-type: none"> <li>❖ Foliar application of 2% urea at pre-flowering and flowering stage of greengram is helpful to mitigate drought.</li> <li>❖ Spray 1% urea in brinjal. Take up spraying measures against mealy bug and mite which are more prevalent in dry weather.</li> <li>❖ Top dress the crops after receipt of rain.</li> <li>❖ Remove the borer affected tillers/late formed tillers/dried leaves in sugarcane and follow wrapping and propping. Stripe out the lower 4-5 leaves.</li> <li>❖ Spray planofix or celmone 10 ppm (2 ml in 9 litre of water) at 45 days and 20 ppm (4 ml in 9 litre of water) 10 days later to prevent boll shedding in cotton.</li> <li>❖ Spray 2% urea in late planted jute to encourage growth.</li> <li>❖ Top dress nitrogen to ginger and turmeric @ 60 and 30 kg/ha, respectively after receipt of rainfall followed by mulching.</li> <li>❖ Practice mulching with organics to extend the period of moisture availability.</li> </ul> | <ul style="list-style-type: none"> <li>• Close the drainage holes and check the seepage loss in direct sown medium land rice regularly.</li> <li>• Inter-cultivation (Soil mulching)</li> <li>• Conservation furrow</li> <li>• Organic mulching with previous crop residues</li> </ul> | <p>Convergence with NREGS, RKVY</p> |

|  |  |                                              |                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                  |                              |
|--|--|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|  |  | Sole crops under rainfed medium lands : Rice | Provide protective irrigation through recycling of harvested rain water. Remove the weeds and follow plant protection measures against blast in the nursery if existing. Withhold N fertilizer application up to receipt of rainfall. Apply Potassic fertilizers wherever soil moisture allows or wait up to receipt of rainfall. Strengthen the field bunds and close the holes to check seepage loss. | Store rain water to use as life saving irrigation. On-farm water harvesting structures lined with 6:1 soil: cement mortar of 6 cm thickness in 10% land area helps to harvest the rainwater for providing protective irrigation. | Convergence with NREGS, RKVY |
|--|--|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|

| Condition                           |                                                                                                                                                                      |                                                                                                                                                                                                                      | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                  |                                        |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup>                                                                                                                                 | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                                             | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                             | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                      | Remarks on Implementation <sup>e</sup> |
| <b>At flowering/ fruiting stage</b> | 1 ) <b>Farming situation:</b><br>1.Low rainfall red soils<br>2. Medium rainfall Laterite soils.<br>3. Medium rainfall red soils.<br>4. High rainfall laterite soils. | Sole crops under unbanded rainfed uplands<br><br>➤ Paddy<br>➤ Arhar<br>➤ Maize<br>➤ Blackgram<br>➤ Greengram<br>➤ Niger<br>➤ Horsegram<br>➤ Kharif vegetables<br>• Brinjal<br>• Tomato<br>• Cow pea<br>• Sweetpotato | Crops like cowpea, maize, greengram may be harvested for fodder purpose to avoid their failure as grain crops. When the soil becomes hard it is difficult to uproot groundnut from the field, sprinkle water from water harvesting structures/ nallahs to soften the soil. Under situation of complete failure of Kharif crop dismantle it. In such situation or where land is remaining fallow, sow the pre-rabi crops. | Store rain water to use as life saving irrigation. On-farm water harvesting structures lined with 6:1 soil: cement mortar of 6 cm thickness in 10% land area helps to harvest the rainwater for providing protective irrigation. |                                        |
|                                     |                                                                                                                                                                      | Sole crops under rainfed medium & low lands : Rice                                                                                                                                                                   | ❖ Check surface run off in the low lying areas.<br>❖ Provide protective irrigation through recycling of harvested rain water.<br>❖ Provide irrigation at critical stages such as flowering, grain filling, etc. in alternate furrows in wide spaced crops.<br><br>❖ Crops like cowpea, maize, greengram may be harvested for fodder purpose to avoid their failure as grain crops.                                       |                                                                                                                                                                                                                                  |                                        |



|  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  |  |  | <ul style="list-style-type: none"> <li>❖ When the soil becomes hard it is difficult to uproot groundnut from the field, sprinkle water from water harvesting structures/nallahs to soften the soil.</li> <li>❖ Under situation of complete failure of <i>kharif</i> crop dismantle it. In such situation or where land is remaining fallow, sow (dibble) the pre-<i>rabi</i> crops.</li> <li>❖ The ideal pre-rabi crops with residual moisture condition are horsegram, castor, niger, blackgram and sesame in uplands and well drained medium lands.</li> </ul> |  |  |
|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

#### Contingency measures- End of the season

| Condition                           |                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                           | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                  |                                        |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup>                                                                                                                                                             | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                                                                                                                                                                                                                  | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                             | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                      | Remarks on Implementation <sup>e</sup> |
| <b>At flowering/ fruiting stage</b> | <b>1 )Farming situation:</b><br><b>1.</b> Low rainfall red soils<br><b>2.</b> Medium rainfall Laterite soils.<br><b>3.</b> Medium rainfall red soils.<br><b>4.</b> High rainfall laterite soils. | Sole crops under unbunded rainfed uplands <ul style="list-style-type: none"> <li>➤ Paddy</li> <li>➤ Arhar</li> <li>➤ Maize</li> <li>➤ Blackgram</li> <li>➤ Greengram</li> <li>➤ Niger</li> <li>➤ Horsegram</li> <li>➤ Kharif vegetables               <ul style="list-style-type: none"> <li>• Brinjal</li> <li>• Tomato</li> <li>• Cow pea</li> <li>• Sweetpotato</li> </ul> </li> </ul> | Crops like cowpea, maize, greengram may be harvested for fodder purpose to avoid their failure as grain crops. When the soil becomes hard it is difficult to uproot groundnut from the field, sprinkle water from water harvesting structures/ nallahs to soften the soil. Under situation of complete failure of Kharif crop dismantle it. In such situation or where land is remaining fallow, sow the pre-rabi crops. | Store rain water to use as life saving irrigation. On-farm water harvesting structures lined with 6:1 soil: cement mortar of 6 cm thickness in 10% land area helps to harvest the rainwater for providing protective irrigation. |                                        |
|                                     |                                                                                                                                                                                                  | Sole crops under rainfed medium & low lands : Rice                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>❖ Check surface run off in the low lying areas.</li> <li>❖ Provide protective irrigation through recycling of harvested rain water.</li> </ul>                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                  |                                        |

|  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |
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|  |  |  | <ul style="list-style-type: none"> <li>❖ Provide irrigation at critical stages such as flowering, grain filling, etc. in alternate furrows in wide spaced crops.</li> <li>❖ Crops like cowpea, maize, greengram may be harvested for fodder purpose to avoid their failure as grain crops.</li> <li>❖ When the soil becomes hard it is difficult to uproot groundnut from the field, sprinkle water from water harvesting structures/nallahs to soften the soil.</li> <li>❖ Under situation of complete failure of <i>kharif</i> crop dismantle it. In such situation or where land is remaining fallow, sow (dibble) the pre-<i>rabi</i> crops.</li> <li>❖ The ideal pre-rabi crops with residual moisture condition are horsegram, castor, niger, blackgram and sesame in uplands and well drained medium lands.</li> </ul> |  |  |
|--|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

| Condition                                         |                                      |                                          | Suggested Contingency measures |                                 |                                        |
|---------------------------------------------------|--------------------------------------|------------------------------------------|--------------------------------|---------------------------------|----------------------------------------|
| Terminal drought<br>(Early withdrawal of monsoon) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup> | Crop management <sup>c</sup>   | Rabi Crop planning <sup>d</sup> | Remarks on Implementation <sup>e</sup> |
|                                                   |                                      |                                          |                                |                                 |                                        |

|  |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <p>1 )<br/><b>Farming situation:</b><br/>1.Low rainfall red soils<br/>2. Medium rainfall Laterite soils.<br/>3. Medium rainfall red soils.<br/>4. High rainfall laterite soils.</p> | <p>Sole crops under unbanded rainfed uplands</p> <ul style="list-style-type: none"> <li>➤ Paddy</li> <li>➤ Arhar</li> <li>➤ Maize</li> <li>➤ Blackgram</li> <li>➤ Greengram</li> <li>➤ Niger</li> <li>➤ Horsegram</li> <li>➤ Kharif vegetables <ul style="list-style-type: none"> <li>• Brinjal</li> <li>• Tomato</li> <li>• Cow pea</li> <li>• Sweetpotato</li> </ul> </li> </ul> | <p>Provide protective irrigation through recycling of harvested rain water. Provide irrigation at critical stages such as flowering, grain filling etc. in alternate furrows in wide spaced crops. Crops like cowpea, maize, greengram may be harvested for fodder purpose to avoid their failure as grain crops. When the soil becomes hard it is difficult to uproot groundnut from the field, sprinkle water from water harvesting structures/nallahs to soften the soil. Under situation of complete failure of Kharif crop dismantle it. In such situation or where land is remaining fallow, sow the pre-rabi crops.</p> | <p>The ideal pre-rabi c Utilization of residual moisture for early sowing of pre-rabi crops like Cow pea (SEB – 2, Utkal Manik), horse gram (Urmil), green gram (Durga), black gram (Ujala), Niger (Deomali,ONS-15) tomato Utkal Raja, Utkal Kumari, Utkal Urbasi. Cabbage (Pride of India, Golden Acre, Konark, Sujata, Vijay, Cauliflower (Snow ball, Improved Japanese, Himani), Okra (Utkal Gourab, Arka Anamika), and leafy vegetables to be sown to conserve soil moisture. And provide life saving irrigation as and when necessary</p> |  |
|  |                                                                                                                                                                                     | <p>Sole crops under rainfed medium &amp; low lands : Rice</p>                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>❖ Check surface run off in the low lying areas.</li> <li>❖ Provide protective irrigation through recycling of harvested rain water.</li> <li>❖ Provide irrigation at critical stages such as flowering,</li> </ul>                                                                                                                                                                                                                                                                                                                                                                      | <p>The ideal pre-rabi crops with residual moisture The ideal pre-rabi c Utilization of residual moisture for early sowing of pre-rabi crops like Cow pea (SEB – 2, Utkal Manik), horse gram (Urmil), green gram (Durga), black gram (Ujala), Niger</p>                                                                                                                                                                                                                                                                                         |  |

|  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                |  |
|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  |  | <p>grain filling, etc. in alternate furrows in wide spaced crops.</p> <p>❖ Under situation of complete failure of <i>kharif</i> crop dismantle it. In such situation or where land is remaining fallow, sow (dibble) the pre-<i>rabi</i> crops.</p> <p>❖ The ideal pre-rabi crops with residual moisture condition are horsegram, castor, niger, blackgram and sesame in uplands and well drained medium lands.</p> | <p>(Deomali,ONS-15) tomato Utkal Raja, Utkal Kumari, Utkal Urbasi. Cabbage (Pride of India, Golden Acre, Konark, Sujata, Vijay, Cauliflower (Snow ball, Improved Japanese, Himani), Okra (Utkal Gourab, Arka Anamika), and leafy vegetables to be sown to conserve soil moisture. And provide life saving irrigation as and when necessary</p> |  |
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#### Under drought for irrigation condition

Information not available

#### Resource management technologies

- Renovation of old/construction of new check dams to harvest rain water and their efficient use for providing supplemental irrigation to crops and for cropping intensification
- Farm ponds for providing critical irrigation to crops in kharif and for cropping intensification during rabi season
- Renovation of community ponds for recharge of ground water and cultivation of onion and sunflower during rabi season
- Raising the farm bund height to 10 inches for enhancing water storage in rice fields and to minimise the impact of dry spell
- Land levelling and bunding for reduction of soil erosion and higher water efficiency
- Conservation furrow in cotton and pigeon pea for in-situ water conservation during moisture stress situations
- Introduction of high value crops capsicum var. Indra, chilli var. Agnirekha, tomato var. Arka Samrat and sweet corn var. Sugar 75 with harvested water for enhancing profitability and income.
- Ridge and furrow method of maize for in-situ moisture conservation under rainfed upland conditions and for safe discharge of runoff during intense rains
- Issuing of soil health cards for soil test based fertiliser application in cotton and rice
- Low cost polyhouse to reduce mortality of vegetable seedlings under heavy rainfall conditions
- Poly-ethylene mulching in brinjal to conserve moisture
- Green manuring with sunhemp to improve soil fertility
- Efficient use of harvested water through drip irrigation in high value crops
- Contour cultivation and sowing across the slope in cotton, pigeon pea and black gram crops
- Drought tolerant rice var. Sahbhagi Dhan for upland conditions, prone to moisture stress
- Flood tolerant rice var. Bina-11 for medium land situations prone to water logging

- Cultivation of drought tolerant and short duration paddy varieties DRR-42 and DRR-44 for delayed monsoon conditions
- Flood tolerant rice var. Swarna Sub-1 in low land, water logging conditions
- Medium duration pigeon pea variety to minimise the impact of moisture stress during harvesting stage
- Introduction of pulses as relay crops after rice for utilising soil moisture effectively and for cropping intensification
- Intercropping of cotton with pigeon pea (4:2 ratio) in place of mono cropping of cotton for minimising risk
- Community vegetable nursery during kharif season for delayed monsoon situations.
- Drought tolerant varieties of sesamum C.V- Prachi, maize C.V- PAC 745 and black gram C.V- Prasad
- Heat stress tolerant tomato var. Chiranjibi with poly-ethylene mulching in summer season
- Growing of short duration green gram varieties TARM-1 and IPM-02-03 for cropping intensification
- Short duration black gram variety-PU-31 for rice fallows
- Crop diversification from rice to maize in uplands under delayed monsoon conditions
- Perennial fodder production by Hybrid Napier (CO4) for year-round fodder production
- Urea molasses mineral blocks and feed blocks to overcome the deficiency of minerals
- Area specific mineral mixture feeding @ 50 gram per day for enhancing milk production
- Low-cost cattle and goat shed to minimise the heat stress in summer
- Introduction of Vanaraja and Kadaknath poultry varieties to minimise risk and livelihood diversification
- Artificial insemination with Sahiwal and Gir for breed upgradation
- Khaki campbell duck for enhanced egg and meat production with harvested water in farm ponds
- Composite carp culture with yearlings of IMC (Catla, Rohu and Mrigal) for higher income by December with harvested water

# Actionable Comprehensive Plans for Contingency

|       |        |          |              |
|-------|--------|----------|--------------|
| State | ORISSA | District | NABARANGAPUR |
|-------|--------|----------|--------------|

## Rainfall info (mm)

| Month/season | Normal rainfall (mm) | Expected deficiency, % | Expected rainfall (mm) |
|--------------|----------------------|------------------------|------------------------|
| June-Sep     | 1367.3               | More than 19%          | Less than 1107.513     |
| June         | 250.3                |                        |                        |
| July         | 403.5                |                        |                        |
| August       | 391.6                |                        |                        |
| September    | 321.9                |                        |                        |

Forecast probability for the season (as per IMD):Below Normal

## Irrigation info:

|                     |        |                       |        |
|---------------------|--------|-----------------------|--------|
| Net irrigated area: | 12336  | Gross irrigated area: | 12626  |
| Net Rainfed area    | 184088 | Gross rainfed area    | 196149 |

## Source wise irrigation area details (ha)

| Source of irrigation | Net   | Gross |
|----------------------|-------|-------|
| Canals               | -     | 79    |
| Wells                | -     | 12547 |
| Tanks                | -     | -     |
| Other sources        | 12336 | -     |

## Crop Profile (Kharif)

### Cereals

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Rice      | 115818          | 0                   |                   |
| 2    | Jowar     | -               | -                   |                   |
| 3    | Maize     | 58310           | 6764                | 51546             |
| 4    | Bajra     | -               |                     |                   |
| 5    | Ragi      | 4880            | 56                  | 4824              |

## Pulses& Oilseeds

| S.No | Crop name      | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|----------------|-----------------|---------------------|-------------------|
| 1    | Arhar/ Redgram | -               |                     |                   |
| 2    | Groundnut      | 259             |                     | 259               |
| 3    | Sesamum        | -               |                     |                   |
| 4    | Soyabean       | -               |                     |                   |
| 5    | Sunflower      | -               |                     |                   |
| 6    | Castor         | -               |                     |                   |

## Fibre

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Cotton    | -               |                     |                   |
| 2    | Jute      | -               |                     |                   |
| 3    | Mesta     | -               |                     |                   |
| 4    | Sunhemp   | -               |                     |                   |

## Other crops

| S.No | Crop name          | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|--------------------|-----------------|---------------------|-------------------|
| 1    | Sugarcane          | 2530            | 2530                | 0                 |
| 2    | Tobacco            | -               |                     |                   |
| 3    | Guar seed          | -               |                     |                   |
| 4    | Other Fodder crops | -               |                     |                   |

## Crop Plan- Beginning of the season

| Condition                                                                                                                    | Major Farming situation <sup>a</sup>     | Crop/cropping system <sup>b</sup> | Suggested Contingency Measures                                                                                                                                                                                                                                                                                                                             |                                                                                                                                             |                                             |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
|                                                                                                                              |                                          |                                   | Change in crop/cropping system <sup>c</sup>                                                                                                                                                                                                                                                                                                                | Agronomic measures <sup>d</sup>                                                                                                             | Remarks on Implementation <sup>e</sup>      |
| Early season drought (delayed onset)<br><br>Delay by 4 weeks (July 2 <sup>nd</sup> week)*<br><br>(REFER TO THE MATRIX TABLE) | 1.Low rainfall<br>Shallow Lateritic soil | a) Upland rice-fallow based       | Low water requiring crops like blackgram, groundnut, greengram, cowpea, pigeonpea etc. Double cropping in upland can be done through maize-horsegram/sesamum rotation.<br>The legume based intercropping system like groundnut + pigeonpea, groundnut + blackgram, groundnut + greengram, groundnut + cowpea in the ratio of 4:1 was proved as successful. | 1) Delayed raising of nursery<br>2) Conservation of moisture<br>3) Intercropping(2:1 & 4:1 ratio)<br><br>4) Split application of nutrients. | Supply of seeds through OSSC , through NFSM |





|  |                                         |                                                                                                                            |                                                                                                                                                                                                                                          |                                                                                                                                                                                                                             |  |
|--|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | 4. Low rainfall shallow Sandy loam soil | Maize-<br>Vegetable<br>Maize :<br>pinnacle, CP,<br>Hishell<br>Vegetable:<br>Brinjal local<br>Chilli local,<br>Tomato BT-10 | Maize hybrids of shorter duration,<br>Intercropping of maize with<br>Cowpea(Utkal Manik) in 1:2 ratio or<br>Maize+Arhar in 2:1 ratio to manage<br>water<br>Shortage<br>Brinjal- Utkal Anooshree, Chilli- Utkal<br>ava,Tomato- Utkal Raja | Wider spacing at<br>60x45 cm,<br>split application of<br>fertilizer reduced to<br>two times<br><br>Transplanting older<br>seedlings with<br>wider spacing than<br>recommendation,<br>Thinning, Mulching<br>with paddy straw |  |
|--|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

