

## RESEARCH HIGHLIGHTS

### *Success story of recently released IIMR hybrid*

LQMH 1, a bio-fortified hybrid, was demonstrated in farmers' fields in Himachal Pradesh, Jammu & Kashmir, and West Bengal during kharif 2023 and rabi 2022-23. It performed well with yields ranging from 6.5-8.0 t/ha (kharif) to 10.0 t/ha in rabi. The hybrid has been commercialized through five seed companies and has been included in West Bengal's rabi and kharif cultivation practices. Key features of the hybrid are short duration, better shelling percentage, and comparable yield to existing commercial hybrids.

### *Technologies commercialized*

Four field corn hybrids, viz., IMH 225, IMH 226, IMH 227, IMH 228, one EDV (QPMH 6) and one baby corn hybrid (IBCH 401) were released by the Central Sub-



**LQMH 1 hybrid in farmers' field**

Committee on Crop Standards, Notification and Release of Varieties for Agricultural Crops (CSS on CSN&R VAC) during the 91st meeting held on November 21, 2023.

### *Important research accomplishments*

- ❖ ***Molecular breeding for high amylopectin/waxy maize:*** Two hybrids CMH-08-282 and CMH 08-292 have been targeted for conversion into waxy maize hybrids through MAS. Parents of CMH-08-282 (UMI 1200 × UMI 1230) and CMH 08-292 (UMI 1201 × UMI 1230) have been selected as recurrent parents, whereas the waxy genotype i.e. Pusa Waxy 55411 was used as donor parent. The mean amylopectin content of improved UMI1200, UMI1201, and UMI1230 is 97%, 95%, and 96%, respectively.
- ❖ ***Meta-QTL analysis for viral disease resistance in maize:*** The MQTL analysis unveiled that 27.04% (53) of the QTLs were linked to resistance against 11 viral diseases (SCMV, BYDV, MSV, MMV, MCMV, MCDV, MLN, MRCV, FoMV, MSD, and MRFV). Within this analysis, 14 MQTLs associated with viral resistance were identified in Ch1, Ch3, and Ch10. These MQTL regions exhibited average phenotypic variance ranging between 13-93%. Specifically, Ch1, Ch3, and Ch10 contained 6, 5, and 3 MQTL regions, respectively. Among the 53 initial QTLs, distribution across chromosomes was as follows: 22 on Ch10, 20 on Ch3, and 11 on Ch1. A total of 1715 candidate genes were identified within the 14 MQTL regions.
- ❖ ***Development of precision conservation agriculture practices in the cereal-based system in Indo-Gangetic Plains:*** Significantly higher system productivity was observed under the maize-wheat system than rice-wheat. Briefly, in comparison to the rice-wheat system, the system productivity was 30.2% and 7.8% higher significantly in conservation and conventional maize-wheat systems, respectively in the 6th year. Amongst fertilizer management practices, the use of Green Seeker sensors produced significantly higher net returns than farmer fertilizer practice and RDF.

With regards to B:C (Benefits:Cost) ratio, significantly higher ratio was found with conservation agriculture-MWMB with green seeker along with SSNM over all other cropping systems.

- ❖ **Studies on methionine biofortification:** Gene expression data revealed that higher expression of 10- and 18-kDa zeins are associated with higher methionine accumulation in maize which indicates that 10- and 18-kDa genes are the potential target for the methionine bio-fortification in maize. The results obtained in the study can be utilized to diversify the breeding program by introgressing maize lines of different germplasm backgrounds with high methionine donors.
- ❖ Dr. Alla Singh and team filed one provisional patent on 'Differential Saccharification and Fermentation conditions for Consolidated Bioprocessing towards Bioethanol using non-recombinant microorganisms' (Indian Patent Application No.: 202411013155).

## IMPORTANT EVENTS

### *Zonal Level Workshop on July 5, 2023*

ICAR- Indian Institute of Maize Research bags a new technical consultancy assignment in Assam under the World Bank-financed Assam Agribusiness and Rural Transformation Project (APART). The launch workshop was graced by the auspicious presence of Sh. Bhaskar Pegu, Director, Agriculture, Assam; Dr HS Jat, Director, ICAR- IIMR, Dr. S L Jat, Project Leader and Scientist, ICAR-IIMR; Smt. Dipshikha Dey, Additional Secretary (Agri); Mr Jyotish Nath Nodal officer, APART. The day-long State level workshop held on 5th July 2023 at the Assam Administrative Staff College, Guwahati, brought together maize knowledge experts, state department officials, and other stakeholders in the maize value chain to discuss the way forward to implement the value chain-based interventions on improving maize production, productivity, post-harvest management, and processing in Assam. The interventions will be taken up across 12 leading maize-growing districts of Assam with technical advisory support by ICAR-IIMR. The event emphasized collaboration, learning, and networking within the maize research and agricultural community, highlighting the commitment to sustainable livelihood security for farmers.

### *Independence Day celebration*

The staff of ICAR-Indian Institute of Maize Research enthusiastically took the Panch Pran Pledge



**National Flag hoisting on Independence Day**

and joined in the festivities of Har Ghar Tiranga on the occasion of the 77<sup>th</sup> Independence Day.

### *MoA signed to strengthen agripreneurship*

A Memorandum of Agreement has been signed between ICAR-Indian Institute of Maize Research and a-IDEA, ICAR-NAARM for collaboration to strengthen agri-preneurship on August 23, 2023. The agreement aims to support the agri-startup ecosystem in the country. The event was graced by Dr. H S Jat, Director, ICAR-Indian Institute of Maize Research, and Dr. Ch. Srinivasa Rao, Director, ICAR-NAARM, Hyderabad.



