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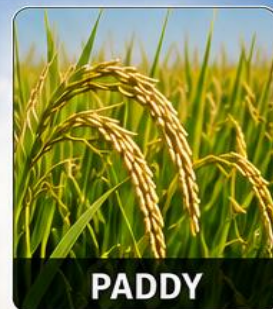
DISTRICT WISE CONTINGENCY PLAN TO DEAL WITH **EL NIÑO**

PREPAREDNESS | RESPONSE | RESILIENCE



BUILDING A
DROUGHT RESILIENT
UTTARAKHAND

UTTARAKHAND



PADDY



MAIZE



MILLETS



EARLY WARNING
& MONITORING



WATER
MANAGEMENT



SUSTAINABLE
AGRICULTURE



COMMUNITY
PARTICIPATION

TOGETHER, LET'S BUILD A RESILIENT UTTARAKHAND

PREPARE TODAY • PROTECT TOMORROW • PROSPER TOGETHER

Uttarakhand

Uttarakhand, popularly known as the "Dev Bhoomi" (Land of Gods), is a Himalayan state in northern India renowned for its rich biodiversity, pristine forests, snow-clad mountains, and diverse agro-climatic conditions. Agriculture plays a significant role in the state's rural economy, providing livelihood to a majority of the rural population, particularly in the hilly regions. Although only about 13–14 per cent of the total geographical area is under cultivation, agriculture remains the primary source of income for small and marginal farmers. The state is characterized by terraced farming, fragmented landholdings, and predominantly rainfed agriculture, making it highly dependent on seasonal monsoon rainfall.

The state possesses diverse agro-climatic zones ranging from subtropical foothills (Tarai and Bhabar) to temperate and alpine regions. Major Kharif crops include Paddy, maize, finger millet (mandua/ragi), barnyard millet (jhangora), soybean, black gram, green gram, pigeon pea and sesame. During the Rabi season, wheat, barley, chickpea, lentil, mustard and peas are widely cultivated. Horticultural crops such as apple, pear, peach, plum and off-season vegetables also contribute significantly to farmers' income. Uttarakhand receives an average annual rainfall of about 1,200–1,800 mm, with nearly 75–80% received during the southwest monsoon (June–September). Hence, agriculture is highly dependent on the timely arrival and distribution of monsoon rainfall.

Historical impact of El Nino to Uttarakhand

Uttarakhand is highly vulnerable to El Niño because a large proportion of its agriculture is rainfed and depends on the southwest monsoon. During El Niño years, the state often experiences delayed monsoon onset, below-normal rainfall, prolonged dry spells, and higher temperatures, affecting agricultural production. These conditions reduce the productivity of major Kharif crops such as Paddy, maize, finger millet, barnyard millet, and pulses due to moisture stress and delayed sowing.

Effects on Major Crops

- Paddy: Delayed nursery raising and transplanting, poor tillering and reduced grain yield.
- Maize: Poor germination, reduced cob formation and poor grain filling.
- Finger Millet (Mandua/Ragi): Moisture stress reduces ear-head development and grain formation.
- Barnyard Millet (Jhangora): Better drought tolerance but yield declines under prolonged dry spells.
- Soybean: Poor germination, flower shedding and reduced pod formation.
- Black Gram (Urd): Flower drop and poor pod development.

- Green Gram (Moong): Reduced flowering and lower productivity.
- Sesame: Better drought tolerance but severe moisture deficit affects seed filling.
- Mustard: Delayed sowing due to poor residual soil moisture affects yield.
- Wheat: Poor germination and reduced tillering if soil moisture is inadequate.

Contingency Plans for Major Crops Grown in Uttarakhand

Crop	El Nino Situation	Recommended Contingency Measures
Paddy	Delayed monsoon and transplanting	Community nursery, direct-seeded Paddy (DSR), short-duration varieties, moisture conservation
Maize	Delayed sowing	Early maturing hybrids, ridge sowing, mulching, seed treatment
Finger Millet (Mandua)	Moisture stress	Early sowing, moisture conservation, line sowing
Barnyard Millet (Jhangora)	Rainfall deficit	Suitable substitute crop during delayed monsoon, moisture conservation
Soybean	Delayed monsoon	Short-duration varieties, seed treatment, line sowing
Black Gram (Urdbean)	Late sowing	Short-duration varieties, foliar nutrition
Green Gram (Moongbean)	Dry spells	Early maturing varieties, foliar spray of 2% urea
Sesame	Failure of soybean/late sowing	Alternate contingency crop, line sowing
Mustard	Poor residual moisture	Early sowing, limited irrigation at flowering
Wheat	Delayed Rabi sowing	Early sowing, zero tillage where possible, moisture conservation

Agriculture forms the backbone of rural livelihoods in Uttarakhand but is highly dependent on monsoon rainfall, particularly in the hill regions where irrigation facilities are limited. El Niño-induced delayed monsoon, prolonged dry spells and moisture stress adversely affect the productivity of major Kharif crops such as Paddy, maize and millets. Adoption of short-duration and drought-tolerant varieties, moisture conservation practices, rainwater harvesting, crop diversification and district-level contingency planning can substantially reduce climate-related risks and improve the resilience of Uttarakhand's farming systems.

Districts vulnerable to El Nino

High	Medium	Low
Almora, Bageshwar, Chamoli, Champawat, Garhwal, Pithoragarh, Rudraprayag, Tehri Garhwal, Uttarkashi	Nil	Dehra Dun, Haridwar, Naini Tal, Udham Singh Nagar

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	ALMORA
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	792.3	More than 19%	Less than 641.763
June	146.3		
July	265.5		
August	232.5		
September	148		

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

Irrigation info:

Net irrigated area:	4190	Gross irrigated area:	7567
Net Rainfed area	42514	Gross rainfed area	58978

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	2418	4416
Wells	-	-
Tanks	-	-
Other sources	1772	3151

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	8760	3498	5262
2	Jowar	-	-	
3	Maize	1301	4	1297
4	Bajra	-		
5	Ragi	17078	124	16954

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	170		170
2	Groundnut	-		
3	Sesamum	349		349
4	Soyabean	501	2	499
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	-		2
4	Other Fodder crops	2		2

Crop Plan- Beginning of the season

rainfed

Condition	Major Farming situation	Normal crop/cropping system	Suggested contingency measures		
Early season drought (delayed onset)			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 4 weeks 3 rd week of July	Rainfed lower hills and Valley	Cheti/Spring Rice (End Mach -Mid April)-Veg. Pea Cheti Rice-Wheat	Finger millet (VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2)	Change of Crop, use failed crop as fodder, addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i>	Supply of seeds through TDC, NSC Dept. of Agriculture and KVK
		Finger millet- Pea, Fingermillet-Lentil, Fingermillet-Fallow	Finger millet (VLM 146)	Use short duration varieties, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i> , Sowing	
			Change of crop		

		Barnyard Millet-Wheat Rice-Wheat	Barnyard millet (VL Madira-172) Blackgram (U-31, 35), Moong (Pant Moong-3,4)	may be delayed till appropriate soil moisture condition reaches	
		Rice-Cabbage-Maize (green cob), Rice- Cabbage-Potato	Change of crop Finger millet –VLM 146, Barnyard millet (VL Madira-172)	Bunding of terraces, Increased seed rate, Mulching, Sowing across the slope, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i>	
		Cheti/Spring Rice (End Mach -Mid April)-Veg. Pea Cheti Rice-Wheat	Change of crop Finger millets (VLM 146)	Increased seed rate Mulching, Sowing across the slope, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i>	
	Mid hills south aspect	<i>Chaiti</i> /Spring Rice (Sowing in end march to mid-april)-Veg. Pea	Black Soybean+ Barnyard millet (VL 29, VL 21, VL Madira 172, PRJ 1)	Change of crops, use failed crop as fodder, Increased seed rate,	
		Finger millet- Pea, Fingermillet-Lentil, Fingermillet-Wheat	Horsegram, VL-8	Intercropping, Timely weeding	
		Maize-Wheat	Finger millet –VLM 146 Rajma (VL- Rajma 63, 125)		
	Mid hills north aspect	<i>Chaiti</i> /Spring Rice (Sowing in end march to mid-april)-Veg. Pea	CowPea (Pusa Komal) Rajma (VL- Rajma 63) Fingermillet (VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2)-Wheat	Change of crops Increased seed rate Intercropping Timely weeding	
		Finger millets + Black Soybean /Horsegram-Wheat	Black Soybean+ Barnyard millet-Wheat		

		Black Soybean+ Barnyard millet-Pea	Spring Rice- Local, VL 206, VL 207, VL 208, VL 209 Black Soybean- Local Horsegram- Local, VLG 1 Finger millet – Local, VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2 Barnyard millet - Local, VL 29, VL 21, VL Madira 172, PRJ 1		
		Spring Rice- Local, VL Black Soybean- Local Horsegram- Local, Finger millet – Local, Barnyard millet - Local	Finger millets + Horsegram/ Rice bean Amaranth + Horsegram/ Rice bean	Increased seed rate Intercropping Timely weeding	
	High hills	Finger millets mixed with Amaranth/ Pulses	Finger millet –VLM 146, VLM 149, VLM 315, VLM 324 Amaranth – PRA 123, VL Chua 44 Rice Bean – PRR 1, PRR2 Horsegram- VLG1, VLG 8, VLG 10		

Irrigated situation

Condition	Major Farming situation	Normal Crop/ cropping system	Suggested contingency measure		
			Change in crop/ cropping system	Agronomic measure	Remarks on implementation
Delay by 4 weeks 3 rd week of July	Lower hills and Valley	Rice-Wheat	Rice (VLD 81, VD 82, VLD61, VD 62)	Foliar N management (1% NPK spray), addition of organic manures (FYM/compost) @ 5-10 t/ha, soil moisture conservation measures with locally available mulch materials	

Contingency measures- Mid season

Rainfed

Condition	Suggested contingency measures				
Early season drought (Normal onset)	Major farming situation	Crop/cropping system	Crop management	Soil nutrient & moisture conservation measure	Remarks on implementation
Mid-season drought (long dry spell, consecutive 2 weeks rainless (<2.5 mm) period At vegetative stage	Rainfed lower hills and Valley	Cheti/Spring Rice (End Mach -Mid April)-Veg. Pea Cheti Rice-Wheat	Use anti-transpirants, lifesaving irrigation if available	Foliar N management (1% urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	Construction of rain water harvesting ponds through IWMP and MNREGS as a long term drought proofing measure
		Finger millet- Pea, Fingermillet-Lentil, Fingermillet-Fallow Barnyard Millet-Wheat			
		Rice-Wheat			
	Mid hills south aspect	Cheti/Spring Rice (End Mach -Mid April)-Veg. Pea	Use anti-transpirants, lifesaving irrigation if available, Thinning for reducing plant population	Foliar N management (1% urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	
		Finger millet- Pea, Fingermillet-Lentil, Fingermillet-Wheat			
		Maize-Wheat			
	Mid hills north aspect	Cheti/Spring Rice (End Mach -Mid April)-Veg. Pea	Use anti-transpirants, life saving irrigation if available, Thinning for reducing plant population	Spray of NPK or N Top dress recommendation of Rainfed crop coinciding with rain splashes; rain water harvesting of surrounding fields, Mulching, Bunding, life saving irrigation	
		Finger millets + Black Soybean /Horsegram Black Soybean+ Barnyard millet-Pea	Use anti-transpirants, life saving irrigation if available, Thinning for reducing plant population		
		Spring Rice, Black Soybean Horse gram Finger millet ,Barnyard millet	Use anti-transpirants, life saving irrigation if available, Thinning for reducing plant population		
	High hills	Finger millets mixed with Amaranth/ Pulses	Use anti-transpirants, lifesaving irrigation if available, Thinning for reducing plant population	Foliar N management (1% urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	

Contingency measures- End of the season

Rainfed

Condition	Suggested contingency measures				
End season drought (Normal onset)	Major farming situation	Crop/cropping system	Crop management	Soil nutrient & moisture conservation measure	Remarks on implementation

At reproductive stage and terminal stage	Rainfed lower hills and Valley	Cheti/Spring Rice (End Mach -Mid April)-Veg. Pea Cheti Rice-Wheat	Site-specific crop management technologies: • If crop stand is poor then use of crop as fodder. • Thinning • Lifesaving irrigation from rain water harvest ponds, • Weeding and Weed mulching • Anti-transpirant spray • Salicylic acid spray to induce early maturity • Harvesting at physiological maturity • Harvest whatever crop is available and immediately conserve the soil moisture for <i>Rabi</i> crops • If rain comes Toria sowing in mid September	Foliar N management (1 % urea spray) instead of Top N dress only if the crop stand is still better, Spray of potassium nitrate and potassium chloride, and Use local available plant material for mulch.	Construction of rain water harvesting ponds through IWMP and MNREGS as a long-term drought proofing measure
		Finger millet- Pea, Fingermillet-Lentil, Fingermillet-Fallow Barnyard Millet-Wheat			
		Rice-Wheat			
	Mid hills south aspect	Cheti/Spring Rice (End Mach -Mid April)-Veg. Pea	Site-specific crop management technologies: • Lifesaving irrigation, if available • Anti-transpirant spray • Salicylic acid spray to induce earliness • If grain setting has occurred in maize, de tasseling can be done to reduce transpiration • Harvesting at physiological maturity • Harvest whatever crop is available and immediately conserve the soil moisture for <i>Rabi</i> crops	Foliar N management (1% urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	
		Finger millet- Pea, Fingermillet-Lentil, Fingermillet-Wheat			
		Maize-Wheat			
	Mid hills north aspect	Cheti/Spring Rice (End Mach -Mid April)-Veg. Pea	Site-specific crop management technologies: • Lifesaving irrigation, if available • Anti-transpirant spray • Salicylic acid spray to induce earliness. • Harvesting at physiological maturity	Foliar N management (1 % urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	
		Finger millets + Black Soybean /Horsegram Black Soybean+ Barnyard millet-Pea			
		Spring Rice, Black Soybean Horsegram			