#### Contingency measures- Mid season

| Condition                                                                          |                                      |                                                    | Suggested Contingency Measures                                                                                                                                                                                                                                                              |                                                                                                                                                                                                               |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Crop/cropping system <sup>b</sup>                  | Crop management                                                                                                                                                                                                                                                                             | Soil nutrient & moisture conservation measure                                                                                                                                                                 | Remarks on Implementation <sup>c</sup> |
| At vegetative stage                                                                | 1. shallow lateritic soil            | Upland rice-fallow based<br><br>Maize<br><br>Arhar | Crops should be suitably thinned out.<br><br>In-situ rain water conservation, harvesting of excess runoff for re-use and ground water recharge. Conserve rainwater by increasing bund height<br>Top dressing of fertilizers may be postponed till rainfall/ foliar application of nutrients | Wherever economically viable, mulching should be practiced in between crop rows using locally available mulch material.<br><br>Application of weedicide on broad leaf weeds to minimize competition for water |                                        |
|                                                                                    | 2.Alluvial rainfed                   | Medium land rice-fallow based<br><br>Maize         | In-situ rain water conservation, harvesting of excess runoff for re-use and ground water recharge. Conserve rainwater by increasing bund height<br>Application of fertilizer through foliar spray                                                                                           | Small and marginal farmers may be employed under NREGA for creating rain water conservation and storage structures to enhance productivity of their limited land.                                             |                                        |

|  |                      |                  |                                                                                                                                                                   |                                                                                                                                                                     |  |
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|  | 3.shallow black soil | Maize- vegetable | Application of light irrigation to avoid soil cracking<br>Postponement of top dressing                                                                            | Economically viable, mulching should be practiced in between crop rows using locally available mulch material.                                                      |  |
|  | 4.Shallow sandy loam | Vegetable-fallow | Light irrigation<br>Thinning & pruning of vegetables<br>Life saving irrigation from harvested rainwater, wherever feasible, adopt micro-irrigation to save water. | Irrigating the crop in the root zone<br>Sub-soil moisture conservation through minimum tillage<br>Irrigate on ridge and irrigate every alternate furrow on rotation |  |

| Condition                                                                          |                                      |                                                  | Suggested Contingency Measures                                                                                                                                                                                                                                   |                                                                                                                                                                                                |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Crop/cropping system <sup>b</sup>                | Crop management                                                                                                                                                                                                                                                  | Soil nutrient & moisture conservation measure                                                                                                                                                  | Remarks on Implementation <sup>e</sup> |
| At reproductive stage                                                              | 1. shallow lateritic soil            | Upland rice-fallow based                         | Crops should be suitably thinned out<br>Life saving irrigation if possible.<br>Irrigate on ridge and irrigate every alternate furrow on rotation.                                                                                                                | If fertilizers are to be applied, foliar application is recommended.<br>Wherever economically viable, mulching should be practiced in between crop rows using locally available mulch material |                                        |
|                                                                                    | 2.Alluvial rainfed                   | Medium land rice-fallow based<br><br>Maize-Arhar | Life saving irrigation from harvested rainwater.<br>Reduction of conveyance losses while irrigating the light textured soils.<br>Spread a polythene sheet in the field channel before irrigating the field and then roll it back for irrigating the other field. | If fertilizers are to be applied, foliar application is recommended.                                                                                                                           |                                        |

|  |                      |                  |                                                                                                       |                                                                                          |  |
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|  | 3.shallow black soil | Maize- vegetable | -do-                                                                                                  | If fertilizers are to be applied, foliar application is recommended                      |  |
|  | 4.Shallow sandy loam | Vegetable-fallow | Light & frequent (if possible) irrigation to prevent flower drop<br>Plucking vegetables for marketing | Spraying of anti-transpirants to check evapo-transpiration<br>Mulching with crop trashes |  |

#### Contingency measures- End of the season

| Condition        |                                      |                                                  | Suggested Contingency Measures                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                   |                                                                                          |
|------------------|--------------------------------------|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Terminal drought | Major Farming situation <sup>a</sup> | Crop/cropping system <sup>b</sup>                | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                                                                             | Rabi Crop planning <sup>d</sup>                                                                                                                                                                                                                                   | Remarks on Implementation <sup>e</sup>                                                   |
|                  | 1. shallow lateritic soil            | Upland rice-fallow based<br><br>Arhar            | Life saving irrigation from harvested rainwater, wherever feasible, adopt micro-irrigation to save crop. May be harvested for vegetable purpose<br>Harvesting at physiological maturity                                                                                                                                                                  | Cowpea, Sunflower, Field bean, Horsegram, Blackgram, Linseed for month of October                                                                                                                                                                                 | Farm ponds from NREGS, RKVY<br>Seeds from NHM, OSSC                                      |
|                  | 2.Alluvial rainfed                   | Medium land rice-fallow based<br><br>Maize-Arhar | Reduction of conveyance losses while irrigating the light textured soils. Spread a polythene sheet in the field channel before irrigating the field and then roll it back for irrigating the other field.<br><br>Harvesting of rice at physiological maturity will realize 80-85% of normal yield.<br><br>Harvesting of plants for fodder purpose if cob | Raise Brinjal seedlings for Rabi, being a hardy plant it may withstand moisture stress condition<br><br>Cowpea, Sunflower, Field bean, Horsegram, Blackgram, Linseed for month of October<br><br>Crucifer vegetables & other high yielding Solanaceous vegetables | Farm ponds through IWSP programme<br><br>Supply of intercultural implements through RKVY |

|  |                      |                  |                                                                                                                                  |                                                                                                                                                |                                                                                                            |
|--|----------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
|  |                      |                  | formation hampered                                                                                                               |                                                                                                                                                |                                                                                                            |
|  | 3.shallow black soil | Maize- vegetable | Harvesting of plants for fodder purpose if cob formation hampered Vegetables approaching maturity may be harvested for marketing | Cowpea,Carrot, Sunflower, ,Horsegram, Blackgram, Linseed for month of October                                                                  | Farm ponds through IWSM programme<br>Seeds from NHM<br>Supply of intercultural implements through RKVY     |
|  | 4.Shallow sandy loam | Vegetable-fallow | Harvesting of plants for fodder purpose if cob formation hampered Vegetables approaching maturity may be harvested for marketing | Plan for short duration high yielding oilseed especially Mustard/Toria & pulse crops Vegetables like potato,carrot. Radish, & other crucifers. | Farm ponds through IWSM programme<br><br>Supply of intercultural implements through RKVY<br>Seeds from NHM |

#### Under drought for irrigation condition

##### Drought- Irrigated situation

| Condition                                                       |                                                      |                                                 | Suggested Contingency Measures                                |                                                                                                                              |                                                                           |
|-----------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Delayed/ limited release of water in canals due to low rainfall | Major Farming situation <sup>a</sup>                 | Crop/cropping system <sup>b</sup>               | Change in crop/cropping system <sup>c</sup>                   | Agronomic measures <sup>d</sup>                                                                                              | Remarks on Implementation <sup>e</sup>                                    |
|                                                                 | 1. Upland tubewell Irrigated canal laterite soil     | Upland rice-fallow based Hybrid Maize Sugarcane | Vegetable, Maize, Oilseed, pulses                             | Limited & life saving irrigation Alternate furrow irrigation Drip irrigation Planting in deep furrows/Pit method of planting | Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA, |
|                                                                 | 2. Medium land Canal irrigated Alluvial soil         | Medium land rice-fallow based Maize             | Maize, vegetable( Chilli, Tomato, Brinjal, Okra, Cauliflower) | Limited & life saving irrigation Alternate furrow irrigation Drip irrigation Mulching, Irrigation in root zone               | Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA, |
|                                                                 | 3. Tube well/ pond irrigated Shallow sandy loam soil | Vegetable                                       | High yielding varieties with short duration                   | Delayed raising of nursery for delayed planting Limited & life saving irrigation                                             | Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA, |

|  |  |  |  |                                                |  |
|--|--|--|--|------------------------------------------------|--|
|  |  |  |  | Alternate furrow irrigation<br>Drip irrigation |  |
|--|--|--|--|------------------------------------------------|--|

| Condition                                                    |                                                            |                                            | Suggested Contingency Measures                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                        |
|--------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Lack of inflows due to insufficient/delayed onset of monsoon | Major Farming situation <sup>a</sup>                       | Crop/cropping system <sup>b</sup>          | Change in crop/cropping system <sup>c</sup>                                                                                                                                                                                                                  | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Remarks on Implementation <sup>e</sup> |
|                                                              | 1. Upland tubewell<br>Irrigated canal<br>laterite soil     | Upland rice-fallow based                   | Rice area during rabi should be reduced. Instead, low water requiring oilseeds and pulses like groundnut, green gram, black gram, sunflower, sesamum are preferred options. Use of early duration variety like 'MTU-1010' (115 days) is well suited in rabi. | Irrigate the kharif rice with groundwater during dry spells only, if dry spell comes before release of canal water. Reduction of conveyance losses while irrigating the light textured soils. Spread a polythene sheet in the field channel before irrigating the field and then roll it back for irrigating the other field. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. Irrigate the rabi rice at critical stages only with groundwater. |                                        |
|                                                              | 2. Medium land<br>Canal irrigated<br>Alluvial soil         | Medium land rice-fallow based<br><br>Maize | Low water requiring oilseeds and pulses like groundnut, green gram, black gram, sunflower, sesamum                                                                                                                                                           | Same as above for kharif rice                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                        |
|                                                              | 3. Tube well/<br>pond irrigated<br>Shallow sandy loam soil | Vegetable -fallow                          | High yielding varieties with short duration                                                                                                                                                                                                                  | Delayed raising of nursery for delayed planting<br>Limited & life saving irrigation<br>Alternate furrow irrigation<br>Drip irrigation                                                                                                                                                                                                                                                                                                                                                   |                                        |

| Condition |  |  | Suggested Contingency Measures |  |  |
|-----------|--|--|--------------------------------|--|--|
|-----------|--|--|--------------------------------|--|--|

| Insufficient ground water recharge due to low rainfall | Major Farming situation <sup>a</sup>                       | Crop/cropping system <sup>b</sup>          | Change in crop/cropping system <sup>c</sup>                                                                                                                                | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Remarks on Implementation <sup>e</sup> |
|--------------------------------------------------------|------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
|                                                        | 1. Upland tubewell<br>Irrigated canal<br>laterite soil     | Upland rice-fallow based                   | Rice area during rabi should be reduced. Instead low water requiring oilseeds and pulses like groundnut, green gram, black gram, sunflower, sesamum are preferred options. | Irrigate the kharif crops during dry spell with harvested rain water. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. About 11-37 % run-off is generated even by the delayed monsoon and should be stored in the farm ponds or tanks. These will recharge ground water during normal or excessive rainfall year. Rainwater stored in self sealing or lined ponds can be used for irrigation if there is long break in the rainfall or for pre-sowing of the <i>rabi</i> crops to ensure proper germination. |                                        |
|                                                        | 2. Medium land<br>Canal irrigated<br>Alluvial soil         | Medium land rice-fallow based<br><br>Maize | Low water requiring oilseeds and pulses like groundnut, green gram, black gram, sunflower, sesamum                                                                         | Limited & life saving irrigation<br>Alternate furrow irrigation<br>Drip irrigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                        |
|                                                        | 3. Tube well/<br>pond irrigated<br>Shallow sandy loam soil | Vegetable -fallow                          | Low water requiring oilseeds and pulses like groundnut, green gram, black gram, sunflower, sesamum                                                                         | Limited & life saving irrigation<br>Alternate furrow irrigation<br>Drip irrigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                        |

#### Resource management technologies

- Renovation of old/construction of new check dams to harvest rain water and their efficient use for providing supplemental irrigation to crops and for cropping intensification
- Farm ponds for providing critical irrigation to crops in kharif and for cropping intensification during rabi season
- Renovation of community ponds for recharge of ground water and cultivation of onion and sunflower during rabi season
- Raising the farm bund height to 10 inches for enhancing water storage in rice fields and to minimise the impact of dry spell

- Land levelling and bunding for reduction of soil erosion and higher water efficiency
- Conservation furrow in cotton and pigeon pea for in-situ water conservation during moisture stress situations
- Introduction of high value crops capsicum var. Indra, chilli var. Agnirekha, tomato var. Arka Samrat and sweet corn var. Sugar 75 with harvested water for enhancing profitability and income.
- Ridge and furrow method of maize for in-situ moisture conservation under rainfed upland conditions and for safe discharge of runoff during intense rains
- Issuing of soil health cards for soil test based fertiliser application in cotton and rice
- Low cost polyhouse to reduce mortality of vegetable seedlings under heavy rainfall conditions
- Poly-ethylene mulching in brinjal to conserve moisture
- Green manuring with sunhemp to improve soil fertility
- Efficient use of harvested water through drip irrigation in high value crops
- Contour cultivation and sowing across the slope in cotton, pigeon pea and black gram crops
- Drought tolerant rice var. Sahbhagi Dhan for upland conditions, prone to moisture stress
- Flood tolerant rice var. Bina-11 for medium land situations prone to water logging
- Cultivation of drought tolerant and short duration paddy varieties DRR-42 and DRR-44 for delayed monsoon conditions
- Flood tolerant rice var. Swarna Sub-1 in low land, water logging conditions
- Medium duration pigeon pea variety to minimise the impact of moisture stress during harvesting stage
- Introduction of pulses as relay crops after rice for utilising soil moisture effectively and for cropping intensification
- Intercropping of cotton with pigeon pea (4:2 ratio) in place of mono cropping of cotton for minimising risk
- Community vegetable nursery during kharif season for delayed monsoon situations.
- Drought tolerant varieties of sesamum C.V- Prachi, maize C.V- PAC 745 and black gram C.V- Prasad
- Heat stress tolerant tomato var. Chiranjibi with poly-ethylene mulching in summer season
- Growing of short duration green gram varieties TARM-1 and IPM-02-03 for cropping intensification
- Short duration black gram variety-PU-31 for rice fallows
- Crop diversification from rice to maize in uplands under delayed monsoon conditions
- Perennial fodder production by Hybrid Napier (CO4) for year round fodder production
- Urea molasses mineral blocks and feed blocks to overcome the deficiency of minerals
- Area specific mineral mixture feeding @ 50 gram per day for enhancing milk production
- Low cost cattle and goat shed to minimise the heat stress in summer
- Introduction of Vanaraja and Kadaknath poultry varieties to minimise risk and livelihood diversification
- Artificial insemination with Sahiwal and Gir for breed upgradation
- Khaki campbell duck for enhanced egg and meat production with harvested water in farm ponds
- Composite carp culture with yearlings of IMC (Catla, Rohu and Mrigal) for higher income by December with harvested water

# Actionable Comprehensive Plans for Contingency

|       |        |          |           |
|-------|--------|----------|-----------|
| State | ORISSA | District | RAYAGARHA |
|-------|--------|----------|-----------|

## Rainfall info (mm)

| Month/season | Normal rainfall (mm) | Expected deficiency, % | Expected rainfall (mm) |
|--------------|----------------------|------------------------|------------------------|
| June-Sep     | 971.5                | More than 19%          | Less than 786.915      |
| June         | 180.4                |                        |                        |
| July         | 294.7                |                        |                        |
| August       | 261.1                |                        |                        |
| September    | 235.3                |                        |                        |

Forecast probability for the season (as per IMD):Below Normal

## Irrigation info:

|                     |       |                       |       |
|---------------------|-------|-----------------------|-------|
| Net irrigated area: | 41460 | Gross irrigated area: | 42430 |
| Net Rainfed area    | 90168 | Gross rainfed area    | 92430 |

## Source wise irrigation area details (ha)

| Source of irrigation | Net   | Gross |
|----------------------|-------|-------|
| Canals               | -     | 36440 |
| Wells                | -     | 3321  |
| Tanks                | -     | 2669  |
| Other sources        | 41460 | -     |

## Crop Profile (Kharif)

### Cereals

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Rice      | 54407           | 40092               | 14315             |
| 2    | Jowar     | -               | -                   |                   |
| 3    | Maize     | 2450            | 57                  | 2393              |
| 4    | Bajra     | -               |                     |                   |
| 5    | Ragi      | 11657           | 20                  | 11637             |



## Pulses& Oilseeds

| S.No | Crop name      | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|----------------|-----------------|---------------------|-------------------|
| 1    | Arhar/ Redgram | -               |                     |                   |
| 2    | Groundnut      | 1048            | 57                  | 991               |
| 3    | Sesamum        | 1699            | 48                  | 1651              |
| 4    | Soyabean       | -               |                     |                   |
| 5    | Sunflower      | -               |                     |                   |
| 6    | Castor         | -               |                     |                   |

## Fibre

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Cotton    | -               |                     |                   |
| 2    | Jute      | -               |                     |                   |
| 3    | Mesta     | -               |                     |                   |
| 4    | Sunhemp   | -               |                     |                   |

## Other crops

| S.No | Crop name          | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|--------------------|-----------------|---------------------|-------------------|
| 1    | Sugarcane          | -               |                     |                   |
| 2    | Tobacco            | -               |                     |                   |
| 3    | Guar seed          | -               |                     |                   |
| 4    | Other Fodder crops | -               |                     |                   |

