




From Director Desk...



In this quarter, our major research highlights included development of promising genotype and elite germplasm of orange capsicum, liliun and walnut. The Institute has established a rapid composting technology for biomass management in tribal regions of Madhya Pradesh. A sensitive isothermal lateral based recombinase polymerase assay was standardized for field level diagnosis of citrus greening bacterium. Full genome sequence of sesame phyllody phytoplasma was completed which will be helpful in understanding the host-pathogen interaction. A database of bioactive peptides derived from fermented foods was developed which will be useful for food industry. Significant achievements have also been made in AI based detection technique for yellow rust in wheat and thermal imaging technique for screening wheat genotypes under water stress condition. During these three months, the institute has also established a central fully equipped common facility 'Discovery Centre' to carry out advanced genomics study for the students and faculty. IARI has also started weekly news bulletin "Pusa Samachar" for disseminating knowledge of improved technologies in different regional languages such as Telugu, Tamil, Bangla, Oriya and Kannada. We also celebrated Foundation Day of ICAR-IARI, New Delhi and IARI-Jharkhand, World Bee Day, World Milk Day and World Environment Day. In addition, the capacity building programme for the extension personnel and farmers through training programme, field days and visits were organized.

I am sure that the technical and applied scientific information included in newsletter would be useful to readers and stakeholders. I wish to congratulate all the scientists and staff of publication unit for bringing out the newsletter in time.


Dr. A.K. Singh
Director, IARI

IARI Foundation Day

The institute celebrated its Foundation Day on April 1, 2021. On this occasion, a series of activities were carried out for a week in the form of painting competition, quiz competition, speech competition by the school children and students of PG School, IARI and Foundation Day lecture.



Dr. T. Mohapatra, Secretary (DARE) & DG (ICAR) addressing the gathering during Foundation Day program

On this occasion, Dr. Trilochan Mohapatra, Secretary, DARE & DG, ICAR was the Chief Guest and presided over the function and Dr. T.R. Sharma, DDG (Crop Science), ICAR was the Guest of Honour. Dr. A.K. Singh, Director and Vice Chancellor, IARI, welcomed the guests and introduced the speaker. The Foundation Day Lecture was delivered by Professor Rattan Lal, Director, CMSC, Ohio State University, USA & recipient of World Food Prize 2020 and Adjunct Professor, IARI, New Delhi on the topic "Soil Health and Nutrition-Sensitive Agriculture".

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Compilation Committee

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In-charge, Publication Unit: Dr. G.P. Rao ;
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RESEARCH

Promising Orange Capsicum Genotype (KTOC-1)

A promising orange capsicum genotype has been developed at IARI RS, Katrain through reverse breeding. This genotype has orange coloured blocky fruits with 3-4 lobes and has average fruit weight of 64.27g. the plants attain a height up to 87.20 cm, which bears about 15.23 fruits/plant. The average yield under open and polyhouse conditions is 290.03 and 315.45 q/ha, respectively.



Capsicum Genotype KTOC-1

Lilium Breeding line

Elite germplasm of lilium No.18 registered with N B P G R (IC0635707, INGR20065) is an improved white flower coloured breeding line was selected from a

cross between *Lilium formosanum* W. x *L. longiflorum* with low juvenile period and ability to flower precociously with no vernalization requirement and multiple sprouting of flower stalk. It is suitable for use in the development of hybrids in lilium with low juvenility. This line has trumpet shaped white coloured flowers with mild fragrance. This is the first breeding line in lilium that can flower from seed within a year.



Elite germplasm of lilium

Pusa Khor Variety of Walnut

One branch of “Pusa Khor” variety of walnut of four years of age showed cluster bearing habit of more than 20 pistillate flowers which has not reported so far anywhere in the

world. This was developed at research farm Dhanda of IARI, RS, Shimla. This tree and branches were tagged for future observation.



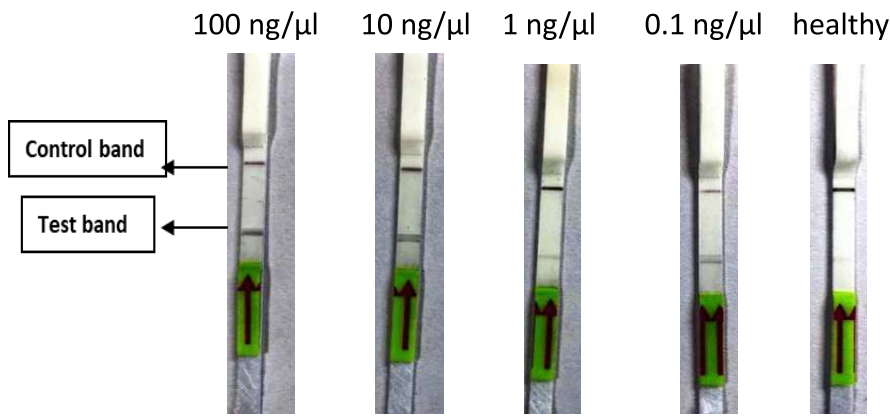
Cluster bearing branch of “Pusa Khor” variety of walnut

Establishment of Rapid Composting Technology for Biomass Management

Division of Agricultural Engineering were established four plants of Pusa rapid composting technology for large scale biomass management at different locations (Alirajpur, Dhar, Jhabua and Sheopur) in tribal region of Madhya Pradesh.