**MOA signing between ICAR-IIMR Ludhiana and a-IDEA, ICAR-NAARM Hyderabad**

### *Workshop conducted on design, copyright, and trademark*

Workshop on "Role of design, copyright, and trademark: a scientific and entrepreneurial perspective" was organized on 3<sup>rd</sup> October 2023 at ICAR-IIMR, Ludhiana. A lecture on "IP Protection and its Management in reference to Patents" was delivered by Dr Niharika Sahoo Bhattacharya Assistant Professor Rajiv Gandhi School of IP Law, IIT, Kharagpur, West Bengal followed by a lecture on "IP Portfolio and its Management in Maize Crops" by Dr.



**Participants in the workshop on IP management**

Vikram Singh Senior Scientist, IP & TM Unit, ICAR, New Delhi.

### **Commercializing technology**

During this period, ICAR-IIMR, Ludhiana signed three MoUs with Khajuraho Hybrid Seeds Pvt Ltd. Bhopal, Madhya Pradesh, Mulukanoor Women Cooperative Dairy, Bheemadevarapally, Telangana and Dadabhai Seed Farm, Iitla, Nadia under Agrinnovate India Limited for commercializing DMRH 1308 for next five years.



**MoU signing to commercialize IIMR hybrid**

### **World Soil Day celebration**

ICAR- Indian Institute of Maize Research celebrated World Soil Day on December 5, 2023, with a mission to highlight the significance of nurturing healthy soils for sustainable farming. In the event, held at Ladhawal farm, about 25 participants, including women farmers and IIMR staff participated. Dr. A.K. Singh, Principal Scientist, shared insights on the 2023 world soil day theme, "Soil and Water, a Source of Life," underlining the crucial role of soil in sustaining life itself. He emphasized how human activities like deforestation and unsustainable farming practices threaten soil health, making regular soil testing essential for optimal crop production and productivity.

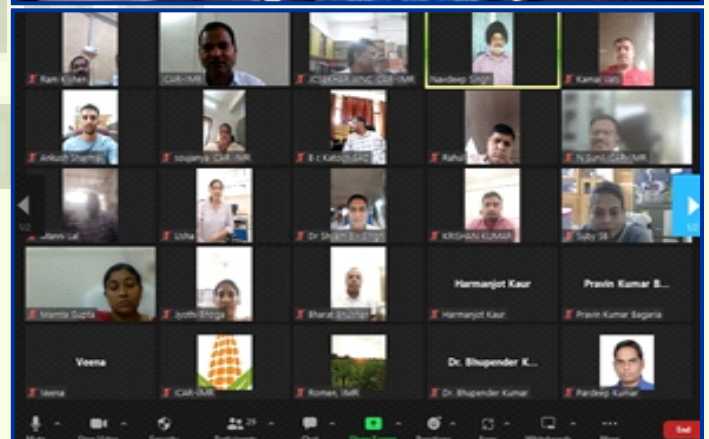


**A glimpse of world soil day celebration**

Further shedding light on the importance of nurturing nutrient-rich and dynamic soils, Dr. D.M. Mahala highlighted how healthy soils are the backbone of global agriculture sustainability. The program was coordinated by Dr. D.M. Mahala, Scientist (Soil Science).

### **हिंदी पखवाडा 2023**

राजभाषा विभाग, गृह मंत्रालय, भारत सरकार के नीतिगत निर्देशानुसार, भारतीय मक्का अनुसंधान संस्थान, लुधियाना की राजभाषा कार्यान्वयन समिति ने हर वर्ष की भाँति इस वर्ष भी संस्थान में राजभाषा हिंदी के प्रचार-प्रसार के लिए दिनांक 14 से 28