## Crop Plan

| Condition                                            |                                       | Suggested Contingency Measures                            |                                                                                                                                                                                                    |                                                                                                                                                                                                                     |                                              |
|------------------------------------------------------|---------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Early season drought (delayed onset)                 | Major Farming situation <sup>a</sup>  | Crop/cropping system <sup>b</sup>                         | Change in crop/cropping system <sup>c</sup> including variety                                                                                                                                      | Agronomic measures <sup>d</sup>                                                                                                                                                                                     | Remarks on Implementation <sup>e</sup>       |
| Delay by 4 weeks<br>(July 2 <sup>nd</sup> week)<br>* | Low rainfall<br>Shallow Red loam soil | a) Upland Paddy (MTU-1010, 1001, Lalat, Ankur ) -- Fallow | Moisture stress tolerant upland paddy varieties such as Kalinga-3, Heera, Pathara, JHU, Bandana, Khandagiri can be taken. Sprouted paddy seeds may be sown<br>Upland paddy may be substituted with | Manage weeds by application of Glyphosate@ 8ml/lit, Strengthen field bunds, use 25% more seed than normal(i.e. 25kg/acre) for direct seeded rice, withheld nitrogen fertilizer application till receipt of rainfall | For seed contact CRR/OUAT / OSSC Bhubaneswar |

|  |  |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                             |
|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | <p>b) Ragi - fallow<br/>(Nirmal &amp; local)</p> <p>c) Sesame local</p> <p>d) Arhar<br/>(Luxmi, BRG-1)</p> <p>e) Maize<br/>(BIO 9681, Pinnacle,<br/>Prabal , Hishell)</p> <p>f) Kharif vegetables</p> <ul style="list-style-type: none"> <li>• Tomato(S-22)</li> <li>• Brinjal(Pinky, Kajal)</li> <li>• Cow pea(local)</li> <li>• Chilli( Tejasvini,Surya)</li> </ul> | <p>low water requiring crops like blackgram(Ujala,PU 30) , Greengram(Durga,PDM-11 &amp; 54), cowpea(Utkal manik), etc.</p> <p>Ragi var. Vairabi, Chilika may be taken; Intercropping of Ragi(Vairabi)+Arhar(UAS -1 or UPAS 120) in 2:1 ratio</p> <p>Short duration Sesame var Prachi, Kanak (75-80 days) may be taken</p> <p>Same varieties or UPAS 120 may be grown. The legume based intercropping system like Maize(Prabal,Pinna cle) +Arhar(ICPL87,UA S-1) ; Arhar + G.nut(Devi,Smruti); Groundnut+ Greengram (TARM-1,2) , in the ratio of 2:1, 2:5 ,4:1 respectively may be practiced</p> <p>Maize (Hybrids) : Ganga-5, Daccan-103, KH 510, KH 101; Maize (Composites) like Shakti-1, Navjot.</p> <p>Growing of short duration vegetables like Tomato( BT-</p> | <p>Higher seed rate @12 kg/ per ha for direct seeded &amp; 6 kg/ha for line sowing</p> <p>Apply 20kg Sulphur/ha during last land preparation, Sow 10 kg seeds/ha mixing with 50kg sand for uniform distribution</p> <p>In acidic soil apply lime @ 0.15 to 0.25 LR (5q lime/PMS) mixed with FYM @ 5 t/ha in furrows at the time of sowing. Adopt Ridge and furrow method of planting Grow vegetative barriers in unbunded uplands to check soil erosion and conserve rain water</p> <p>Same as of Arhar – Spacing of 60x30 should be maintained</p> <p>Withhold basal dose of N, Top dressing when it rains</p> <ul style="list-style-type: none"> <li>- Grow seedlings in raised bed method,Transplant at 3-4 leaf stage without delay.Devote 10 % area of a plot for construction of rain water collection</li> </ul> <p>Sowing with first shower of rain, Mix 200gm of azotobacter &amp; 40gm <u>T .viridae</u> culture per 10 kg of seed before sowing</p> <p>Use 25% more seeds(25 kg/ha in normal case) in case of direct sowing.</p> | <p>-do-</p> <p>-do-</p> <p>-do-</p> <p>-do-</p> <p>For seed contact OUAT, Bhubaneswar National Horticulture Mission in the District</p> <p>For seed contact CRR/OUAT / OSSC Bhubaneswar</p> |
|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|  |  |                              |                                                                                                                                       |                                                                                                              |                                     |
|--|--|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------|
|  |  | g) Blackgram( PU-30, Sarala) | 10), Brinjal( Utkal Anooshree)<br>Cowpea( Utkal Manik, Utkal Gourav), Chilli( Utkal Ava)                                              | Line sowing with 30x10cm spacing<br>Cotton with spacing 90x30 cm & blackgram in 30 cm row to row with Cotton |                                     |
|  |  | h) Cotton ( Bunny)           | Blackgram : TU-94-2, PU30, PU 35, Sarada.<br><br>Pure crop of Cotton(Bunny) or Intercropping Cotton + Blackgram(PU-30) in a ratio 1:2 |                                                                                                              | Seeds from Cotton corporation, RKVY |

| Condition                                                                          |                                       |                                                                                                           | Suggested Contingency Measures                                                                                                    |                                                                                                         |                                                                        |
|------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup>  | Crop/cropping system <sup>b</sup>                                                                         | Crop management                                                                                                                   | Soil nutrient & moisture conservation measure                                                           | Remarks on Implementation                                              |
| At vegetative stage                                                                | Low rainfall<br>Shallow Red loam soil | Upland Paddy (MTU-1010, 1001, Lalat, Ankur ) -- Fallow<br><br>b) Ragi - fallow (Nirmal ,Godavari & local) | Crops should be suitably thinned out.<br>In-situ rain water conservation, harvesting of excess runoff for re-use and ground water | Wherever economically viable, mulching should be practiced in between crop rows using locally available | Supply of seeds from OSSC, OUAT<br><br>Seeds may be procured from NFSM |

|  |  |                                                                                                                                                                                     |                                                                                                                                                                                                   |                                                                                                                                                                            |                                                                                  |
|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
|  |  |                                                                                                                                                                                     | recharge. Conserve rainwater by increasing bund height                                                                                                                                            | mulch material.                                                                                                                                                            | Seeds may be procured from NFSM,RKVY                                             |
|  |  | c) Maize<br>(BIO 9681, Pinnacle, Prabal , Hishell)                                                                                                                                  | Top dressing of fertilizers may be postponed till rainfall/ foliar application of nutrients                                                                                                       | Application of weedicide on broad leaf weeds to minimize competition for water                                                                                             | Seeds may be procured from NFSM, RKVY, ISOPOM                                    |
|  |  | d)Arhar ( Luxmi, BRG-1)                                                                                                                                                             |                                                                                                                                                                                                   |                                                                                                                                                                            | -do-                                                                             |
|  |  | e) Kharif vegetables <ul style="list-style-type: none"> <li>• Tomato(S-22)</li> <li>• Brinjal(Pinky,Kajal)</li> <li>• Cow pea(local)</li> <li>• Chilli( Tejasvini,Surya)</li> </ul> | Hoeing soil & applying to the base, Thinning for optimum plant population                                                                                                                         | Withhold 1 <sup>st</sup> top dressing till the rain resume, spray potassic fertilizer @ 2% to mitigate water stress condition                                              | Seeds from NHM & OUAT<br><br>ATMA,IWDP NHM                                       |
|  |  |                                                                                                                                                                                     | -do-                                                                                                                                                                                              | -do-                                                                                                                                                                       |                                                                                  |
|  |  | f ) Blackgram( PU-30, Sarala)                                                                                                                                                       | Spray 2% KCl + 0.1 ppm boron to overcome drought situations. Foliar application of 2% urea at pre-flowering and flowering stage is helpful to mitigate drought,Close spacing 25 % more N as basal | Mulching along the rows with paddy straw or polythene                                                                                                                      | OSSC, RKVY                                                                       |
|  |  | g) Cotton ( Bunny, Sabita)                                                                                                                                                          | Top dressing of fertilizers may be postponed till rainfall                                                                                                                                        | Conserve rainwater by increasing bund height                                                                                                                               | Cotton scheme from SMS ( Cotton) District Agriculture Office, Cotton Corporation |
|  |  |                                                                                                                                                                                     | Crops should be suitably thinned out. In-situ rain water conservation, harvesting of excess                                                                                                       | Spray potassic fertilizer @ 2%                                                                                                                                             |                                                                                  |
|  |  |                                                                                                                                                                                     |                                                                                                                                                                                                   | Withhold 1 <sup>st</sup> top dressing till the rain resume Spray planofix or celmone 10 ppm (2 ml in 9 litre of water) at 45 days and 20 ppm (4 ml in 9 litre of water) 10 |                                                                                  |

|  |  |  |                                              |                                               |  |
|--|--|--|----------------------------------------------|-----------------------------------------------|--|
|  |  |  | runoff for re-use and ground water recharge. | days later to prevent boll shedding in cotton |  |
|--|--|--|----------------------------------------------|-----------------------------------------------|--|

| Condition                                                                          |                                       |                                                                                                                                                 | Suggested Contingency Measures                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                    |
|------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup>  | Crop/cropping system <sup>b</sup>                                                                                                               | Crop management                                                                                                                                                                                                                                                                                                                                                                                | Soil nutrient & moisture conservation measure                                                                                                                                                                                                                                                                                                                                                                                                                           | Remarks on Implementation          |
| At reproductive stage                                                              | Low rainfall<br>Shallow Red loam soil | Upland Paddy (MTU-1010, 1001, Lalat, Ankur ) -- Fallow                                                                                          | Crops should be suitably thinned out, Life saving irrigation if possible. In-situ rain water conservation, harvesting of excess runoff for re-use and ground water recharge. Conserve rain water by increasing bund height<br>Top dressing of fertilizers be postponed till rainfall/foliar application of nutrients<br><br>Irrigate on ridge and irrigate every alternate furrow on rotation. | If fertilizers are to be applied, foliar application is recommended. Wherever economically viable, mulching should be practiced in between crop rows using locally available mulch material<br>Application of weedicide on broad leaf weeds<br><br>Life saving irrigation<br><br>Application of weedicide on broad leaf weeds to minimize competition for water ,For termite control soil drenching with chlorpyrifos 20 EC @ 4-5 ml/litre of water<br>-do-<br><br>-do- | Supply of seeds through OSSC, NFSM |
|                                                                                    |                                       | b) Ragi - fallow (Nirmal ,Godavari & local)                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -do-                               |
|                                                                                    |                                       | c) Maize (BIO 9681, Pinnacle, Prabal , Hishell)                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | OSSC, RRTTS, OUAT                  |
|                                                                                    |                                       | d) Arhar ( Luxmi, BRG-1)                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | OSSC, RRTTS, OUAT                  |
|                                                                                    |                                       | e) Kharif vegetables <ul style="list-style-type: none"> <li>• Tomato(S-22)</li> <li>• Brinjal(Pinky,Kajal)</li> <li>• Cow pea(local)</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | NHM, OUAT                          |

|  |  |                                                                                                      |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                    |                                                                                                          |
|--|--|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
|  |  | . Chilli(<br>Tejasvini,Surya)<br><br>f ) Blackgram( PU-30, Sarala)<br><br>g) Cotton ( Bunny, Sabita) | Foliar application of 2% urea at pre-flowering and flowering stage is helpful to mitigate drought, Close spacing 25 % more N as basal<br><br>Light & frequent Irrigation during evening hours<br><br>In-situ rain water conservation, harvesting of excess runoff for re-use and ground water recharge | Spray potasic fertilizer @ 2%<br><br>Spray planofix or celmone 10 ppm (2 ml in 9 litre of water) at 45 days and 20 ppm (4 ml in 9 litre of water) 10 days later to prevent boll shedding in cotton | OSSC, OUAT, RKVY<br><br>Cotton scheme from SMS ( Cotton) District Agriculture Office, Cotton Corporation |
|--|--|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|

| Condition                   |                                       |                                                                                                      | Suggested Contingency Measures                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                      |                                                                                            |
|-----------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Terminal drought            | Major Farming situation <sup>a</sup>  | Crop/cropping system <sup>b</sup>                                                                    | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rabi Crop planning <sup>d</sup>                                                      | Remarks on Implementation <sup>e</sup>                                                     |
| Early withdrawal of monsoon | Low rainfall<br>Shallow Red loam soil | Upland rice-fallow based Arhar<br><br>Ragi<br>Maize<br><br>Cotton<br><br>Blackgram<br><br>Vegetables | Harvest at physiological maturity<br>Provide life saving irrigation if possible<br><br>Life saving irrigation from harvested rainwater, wherever feasible, adopt micro-irrigation to save crop.<br>May be harvested for vegetable purpose<br>Harvesting at physiological maturity<br>Green cobs may be marketed for vegetable purpose/plants as fodder<br><br>Regular plucking at shorter interval without allowing overbursting<br>Foliar spray of KCL @ 2% | Cowpea,<br>Sunflower, Field bean, Horsegram, Blackgram, Linseed for month of October | Farm ponds from NREGS, RKVY<br>Seeds from NHM, OSSC<br>Sprinkler, Drip irrigation from NHM |

|  |  |  |                                                                                                                            |  |  |
|--|--|--|----------------------------------------------------------------------------------------------------------------------------|--|--|
|  |  |  | <p>Spraying of 'K' fertilizer@2%</p> <p>Harvest tender fruits for market, Give life saving irrigation at base of plant</p> |  |  |
|--|--|--|----------------------------------------------------------------------------------------------------------------------------|--|--|

### Drought - Irrigated situation

| Condition                                                                      |                                                       |                                      | Suggested Contingency Measures                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                           |                                                                              |
|--------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Delayed/<br>limited<br>release of<br>water in<br>canals due to<br>low rainfall | Major<br>Farming<br>situation <sup>a</sup>            | Crop/cropping<br>system <sup>b</sup> | Change in<br>crop/cropping<br>system <sup>c</sup>                                                                                                                                                                                                                                                     | Agronomic<br>measures <sup>d</sup>                                                                                                                                                                        | Remarks on<br>Implementation <sup>e</sup>                                    |
|                                                                                | 1. Upland tube well/ canal<br>Irrigated red loam soil | Upland rice-fallow based             | Taking of medium duration rice var. like lalat, konark, monaswini, surendra etc in place of long duration var. If delayed by more than one month than Non paddy crops like Sesamum, sunflower may be taken up. High value vegetables may also be taken. Take pulses like Cowpea, Blackgram, greengram | Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield<br>Limited & life saving irrigation                                                                               | Seeds through OSSC, NFSM, NHM<br>Intercultural implements through NHM, ATMA, |
|                                                                                |                                                       | Hybrid Maize                         |                                                                                                                                                                                                                                                                                                       | Sprinkler irrigation                                                                                                                                                                                      | -do-                                                                         |
|                                                                                |                                                       | Arhar                                |                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                           | -do-                                                                         |
|                                                                                |                                                       | Cotton                               |                                                                                                                                                                                                                                                                                                       | Reduction of conveyance losses while irrigating the light textured soils. Spread a polythene sheet in the field channel before irrigating the field and then roll it back for irrigating the other field. | -do-                                                                         |
|                                                                                | 2. Medium land Canal irrigated shallow red loam soil  | Upland rice-fallow based             | Taking of medium duration rice var. like lalat, konark, monaswini, surendra etc in place of long duration var. If delayed by more than one month than Non paddy crops like Sesamum, sunflower may be taken up. High value vegetables may also be taken. Take pulses like Cowpea, Blackgram, greengram | Limited & life saving irrigation<br>Alternate furrow irrigation<br>Drip irrigation<br>Mulching,<br>Irrigation in root zone                                                                                | Seeds through OSSC, NFSM, NHM<br>Intercultural implements through NHM, ATMA, |
|                                                                                |                                                       | Hybrid Maize                         |                                                                                                                                                                                                                                                                                                       | Sprinkler irrigation                                                                                                                                                                                      | Seeds through OSSC, NFSM, Intercultural implements through, ATMA,            |
|                                                                                |                                                       | Arhar                                |                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                           | OSSC, NFSM Intercultural implements through , ATMA,                          |
|                                                                                |                                                       | Cotton                               |                                                                                                                                                                                                                                                                                                       | Reduction of conveyance losses while irrigating                                                                                                                                                           |                                                                              |



|                                                                      |                                                 |                                         |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                           |
|----------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                                                                      |                                                 |                                         | Adopt intercropping with blackgram, Clipping tips to induce branching Maize, vegetable( Chilli, Tomato, Brinjal, Okra, Cauliflower)                                                                                                                              | the light textured soils. Spread a polythene sheet in the field channel before irrigating the field and then roll it back for irrigating the other field.                                                                                                                                                                                                                                                                                                                               | Seeds through OSSC, NFSM, NHM ,                                           |
| <b>Condition</b>                                                     |                                                 |                                         | <b>Suggested Contingency Measures</b>                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                           |
| <b>Lack of inflows due to insufficient/ delayed onset of monsoon</b> | <b>Major Farming situation<sup>a</sup></b>      | <b>Crop/cropping system<sup>b</sup></b> | <b>Change in crop/cropping system<sup>c</sup></b>                                                                                                                                                                                                                | <b>Agronomic measures<sup>d</sup></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Remarks on Implementation<sup>e</sup></b>                              |
|                                                                      | 1. Upland tubewell/ canal Irrigated red soil    | Upland rice-fallow based                | Rice area during rabi should be reduced. Instead, low water requiring oilseeds and pulses like groundnut, green gram, black gram, sunflower, sesamum are preferred options. Use of early duration variety like Heera, Sneha (70-75 days) is well suited in rabi. | Irrigate the kharif rice with groundwater during dry spells only, if dry spell comes before release of canal water. Reduction of conveyance losses while irrigating the light textured soils. Spread a polythene sheet in the field channel before irrigating the field and then roll it back for irrigating the other field. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. Irrigate the rabi rice at critical stages only with groundwater. | Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA, |
|                                                                      | 2. Medium land Canal irrigated Alluvial soil    | Medium land rice-fallow based<br>Maize  | Low water requiring oilseeds and pulses like groundnut, green gram, black gram, sunflower, sesamum                                                                                                                                                               | Same as above for kharif rice                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA, |
|                                                                      | 3. Tube well/ pond irrigated Shallow Black soil | Vegetable –fallow                       | High yielding varieties with short duration                                                                                                                                                                                                                      | Delayed raising of nursery for delayed planting Limited & life saving irrigation                                                                                                                                                                                                                                                                                                                                                                                                        | Seeds through OSSC, NFSM, NHM                                             |

|  |  |  |  |                                                |                                             |
|--|--|--|--|------------------------------------------------|---------------------------------------------|
|  |  |  |  | Alternate furrow irrigation<br>Drip irrigation | Intercultural implements through NHM, ATMA, |
|--|--|--|--|------------------------------------------------|---------------------------------------------|

| Condition                                              |                                           |                                   | Suggested Contingency Measures                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                           |
|--------------------------------------------------------|-------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Insufficient ground water recharge due to low rainfall | Major Farming situation <sup>a</sup>      | Crop/cropping system <sup>b</sup> | Change in crop/cropping system <sup>c</sup>                                                                                                           | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Remarks on Implementation <sup>e</sup>                                    |
|                                                        | Upland tubewell/ canal Irrigated Red soil | Upland rice-fallow based          | Rice area during rabi should be reduced. Instead low water requiring oilseeds and pulses like groundnut, green gram, black gram, sunflower, sesamum . | Irrigate the kharif crops during dry spell with harvested rain water. Harvesting of kharif rice at physiological maturity will realize 80-85% of normal yield. About 11-37 % run-off is generated even by the delayed monsoon and should be stored in the farm ponds or tanks. These will recharge ground water during normal or excessive rainfall year. Rainwater stored in self sealing or lined ponds can be used for irrigation if there is long break in the rainfall or for pre-sowing of the <i>rabi</i> crops to ensure proper germination. | Seeds through OSSC, NFSM, NHM Intercultural implements through NHM, ATMA, |

# Actionable Comprehensive Plans for Contingency

|       |        |          |            |
|-------|--------|----------|------------|
| State | ORISSA | District | SUNDARGARH |
|-------|--------|----------|------------|

## Rainfall info (mm)

| Month/season | Normal rainfall (mm) | Expected deficiency, % | Expected rainfall (mm) |
|--------------|----------------------|------------------------|------------------------|
| June-Sep     | 1193.4               | More than 19%          | Less than 966.654      |
| June         | 214.6                |                        |                        |
| July         | 367.6                |                        |                        |
| August       | 351.6                |                        |                        |
| September    | 259.6                |                        |                        |

Forecast probability for the season (as per IMD):Below Normal

## Irrigation info:

|                     |        |                       |        |
|---------------------|--------|-----------------------|--------|
| Net irrigated area: | 15707  | Gross irrigated area: | 17098  |
| Net Rainfed area    | 186136 | Gross rainfed area    | 187857 |

## Source wise irrigation area details (ha)

| Source of irrigation | Net   | Gross |
|----------------------|-------|-------|
| Canals               | -     | 7321  |
| Wells                | -     | 9208  |
| Tanks                | -     | 569   |
| Other sources        | 15707 | -     |

## Crop Profile (Kharif)

### Cereals

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Rice      | 114641          | 3378                | 111263            |
| 2    | Jowar     | -               | -                   |                   |
| 3    | Maize     | 868             | 21                  | 847               |
| 4    | Bajra     | -               |                     |                   |
| 5    | Ragi      | 1333            | 38                  | 1295              |