Biomass management plant



Detection of citrus greening bacterium up to 1000 fold dilutions of crude sap in the LF-RPA assay

Development of an Isothermal Lateral Flow Recombinase Polymerase Assay (LF-RPA) for the Diagnosis of Citrus Greening Bacterium

Citrus greening disease caused by *Candidatus Liberibacter asiaticus*, is an important graft transmissible disease in commercial citrus species in India. A recombinase polymerase assay (RPA) in combination with lateral flow strips (LF-RPA) was standardized to visualize the end product of RPA amplification. An additional probe with a FAM residue at the 5' end and reverse primers tagged with biotin at the 5' end was synthesized and evaluated in a 'sandwich' test detecting the RPA amplicons on MileniaGenLine Hybrid Detect test strips (TwistDx Limited, Cambodia). The greening bacterium could be detected in the

infected leaf midrib sap diluted up to 10^{-3} . The LF-RPA test can be completed in 25-30 minutes.

Full Genome Sequence of Sesame Phyllody Phytoplasma Strain (JAHBAJ000000000)

The phytoplasma strain SS02 showing peculiar typical symptoms of phyllody and witches' broom in sesame was full genome sequenced. The enriched DNA samples was amplified using illustra Ready-To-Go GenomiPhi V3 DNA Amplification Kits and sequenced on Illumina HiSeq platform. The sesame phyllody full genome contained 47 contigs corresponding to 536,153 bp with a GC content of 23.69%. This genome was found to be 92.47 % complete with 410.2x coverage. This genome was characterized by the presence of 443 protein-coding genes, one rRNA operon and 16 tRNA genes. The 16S rRNA gene