		Finger millet, Barnyard millet.			
	High hills	Finger millets mixed with Amaranth/ Pulses	Site-specific crop management technologies: • Lifesaving irrigation, if available • Anti-transpirant spray. • Salicylic acid spray to induce earliness. • Harvesting at physiological maturity	Foliar N management (1 % urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	

Resource management technologies

- Implementing community ponds for horticultural crop cultivation through water harvesting structures
- Utilizing mulching sheets within fruit orchards for enhanced crop management
- Establishing HDPE Tetra vermi beds for effective vermicomposting methods
- Introducing the polymulch technique to bolster agriculture in mountainous areas
- Introducing eco-friendly approaches to manage white grub, a detrimental pest in rainfed

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	BAGESHWAR
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	792.3	More than 19%	Less than 641.763
June	146.3		
July	265.5		
August	232.5		
September	148		

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

Irrigation info:

Net irrigated area:	4416	Gross irrigated area:	8283
Net Rainfed area	14510	Gross rainfed area	24740

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	3894	7407
Wells	-	-
Tanks	-	-
Other sources	522	876

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	12025	4234	7791
2	Jowar	-	-	
3	Maize	300		300
4	Bajra	-		
5	Ragi	3936		3936

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	1		1
2	Groundnut	-		
3	Sesamum	-		
4	Soyabean	60		60
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	-		

Contingency measures- Early season Rainfed

Condition	Suggested contingency measures				
Early season drought (delayed onset)	Major Farming situation	Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 4 weeks 3 rd week of July	Rainfed Mid hills (Sub humid- 801-1800 m)	Rice (Chetti/ Spring ,Jethi)	Change of crop with Urd/ horse gram/ maize Selection of short duration varieties of catch crops: Horse gram (VL-Gahat-19) Urd (Pant Urd-19, Pant Urd-35) Maize (VL-Makka-35&VL-Makka-31)	Increase seed rate, application of proper doses of FYM (8-10 t/ha), mulching with available farm residue	MANREGA and taking up seed production and distribution in RKVY for these crops
		Finger millet	Change of crop with Urd/ horse gram/ maize/ Buchwheat/ Amranth or re-sowing with short duration varieties Selection of short duration varieties of catch crops: Horse gram (VL-Gahat-19) Urd(Pant Urd-19 & Pant Urd-35) Maize (Vivek Sankul Makka-35 & Vivek Sankul Makka-31) Buck Wheat (VL-Ugal-7) Amaranth (VL-Chua-44) Re-sowing with short duration varieties (VL- Mandua- 146, VL – Mandua -347)	Increase seed rate, application of proper doses of FYM (6-8 t/ha), mulching with available farm residue	MNREGA and taking up seed production and distribution in RKVY for these crops
		Maize	Change of crop with Urd/ horse gram or re-sowing with short duration varieties Use failed crop as fodder, Selection of short duration varieties of catch crops: Horse gram (VL-Gahat-19) Urd (Pant Urd-19 & Pant Urd-35) Or Re-sowing with short duration varieties of Maize (VL-Makka-35 & VL-Makka-31)	Increase seed rate, application of proper doses of FYM (8-10 t/ha), mulching with available farm residue	MNREGA and taking up seed production and distribution in RKVY for these crops
	Rainfed High hills (Temperate 1801-2200 m)	Finger millet	Change of crop with short duration horse gram/ maize/ amaranth/ buckwheat / garden pea/ radish Short duration Horse gram (VL-Gahat-19) and Maize (Vivek Sankul Makka-35 & Vivek Sankul Makka -31) Amaranth (VL- Chua-44), Buck Wheat (VL-Ugal-7), Garden pea- (Arkel), Radish- Doornagiri gol	Increase seed rate, application of proper doses of FYM (6-8 t/ha), mulching with available farm residue	MNREGA and taking up seed production and distribution in RKVY for these crops

		Maize	Change of crop with short duration horse gram/ amaranth/ buckwheat / garden pea/ radish or Resowing with short duration varieties		MNREGA and taking up seed production and distribution in RKVY for these crops
	Very high hills (> 2200 m)	Finger & barnyard millets mixed with Amaranth/ Pulses	Change of crop with maize for green cob as well as fodder purpose/ radish vegetable pea, rai/ buckwheat Maize (Vivek Sankul Makka-35 & Vivek Sankul Makka-31), Fodder Maize (Jonsar babar, African tall, J-1006), Radish (Japanese white) Vegetable pea (Arkel, VI-Matar-7) Rai (Hathi kan), Buckwheat-VL-Ugal-7	Increase seed rate, application of proper doses of FYM (8-10 t/ha), mulching with available farm residue, proper drainage	MNREGA and taking up seed production and distribution in RKVY for these crops

Contingency measures- Mid season

Rainfed

Condition	Suggested contingency measures				
Mid season drought	Major farming situation ^a	Crop/cropping system ^b	Crop management ^c	Soil nutrient & moisture conservation measure ^e	Remarks on implementation ^e
(long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) At vegetative stage	Rainfed Mid hills (Sub humid- 801-1800 m)	Rice (Chetti/Spring ,Jethi)	Life saving irrigation if available, Removal of less vigorous plants up to 20% and use as fodder. Removal of cobless plants in maize and use as fodder, use failed legume crop as fodder	Foliar N management (1% urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch, bunding, soil mulching with wheel hand hoe.	Dept. of Agriculture and KVK for awareness of nutrient application, construction of rainwater harvesting structures under MNREGA as a long term drought proofing measure
		Finger millet			
		Maize			
	Rainfed High hills Temperate 1801-2200 m)	Finger millet			
		Maize			
	Very high hills (> 2200 m)	Finger millets mixed with Amaranth/ Pulses			

Contingency measures- End of the season

Rainfed

Condition	Suggested contingency measures				
End season drought (Normal onset)	Major farming situation ^a	Crop/cropping system ^b	Crop management ^c	Soil nutrient & moisture conservation measure ^e	Remarks on implementation ^e
At reproductive	Rainfed Mid hills (Sub	Rice (Cheti/Spring ,Jaithi)	Site-specific crop management technologies:	Foliar N management (1 % urea spray) instead	Dept. of Agriculture and KVK for awareness of nutrient application,

stage and terminal stage	humid- 801-1800 m)	Finger millet	- If crop stand is poor then use of crop as fodder. - Thinning - life saving irrigation from rain water harvest ponds - Weeding and Weed mulching - Anti-transpirant spray - Salicylic acid spray to induce early maturity - Harvesting at physiological maturity - Harvest whatever crop is available and immediately conserve the soil moisture for <i>Rabi</i> crops - If rain comes Toria sowing in mid September - If crop stand is poor then use of crop as fodder sowing of Radish/Peas/Rai as catch crop followed by Wheat OR in areas where drought is expected quite often then go for early wheat varieties viz., VL616/VL829	of Top N dress only if the crop stand is still better, , Use local available plant material for mulch.	construction of rain water harvesting structures under MNREGA as a long term drought proofing measure
		Maize			
	Rainfed High hills (Temperate 1801-2200 m)	Finger millet	Site-specific crop management technologies: - Life saving irrigation, if available - Anti-transpirant spray - Salicylic acid spray to induce earliness - If grain setting has occurred in maize, detasseling can be done to reduce transpiration - Harvesting at physiological maturity - Harvest whatever crop is available and immediately conserve the soil moisture for <i>Rabi</i> crops - If crop stand is poor then use of crop as fodder and sowing of Radish/Peas/Rai as catch crop followed by Wheat OR in areas where drought is expected quite often	Foliar N management (1 % urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	Dept. of Agriculture and KVK for awareness of nutrient application, construction of rain water harvesting structures under MNREGA as a long term drought proofing measure
		Maize			

			then go for early wheat varieties viz, VL616/VL829		
	Very high hills (> 2200 m)	Finger millets mixed with Amaranth/ Pulses	Site-specific crop management technologies: • Life saving irrigation, if available • Anti-transpirant spray • Salicylic acid spray to induce earliness • Harvesting at physiological maturity • If crop stand is poor then use of crop as fodder and sowing of Radish/Peas/Rai as catch crop followed by Wheat VL-832	Foliar N management (1 % urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	Dept. of Agriculture and KVK for awareness of nutrient application, construction of rain water harvesting structures under MNREGA as a long term drought proofing measure

Resource management technologies

- Implementing community ponds for horticultural crop cultivation through water harvesting structures
- Utilizing mulching sheets within fruit orchards for enhanced crop management
- Establishing HDPE Tetra vermi beds for effective vermicomposting methods
- Introducing the polymulch technique to bolster agriculture in mountainous areas
- Introducing eco-friendly approaches to manage white grub, a detrimental pest in rainfed

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	CHAMOLI
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	721.4	More than 19%	Less than 584.334
June	104.7		
July	253.6		
August	234.1		
September	129		

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

Irrigation info:

Net irrigated area:	1047	Gross irrigated area:	1829
Net Rainfed area	27393	Gross rainfed area	40525

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	94	162
Wells	-	-
Tanks	-	-
Other sources	953	1667

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	9403	1004	8399
2	Jowar	-	-	
3	Maize	249		249
4	Bajra	-		
5	Ragi	9120		9120

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	180		180
2	Groundnut	-		
3	Sesamum	8		8
4	Soyabean	409		409
5	Sunflower	1		1
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

Rainfed

Condition	Suggested Contingency measures				
Early season drought (delayed onset)	Major Farming situation ^a	Crop/cropping system ^b	Change in crop/cropping system ^c	Agronomic measures ^d	Remarks on Implementation ^e
Delay by 4 weeks (15 th of July)	High hills (high rainfall, temperate climate, humid condition during rainy season, high snow fall, clayloam to sandy/silty soils)	Finger millets mixed with Amaranth/ Pulses	Finger millet (VLM 146, VLM 149, VLM 315 VLM 324) Amaranth-PRA 123, VL Chua 44 Rice bean-PRR 1, PRR 2 Horsegram (VLG-1, VLG-8, VLG-10)	Use of short duration varieties. Addition of organic matter Conserve residual moisture for sowing of <i>rab</i> i crop	Supply of seeds through TDC, NSC Dept. of Agriculture and KVK Anti-transpirants can be provided under input cost of various projects demonstration. Sprayers are supplied by Horticulture Dept. on 50% subsidy to the farmers. 50% subsidy is
		Tomato, Capsicum, Brinjal, Chiilli, Potato,	Cabbage, Cauliflower, Radish, Round radish, Rai,	Use of short duration varieties.	

	Apple, Peach, Wallnut, Citrus	Coriander, Frenchbean, Pea, Plantation of Malta trees	Gap filling Use of organic manure at sowing Timely weeding Conserve residual moisture for sowing <i>rabi</i> crops	provided by horticulture department on mulch material and drip irrigation system.
Mid hill South aspect (Low rainfall, dry receiving maximum sun light due to high sun intensity, clay loam to sandy/silty soils)	Cheti/Spring Rice (Sowing in the end March to Mid-April)-Veg. Pea	Black Soybean +Barnyard millet (VL 29, VL 21, Madira 172, PRJ 1)	Change of crop Increased seed rate Intercropping, Timely weeding	
	Finger millet –Pea, Finger millet –Lentil, Finger Millet-Wheat	Horsegram, VL-8	Intercropping, Timely weeding	
	Maize-Wheat	Finger millet – VLM 146 Rajma (VL-Rajma 63, 125)	Use of short duration varieties.	
	Tomato, Capsicum, Brinjal, Chiilli, Potato	Tomato, Cabbage, Cauliflower, Radish, Frenchbean, Pea, Plantation of Malta trees	Use of short duration varieties. Gap filling Use of organic manure at sowing Timely weeding Conserve residual moisture for sowing <i>rabi</i> crops	
Mid hill North aspect (Low rainfall, dry receiving maximum sun light due to high sun intensity, clay loam to sandy/silty soils)	Tomato, Capsicum, Brinjal, Chiilli, Potato	Tomato, Cabbage, Cauliflower, Radish, Frenchbean, Pea, Plantation of Malta trees	Use of short duration varieties. Gap filling Use of organic manure at sowing Timely weeding Conserve residual moisture for sowing <i>rabi</i> crops	
	Cheti/Spring Rice (End March-Mid April)-Veg. Pea	Cow pea (Pusa komal) Rajma (VL-Rajma 63) Finger millet (VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2)-Wheat	Change of crops Increased seed rate Intercropping Timely wedding	
	Finger millet +Black soybean/Horsegram-Wheat	Black Soybean/Barnyard millet-Wheat	Increase seed rate, Intercropping, Timely weeding,	
	Black Soybean + Barnyard millet-Veg pea	Spring rice-Local, VL 206, VL 207, VL 208, VL 209 Black Soybean-Local Horsegram-Local, VLG-1 Finger millet-Local, VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2, Barnyard millet-Local, VL 29, VL 21, VL Madira 172, PRJ 1	Increased seed rate, Intercropping Timely weeding, Addition of organic manures (FYM/Compost) @ 5-10 t/ha treated with Trichoderma	
	Spring Rice-Local, VL Black Soybean-Local Horsegram-Local, Finger millet-Local,	Finger millets + Horsegram/Rice bean Amaranth+Horsegram/ Rice bean	Increased seed rate Intercropping Timely weeding,	