**भारतीय मक्का अनुसंधान संस्थान में आयोजित हिंदी पखवाड़ा की झलकियाँ**

सितम्बर, 2023 के दौरान संस्थान के मुख्यालय एवं क्षेत्रीय कार्यालयों में ऑफलाइन एवं ऑनलाइन माध्यम से हिंदी पखवाड़ा 2023 का आयोजन किया गया। हिन्दी पखवाड़ा का शुभारम्भ 14 सितम्बर हिंदी दिवस के दिन संस्थान के निदेशक, डॉ. एच. एस. जाट की उपस्थिति में किया गया। इस अवसर पर निदेशक महोदय ने अपने अभिभाषण में सर्वप्रथम उपस्थित कर्मचारियों/अधिकारियों को हिंदी दिवस की शुभकामनाएं दी एवं हिंदी पखवाड़ा के सफल आयोजन के लिए सभी प्रतियोगिताओं/विधियों में भाग लेने की सलाह दी। राजभाषा के सम्मान में बोलते हुए निदेशक महोदय ने राजभाषा को यथासंभव अपनाने एवं बोलचाल तथा सरकारी कार्यालयों में ज्यादा से ज्यादा कामकाज हिंदी में करने पर जोर दिया। निदेशक ने अपने संबोधन में कहा कि किसी भी देश की एकता एवं विकास के लिए उस देश की राष्ट्रभाषा का समृद्ध होना आवश्यक है। इसलिए हम सभी का कर्तव्य है कि हिन्दी में कार्य करते हुए इसके कार्यान्वयन को आगे बढ़ाना सुनिश्चित करें। इस वर्ष हिंदी पखवाड़े के दौरान कुल छः प्रतियोगिताओं हिंदी टिप्पण व प्रारूप लेखन, आशुभाषण प्रतियोगिता, हिंदी निबंध प्रतियोगिता, हिंदी काव्य पाठ प्रतियोगिता, प्रश्नोत्तरी प्रतियोगिता एवं हिंदी सुलेख, अनुलेख एवं श्रुतलेख का आयोजन ऑफलाइन एवं ऑन लाइन माध्यम से किया गया। उपरोक्त प्रतियोगिताओं में संस्थान के वैज्ञानिक, तकनीकी, प्रशासनिक कार्मिक एवं संस्थान के आरए, एसआरएफ, जेआरएफ, वाईपी एवं अन्य संविदा कर्मचारियों ने बड़े उत्साह के साथ भाग लिया। हिंदी पखवाड़े का समापन समारोह 04 अक्टूबर, 2023 को किया गया जिसमें नवदीप सिंह, कार्यक्रम प्रमुख (सेवा निवृत्त), आकाशवाणी लुधियाना ने मुख्य अतिथि के रूप में शिरकत की। मुख्य अतिथि ने अपने अभिभाषण में राजभाषा नीति एवं भाषा आदि विषयों के साथ-साथ हिन्दी भाषा में टिप्पणी लेखन, कविता लेखन, कार्यालयों में दिन प्रतिदिन काम आने वाले शब्दों की शब्दावली तैयार करने, हिंदी भाषा की त्रुटियों को सुधारने, हिंदी भाषा में प्रभावी भाषण तथा हिंदी में कार्य करने की उपलब्ध सुविधाओं आदि के बारे में विस्तार से चर्चा की। उन्होंने हिन्दी का प्रयोग सिर्फ हिन्दी पखवाड़ा या हिंदी कार्यक्रमों तक ही सीमित न रखकर उसे वर्ष भर प्रयोग करने का सुझाव दिया, जिससे हिंदी भाषा का अधिक से अधिक प्रचार एवं प्रसार हो सके। उन्होंने हिन्दी पखवाड़ा के आयोजन के लिए आयोजन समिति के प्रयास की सराहना की तथा सभी प्रतियोगिताओं के विजेताओं को बधाई दी। इस अवसर पर वर्ष भर हिन्दी में कार्य करने के लिए विशेष पुरस्कार योजना के तहत संस्थान के दो कर्मियों को प्रशस्ति पत्र एवं पारितोषिक देकर सम्मानित किया गया। संस्थान के वरिष्ठ अधिकारियों एवं क्षेत्रीय केन्द्र प्रमुखों ने भी इस अवसर पर अपने विचार साझा किए। हिन्दी पखवाड़ा कार्यक्रम के दौरान आयोजित सभी प्रतियोगिताओं का समन्वय और समापन समारोह का संचालन प्रभारी, राजभाषा, डॉ. बहादुर सिंह जाट ने निदेशक, डॉ. एच. एस. जाट के मार्गदर्शन में किया।

**राजभाषा पुरस्कार:** भा.कृ.अनु.प.— भारतीय मक्का अनुसंधान संस्थान को राजभाषा में किए गए उत्कृष्ट कार्य हेतु नगर राजभाषा कार्यान्वयन समिति, लुधियाना द्वारा राजभाषा पुरस्कारों से सम्मानित किया गया।

❖ भाकृअनुप—भारतीय मक्का अनुसंधान संस्थान, लुधियाना को वर्ष 2023 –23 के लिए राजभाषा में किए गए उत्कृष्ट कार्य हेतु नगर राजभाषा कार्यान्वयन समिति, लुधियाना द्वारा 84वीं बैठक



में दिनांक 25 अगस्त, 2023 को बड़े केंद्रीय कार्यालयों के श्रेणी में विशेष पुरस्कार से सम्मानित किया।

भारतीय मक्का अनुसंधान संस्थान, लुधियाना को वर्ष 2023 –23 के लिए राजभाषा में किए गए उत्कृष्ट कार्य हेतु नगर राजभाषा कार्यान्वयन समिति द्वारा विशेष पुरस्कार से सम्मानित किया।



❖ नगर राजभाषा कार्यान्वयन समिति, लुधियाना द्वारा भाकृअनुप—भारतीय मक्का अनुसंधान संस्थान, लुधियाना के वैज्ञानिक एवं राजभाषा अधिकारी डॉ. बहादुर सिंह जाट को संस्थान द्वारा वर्ष 2023 –23 के लिए हिन्दी में सर्वाधिक कार्य निष्पादन करने के लिए प्रमाण-पत्र देकर सम्मानित किया गया।

भारतीय मक्का अनुसंधान संस्थान के वैज्ञानिक एवं राजभाषा



अधिकारी डॉ. बहादुर सिंह जाट को संस्थान द्वारा वर्ष 2023-23 के लिए हिन्दी में सर्वाधिक कार्य निष्पादन करने के लिए नराकास, लुधियाना द्वारा प्रमाण-पत्र देकर सम्मानित किया गया।

- ❖ भाकृअनुप-भारतीय मक्का अनुसंधान संस्थान, लुधियाना द्वारा राजभाषा के प्रचार-प्रसार को गति प्रदान करने के प्रयास स्वरूप प्रकाशित वार्षिक हिन्दी पत्रिका 'कृषि चेतना' अंक- 6 (2023) को नगर राजभाषा कार्यान्वयन समिति, लुधियाना द्वारा आयोजित 84वीं बैठक में दिनांक 25 अगस्त, 2023 को सम्मानित किया गया।

भारतीय मक्का अनुसंधान संस्थान, लुधियाना की वार्षिक हिन्दी पत्रिका 'कृषि चेतना' अंक- 6 (2023) को नगर राजभाषा कार्यान्वयन समिति, लुधियाना द्वारा सम्मानित किया गया।