## Pulses& Oilseeds

| S.No | Crop name      | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|----------------|-----------------|---------------------|-------------------|
| 1    | Arhar/ Redgram | -               |                     |                   |
| 2    | Groundnut      | 1626            | 506                 | 1120              |
| 3    | Sesamum        | 1128            | 83                  | 1045              |
| 4    | Soyabean       | -               |                     |                   |
| 5    | Sunflower      | -               |                     |                   |
| 6    | Castor         | -               |                     |                   |

## Fibre

| S.No | Crop name | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|-----------|-----------------|---------------------|-------------------|
| 1    | Cotton    | -               |                     |                   |
| 2    | Jute      | -               |                     |                   |
| 3    | Mesta     | -               |                     |                   |
| 4    | Sunhemp   | -               |                     |                   |

## Other crops

| S.No | Crop name          | Total area (ha) | Irrigated area (ha) | Rainfed area (ha) |
|------|--------------------|-----------------|---------------------|-------------------|
| 1    | Sugarcane          | 137             | 137                 | 0                 |
| 2    | Tobacco            | -               |                     |                   |
| 3    | Guar seed          | -               |                     |                   |
| 4    | Other Fodder crops | -               |                     |                   |

## Crop Plan- Beginning of the season

Info for different cropping/farming systems (4 weeks delay) as available in the plan be copied here.

| Condition                                               |                                      |                                                                                                     | Suggested Contingency measures                                             |                                                                                                                 |                                                                                                                                          |
|---------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Early season drought (delayed onset)                    | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                            | Change in crop/cropping system <sup>c</sup>                                | Agronomic measures <sup>d</sup>                                                                                 | Remarks on Implementation <sup>e</sup>                                                                                                   |
| Delay by 4 weeks<br><br><b>July 3<sup>rd</sup> week</b> | Low rainfall lateritic soil          | Sole crops under unbunded rainfed uplands<br>Sesamum<br>Arhar<br>Horse gram<br>Groundnut<br>Mustard | Varietal substitutions of drought tolerant varieties of the sole crops i.e | When the plant population is less than 50% gap filling should be done and if more than 50% mortality, resow the | <ul style="list-style-type: none"> <li>Intercultural farm implements under RKVY.</li> <li>Seeds through NFSM, ISOPOM, NHM and</li> </ul> |

| Condition                            |                                      |                                                                                         | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                        |
|--------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                | Change in crop/cropping system <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Remarks on Implementation <sup>e</sup> |
|                                      |                                      | Rice<br>Kharif<br>vegetables<br>Tomato<br>Brinjal<br>Cow pea<br>Lady's finger<br>Chilli | Usha, Vinayak, Uma, Nirmala and Prachi<br>ICPL 87, UPAS 120, TUR N-2<br>Utkal Ava, Utkal Rashmi<br><br>Intercropping Arhar (Durga)+Paddy (Khandagiri) (2:5)<br>Maize (Kiran)+ Cow pea (Manika) (2:2)<br>Urmi, Local improved TG-6,JL-24, Smruti, Devi,TMV-2,TAG-24<br>M-27, PT-303, YSP-9, Vinaya, Varuna<br>Replaced by Oilseed and Pulses<br>Utkal Urbasi, Utkal Kumari, Utkal Raja<br>U. Madhuri, Blue star, U.Anushree, U.Tarini<br>Utkal Manika<br>Utkal Gourav<br>Bamara local, Kuchinda local, U. Ava, U. Rashmi<br>Intercropping of arhar + groundnut (2 : 5)<br>Arhar var. ICPL 87, UPAS 120, TUR N-2 | <ul style="list-style-type: none"> <li>crop with short duration highInter-cultivation and thinning to maintain plant population per unit area of the crop</li> <li>Follow weed control measures, hoeing &amp; ridging within 20 DAS in case of Groundnut crops like Greengram,Blackgram, Horsegram , Niger,Cow pea, Fodder maize, Sesame and Castor after receiving the rainfall. Cultivate vegetables like okra, brinjal, chilli, radish, cow pea tomato. Complete hoeing, weeding followed by ridging to the base of the root crop at 20 DAS for in-situ moisture conservation in vegetable and</li> <li>groundnut crop</li> </ul> | state seed corporation (OSSC).         |

| Condition                            |                                      |                                              | Suggested Contingency measures                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                               |
|--------------------------------------|--------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>     | Change in crop/cropping system <sup>c</sup>                                                          | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Remarks on Implementation <sup>e</sup>        |
|                                      |                                      |                                              | Arhar + Sesamum (2:4), Arhar+Rice (2:5)<br>Maize + Cow pea (2:2)<br>Maize var. Navjot (HQPM-1)       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                               |
|                                      |                                      | Sole crops under rainfed medium lands : Rice | Sneha, Kalinga-3, Anjali, Jogesh, Hira, JHU, Pathara, Bandana, Khandagiri, Arnapurna, Sahabhagi Dhan | If rice population is less than 50% resow the sprouted seeds in line through pre-germinated seed drill or fresh seedlings.<br>Select short to medium duration varieties ( 90-130d)<br>Raise community nursery of both short duration rice varieties at reliable water source to save further delay of transplanted rice through transplanter saving of 50% seed requirement or through SRI method (@5kg seeds/ha).<br>Do not top dress nitrogen in nursery<br>Apply life saving irrigation to maintain nursery<br>• seedlings. | Linkage with RKVY for Pregerminated<br>▪ seed |
|                                      |                                      | Medium Low Land : Paddy                      | Lalat, Bhoi, Manaswini, Naveen, Vijeta, MTU 1010, Konark, Jogesh and Surendra                        | If rice population is more than 50% carryout weeding and maintain the plant population by Khelua operation (removing and distributing the hills)<br>Raise community nursery of both short duration rice varieties at reliable water                                                                                                                                                                                                                                                                                            |                                               |

| Condition                            |                                      |                                                                 | Suggested Contingency measures                                                                                                       |                                                                                                                                                                                                                                                                                                                        |                                        |
|--------------------------------------|--------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                        | Change in crop/cropping system <sup>c</sup>                                                                                          | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                        | Remarks on Implementation <sup>e</sup> |
|                                      |                                      |                                                                 |                                                                                                                                      | <ul style="list-style-type: none"> <li>• source to save further delay of transplanted rice. Do not top dress nitrogen in</li> <li>• nursery</li> </ul>                                                                                                                                                                 |                                        |
|                                      |                                      | Cropping system: Paddy-Groundnut/ Sesamum/ Horsegram/ Blackgram | Paddy variety: Konark, Lalat<br>Groundnut var. Smruti, Devi, TAG-24<br>Black gram var. T-9, Prasad<br>Sesamum var. Prachi, Nirmala   | <ul style="list-style-type: none"> <li>• Apply organic manure to increase soil water holding capacity</li> <li>• Sow rabi crop immediately after harvest of paddy.</li> <li>• Follow line sowing with higher seed rate.</li> <li>• Adopt suitable moisture conservation measures like weeding, hoeing, etc.</li> </ul> |                                        |
|                                      |                                      | Fallow-green gram/black gram/water melon                        | Greengram variety : (Dhauli, Kamdev, Durga)<br>Black gram: (Sarala, Prasad, Ujala)<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                                                                                                                                                                                                                                                        |                                        |
|                                      |                                      | Plantation crop for rolling topography                          | Guava: A. Safeda, Lucknow<br>49 Mango : (Amrapali, Baiganpalli)<br>Custard apple (Local improved)                                    |                                                                                                                                                                                                                                                                                                                        |                                        |
|                                      |                                      | Composite pisciculture in farm ponds                            | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grass carp)                                                        |                                                                                                                                                                                                                                                                                                                        |                                        |

| Condition                                               |                                      |                                                                                                                                                                                                | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                         |
|---------------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Early season drought (delayed onset)                    | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                       | Change in crop/cropping system <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Remarks on Implementation <sup>e</sup>                                                                                                                                  |
| Delay by 4 weeks<br><br><b>July 3<sup>rd</sup> week</b> | High rainfall lateritic soil         | Sole crops under unbunded rainfed uplands<br>Sesamum<br>Arhar<br>Horse gram<br>Groundnut<br>Mustard<br>Rice<br>Kharif<br>vegetables<br>Tomato<br>Brinjal<br>Cow pea<br>Lady's finger<br>Chilli | Varietal substitutions of drought tolerant varieties of the sole crops i.e<br>Usha, Vinayak, Uma, Nirmala and Prachi<br>ICPL 87, UPAS 120, TUR N-2<br>Utkal Ava, Utkal Rashmi<br><br>Intercropping<br>Arhar (Durga)+Paddy (Khandagiri) (2:5)<br>Maize (Kiran)+ Cow pea (Manika) (2:2)<br>Urmi, Local improved<br>TG-6,JL-24, Smruti, Devi,TMV-2,TAG-24<br>M-27, PT-303, YSP-9, Vinaya, Varuna<br>Replaced by Oilseed and Pulses<br>Utkal Urbasi, Utkal Kumari, Utkal Raja<br>U. Madhuri, Blue star, U.Anushree, U.Tarini<br>Utkal Manika<br>Utkal Gourav<br>Bamara local, Kuchinda local, U. Ava, U. Rashmi<br>Intercropping of arhar + groundnut (2 : | When the plant population is less than 50% gap filling should be done and if more than 50% mortality, resow the<br>• crop with short duration highInter-cultivation and thinning to maintain plant population per unit area of the crop<br>• Follow weed control measures, hoeing & ridging within 20 DAS in case of Groundnut crops like Greengram,Blackgram, Horsegram , Niger,Cow pea, Fodder maize, Sesame and Castor after receiving the rainfall.<br>Cultivate vegetables like okra, brinjal, chilli, radish, cow pea tomato.<br>Complete hoeing, weeding followed by ridging to the base of the root crop at 20 DAS for in-situ moisture conservation in vegetable and<br>• groundnut crop | <ul style="list-style-type: none"> <li>Intercultural farm implements under RKVY.</li> <li>Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).</li> </ul> |



| Condition                            |                                      |                                              | Suggested Contingency measures                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                               |
|--------------------------------------|--------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>     | Change in crop/cropping system <sup>c</sup>                                                                                                      | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Remarks on Implementation <sup>e</sup>        |
|                                      |                                      |                                              | 5)<br>Arhar var. ICPL 87, UPAS 120, TUR<br>N-2<br>Arhar + Sesamum (2:4), Arhar+Rice (2:5)<br>Maize + Cow pea (2:2)<br>Maize var. Navjot (HQPM-1) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                               |
|                                      |                                      | Sole crops under rainfed medium lands : Rice | Sneha, Kalinga-3, Anjali, Jogesh, Hira, JHU, Pathara, Bandana, Khandagiri, Arnapura, Sahabhagi Dhan                                              | If rice population is less than 50% resow the sprouted seeds in line through pre-germinated seed drill or fresh seedlings.<br>Select short to medium duration varieties ( 90-130d)<br>Raise community nursery of both short duration rice varieties at reliable water source to save further delay of transplanted rice through transplanter saving of 50% seed requirement or through SRI method (@5kg seeds/ha).<br>Do not top dress nitrogen in nursery<br>Apply life saving irrigation to maintain nursery<br>• seedlings. | Linkage with RKVY for Pregerminated<br>▪ seed |
|                                      |                                      | Medium Low Land : Paddy                      | Lalat, Bhoi, Manaswini, Naveen, Vijeta, MTU 1010, Konark, Jogesh and Surendra                                                                    | If rice population is more than 50% carryout weeding and maintain the plant population by Khelua operation (removing and distributing the hills)                                                                                                                                                                                                                                                                                                                                                                               |                                               |

| Condition                            |                                      |                                                                 | Suggested Contingency measures                                                                                                     |                                                                                                                                                                                                                                                                                                                |                                        |
|--------------------------------------|--------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                        | Change in crop/cropping system <sup>c</sup>                                                                                        | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                | Remarks on Implementation <sup>e</sup> |
|                                      |                                      |                                                                 |                                                                                                                                    | Raise community nursery of both short duration rice varieties at reliable water <ul style="list-style-type: none"> <li>source to save further delay of transplanted rice.</li> </ul> Do not top dress nitrogen in <ul style="list-style-type: none"> <li>nursery</li> </ul>                                    |                                        |
|                                      |                                      | Cropping system: Paddy-Groundnut/ Sesamum/ Horsegram/ Blackgram | Paddy variety: Konark, Lalat<br>Groundnut var. Smruti, Devi, TAG-24<br>Black gram var. T-9, Prasad<br>Sesamum var. Prachi, Nirmala | <ul style="list-style-type: none"> <li>Apply organic manure to increase soil water holding capacity</li> <li>Sow rabi crop immediately after harvest of paddy.</li> <li>Follow line sowing with higher seed rate.</li> <li>Adopt suitable moisture conservation measures like weeding, hoeing, etc.</li> </ul> |                                        |
|                                      |                                      | Fallow-greengram/ blackgram/ water melon                        | Greengram variety : (Dhuli, Kamdev, Durga)<br>Black gram: (Sarala, Prasad, Ujala)<br>Water melon: (Sugrabya, Andaman, Black magic) |                                                                                                                                                                                                                                                                                                                |                                        |
|                                      |                                      | Plantation crop for rolling topography                          | Guava: A. Safeda, Lucknow<br>49 Mango : (Amrapali, Baiganpalli)<br>Custard apple (Local improved)                                  |                                                                                                                                                                                                                                                                                                                |                                        |
|                                      |                                      | Composite pisciculture in farm ponds                            | Indian major carps (Rohu, Mirgal, Catla plus exotic carps                                                                          |                                                                                                                                                                                                                                                                                                                |                                        |

| Condition                            |                                      |                                          | Suggested Contingency measures              |                                 |                                        |
|--------------------------------------|--------------------------------------|------------------------------------------|---------------------------------------------|---------------------------------|----------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup> | Change in crop/cropping system <sup>c</sup> | Agronomic measures <sup>d</sup> | Remarks on Implementation <sup>e</sup> |
|                                      |                                      |                                          | (Silver/grasscarp)                          |                                 |                                        |

| Condition                                               |                                                |                                                                                                                                                                                             | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                         |
|---------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Early season drought (delayed onset)                    | Major Farming situation <sup>a</sup>           | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                    | Change in crop/cropping system <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Remarks on Implementation <sup>e</sup>                                                                                                                                  |
| Delay by 4 weeks<br><br><b>July 3<sup>rd</sup> week</b> | Medium rainfall<br>black and brown forest soil | Sole crops under unbunded rainfed uplands<br>Sesamum<br>Arhar<br>Horse gram<br>Groundnut<br>Mustard<br>Rice<br>Kharif vegetables<br>Tomato<br>Brinjal<br>Cow pea<br>Lady's finger<br>Chilli | Varietal substitutions of drought tolerant varieties of the sole crops i.e<br>Usha, Vinayak, Uma, Nirmala and Prachi<br>ICPL 87, UPAS 120, TUR N-2<br>Utkal Ava, Utkal Rashmi<br><br>Intercropping<br>Arhar (Durga)+Paddy (Khandagiri) (2:5)<br>Maize (Kiran)+ Cow pea (Manika) (2:2)<br>Urmi, Local improved TG-6,JL-24, Smruti, Devi,TMV-2,TAG-24<br>M-27, PT-303, YSP-9, Vinaya, Varuna<br>Replaced by Oilseed and Pulses<br>Utkal Urbasi, Utkal Kumari, Utkal Raja<br>U. Madhuri, Blue star, U.Anushree, U.Tarini<br>Utkal Manika | When the plant population is less than 50% gap filling should be done and if more than 50% mortality, resow the<br>• crop with short duration highInter-cultivation and thinning to maintain plant population per unit area of the crop<br>• Follow weed control measures, hoeing & ridging within 20 DAS in case of Groundnut<br>crops like Greengram,Blackgram, Horsegram , Niger,Cow pea, Fodder maize, Sesame and Castor after receiving the rainfall.<br>Cultivate vegetables like okra, brinjal, chilli, radish, cow pea tomato.<br>Complete hoeing, weeding followed by ridging to the base of the root crop at 20 DAS for in-situ moisture conservation in vegetable and<br>• groundnut crop | <ul style="list-style-type: none"> <li>Intercultural farm implements under RKVY.</li> <li>Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).</li> </ul> |

| Condition                            |                                      |                                              | Suggested Contingency measures                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |
|--------------------------------------|--------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>     | Change in crop/cropping system <sup>c</sup>                                                                                                                                                                                                                                                     | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                            | Remarks on Implementation <sup>e</sup>        |
|                                      |                                      |                                              | Utkal Gourav<br>Bamara local,<br>Kuchinda local,<br>U. Ava,<br>U. Rashmi<br>Intercropping of<br>arhar + groundnut<br>(2 :<br>5)<br>Arhar var. ICPL<br>87, UPAS 120,<br>TUR<br>N-2<br>Arhar + Sesamum<br>(2:4), Arhar+Rice<br>(2:5)<br>Maize + Cow pea<br>(2:2)<br>Maize var. Navjot<br>(HQPM-1) |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |
|                                      |                                      | Sole crops under rainfed medium lands : Rice | Sneha, Kalinga-3,<br>Anjali, Jogesh,<br>Hira,<br>JHU, Pathara,<br>Bandana,<br>Khandagiri,<br>Arnapura,<br>Sahabhagi Dhan                                                                                                                                                                        | If rice population is less than 50% resow the sprouted seeds in line through pre-germinated seed drill or fresh seedlings.<br>Select short to medium duration varieties ( 90-130d)<br>Raise community nursery of both short duration rice varieties at reliable water source to save further delay of transplanted rice through transplanter saving of 50% seed requirement or through SRI method (@5kg seeds/ha).<br>Do not top dress nitrogen in nursery | Linkage with RKVY for Pregerminated<br>■ seed |

| Condition                            |                                      |                                                                 | Suggested Contingency measures                                                                                                      |                                                                                                                                                                                                                                                                                                                                          |                                        |
|--------------------------------------|--------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
|                                      |                                      |                                                                 | Change in crop/cropping system <sup>c</sup>                                                                                         | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                          | Remarks on Implementation <sup>e</sup> |
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                        |                                                                                                                                     | Apply life saving irrigation to maintain nursery<br>• seedlings.                                                                                                                                                                                                                                                                         |                                        |
|                                      |                                      | Medium Low Land : Paddy                                         | Lalat, Bhoi, Manaswini, Naveen, Vijeta, MTU 1010, Konark, Jogesh and Surendra                                                       | If rice population is more than 50% carryout weeding and maintain the plant population by Khelua operation (removing and distributing the hills)<br>Raise community nursery of both short duration rice varieties at reliable water<br>• source to save further delay of transplanted rice.<br>Do not top dress nitrogen in<br>• nursery |                                        |
|                                      |                                      | Cropping system: Paddy-Groundnut/ Sesamum/ Horsegram/ Blackgram | Paddy variety: Konark, Lalat<br>Groundnut var. Smruti, Devi, TAG-24<br>Black gram var. T-9, Prasad<br>Sesamum var. Prachi, Nirmala  | <ul style="list-style-type: none"> <li>• Apply organic manure to increase soil water holding capacity</li> <li>• Sow rabi crop immediately after harvest of paddy.</li> <li>• Follow line sowing with higher seed rate.</li> <li>• Adopt suitable moisture conservation measures like weeding, hoeing, etc.</li> </ul>                   |                                        |
|                                      |                                      | Fallow-greengram/ blackgram/ water melon                        | Greengram variety : (Dhali, Kamdev, Durga)<br>Black gram: (Sarala, Prasad, Ujala)<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                                                                                                                                                                                                                                                                          |                                        |

