



## RESEARCH HIGHLIGHTS

### *Promising Technologies*

#### *Hybrids Identified and Notified*

Four hybrids developed by ICAR-IIMR have been released and notified in the 84<sup>th</sup> meeting of Central Sub-Committee on Crop Standards, Notification and Release of Varieties for Agricultural Crops held on July 10, 2020.

In addition to this two bio-fortified hybrids namely IQPMH 1601 and IQPMH 1705 developed by the institute has been dedicated to the Nation by Hon'ble Prime Minister on the World Food Day.

S. No.	Hybrid Name	Type of corn	Yield (t/ha)	Growing season	Maturity Group	Growing ecologies
1	IMHQPM1530	QPM	8.5	<i>Kharif</i>	Early	Northern Hill Zone
2	DMRHB 1305	Baby corn	1.3 <sup>#</sup>	<i>Kharif</i>	Early	Northern Hill Zone
3	IMHP 1540	Popcorn	3.0*	<i>Kharif</i>	Early	NE plain zone, Peninsular zone & CW zone
4	IMHP 1535	Popcorn	2.7*	<i>Kharif</i>	Early	CW zone

<sup>#</sup> dehusked baby corn; \* popcorn

S. No.	Hybrid Name	Type of corn	Yield (t/ha)	Growing season	Maturity Group	Growing ecologies
1	IQPMH 1601	QPM	7.2	<i>Kharif</i>	Medium	PB, HR, DL, UP (W) & UK (Plain )
2	IQPMH 1705	QPM	6.3	<i>Kharif</i>	Medium	RJ, GJ, CH & MP

### *Characterization of Germplasm*

An association mapping panel (AMP) of 350 diverse maize inbred lines was characterized using 60227 SNPs identified through Genotype by Sequencing (GBS). The population structure was studied and six possible sub-structures in the AMP were identified. Each subgroup was diverse from others and can be considered for GWAS.

### *Development of a Rapid Single Kernel Method for Amylose Estimation*

A rapid screening test has been designed for amylose estimation in maize kernels, which is based on the

principle of amylose – iodine complex formation. The method uses single kernel, hence is named as Cut Grain Dip Method (CGD). It does not use costly reagents and is not time consuming, therefore is suitable for screening large set of maize germplasm. It was observed that time taken for iodine to reach its maximum coloration had an inverse relation to the Amylose Content (AC). The method was validated in a large set of maize samples with varied amylose content.

### ***Standardization of Transformation Method in Maize***

A reproducible *in-vitro* regeneration method was developed in nodal explants derived calli. Standardization of the transformation protocol using biolistic and *Agrobacterium*-mediated transformation methods with  $\beta$ -glucuronidase (GUS) protein is under process. Histochemical and PCR analysis revealed the presence of GUS activity in transformed tissues.

### ***Validation of Key Differentially Expressed Genes (DEGs) under Low Nitrogen Stress***

Key differentially expressed genes identified previously via transcriptome analysis using leaf and root tissues from contrasting inbred lines, *viz.*, DMI 56 (tolerant to nitrogen stress) and DMI 81 (susceptible to nitrogen stress) were validated by qPCR. The genes, *viz.*, Asn4, HAT2.3, NRP1, basic endochitinase, AAP3, GT31, MYB36 transcription factor, AP2-EREBP transcription factor and Nitrate transport1 were identified as being differentially expressed in response to nitrogen stress.

### ***Development of Precision Conservation Agriculture Practices in cereal-Based Systems in Indo-Gangetic Plains***

Significantly higher system productivity was recorded under conservation agriculture (CA) based maize-wheat system compared to rice-wheat system. Highest net returns and Benefit-to-Cost ratio was found with CA-based maize-wheat-mungbean having Green Seeker (GS) sensor based nutrient management as compared to conventional maize-wheat-mungbean and rice-wheat-mungbean systems.

### ***Study of Different Organic Nutrient Sources in Maize and Specialty Corn***

The yield of baby corn, sweet corn and normal maize in organic treatments was found at par with Recommended Dose of Fertilizers (RDF) at fourth year of experimentation.

### ***Sensor guided Nitrogen Management in Maize-Based Cropping System under Conventional and Conservation Agriculture Practices***

Significantly higher system yield, net returns and partial factor productivity of applied nitrogen can be achieved by adopting maize-wheat-mungbean system

with residue retention under conservation agriculture with 50% RDN+GS based N application.

### ***Diversity in Turcicum Leaf Blight***

Forty five isolates were collected from nine states, *viz.*, Meghalaya, Uttarakhand, Himachal Pradesh, Andhra Pradesh, Odisha, Gujarat, Madhya Pradesh, Jammu & Kashmir and Maharashtra to study diversity of turcicum leaf blight pathogen, *Setosphaeria turcica*.

### ***Maize - Pink Stem Borer (PSB) Interactions***

Induced defense responses were studied by imposing different treatments, including control i.e. untreated plants, PSB feeding, mechanical wounding, mechanical wounding plus PSB regurgitation and exogenous application of methyl jasmonate in resistant, moderately resistant and susceptible genotypes at two stages (5 and 15 days after germination, DAG). *p*-Coumaric acid (*p*-CA) and ferulic acid (FA) were intrinsically higher when challenged by insect attack in short- and long-term responses at 5 and 15 DAG in most of the instances especially in resistant and moderately resistant genotypes than the susceptible ones.

## **IMPORTANT EVENTS**

### ***Independence Day celebration***

The 74<sup>th</sup> Independence Day was celebrated at the Headquarter and regional stations of the institute with full zeal and patriotism. On this occasion, the National Flag was hoisted at ICAR-IIMR, Ladhawal farm, Ludhiana and at regional stations. The function was attended by all the staff members of the institute.