**A glimpse of Press and Media Interaction Meeting**

## **IMPORTANT MEETINGS**

### **Strategic planning meeting on maize for ethanol**

To meet the 20% EBP target by Govt of India ICAR-Indian of Maize Research Ludhiana organized one one-day meeting on 12th July 2023 at Hyderabad. The meeting was chaired by Dr SK Pradhan, ADG (FFC), ICAR, New Delhi. Dr. HS Jat, Director, ICAR-IIMR while making introductory remarks emphasized on a greater partnership to achieve the goal of 20% EBP by 2025-26. The stakeholders from seed industries, feed industries, ethanol industries, poultry industries, and maize research institutes including CGIAR's CIMMYT and ICRISAT met to chalk out a plan to enhance maize production by an additional 15 million tonnes by 2025-26. The research and developmental priorities for enhancing maize production with acreage expansion and yield enhancement were finalized in this endeavor. The collaboration and linkages across the sector were emphasized to achieve this goal.

The meeting had the presence of Dr. AK Joshi, CIMMYT-BISA, Dr. BM Prasanna, Global Maize Programme, Dr ML Jat, ICRISAT, Dr Mahesh Gathala, CIMMYT.

### **Press and media interaction meeting**

ICAR-Indian Institute of Maize Research Organized a Press and media interaction meeting on August 18, 2023 at Ludhiana. During the interaction, Dr. HS Jat, Director, ICAR-IIMR, Ludhiana comprehensively addressed a range of pivotal issues on maize. A noteworthy focal point of his discourse was the pivotal need for intensified collaboration to accomplish the ambitious objective of achieving a 20% Ethanol Blending Percentage (EBP) by the timeline of 2025-26.

### **Research Advisory Committee (RAC) meeting**

The meeting of the Research Advisory Committee (RAC) of the institute was held October, 30-31, 2023 under the Chairmanship of Dr. S. K. Sharma, Honorary

Professor & Former Vice-Chancellor, HP Agricultural University, Palampur. During the meeting, Dr. H. S. Jat, Director ICAR-IIMR presented the overview of the maize scenario and the major accomplishments of the institute during 2022-23. Dr. S. K. Sharma, Chairman, RAC congratulated the Director, Scientists and the other Staff of the institute for their excellent research and development activities carried out during the last three years. Further, he remarked that maize is a very important crop as it was a model plant for genetics and



**Glimpses of RAC meeting: release of publications and RAC members discussing the research agendas with IIMR Scientists**

cytogenetic studies and is now an important industrial crop. There is a need to focus on the development of maize hybrids for high starch, fermentability, bio-ethanol, besides other industrial applications without yield penalty. To achieve this goal, new tools and techniques (doubled haploidy, genomic assisted breeding, genomic editing, etc.) must be integrated with breeding. Members of the RAC emphasized that maize is entering in a new era as ethanol production through maize is being contemplated in the future. Further, as the world population is increasing and maize has the potential to feed over the world and it is an important component to diversify the food basket. Further, it was emphasized that India has to produce extra maize for the ethanol industry after fulfilling the requirement of poultry and cattle feed and other uses. The RAC also emphasized that germplasm strengthening is key to the maize research and development programme. Besides yield, testing and evaluation of germplasm for biochemical traits is also equally important. Identification of the germplasm for disease and insect resistance in advance is a must, as we should be prepared for any risk of new diseases/races in the future. Multiple biotic and abiotic stresses resistant/tolerant hybrids with high yield should be developed as 'climate smart hybrids'.

#### ***Institutional Biosafety Committee (IBSC) meeting***

The Institutional Biosafety Committee (IBSC) meeting of ICAR-Indian Institute of Maize Research (IIMR), was held online via videoconferencing on 3rd August 2023 under the Chairmanship of Director IIMR. The following members - Dr. H. S. Jat (Director & Chairman), Dr. Parveen Chhuneja, (Principal Molecular Geneticist, PAU, Ludhiana & DBT nominee), Dr. Anita Srivastava (Medical Officer IARI dispensary & Biosafety Officer), Dr. Monika Dalal (Principal Scientist, NIPB & outside expert), Dr. Chikkappa G. Karjagi (Sr. Scientist, IIMR &

member), Dr. Bhupender Kumar (Sr. Scientist, IIMR & member), Dr. Alla Singh (Scientist, IIMR & member) and Dr. Krishan Kumar (Scientist, IIMR & Member Secretary) attended the online IBSC meeting. At the outset, the Chairman welcomed all the IBSC members. The member secretary briefed the agenda of the IBSC meeting. The committee reviewed the biosafety aspects of one newly sanctioned in-house project that involve the use of rDNA technology/ Genetically Modified Organisms (GMOs) and approved the project for execution. The IBSC principally agreed to acquire engineered E. coli strains from ICAR-NIPB to ICAR-IIMR, as the Material Transfer Agreement (MTA) has already been signed between institutes for the same. The committee also reviewed the biosafety aspects of the ongoing work and found them to be satisfactory.