Lower- hills & Valleys	Barnyard millet-Local		
	Cheti/Spring Rice (End March-Mid April)-Veg. Pea Cheti Rice-Wheat	Finger millet (VLM 146, VLM 149, VLM 315, VLM 324, PRM1, PRM2)	Change of crop, Use failed crop as fodder, addition of organic manures (FYM/compost) @ 5-10 t/ha treated with Trichoderma
	Finger millet-Pea, Finger millet-Lentil, Finger millet-Fallow Barnyard Millet-Wheat	Finger millet (VLM 146,	Use short duration varieties, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with Trichoderma, Sowing may be delayed till appropriate soil moisture condition reaches
	Rice –Cabbage-Maize (Green cob), Rice-Cabbage-Potato	Change of crop Finger millet –VLM 146 Barnyard millet (VL Madira-172)	Bunding of terraces, Increased seed rate, Mulching, sowing across the slope, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with Trichoderma
	Cheti/Spring Rice (End March-Mid April)-Veg pea Cheti Rice –Wheat	Change of crop Finger millet –VLM 146	Spraying of antitranspirants, use of green shade nets (50%)
	Pomegranate, Mango, Citrus, Malta Tomato, Capsicum, Brinjal, Chiilli, Potato, Apple, Peach, Wallnut, Citrus	Pomegranate, Mango, Citrus, Malta Tomato, Cabbage, Cauliflower, Radish, Frenchbean, Pea, Plantation of Malta trees	Digging of pits and plantation of elite saplings of desired fruit crops. Incorporation of organic + inorganic manures at the time of planting in the pits. Incorporation of pesticides before planting in the pits. Timely irrigation to the young plants as and when required. Use of antitranspirants, use of mulching Spraying of micro-nutrients, mulching of tree basin with organic/inorganic Use of organic manure at sowing Timely weeding Conserve residual moisture for sowing rabi crops mulches, spraying of anti-transpirants

Irrigated

Condition Delay by 4 week	Major Farming situation	Normal Crop/cropping system	Suggested contingency measure		
			Change in crop/cropping system	Agronomic measure	Remarks on implementation
3 rd week of July	Lower hills & Valley	Rice-Wheat	Rice (VLD 81), VD82, VLD61, VD 62)	Foliar N management (1% NPK spray), addition of organic manures (FYM)/compost @ 5-10 t/ha, soil moisture conservation measures with locally available mulch materials.	Supply of seeds through TDC, NSC Dept. of Agriculture and KVK
		Rice-Cabbage- Maize (Green cob), Rice-Cabbage- Potato	Rice (VLD 81), VD82, VLD61, VD 62)	Light irrigation, Timely weeding, addition of organic manures (FYM/compost) @ 5- 10 t/ha	
		Tomato, Capsicum, Brinjal, Chiilli, Potato, Apple, Peach, Walnut, Citrus	Cabbage, Cauliflower, Radish, Round radish, Rai, Coriander, Frenchbean, Pea, Plantation of Malta trees	Use of short duration varieties. Gap filling, Timely weeding Use of organic manure at sowing Conserve residual moisture for sowing rabi crops	

Contingency measures- Mid season

Rainfed

Condition	Suggested Contingency measures Condition			
Mid-season drought [long dry spell, consecutive 2 weeks rainless (>2.5 mm) period]	Major Farming situation ^a	Crop/cropping system ^b	Crop management ^c	Mid-season drought [long dry spell, consecutive 2 weeks rainless (>2.5 mm) period]
At vegetative stage				
High hill	Potato/Mandua/Ramdana	Mid-season correction (thinning within the row and between the row) Remove every third row, praying of 2% urea and recommended concentration of other plant nutrient to take the advantage of favourable conditions, rationing of drought affected crops if subsequent rain is possible and use of antitranspirant.	Organic mulches/grass mulching, Earthing in Potato. In situ water conservation with low cost poly tanks for harvesting normal onset	Construction of rain water harvesting ponds through IWMP and MNREGA
	Finger millets mixed with Amaranth/Pulses	Use of antitranspirants, lifesaving irrigation if available, Thinning for reducing plant population	Foliar N management (1% urea spray) instead of Top N dress only if the crop stand is still better, Spray of potassium nitrate and potassium chloride, and use local available plant material for mulch	
	Tomato, Capsicum, Brinjal, Chiilli, Potato, Apple, Peach, Walnut, Citrus	Cabbage, Cauliflower, Radish, Round radish, Rai, Coriander, Frenchbean, Pea, Plantation of Malta trees	Use of short duration varieties. Gap filling Use of organic manure at sowing Timely weeding	

			Conserve residual moisture for sowing rabi crops	
Mid hill South aspect	Rice/Mandua/Potato/Jhingora-wheat/mustard Cheti/Spring Rice (End March-Mid April)-Veg. Pea Finger millet-Pea Finger millet-Lentil Finger millet-Wheat Maize-Wheat	Use of antitranspirants, lifesaving irrigation if available, Thining for reducing plant population	Foliar N management (1% urea spray) instead of top N dress; Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Mid-season correction and use moisture conservation practices
	Tomato, Capsicum, Brinjal, Chiilli, Potato	Tomato, Cabbage, Cauliflower, Radish, Frenchbean, Pea, Plantation of Malta trees	Use of short duration varieties. Gap filling Use of organic manure at sowing Timely weeding Conserve residual moisture for sowing rabi crops	
Mid hill North aspect	Cheti/Spring Rice (End March-Mid April)-Veg. Pea Finger millet+Black Soybean/Horsegram Black Soybean+Barnyard millet-Pea Spring Rice, Black Soybean, Horsegram, Finger millet, Barnyard millet	Use of antitranspirants, lifesaving irrigation if available, Thining for reducing plant population	Spray of NPK solution or N Top dress recommendation coinciding with rain splashes; rain water harvesting of surrounding fields, Mulching, Bunding, Lifesaving irrigation	
	Tomato, Capsicum, Brinjal, Chiilli, Potato	Tomato, Cabbage, Cauliflower, Radish, Frenchbean, Pea, Plantation of Malta trees	Use of short duration varieties. Gap filling Use of organic manure at sowing Timely weeding Conserve residual moisture for sowing rabi crops	
Low hills and valleys	French bean, Rainfed paddy/Finger millet/Barnyard millet/Wheat/toria, Cabbage, Chilli, Tomato, Brinjal Cheti/Spring Rice (End March-Mid April)-Veg. Pea Cheti Rice-Wheat Finger millet-Pea Finger millet-Lentil Finger millet-Fallow Barnyard Millet-Wheat	Use of anti-transpirants, use of shade-nets (50%) Life saving irrigation if available	Hoeing and weeding, organic mulching, windbreak and shelterbelts Foliar N management (1% urea spray) instead of top N dress; Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Construction of rain water harvesting ponds as a long term drought proofing measure.
	Tomato, Capsicum, Brinjal, Chiilli, Potato, Apple, Peach, Wallnut, Citrus	Tomato, Cabbage, Cauliflower, Radish, Frenchbean, Pea, Plantation of Malta trees	Use of short duration varieties. Gap filling Use of organic manure at sowing	

			Timely weeding Conserve residual moisture for sowing rabi crops	
	Pomegranate, Mango, Citrus, Malta	Pomegranate, Mango, Citrus, Malta	Digging of pits and plantation of elite saplings of desired fruit crops. Incorporation of organic + inorganic manures at the time of planting in the pits. Incorporation of pesticides before planting in the pits. Timely irrigation to the young plants as and when required. Use of antitranspirants, use of mulching	

Resource management technologies

- Implementing community ponds for horticultural crop cultivation through water harvesting structures
- Utilizing mulching sheets within fruit orchards for enhanced crop management
- Establishing HDPE Tetra vermi beds for effective vermicomposting methods
- Introducing the polymulch technique to bolster agriculture in mountainous areas
- Introducing eco-friendly approaches to manage white grub, a detrimental pest in rainfed

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	CHAMPAWAT
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	1313.8	More than 19%	Less than 1064.178
June	211.9		
July	461		
August	367.7		
September	273.2		

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

Irrigation info:

Net irrigated area:	1284	Gross irrigated area:	2434
Net Rainfed area	9577	Gross rainfed area	14785

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	140	241
Wells	1071	2077
Tanks	-	-
Other sources	73	116

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	2936	1198	1738
2	Jowar	-	-	
3	Maize	550	29	521
4	Bajra	-		
5	Ragi	2131		2131

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	2		2
2	Groundnut	20		20
3	Sesamum	68		68
4	Soyabean	468		468
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	4	4	0
2	Tobacco	-		
3	Guar seed	-		0
4	Other Fodder crops	30	30	0

Crop Plan- Beginning of the season

Rainfed

Early season drought (delayed onset)	Major Farming situation ^a	Normal Crop/cropping system ^b	Change in crop/cropping system ^c	Agronomic measures ^d	Remarks on Implementation ^e
Delay by 4 weeks (July 1 st week)	Rain fed lower hills	Cropping system 1: Rice- Wheat- soybean- Fellow Jethi Rice: VL Dhan-221, VL Dhan-163 Soybean: PS-1092, VLS-47	Rice is replaced by horse gram or Finger millet+ black soybean Horse gram: Local, VLG-1	Increase seed rate, inter cropping of black soybean with finger millet	Supply of seeds through TDC/ NSC
	Rain fed mid hills	Cropping system 1: Rice-whet-Finger millet- fellow Jethi Rice: VL Dhan-221, VL Dhan-163	Rice replaced by Horse gram Horse gram: Horse gram: Local, VLG-1	Increase seed rate	Seed given by under RKVY

		Finger millet: VL Mandua-324, VL Mandua-149			
	Rain fed High hills	Cropping system 1: Rajma- wheat Amaranth- wheat Rajma- VL Bean-2, coriander, Pant Anupma Amaranth: PRA-1, PRA-2, PRA-3	Replaced by buck wheat Buck wheat: PRB-3	Spraying of Monocrotophos 0.2% for control of leaf webber in Amaranth	Supply of seeds through TDC/ NSC

Irrigated

Condition	Major Farming situation	Normal Crop/cropping system	Suggested contingency measure		
Delay by 4 week			Change in crop/cropping system	Agronomic measure	Remarks on implementation
3 rd week of July	Lower hills & Valley	Rice-Wheat	Rice (VLD 81), VD82, VLD61, VD 62)	Foliar N management (1% NPK spray), addition of organic manures (FYM)/compost @ 5-10 t/ha, soil moisture conservation measures with locally available mulch materials.	Supply of seeds through TDC, NSC Dept. of Agriculture and KVK
		Rice-Cabbage-Maize (Green cob), Rice-Cabbage-Potato	Rice (VLD 81), VD82, VLD61, VD 62)	Light irrigation, Timely weeding, addition of organic manures (FYM/compost) @ 5-10 t/ha	
		Tomato, Capsicum, Brinjal, Chiilli, Potato, Apple, Peach, Wallnut, Citrus	Cabbage, Cauliflower, Radish, Round radish, Rai, Coriander, Frenchbean, Pea, Plantation of Malta trees	Use of short duration varieties. Gap filling, Timely weeding Use of organic manure at sowing Conserve residual moisture for sowing rabi crops	

Contingency measures- Mid season

Rainfed

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)			Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
At vegetative stage	Rain fed Low hills	Cropping system 1: Rice- wheat soybean- fellow	Inter-culture operation life saving irrigation if possible, sowing of radish on bunds	Spray of 2% urea, bunding	Preparation of water harvesting ponds through MNREGA Supply of seeds through TDC
	Rain fed Mid hills	Cropping system 1: Rice-wheat-finger millet- fellow	Re-sowing, inter-culture operation & life saving irrigation if possible	Mulching by dry uprooted weed	

		Jethi Rice: VL Dhan-221, VL Dhan-163 Fingermillet: VL Mandua-324, VL Mandua-149			
		Cropping system 2: Potato- wheat Potato: Kufri jyoti, Kufri Giriraj	Sowing of rajma	Life saving irrigation if possible Mulching in potato	
	3	Cropping system 1: Amaranth- wheat Amaranth: PRA-1, PRA-2, PRA-3	Re-sowing, inter-culture operation & life saving irrigation if possible	Spraying of monocrotophos 36 EC (0.15%) for the control of leaf webber	
		Cropping system 2: Rajma-wheat Rajma- VL Bean-2, contender, Pant Anupma	Gap filling in rajma	inter-culture operation	
	4				
Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	Major Farming situation^a	Normal Crop/cropping system^b	Crop management^c	Soil nutrient & moisture conservation measues^d	Remarks on Implementation^e
At flowering/ fruiting stage	Rain fed Lower hills	Cropping system 1: Rice- wheat- soybean- fellow Jethi Rice: VL Dhan-221, VL Dhan-163 Soybean: PS-1092, VLS-47	Inter-culture operation life saving irrigation through conserved water pond sowing of radish on bunds	Foliar spray of 2% urea	Preparation of water harvesting ponds through MNREGA -
		Cropping system 2: Finger millet/ Horse gram Fingermillet: VL Mandua-324, VL Mandua-149 Horse gram Horse gram: Horse gram: Local, VLG-1	Sowing of radish Radish: Dunagiri local, Japoni white, Pusa Himani	-	
	Rain fed Mid hills	Cropping system 1: Rice- wheat- soybean- fellow Jethi Rice: VL Dhan-221, VL Dhan-163 Soybean: PS-1092, VLS-47	Sowing of radish Radish: Dunagiri local, Japoni white, Pusa Himani		

		Cropping system 2: Potato- wheat Potato: Kufri jyoti, Kufri Giriraj	Management of late blight & white grub in potato	Mulching	
	Rain fed High hills	Cropping system 1: Amaranth- wheat Amaranth: PRA-1, PRA-2, PRA-3	Spray of monocrotophos 36 EC (0.015 %) for manage of leafwebber		
		Cropping system 2: Rajma-wheat Rajma- VL Bean-2, contender, Pant Anupma	Manage cut worm		