| Condition                            |                                      |                                          | Suggested Contingency measures                                                                    |                                 |                                        |
|--------------------------------------|--------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup> | Change in crop/cropping system <sup>c</sup>                                                       | Agronomic measures <sup>d</sup> | Remarks on Implementation <sup>e</sup> |
|                                      |                                      | Plantation crop for rolling topography   | Guava: A. Safeda, Lucknow<br>49 Mango : (Amrapali, Baiganpalli)<br>Custard apple (Local improved) |                                 |                                        |
|                                      |                                      | Composite pisciculture in farm ponds     | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp)                      |                                 |                                        |

| Condition                                               |                                              |                                                                                                                                                                                             | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                         |
|---------------------------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Early season drought (delayed onset)                    | Major Farming situation <sup>a</sup>         | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                    | Change in crop/cropping system <sup>c</sup>                                                                                                                                                                                                                                                                                                           | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Remarks on Implementation <sup>e</sup>                                                                                                                                  |
| Delay by 4 weeks<br><br><b>July 3<sup>rd</sup> week</b> | High rainfall<br>black and brown forest soil | Sole crops under unbanded rainfed uplands<br>Sesamum<br>Arhar<br>Horse gram<br>Groundnut<br>Mustard<br>Rice<br>Kharif vegetables<br>Tomato<br>Brinjal<br>Cow pea<br>Lady's finger<br>Chilli | Varietal substitutions of drought tolerant varieties of the sole crops i.e<br>Usha, Vinayak, Uma, Nirmala and Prachi<br>ICPL 87, UPAS 120, TUR N-2<br>Utkal Ava, Utkal Rashmi<br><br>Intercropping<br>Arhar (Durga)+Paddy (Khandagiri) (2:5)<br>Maize (Kiran)+Cow pea (Manika) (2:2)<br>Urmi, Local improved<br>TG-6,JL-24, Smruti, Devi,TMV-2,TAG-24 | When the plant population is less than 50% gap filling should be done and if more than 50% mortality, resow the<br>• crop with short duration highInter-cultivation and thinning to maintain plant population per unit area of the crop<br>• Follow weed control measures, hoeing & ridging within 20 DAS in case of Groundnut crops like Greengram,Blackgram, Horsegram , Niger,Cow pea, Fodder maize, Sesame and Castor after receiving the rainfall.<br>Cultivate vegetables like okra, brinjal, chilli, radish, cow pea | <ul style="list-style-type: none"> <li>Intercultural farm implements under RKVY.</li> <li>Seeds through NFSM, ISOPOM, NHM and state seed corporation (OSSC).</li> </ul> |

| Condition                            |                                      |                                              | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                       |                                                                                            |
|--------------------------------------|--------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>     | Change in crop/cropping system <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                     | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                       | Remarks on Implementation <sup>e</sup>                                                     |
|                                      |                                      |                                              | M-27, PT-303, YSP-9, Vinaya, Varuna<br>Replaced by Oilseed and Pulses<br>Utkal Urbasi, Utkal Kumari, Utkal Raja<br>U. Madhuri, Blue star, U. Anushree, U. Tarini<br>Utkal Manika<br>Utkal Gourav<br>Bamara local, Kuchinda local, U. Ava, U. Rashmi<br>Intercropping of arhar + groundnut (2 : 5)<br>Arhar var. ICPL 87, UPAS 120, TUR<br>N-2<br>Arhar + Sesamum (2:4), Arhar+Rice (2:5)<br>Maize + Cow pea (2:2)<br>Maize var. Navjot (HQPM-1) | tomato.<br>Complete hoeing, weeding followed by ridging to the base of the root crop at 20<br>DAS for in-situ moisture conservation in vegetable and <ul style="list-style-type: none"> <li>groundnut crop</li> </ul>                                                 |                                                                                            |
|                                      |                                      | Sole crops under rainfed medium lands : Rice | Sneha, Kalinga-3, Anjali, Jogesh, Hira, JHU, Pathara, Bandana, Khandagiri, Arnapura, Sahabhangi Dhan                                                                                                                                                                                                                                                                                                                                            | If rice population is less than 50% resow the sprouted seeds in line through pre-germinated seed drill or fresh seedlings.<br>Select short to medium duration varieties ( 90-130d)<br>Raise community nursery of both short duration rice varieties at reliable water | Linkage with RKVY for Pregerminated <ul style="list-style-type: none"> <li>seed</li> </ul> |

| Condition                            |                                      |                                                                 | Suggested Contingency measures                                                                                            |                                                                                                                                                                                                                                                                                                                                          |                                        |
|--------------------------------------|--------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                        | Change in crop/cropping system <sup>c</sup>                                                                               | Agronomic measures <sup>d</sup>                                                                                                                                                                                                                                                                                                          | Remarks on Implementation <sup>e</sup> |
|                                      |                                      |                                                                 |                                                                                                                           | source to save further delay of transplanted rice through transplanter saving of 50% seed requirement or through SRI method (@5kg seeds/ha).<br>Do not top dress nitrogen in nursery<br>Apply life saving irrigation to maintain nursery<br>• seedlings.                                                                                 |                                        |
|                                      |                                      | Medium Low Land : Paddy                                         | Lalat, Bhoi, Manaswini, Naveen, Vijeta, MTU 1010, Konark, Jogesh and Surendra                                             | If rice population is more than 50% carryout weeding and maintain the plant population by Khelua operation (removing and distributing the hills)<br>Raise community nursery of both short duration rice varieties at reliable water<br>• source to save further delay of transplanted rice.<br>Do not top dress nitrogen in<br>• nursery |                                        |
|                                      |                                      | Cropping system: Paddy-Groundnut/ Sesamum/ Horsegram/ Blackgram | Paddy variety: Konark, Lalat Groundnut var. Smruti, Devi, TAG-24 Black gram var. T-9, Prasad Sesamum var. Prachi, Nirmala | • Apply organic manure to increase soil water holding capacity<br>• Sow rabi crop immediately after harvest of paddy.<br>• Follow line sowing with higher seed rate.<br>• Adopt suitable moisture conservation measures like                                                                                                             |                                        |



| Condition                            |                                      |                                          | Suggested Contingency measures                                                                                                      |                                 |                                        |
|--------------------------------------|--------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------|
| Early season drought (delayed onset) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup> | Change in crop/cropping system <sup>c</sup>                                                                                         | Agronomic measures <sup>d</sup> | Remarks on Implementation <sup>e</sup> |
|                                      |                                      |                                          |                                                                                                                                     | weeding, hoeing, etc.           |                                        |
|                                      |                                      | Fallow-greengram/blackgram/water melon   | Greengram variety : (Dhuli, Kamdev, Durga)<br>Black gram: (Sarala, Prasad, Ujala)<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                 |                                        |
|                                      |                                      | Plantation crop for rolling topography   | Guava: A. Safeda, Lucknow<br>49 Mango : (Amrapali, Baiganpalli)<br>Custard apple (Local improved)                                   |                                 |                                        |
|                                      |                                      | Composite pisciculture in farm ponds     | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp)                                                        |                                 |                                        |

#### Contingency measures- Mid season

Info for different cropping/farming systems (mid season) as available in the plan be copied here.

| Condition                                                                          |                                      |                                                                                                                            | Suggested Contingency measures                                                                                                              |                                                                                                                                                                                                         |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                                                   | Crop management <sup>c</sup>                                                                                                                | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                             | Remarks on Implementation <sup>e</sup> |
| At vegetative stage                                                                | Low rainfall lateritic soil          | Sole crops under unbunded rainfed uplands<br>Sesamum<br>Green gram<br>Black gram<br>Groundnut<br>Rice<br>Kharif vegetables | Varietal substitutions of drought Varietal substitutions of drought tolerant varieties of the sole crops<br>Thinning and gap filling of the | <ul style="list-style-type: none"> <li>• Inter-cultivation (Dust mulching)</li> <li>• Organic mulching with previous crop residues</li> <li>• Follow ridge and furrow method of planting for</li> </ul> |                                        |

| Condition                                                                          |                                      |                                                                                                        | Suggested Contingency measures                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                               |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                               | Crop management <sup>c</sup>                                                                      | Soil nutrient & moisture conservation measues <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                    | Remarks on Implementation <sup>e</sup> |
|                                                                                    |                                      | Tomato<br>Brinjal<br>Cow pea<br>Lady's finger <ul style="list-style-type: none"> <li>Chilli</li> </ul> | existing crop if mortality is less than 50%.<br>Resow the crop if the mortality is more than 50%. | groundnut and vegetable crops. <ul style="list-style-type: none"> <li>Follow strip cropping in rolling topography for moisture conservation</li> <li>Live saving irrigation at critical stages</li> </ul>                                                                                                                                                                                                     |                                        |
|                                                                                    |                                      | Sole crops under rainfed medium lands : Rice                                                           | Choose short of around 120 days like sahabhagidhan, Khnadagiri, MTU-1010, Lalat, Konark, Surendra | <ul style="list-style-type: none"> <li>Weed out the field</li> <li>Go for gap filling using seedling of same age.</li> <li>Strengthen the field bunds and close the holes</li> <li>Provide life saving irrigation</li> <li>Checking the drainage &amp; seepage loss of water</li> <li>Planting 3-4 seedlings /hill with closer spacing</li> </ul>                                                             |                                        |
|                                                                                    |                                      | Sole crops under rainfed medium low lands : Rice                                                       | Swarna, Pooja, Pratikshya                                                                         | <ul style="list-style-type: none"> <li>Seedling of 45 days old can be transplanted or gap filling.</li> <li>Weed out the field</li> <li>Follow plant protection measures</li> <li>Provide protective irrigation through harvested rain water</li> <li>Strengthen field bunds.</li> <li>Checking the drainage &amp; seepage loss of water</li> <li>Planting 3-4 seedlings /hill with closer spacing</li> </ul> |                                        |

| Condition                                                                          |                                      |                                           | Suggested Contingency measures                                                                                                    |                                                                                                                                              |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>  | Crop management <sup>c</sup>                                                                                                      | Soil nutrient & moisture conservation measues <sup>d</sup>                                                                                   | Remarks on Implementation <sup>e</sup> |
|                                                                                    |                                      | Cropping system: Paddy-Sesamum/ Blackgram | Paddy variety: Sneha, Hira Sesamum var. Prachi, Nirmala Blackgram var. Prasad, T-9                                                | Carry out weeding, hoeing to conserve soil moisture<br>Follow appropriate plant protection measures<br>Provide irrigation at critical stages |                                        |
|                                                                                    |                                      | Fallow- Greengram/Blackgram / Water melon | Greengram variety : (Dhali, Kamdev, Durga)<br>Black gram: Sarala, Prasad, Ujala<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                                                                              |                                        |
|                                                                                    |                                      | Plantation crop for rolling topography    | Guava: A. Safeda, Lucknow-49<br>Mango : (Amrapali, Sindhu)<br>Custard apple (Local improved)                                      |                                                                                                                                              |                                        |
|                                                                                    |                                      | Composite pisciculture in farm ponds      | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp)                                                      | 5000 no/ha                                                                                                                                   |                                        |

| Condition                                                                          |                                      |                                                                                                                                                                             | Suggested Contingency measures                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                              |                                        |
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| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                                                                                                    | Crop management <sup>c</sup>                                                                                                                                                                                                                  | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                  | Remarks on Implementation <sup>e</sup> |
| At vegetative stage                                                                | Medium rainfall red and black soil   | Sole crops under unbanded rainfed uplands<br>Sesamum<br>Green gram<br>Black gram<br>Groundnut<br>Rice<br>Kharif vegetables<br>Tomato<br>Brinjal<br>Cow pea<br>Lady's finger | Varietal substitutions of drought Varietal substitutions of drought tolerant varieties of the sole crops<br>Thinning and gap filling of the existing crop if mortality is less than 50%.<br>Resow the crop if the mortality is more than 50%. | <ul style="list-style-type: none"> <li>• Inter-cultivation (Dust mulching)</li> <li>• Organic mulching with previous crop residues</li> <li>• Follow ridge and furrow method of planting for groundnut and vegetable crops.</li> <li>• Follow strip cropping in rolling topography for moisture conservation</li> <li>• Live saving irrigation at critical stages</li> </ul> |                                        |
|                                                                                    |                                      | <ul style="list-style-type: none"> <li>• Chilli</li> </ul>                                                                                                                  |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                              |                                        |
|                                                                                    |                                      | Sole crops under rainfed medium lands : Rice                                                                                                                                | Choose short of around 120 days like sahabhagidhan, Khnadagiri, MTU-1010, Lalat, Konark, Surendra                                                                                                                                             | <ul style="list-style-type: none"> <li>• Weed out the field</li> <li>• Go for gap filling using seedling of same age.</li> <li>• Strengthen the field bunds and close the holes</li> <li>• Provide life saving irrigation</li> <li>• Checking the drainage &amp; seepage loss of water</li> <li>• Planting 3-4 seedlings /hill with closer spacing</li> </ul>                |                                        |
|                                                                                    |                                      | Sole crops under rainfed medium low lands : Rice                                                                                                                            | Swarna, Pooja, Pratikshya                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>• Seedling of 45 days old can be transplanted or gap filling.</li> <li>• Weed out the field</li> </ul>                                                                                                                                                                                                                                |                                        |

| Condition                                                                          |                                      |                                          | Suggested Contingency measures                                                                                                     |                                                                                                                                                                                                                                                                                                              |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup> | Crop management <sup>c</sup>                                                                                                       | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                  | Remarks on Implementation <sup>e</sup> |
|                                                                                    |                                      |                                          |                                                                                                                                    | <ul style="list-style-type: none"> <li>Follow plant protection measures</li> <li>Provide protective irrigation through harvested rain water</li> <li>Strengthen field bunds.</li> <li>Checking the drainage &amp; seepage loss of water</li> <li>Planting 3-4 seedlings /hill with closer spacing</li> </ul> |                                        |
|                                                                                    |                                      | Cropping system: Paddy-Sesamum/Blackgram | Paddy variety: Sneha, Hira<br>Sesamum var. Prachi, Nirmala<br>Blackgram var. Prasad, T-9                                           | Carry out weeding, hoeing to conserve soil moisture<br>Follow appropriate plant protection measures<br>Provide irrigation at critical stages                                                                                                                                                                 |                                        |
|                                                                                    |                                      | Fallow-Greengram/Blackgram/Water melon   | Greengram variety : (Dhauli, Kamdev, Durga)<br>Black gram: Sarala, Prasad, Ujala<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                                                                                                                                                                                                                                              |                                        |
|                                                                                    |                                      | Plantation crop for rolling topography   | Guava: A. Safeda, Lucknow-49<br>Mango : (Amrapali, Sindhu)<br>Custard apple (Local improved)                                       |                                                                                                                                                                                                                                                                                                              |                                        |
|                                                                                    |                                      | Composite pisciculture in farm ponds     | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp)                                                       | 5000 no/ha                                                                                                                                                                                                                                                                                                   |                                        |

| Condition                                                                          |                                      |                                                                                                                                                                                                                                        | Suggested Contingency measures                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                    |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                                                               | Crop management <sup>c</sup>                                                                                                                                                                                                                  | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                        | Remarks on Implementation <sup>e</sup> |
| At vegetative stage                                                                | High rainfall lateritic soil         | Sole crops under unbunded rainfed uplands<br>Sesamum<br>Green gram<br>Black gram<br>Groundnut<br>Rice<br>Kharif vegetables<br>Tomato<br>Brinjal<br>Cow pea<br>Lady's finger<br><ul style="list-style-type: none"> <li>Chili</li> </ul> | Varietal substitutions of drought Varietal substitutions of drought tolerant varieties of the sole crops<br>Thinning and gap filling of the existing crop if mortality is less than 50%.<br>Resow the crop if the mortality is more than 50%. | <ul style="list-style-type: none"> <li>Inter-cultivation (Dust mulching)</li> <li>Organic mulching with previous crop residues</li> <li>Follow ridge and furrow method of planting for groundnut and vegetable crops.</li> <li>Follow strip cropping in rolling topography for moisture conservation</li> <li>Live saving irrigation at critical stages</li> </ul> |                                        |
|                                                                                    |                                      | Sole crops under rainfed medium lands :<br>Rice                                                                                                                                                                                        | Choose short of around 120 days like<br>sahabhagidhan, Khnadagiri, MTU-1010, Lalat, Konark, Surendra                                                                                                                                          | <ul style="list-style-type: none"> <li>Weed out the field</li> <li>Go for gap filling using seedling of same age.</li> <li>Strengthen the field bunds and close the holes</li> <li>Provide life saving irrigation</li> <li>Checking the drainage &amp; seepage loss of water</li> <li>Planting 3-4 seedlings /hill with closer spacing</li> </ul>                  |                                        |

| Condition                                                                          |                                      |                                                  | Suggested Contingency measures                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                               |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>         | Crop management <sup>c</sup>                                                                                                       | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                   | Remarks on Implementation <sup>e</sup> |
|                                                                                    |                                      | Sole crops under rainfed medium low lands : Rice | Swarna, Pooja, Pratikshya                                                                                                          | <ul style="list-style-type: none"> <li>Seedling of 45 days old can be transplanted or gap filling.</li> <li>Weed out the field</li> <li>Follow plant protection measures</li> <li>Provide protective irrigation through harvested rain water</li> <li>Strengthen field bunds.</li> <li>Checking the drainage &amp; seepage loss of water</li> <li>Planting 3-4 seedlings /hill with closer spacing</li> </ul> |                                        |
|                                                                                    |                                      | Cropping system: Paddy- Sesamum/ Blackgram       | Paddy variety: Sneha, Hira<br>Sesamum var. Prachi, Nirmala<br>Blackgram var. Prasad, T-9                                           | Carry out weeding, hoeing to conserve soil moisture<br>Follow appropriate plant protection measures<br>Provide irrigation at critical stages                                                                                                                                                                                                                                                                  |                                        |
|                                                                                    |                                      | Fallow- Greengram/Blackgram/ Water melon         | Greengram variety : (Dhauli, Kamdev, Durga)<br>Black gram: Sarala, Prasad, Ujala<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                                                                                                                                                                                                                                                                                                                                               |                                        |

| Condition                                                                          |                                      |                                          | Suggested Contingency measures                                                               |                                                             |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup> | Crop management <sup>c</sup>                                                                 | Soil nutrient & moisture conservation measures <sup>d</sup> | Remarks on Implementation <sup>e</sup> |
|                                                                                    |                                      | Plantation crop for rolling topography   | Guava: A. Safeda, Lucknow-49<br>Mango : (Amrapali, Sindhu)<br>Custard apple (Local improved) |                                                             |                                        |
|                                                                                    |                                      | Composite pisciculture in farm ponds     | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp)                 | 5000 no/ha                                                  |                                        |