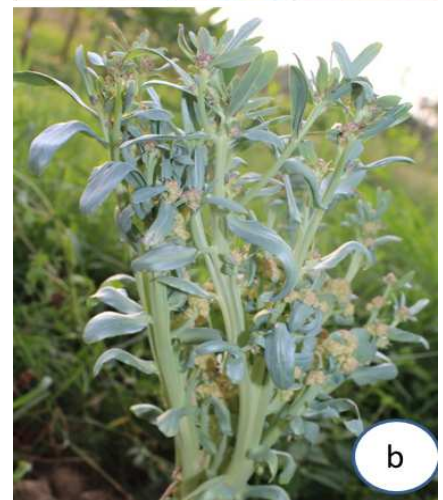


Symptoms of Sesame phyllody

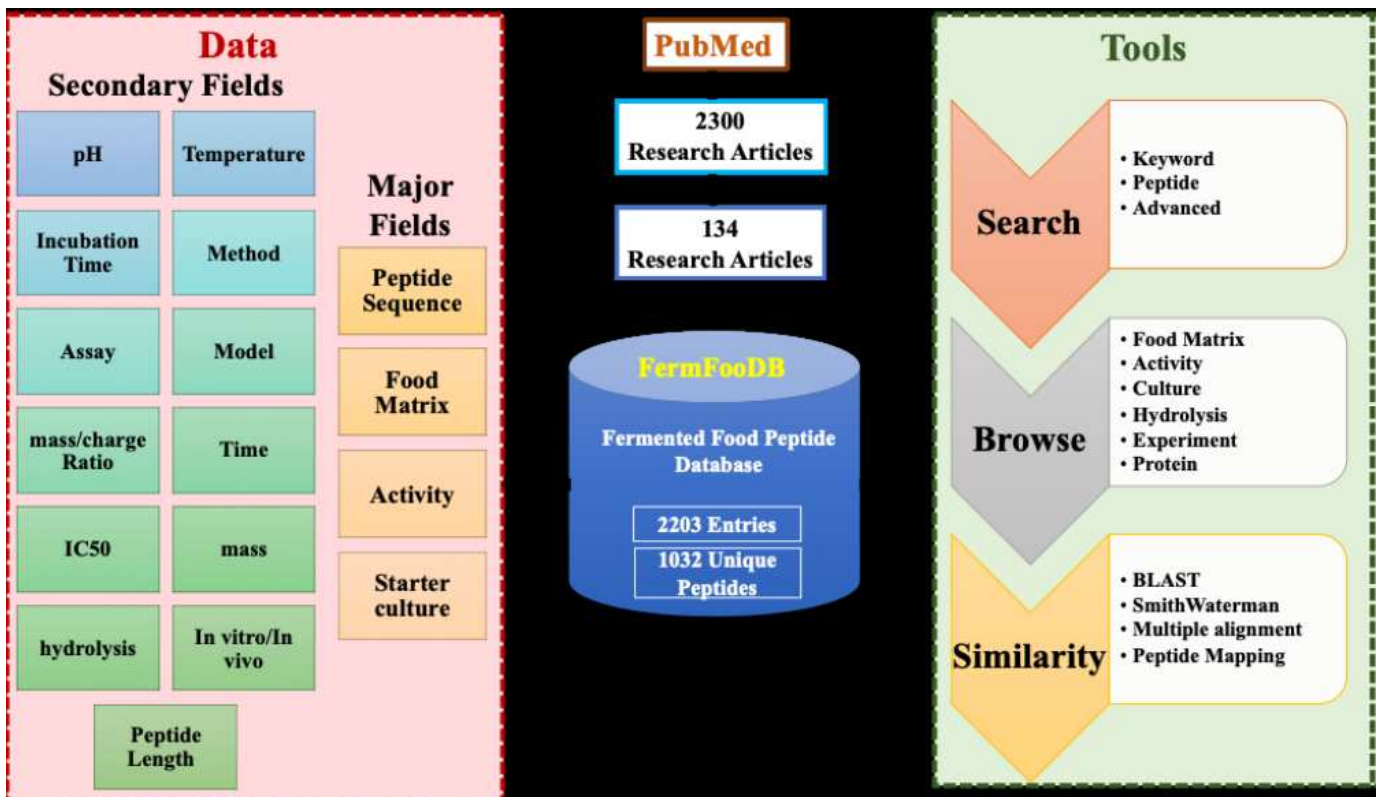
sequences of SS02 obtained from assembly showed 99.93 % similarity with the reference sequence of '*Candidatus Phytoplasma australasia*' strain '*Carica papaya*'. This phytoplasma genome sequence has been deposited in GenBank and is available under the accession number JAHBAJ0000000000.

Identification of New Phytoplasma Disease Associated with Cauliflower

The cauliflower (*Brassica oleracea* var. *botrytis*) (cultivar NS60N) at Integrated Farming System Research Station, Trivandrum, Kerala manifested



Infected inflorescence of cauliflower showing phyllody, floral malformation (a), flattening of stem (b)



The architecture of FermFoodDB database

different symptoms of stunting, phyllody, floral malformation and flattening of stem. Comparison analyses of the 16S rRNA and secA genes sequences and genes based phylogenetic tree demonstrated association of *Candidatus Phytoplasma cynodontis* related strain.

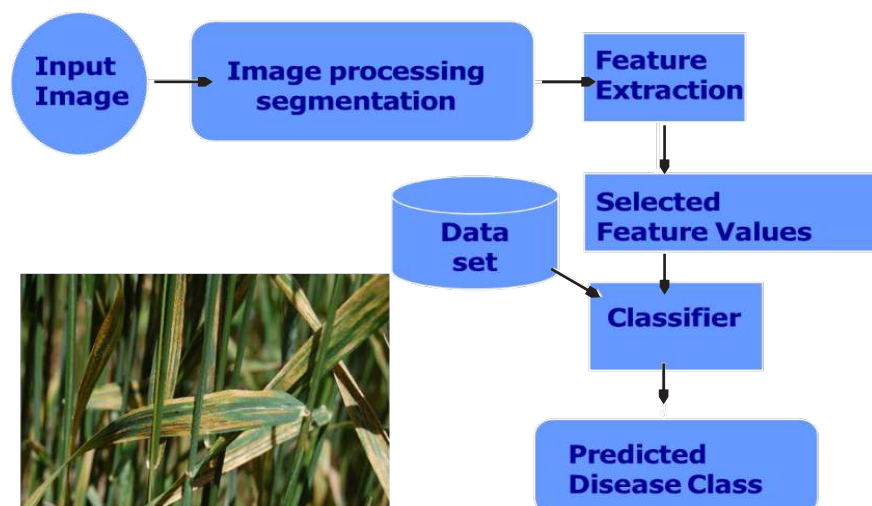
FermFoodDb: A Database of Bioactive Peptides Derived from Fermented Foods

FermFoodDb (<https://webs.iitd.edu.in/raghava/fermfoodb/>) is a manually curated database of bioactive peptides derived from wide range of foods that maintain comprehensive information about peptides and process of fermentation. This database comprises of 2203 of peptide sequence, Mass and IC_{50} , food source, functional activity, fermentation conditions, starter culture, testing conditions of sequences *in vitro* or *in vivo*, type of

model and method of analysis. These bioactive peptides were derived from different types of fermented foods that include milk, cheese, yogurt, wheat and rice. This database will be useful for the food industry and researchers to explore full therapeutic potential of fermented foods with specific cultures.