Flag hoisting ceremony on the Independence Day

## ***Gandhi Jayanti celebration /Gandhi Ulaas Saptah***

The institute celebrated week long Gandhi Ulaas Saptah to commemorate the 150<sup>th</sup> birth anniversary of the Father of Nation, Mahatma Gandhi from 26<sup>th</sup> September - 2<sup>nd</sup> October 2020. During this period a series of activities including book review of Gandhiji's autobiography "My Experiments with Truth", painting, debate and quiz competitions etc. were conducted on the theme of Gandhian philosophies and his vision towards new India. Dr. Sujay Rakshit, Director, ICAR-IIMR delivered a lecture on "The Life of Mahatma Gandhi and his Philosophies". A plantation drive at Ladhawal farm was organised on the concluding day of Ulaas Saptah.

## ***Constitution Day***

The year 2020 was marked as 70<sup>th</sup> year of Indian Constitution. A special lecture series was organized during the year on various topics, viz., "Constitution: The Spirit of India" by Prof. Arun Tiwari, Eminent Scientist, Author and Speaker on October 10, 2020, "Indian Constitution: The Making of a Democracy" by Prof. Gurpreet Mahajan, Centre for Political Studies, JNU, New Delhi on October 30, 2020 and "We the People@70: Constitutional Democracy in Retrospect and Prospect" by Prof. Ashok Acharya, Delhi University on November 26, 2020. The special lectures were attended by staff of the institute and AICRP centres. All the lectures were live telecasted on the institute's Facebook page. Constitution Day was observed at ICAR-IIMR and its regional stations on November 26, 2020. The staff of the institute read the Preamble of the Constitution along with Hon'ble President of India through online live preamble reading ceremony on YouTube.

## ***Mahila Kisan Diwas***

The institute celebrated Mahila Kisan Diwas on October 15, 2020, among women farmers. For this purpose a programme was organized at village Garhi Mansowal in Hoshiarpur district of Punjab. Nearly 30 women farmers participated in the programme. The women farmers were sensitized about the benefits of cultivating speciality corn, value addition aspects in crops and milk, hazards of stubble burning, formation



Prof. Arun Tiwari delivering lecture during the Constitution Day



Prof. Gurpreet Mahajan delivering lecture during the Constitution Day



Prof. Ashok Acharya delivering lecture during the Constitution Day

of SHG, FPO etc. They showed immense interest in taking up baby corn cultivation. They were informed about improved marketing practices, improved varieties and mixed cropping techniques in order to enhance their economic condition.



ICAR-IIMR scientists interacting with women farmers during Mahila Kisan Diwas

### *Vigilance Awareness Week*

Vigilance Awareness Week was observed at the institute from October 27- November 2, 2020. On the inaugural day, staff members took an integrity pledge to commit highest standards of honesty. Shri Vinod Rai, former Chief Auditor General, Govt. of India delivered a special lecture on the topic “Promoting Integrity and Probity in Public life - with Special Reference to Scientific Institutions” to the institute and AICRP staff on November 2, 2020. Quiz and debate competitions in the line of Vigilance Awareness Week were also organized at the institute.

### *World Soil Day*

World Soil Day was celebrated at the institute and its regional stations on December 5, 2020. The farmers were educated about the genesis of World Soil Day and its significance in ensuring food security to the nation. The theme for 2020 “Keep soil alive, Protect, Soil biodiversity” was conveyed to the participants. The farmers were advised to save the soil from degradation due to excessive and unjustified use of fertilizers and insecticides and emphasized the importance of the soil in maintaining healthy ecosystems and human well-being. Soil, health-related slogans were also displayed on this occasion.

### *Swachhta Pakhwada Campaigns*

The institute organized ‘Swachhta Pakhwada’ from December 16-31, 2020 at the Headquarter and its regional stations. On the inaugural day, Dr. Sujay Rakshit, Director, ICAR-IIMR briefed the activities to be undertaken and administered ‘Swachhta Pledge’ to the staff members. He appealed everyone to become part of Swachh Bharat Abhiyan and contribute towards the mission. During the fortnight-long period, various activities including cleaning of office



Shri Vinod Rai, Ex. CAG Govt. of India delivering a special lecture on Vigilance Awareness

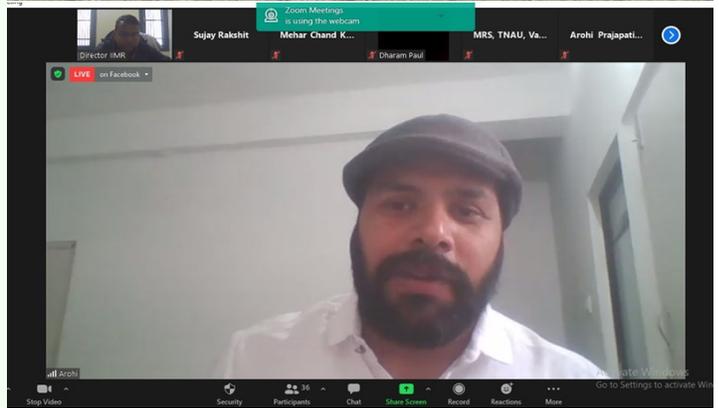
### *Rashtriya Ekta Diwas*

Rashtriya Ekta Diwas was celebrated at the institute and its regional stations on October 31, 2020. Dr. Sujay Rakshit, Director, ICAR-IIMR administered the pledge to the staff to commemorate the birth anniversary of Sardar Vallabh Bhai Patel, the architect of national integration of independent India.



World Soil Day

premises, organizing off-campus cleanliness drive and awareness campaign to take forward the swachhta message among villagers and staffs were undertaken. An online special lecture was organised on the topic “Swachh Bharat” by Shri. Pankaj Mall, CEO, Astitva Foundation on December 20, 2020. He shared his experiences of cross-country cycle journey to promote the spirit of Swachh Bharat. Competitions were also conducted during this period. Awareness message on Swachh Bharat was also created through various social media handles of the institute like Twitter, Facebook and the institute’s website. A major emphasis was given on maintaining cleanliness and sanitization to contain the COVID 19 and encouraged to continue the fight against COVID-19 by wearing mask, physical distancing and maintaining hand hygiene, etc.