Contingency measures- End season

Rainfed

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	Major Farming situation ^a	Normal Crop/cropping system ^b	Crop management ^c	Rabi Crop planning ^d	Remarks on Implementation ^e
	Rain fed Lower hills	Cropping system 1: Rice- wheat- soybean/ fingermillet- fellow Jethi Rice: VL Dhan-221, VL Dhan-163 Soybean: PS-1092, VLS-47 Finger millet: VL Mandua-324, VL Mandua-149	Harvest crop for fodder purpose	Go for early sowing of rain fed wheat lentil, toria with conservation measures	Supply of seed through TDC, NSC
	Rain fed Med hills	Cropping system 1: Rice- wheat- fingermillet- fellow Jethi Rice: VL Dhan-221, VL Dhan-163 Finger millet: VL Mandua-324, VL Mandua-149	Harvest at physiological maturity stage	Go for early crop varieties toria (PT-303), lentil (PL-4)	
		Cropping system 2: Potato- wheat Potato: Kufri jyoti, Kufri Giriraj	Harvesting of potato	Go for early crop varieties toria (PT-303), lentil (PL-4)	
	Rain fed High hills	Cropping system 1: Amaranth- wheat Amaranth: PRA-1, PRA-2, PRA-3	Harvest at physiological maturity stage	Go for early crop varieties toria (PT-303)	
		Cropping system 2: Rajma-wheat Rajma- VL Bean-2, contender, Pant Anupma	Harvest at physiological maturity stage	Go for early crop varieties toria (PT-303)	

Resource management technologies

- Implementing community ponds for horticultural crop cultivation through water harvesting structures
- Utilizing mulching sheets within fruit orchards for enhanced crop management
- Establishing HDPE Tetra vermi beds for effective vermicomposting methods
- Introducing the polymulch technique to bolster agriculture in mountainous areas
- Introducing eco-friendly approaches to manage white grub, a detrimental pest in rainfed

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	DEHRA DUN
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	1442.9	More than 19%	Less than 1168.749
June	193.4		
July	515.4		
August	474.3		
September	259.8		

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

Irrigation info:

Net irrigated area:	15840	Gross irrigated area:	25123
Net Rainfed area	15466	Gross rainfed area	20970

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	13034	20540
Wells	2306	3818
Tanks	-	-
Other sources	500	765

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	7808	7713	95
2	Jowar	-	-	
3	Maize	5396	33	5363
4	Bajra	-		
5	Ragi	419	6	413

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	295		295
2	Groundnut	37		37
3	Sesamum	91		91
4	Soyabean	12		12
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	3601	3597	4
2	Tobacco	-		
3	Guar seed	-		1144
4	Other Fodder crops	1815	671	1144

Crop Plan- Beginning of the season

Rainfed

Condition			Suggested Contingency measures		
Early season drought	Major Farming situation ^a	Normal Crop/cropping system ^b	Change in crop/cropping system ^c	Agronomic measures ^d	Remarks on Implementation ^e
Delay by 4 weeks 3rd week of July	1 Rain fed lower hills/foot hills	Cropping system 1: Rice- Wheat	Rice can be replace by grain cowpea/ bhindi/ corriander Cowpea- Pusa Komal, lobia- 1042 Bhindi- Prabhani kranti, Pusa Sawani Coriander: Pant Haritima	Overnight Seed soaking with water before sowing. Control measure for white fly in cowpea by 0.2% monocrotophos.	Supply of seeds through TDC/ NSC/ VPKAS Seed given by under RKVY
		Cropping system 2: Soybean- Wheat	Soybean can be replace by grain cowpea/ bhindi/ corriander	Overnight Seed soaking with water before sowing.	

			Cowpea- Pusa Komal, lobia- 1042 Bhindi- Prabhani kranti, Pusa Sawani Coriander: Pant Haritima	Control measure for white fly in cowpea by 0.2% monocrotophos	
		Cropping system 3: Maize-wheat	Maize can be replaced by grain cowpea/ bhindi/ coriander Cowpea- Pusa Komal, lobia- 1042 Bhindi- Prabhani kranti, Pusa Sawani Coriander: Pant Haritima	Overnight Seed soaking with water before sowing. Control measure for white fly in cowpea by 0.2% monocrotophos	
	2 Rain fed mid hills	Cropping system 1: Upland Rice- Wheat	Upland Rice can be replaced by horse gram or Buck wheat Horse gram: Local, VLG-1 Buck wheat: PRB-3	Water conservation measures like terrace bunding and drainage of excess water.	Seed given by under RKVY
		Cropping system 2: French bean - Wheat	Frenchbean can be replaced by bhindi/ coriander Cowpea- Pusa Komal, lobia- 1042 Bhindi- Prabhani kranti, Pusa Sawani Coriander: Pant Haritima	-	
	3 Rain fed High hills	Cropping system 1: Barneyard/Finger millet- wheat	Delayed sowing of Finger millet VLM-324, VLM-149	maintain the population by uprooting and transplanting plants with in the field	Supply of seeds through TDC/ NSC/ VPKAS
		Cropping system 2: Potato-Wheat	Potato can be replaced by vegetable pea PSM-3, VLM-10, VLM-7	-	Supply of potato seeds through state Hort. dept.

Irrigated

Condition	Major Farming situation ^f	Crop/cropping system ^g	Suggested Contingency measures		
			Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j
Delayed release of water in canals due to low rainfall.	Bhabhar area, sandy clay with gravels, highly percolating soils, Zn deficient along with NPK. Flat lands, boring is not possible due to hard rocks.	- Rice - wheat - Rice – toria/yellow sarsoon - wheat - Rice – Lentil - Rice – vegetable pea –sugarcane-ratoon- wheat - Soybean- Wheat- Moong	- DSR / SRI – vegetable pea – green gram - DSR – autumn cane + vegetable pea/ garlic/ potato- ratoon – wheat - DSR – lentil/ gram/mustard/field pea - Urd/ cowpea/ green gram – wheat –green gram - DSR - Zero till wheat	Use of sprinkler irrigation, Furrow irrigation, intercultural operations, Mulching, Crop planting on raised beds like wheat, Land leveling	Vegetables (cucumber), Cowpea

Condition			Suggested Contingency measures		
	Major Farming situation ^f	Crop/cropping system ^g	Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	GARHWAL
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	1273.3	More than 19%	Less than 1031.373
June	150.8		
July	428.6		
August	441.9		
September	252		

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

Irrigation info:

Net irrigated area:	2772	Gross irrigated area:	4619
Net Rainfed area	18908	Gross rainfed area	27101

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	1991	3267
Wells	166	312
Tanks	-	-
Other sources	615	1040

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	4520	2210	2310
2	Jowar	-	-	
3	Maize	1177	1	1176
4	Bajra	-		
5	Ragi	6449		6449

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	42		42
2	Groundnut	-		
3	Sesamum	13		13
4	Soyabean	158	63	95
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	-		5
4	Other Fodder crops	91	86	5

Crop Plan- Beginning of the season

Rainfed

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

Delay by 4 weeks July 4th week	1. Upland (Hill and Forest Soil)	Rice-Wheat	Replace unirrigated chaiti rice with jethi rice varieties (VL Dhan 154, VL 221) Rice-wheat+ toria/mustard Rice- lentil	Late sowing of crop Increase the seed rate by 25% Make water available from the nearby sources for sowing Grow short duration variety and crop Application of well decompose organic manure or FYM Give life saving irrigation Replace some area through pulse crop as they withstand well in drought condition Gap filling Grow crop by giving life saving irrigation Manual weeding should be done to conserve the moisture Intercropping of grain crop with legume crops Seed treatment with biofertilizers for better nutrition to the plant	Supply of seeds through TDC, NSC Dept. of Agriculture and KVK
		Barnyard Millet- Wheat	Barnyard Millet- lentil/vegetable pea Gahat/ rajma/urd/moong-wheat Arhar-wheat/toria Pulse crop- wheat + toria/mustard Soybean/ricebean- wheat/lentil Rice bean (PRR 1, PRR2)		
		Finger millet- Fallow	Finger millet+gahat/ urd/moong-wheat+rai/mustard finger millet+Amaranth- lentil rice bean-wheat Urd bean- PU 35, PU 19, Rajma (VL Rajma 63, 125), lentil (VL Mansoor-103, 125,126, 507,129), gahat (local var, VL Gahat- 1, 8, 10, 15, 19), arhar (VL Arhar- 1), veg pea (Arkel, PSM-1,Vivek Matar- 9,10,11) Amaranth (PRA 123, VL Chua 44)		
	2) Low Land Area (Coarse loamy soil)	Rice – Wheat/ Wheat + Rape seed Mustard	No change in system In case of delay of monsoon grow crop using water from nearby source (Gadhera)/ Life saving irrigation from the nearby sources If no water available then rotate the rice crop with pulse crop Urd/moong/rajmah/gahat/rice bean- lentil/ vegetable pea	Application of well decompose organic manure or FYM Transplant 45 days old seedlings of rice (3-4 seedlings/hill) Grow drought resistant varieties and intercrop grain crops with leguminous crops Gap filling and thinning where	

				plants get more crowded Seed treatment with biofertilizers for better nutrition to the plant	
	3. Eroded Hill Soil (Mid Hills)	Rice - Wheat	Moog/urd/gahat/soybeen-wheat Moog/urd/gahat-wheat/lentil Finger millet-lentil/wheat Cow pea (Pusa komal)/ Rajma (VL-Rajma 63)-wheat+toria	Incorporate legume, forage and fodder grasses and other deep-rooted crops in the cropping system Grow erosion resistant crop like cowpea, urd, soybean etc Use of organic manure Cover the soil surface to minimize the soil loss through live, straw or plastic mulch Live saving irrigation at critical stages	Inward slope should be made during field preparation Grow napier grass and other erosion resistant grasses on the shoulder bunds All field preparation practices and line sowing of crops should be done across the slope
		Barnyard Millet- Wheat	Soybean-wheat Ricebean/gahat-wheat/lentil/toria		
		Finger millet - fallow	Grow nursery of finger millet then transplant it in main field as per the availability of water in up to the 1 st fortnight of July Transplanted finger millet- wheat Finger millet – wheat + toria Finger millet-lentil		

Irrigated situation

Contingency measures- Mid season

Rainfed

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	1. Upland (Hill and Forest Soil)	Rice – Wheat Barnyard Millet – Wheat Finger millet - Fallow	Application of organic manure during the time of field preparation to hold moisture during the time of rainfall Line sowing across the slope to reduce the flow of water which will give	Foliar spray of nitrogen with 1% of urea solution. Thinning to minimize the plant population to conserve soil moisture. Spray of potassium	

			more time for interception Mid season correction (thinning within the row and between the row) Remove every third row Organic mulches/grass mulching. In situ water conservation with low cost poly tanks for harvesting normal onset Timely weeding to reduce the water loss through transpiration. Use of anti-transpirants Life saving irrigation if available		
	2. Low Land Area (Coarse Loamy soil)	Rice- Wheat Rice- Wheat + Rape seed mustard	Timely weeding Use of anti-transpirants Life saving irrigation if available	Rain water harvesting. Life saving irrigation.	
	3. Eroded Hill Soil (Mid Hills)	Rice –Wheat Barnyard millet- Wheat Finger Millet- Fallow	Intercrop with pulse crop Line sowing across the slope to reduce the water flow which will give more time for interception	Rain water harvesting.	

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	1. Upland (Hill and Forest Soil)	Rice –Wheat Barnyard millet – Wheat Finger millet- fallow	Crop should be harvested(matured panicle should be harvested and immature should be left and those can be used as fodder) Life saving irrigation at critical stages through water storage structure (if available) Mulching should be done Weeding should be done. Water sprayings with conserved water, Remove 3-4 basal leaves of the crop in case of early stoppage of rain, spraying of 2% urea and recommended concentration of other plant nutrient to take the advantage of favourable conditions	Supplementary irrigation through water harvesting tanks.	MNREGA – tank should be constructed, trench digging for water conservation.

			Anti-transpirant spray Salicylic acid spray to induce earliness Harvesting at physiological maturity		
	2. Low Land Area (Coarse Loamy Soil)	Rice –Wheat Rice –Wheat+ Rape Seed mustard	Application of organic manure Harvesting at physiological maturity Seed setting is too poor then crop can be harvested as fodder for animals.	Foliar spray of nitrogen (1% urea solution)	Rain water harvesting tank should be constructed.
	3. Eroded hill Soil (Mid Hills)	Rice -wheat Barnyard millet- Wheat Finger millet- Fallow	Application of organic manure Harvesting at physiological maturity Seed setting is too poor then crop can be harvested as fodder for animals. Nutrients applications should be made on the basis of moisture availability.	2 nd Nitrogen application should be delayed	Rain water harvesting tank should be constructed.