Application of AI based Image Analysis Technique to Detect Yellow Rust in Wheat

A methodology was developed for detecting yellow rust in wheat at early stage using diverse image processing techniques and artificial neural network (ANN) which was developed with accuracy and



Application of AI technique to detect yellow rust in wheat

recognition rate up to 91%. In this study, an ANN based classifier is adopted which combined color and texture features to recognize and classify different levels of yellow rust pustules in wheat. The ANN based approach could significantly classify the wheat cultivars based on the different levels of disease incidence into resistant R, mildly R, MS, MR and S.

Assessing Soil Properties from Airborne Visible Near-infrared (VIS-NIR) Spectroscopy

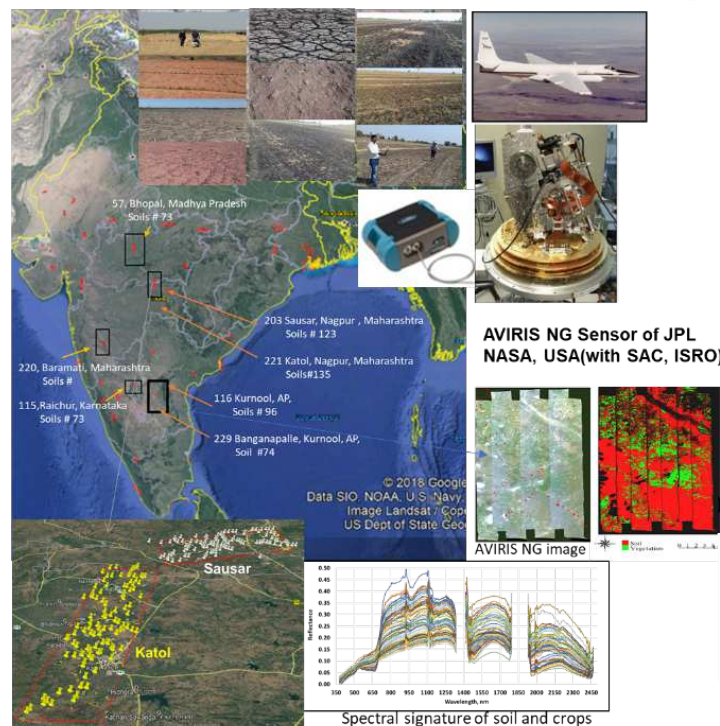
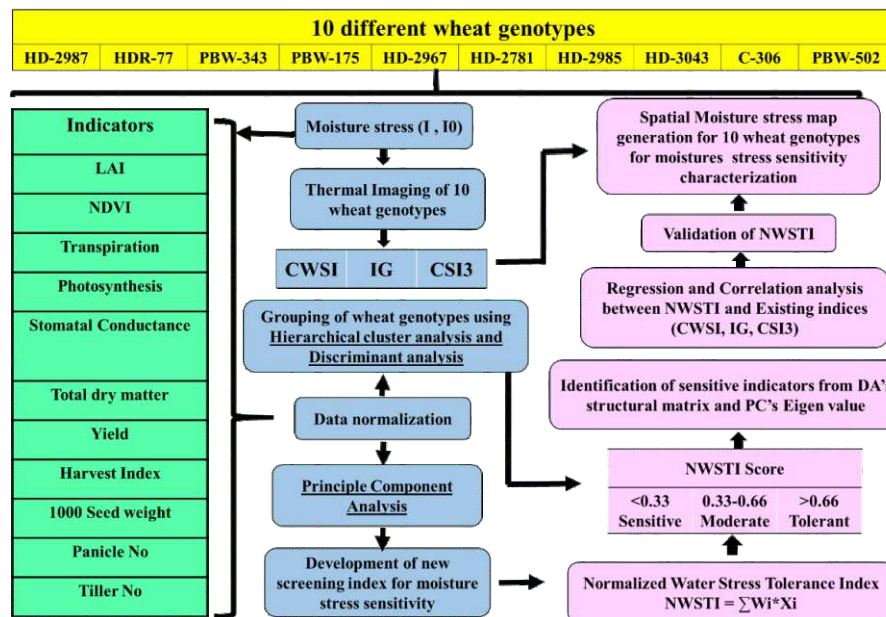
Up-scaling of visible near-infrared reflectance spectroscopy (VIS-NIR) methodology to field scale using imaging spectrometer on air borne platform for soil fertility assessment has been many fold benefits. Team at IARI through collaborative experiment of ISRO and NASA, attempted developing spectral models for estimating soil fertility parameters in the farmers' fields at different locations of country and evaluated with ground based sensors. Figure depicts one of