Some glimpses of Swachhta Pakhwada

### *Kisan Diwas*

The Kisan Diwas (Farmer's Day) was celebrated at the institute on December 23, 2020. The importance of the farmers and their role in the development of the country was duly acknowledged. Farmers were

motivated and encouraged to adopt improved technologies developed by the institute. Scientific methods of maize cultivation and control of the insect pests and diseases of maize were also discussed with the farmers. The Kisan Diwas was also celebrated at

At RMR&SPC, Begusarai in which more than 40 farmers participated. Winter Nursery Centre, ICAR-IIMR, Rajendranagar, Hyderabad distributed

seeds, technical bulletins to the farmers on the occasion. Delhi unit organized a virtual meeting to celebrate Kisan Diwas.



ICAR-IIMR, Ludhiana scientists interacting with farmers on the Farmers' Day



RMR&SPC, ICAR-IIMR Begusarai scientists delivering lectures on Farmers' Day



Distribution of seeds and technical bulletins to the farmers at WNC Hyderabad

### *Live Telecast of PM - Kisan Samman Nidhi Programme*

The live address by Hon'ble Prime Minister of India Sh. Narendra Modi to the farmers on the occasion of transfer of PM-Kisan Samman Nidhi in the farmer's account was telecasted on December 25, 2020, the birth anniversary of former PM Atal Bihari Vajpayee. The institute staff viewed the interaction of Hon'ble Prime Minister with farmers from different part of the country.

### **IMPORTANT MEETINGS**

Dr.Sujay Rakshit, Director, ICAR-IIMR made a presentation on "Silent Revolution in Maize – Challenges in Hand" during National Webinar "Maize



Glimpse of PM Kisan programme

improvement for stress tolerance biofortication in climate smart agriculture" organized by BAU Sabour on August 4, 2020.



Dr. Sujay Rakshit, Director, ICAR-IIMR making his presentation during national webinar

### HTMA meeting

Dr. Sujay Rakshit, Director, ICAR-IIMR and scientists of the institute attended the HTMA meeting held on October 8, 2020 through online mode. The progress and future plan of the ongoing HTMA program of the institute was discussed during the meeting.

### National Webinar on Step towards Future Fuel

Dr. Sujay Rakshit, Director ICAR-IIMR and other scientists attended the National Webinar on Step towards Future Fuel organized by National Sugar Institute, Lucknow on October 15, 2020 through online mode. Dr. Sujay Rakshit delivered a talk on “Ethanol from Maize – Prospects and Challenges”. He stressed upon the benefits of using maize for ethanol production in the changing climatic scenario.

### Global Action on Fall Armyworm Control of FAO

Dr. Sujay Rakshit, Director, ICAR-IIMR is representing the Technical Committee of Global Action for Fall Armyworm Control of FAO. He has attending meetings online. FAW Global Action Implementation, Inventory of Evidence-Based Approach for FAW Management, preparation of the IPM Generic Packages and the IPPC Prevention Guideline are the major focus of the committee.

### ICAR-IIMR Agri-Business Incubation (ABI) meeting

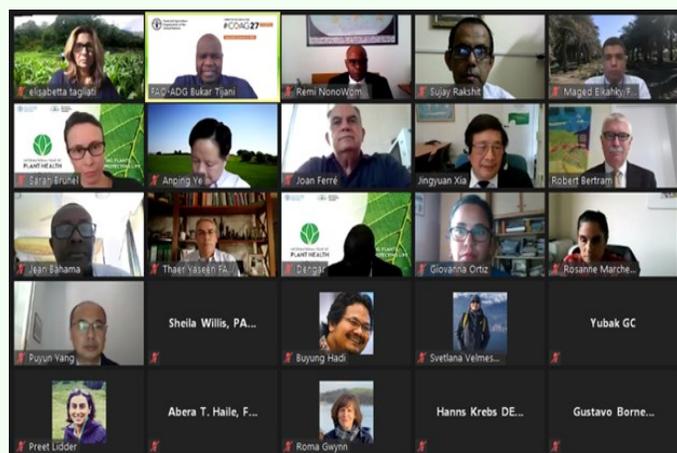
Agri-Business Incubation meeting of ICAR-IIMR with Kamboj Bee Farm, Yamuna Nagar and Dharambir Food Product Pvt. Ltd., Damla was held on November 03, 2020 at ICAR-IIMR, Ludhiana. Both the firms joined as start-up under ABI Centre (ABIC)



Discussion during HTMA meeting



Participants of the National Webinar



Participants of the Technical Committee meeting of Global Action for FAW Control

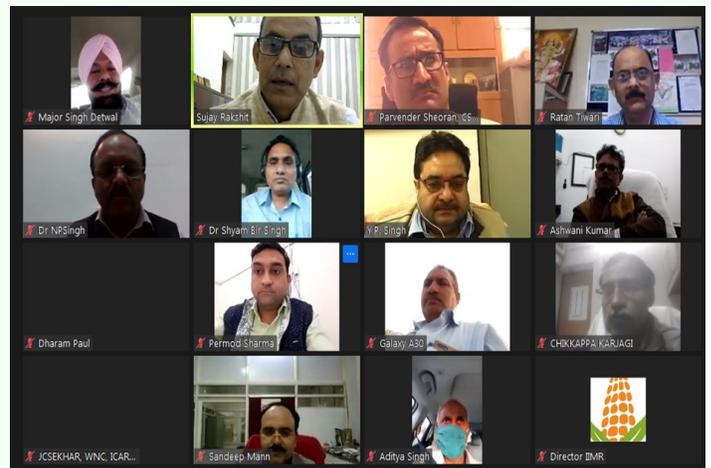
of ICAR-IIMR. It was decided that the ABIC of the institute will provide training and refinement of technologies and will also handhold these start-ups for the development of their business.