Contingency measures- End of the season

Rainfed

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	Major Farming situation	Normal Crop/cropping system	Crop management	Rabi Crop planning	Remarks on Implementation
	1. Upland (Hill and Forest Soil)	Rice – Wheat Barnyard millet – Wheat Finger millet- fallow	Terminal drought stress at the time of critical stage the give life saving irrigation from stored water tank (if available) Mulching should be done to reduce water losses Grains remain chaffy then crop is harvested as fodder for animals Salicylic acid spray to induce earliness	Delay sowing of Rabi crops according the moisture availability. Grow short duration crop varieties. Opt for short duration varieties Irrigate the crop at critical stages if there is availability of stored water	MNREGA- tank should constructed trench digging for water conservation.
	2. Low Land Area (Coarse Loamy Soil)	Rice – Wheat Rice – Wheat+ rape seed/ mustard	Picking of lower and older leaves to reduce transpiration	Life saving irrigation at critical stage	

	3. Eroded hill Soil (Mid Hills)	Rice – Wheat Barnyard millet- Wheat Finger millet- Fallow	Terminal drought stress at the time of critical stage the give life saving irrigation from stored water tank (if available) Mulching should be done to reduce water losses In those areas follow pulse based cropping system as an intercrop or sole crop	Delay sowing of Rabi crops according the moisture availability. Grow short duration crop varieties. Opt for short duration varieties Irrigate the crop at critical stages if there is availability of stored water	
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Resource management technologies

- Implementing community ponds for horticultural crop cultivation through water harvesting structures
- Utilizing mulching sheets within fruit orchards for enhanced crop management
- Establishing HDPE Tetra vermi beds for effective vermicomposting methods
- Introducing the polymulch technique to bolster agriculture in mountainous areas
- Introducing eco-friendly approaches to manage white grub, a detrimental pest in rainfed

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	HARIDWAR
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	989.8	More than 19%	Less than 801.738
June	134.3		
July	322.6		
August	335		
September	197.9		

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

Irrigation info:

Net irrigated area:	108779	Gross irrigated area:	159568
Net Rainfed area	3866	Gross rainfed area	6160

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	12691	18694
Wells	94451	138807
Tanks	-	-
Other sources	1637	2067

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	14044	13979	65
2	Jowar	3	3	0
3	Maize	446	41	405
4	Bajra	-		
5	Ragi	-		

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	-		
2	Groundnut	287	2	285
3	Sesamum	224	6	218
4	Soyabean	-		
5	Sunflower	-		
6	Castor	-		

Fibre

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Cotton	5		5
2	Jute	-		
3	Mesta	-		
4	Sunhemp	-		

Other crops

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Sugarcane	75377	74702	675
2	Tobacco	-		
3	Guar seed	-		1312
4	Other Fodder crops	18947	17635	1312

Crop Plan- Beginning of the season

Rainfed

Condition	Suggested Contingency measures				
Early season drought (delayed onset)	Major Farming situation	Crop/cropping system	Change in crop/cropping system including variety	Agronomic measures	Remarks on Implementation
Delay by 4 weeks 3 rd week of July	Upland	Groundnut	Blackgram	Recommended package of practices	Link NSC, SAU, Department of agriculture, other related agencies for good quality seed

Irrigated situation

Condition	Major Farming situation	Normal Crop/cropping system	Suggested contingency measure		
Delay by 4 weeks			Change in crop/cropping system	Agronomic measure	Remarks on implementation

3rd week of July	lower hills and Valley	Rice-wheat	Rice (VL Dham\n 81, 82, 61, 62)	Foliar N management (1% NPK spray), addition of organic manures (FYM/compost) @ 5-10 t/ha, soil moisture conservation measures with locally available mulch materials	-Nil-
		Rice-cabbage-Maize (green cob), Rice-Cabbage- Potato	Rice (VL Dham\n 81, 82, 61, 62)	Light irrigation, Timely weeding, addition of organic manures (FYM/compost) @ 5-10 t/ha	

Resource management technologies

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- Introducing eco-friendly approaches to manage white grub, a detrimental pest in rainfed

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	NAINI TAL
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	1537.9	More than 19%	Less than 1245.699
June	265.8		
July	552.7		
August	419.7		
September	299.7		

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

Irrigation info:

Net irrigated area:	23513	Gross irrigated area:	35305
Net Rainfed area	12559	Gross rainfed area	25472

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	13044	21163
Wells	10196	13746
Tanks	-	-
Other sources	273	396

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	11323	11084	239
2	Jowar	-	-	
3	Maize	2968		2968
4	Bajra	-		
5	Ragi	759		759

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	4		4
2	Groundnut	55		55
3	Sesamum	39		39
4	Soyabean	3875		3875
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	1927	1927	0
2	Tobacco	-		
3	Guar seed	-		604
4	Other Fodder crops	1938	1334	604

Crop Plan- Beginning of the season

Rainfed

Condition			Suggested Contingency measures		
Early season drought	Major Farming situation ^a	Normal Crop/cropping system ^b	Change in crop/cropping system ^c	Agronomic measures ^d	Remarks on Implementation ^e
Delay by 4 weeks 3rd week of July	Rain fed lower hills	Cropping system 1: Rice- Wheat	Rice can be replace by grain cowpea/ bhindi/ corriander Cowpea- Pusa Komal, lobia- 1042 Bhindi- Prabhani kranti, Pusa Sawani Coriander: Pant Haritima	Overnight Seed soaking with water before sowing. Control measure for white fly in cowpea by 0.2% monocrotophos.	Supply of seeds through TDC/ NSC/ VPKAS Seed given by under RKVY
		Cropping system 2: Soybean- Wheat	Soybean can be replace by grain cowpea/ bhindi/ corriander	Overnight Seed soaking with water before sowing.	

			Cowpea- Pusa Komal, lobia- 1042 Bhindi- Prabhani kranti, Pusa Sawani Coriander: Pant Haritima	Control measure for white fly in cowpea by 0.2% monocrotophos	
		Cropping system 3: Maize-wheat	Maize can be replaced by grain cowpea/ bhindi/ coriander Cowpea- Pusa Komal, lobia- 1042 Bhindi- Prabhani kranti, Pusa Sawani Coriander: Pant Haritima	Overnight Seed soaking with water before sowing. Control measure for white fly in cowpea by 0.2% monocrotophos	
		Cropping system 1: Upland Rice- Wheat	Upland Rice can be replaced by horse gram or Buck wheat Horse gram: Local, VLG-1 Buck wheat: PRB-3	Water conservation measures like terrace bunding and drainage of excess water.	
	Rain fed mid hills	Cropping system 2: French bean - Wheat	Frenchbean can be replaced by bhindi/ coriander Cowpea- Pusa Komal, lobia- 1042 Bhindi- Prabhani kranti, Pusa Sawani Coriander: Pant Haritima	-	Seed given by under RKVY
	Rain fed High hills	Cropping system 1: Finger millet- wheat	Delayed sowing of Finger millet VLM-324, VLM-149	maintain the population by uprooting and transplanting plants with in the field	Supply of seeds through TDC/ NSC/ VPKAS
		Cropping system 2: Potato-Wheat	Potato can be replaced by vegetable pea PSM-3, VLM-10, VLM-7	-	Supply of potato seeds through state Hort. dept.

Irrigated

Condition	Major Farming situation ^f	Crop/cropping system ^g	Suggested Contingency measures		
			Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j
Delayed release of water in canals due to low rainfall.	Bhabhar area, sandy clay with gravels, highly percolating soils, Zn deficient along with N PK. Flat lands, boring is not possible due to hard rocks.	- Rice - wheat - Rice – toria/yellow sarsoon - wheat - Rice – Lentil - Rice – vegetable pea –sugarcane-ratoon- wheat - Soybean- Wheat- Moong	- DSR / SRI – vegetable pea – green gram - DSR – autumn cane + vegetable pea/ garlic/ potato- ratoon – wheat - DSR – lentil/ gram/mustard/field pea - Urd/ cowpea/ green gram – wheat –green gram - DSR - Zero till wheat	Use of sprinkler irrigation, Furrow irrigation, intercultural operations, Mulching, Crop planting on raised beds like wheat, Land leveling	Vegetables (cucumber), Cowpea

Condition			Suggested Contingency measures		
	Major Farming situation ^f	Crop/cropping system ^g	Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j

Resource management technologies

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- Introducing eco-friendly approaches to manage white grub, a detrimental pest in rainfed

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	PITHORAGARH
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	1502.5	More than 19%	Less than 1217.025
June	248.9		
July	523.7		
August	446.8		
September	283.1		

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

Irrigation info:

Net irrigated area:	2025	Gross irrigated area:	3463
Net Rainfed area	27715	Gross rainfed area	48457

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	42	77
Wells	-	-
Tanks	-	-
Other sources	1983	3386

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	14217	1889	12328
2	Jowar	-	-	
3	Maize	2325	16	2309
4	Bajra	6		6
5	Ragi	5183		5183

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	7		7
2	Groundnut	-		
3	Sesamum	29		29
4	Soyabean	356		356
5	Sunflower	19		19
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

Rainfed

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major farming situation ^a	Crop/cropping system ^b	Change in Crop/cropping system ^c	Agronomic measures ^d	Remarks on implementation ^e
Delay by 4 weeks (July 1st week)	Rain fed lower hills	Rice-wheat	Rice replaced by Urd (U-31, 35), Sesamum	Weed Management, Foliar application of fertilizers, Bunding of terraces, Increased seed rate, Mulching, Sowing across the slope, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with Trichoderma	Seed given under IWMP & RKVY Supply of seeds through TDC, NSC Dept. of Agriculture and KVK

		Soybean-Mustard	Soybean replaced by Urd (U-31, 35), Sesamum, Veg Pea	Weed management	
	Rain fed Mid hills	Rice-wheat	Rice replaced by Sesum & Horsegram (VLG1, VLG 8, VLG 10) Change of crop Cowpea Finger millet –VLM 146, Barnyard millet (VL Madira-172)	Weed Management, Foliar application of fertilizers, use short duration varieties, Addition of organic manures, (FYM/compost) @ 5-10 t/ha, treated with Trichoderma, Sowing may be delayed till appropriate soil moisture condition reaches	
		Finger Millet-Lentil	None	Transplanting of ragi in standing fields, Weed Management, Foliar application of fertilizers	
		Maize-Lentil	None	Foliar application of fertilizers	
		Horse gram-Wheat	none	Weed Management	
	Rain fed high hills	Ramdana-wheat	None	Weed Management	
		Rajma-Lentil	None	Mulching Weed Management	
		Buckwheat-lentil	None	Weed Management	

Irrigated

Condition	Major farming situation ^f	Crop/cropping system ^g	Suggested Contingency measures		
			Change in Crop/cropping system ^h	Agronomic measures ⁱ	Remarks on implementation ^j
Delayed/limited release of water in canals due to low rainfall	Irrigated Valley	Paddy-wheat	None	Irrigate crop at critical growth stages	Seed given under IWMP & RKVY Supply of seeds through TDC, NSC Dept. of Agriculture and KVK
	Irrigated mid hills	Paddy-wheat	none	Irrigate crop at critical growth stages	

Contingency measures- Mid season

Rainfed

Condition	Major farming situation ^a	Crop/cropping system ^b	Suggested Contingency measures		
			Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on implementation ^e
Mid season drought (Long dry spell)					
At reproductive	Rain fed lower hills	Paddy-wheat	Thinning of plants	Foliar 2% urea spray	Linking agricultural operations to MANREGA, Inputs and spray equipments given under IWMP & RKVY, Dept. of Agriculture
	Rain fed Mid hills	Paddy-wheat	Thinning of plants	Foliar 2% urea spray	
		Fingermillet-lentil	Thinning of plants	Foliar 2% urea spray	

		Maize-lentil	Thinning of plants	Foliar 2% urea spray	and KVK
	Rain fed high hills	Horsegram-wheat	Thinning of plants	Foliar 2% urea spray	
		Ramdana-wheat	Thinning of plants	Foliar 2% urea spray	
		Rajma-lentil	Thinning of plants	Foliar 2% urea spray	
		Buckwheat- lentil	Thinning of plants	Foliar 2% urea spray	

Contingency measures- End season

Rainfed

Condition			Suggested Contingency measures		
Terminal drought	Major farming situation ^a	Crop/cropping system ^b	Crop management ^c	Rabi Crop planning ^d	Remarks on implementation ^e
	Rain fed lower hills	Paddy-wheat	Harvest crop for fodder purpose	Go for early sowing to use residual moisture Go for early crop varieties of Mustard, Lentil, barley, cabbage, radish, garlic, fenugreek,	Seed given under IWMP & RKVY, Supply of seeds through TDC, NSC Dept. of Agriculture and KVK
		Soybean-Mustard	Use crop as green manure/fodder		
	Rain fed Mid hills	Paddy-wheat	Harvest crop for fodder purpose		
		Ragi-lentil	Harvest crop for fodder purpose		
		Maize-lentil	Harvest crop for fodder purpose		
		Horsegram - wheat	Use crop as green manure/fodder		
	Rain fed high hills	Ramdana-wheat	Harvest crop for fodder purpose		
		Rajma-lentil	Harvest crop for fodder purpose		
		Buckwheat- lentil	Harvest crop for fodder purpose		

Resource management technologies

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- Establishing HDPE Tetra vermi beds for effective vermicomposting methods
- Introducing the polymulch technique to bolster agriculture in mountainous areas
- Introducing eco-friendly approaches to manage white grub, a detrimental pest in rainfed

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	RUDRAPRAYAG
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	1549.1	More than 19%	Less than 1254.771
June	220		
July	531.2		
August	537.1		
September	260.8		

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

Irrigation info:

Net irrigated area:	2134	Gross irrigated area:	4084
Net Rainfed area	15673	Gross rainfed area	24963

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	1283	2440
Wells	-	-
Tanks	-	-
Other sources	851	1644

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	7362	2011	5351
2	Jowar	-	-	
3	Maize	185		185
4	Bajra	-		
5	Ragi	5444		5444

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	267		267
2	Groundnut	-		
3	Sesamum	7		7
4	Soyabean	111		111
5	Sunflower	5		5
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	-		