the sites namely Katol, near Nagpur, Maharashtra where synchronizing to sensor fly, field visit was done. Geotagged soil sampling, spectral signatures were collected using ground sensor in collaboration with team from NBSS & LUP, Nagpur. Models developed were evaluated for both ground and air borne sensors and few parameters like pH, EC (dS m⁻¹), SOC(%) and available P and K

(kg ha⁻¹) are indicated here with statistical parameters R² and RPD.

Thermal Imaging and Multivariate Techniques for Screening Wheat Genotypes under Water Stress Condition

A study was undertaken to understand the combination of thermal imaging and multivariate techniques to characterize and



Spectral modelling using ground and air borne sensors

Soil Parameters	Ground Sensor using Spectroradiometer		Air borne sensor using AVIRIS-NG	
	R ²	RPD	R ²	RPD
pH	0.58	1.53	0.42	1.26
EC (ds/m)	0.53	1.20	0.52	1.19
SOC (%)	0.67	1.51	0.61	1.58
Avail P (kg/ha)	0.56	1.23	0.55	1.50
Avail K (kg/ha)	0.81	2.23	0.75	1.90

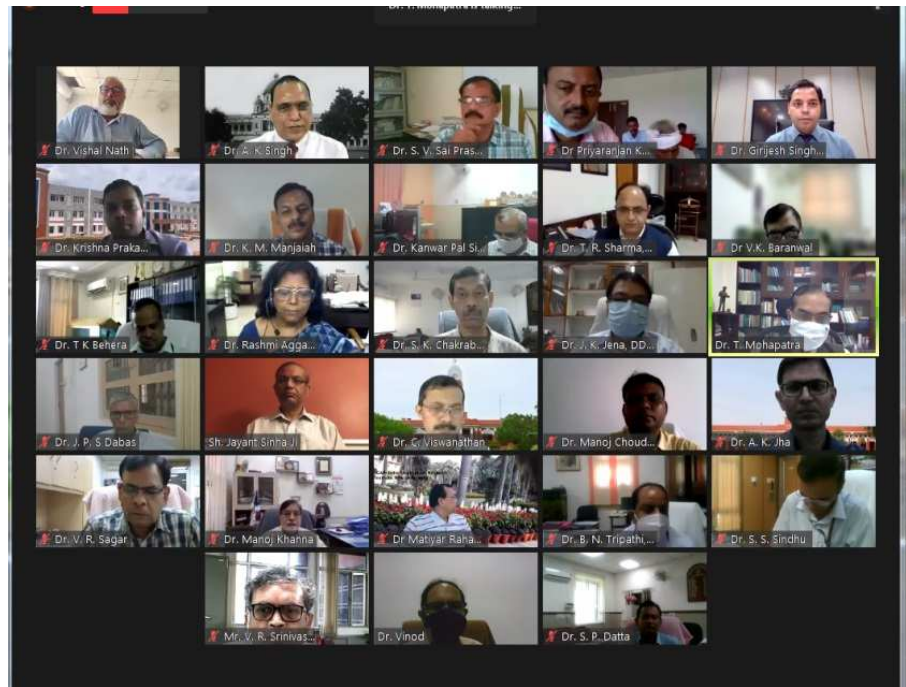
Spectral data collection of soils of Katol and Nagpur

screen different wheat genotypes under water stress condition. The water stress conditions in wheat genotypes were characterized thermo-graphically using canopy temperature-based stress indices, namely crop water stress index (CWSI), stomatal conductance index (IG) and stomatal resistance index (CSI3). Simultaneously, biophysical parameters like normalised difference vegetation index (NDVI), leaf area index (LAI), transpiration, stomatal conductance, photosynthesis, were measured at peak vegetative stage along with yield attributes at harvest were observed. These parameters were analyzed using multivariate techniques namely principal component analysis (PCA), hierarchical cluster analysis (HCA) and discriminant analysis (DA) to develop a new index called normalized water stress tolerance index (NWSTI), to group wheat genotypes depending on their ability to tolerate water stress. Based on these multivariate analysis, wheat genotypes were classified as tolerant (C-306, HD-3043, HD-3987 HD-3985 and HD-2781), moderately tolerant (HDR-77, PBW-175 and PBW-502) and sensitive (HD-2967, PBW-343) to water stress with NWSTI score of > 0.66 , $0.33-0.66$ and < 0.33 , respectively. In future, the newly developed screening index NWSTI, may play a potential role in the selection of drought tolerant wheat genotypes.