Signing of agreement between ABI center, ICAR-IIMR and Kamboj Bee Farm and Dharambir Food Product Pvt. Ltd.

### *Institute Management Committee (IMC) meeting*

The 13<sup>th</sup> meeting of Institute Management Committee was held through online mode on November 10, 2020 under the Chairmanship of Dr. Sujay Rakshit, Director, ICAR-IIMR, Ludhiana. The utilization of Non-Plan, Plan and AICRP budget for the year, 2019-20 and status of advances were discussed during the meeting. The other agendas including the construction of boundary wall at Ladhawal farm, construction of administrative building and empanelment of hospitals for RMR&SPC, Begusarai etc. were approved by the committee.

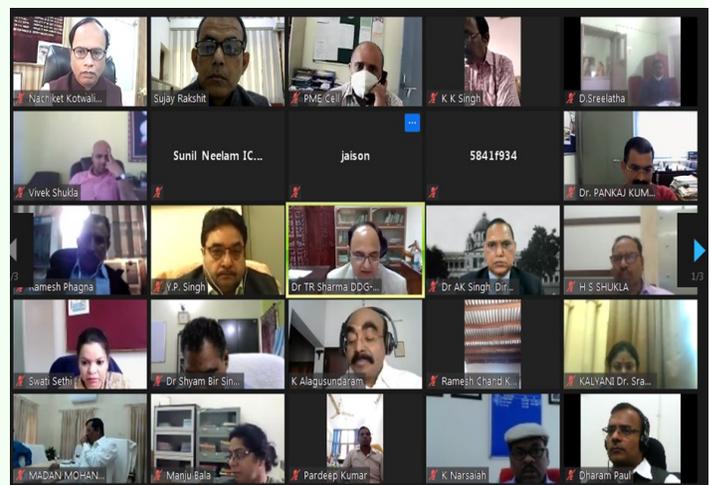


Discussion during the IMC meeting

### *ICAR – Industry Meet on Maize Value Chain*

A virtual meeting between ICAR and different stakeholders of various industries especially maize-based industries was organized by ICAR-Indian Institute of Maize Research, Ludhiana on November 12, 2020 under the co-chairmanship of Dr. T.R. Sharma, DDG (Crop Science) and Dr. K. Alagusundaram, DDG (Eng.). Other dignitaries attended the meeting were Dr. A.K. Singh, Director, ICAR-IARI; Dr. K.K. Singh, ADG (Farm Engineering) and Dr. Nachiket Kotkotiwal, Director, ICAR-CIPHET. Representatives from various ICAR institutes including ICAR-CIPHET, ICAR-CIAE, ICAR-NAARM etc., and representatives from various maize-based industries attended the meeting. The dignitaries emphasized that demand for maize is increasing for food, feed, and as raw material for various food and non-food based processing and value addition industries. The digni-

taries urged the industry to come forward for up-scaling the products which are already available with institutes.



Participants discussing some important issues during ICAR-Industry meet

## Institutional Biosafety Committee (IBSC) Meeting

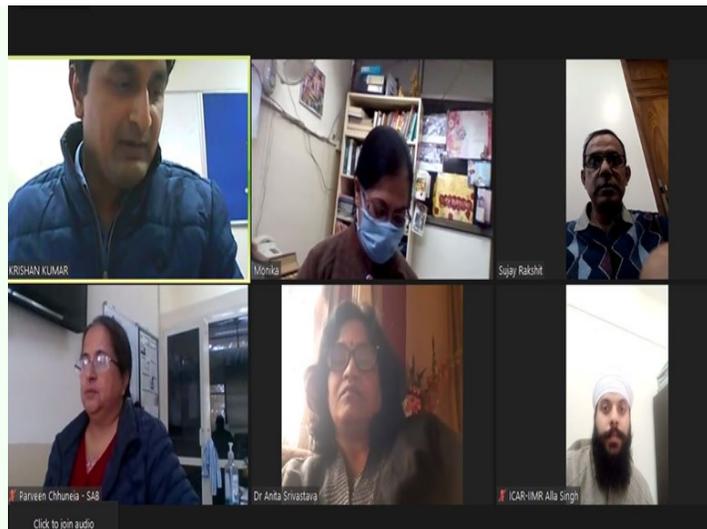
The Institutional Biosafety Committee (IBSC) meeting was held online on December 28, 2020. Dr. Sujay Rakshit (Chairman), Dr. Parveen Chhuneja (Head Biotechnology PAU & DBT Nominee), Dr. Amrita Srivastava (Biosafety Officer IARI), Dr. Monika Dalal (Principal Scientist NIPB, New Delhi & outside expert), Dr. Chikkappa G. Karjagi (Scientist, IIMR & Member), Dr. Bhupender Kumar (Scientist, IIMR & Member), Dr. Alla Singh (Scientist, IIMR & Member) and Dr. Krishan Kumar (Scientist, IIMR & Member Secretary) attended the meeting. The committee reviewed the biosafety aspects of ongoing projects involving GMO/LMO and found them to be satisfactory.