Early season drought (delayed onset)	Major Farming situation ^a	Crop/cropping system ^b	Change in crop/cropping system ^c	Agronomic measures ^d	
Delay by 4 weeks 2nd week of July	(1) Tropical climate with moderately high temperature (18-30 ⁰ C), medium rainfall, low humidity, Irrigated Valley/low hill, High	Irrigated & rain fed Paddy /Finger millet/Barnyard millet/Maize-Wheat/Toria/Wheat+Toria/Potato/Onion/Garlic/Barley	Finger millet (VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2) /Barnyard millet (VL Madira-172)-Wheat/Toria/Wheat+Toria/Potato/Onion/Garlic/Barley	Use of short duration ,rainfed varieties Change of Crop, Use failed crop as fodder, addition of organic manures (FYM/compost) @ 5-10 t/ha	a) Link SAU, NSC, department of agriculture for getting good quality seed. b) Link RKY for getting hill based farm machineries. c) Capacity building

	rainfall and Alluvial sandy soil,in nature			treated with <i>Trichoderma</i> Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i> , Sowing may be delayed till appropriate soil moisture condition reaches	
		Tomato/Brinjal,/Chillies- Wheat/Barley /Toria/Potato/Onion/Garlic	Fallow- Wheat/Barley /Toria/Potato/Onion/Garlic		
(2)	Rainfed valley/Low hill, undulating topography , Moderate rainfall and	Rainfed Paddy / Finger millet / Barnyard millet / Maize /Black Gram /Red Gram/Horse Gram/ Frenchbean,- Wheat/Toria/Potato/Barley/ Rai,/Lentil/Buckwheat	Finger millet (VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2)/ Barnyard millet (VL Madira-172)/Black Gram (U-31, 35) /Red Gram/Horse Gram- Wheat/Toria/Potato/Barley/ Rai/Lentil/Buckwheat	Use of short duration ,rainfed varieties	a) Link SAU, NSC, department of agriculture for getting good quality seed. b) Link RKY for getting hill based farm machineries. c) Capacity building

	Silty sandy soil	Rainfed Paddy / Finger millet / barnyard millet / Maize-Fallow- Rainfed Paddy / Finger millet / Barnyard millet / Maize	Finger millet (VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2)/ Barnyard millet (VL Madira-172)-Fallow- Rainfed Paddy / Finger millet / Barnyard millet / Maize		
		Fallow-Wheat/Toria/Potato/Barley	Fallow-Wheat/Toria/Potato/Barley		
(3) South facing mid hills, low rainfall, dry receiving maximum sunlight, agricultural activities are being taken in terrace fields and this situation is mostly dry due to high		Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranthss/ Sesamum/ Soybean- Barley/ Lentil & Mustard/ Wheat/Toria/Potato/ Radish	Finger Millet(VL Mandua 315, 324)/ Barnyard Millet (VL 29, VL 21, VL Madira 172, PRJ 1)/Amaranth PRA 123, VL Chua / Sesamum/ Soybean- Barley/ Lentil & Mustard/Wheat/Toria/Potato/ Radish	Use of short duration ,rainfed varieties Change of crops, use failed crop as fodder, Increased seed rate, Intercropping, Timely weeding	a) Link SAU, NSC, department of agriculture for getting good quality seed. b) Link RKY for getting hill based farm machineries. c) Capacity building
		Horse gram/ Urd/ Arhar+Barnyard Millet	Horse gram VLG1, VLG 8, VLG 10/ Urd/ Arhar+Barnyard Millet		
		Rainfed Horse gram/Urd-Wheat/Barley	Rainfed Horse gram/Urd-Wheat/Barley		

	duration & intensity of sunlight and silty sandy soil	Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranthss/ Sesamum/ Soybean-Fallow- Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranths/ Sesamum/ Soybean	Finger Millet(VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2)/ Barnyard Millet(VL Madira-172)/ Amaranths/ Sesamum/ Soybean-Fallow- Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranths PRA 123, VL Chua / Sesamum/ Soybean		
(4) North facing mid hills, moderate rainfall, agricultural activities are being taken in terraced fields and this situation is comparatively cool & moist due to less intensity of sunlight and more number of perennial springs and silty sandy soil		Irrigated Paddy /Rainfed Paddy/Finger millet/Finger millet+(Horse gram/ Urd/ Arhar) /Barnyard millet+ (Horse gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato - Wheat/Toria/Potato/Barley/Mustard/Radish	Finger millet/(VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2)Finger millet+(Horse gram/ Urd/ Arhar) /Barnyard millet(VL Madira-172)+ (Horse gram/Urd/Arhar) / Amaranths/PRA 123, VL Chua 44 Sesamum - Wheat/Toria/Potato/Barley/Mustard/Radish	Use of short duration ,rainfed varieties Change of crops, use failed crop as fodder,	a) Link SAU, NSC, department of agriculture for getting good quality seed. b) Link RKY for getting hill based farm machineries. c) Capacity building
		Rainfed Horse gram/Urd/Soyabean-Wheat/Barley	Rainfed Horse gram VLG1, VLG 8, VLG 10//Urd/Soyabean-Wheat/Barley	Increased seed rate,	
		Rainfed Paddy/Finger millet/Finger millet+(Horse gram/ Urd/Arhar) /Barnyard millet+ Horse gram/Urd/Arhar) /Maize/ Amaranthss/ Sesamum/Tomato –Fallow- Rainfed Paddy/Finger millet/Finger millet+(Horse gram, Urd, Arhar) /Barnyard millet+ Horse gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato	Finger millet(VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2)/Finger millet+(Horse gram VLG1, VLG 8, VLG 10// Urd/Arhar) /Barnyard millet(VL Madira-172)+ Horse gram/Urd/Arhar) / Amaranths PRA 123, VL Chua 44/ Sesamum –Fallow- Rainfed Paddy/Finger millet/Finger millet+(Horse gram, Urd, Arhar) /Barnyard millet + Horse	Inter cropping, Timely weeding	

			gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato		
		Fallow- Wheat/Toria/Potato/Barley/Mustard/Radish	Fallow-Wheat(VL-829, HPW- 251)/Toria(Bhawani)/Potato/Barley/Mustard/Radish		
(5) High hills, high rainfall, agricultural activities are being taken in terrace fields and clay loam	Rainfed Paddy/Finger millet/Barn Yard millet/ Tomato /Amaranths/ Rajma -Barley / Potato / Wheat/ Rapeseed/ Cabbage/ Potato/Pea/ Radish.	Finger millet/Sanwa//Amaranths/ Rajma - Barley / Potato / Wheat/ Rapeseed/ Cabbage/ Potato/Pea/ Radish.	Use of short duration ,rainfed varieties		
(6) Very high hills, very high rainfall, climate is of humid temperate type with low to very low annual mean temperatur e. The snowfall is high., mountaino us topography	Rainfed Paddy/ Arbi /Finger millet/Barnyard millet/Amaranths- Wheat//Buckwheat/Pea/Cole Crop/ Cabbage/ Barley/Potato	Finger millet/Barnyard millet/Amaranths- Wheat(VL-829, HPW- 251)///Buckwheat/Pea/Cole Crop/ Cabbage/ Barley/(HBL-276)Potato	Use of short duration ,rainfed varieties	a) Link SAU, NSC, department of agriculture for getting good quality seed. b) Link RKY for getting hill based farm machineries. c) Capacity building	

	and clay loam soil				
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Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	Major Farming situation ^a	Crop/cropping system ^b	Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
At vegetative stage	(1) Tropical climate with moderately high temperature (18-30 ^o C), medium rainfall, low humidity,Irrigated Valley/low hill, High rainfall and Alluvial sandy soil,in nature	Irrigated/Paddy /Finger millet/Barnyard millet/Maize- Wheat/Toria/Wheat+ Toria/Potato/Onion/ Garlic/Barley	Mid season correction (thinning with in the row and between the row (remove every third row), praying of 2% urea and recommended concentration of other plant nutrient to take the advantage of favorable conditions, ratooning of drought affected crops if subsequent rain is possible and use of anti-transpirant	Hoeing and weeding, organic mulching, windbreak and shelterbelts	a) Link SAU, NSC, department of agriculture for getting good quality seed. b) Link RKY for getting hill based farm machineries. c) Capacity building
		Tomato/Brinjal,/Chillies- Wheat/Barley /Toria/Potato/Onion/ Garlic			
	(2) Rainfed valley/Low hill, undulating topography,Moderate	Rainfed Paddy / Finger millet / Barnyard millet / Maize /Black Gram /Red Gram/Horse Gram/ Frenchbean,- Wheat/Toria/Potato/	Mid season correction (thinning with in the row and between the row (remove every third row), praying of 2% urea and recommended concentration of other plant	Hoeing and weeding, organic mulching, windbreak and shelterbelts	

	rainfall and Silty sandy soil	Barley/ Rai./Lentil/Buckwheat	nutrient to take the advantage of favorable conditions, ratooning of drought affected crops if subsequent rain is possible and use of antitranspirant		
		Rainfed Paddy / Finger millet / Barnyard millet / Maize-Fallow- Rainfed Paddy / Finger millet / Barnyard millet / Maize			
		Fallow- Wheat/Toria/Potato/ Barley			
(3) South facing mid hills, low rainfall, dry receiving maximum sunlight, agricultural activities are being taken in terrace fields and this situation is mostly dry due to high duration & intensity of sunlight and silty sandy soil		Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranths/ Sesamum/ Soybean- Barley/ Lentil & Mustard/ Wheat/Toria/Potato/ Radish	Mid season correction (thinning within the row and between the row (remove every third row), spraying of 2% urea and recommended concentration of other plant nutrient to take the advantage of favorable conditions, ratooning of drought affected crops if subsequent rain is possible and use of antitranspirant	Hoeing and weeding, organic mulching, windbreak and shelterbelts	
		Horse gram/ Urd/ Arhar+Barnyard Millet			
		Rainfed Horse gram/Urd- Wheat/Barley			

		Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranths/ Sesamum/ Soybean- Fallow- Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranths/ Sesamum/ Soybean			
	(4) North facing mid hills, moderate rainfall, agricultural activities are being taken in terrace fields and this situation is comparatively cool & moist due to less intensity of sunlight and more number of perennial springs and silty sandy soil	Irrigated Paddy /Rainfed Paddy/Finger millet/Finger millet+(Horse gram/ Urd/ Arhar) /Barnyard millet+ (Horse gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato - Wheat/Toria/Potato/ Barley/Mustard/Radis h Rainfed Horse gram/Urd/Soyabean- Wheat/Barley Rainfed Paddy/Finger millet/Finger millet+(Horse gram/ Urd/Arhar) /Barnyard	Mid season correction (thinning with in the row and between the row (remove every third row), praying of 2% urea and recommended concentration of other plant nutrient to take the advantage of favorable conditions, ratooning of drought affected crops if subsequent rain is possible and use of antitranspirant	Hoeing and weeding, organic mulching, windbreak and shelterbelts	

		millet+ Horse gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato – Fallow- Rainfed Paddy/Finger millet/Finger millet+(Horse gram, Urd, Arhar) /Barnyard millet+ Horse gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato			
		Fallow- Wheat/Toria/Potato/ Barley/Mustard/Radis h			
	(5) High hills, high rainfall, agricultural activities are being taken in terrace fields and clay loam	Rainfed Paddy/Finger millet/Sanwa/ Tomato /Amaranths/ Rajma -Barley / Potato / Wheat/ Rapeseed/ Cabbage/ Potato/Pea/ Radish.	Mid season correction (thinning with in the row and between the row (remove every third row), praying of 2% urea and recommended concentration of other plant nutrient to take the advantage of favorable conditions, ratooning of drought affected crops if subsequent rain is possible and use of antitranspirant	Hoeing and weeding, organic mulching, windbreak and shelterbelts	

	(6) Very high hills, very high rainfall, climate is of humid temperate type with low to very low annual mean temperature. The snowfall is high., mountainous topography and clay loam soil	Rainfed Paddy/ Arbi /Finger millet/Barnyard millet/Amaranth- Wheat//Buckwheat/Pea/Cole Crop/ Cabbage/ Barley/Potato	Mid season correction (thinning with in the row and between the row (remove every third row), praying of 2% urea and recommended concentration of other plant nutrient to take the advantage of favorable conditions, ratooning of drought affected crops if subsequent rain is possible and use of antitranspirant	Hoeing and weeding, organic mulching, windbreak and shelterbelts	
Condition					
Mid season drought (long dry spell)		Crop/cropping system^b	Crop management^c	Soil nutrient & moisture conservation measures^d	Remarks on Implementation^e
At reproductive stage	(1) Tropical climate with moderately high temperature (18-30 ^o C), medium rainfall, low humidity,Irrigated Valley/low hill, High rainfall and Alluvial sandy soil,in nature	Irrigated/Paddy /Finger millet/Barnyard millet/Maize- Wheat/Toria/Wheat+ Toria/Potato/Onion/ Garlic/Barley	Remove 3-4 basal leaves of the crop in case of early stoppage of rain,), spraying of 2% urea and recommended concentration of other plant nutrient to take the advantage of favourable conditions	Hoeing and weeding, organic mulching, use of windbreak and shelterbelts, water harvesting and its recycling for supplemental irrigation to save the crop,	a) Link SAU, NSC, department of agriculture for getting good quality seed. b) Link RKY for getting hill based farm machineries. c) Capacity building
		Tomato/Brinjal,/Chillies- Wheat/Barley /Toria/Potato/Onion/ Garlic			
	(2)	Rainfed Paddy / Finger millet / Barnyard millet /	Remove 3-4 basal leaves of the crop in case of early stoppage of rain,), spraying of 2% urea and recommended	Hoeing and weeding, organic mulching, use of	

	Rainfed valley/Low hill, undulating topography, Moderate rainfall and Silty sandy soil	Maize /Black Gram /Red Gram/Horse Gram/ Frenchbean,- Wheat/Toria/Potato/ Barley/ Rai,/Lentil/Buckwheat	concentration of other plant nutrient to take the advantage of favourable conditions	windbreak and shelterbelts, water harvesting and its recycling for supplemental irrigation to save the crop,	
		Rainfed Paddy / Finger millet / Barnyard millet / Maize-Fallow- Rainfed Paddy / Finger millet / Barnyard millet / Maize			
		Fallow- Wheat/Toria/Potato/ Barley			
(3)	South facing mid hills, low rainfall, dry receiving maximum sunlight, agricultural activities are being taken in terrace fields and this situation is mostly dry due to high duration & intensity of sunlight and silty sandy soil	Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranths/ Sesamum/ Soybean- Barley/ Lentil & Mustard/ Wheat/Toria/Potato/ Radish	Remove 3-4 basal leaves of the crop in case of early stoppage of rain,), spraying of 2% urea and recommended concentration of other plant nutrient to take the advantage of favourable conditions	Hoeing and weeding, organic mulching, use of windbreak and shelterbelts, water harvesting and its recycling for supplemental irrigation to save the crop,	
		Horse gram/ Urd/ Arhar+ Barnyard Millet			