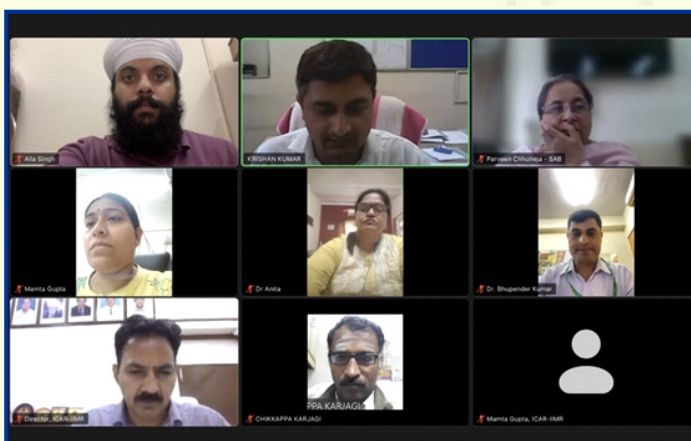
#### **EXTENSION AND OUTREACH**

#### ***ICAR-IIMR bags World Bank consultancy assignment in Assam***

ICAR-Indian Institute of Maize Research (IIMR) bags a new technical consultancy assignment in Assam under the World Bank-financed Assam Agribusiness and Rural Transformation Project (APART). Under the World Bank financed Assam Agribusiness and Rural Transformation Project (APART), the Directorate of Agriculture, Assam organized the kick-off meeting cum launch workshop for the technical consultancy assignment relating to "Augmenting Maize Production in Assam for Sustainable Livelihood Security" technically supported by the Ludhiana based ICAR- Indian Institute of Maize Research IIMR.

#### ***ICAR-IIMR host trainees of International Training Course***

Participants of the ICRISAT's ongoing International Training Course on "Conservation



**Members discussing agenda items during the IBSC meeting**



**Visit of ICRISAT's International Trainees**



### Glimpses of Training on SOP for AICRP trials

Agriculture for Sustainable Intensification of Drylands" visited and interacted with the scientist of ICAR- Indian Institute of Maize Research, Ludhiana on August 09, 2023.

### *Training on Standard Operating Procedures (SOP) for AICRP trials*

ICAR- Indian Institute of Maize Research, Ludhiana successfully organized three-day training programme on "Standard Operating Procedures (SOP) for AICRP trials on Maize" for the staff of All India Coordinated Research Project on Maize from August 21-23, 2023. 26 Scientists from different AICRP Maize centres participated in the training programme.

### *Demonstrated technologies during PAU Kisan mela*

ICAR-IIMR, Ludhiana participated in the PAU Krishi Mela from September 14-15, 2023 at Ludhiana. Improve technologies of maize were displayed. Queries raised by the farmers on different aspect of maize were addressed by the expert.

### *State-level maize day*

A state level maize day was organised by ICAR- Indian Institute of Maize Research, Ludhiana, CIMMYT and ICAR-Central Soil Salinity Research Institute, Karnal with support from CCSHAU, Hisar and State Department of Agriculture, Government of Haryana at Karnal, Haryana at Karnal, Haryana on September 24, 2023.

Speaking on the occasion of state-level maize day chief guest Dr DK Yadava, Assistant Director General (Seed), ICAR urged farmers to grow maize to save precious natural resources and enhance farm profitability. He stressed maize-mustard-mungbean system could bring farm profitability with enhanced nutritional security and soil health. Dr Yadava discussed that the availability of quality seeds of public sector hybrids is increasing which is affordable. He also stressed that we have to seriously

think and grow alternative crops to rice in this ecology to address the water problem. He also highlighted that a good number of varieties are being developed by the public sector in maize and highlighted the importance of biofortified maize having high lysine, tryptophan and provitamin A for food and nutritional security.

Dr HS Jat, Director, IIMR Ludhiana said that at present maize production enhancement is need of hour to enhance the availability of maize grain for ethanol production. Remunerative market prices are always a problem in maize cultivation in this ecology. It is expected to be solved with suitable policy intervention and rising market demand for ethanol production. Dr RK Yadav, Director CSSRI Karnal also emphasized that sustainable soil resources can be assured with maize maize-based system. Maize requires almost one-third more water than rice.

Dr Mahesh Gathala, Principal Scientist at CIMMYT emphasized groundwater exploitation and strategies to mitigate by conservation agriculture and crop diversification. One such strategy is displacing paddy with maize but assured procurement of it is required.



Dr H S Jat addressing the farmers in state-level maize day

Dr SL Jat from IIMR and Narender Singh, Assistant Professor at CCSHAU, Karnal briefed farmers about best management practices for maize and mechanized maize cultivation. On this occasion, Dr DS Rana and Dr Deepak from CIMMYT; Dr Suby SB and Krishan Kumar from IIMR, Dr Preeti Sharma, Dr Harbinder Singh, Dr Kuldeep Jangra, Dr Kiran and Dr Swati from CCSHAU were also present on this occasion and interacted with the farmers on various aspect of maize production and consumption

The programme was attended by 380 farmers from various districts of Haryana and Punjab, it included 60 female farmers.

**Organized master Training programme for extension functionaries**

Eight Master Trainer's Training on Maize Value Chain was organized for extension functionaries of the districts of Kamrup, Nalbari, Nagaon, Sonitpur, Darrang, Dhemaji, Barpeta, Bongaigaon, Kokrajhar, Dhubri and Karbi Anglong. The training programmes have been conducted under the APART project for the extension functionaries of Assam. Each programme was attended by 30 extension official from various line departments.



**Glimpse of master training programme under APART**

**Demonstrated improved technologies to stakeholders during CIPHET-IIFA**

ICAR-Indian Institute of Maize Research participated in the CIPHET- Industry Interface Fair on Agro-processing (IIFA) and Kisan mela, 2023 from 3rd to 5th October 2023. Various technologies, hybrids and products of ICAR-IIMR, Ludhiana were demonstrated.