EDUCATION

IARI Jharkhand Foundation Day

The Foundation Day programme of ICAR-Indian Agricultural Research Institute Jharkhand, Gauria Karma, Barhi, Hazaribagh, Jharkhand was celebrated in virtual mode on June 28, 2021. Shri Jayant

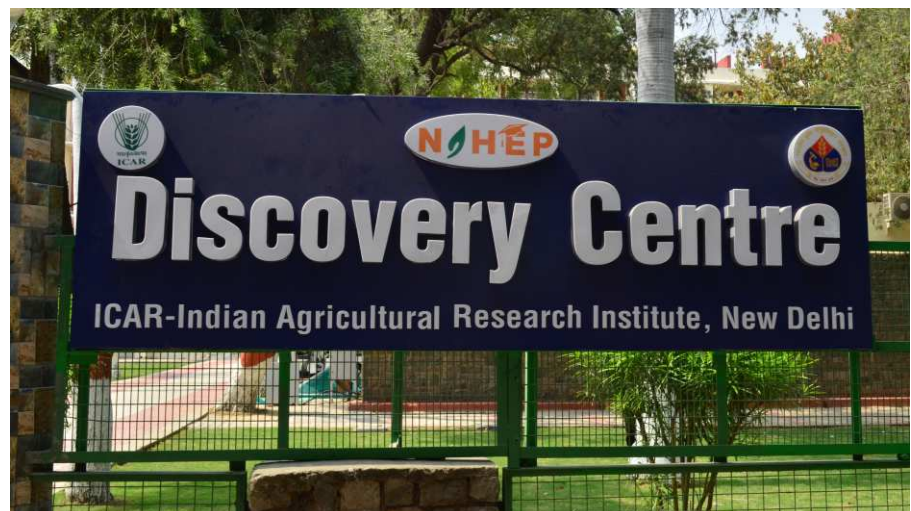


Celebration of Jharkhand Foundation Day

Sinha, Hon'ble Member of Parliament (*Lok Sabha*), Hazaribagh and Chairperson, Parliamentary Standing Committee on Finance was the Chief Guest and delivered the Foundation Day Lecture and stressed upon the role of green revolution and white revolution in food and nutritional security of the country. He emphasized the need of more research activities on fisheries and horticultural crops in the future in North Easter Region for enhancing the income and livelihood security of the small and marginal farmers.

Inauguration of Discovery Centre

IARI was granted with Centre for Advanced Agricultural Science and Technology (CAAST) project on “Genomics assisted crop improvement and management” by World Bank sponsored National Agricultural Higher Education Project (NAHEP) of the ICAR, New Delhi. Under this project a central laboratory housing major equipments to carryout genomics and big data analytics research for the benefit of the students and faculty in the name of “Discovery Centre”





Laboratory facility at Discovery Centre

has been established. It consists of “Genomics Lab”, and “Drone Remote Sensing and Big Data Analytics Lab”. This centre was inaugurated by Hon'ble Union Minister of Agriculture and Farmers' Welfare, Rural Development & Panchayati Raj, Govt. of India, Shri Narendra Singh Tomar on April 16, 2021.

World Bee Day Programme

Ministry of Agriculture and Farmers Welfare, Govt of India organised World Bee Day on May 20, 2021 to mark the call of Hon'ble Prime Minister Shri Narendra Modi to bring 'Sweet Revolution' in the country. In this programme, two project schemes funded by National Bee Board namely “Setting up of the State-of-the-art NABL Accredited Honey and other Beehive Product Testing Laboratory” and “Exploration of Gut Microbiome & Quality Bee Products for Sustainable Bee Keeping in India” were launched by the Hon'ble Minister of Agriculture & Farmers Welfare Shri Narendra Singh Tomar. He congratulated all stakeholders of country for the launching of regional honey quality testing laboratory establishment on the World Bee Day and “Azadika Amrit Mahotsav”.

Inauguration of Virtual Classroom

A virtual classroom at Division of Agricultural Extension, ICAR-IARI was inaugurated online on April 16, 2021 by the Honorable

Union Minister of Agriculture & Farmers Welfare, Rural Development and Panchayati Raj Sh. Narendra Singh Tomar Ji. The virtual classrooms at 18 locations with a centralized deployment at Krishi Megh have been established as a part of National Agriculture Higher Education Project (NAHEP) Component 2 to strengthen the agricultural education through ICT interventions. ICAR-IASRI is the lead centre for the above said project and establishment of virtual classroom is one of the objectives of the project. Through virtual classrooms, students stand to benefit from the lectures delivered through video capture. Furthermore, virtual classrooms will be a part of the 'blended learning' method that combines on-line and in-person teaching/learning. Supporting

resources to virtual classrooms will include centralized video library of lectures that will take learning “to the anytime & anywhere”. These lessons will also have to be uploaded onto the central server for archiving and dissemination.