		Rainfed Horse gram/Urd-Wheat/Barley			
		Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranths/ Sesamum/ Soybean-Fallow- Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranths/ Sesamum/ Soybean			
	(4) North facing mid hills, moderate rainfall, agricultural activities are being taken in terrace fields and this situation is comparatively cool & moist due to less intensity of sunlight and more number of perennial springs and silty sandy soil	Irrigated Paddy /Rainfed Paddy/Finger millet/Finger millet+(Horse gram/ Urd/ Arhar) /Barnyard millet+ (Horse gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato - Wheat/Toria/Potato/ Barley/Mustard/Radish	Remove 3-4 basal leaves of the crop in case of early stoppage of rain,), spraying of 2% urea and recommended concentration of other plant nutrient to take the advantage of favourable conditions	Hoeing and weeding, organic mulching, use of windbreak and shelterbelts, water harvesting and its recycling for supplemental irrigation to save the crop,	
		Rainfed Horse gram/Urd/Soyabean-Wheat/Barley			
		Rainfed Paddy/Finger millet/Finger millet+(			

		Horse gram/ Urd/Arhar) /Barnyard millet+ Horse gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato – Fallow- Rainfed Paddy/Finger millet/Finger millet+(Horse gram, Urd, Arhar) /Barnyard millet+ Horse gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato			
		Fallow- Wheat/Toria/Potato/ Barley/Mustard/Radis h			
	(5) High hills, high rainfall, agricultural activities are being taken in terrace fields and clay loam	Rainfed Paddy/Finger millet/Sanwa/ Tomato /Amaranths/ Rajma -Barley / Potato / Wheat/ Rapeseed/ Cabbage/ Potato/Pea/ Radish.	Remove 3-4 basal leaves of the crop in case of early stoppage of rain,), spraying of 2% urea and recommended concentration of other plant nutrient to take the advantage of favourable conditions	Hoeing and weeding, organic mulching, use of windbreak and shelterbelts, water harvesting and its recycling for supplemental irrigation to save the crop,	
	(6) Very high hills, very high rainfall, climate is	Rainfed Paddy/ Arbi /Finger millet/Barnyard millet/Amaranths-	Remove 3-4 basal leaves of the crop in case of early stoppage of rain,), spraying of 2% urea and recommended concentration of other plant nutrient to	Hoeing and weeding, organic mulching, use of windbreak and	

	of humid temperate type with low to very low annual mean temperature. The snowfall is high., mountainous topography and clay loam soil	Wheat//Buckwheat/P ea/Cole Crop/ Cabbage/ Barley/Potato	take the advantage of favourable conditions	shelterbelts, water harvesting and its recycling for supplemental irrigation to save the crop,	
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Terminal drought	Major Farming situation ^a	Crop/cropping system ^b	Crop management ^c	Rabi Crop planning ^d	Remarks on Implementation ^e
	(1) Tropical climate with moderately high temperature (18-30 ⁰ C), medium rainfall, low humidity,Irrigated Valley/low hill, High rainfall and Alluvial sandy soil,in nature	Irrigated/Paddy /Finger millet/Barnyard millet/Maize- Wheat/Toria/Wheat+ Toria/Potato/Onion/G arlic/Barley	Remove 3-4 basal leaves of the crop in case of early stoppage of rain, harvesting at physiological maturity stage if there is moisture stress at very late stage	Early sowing and use of short duration and drought resistant varieties, mixed cropping (barley+torial) and use of high seed rate	a) Link SAU, NSC, department of agriculture for getting good quality seed. b) Link RKY for getting hill based farm machineries. c) Capacity building
		Tomato/Brinjal,/Chillies- Wheat/Barley /Toria/Potato/Onion/ Garlic			
	(2) Rainfed valley/Low hill, undulating topography, Moderate	Rainfed Paddy / Finger millet / Barnyard millet / Maize /Black Gram /Red Gram/Horse Gram/ Frenchbean,-	Remove 3-4 basal leaves of the crop in case of early stoppage of rain, harvesting at physiological maturity stage if there is moisture stress at very late stage	Early sowing and use of short duration and drought resistant varieties, mixed	

	rainfall and Silty sandy soil	Wheat/Toria/Potato/ Barley/ Rai,/Lentil/Buckwheat		cropping (barley+torial) and use of high seed rate	
		Rainfed Paddy / Finger millet / Barnyard millet / Maize-Fallow- Rainfed Paddy / Finger millet / Barnyard millet / Maize			
		Fallow- Wheat/Toria/Potato/ Barley			
(3)	South facing mid hills,low rainfall,dry receiving maimum sunlight, agricultural activities are being taken in terrace fields and this situation is mostly dry due to high duration & intensity of sunlight and silty sandy soil	Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranths/ Sesamum/ Soybean- Barley/ Lentil & Mustard/ Wheat/Toria/Potato/ Radish	Remove 3-4 basal leaves of the crop in case of early stoppage of rain, harvesting at physiological maturity stage if there is moisture stress at very late stage	Early sowing and use of short duration and drought resistant varieties, mixed cropping (barley+torial) and use of high seed rate	
		Horse gram/ Urd/ Arhar+Barnyard Millet			
		Rainfed Horse gram/Urd- Wheat/Barley			

		Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranths/ Sesamum/ Soybean- Fallow- Finger Millet/ Barnyard Millet/ Maize/ Tomato Amaranths/ Sesamum/ Soybean			
	(4) North facing mid hills, moderate rainfall, agricultural activities are being taken in terrace fields and this situation is comparatively cool & moist due to less intensity of sunlight and more number of perennial springs and silty sandy soil	Irrigated Paddy /Rainfed Paddy/Finger millet/Finger millet+(Horse gram/ Urd/ Arhar) /Barnyard millet+ (Horse gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato - Wheat/Toria/Potato/ Barley/Mustard/Radis h	Remove 3-4 basal leaves of the crop in case of early stoppage of rain, harvesting at physiological maturity stage if there is moisture stress at very late stage	Early sowing and use of short duration and drought resistant varieties, mixed cropping (barley+torial) and use of high seed rate	
		Rainfed Horse gram/Urd/Soyabean- Wheat/Barley			
		Rainfed Paddy/Finger millet/Finger millet+(Horse gram/ Urd/Arhar) /Barnyard millet+ Horse			

		gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato – Fallow- Rainfed Paddy/Finger millet/Finger millet+(Horse gram, Urd, Arhar) /Barnyard millet+ Horse gram/Urd/Arhar) /Maize/ Amaranths/ Sesamum/Tomato			
		Fallow- Wheat/Toria/Potato/ Barley/Mustard/Radis h			
	(5) High hills, high rainfall, agricultural activities are being taken in terrace fields and clay loam	Rainfed Paddy/Finger millet/Sanwa/ Tomato /Amaranths/ Rajma -Barley / Potato / Wheat/ Rapeseed/ Cabbage/ Potato/Pea/ Radish.	Remove 3-4 basal leaves of the crop in case of early stoppage of rain, harvesting at physiological maturity stage if there is moisture stress at very late stage	Early sowing and use of short duration and drought resistant varieties, mixed cropping (barley+torial) and use of high seed rate	
	(6) Very high hills, very high rainfall, climate is of humid temperate type with low to very low annual mean	Rainfed Paddy/ Arbi /Finger millet/Barnyard millet/Amaranths- Wheat//Buckwheat/P ea/Cole Crop/	Remove 3-4 basal leaves of the crop in case of early stoppage of rain, harvesting at physiological maturity stage if there is moisture stress at very late stage	Early sowing and use of short duration and drought resistant varieties, mixed cropping	

	temperature. The snowfall is high., mountainous topography and clay loam soil	Cabbage/ Barley/Potato		(barley+torial) and use of high seed rate	
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Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	TEHRI GARHWAL
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	948	More than 19%	Less than 767.88
June	129.5		
July	318.8		
August	318.3		
September	181.4		

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

Irrigation info:

Net irrigated area:	6168	Gross irrigated area:	10839
Net Rainfed area	31454	Gross rainfed area	42151

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	318	553
Wells	-	-
Tanks	-	-
Other sources	5850	10286

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	8338	5648	2690
2	Jowar	-	-	
3	Maize	1395	1	1394
4	Bajra	-		
5	Ragi	7097		7097

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	1169		1169
2	Groundnut	-		
3	Sesamum	264		264
4	Soyabean	533		533
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

Rainfed

Condition			Suggested contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delay by 4 weeks (2 nd week of July))	Rainfed lower hills	Spring rice (Mid of April- Mid May)- Veg. Pea Spring rice - Wheat	Change in crop Finger millet (PRM 2, PRM 3, VLM 146)	Change of the crop, Use failed crop as fodder, Addition of organic manures (FYM/Compost) @10-15 t/ha	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets- Soybean, Finger millets- Horse Gram,	Finger millet (PRM 2, PRM 3, VLM 146) Barnyard millet (PRJ 1, PRM 172, VLM 29)	Sowing may be delayed till appropriate soil	Supply of seeds through TDC, NSC, Dept. of Agriculture

		Finger millets – Wheat Finger millets – Fallow		moisture conditions reached Increased seed rate	and Krishi Vigyan Kendra
		Rice- Wheat	Change in crop Finger millet (PRM 2, PRM 3, VLM 146) Barnyard millet (PRJ 1, VLM 29, VLM 172)	Increased seed rate, Mulching, Sowing across the slope Addition of organic manure (FYM/Compost @ 10-15 t/ha) Application of Trichoderma	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
Mid hills south aspect		Spring Rice (End Of March- Mid April)- Veg Pea Cheti Spring Rice – Wheat	Change in crop Soybean (Local, PS 1029) + Barnyard millet (PRJ 1, VLM 29, VLM 172)	Bunding of terraces Increased seed rate Mulching Sowing across the contour	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Spring rice - Wheat	Soybean (Local, PS 1092), Horse gram (VL-8)	Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Maize –Wheat	Finger millet (PRJ 1, VLM 172, VLM 29) Rajma (VL Rajma 63, 125)	Change of the crop Use failed crop as fodder Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Finger millets + Soybean/ Horse Gram	Finger millet – Local, VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2 Barnyard millet – Local, VL 29, VL 21, VL Madira 172, PRJ 1		Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
Mid hills north aspect		Spring rice (Sowing in end of March to mid April) – Veg. Pea	Rajma (VL Rajma 63, 125) Finger millets (VLM 146, VLM 149, PRM 1, PRM 2)- Wheat	Change of crops Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Finger millets + Soybean	Soybean (Local, PS 1092) + Barnyard millets (PRJ 1, VLM 172) – Wheat (UP 2572)	Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Soybean+ Barnyard millet	Soybean (Local, PS 1092) + Barnyard millets (PRJ 1, VLM 172), Wheat (UP 2572)	Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
High hills		Finger millets mixed with Amaranth/ Pulses	Finger millets (Local, VLM 146, VLM 149) + Horsegram (VLG1, Local) / Rice bean (PRR 1, PRR2) Amaranth (PRA 123, VL Chua 44) + Horsegram	Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan

			(VLG1, VLG 8) / Rice bean (PRR 1, PRR2)		
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Contingency measures- Mid season

Rainfed

Condition			Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	Major Farming situation ^a	Normal Crop/cropping system ^b	Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
At vegetative stage	Rainfed lower hills	Spring rice (Mid of April- Mid May)- Veg. Pea Spring rice – Wheat	Use anti-transpiration, life saving irrigation if available	Foliar N management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Preparation of water harvesting ponds through MNREGA
		Finger millets + Soybean, Finger millets + Horse Gram, Finger millets – Wheat Finger millets – Fallow			
		Rice- Wheat			
	Mid hills south aspect	Spring Rice (End Of March- Mid April)-Veg Pea Cheti Spring Rice –Wheat	Use anti-transpiration, life saving irrigation if available, thinning for reducing plant population	Foliar N management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Preparation of water harvesting ponds through MNREGA
		Maize – Wheat			
		Finger millets + Soybean/ Horse Gram			
		Soybean+ Barnyard millet- Veg. Pea			
		Finger millets +Soybean -Wheat			
	Mid hills north aspect	Spring rice	Use anti-transpiration, life saving irrigation if available, thinning for reducing plant population	Foliar N management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Preparation of water harvesting ponds through MNREGA
		Finger millets + Soybean			
		Soybean+ Barnyard millet			
		Soybean Finger millet Barnyard millet			
	High hills	Finger millets mixed with Amaranth/ Pulses	Use anti-transpiration, life saving irrigation if available, thinning for	If crop stand is better then apply foliar N management (1% Urea spray)	Preparation of water harvesting ponds through MNREGA

			reducing plant population	instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	
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Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	Major Farming situation ^a	Normal Crop/cropping system ^b	Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
At flowering/ fruiting stage	Rainfed lower hills	Spring rice (Mid of April- Mid May)- Veg. Pea Spring rice – Wheat	Site specific crop management technologies Thinning, Life saving irrigation from rain water harvesting ponds Weeding and weed mulching Anti-transpiration spray Salicylic acid spray to induce early maturity Harvesting at physiological maturity Use crop as fodder if crop stand is poor	If crop stand is better then apply foliar N management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Preparation of water harvesting ponds through MNREGA and IWMP
		Finger millets + Soybean, Finger millets + Horse Gram, Finger millets – Wheat Finger millets – Fallow			
		Rice- Wheat			
	Mid hills south aspect	Spring Rice (End Of March- Mid April)- Veg Pea Cheti Spring Rice – Wheat	Site specific crop management technologies Thinning, Life saving irrigation from rain water harvesting ponds Weeding and weed mulching Anti-transpiration spray Salicylic acid spray to induce early maturity Harvesting at physiological maturity Use crop as fodder if crop stand is poor	If crop stand is better then apply foliar N management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Preparation of water harvesting ponds through MNREGA and IWMP
		Maize – Wheat			
		Finger millets + Soybean/ Horse Gram			
		Soybean+ Barnyard millet- Veg. Pea			
	Mid hills north aspect	Spring rice Finger millets + Soybean	Site specific crop management	Foliar N management (1% Urea spray) instead of top N dressing,	Preparation of water harvesting ponds