**ICAR-IIMR participated in the XVI Agricultural Science Congress**

ICAR- Indian Institute of Maize Research participated in the XVI Agricultural Science Congress, ICAR-Central Marine Fisheries Research Institute



**IIMR stall in CIPHET-IIFA**

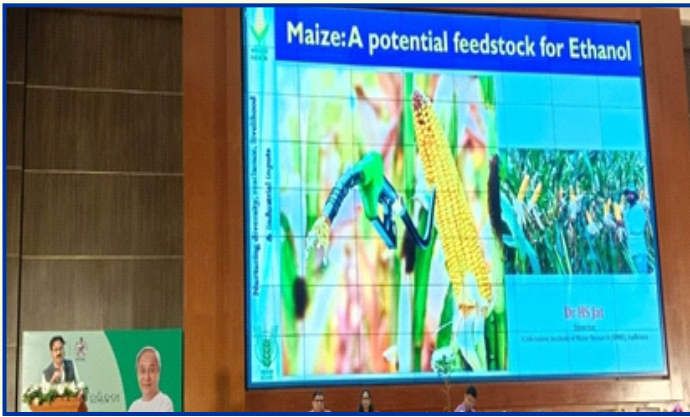


**Glimpses of IIMR stall in XVI Agricultural Science Congress**

(CMFRI), Kochi from 10 to 13th October 2023. Improved technologies of the institute were displayed during the exhibition.

**Director IIMR highlighted the importance of Maize for Ethanol**

Dr. H S Jat, Director, ICAR-Indian Institute of Maize Research, delivered a presentation on "Maize-a potential feedstock for Ethanol " during the panel discussion at the Odisha State Level Conference for Rabi Campaign-2023-24. The event was held on October 20, 2023, at the Convention Center, Loka Seva Bhawan in Bhubaneswar.



**Dr HS Jat, Director IIMR, delivering his talk**

***Conducted Training programmes for progressive farmers***

14 numbers of training of progressive farmers on the Maize Value Chain under the APART project were organized from 30th October to 7th November 2023 in collaboration with the Department of Agriculture, Assam. The trainings were organized in 12 districts (Kamrup, Morigaon, Dhemaji, Barpeta, Karbi Anglong, Kokrajhar, Sonitpur, Bongaigoan, Nalbari, Dhubri and Darrang. 30 numbers. of progressive farmers attended in each of the training programme.

***Demonstration of Agri-drone***

ICAR-IIMR, Ludhiana conducted a demonstration of agricultural drone technology in Bhundri and Bharowal Village, Ludhiana on 22 December, 2023. The demonstration showcased the use of agricultural drones to spray different chemicals on potato and wheat crops. Drs. Romen Sharma and Deep Mohan Mahala highlighted the importance of drone technologies in agriculture among the farmers.

***Training programme for stakeholders of ethanol***

ICAR-Indian Institute of Maize Research, Ludhiana organised a master training programme on "Best management practices in maize for profitable bioethanol production" from 29th November to 1st



**Glimpses of Agri-drone demonstration**

December 2023. The training programme aimed to enlighten stakeholders from the ethanol industry and their collaborators about the best practices in maize



**A glimpse of the training programme**

management to enhance productivity and facilitate bioethanol production. Dr. Nachiket Kotwaliwale, Director at ICAR-CIPHET in Ludhiana and the Chief Guest of the Inauguration programme emphasized the growing significance of maize for the ethanol industry. He specifically addressed post-harvest management, highlighting the management of aflatoxin. Dr HS Jat, Director of IIMR, stressed the need for increased collaboration among stakeholders to reach the goal of achieving 20% Ethanol Blended Petrol (EBP) by 2025-26. He also interacted with the participants and noted the issues raised by the participants. During the training sessions, participants engaged in detailed theoretical and practical discussions covering various aspects of maize production, suitable hybrids and their seed production techniques, mechanization in cultivation, disease and pest management (particularly aflatoxin and Fall Army Worm), storage practices, maize DDGS, processing, grading, and value addition of maize for bioethanol production. Sixteen stakeholders from the ethanol industries actively participated in the programme. Chief Guest of the valedictory programme Dr. H. S. Sidhu, Principal Scientist, PAU Ludhiana, congratulated the participants on the successful completion of the training. He highlighted the importance of maize cultivation mechanization and post-harvest management for both industrial and human consumption.

### ***Observance of Kisan Diwas***

Kisan Diwas was observed at ICAR-Indian Institute of Maize Research, Ludhiana and its regional centres. Drs. Romen Sharma and S K Agarwal created awareness of good agricultural practices, improved maize technologies and outreach activities initiatives of the ICAR for the farming communities at Bhimi village, Ludhiana. Emphasis was placed on recognizing the crucial role played by

farmers in the nation's development. During the event, experiences related to Swachhta initiatives were shared with the farmers, underscoring the importance of cleanliness and hygiene. Subsequently, collaborative cleanliness activities were undertaken in the village, involving the energetic participation of the local youth. Winter Nursery Centre, Hyderabad, ICAR-IIMR celebrated National Farmer Day and distributed maize seed and tarpaulin sheets to maize farmers.

### ***Entrepreneurship development for women farmers through promotion of value addition of maize***

Empowering women farmers took center stage with a collaborative training program organized by the ICAR- Indian Institute of Maize Research (ICAR-IIMR) and Lapran Multipurpose Farmer Producer Company Limited on December 29, 2023. Held in Lapran village under the ABI project, the program focused on "Entrepreneurship development for women farmers through promotion of value addition of maize." This initiative equipped women farmers with the knowledge and skills necessary to become successful agripreneurs. The training program covered various aspects of value addition for maize, a key crop in the region. Participants learned techniques for processing maize into diverse products, potentially increasing their income and market reach.

Furthermore, the program addressed a crucial aspect of empowering farmers: awareness of their rights. A dedicated farmer's rights awareness program was also conducted, informing participants about their rights and entitlements. This comprehensive approach empowers women farmers to not only become entrepreneurs but also operate within a legal framework that protects their interests.