EXTENSION

Pusa Samachar: Multimedia Based Innovative Extension Model for Information Dissemination

ICAR-Indian Agricultural Research Institute has started producing weekly news bulletin in Hindi named Pusa Samachar, which is uploaded on YouTube Channel (<https://www.youtube.com/watch?v=JbhvDN9WXG0>) every Saturday for disseminating information about improved technologies, innovations, agro-advisory and weather forecast to the stakeholders including farmers, rural youth, farm women, agricultural students and extension professionals. Pusa Samachar was launched on August 15, 2020. In order to reach large number of masses in non-Hindi speaking region IARI has started Pusa Samachar in other regional languages including Tamil, Telugu, Kannada, Oriya and Bangla.



Inaugural function of Virtual Classroom at ICAR-IARI



Pusa Samachar in regional languages

Transfer of Technology through Demonstrations

IARI RS Indore were conducted a total of 46 demonstrations on new wheat varieties in seven villages of

three districts in M.P. during 2020-21. Demonstrations of 9 new wheat varieties and one promising line (total 8) with recommended package of practices were conducted in 14.83



Demonstration of HI 1605

ha area. In these demonstrations, there was increase in yield to the tune of 37.5% over farmer's varieties and practices.

Hybrid Maize Demonstrations in Tribal Area (TSP)

IARI RS Indore organized a total of 24 demonstrations on hybrid maize (variety Super 82) during *kharif* 2020 in 3 tribal villages (Kagdipura, Bhadkia and Bhilberkheda) in six ha area of Nalcha block, Dhar, M.P. under TSP. Average yield recorded was 56.2 q/ha in these demonstrations against 21.1 q/ha under check. An increase of 35 q/ha or 170% in these demonstrations over check was achieved.



Demonstration of hybrid maize

Reaching out to Marginalized Farmers under SCSP Programme

IARI is implementing Scheduled Caste Sub-Plan (SCSP) programme for upliftment of scheduled caste farmers through technological interventions. The efforts are being made for inclusive agricultural development of the target group. During *Kharif* 2021 total 9191 SC farmers were covered

in 23 districts of 3 states. Demonstration of IARI improved varieties of paddy, mungbean, Pigeonpea, and vegetables were organised. Chief Guest of the programmes Dr. Indra Mani Mishra, Nodal Officer, MGMG, discussed that important project of Pusa Institute is implemented in the districts of Uttar Pradesh, Haryana and Delhi as per the instructions of Hon'ble Prime Minister Shri Narendra Modi ji. Quality seeds of IARI improved varieties of paddy, mungbean and vegetables and agricultural equipment were distributed to about 600-700 farmers. Director, Dr. A. K. Singh addressed the farmers through WhatsApp video call and described the specialty of PB1509.

Field Day under NFSM Pulses

Institute's KVK, Shikohpur was organized one field day cum farmers' training programme for summer moong on June 30, 2021 at Lokra village block Pataudi for CFLDs under NFSM on improved variety (MH-421) with package and practices of cultivation. The total area under CFLDs under NFSM was 10 ha with 25 farmers.



Field day on summer moong

Awareness Campaign on Balanced Use of Fertilizers:

Institute's KVK, Shikohpur was organized one-day awareness Campaign on balanced use of fertilizers on June 18, 2021. During the program, farmers were given knowledge about role of fertilizer in supplying essential plant nutrients, role of soil testing in balanced use of fertilizers, judicious use of fertilizers-4 R approach, importance of organic fertilizers, drip fertigation, integrated nutrient management and crop residue management.

Scientific Advisory Committee Meeting

Institute's KVK, Shikohpur was organized 35th SAC meeting virtually under the Chairmanship of



Celebration of World milk day

Dr. A.K Singh, Director, IARI, New Delhi. Head, KVK presented a detailed report of KVK for the period of April, 2020 to March, 2021 and Action Plan for the year 2021-22.

World Bee Day

Institute's KVK, Shikohpur has also celebrated World Bee Day on May 20, 2021 with the theme of "Augmenting rural farmer's income: The Bee keeping way" under celebration of 75 years of independent, The purpose of the bee day was to acknowledge the role of bees and other pollinators for the ecosystem for increasing production in agriculture.