| Condition                                                                          |                                             |                                                                                                                                                                                                                                      | Suggested Contingency measures                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                       |                                        |
|------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup>        | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                                                             | Crop management <sup>c</sup>                                                                                                                                                                                                                  | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                           | Remarks on Implementation <sup>e</sup> |
| At vegetative stage                                                                | Medium rainfall black and brown forest soil | Sole crops under unbunded rainfed uplands<br>Sesamum<br>Green gram<br>Black gram<br>Groundnut<br>Rice<br>Kharif vegetables<br>Tomato<br>Brinjal<br>Cow pea<br>Lady's finger <ul style="list-style-type: none"> <li>Chilli</li> </ul> | Varietal substitutions of drought Varietal substitutions of drought tolerant varieties of the sole crops<br>Thinning and gap filling of the existing crop if mortality is less than 50%.<br>Resow the crop if the mortality is more than 50%. | <ul style="list-style-type: none"> <li>Inter-cultivation (Dust mulching)</li> <li>Organic mulching with previous crop residues</li> <li>Follow ridge and furrow method of planting for groundnut and vegetable crops.</li> <li>Follow strip cropping in rolling topography</li> </ul> |                                        |



| Condition                                                                          |                                      |                                                  | Suggested Contingency measures                                                                    |                                                                                                                                                                                                                                                                                                                                                               |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>         | Crop management <sup>c</sup>                                                                      | Soil nutrient & moisture conservation measues <sup>d</sup>                                                                                                                                                                                                                                                                                                    | Remarks on Implementation <sup>e</sup> |
|                                                                                    |                                      |                                                  |                                                                                                   | for moisture conservation<br><ul style="list-style-type: none"> <li>• Live saving irrigation at critical stages</li> </ul>                                                                                                                                                                                                                                    |                                        |
|                                                                                    |                                      | Sole crops under rainfed medium lands : Rice     | Choose short of around 120 days like sahabhagidhan, Khnadagiri, MTU-1010, Lalat, Konark, Surendra | <ul style="list-style-type: none"> <li>• Weed out the field</li> <li>• Go for gap filling using seedling of same age.</li> <li>• Strengthen the field bunds and close the holes</li> <li>• Provide life saving irrigation</li> <li>• Checking the drainage &amp; seepage loss of water</li> <li>• Planting 3-4 seedlings /hill with closer spacing</li> </ul> |                                        |
|                                                                                    |                                      | Sole crops under rainfed medium low lands : Rice | Swarna, Pooja, Pratikshya                                                                         | <ul style="list-style-type: none"> <li>• Seedling of 45 days old can be transplanted or gap filling.</li> <li>• Weed out the field</li> <li>• Follow plant protection measures</li> <li>• Provide protective irrigation through harvested rain water</li> <li>• Strengthen field bunds.</li> </ul>                                                            |                                        |

| Condition                                                                          |                                      |                                           | Suggested Contingency measures                                                                                                     |                                                                                                                                                                   |                                        |
|------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>  | Crop management <sup>c</sup>                                                                                                       | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                       | Remarks on Implementation <sup>e</sup> |
|                                                                                    |                                      |                                           |                                                                                                                                    | <ul style="list-style-type: none"> <li>• Checking the drainage &amp; seepage loss of water</li> <li>• Planting 3-4 seedlings /hill with closer spacing</li> </ul> |                                        |
|                                                                                    |                                      | Cropping system: Paddy-Sesamum/ Blackgram | Paddy variety: Sneha, Hira<br>Sesamum var. Prachi, Nirmala<br>Blackgram var. Prasad, T-9                                           | Carry out weeding, hoeing to conserve soil moisture<br>Follow appropriate plant protection measures<br>Provide irrigation at critical stages                      |                                        |
|                                                                                    |                                      | Fallow- Greengram/Blackgram/ Water melon  | Greengram variety : (Dhauli, Kamdev, Durga)<br>Black gram: Sarala, Prasad, Ujala<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                                                                                                   |                                        |
|                                                                                    |                                      | Plantation crop for rolling topography    | Guava: A. Safeda, Lucknow-49<br>Mango : (Amrapali, Sindhu)<br>Custard apple (Local improved)                                       |                                                                                                                                                                   |                                        |

| Condition                                                                          |                                      |                                          | Suggested Contingency measures                                               |                                                             |                                        |
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| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup> | Crop management <sup>c</sup>                                                 | Soil nutrient & moisture conservation measures <sup>d</sup> | Remarks on Implementation <sup>e</sup> |
|                                                                                    |                                      | Composite pisciculture in farm ponds     | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp) | 5000 no/ha                                                  |                                        |

| Condition                                                                          |                                           |                                                                                                                                                                                                                                      | Suggested Contingency measures                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                    |                                        |
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| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup>      | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                                                             | Crop management <sup>c</sup>                                                                                                                                                                                                                  | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                        | Remarks on Implementation <sup>e</sup> |
| At vegetative stage                                                                | High rainfall black and brown forest soil | Sole crops under unbunded rainfed uplands<br>Sesamum<br>Green gram<br>Black gram<br>Groundnut<br>Rice<br>Kharif vegetables<br>Tomato<br>Brinjal<br>Cow pea<br>Lady's finger <ul style="list-style-type: none"> <li>Chilli</li> </ul> | Varietal substitutions of drought Varietal substitutions of drought tolerant varieties of the sole crops<br>Thinning and gap filling of the existing crop if mortality is less than 50%.<br>Resow the crop if the mortality is more than 50%. | <ul style="list-style-type: none"> <li>Inter-cultivation (Dust mulching)</li> <li>Organic mulching with previous crop residues</li> <li>Follow ridge and furrow method of planting for groundnut and vegetable crops.</li> <li>Follow strip cropping in rolling topography for moisture conservation</li> <li>Live saving irrigation at critical stages</li> </ul> |                                        |
|                                                                                    |                                           | Sole crops under rainfed medium lands : Rice                                                                                                                                                                                         | Choose short of around 120 days like                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Weed out the field</li> </ul>                                                                                                                                                                                                                                                                                               |                                        |

| Condition                                                                          |                                      |                                                  | Suggested Contingency measures                               |                                                                                                                                                                                                                                                                                                                                                                                     |                                        |
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| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>         | Crop management <sup>c</sup>                                 | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                         | Remarks on Implementation <sup>e</sup> |
|                                                                                    |                                      |                                                  | sahabhagidhan, Khnadagiri, MTU-1010, Lalat, Konark, Surendra | <ul style="list-style-type: none"> <li>Go for gap filling using seedling of same age.</li> <li>Strengthen the field bunds and close the holes</li> <li>Provide life saving irrigation</li> <li>Checking the drainage &amp; seepage loss of water</li> <li>Planting 3-4 seedlings /hill with closer spacing</li> </ul>                                                               |                                        |
|                                                                                    |                                      | Sole crops under rainfed medium low lands : Rice | Swarna, Pooja, Pratikshya                                    | <ul style="list-style-type: none"> <li>Seedling of 45 days old can be transplanted or gap filling.</li> <li>Weed out the field</li> <li>Follow plant protection measures</li> <li>Provide protective irrigation through harvested rain water</li> <li>Strengthen field bunds.</li> <li>Checking the drainage &amp; seepage loss of water</li> <li>Planting 3-4 seedlings</li> </ul> |                                        |

| Condition                                                                          |                                      |                                           | Suggested Contingency measures                                                                                                    |                                                                                                                                              |                                        |
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| Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>  | Crop management <sup>c</sup>                                                                                                      | Soil nutrient & moisture conservation measues <sup>d</sup>                                                                                   | Remarks on Implementation <sup>e</sup> |
|                                                                                    |                                      |                                           |                                                                                                                                   | /hill with closer spacing                                                                                                                    |                                        |
|                                                                                    |                                      | Cropping system: Paddy-Sesamum/ Blackgram | Paddy variety: Sneha, Hira<br>Sesamum var. Prachi, Nirmala<br>Blackgram var. Prasad, T-9                                          | Carry out weeding, hoeing to conserve soil moisture<br>Follow appropriate plant protection measures<br>Provide irrigation at critical stages |                                        |
|                                                                                    |                                      | Fallow- Greengram/Blackgram/ Water melon  | Greengram variety : (Dhali, Kamdev, Durga)<br>Black gram: Sarala, Prasad, Ujala<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                                                                              |                                        |
|                                                                                    |                                      | Plantation crop for rolling topography    | Guava: A. Safeda, Lucknow-49<br>Mango : (Amrapali, Sindhu)<br>Custard apple (Local improved)                                      |                                                                                                                                              |                                        |
|                                                                                    |                                      | Composite pisciculture in farm ponds      | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp)                                                      | 5000 no/ha                                                                                                                                   |                                        |

| Condition                           |                                      |                                                                                                                                                                                              | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                        |
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| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                     | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Remarks on Implementation <sup>e</sup> |
| At flowering / fruiting stage       | Low rainfall lateritic soil          | Sole crops under unbunded rainfed uplands<br>Sesamum<br>Green gram<br>Black gram<br>Groundnut<br>Rice<br><b>Kharif vegetables</b><br>Tomato<br>Brinjal<br>Cow pea<br>Lady's finger<br>Chilli | Varietal substitutions of drought tolerant varieties of the sole crops i.e Hira, JHU, Pathara, Khandagiri Uma, Nirmala and Prachi Sujata, Durga, PDM-11& 54 Pant U-19 &30,Ujala,Saral <sup>a</sup> Smruti,Devi, TMV-2,TAG-24<br><br>Blue Star, Utkal Tarini, Local Utkal Manika Utkal Gourav, Arka Anamika Utkal ava, Utkal rashmi Utkal Kumari, Utkal Raja Blue star, Utkal Anushree, Utkal Tarini Utkal Manika Utkal Gourav Kuchinda local, Utkal ava Intercropping of arhar + groundnut (2 : 5) Arhar var. ICPL 87, UPAS 120, TUR N-2 Arhar + Sesamum (2:4) Maize + Cow pea (2:2) Maize var. Navjot & Cow pea Var; | <ul style="list-style-type: none"> <li>• Spray 2% KCl + 0.1 % boron to non paddy crops to overcome drought.</li> <li>• Remove and destroy pest and disease affected plants</li> <li>• Provide irrigation at critical stages at flowering and grain filling stage.</li> <li>• Need based plant protection measures to be taken.</li> </ul> <p>Crops like cow pea, green gram, black gram, maize and vegetables may be harvested.</p> <p>Under situation of complete failure of Kharif crop, dismantle it and sow pre-rabi crops minor pulses like horse gram (var. Urmi), Niger (Deomali)</p> <p>Need based plant protection</p> <ul style="list-style-type: none"> <li>• measures to be taken.</li> </ul> |                                        |

| Condition                           |                                      |                                              | Suggested Contingency measures                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                        |
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| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>     | Crop management <sup>c</sup>                                                                  | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                               | Remarks on Implementation <sup>e</sup> |
|                                     |                                      |                                              | Utkal Manika Yam : (Orissa Elite, Pusa Hemlata                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                        |
|                                     |                                      | Sole crops under rainfed medium lands : Rice | Choose short duration paddy like khnadagiri, sahabhgaidhan, MTU-1010, Lalat, Konark, Surendra | <p>Advised to spray Tricyclazole (Beam/Team) 0.06-0.1% at 10-12 days interval to control blast and brown spot diseases in rice during this period.</p> <p>To control stem borer and Gandhi bug, spray methyl demeton/dimethioate</p> <p>Provide life saving irrigation.</p> <ul style="list-style-type: none"> <li>• Checking the drainage &amp; seepage loss of water</li> </ul> <p>Planting 3-4 seedlings /hill with closer spacing</p> |                                        |
|                                     |                                      | Low Land : Paddy                             | Swarna, Pooja, Pratikshya                                                                     | <ul style="list-style-type: none"> <li>• For late transplanted rice 2 spraying at 10 days interval with Validamycin (Sheathmar/ Rhizocin) 0.3% to control sheath blight.</li> <li>• Provide life saving irrigation and plugging of drainage holes.</li> <li>• Incorporation of green manuring crop to conserve soil moisture</li> <li>• Checking the drainage &amp; seepage loss of water</li> </ul>                                      |                                        |

| Condition                           |                                      |                                           | Suggested Contingency measures                                                                                                     |                                                                                                                                                            |                                        |
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|                                     |                                      |                                           | Crop management <sup>c</sup>                                                                                                       | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                | Remarks on Implementation <sup>e</sup> |
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>  |                                                                                                                                    | <ul style="list-style-type: none"> <li>Planting 3-4 seedlings /hill with closer spacing</li> </ul>                                                         |                                        |
|                                     |                                      | Cropping system: Paddy-Sesamum/ Blackgram | Paddy variety: Lalat, Khandagiri Sesamum var. Prachi, Nirmala Blackgram var. Prasad, T-9                                           | Carry out weeding, hoeing & earthing up to conserve soil moisture<br>Follow appropriate plant protection measures<br>Provide irrigation at critical stages |                                        |
|                                     |                                      | Fallow- Greengram/Blackgram/ Water melon  | Greengram variety : (Dhauli, Kamdev, Durga)<br>Black gram: Sarala, Prasad, Ujala<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                                                                                            |                                        |
|                                     |                                      | Plantation crop for rolling topography    | Guava: A. Safeda, Lucknow-49<br>Mango : (Amrapali, Sindhu)<br>Custard apple (Local improved)                                       |                                                                                                                                                            |                                        |
|                                     |                                      | Composite pisciculture in farm ponds      | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp )                                                      | 5000 no/ha                                                                                                                                                 |                                        |



| Condition                           |                                      |                                                                                                                                                                                                                                                             | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                        |
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| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                                                                                    | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Remarks on Implementation <sup>e</sup> |
| At flowering / fruiting stage       | Medium rainfall red and black soil   | <p>Sole crops under unbunded rainfed uplands</p> <p>Sesamum<br/>Green gram<br/>Black gram<br/>Groundnut<br/>Rice</p> <ul style="list-style-type: none"> <li>Kharif vegetables</li> </ul> <p>Tomato<br/>Brinjal<br/>Cow pea<br/>Lady's finger<br/>Chilli</p> | <p>Varietal substitutions of drought tolerant varieties of the sole crops i.e Hira, JHU, Pathara, Khandagiri Uma, Nirmala and Prachi Sujata, Durga, PDM-11&amp; 54 Pant U-19 &amp;30,Ujala,Saral a Smruti,Devi, TMV-2,TAG-24</p> <p>Blue Star, Utkal Tarini, Local Utkal Manika Utkal Gourav, Arka Anamika Utkal ava, Utkal rashmi Utkal Kumari, Utkal Raja Blue star, Utkal Anushree, Utkal Tarini Utkal Manika Utkal Gourav Kuchinda local, Utkal ava Intercropping of arhar + groundnut (2 : 5) Arhar var. ICPL 87, UPAS 120, TUR N-2 Arhar + Sesamum (2:4) Maize + Cow pea (2:2) Maize var. Navjot &amp; Cow pea Var; Utkal Manika</p> | <ul style="list-style-type: none"> <li>Spray 2% KCl + 0.1 % boron to non paddy crops to overcome drought.</li> <li>Remove and destroy pest and disease affected plants</li> <li>Provide irrigation at critical stages at flowering and grain filling stage.</li> <li>Need based plant protection measures to be taken.</li> </ul> <p>Crops like cow pea, green gram, black gram, maize and vegetables may be harvested.</p> <p>Under situation of complete failure of Kharif crop, dismantle it and sow pre-rabi crops minor pulses like horse gram (var. Urmi), Niger (Deomali)</p> <p>Need based plant protection</p> <ul style="list-style-type: none"> <li>measures to be taken.</li> </ul> |                                        |

| Condition                           |                                      |                                              | Suggested Contingency measures                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                        |
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|                                     |                                      |                                              | Crop management <sup>c</sup>                                                                  | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                      | Remarks on Implementation <sup>e</sup> |
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>     | Yam : (Orissa Elite, Pusa Hemlata                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                        |
|                                     |                                      | Sole crops under rainfed medium lands : Rice | Choose short duration paddy like khnadagiri, sahabhgaidhan, MTU-1010, Lalat, Konark, Surendra | <p>Advised to spray Tricyclazole (Beam/Team) 0.06-0.1% at 10-12 days interval to control blast and brown spot diseases in rice during this period.</p> <p>To control stem borer and Gandhi bug, spray methyl demeton/dimethioate</p> <p>Provide life saving irrigation.</p> <ul style="list-style-type: none"> <li>• Checking the drainage &amp; seepage loss of water</li> </ul> <p>Planting 3-4 seedlings /hill with closer spacing</p>                        |                                        |
|                                     |                                      | Low Land : Paddy                             | Swarna, Pooja, Pratikshya                                                                     | <ul style="list-style-type: none"> <li>• For late transplanted rice 2 spraying at 10 days interval with Validamycin (Sheathmar/ Rhizocin) 0.3% to control sheath blight.</li> <li>• Provide life saving irrigation and plugging of drainage holes.</li> <li>• Incorporation of green manuring crop to conserve soil moisture</li> <li>• Checking the drainage &amp; seepage loss of water</li> <li>• Planting 3-4 seedlings /hill with closer spacing</li> </ul> |                                        |

| Condition                           |                                      |                                           | Suggested Contingency measures                                                                                                    |                                                                                                                                                            |                                        |
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| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>  | Crop management <sup>c</sup>                                                                                                      | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                | Remarks on Implementation <sup>e</sup> |
|                                     |                                      | Cropping system: Paddy-Sesamum/ Blackgram | Paddy variety: Lalat, Khandagiri Sesamum var. Prachi, Nirmala Blackgram var. Prasad, T-9                                          | Carry out weeding, hoeing & earthing up to conserve soil moisture<br>Follow appropriate plant protection measures<br>Provide irrigation at critical stages |                                        |
|                                     |                                      | Fallow- Greengram/Blackgram/ Water melon  | Greengram variety : (Dhali, Kamdev, Durga)<br>Black gram: Sarala, Prasad, Ujala<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                                                                                            |                                        |
|                                     |                                      | Plantation crop for rolling topography    | Guava: A. Safeda, Lucknow-49<br>Mango : (Amrapali, Sindhu)<br>Custard apple (Local improved)                                      |                                                                                                                                                            |                                        |
|                                     |                                      | Composite pisciculture in farm ponds      | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp )                                                     | 5000 no/ha                                                                                                                                                 |                                        |

| Condition                           |                                      |                                                   | Suggested Contingency measures             |                                                                                                                      |                                        |
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| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>          | Crop management <sup>c</sup>               | Soil nutrient & moisture conservation measures <sup>d</sup>                                                          | Remarks on Implementation <sup>e</sup> |
| At flowering                        | High rainfall                        | Sole crops under unbunded rainfed uplands Sesamum | Varietal substitutions of drought tolerant | <ul style="list-style-type: none"> <li>Spray 2% KCl + 0.1 % boron to non paddy crops to overcome drought.</li> </ul> |                                        |