		Soybean+ Barnyard millet	Life saving irrigation	Efficient weed management and their in-situ mulching, Use local available plant material for mulch	through MNREGA and IWMP
		Soybean Finger millet Barnyard millet	Anti-transpiration spray Salicylic acid spray to induce earliness		
	High hills	Finger millets mixed with Amaranth/ Pulses	Site specific crop management Life saving irrigation Anti-transpiration spray Salicylic acid spray to induce earliness Harvesting at physiological maturity	In-situ conservation of moisture, Efficient weed management and use it as in-situ mulching Use local available plant material	Preparation of water harvesting ponds through MNREGA and IWMP

Resource management technologies

- Implementing community ponds for horticultural crop cultivation through water harvesting structures
- Utilizing mulching sheets within fruit orchards for enhanced crop management
- Establishing HDPE Tetra vermi beds for effective vermicomposting methods
- Introducing the polymulch technique to bolster agriculture in mountainous areas
- Introducing eco-friendly approaches to manage white grub, a detrimental pest in rainfed

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	UDHAMSINGH NAGAR
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	1125.5	More than 19%	Less than 911.655
June	174.5		
July	371.7		
August	356.3		
September	223		

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

Irrigation info:

Net irrigated area:	132717	Gross irrigated area:	272063
Net Rainfed area	72	Gross rainfed area	133

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	12301	24872
Wells	120355	247130
Tanks	-	-
Other sources	61	61

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	106623	106623	0
2	Jowar	-	-	
3	Maize	483	483	0
4	Bajra	-		
5	Ragi	-		

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	-		
2	Groundnut	4	4	0
3	Sesamum	-		
4	Soyabean	205	205	0
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	11893	11893	0
2	Tobacco	-		
3	Guar seed	-		72
4	Other Fodder crops	6769	6697	72

Crop Plan- Beginning of the season

Rainfed

Condition	Major Farming situation	Normal crop/cropping system	Suggested contingency measures		
Early season drought (delayed onset)			Change in crop/cropping system	Agonomic measures	Remarks on Implementation
Delay by 4 weeks 3 rd week of July	Lowland	Rice- Wheat	No Change	Use failed crop as fodder, addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i>	Supply of seeds through TDC, NSC Dept. of Agriculture and KVK
		Rice- Vegetable Pea-Summer Rice Rice-Sugarcane-Ratoon -Wheat	No Change	Use of short duration varieties, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i> ,	

	Upland			Sowing may be delayed till appropriate soil moisture condition reaches	
		Rice –Potato-Maize	No Change	Bunding of terraces, Increased seed rate, Mulching, Sowing across the slope, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i>	
		Rice- Wheat	No Change	Use failed crop as fodder, addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i>	
		Rice- Vegetable Pea-Summer Rice	No Change	Use of short duration varieties, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i> , Sowing may be delayed till appropriate soil moisture condition reaches	
		Rice-Sugarcane-Ratoon -Wheat	No Change		
		Rice –Potato-Maize	No Change	Bunding of terraces, Increased seed rate, Mulching, Sowing across the slope, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i>	

Contingency measures- Mid season

Rainfed

Condition	Suggested contingency measures				
Early season drought (Normal onset)	Major farming situation	Crop/cropping system	Crop management	Soil nutrient & moisture conservation measure	Remarks on implementation
Mid-season drought (long dry spell, consecutive 2 weeks rainless (<2.5 mm) period At vegetative stage	Lowland	Rice- Wheat	Use anti-transpirants, lifesaving irrigation if available	Use local available plant material for mulch Spray of NPK or N Top dress recommendation of Rain fed crop coinciding with rain splashes; rain water harvesting of surrounding fields, Mulching, Bunding, life saving irrigation	Construction of rain water harvesting ponds through IWMP and MNREGS as a long term drought proofing measure
		Rice- Vegetable Pea-Summer Rice			
		Rice-Sugarcane-Ratoon -Wheat			
		Rice –Potato-Maize			
	Upland	Rice- Wheat	Use anti-transpirants, lifesaving irrigation if available, Thinning for reducing plant population	Foliar N management (1% urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	
		Rice- Vegetable Pea-Summer Rice			
		Rice-Sugarcane-Ratoon -Wheat			
		Rice-Potato-Maize			

Contingency measures- End of the season

Rainfed

Condition	Suggested contingency measures				
At reproductive stage and terminal stage	Major farming situation	Crop/cropping system	Crop management	Soil nutrient & moisture conservation measure	Remarks on implementation
	Lowland	Rice- Wheat	Site-specific crop management technologies Lifesaving irrigation from rain water harvest ponds, If rain comes Toria sowing in mid-September	Foliar N management (1 % urea spray) instead of Top N dress only if the crop stand is still better, Spray of potassium nitrate and potassium chloride, Use local available plant material for mulch.	Construction of rain water harvesting ponds through IWMP and MNREGS
		Rice- Vegetable			
		Pea-Summer			
		Rice			
	Upland	Rice-Sugarcane-Ratoon -Wheat			
		Rice –Potato-Maize			
		Rice- Wheat			
		Rice- Vegetable			
		Pea-Summer			
		Rice			
		Rice-Sugarcane-Ratoon -Wheat			
		Rice-Potato-Maize			

Resource management technologies

- Implementing community ponds for horticultural crop cultivation through water harvesting structures
- Utilizing mulching sheets within fruit orchards for enhanced crop management
- Establishing HDPE Tetra vermi beds for effective vermicomposting methods
- Introducing the polymulch technique to bolster agriculture in mountainous areas
- Introducing eco-friendly approaches to manage white grub, a detrimental pest in rainfed

Actionable Comprehensive Plans for Contingency

State	UTTRANCHAL	District	UTTARKASHI
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Rainfall info (mm)

Month/season	Normal rainfall (mm)	Expected deficiency, %	Expected rainfall (mm)
June-Sep	1151.2	More than 19%	Less than 932.472
June	176.6		
July	408.1		
August	365.5		
September	201		

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

Irrigation info:

Net irrigated area:	4855	Gross irrigated area:	8056
Net Rainfed area	21733	Gross rainfed area	29175

Source wise irrigation area details (ha)

Source of irrigation	Net	Gross
Canals	4338	7134
Wells	-	-
Tanks	-	-
Other sources	517	922

Crop Profile (Kharif)

Cereals

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Rice	9396	4695	4701
2	Jowar	-	-	
3	Maize	391		391
4	Bajra	-		
5	Ragi	4170		4170

Pulses & Oilseeds

S.No	Crop name	Total area (ha)	Irrigated area (ha)	Rainfed area (ha)
1	Arhar/ Redgram	444		444
2	Groundnut	-		
3	Sesamum	658		658
4	Soyabean	291		291
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

Rainfed

Condition	Major Farming situation	Normal crop/cropping system	Suggested contingency measures		
Early season drought (delayed onset) Delay by 4 weeks 3 rd week of July			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
	Rainfed lower hills and Valley	Spring rice-Veg. pea	Finger millet (VLMamdua 146, VLMandua 149, VLMandua 315	Change of Crop, use failed crop as fodder, addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma viride</i>	Dept. of Agriculture, VPKAS and KVK
		Finger millet/ Barnyard millet - pea/ lentil/ wheat,	Finger millet (VLMandua 146)	Use of short duration varieties, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma viride</i> Sowing may be delayed till appropriate soil moisture condition reaches	
			Change of crop Barnyard millet (VL Madira-172)		

		Rice-wheat	Change of crop Finger millet –VLM 146, Barnyard millet (VL Madira-172)	Bunding of terraces, Increased seed rate, Mulching, Sowing across the slope, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i>	Dept. of Agriculture, VPKAS and KVK
		Rice-cabbage-Maize (green cob), Rice- Cabbage-Potato	Change of crop Finger millets (VLM 146)	Increased seed rate Mulching, Sowing across the slope, Addition of organic manures (FYM/compost) @ 5-10 t/ha treated with <i>Trichoderma</i>	
	Mid hills	<i>Chaiti</i> /Spring rice (Sowing in end march to mid-april)-Veg. pea	Black soybean+ Barnyard millet (VL 29, VL 21, VL Madira 172, PRJ 1)	Change of crops, use failed crop as fodder, Increased seed rate, Intercropping, Timely weeding	
		Finger millet/ Barnyard millet - pea/ lentil/ wheat,	Finger millet –VLM 146		
		Maize-wheat	Finger millet –VLM 146 Rajma (VL- Rajma 63, 125)		
	High hills	Finger millets mixed with Amaranth/ Pulses	Finger millet –VLM 146, VLM 149, VLM 315, VLM 324 Amaranth – PRA 123, VL Chua 44 Rice Bean – PRR 1, PRR2 Horsegram- VLG1, VLG 8, VLG 10		

Irrigated situation

Condition	Major Farming situation	Normal Crop/ cropping system	Suggested contingency measure		
Delay by 4 weeks			Change in crop/ cropping system	Agronomic measure	Remarks on implementation
3 rd week of July	lower hills and Valley	Rice-wheat	Rice (VL Dham\n 81, 82, 61, 62)	Foliar N management (1% NPK spray), addition of organic manures (FYM/compost) @ 5-10 t/ha, soil moisture conservation measures with locally available mulch materials	-Nil-
		Rice-cabbage-Maize (green cob), Rice- Cabbage- Potato	Rice (VL Dham\n 81, 82, 61, 62)	Light irrigation, Timely weeding, addition of organic manures (FYM/compost) @ 5-10 t/ha	

Contingency measures- Mid season

Rainfed

Condition	Suggested contingency measures				
Mid-season drought	Major farming situation	Crop/cropping system	Crop management	Soil nutrient & moisture conservation measure	Remarks on implementation

Mid-season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) At vegetative stage	Rainfed lower hills and Valley	Spring rice (End Mach -Mid April)- Veg. pea	Lifesaving irrigation if available	Foliar N management (1% urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	Construction of rain water harvesting ponds through IWMP and MNREGS as a long term drought proofing measure
		Finger millet/ Barnyard millet - pea/ lentil/ wheat			
		Rice-wheat			
	Mid hills	Spring rice (End Mach -Mid April)- Veg. pea	, lifesaving irrigation if available, thinning for reducing plant population	Foliar N management (1% urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching with dry grasses, paddy straw etc.	Construction of rain water harvesting ponds through IWMP and MNREGS as a long term drought proofing measure
		Finger millet/ Barnyard millet - pea/ lentil/ wheat			
		Maize-wheat			
	High hills	Finger millets mixed with Amaranth/ Pulses	Use anti-transpirants, lifesaving irrigation if available, thinning for reducing plant population	Foliar N management (1% urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	Construction of rain water harvesting ponds through IWMP and MNREGS as a long term drought proofing measure

Contingency measures- End of the season

Rainfed

Condition	Suggested contingency measures				
drought (Normal onset)	Major farming situation	Crop/cropping system	Crop management	Soil nutrient & moisture conservation measure	Remarks on implementation
At reproductive stage and terminal stage	Rainfed lower hills and Valley	Spring rice (End Mach -Mid April)- Veg. pea	Site-specific crop management technologies : • If crop stand is poor then use of crop as fodder. • Thinning • lifesaving irrigation from rain water harvest ponds, • Weeding and Weed mulching • Harvesting at physiological maturity • Harvest whatever crop is available and immediately conserve the soil moisture for <i>Rabi</i> crops • If rain comes Toria sowing in mid September	Foliar N management (1 % urea spray) instead of Top N dress only if the crop stand is still better, Use local available plant material for mulch.	Construction of rain water harvesting ponds through IWMP and MNREGS as a long term drought proofing measure
		Finger millet/ Barnyard millet - pea/ lentil/ wheat			
		Rice-wheat			
	Mid hills	Spring rice (End Mach -Mid April)- Veg. pea	Site-specific crop management technologies :	Foliar N management (1 % urea spray) instead of top N dress;	Construction of rain water harvesting ponds through IWMP and

		Finger millet/ Barnyard millet - pea/ lentil/ wheat	• Lifesaving irrigation, if available • Anti-transparent spray • Salicylic acid spray to induce earliness • If grain setting has occurred in maize, detasseling can be done to reduce transpiration • Harvesting at physiological maturity • Harvest whatever crop is available and immediately conserve the soil moisture for <i>Rabi</i> crops	Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	MNREGS as a long-term drought proofing measure
		Maize-wheat			
	High hills	Finger millets mixed with Amaranth/ Pulses	Site-specific crop management technologies : • Lifesaving irrigation, if available • Anti-transparent spray • Salicylic acid spray to induce earliness • Harvesting at physiological maturity	Foliar N management (1 % urea spray) instead of top N dress; Efficient weed management and their <i>in-situ</i> mulching, Use local available plant material for mulch	Construction of rain water harvesting ponds through IWMP and MNREGS as a long-term drought proofing measure

Resource management technologies

- Implementing community ponds for horticultural crop cultivation through water harvesting structures
- Utilizing mulching sheets within fruit orchards for enhanced crop management
- Establishing HDPE Tetra vermi beds for effective vermicomposting methods
- Introducing the polymulch technique to bolster agriculture in mountainous areas
- Introducing eco-friendly approaches to manage white grub, a detrimental pest in rainfed