**Kisan Diwas**



**Participants in Entrepreneurship development training program for women farmers**

## HUMAN RESOURCE DEVELOPMENT

### Awards/Honours/Recognition

- ❖ Dr. S.L. Jat was awarded with Dr PS Deshmukh Young Agronomist Award, 2023, by Indian Society of Agronomy, New Delhi.
- ❖ Dr. P Lakshami Soujanya was awarded with Excellence in Research award (2023) during the 5th International Conference on "Innovative and Current Advances in Agriculture and Allied Sciences " held from 10th - 16th July, 2023 at

Dubai, UAE. It was organized by the Society for Scientific Development in Agriculture and Technology (SSDAT), Meerut, U.P.

- ❖ Dr. P Lakshami Soujanya received the best oral presentation award during the 5th International Conference on "Innovative and Current Advances in Agriculture and Allied Sciences " held from 10th - 16th July, 2023 at Dubai, UAE. It was organized by the Society for Scientific Development in Agriculture and Technology (SSDAT), Meerut, U.P.

### Participation in training programs

Sl. No.	Name of scientist	Training programme attended	Venue/Organized by	Date
1	Dr. S. B. Singh	Analysis of Experimental Data Using R	ICAR-NAARM, Hyderabad	August 21-25, 2023
2	Dr. P Lakshami Soujanya	Analysis of Experimental Data Using R (Online)	ICAR-NAARM, Hyderabad	November 20-24, 2023

### Training programs organized

Sl. No.	Name of scientist	Training programme organized	Venue/Organized by	Date
1	Dr. Pradeep Kumar	One B. Sc. Agriculture (Hons.) student of Punjab Agricultural University, Ludhiana, has completed the on "Training cum Exposure on Maize Breeding and Basic Molecular Techniques"	ICAR-IIMR	17 <sup>th</sup> August to 17 <sup>th</sup> September, 2023
2	Drs H.S. Jat, Romen Sharma, S.L. Jat	Master training programme on "Training of master trainers" for Kamrup and Nalbari district officials	Krishi Vigan Kendra, Kamrup	9 <sup>th</sup> October 2023
3	Drs H.S. Jat, Romen Sharma, S.L. Jat	Master training programme on "Training of master trainers" for Morigaon and Nagaon district officials	Krishi Vigan Kendra, Nagaon	10 <sup>th</sup> October 2023
4	Drs H.S. Jat, Romen Sharma, S.L. Jat	Master training programme on "Training of master trainers" for Darrang and Sonitpur district officials	Community Hall of Block Development Office, Dhekiajuli, Sonitpur	11 <sup>th</sup> October 2023
5	Drs H.S. Jat, Romen Sharma, S.L. Jat	Master training programme on "Training of master trainers" for Barpeta and Bongaigaon district officials	Jyoti Sanskritik Anusthan, Abhayapuri	12 <sup>th</sup> October 2023
6	Drs H.S. Jat, Romen Sharma, S.L. Jat	Master training programme on "Training of master trainers" for Dhubri and Kokrajhar district officials	SCS Collage of Agriculture, Bilashipara, Dhubri	13 <sup>th</sup> October 2023

Sl. No.	Name of scientist	Training programme organized	Venue/Organized by	Date
7	Drs H.S. Jat, Romen Sharma, S.L. Jat	Master training programme on "Training of master trainers" for Karbi Anglong district officials	Conference Hall, DAO Office, Karbi Anglong	16th October 2023
8	Drs H.S. Jat, Romen Sharma, S.L. Jat	Master training programme on "Training of master trainers" for Dhemaji district officials	Knowledge Centre Cum Training Hall, DAO Campus, Dhemaji	19th October 2023

### Participation in Conferences/Workshops/Symposium/Meetings

Sl. No.	Name of scientist	Foreign visits/Conferences/Workshops/Symposium/Seminar/Meeting attended	Venue/Organized by	Date
1	Dr. S. B. Singh	16 <sup>th</sup> Agricultural Science Congress and organized ICAR-IIMR Stall in the Exhibition of the ASC	Organized by the National Academy of Agricultural Sciences (NAAS). Hosted by the ICAR-Central Marine Fisheries Research Institute (CMFRI), Kochi	October 10-13, 2023
2	Dr. Suby S.B.	38th Annual Meeting of the International Society of Chemical Ecology	Indian Institute of Science, Bangalore	July, 23-27 2023
3	Dr. P Lakshami Soujanya	Delivered oral presentation on "Identification of novel sources of host plant resistance to invasive pest fall armyworm Spodoptera frugiperda (J. E. Smith) and pink stem borer Sesamia inferens Walker in maize during 5 <sup>th</sup> International Conference on "Innovative and current Advances in Agriculture and Allied Sciences "	Organized by the Society for Scientific Development in Agriculture and Technology (SSDAT), Meerut, U.P. at Dubai, UAE	July 10-16, 2023
4	Dr. S. L. Jat	Researchers meet for maize to ethanol production	ICAR-IIMR, Ludhiana	20 <sup>th</sup> July 2023
5	Dr. S. L. Jat	QRT 2017-21 final submission meeting with DG ICAR	NASC complex	5 <sup>th</sup> December, 2023
6	Dr. S. L. Jat	A Zonal Level workshop on "Maize consultancy project & Training of master trainers including Project staff of ICAR-IIMR	Assam Administrative College, Khanapara, Guwahati by ICAR-Indian Institute of Maize Research (IIMR) under APART	5 <sup>th</sup> July, 2023