## हिंदी गतिविधियाँ हिंदी कार्यशाला

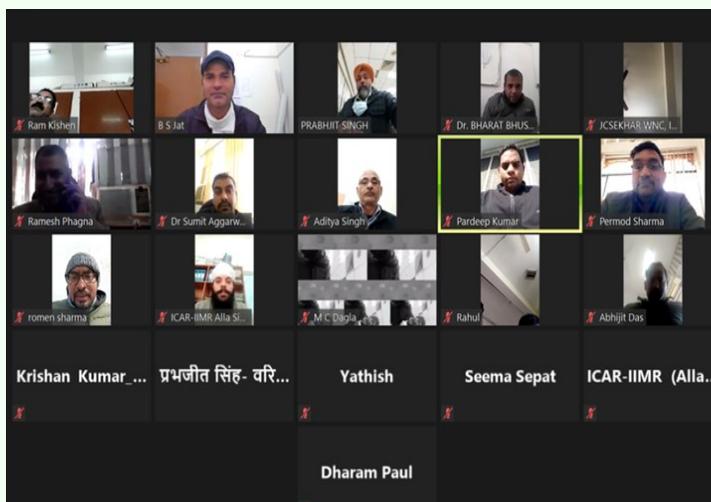
भा.कृ.अनु.प.- भारतीय मक्का अनुसंधान संस्थान, लुधियाना में राजभाषा हिंदी के प्रगामी प्रयोग को बढ़ावा देने तथा राजभाषा संबंधी अधिनियमों, नियमों एवं आदेशों की अनुपालन हेतु वर्ष 2020-21 में राजभाषा की ऑनलाइन कार्यशाला का आयोजन दिनांक 31 दिसम्बर, 2020 को किया गया जिसका शीर्षक: कृषि अनुसंधान एवं तकनीकियों को किसानों एवं अन्य-हितधारकों तक पहुंचाने में हिंदी भाषा की भूमिका था। कार्यशाला में अतिथि वक्ता के रूप में श्री प्रभजीत सिंह (वरिष्ठ प्रबंधक एवं राजभाषा अधिकारी) पंजाब नेशनल बैंक, को आमंत्रित किया। कार्यशाला में संस्थान के सभी अधिकारियों/कर्मचारियों ने भाग लिया। अतिथि वक्ता ने बताया कि किस प्रकार हम कार्यालय तथा दैनिक जीवन में हिंदी भाषा के प्रयोग को बढ़ावा दे सकते हैं तथा विभिन्न संस्थानों द्वारा किये गए अनुसंधान एवं विकसित तकनीकियों को किसानों एवं हितधारकों तक पहुंचाने में हिंदी भाषा के महत्व के बारे में भी विस्तृत से जानकारी दी।

## हिंदी पखवाडा 2020

प्रति वर्ष की भांति इस वर्ष भी भारतीय मक्का अनुसंधान संस्थान, लुधियाना द्वारा दिनांक 14 से 28 सितम्बर, 2020 के दौरान कार्यालय में ऑन लाइन माध्यम से हिंदी पखवाडा मनाया गया। पखवाडे का शुभारम्भ 14 सितम्बर हिंदी दिवस के दिन संस्थान निदेशक महोदय की उपस्थिति में ऑन लाइन माध्यम से किया गया। इस अवसर पर निदेशक महोदय ने सभी उपस्थित कर्मचारियों/अधिकारियों को हिंदी दिवस की शुभकामनाएं दी एवं हिंदी भाषा के महत्व के बारे में बोलते हुए संस्थान के सभी अधिकारियों/कर्मचारियों को सरकार द्वारा समय - समय पर



Members discussing agenda items during the IBSC meeting

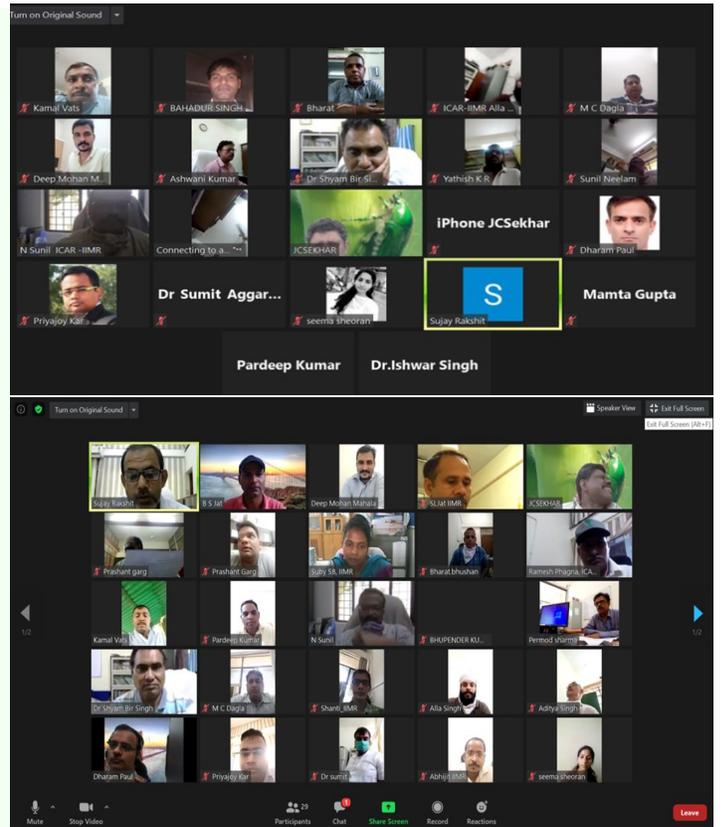


कृषि अनुसंधान एवं तकनीकियों को किसानों एवं अन्य-हितधारकों तक पहुंचाने में हिंदी भाषा की भूमिका विषय पर हिंदी कार्यशाला

हिंदी भाषा से सम्बंधित जारी अध्यादेशों की पलना करने के साथ ही कार्यालय में ज्यादा से ज्यादा कार्य हिंदी में करने का आग्रह किया तथा साल भर होने वाले हिंदी भाषा के विभिन्न कार्यक्रमों में भाग लेकर सही मायनों में हमें हिंदी के प्रचार-प्रसार एवं इसकी उपयोगिता के बारे में लोगों को जागरूक बनाना चाहिए। इस वर्ष हिंदी पखवाडे के दौरान कुल चार प्रतियोगिताएं- हिंदी टिप्पण व प्रारूप लेखन, आशुभाषण प्रतियोगिता, हिंदी निबंध प्रतियोगिता एवं प्रश्नोत्तरी प्रतियोगिता का आयोजन ऑन लाइन माध्यम से किया गया जिसमें संस्थान के सभी अधिकारियों/कर्मचारियों ने भाग लिया।