| Condition                           |                                      |                                                                                                                                                                                                  | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |
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| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                         | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Remarks on Implementation <sup>e</sup> |
| / fruiting stage                    | lateritic soil                       | <p>Green gram<br/>Black gram<br/>Groundnut<br/>Rice</p> <ul style="list-style-type: none"> <li>• Kharif vegetables</li> </ul> <p>Tomato<br/>Brinjal<br/>Cow pea<br/>Lady's finger<br/>Chilli</p> | <p>varieties of the sole crops i.e Hira, JHU, Pathara, Khandagiri Uma, Nirmala and Prachi Sujata, Durga, PDM-11&amp; 54 Pant U-19 &amp;30,Ujala,Sarala Smruti,Devi, TMV-2,TAG-24</p> <p>Blue Star, Utkal Tarini, Local Utkal Manika Utkal Gourav, Arka Anamika Utkal ava, Utkal rashmi Utkal Kumari, Utkal Raja Blue star, Utkal Anushree, Utkal Tarini Utkal Manika Utkal Gourav Kuchinda local, Utkal ava Intercropping of arhar + groundnut (2 : 5) Arhar var. ICPL 87, UPAS 120, TUR N-2 Arhar + Sesamum (2:4) Maize + Cow pea (2:2) Maize var. Navjot &amp; Cow pea Var; Utkal Manika Yam : (Orissa Elite, Pusa Hemlata</p> | <ul style="list-style-type: none"> <li>• Remove and destroy pest and disease affected plants</li> <li>• Provide irrigation at critical stages at flowering and grain filling stage.</li> <li>• Need based plant protection measures to be taken.</li> </ul> <p>Crops like cow pea, green gram, black gram, maize and vegetables may be harvested.</p> <p>Under situation of complete failure of Kharif crop, dismantle it and sow pre-rabi crops minor pulses like horse gram (var. Urmi), Niger (Deomali)</p> <p>Need based plant protection</p> <ul style="list-style-type: none"> <li>• measures to be taken.</li> </ul> |                                        |

| Condition                           |                                      |                                              | Suggested Contingency measures                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                        |
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|                                     |                                      |                                              | Crop management <sup>c</sup>                                                                  | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                      | Remarks on Implementation <sup>e</sup> |
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> |                                              |                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                        |
|                                     |                                      | Sole crops under rainfed medium lands : Rice | Choose short duration paddy like khnadagiri, sahabhgaidhan, MTU-1010, Lalat, Konark, Surendra | <p>Advised to spray Tricyclazole (Beam/Team) 0.06-0.1% at 10-12 days interval to control blast and brown spot diseases in rice during this period.</p> <p>To control stem borer and Gandhi bug, spray methyl demeton/dimethioate</p> <p>Provide life saving irrigation.</p> <ul style="list-style-type: none"> <li>• Checking the drainage &amp; seepage loss of water</li> </ul> <p>Planting 3-4 seedlings /hill with closer spacing</p>                        |                                        |
|                                     |                                      | Low Land : Paddy                             | Swarna, Pooja, Pratikshya                                                                     | <ul style="list-style-type: none"> <li>• For late transplanted rice 2 spraying at 10 days interval with Validamycin (Sheathmar/ Rhizocin) 0.3% to control sheath blight.</li> <li>• Provide life saving irrigation and plugging of drainage holes.</li> <li>• Incorporation of green manuring crop to conserve soil moisture</li> <li>• Checking the drainage &amp; seepage loss of water</li> <li>• Planting 3-4 seedlings /hill with closer spacing</li> </ul> |                                        |
|                                     |                                      | Cropping system: Paddy-Sesamum/ Blackgram    | Paddy variety: Lalat, Khandagiri                                                              | Carry out weeding, hoeing & earthing                                                                                                                                                                                                                                                                                                                                                                                                                             |                                        |

| Condition                           |                                      |                                            | Suggested Contingency measures                                                                                                     |                                                                                                                       |                                        |
|-------------------------------------|--------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>   | Crop management <sup>c</sup>                                                                                                       | Soil nutrient & moisture conservation measures <sup>d</sup>                                                           | Remarks on Implementation <sup>e</sup> |
|                                     |                                      |                                            | Sesamum var. Prachi, Nirmala<br>Blackgram var. Prasad, T-9                                                                         | up to conserve soil moisture<br>Follow appropriate plant protection measures<br>Provide irrigation at critical stages |                                        |
|                                     |                                      | Fallow-Greengram/Blackgram/<br>Water melon | Greengram variety : (Dhauli, Kamdev, Durga)<br>Black gram: Sarala, Prasad, Ujala<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                                                       |                                        |
|                                     |                                      | Plantation crop for rolling topography     | Guava: A. Safeda,<br>Lucknow-49<br>Mango : (Amrapali, Sindhu)<br>Custard apple (Local improved)                                    |                                                                                                                       |                                        |
|                                     |                                      | Composite pisciculture in farm ponds       | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp))                                                      | 5000 no/ha                                                                                                            |                                        |

| Condition                           |                                      |                                                                                  | Suggested Contingency measures                                             |                                                                                                                                                           |                                        |
|-------------------------------------|--------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                         | Crop management <sup>c</sup>                                               | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                               | Remarks on Implementation <sup>e</sup> |
| At flowering / fruiting stage       | Medium rainfall black and brown      | Sole crops under unbunded rainfed uplands<br>Sesamum<br>Green gram<br>Black gram | Varietal substitutions of drought tolerant varieties of the sole crops i.e | <ul style="list-style-type: none"> <li>Spray 2% KCl + 0.1 % boron to non paddy crops to overcome drought.</li> <li>Remove and destroy pest and</li> </ul> |                                        |

| Condition                           |                                      |                                                                                                          | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                        |
|-------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                                 | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                          | Remarks on Implementation <sup>e</sup> |
|                                     | forest soil                          | Groundnut<br>Rice<br><b>Kharif vegetables</b><br>Tomato<br>Brinjal<br>Cow pea<br>Lady's finger<br>Chilli | Hira, JHU, Pathara, Khandagiri Uma, Nirmala and Prachi Sujata, Durga, PDM-11& 54 Pant U-19 &30,Ujala,Saral<br>a<br>Smruti,Devi, TMV-2,TAG-24<br><br>Blue Star, Utkal Tarini, Local Utkal Manika Utkal Gourav, Arka Anamika Utkal ava, Utkal rashmi Utkal Kumari, Utkal Raja Blue star, Utkal Anushree, Utkal Tarini Utkal Manika Utkal Gourav Kuchinda local, Utkal ava Intercropping of arhar + groundnut (2 : 5) Arhar var. ICPL 87, UPAS 120, TUR N-2 Arhar + Sesamum (2:4) Maize + Cow pea (2:2) Maize var. Navjot & Cow pea Var; Utkal Manika Yam : (Orissa Elite, Pusa Hemlata | disease affected plants<br>• Provide irrigation at critical stages at flowering and grain filling stage.<br>• Need based plant protection measures to be taken.<br>Crops like cow pea, green gram, black gram, maize and vegetables may be harvested.<br>Under situation of complete failure of Kharif crop, dismantle it and sow pre-rabi crops minor pulses like horse gram (var. Urmi), Niger (Deomali)<br>Need based plant protection<br>• measures to be taken. |                                        |

| Condition                           |                                      |                                              | Suggested Contingency measures                                                                |                                                                                                                                                                                                                                                                                                                                                                                    |                                        |
|-------------------------------------|--------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>     | Crop management <sup>c</sup>                                                                  | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                        | Remarks on Implementation <sup>e</sup> |
|                                     |                                      | Sole crops under rainfed medium lands : Rice | Choose short duration paddy like khnadagiri, sahabhgaidhan, MTU-1010, Lalat, Konark, Surendra | Advised to spray Tricyclazole (Beam/Team) 0.06-0.1% at 10-12 days interval to control blast and brown spot diseases in rice during this period.<br>To control stem borer and Gandhi bug, spray methyl demeton/dimethioate<br>Provide life saving irrigation.<br>• Checking the drainage & seepage loss of water<br>Planting 3-4 seedlings /hill with closer spacing                |                                        |
|                                     |                                      | Low Land : Paddy                             | Swarna, Pooja, Pratikshya                                                                     | • For late transplanted rice 2 spraying at 10 days interval with Validamycin (Sheathmar/ Rhizocin) 0.3% to control sheath blight.<br>• Provide life saving irrigation and plugging of drainage holes.<br>• Incorporation of green manuring crop to conserve soil moisture<br>• Checking the drainage & seepage loss of water<br>• Planting 3-4 seedlings /hill with closer spacing |                                        |
|                                     |                                      | Cropping system: Paddy-Sesamum/ Blackgram    | Paddy variety: Lalat, Khandagiri                                                              | Carry out weeding, hoeing & earthing up to conserve soil moisture                                                                                                                                                                                                                                                                                                                  |                                        |



| Condition                           |                                      |                                            | Suggested Contingency measures                                                                                                    |                                                                                       |                                        |
|-------------------------------------|--------------------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>   | Crop management <sup>c</sup>                                                                                                      | Soil nutrient & moisture conservation measures <sup>d</sup>                           | Remarks on Implementation <sup>e</sup> |
|                                     |                                      |                                            | Sesamum var. Prachi, Nirmala<br>Blackgram var. Prasad, T-9                                                                        | Follow appropriate plant protection measures<br>Provide irrigation at critical stages |                                        |
|                                     |                                      | Fallow-Greengram/Blackgram/<br>Water melon | Greengram variety : (Dhali, Kamdev, Durga)<br>Black gram: Sarala, Prasad, Ujala<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                       |                                        |
|                                     |                                      | Plantation crop for rolling topography     | Guava: A. Safeda, Lucknow-49<br>Mango : (Amrapali, Sindhu)<br>Custard apple (Local improved)                                      |                                                                                       |                                        |
|                                     |                                      | Composite pisciculture in farm ponds       | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp))                                                     | 5000 no/ha                                                                            |                                        |

| Condition                           |                                           |                                                                                                       | Suggested Contingency measures                                                                            |                                                                                                                                                                                   |                                        |
|-------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup>      | Normal Crop/cropping system <sup>b</sup>                                                              | Crop management <sup>c</sup>                                                                              | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                       | Remarks on Implementation <sup>e</sup> |
| At flowering / fruiting stage       | High rainfall black and brown forest soil | Sole crops under unbunded rainfed uplands<br>Sesamum<br>Green gram<br>Black gram<br>Groundnut<br>Rice | Varietal substitutions of drought tolerant varieties of the sole crops i.e Hira, JHU, Pathara, Khandagiri | <ul style="list-style-type: none"> <li>Spray 2% KCl + 0.1 % boron to non paddy crops to overcome drought.</li> <li>Remove and destroy pest and disease affected plants</li> </ul> |                                        |

| Condition                           |                                      |                                                                                     | Suggested Contingency measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                        |
|-------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                            | Crop management <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Remarks on Implementation <sup>e</sup> |
|                                     |                                      | <b>Kharif vegetables</b><br>Tomato<br>Brinjal<br>Cow pea<br>Lady's finger<br>Chilli | Uma, Nirmala and Prachi<br>Sujata, Durga, PDM-11& 54<br>Pant U-19 &30,Ujala,Sarala<br>Smruti,Devi, TMV-2,TAG-24<br><br>Blue Star, Utkal Tarini, Local<br>Utkal Manika<br>Utkal Gourav, Arka Anamika<br>Utkal ava, Utkal rashmi<br>Utkal Kumari, Utkal Raja<br>Blue star, Utkal Anushree, Utkal Tarini<br>Utkal Manika<br>Utkal Gourav<br>Kuchinda local, Utkal ava<br>Intercropping of arhar + groundnut (2 : 5)<br>Arhar var. ICPL 87, UPAS 120, TUR N-2<br>Arhar + Sesamum (2:4)<br>Maize + Cow pea (2:2)<br>Maize var. Navjot & Cow pea Var;<br>Utkal Manika<br>Yam : (Orissa Elite, Pusa Hemlata | <ul style="list-style-type: none"> <li>• Provide irrigation at critical stages at flowering and grain filling stage.</li> <li>• Need based plant protection measures to be taken.</li> </ul> Crops like cow pea, green gram, black gram, maize and vegetables may be harvested.<br>Under situation of complete failure of Kharif crop, dismantle it and sow pre-rabi crops minor pulses like horse gram (var. Urmi), Niger (Deomali)<br>Need based plant protection<br><ul style="list-style-type: none"> <li>• measures to be taken.</li> </ul> |                                        |
|                                     |                                      | Sole crops under rainfed medium lands : Rice                                        | Choose short duration paddy like khnadagiri, sahabhgaidhan,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Advised to spray Tricyclazole (Beam/Team) 0.06-0.1% at 10-12 days                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                        |

| Condition                           |                                      |                                           | Suggested Contingency measures                                                           |                                                                                                                                                                                                                                                                                                                                                                                    |                                        |
|-------------------------------------|--------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
|                                     |                                      |                                           | Crop management <sup>c</sup>                                                             | Soil nutrient & moisture conservation measures <sup>d</sup>                                                                                                                                                                                                                                                                                                                        | Remarks on Implementation <sup>e</sup> |
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>  | MTU-1010, Lalat, Konark, Surendra                                                        | interval to control blast and brown spot diseases in rice during this period.<br>To control stem borer and Gandhi bug, spray methyl demeton/dimethioate<br>Provide life saving irrigation.<br>• Checking the drainage & seepage loss of water<br>Planting 3-4 seedlings /hill with closer spacing                                                                                  |                                        |
|                                     |                                      | Low Land : Paddy                          | Swarna, Pooja, Pratikshya                                                                | • For late transplanted rice 2 spraying at 10 days interval with Validamycin (Sheathmar/ Rhizocin) 0.3% to control sheath blight.<br>• Provide life saving irrigation and plugging of drainage holes.<br>• Incorporation of green manuring crop to conserve soil moisture<br>• Checking the drainage & seepage loss of water<br>• Planting 3-4 seedlings /hill with closer spacing |                                        |
|                                     |                                      | Cropping system: Paddy-Sesamum/ Blackgram | Paddy variety: Lalat, Khandagiri Sesamum var. Prachi, Nirmala Blackgram var. Prasad, T-9 | Carry out weeding, hoeing & earthing up to conserve soil moisture<br>Follow appropriate plant protection measures                                                                                                                                                                                                                                                                  |                                        |

| Condition                           |                                      |                                                | Suggested Contingency measures                                                                                                    |                                                             |                                        |
|-------------------------------------|--------------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------|
| Mid season drought (long dry spell) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>       | Crop management <sup>c</sup>                                                                                                      | Soil nutrient & moisture conservation measures <sup>d</sup> | Remarks on Implementation <sup>e</sup> |
|                                     |                                      |                                                |                                                                                                                                   | Provide irrigation at critical stages                       |                                        |
|                                     |                                      | Fallow-<br>Greengram/Blackgram/<br>Water melon | Greengram variety : (Dhali, Kamdev, Durga)<br>Black gram: Sarala, Prasad, Ujala<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                             |                                        |
|                                     |                                      | Plantation crop for rolling topography         | Guava: A. Safeda, Lucknow-49<br>Mango : (Amrapali, Sindhu)<br>Custard apple (Local improved)                                      |                                                             |                                        |
|                                     |                                      | Composite pisciculture in farm ponds           | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp))                                                     | 5000 no/ha                                                  |                                        |

#### Contingency measures- End of the season

Info for different cropping/farming systems (terminal drought) as available in the plan be copied here.

| Condition                                      |                                      |                                                                                                                                                                                                                     | Suggested Contingency measures                                                                           |                                                                                                                                                                                       |                                        |
|------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Terminal drought (Early withdrawal of monsoon) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                                            | Crop management <sup>c</sup>                                                                             | Rabi Crop planning <sup>d</sup>                                                                                                                                                       | Remarks on Implementation <sup>e</sup> |
|                                                | Low rainfall lateritic soil          | Sole crops under rainfed unbunded upland <ul style="list-style-type: none"> <li>➤ Paddy</li> <li>➤ Sesamum</li> <li>➤ Green gram</li> <li>➤ Black gram</li> <li>➤ Groundnut</li> <li>➤ Kharif vegetables</li> </ul> | Harvesting at physiological maturity.<br><br>Live saving irrigation.<br><br>Alternate row of irrigation. | <ul style="list-style-type: none"> <li>• Utilization of residual moisture for early sowing of pre-rabi crops like Cow pea (SEB – 2, Utkal Manik), horse gram (Urmi), green</li> </ul> |                                        |

|  |  |                                                                                                                           |                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
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|  |  | <ul style="list-style-type: none"> <li>• Brinjal</li> <li>• Cow pea</li> <li>• Lady's finger</li> <li>• Chilli</li> </ul> | <p>Harvesting the crop for fodder purpose.</p> <p>In non paddy crop uprooting or thinning of crops and used as mulching,</p>                                                                                           | <p>gram (Durga), black gram (Ujala, Prasad), Niger (Deomali, ONS -15) tomato Swarna sampad, Utkal Kumari, Utkal Urbasi.</p> <p>Cabbage (Pride of India, Early express, Golden Acre, Konark, Sujata, Vijay, Cauliflower (Snow ball, Improved Japanese, Himani), Okra (Utkal Gourav, Arka Anamika), and leafy vegetables to be sown to conserve soil moisture. And provide life saving irrigation as and when necessary</p> <ul style="list-style-type: none"> <li>• Harvest at physiological maturity stage</li> </ul> |  |
|  |  | Sole crops under Medium Land : Paddy                                                                                      | <p>Live saving irrigation.</p> <p>Alternate row of irrigation.</p> <p>Harvesting the crop for fodder purpose.</p> <p>In non paddy crop uprooting or thinning of crops and used as mulching, Conserve soil moisture</p> | <ul style="list-style-type: none"> <li>• Provide life saving irrigation from harvested rain water at reproductive stage and conserve soil moisture Harvest the crop at physiological maturity stage.</li> <li>• Harvest at physiological maturity stage</li> </ul>                                                                                                                                                                                                                                                    |  |
|  |  | Low Land : Paddy                                                                                                          | Swarna, Pooja, Pratikshya                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Provide life saving</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |

|  |  |                                                 |                                                                                                                                          |                                                                                                                                                                                                                                                                                 |  |
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|  |  |                                                 |                                                                                                                                          | irrigation, and monitoring of pest surveillance, <i>paira</i> cropping of blackgram and greengram <ul style="list-style-type: none"> <li>• Harvest at physiological maturity stage</li> </ul>                                                                                   |  |
|  |  | Cropping system:<br>Paddy-Sesamum/<br>Blackgram | Paddy variety:<br>Lalat, Khandagiri<br>Sesamum var.<br>Prachi, Nirmala<br>Blackgram var.<br>Prasad, T-9                                  | Carry out weeding, hoeing & earthing up to conserve soil moisture<br>Mulching may be done with crop residues for soil moisture conservation<br>Follow appropriate plant protection measures<br>Provide irrigation at critical stages<br>Harvest at physiological maturity stage |  |
|  |  | Fallow-Greengram/Blackgram /<br>Water melon     | Greengram variety : (Dhauli, Kamdev, Durga)<br>Black gram:<br>Sarala, Prasad, Ujala<br>Water melon:<br>(Sugarbaby, Andaman, Black magic) |                                                                                                                                                                                                                                                                                 |  |
|  |  | Plantation crop for rolling topography          | Guava: A. Safeda,<br>Lucknow-49<br>Mango :<br>(Amrapali, Sindhu)<br>Custard apple<br>(Local improved)                                    |                                                                                                                                                                                                                                                                                 |  |
|  |  | Composite pisciculture in farm ponds            | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp )                                                            | 5000 no/ha                                                                                                                                                                                                                                                                      |  |