**Lecture /TV/ radio talks**

Sl. No.	Name of scientist	Lecture Delivered	Organized by	Date
1	Dr. B.S.Jat	Delivered a lecture on "Cyber Hygiene and Security" under the vigilance awareness campaign	ICAR-IIMR (August 16-November 15, 2023)	November 10, 2023.
2	Dr. S. B. Singh	Delivered an invited lecture on "Doubled haploid technique of accelerated inbred line development and climate resilient hybrids in maize"	Summer School on Emerging Challenges and Opportunities in Biotic and Abiotic Stress Management (ECOBASM-2023) organized by SSDAT, Meerut, UP held from 10th to 30th August 2023	August 10-30, 2023. (held online)
3	Dr. P Lakshami Soujanya	Delivered talk on "Sustainable management of insect pests of maize: Future Priorities and Prospects"	Summer School on Emerging Challenges and Opportunities in Biotic and Abiotic Stress Management (ECOBASM-2023) organised by SSDAT, Meerut, UP held from 10 <sup>th</sup> to 30 <sup>th</sup> August 2023	August 14, 2023
4	Dr. P Lakshami Soujanya	Delivered talk on 'Monitoring, surveillance and identification of major pests of maize' during training programme on 'Sustainable Management of Fall Armyworm in Maize'	NIPHM in collaboration with Food and Agriculture Organization (FAO), at Hyderabad from 30 <sup>th</sup> to 31 <sup>st</sup> August, 2023	August 30, 2023
5	Dr. P Lakshami Soujanya	Delivered talk on AESA - Field exercise on the management of FAW and other major pests in maize (Theory and practical) during training programme on 'Sustainable Management of Fall Armyworm in Maize'	NIPHM in collaboration with Food and Agriculture Organization (FAO), at Hyderabad from 30 <sup>th</sup> to 31 <sup>st</sup> August, 2023	August 31, 2023
6	Dr. P Lakshami Soujanya	Delivered talk on "Storage pests of maize and their management" during training programme on Best management practices in maize for profitable bioethanol production from	ICAR-IIMR, Ludhiana from 29 <sup>th</sup> November to 1 <sup>st</sup> December, 2023	November 30, 2023

Sl. No.	Name of scientist	Lecture Delivered	Organized by	Date
7	Dr. P Lakshami Soujanya	Delivered talk on Insect pests of maize and their management during state level training programme on 'Hybrid maize seed production technology'	Government of West Bengal, office of the Economic Botanist, Zonal Adaptive Research Station, Krishnagar, Nadia, West Bengal from 18 <sup>th</sup> to 19 <sup>th</sup> December, 2023	December 18, 2023
4	Dr. S. L. Jat	Recycling of farm waste for augmenting organic farming under temperate Kashmir.	Training programme in J&K Governments Holistic Agriculture Development Project, Dryland Agriculture Research Station, Rangreth, SKUAST, Srinagar	8 <sup>th</sup> December, 2023
5	Dr. S. L. Jat	Lecture delivered (online) in 'मक्का बीज उत्पादन एवं वैज्ञानिक खेती' आत्मा, बजला-पुरबनया के कृषकों के पांच दिवसीय प्रशिक्षण कार्यक्रम	ICAR-IIMR	January 27-31, 2023
6	Dr. S. L. Jat	रबी मक्का की उन्नतशील किस्में एवं बुवाई	किसान की बात कार्यक्रम एफ एम गोल्ड	26 दिसम्बर 2023
7	Dr. S. L. Jat	बेबीकॉर्न की खेती द्वारा दोहरा लाभ	किसान की बात कार्यक्रम एफ एम गोल्ड	16 अक्टूबर 2023
8	Dr. S. L. Jat	रबी मक्का की उन्नतशील किस्में एवं बुवाई	किसान की बात कार्यक्रम एफ एम गोल्ड	18 सितम्बर 2023
9	Dr. S. L. Jat	खरीफ मक्का की बुवाई हेल्लो किसान लाइव कार्यक्रम	डीडी किसान	12 जुलाई 2023
10	Dr. S. L. Jat	खरीफ मक्का की बुवाई एवं उन्नत किस्में	किसान की बात कार्यक्रम एफ एम गोल्ड	3 जुलाई 2023

#### Organization/ Participation of Kisan Mela/Kisan Goshti/ Exhibition/ Field Day/ Lectures

Sl. No.	Name of scientist	Name of the program	Venue/Organized by	Date
1	Dr. B.S.Jat	Participated and Coordinated in the Exhibition of the ICAR-IIMR stall in Kisan Mela	PAU, Ludhiana	September 14-15, 2023
2	Dr. S. B. Singh	Organized Farmer awareness program on Farmer's Rights	Village Lapran, Ludhiana.	December 29, 2023



***Nurturing diversity, Resilience, Livelihood and Industrial inputs***

**ICAR-IIMR Newsletter : July-December, 2023**

***Compiled & Edited by:***  
**Dr. Krishan Kumar,**  
**Dr. Seema Sepat,**  
**Dr. Romen P. Sharma,**  
**Dr. Deep Mohan Mahala,**  
**Dr. B.S. Jat**  
**Dr. D.P. Chaudhary,**

***Published by:***  
**Dr. H.S. Jat, Director**  
**ICAR-Indian Institute of Maize Research**  
**Ludhiana**



**माम अनुसं**  
**IIMR**

**ICAR-Indian Institute of Maize Research**

***(An ISO 9001:2008 certified Institute)***

PAU Campus, Ludhiana-141004

Phone: 0161-2440048, Fax: 0161-2430038

E-mail: [pdmaize@gmail.com](mailto:pdmaize@gmail.com) | [director.maize@icar.gov.in](mailto:director.maize@icar.gov.in)

Website: [www.iimr.icar.gov.in](http://www.iimr.icar.gov.in)