हिंदी पखवाड़े का समापन समारोह निदेशक महोदय की अध्यक्षता में दिनांक 28 सितम्बर, 2019 को मनाया गया जिसमें संस्थान के सभी अधिकारी/कर्मचारी उपस्थित थे। समारोह का शुभारम्भ निदेशक महोदय की अनुमति से राजभाषा कार्यान्वयन समिति के सदस्य सचिव डॉ. बहादुर सिंह जाट ने समारोह में उपस्थित सभी कर्मचारियों का स्वागत करते हुए किया। समारोह में निदेशक महोदय ने अपने अध्यक्षीय संबोधन में बोलते हुए सर्वप्रथम हिंदी प्रतियोगिताओं के विजेताओं को बधाई दी एवं हिंदी पखवाड़ा आयोजन समिति के सदस्यों को हिंदी पखवाड़े को ऑनलाइन माध्यम से सुचारु ढंग से संचालन के लिए धन्यवाद दिया। संस्थान निदेशक ने जीवन में भाषा के महत्व के बारे बताते हुए कहा कि अपने विचारों की अभिव्यक्ति को व्यक्त करने के लिए प्रत्येक व्यक्ति की अपनी भाषा होती है। भाषा ही एक ऐसा माध्यम है जो हमें एकता के सूत्र में बांधती है। हिंदी हमारी राजभाषा है और देश में अनेकता में एकता का स्वर हिंदी से ही गूंजता है। अतः हिंदी भाषा का सम्मान और उसकी गरिमा बनाये रखना हमारा कर्तव्य है। भले ही आज अंग्रेजी भाषा का ज्ञान होना जरूरी है लेकिन सफलता पाने के लिये हमें अपनी राष्ट्रभाषा को कभी नहीं भूलना चाहिये। क्योंकि हमारे देश की भाषा और हमारी संस्कृति हमारे लिये बहुत मायने रखती है।

समारोह के अंत में प्रधान वैज्ञानिक डॉ. जे. सी. शेखर ने हिंदी पखवाड़ा के समापन समारोह में उपस्थित संस्थान परिवार के सभी सदस्यों, आयोजन समिति के अध्यक्ष एवं योजक का धन्यवाद ज्ञापन किया। हिंदी पखवाड़ा से संबंधित



संस्थान में आयोजित हिंदी पखवाड़ा कार्यक्रम झलकियाँ

समारोह का मंच संचालन तथा सभी प्रतियोगिताओं का समन्वयन डॉ. बहादुर सिंह जाट वैज्ञानिक एवं सदस्य सचिव, राजभाषा द्वारा किया गया।

### संस्थान में आयोजित हिंदी पखवाड़ा (14-28 सितम्बर, 2020) कार्यक्रम में आयोजित विभिन्न प्रतियोगिताओं में पुरस्कृत प्रतिभागियों के नाम एवं पुरस्कार राशि का विवरण

क्र.स.	प्रतियोगिता का नाम	विजेता का नाम	पुरस्कार
1.	हिंदी टिप्पण एवं प्रारूप लेखन प्रतियोगिता (प्रशासनिक, तकनीकी एवं कुशल सहायी स्टाफ वर्ग के लिए)	श्री.प्रशांत गर्ग	प्रथम
		श्री.रामकिशन	द्वितीय
		श्री.धर्मवीर सिंह	तृतीय
2.	आशुभाषण प्रतियोगिता (सभी वर्गों के लिए)	डॉ.शंकर लाल जाट	प्रथम
		डॉ.आला सिंह	द्वितीय
		डॉ.भारत भूषण	तृतीय
3.	हिंदी निबंध प्रतियोगिता शीर्षक : नारी शिक्षा का महत्व (सभी वर्गों के लिए)	सुश्री सीमा श्योराण	प्रथम
		डॉ. भारत भूषण	द्वितीय
		डॉ. ममता गुप्ता	तृतीय
4.	हिंदी प्रश्नोत्तरी प्रतियोगिता (सभी वर्गों के लिए)	डॉ.प्रदीप कुमार	प्रथम
		श्री. दीप मोहन महला	द्वितीय
		डॉ.भारत भूषण	तृतीय
5.	वर्ष 2019-20 के दौरान संस्थान में हिंदी में सर्वाधिक कार्य हेतु नकद पुरस्कार (सभी वर्गों के लिए)	श्री.धर्मवीर सिंह	प्रथम
		डॉ.एस.बी.सिंह	प्रोत्साहन

## EXTENSION AND OUTREACH

### *Training programme of AICRP on maize*

An online training was organized by co-ordination cell of AICRP on maize during August 5-6, 2020. Altogether, 110 scientists from different AICRP centers across the country attended the online training program. Principal Investigators of different disciplines including Plant Breeding, Agronomy, Entomology & plant Pathology delivered lectures pertaining to data recording in AICRP trials. In addition to this, lectures on value addition, inoculation techniques for different diseases and importance of conservation agriculture were also delivered by the experts.

### *Awareness-cum-training programme on FAW management in Himachal Pradesh*

A one day online awareness-cum-training programme on "Management of Fall Armyworm (FAW) in Himachal Pradesh" was organized on August 7, 2020 by ICAR- IIMR, Ludhiana in collaboration with Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya (CSK HPKV), Palampur. More than 70 participants' including scientists of SAU/ICAR, SMSs, extension officers and ADOs of the State Department of Agriculture and students participated in the programme.