| Condition                                         |                                      |                                                                                                                                                                                                                                                                                                                                                       | Suggested Contingency measures                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                        |
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| Terminal drought<br>(Early withdrawal of monsoon) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                                                                                                                                                                              | Crop management <sup>c</sup>                                                                                                                                                                                                                 | Rabi Crop planning <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Remarks on Implementation <sup>e</sup> |
|                                                   | Medium rainfall red and black soil   | <p>Sole crops under rainfed unbunded upland</p> <ul style="list-style-type: none"> <li>➤ Paddy</li> <li>➤ Sesamum</li> <li>➤ Green gram</li> <li>➤ Black gram</li> <li>➤ Groundnut</li> <li>➤ Kharif vegetables <ul style="list-style-type: none"> <li>• Brinjal</li> <li>• Cow pea</li> <li>• Lady's finger</li> <li>• Chilli</li> </ul> </li> </ul> | <p>Harvesting at physiological maturity.</p> <p>Live saving irrigation.</p> <p>Alternate row of irrigation.</p> <p>Harvesting the crop for fodder purpose.</p> <p>In non paddy crop uprooting or thinning of crops and used as mulching,</p> | <ul style="list-style-type: none"> <li>• Utilization of residual moisture for early sowing of pre-rabi crops like Cow pea (SEB – 2, Utkal Manik), horse gram (Urmi), green gram (Durga), black gram (Ujala, Prasad), Niger (Deomali, ONS -15) tomato Swarna sampad, Utkal Kumari, Utkal Urbasi. Cabbage (Pride of India, Early express, Golden Acre, Konark, Sujata, Vijay, Cauliflower (Snow ball, Improved Japanese, Himani), Okra (Utkal Gourav, Arka Anamika), and leafy vegetables to be sown to conserve soil moisture. And provide life saving irrigation as and when necessary</li> <li>• Harvest at physiological maturity stage</li> </ul> |                                        |

|  |  |                                           |                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                            |  |
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|  |  | Sole crops under Medium Land : Paddy      | <p>Live saving irrigation.</p> <p>Alternate row of irrigation.</p> <p>Harvesting the crop for fodder purpose.</p> <p>In non paddy crop uprooting or thinning of crops and used as mulching, Conserve soil moisture</p> | <ul style="list-style-type: none"> <li>• Provide life saving irrigation from harvested rain water at reproductive stage and conserve soil moisture Harvest the crop at physiological maturity stage.</li> <li>• Harvest at physiological maturity stage</li> </ul>                                         |  |
|  |  | Low Land : Paddy                          | Swarna, Pooja, Pratikshya                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Provide life saving irrigation, and monitoring of pest surveillance, <i>paira</i> cropping of blackgram and greengram</li> <li>• Harvest at physiological maturity stage</li> </ul>                                                                               |  |
|  |  | Cropping system: Paddy-Sesamum/ Blackgram | <p>Paddy variety: Lalat, Khandagiri Sesamum var. Prachi, Nirmala Blackgram var. Prasad, T-9</p>                                                                                                                        | <p>Carry out weeding, hoeing &amp; earthing up to conserve soil moisture</p> <p>Mulching may be done with crop residues for soil moisture conservation</p> <p>Follow appropriate plant protection measures</p> <p>Provide irrigation at critical stages</p> <p>Harvest at physiological maturity stage</p> |  |
|  |  | Fallow-Greengram/Blackgram / Water melon  | <p>Greengram variety : (Dhauli, Kamdev, Durga)</p> <p>Black gram: Sarala, Prasad, Ujala</p>                                                                                                                            |                                                                                                                                                                                                                                                                                                            |  |



|  |  |                                              |                                                                                                             |            |  |
|--|--|----------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------|--|
|  |  |                                              | Water melon:<br>(Sugarbaby,<br>Andaman,<br>Black magic)                                                     |            |  |
|  |  | Plantation crop for<br>rolling<br>topography | Guava: A.<br>Safeda,<br>Lucknow-49<br>Mango :<br>(Amrapali,<br>Sindhu)<br>Custard apple<br>(Local improved) |            |  |
|  |  | Composite pisciculture<br>in<br>farm ponds   | Indian major<br>carps (Rohu,<br>Mirgal,<br>Catla plus exotic<br>carps<br>(Silver/grasscarp<br>)             | 5000 no/ha |  |

| Condition                                         |                                      |                                                                                                                                                                                                                                                                                                                                                              | Suggested Contingency measures                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                        |
|---------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Terminal drought<br>(Early withdrawal of monsoon) | Major Farming situation <sup>a</sup> | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                                                                                                                                                                                     | Crop management <sup>c</sup>                                                                                                                                                                                                      | Rabi Crop planning <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Remarks on Implementation <sup>e</sup> |
|                                                   | High rainfall lateritic soil         | Sole crops under rainfed unbunded upland <ul style="list-style-type: none"> <li>➤ Paddy</li> <li>➤ Sesamum</li> <li>➤ Green gram</li> <li>➤ Black gram</li> <li>➤ Groundnut</li> <li>➤ Kharif vegetables               <ul style="list-style-type: none"> <li>• Brinjal</li> <li>• Cow pea</li> <li>• Lady's finger</li> <li>• Chilli</li> </ul> </li> </ul> | Harvesting at physiological maturity.<br><br>Live saving irrigation.<br><br>Alternate row of irrigation.<br><br>Harvesting the crop for fodder purpose.<br>In non paddy crop uprooting or thinning of crops and used as mulching, | <ul style="list-style-type: none"> <li>• Utilization of residual moisture for early sowing of pre-rabi crops like Cow pea (SEB – 2, Utkal Manik), horse gram (Urmi), green gram (Durga), black gram (Ujala, Prasad), Niger (Deomali, ONS -15) tomato Swarna sampad, Utkal Kumari, Utkal Urbasi. Cabbage (Pride of India, Early express, Golden Acre, Konark, Sujata, Vijay, Cauliflower (Snow ball, Improved Japanese, Himani), Okra (Utkal Gourav, Arka Anamika), and leafy vegetables to be sown to conserve soil moisture. And provide life saving irrigation as and when necessary</li> <li>• Harvest at physiological maturity stage</li> </ul> |                                        |

|  |  |                                           |                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                            |  |
|--|--|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  | Sole crops under Medium Land : Paddy      | <p>Live saving irrigation.</p> <p>Alternate row of irrigation.</p> <p>Harvesting the crop for fodder purpose.</p> <p>In non paddy crop uprooting or thinning of crops and used as mulching, Conserve soil moisture</p> | <ul style="list-style-type: none"> <li>• Provide life saving irrigation from harvested rain water at reproductive stage and conserve soil moisture Harvest the crop at physiological maturity stage.</li> <li>• Harvest at physiological maturity stage</li> </ul>                                         |  |
|  |  | Low Land : Paddy                          | Swarna, Pooja, Pratikshya                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Provide life saving irrigation, and monitoring of pest surveillance, <i>paira</i> cropping of blackgram and greengram</li> <li>• Harvest at physiological maturity stage</li> </ul>                                                                               |  |
|  |  | Cropping system: Paddy-Sesamum/ Blackgram | <p>Paddy variety: Lalat, Khandagiri Sesamum var. Prachi, Nirmala Blackgram var. Prasad, T-9</p>                                                                                                                        | <p>Carry out weeding, hoeing &amp; earthing up to conserve soil moisture</p> <p>Mulching may be done with crop residues for soil moisture conservation</p> <p>Follow appropriate plant protection measures</p> <p>Provide irrigation at critical stages</p> <p>Harvest at physiological maturity stage</p> |  |
|  |  | Fallow-Greengram/Blackgram / Water melon  | <p>Greengram variety : (Dhauli, Kamdev, Durga)</p> <p>Black gram: Sarala, Prasad, Ujala</p>                                                                                                                            |                                                                                                                                                                                                                                                                                                            |  |

|  |  |                                              |                                                                                                             |            |  |
|--|--|----------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------|--|
|  |  |                                              | Water melon:<br>(Sugarbaby,<br>Andaman,<br>Black magic)                                                     |            |  |
|  |  | Plantation crop for<br>rolling<br>topography | Guava: A.<br>Safeda,<br>Lucknow-49<br>Mango :<br>(Amrapali,<br>Sindhu)<br>Custard apple<br>(Local improved) |            |  |
|  |  | Composite pisciculture<br>in<br>farm ponds   | Indian major<br>carps (Rohu,<br>Mirgal,<br>Catla plus exotic<br>carps<br>(Silver/grasscarp<br>)             | 5000 no/ha |  |

| Condition                                         |                                             |                                                                                                                                                                                                                                                                                                                                                | Suggested Contingency measures                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                |                                        |
|---------------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Terminal drought<br>(Early withdrawal of monsoon) | Major Farming situation <sup>a</sup>        | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                                                                                                                                                                       | Crop management <sup>c</sup>                                                                                                                                                                                                      | Rabi Crop planning <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                | Remarks on Implementation <sup>e</sup> |
|                                                   | Medium rainfall black and brown forest soil | Sole crops under rainfed unbunded upland <ul style="list-style-type: none"> <li>➤ Paddy</li> <li>➤ Sesamum</li> <li>➤ Green gram</li> <li>➤ Black gram</li> <li>➤ Groundnut</li> <li>➤ Kharif vegetables <ul style="list-style-type: none"> <li>• Brinjal</li> <li>• Cow pea</li> <li>• Lady's finger</li> <li>• Chilli</li> </ul> </li> </ul> | Harvesting at physiological maturity.<br><br>Live saving irrigation.<br><br>Alternate row of irrigation.<br><br>Harvesting the crop for fodder purpose.<br>In non paddy crop uprooting or thinning of crops and used as mulching, | <ul style="list-style-type: none"> <li>• Utilization of residual moisture for early sowing of pre-rabi crops like Cow pea (SEB – 2, Utkal Manik), horse gram (Urmi), green gram (Durga), black gram (Ujala, Prasad), Niger (Deomali, ONS -15) tomato Swarna sampad, Utkal Kumari, Utkal Urbasi. Cabbage (Pride of India, Early express, Golden Acre, Konark, Sujata, Vijay, Cauliflower (Snow ball,</li> </ul> |                                        |

|  |  |                                           |                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                       |  |
|--|--|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  |                                           |                                                                                                                                                                                                                        | <p>Improved Japanese, Himani), Okra (Utkal Gourav, Arka Anamika), and leafy vegetables to be sown to conserve soil moisture. And provide life saving irrigation as and when necessary</p> <ul style="list-style-type: none"> <li>• Harvest at physiological maturity stage</li> </ul> |  |
|  |  | Sole crops under Medium Land : Paddy      | <p>Live saving irrigation.</p> <p>Alternate row of irrigation.</p> <p>Harvesting the crop for fodder purpose.</p> <p>In non paddy crop uprooting or thinning of crops and used as mulching, Conserve soil moisture</p> | <ul style="list-style-type: none"> <li>• Provide life saving irrigation from harvested rain water at reproductive stage and conserve soil moisture Harvest the crop at physiological maturity stage.</li> <li>• Harvest at physiological maturity stage</li> </ul>                    |  |
|  |  | Low Land : Paddy                          | Swarna, Pooja, Pratikshya                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Provide life saving irrigation, and monitoring of pest surveillance, <i>paira</i> cropping of blackgram and greengram</li> <li>• Harvest at physiological maturity stage</li> </ul>                                                          |  |
|  |  | Cropping system: Paddy-Sesamum/ Blackgram | <p>Paddy variety: Lalat, Khandagiri Sesamum var. Prachi, Nirmala Blackgram var. Prasad, T-9</p>                                                                                                                        | <p>Carry out weeding, hoeing &amp; earthing up to conserve soil moisture</p> <p>Mulching may be done with crop residues for</p>                                                                                                                                                       |  |

|  |  |                                          |                                                                                                                                    |                                                                                                                                                                |  |
|--|--|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  |                                          |                                                                                                                                    | soil moisture conservation<br>Follow appropriate plant protection measures<br>Provide irrigation at critical stages<br>Harvest at physiological maturity stage |  |
|  |  | Fallow-Greengram/Blackgram / Water melon | Greengram variety : (Dhauri, Kamdev, Durga)<br>Black gram: Sarala, Prasad, Ujala<br>Water melon: (Sugarbaby, Andaman, Black magic) |                                                                                                                                                                |  |
|  |  | Plantation crop for rolling topography   | Guava: A. Safeda, Lucknow-49<br>Mango : (Amrapali, Sindhu)<br>Custard apple (Local improved)                                       |                                                                                                                                                                |  |
|  |  | Composite pisciculture in farm ponds     | Indian major carps (Rohu, Mirgal, Catla plus exotic carps (Silver/grasscarp)                                                       | 5000 no/ha                                                                                                                                                     |  |

| Condition                                         |                                           |                                                                                                                                                                                                                                                                                                                                                              | Suggested Contingency measures                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                        |
|---------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Terminal drought<br>(Early withdrawal of monsoon) | Major Farming situation <sup>a</sup>      | Normal Crop/cropping system <sup>b</sup>                                                                                                                                                                                                                                                                                                                     | Crop management <sup>c</sup>                                                                                                                                                                                                      | Rabi Crop planning <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Remarks on Implementation <sup>e</sup> |
|                                                   | High rainfall black and brown forest soil | Sole crops under rainfed unbunded upland <ul style="list-style-type: none"> <li>➤ Paddy</li> <li>➤ Sesamum</li> <li>➤ Green gram</li> <li>➤ Black gram</li> <li>➤ Groundnut</li> <li>➤ Kharif vegetables               <ul style="list-style-type: none"> <li>• Brinjal</li> <li>• Cow pea</li> <li>• Lady's finger</li> <li>• Chilli</li> </ul> </li> </ul> | Harvesting at physiological maturity.<br><br>Live saving irrigation.<br><br>Alternate row of irrigation.<br><br>Harvesting the crop for fodder purpose.<br>In non paddy crop uprooting or thinning of crops and used as mulching, | <ul style="list-style-type: none"> <li>• Utilization of residual moisture for early sowing of pre-rabi crops like Cow pea (SEB – 2, Utkal Manik), horse gram (Urmi), green gram (Durga), black gram (Ujala, Prasad), Niger (Deomali, ONS -15) tomato Swarna sampad, Utkal Kumari, Utkal Urbasi. Cabbage (Pride of India, Early express, Golden Acre, Konark, Sujata, Vijay, Cauliflower (Snow ball, Improved Japanese, Himani), Okra (Utkal Gourav, Arka Anamika), and leafy vegetables to be sown to conserve soil moisture. And provide life saving irrigation as and when necessary</li> <li>• Harvest at physiological maturity stage</li> </ul> |                                        |

|  |  |                                           |                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                            |  |
|--|--|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |  | Sole crops under Medium Land : Paddy      | <p>Live saving irrigation.</p> <p>Alternate row of irrigation.</p> <p>Harvesting the crop for fodder purpose.</p> <p>In non paddy crop uprooting or thinning of crops and used as mulching, Conserve soil moisture</p> | <ul style="list-style-type: none"> <li>• Provide life saving irrigation from harvested rain water at reproductive stage and conserve soil moisture Harvest the crop at physiological maturity stage.</li> <li>• Harvest at physiological maturity stage</li> </ul>                                         |  |
|  |  | Low Land : Paddy                          | Swarna, Pooja, Pratikshya                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Provide life saving irrigation, and monitoring of pest surveillance, <i>paira</i> cropping of blackgram and greengram</li> <li>• Harvest at physiological maturity stage</li> </ul>                                                                               |  |
|  |  | Cropping system: Paddy-Sesamum/ Blackgram | <p>Paddy variety: Lalat, Khandagiri Sesamum var. Prachi, Nirmala Blackgram var. Prasad, T-9</p>                                                                                                                        | <p>Carry out weeding, hoeing &amp; earthing up to conserve soil moisture</p> <p>Mulching may be done with crop residues for soil moisture conservation</p> <p>Follow appropriate plant protection measures</p> <p>Provide irrigation at critical stages</p> <p>Harvest at physiological maturity stage</p> |  |
|  |  | Fallow-Greengram/Blackgram / Water melon  | <p>Greengram variety : (Dhauli, Kamdev, Durga)</p> <p>Black gram: Sarala, Prasad, Ujala</p>                                                                                                                            |                                                                                                                                                                                                                                                                                                            |  |



|  |  |                                              |                                                                                                             |            |  |
|--|--|----------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------|--|
|  |  |                                              | Water melon:<br>(Sugarbaby,<br>Andaman,<br>Black magic)                                                     |            |  |
|  |  | Plantation crop for<br>rolling<br>topography | Guava: A.<br>Safeda,<br>Lucknow-49<br>Mango :<br>(Amrapali,<br>Sindhu)<br>Custard apple<br>(Local improved) |            |  |
|  |  | Composite pisciculture<br>in<br>farm ponds   | Indian major<br>carps (Rohu,<br>Mirgal,<br>Catla plus exotic<br>carps<br>(Silver/grasscarp<br>)             | 5000 no/ha |  |

#### **Under drought for irrigation condition**

#### **Resource management technologies**

**General NRM tech be put up here. May refer the publications on state specific climate resilient technologies made by NICRA-TDC**

- Desilting of water harvesting structures for augmentation of water storage, recharging ground water and for critical irrigation during kharif and for cropping intensification during rabi
- In-situ moisture conservation through ridge and furrow method in radish and cowpea
- Green manuring with dhaincha to improve soil fertility
- Soil test based nutrient application for higher yield and to rationalize fertilizer application
- System of Rice Intensification with improved rice variety Pratikshya
- Vermicomposting using crop residues for soil health improvement and to rationalise application of chemical fertilizers
- Drought tolerant paddy var. Sahbhagi Dhan to minimize risk and enhance yields
- Crop diversification with hybrid maize and sweet corn variety- Sugar-75 from traditional rice in upland conditions
- Short duration green gram variety-IPM 02-03 after rice crop for cropping intensification
- Crop diversification from rice to groundnut (var. Devi) and okra (var. Pusa) under limited moisture availability
- Staggered planting in community nursery for delayed onset of monsoon
- Introduction of high yielding varieties of vegetables brinjal var. Swarna Shyamali, tomato var. Arka Rakshak, onion var. Bhima Super and cabbage var. Golden Acre for higher income with harvested water
- Short duration drought tolerant varieties of rice, Jogesh and Mandakini for upland conditions
- Colour synthetic poultry: Rainbow rooster and Vanaraja for higher egg laying capacity and for higher returns
- Khaki Campbell for higher body weight gain and egg laying capacity compared to desi ducks
- Breed up gradation of local goat with Black Bengal for minimising risk and better profitability
- Introduction of hydroponic fodder cultivation to reduce dependence on high cost concentrates
- Low cost goat housing for reducing mortality and to reduce heat stress
- Cultivation of Hybrid Napier (CO4) for increasing green fodder availability during lean season
- Supplementation of mineral and vitamin mixture during lean season to enhance milk productivity
- Low cost Azolla production as supplementary cattle feed during lean season
- Composite fish culture of Catla, Rohu and Mrigal with harvested water in farm ponds