### *Awareness-cum-training programme on Management of Fall Armyworm (FAW) in Jammu and Kashmir*

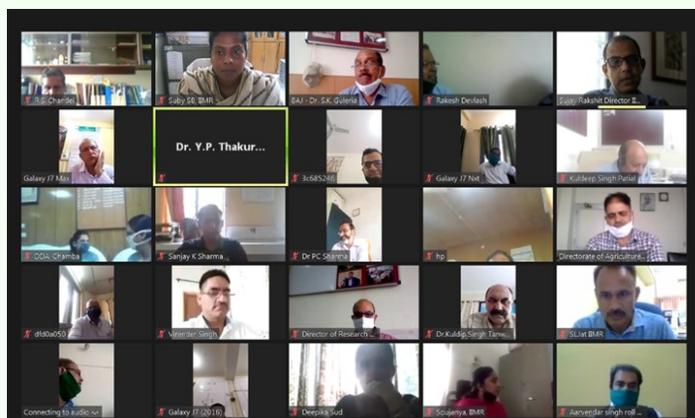
An online awareness-cum-training programme on "Management of Fall armyworm (FAW) in Jammu and Kashmir" was organized on August 18, 2020 by ICAR-Indian Institute of Maize Research (IIMR), Ludhiana in collaboration with Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir (SKUAST-K), Srinagar. Around 55 participants from the SAUs, state departments working in Jammu and Kashmir attended the programme.

### *Technical Webinar cum training for Extension officers and Scientists*

A one-day online technical webinar cum training on "Integrated Pest Management for Maize Crop with special reference to Fall armyworm" was held on September 18, 2020. A total of 60 participants including agricultural extension officers of state depart-



Glimpse of the AICRP training programme



Glimpse of awareness-cum-training programme on FAW management in Himachal Pradesh



Participants of the Awareness-cum-training programme on Management of FAW in J&K

ments and scientists of ICAR/KVK/SAU of Maharashtra, Madhya Pradesh, Chhattisgarh and Odisha attended the program. A similar A one-day online technical webinar cum training on "Integrated Pest Management for Maize Crop with special reference

to Fall armyworm in NWH region" was organized by FAO India and ICAR-IIMR on September 10, 2020, under the FAO project. The training was attended by 55 participants from the agricultural extension office of state departments and scientists of ICAR/KVK/SAU of NWH region.

### **One-day online Technical Webinar cum Training for Extension Officers**

A one-day online webinar cum training on "Integrated Pest Management for Maize Crop with Special Reference to Fall armyworm in Rajasthan, Gujarat and Haryana States" was organized for the agricultural extension officers of state departments and scientists of ICAR/KVK/SAU/CIPMC of the above mentioned states on October 15, 2020, under the FAO project on "Time-critical measures to support early warning and monitoring and sustainable management of the Fall armyworm in India". The training was attended by 120 participants from the states. A number of experts attended the programme through online mode and shared their experiences.

### **Training Programme on seed production technique**

A training programme on "Single Cross Maize Hybrid Seed Production Techniques" was organized under Mega Seed Project at RMR&SPC, Begusarai, Bihar on November 6, 2020. Officers/staff of Bihar

### **Training programme attended**

Name of the Scientist	Name of the training program attended	Venue	Date
Drs. S.B. Singh and Yathish K.R	Training on Integrated Pest Management (IPM) for Maize Crop with special reference to Fall Armyworm	Training by FAO	July 21-22, 2020
Seema Sheoran	Analysis of Experimental Data using R	ICAR-NAARM, Hyderabad	August 5-11, 2020
	ABC of Scientific Writing	ICAR-NRRI, Cuttack	August 18 - September 2, 2020
	Analysis of Experimental Data Using SAS	NAARM, Hyderabad	November 9-17, 2020
Drs. Ramesh Kumar and Alla Singh	Online training program on IPR	NAHEP (ICAR)	September 9-28 2020
Dr. Ph Romen Sharma	Market Research & Value Chain Management of Agricultural Commodities	ICAR-NAARM	November 17-21, 2020
Drs. Mamta Gupta and Alla Singh	Online Nanotechnology Training	ICAR-CIRCOT), Mumbai	November 23-27, 2020
Shri Permod Sharma and Shri Ashwani Kumar	Administrative and Financial Management for Administrative and Finance Officers of ICAR	ICAR-NAARM, Hyderabad	November 23-27, 2020
Dr. J.C. Sekhar	MDP on Leadership Development (a pre-RMP programme)	ICAR-NAARM, Hyderabad	December 8-19, 2020



Online technical webinar cum training for extension officer and farmers



Glimpses of the training programme on seed production

Rajya Beej Nigam (BRBN) and 12 farmers of the Begusarai and nearby districts participated in the training programme.

## Trainings conducted :

Name of the Scientist	Name of the training program attended	Institutes/Organizations Involved	Date
Drs. J.C. Sekhar and Sujay Rakshit	Management of insect pests of maize with special reference to fall armyworm	FAO, CIMMYT, ICAR-IIMR, ICAR-NBAIR, ICAR-ATARI, DPPQ&S	July 21-22, 2020
Drs. J.C. Sekhar, P.L. Soujanya, Suby S.B., S.L. Jat and Sujay Rakshit	Awareness-cum-training programme on "Management of Fall Armyworm (FAW) in Himachal Pradesh"	ICAR-IIMR, Ludhiana	August 7, 2020
	Online Awareness training programme on "Management of Fall Armyworm (FAW)"	ICAR-IIMR, Ludhiana	August 18, 2020
	Fall armyworm (FAW) Awareness Meeting for farmers and officials of Bundi and Kota Districts of Rajasthan"	ICAR-IIMR, Ludhiana	September 1, 2020
Drs. J.C. Sekhar and Sujay Rakshit	Integrated Pest Management for Maize Crop with special reference to fall armyworm in NEH region	FAO, ICAR-IIMR, ICAR-NEH and DPPQ&S	September 4, 2020
Drs. J.C. Sekhar, S.L. Jat and Sujay Rakshit	Integrated Pest Management for Maize Crop with special reference to fall armyworm in NWH region	FAO, ICAR-IIMR, SKU-AST and DPPQ&S	September 10, 2020
	Integrated Pest Management for Maize Crop with special reference to fall armyworm for Maharashtra, Madhya Pradesh, Chhattisgarh and Odisha	FAO, ICAR-IIMR, ICAR-NBAIR, ICAR-IIMR (Millets) and DPPQ&S	September 18, 2020
	Integrated Pest Management for Maize Crop with special reference to fall armyworm in NEPZ	FAO, ICAR-IIMR, ICAR-NBAIR, ICAR-IIMR (Millets) and DPPQ&S	October 9, 2020
	Integrated Pest Management for Maize Crop with special reference to fall armyworm in Rajasthan, Gujarat and Haryana states	FAO, ICAR-IIMR, ICAR-NBAIR, ICAR-IIMR (Millets) and DPPQ&S	October 15, 2020
Dr. S.B. Singh	Training programme for Officers/staff of Bihar Rajya Beej Nigam and farmers on "Single Cross Maize Hybrid Seed Production Technique"	Regional Maize Research and Seed Production Centre (RMR&SPC), Begusarai	November 6, 2020

## Seminar/Symposium/Conferences/ Organized:

Scientists of IIMR	Programme	Place	Date
Dr. Sujay Rakshit	ICAR-Industry Meet on Maize Value Chain	ICAR-IIMR (Online)	November 12, 2020

## Participation in Seminar/Symposium/Conferences/Workshop/Important meeting/webinars:

Name of the Scientist	No. of programs attended
Dr. Sujay Rakshit	12
Dr. J.C. Sekhar	27
Dr. S.B. Singh	10
Dr. Dharam Paul	1
Dr. N. Sunil	3
Dr. P.L. Soujanaya	5
Dr. S.L. Jat	2
Dr. Pardeep Kumar	2
Dr. Bhupender Kumar	2
Dr. A.K. Das	1
Dr. Krishan Kumar	3
Dr. Yathish K.R	6
Ms Seema Sheoran	2
Dr. Mamta Gupta	3
Dr. Alla Singh	5
Dr. B.S. Jat	2
Dr. S.K. Aggarwal	3

## Other Achievements:

Name of the Scientist	Achievements
Dr. J.C. Sekhar	National expert to FAO India from 12 <sup>th</sup> March 2020 under TCP/IND/3709 on Time-critical measures to support early warning and monitoring and sustainable management of the Fall Armyworm in India

## Awards and Recognition

- ICAR-Indian Institute of Maize Research was awarded Chaudhary Devi Lal Outstanding All India Co-ordinated Research Project (AICRP) Award for the year 2019 during 92<sup>nd</sup> Foundation Day of Indian Council of Agricultural Research, New Delhi held on July 16, 2020.
- राजभाषा के प्रचार-प्रसार को बढ़ावा देने के प्रयास स्वरुप भा.कृ.अनु.प.-भारतीय मक्का अनुसंधान संस्थान, लुधियाना द्वारा प्रकाशित वार्षिक हिंदी पत्रिका “कृषि चेतना” 2020 अंक-4 को नगर राजभाषा कार्यान्वयन समिति, लुधियाना द्वारा सम्मानित किया गया।
- Dr. Abhijit Kumar Das received the externally funded project, viz., “Development of maize hybrids enriched with resistant starch through marker assisted introgression of *ae1* allele and diversification of high amylose maize germplasm” from DST-SERB worth 39.83 lakh.
- Dr. Ishwar Singh was elected Vice-President of the Indian Society for Plant Physiology (ISPP), New Delhi for the years 2020-2021.
- Dr. S.B. Singh, Dr. Ramesh Kumar, Dr. Bhupender Kumar, Dr. S.L. Jat and Mr. Priyajoy Kar received the externally funded project, viz. “Popularization of Biofortified Maize Hybrids in Himalayan States and Central India with Special Reference to North Eastern Region for Sustainable Nutritional Security” from DBT worth Rs. 279 lakh.

### *Awards and Recognition contd...*

- Dr. S.B. Singh awarded with “Fellow Award-2020” of Society for Scientific Development in Agriculture and Technology, in the International Web Conference on Global Research Initiatives for Sustainable Agriculture & Allied Sciences, (GRISAAS-2020) held on December 28-30, 2020.
- Dr. S.B. Singh was awarded with “Best Oral Presentation Award” under Theme 3 Global climate change: Scenario and food security in the International Web Conference on Global Research Initiatives for Sustainable Agriculture & Allied Sciences, (GRISAAS-2020) held on December 28-30, 2020.
- Dr. S.B. Singh was awarded with 2<sup>nd</sup> prize “Protsahan Puruskar” for doing maximum work in Hindi for the year 2019-20 in the ICAR-IIMR.
- Dr. S.B. Singh was elected as Vice-President Society for Scientific Development in Agriculture and Technology, Meerut (U.P.) India for the term 2019-20.

### **Lecture /TV/ radio talks :**

<b>Scientist</b>	<b>No. of talks delivered</b>
Dr. Sujay Rakshit	3
Dr. J. C. Sekhar	7
Dr. S.B. Singh	7
Dr. S.L. Jat	14
Dr. P.L. Soujanya	7
Dr. Suby SB	7
Dr. Alla Singh	1

### **New Joining**



Dr. Seema Sepat, Scientist (Agronomy) has been transferred from ICAR-Indian Agricultural Research Institute, New Delhi to ICAR-Indian Institute of Maize Research, Ludhiana



Dr. Ph. Romen Sharma, Scientist (Agricultural Extension) has been transferred from ICAR-Research Complex for North East Hill Regions, Umiam, Meghalaya to ICAR-Indian Institute of Maize Research, Ludhiana

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Dr. Ph Romen Sharma**

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