World Milk Day

Institute's KVK, Shikohpur was celebrated world Milk day with the

theme of "Animal Health and Productivity", on June 1, 2021 under celebration of 75 years of independent. The programme included the information and progress on different types of milk producing animals in country and importance of milk in our day to day life, and how milk production can be enhanced through feeding, improved breeds and health management of animals, how dairy sector is helpful in gaining self-employment and production can be increased by many ways such as breed improvement, feed and other health management issues of dairy industry and value addition.



Plantation on World Environment day

World Environment Day

Institute's KVK, Shikohpur was celebrated World Environment day on June 6, 2021 virtually where in 50 farmers and 9 KVK staff had participated. Dr. Anamika Sharma, Head KVK Gurugram said that climate change refers to change in temperature day to day (rising heat), rain fall pattern, snowfall, and drought were highlighted. Glaciers are melting due to increased temperature leading to flood and rise in sea level. She told that temperature has been increased by 2-3°C and sea level by 1mm every year. The threat of climate change can be avoided by making some positive changes in human activities and planting of trees in surroundings so that environmental changes can be mitigated.

CAPACITY BUILDING

Trainings

Institute's KVK, Shikohpur was organized one day-long training on “methods of soil sampling and importance of soil testing” benefitting 13 farmers in Raisena village of Gurugram.

Another two days virtual training programme for farmers on “Water Use Efficiency” and “Appropriate Crops” was organized. During the training programme, different aspects such as rain water harvesting and efficient use of water in agriculture, micro irrigation system, efficient use of water in fisheries, water conservation and appropriate crops, animal husbandry industry and water management and rain water harvesting were discussed.

Workshop

- IARI, RS, Shimla organized one day online workshop on “Biodiversity For Livelihood” during Biodiversity week celebrations as a commemoration of 75 years of Indian Independence on May 28, 2021. Dr. A.K. Singh, Director, ICAR-IARI, was the Chief Guest.
- IARI, RS, Shimla organized one day webinar on “Environment and Mankind” during Environment Week celebrations as a commemoration of 75 years of Indian Independence on June 8, 2021. Dr. S.S. Samant,

Director, HFRI, Shimla was the Chief Guest.

MISCELLANEOUS

Technology Commercialization

During April- June, under Lab to Land Initiative, five technologies of ICAR-IARI were transferred to 21 industry partners resulting in total revenue generation of ₹ 51,88,696. These technologies were PB 1692, STFR meter, PB 1718 and onion varieties Pusa Riddhi and Pusa Shobha.

Incubation Activities

• Pusa Krishi Master Class Series 2021

Pusa Krishi launched its first and one of its kind virtual Master Class Series from April 12 - May 20, 2021. As the Knowledge Partner under RKVY-RAFTAAR scheme of MoA&FW, Pusa Krishi conducted a full-fledged intense Master Class Series for the start-ups from 13 RKVY-RAFTAAR Agribusiness Incubators across the country. More than 110 start-ups across 13 incubators, which were selected for the funding support by Ministry attended this two-month intense online incubation program, after completing initial training at each respective RABIs.

The series focused on evidence-based entrepreneurship and trained the start-ups on the best practices of innovation and entrepreneurship management. Valedictory Session was organized on 20 May 2021 chaired by Dr. Neeru Bhooshan, ICAR- IARI along with all PI/ Co-PI /Incubator team and ended with feedback by various startups.

• Agri India Meet-9

Pusa Krishi organised on (9 April 2021) during its monthly

Pusa Krishi: Master Class Series

Date: 12 April – 20 May 2021
States Covered : 11

PARTICIPANTS PER SESSION: 110+ Startups
 NUMBER OF SPEAKERS: 18 SPEAKERS
 NUMBER OF SESSION: 20 SESSION

TOTAL PARTICIPATION: 1800+

SESSION TOPIC

- #INTELLECTUAL PROPERTY
- #OUTLIER MARKETING
- #DESIGN THINKING AND PRODUCT DEV.
- #CREATIVE PROBLEM SOLVING FOR INNOVATORS
- #DEMISTIFYING TECHNOLOGY
- #HACKING VENTURE GROWTH AND SALES STRATEGY
- #FINANCES AND DIGITAL MARKETING

STARTUP FACT

Waste to Wealth & Green Energy in Agriculture

Date: 9 April 2021 **Time: 4:00 - 5:30 PM**

Speakers

Col Rohit Dev (Retd)
Punjab Renewable Energy Systems P.Ltd (PRESPL), Mumbai

Sh. M.P. Singh
Punjab Energy Development Agency, Govt. of Punjab

Mr Sunil Dhingra
Renewable Energy Technologies, ICRH Institute

Mr Sukhmeet Singh
A2P Energy P-1 Ltd, Mohali

Mr. Ankur Kumar
Kriya Labs, IIT Delhi

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webinar *i.e.* Agri India Meet focussing on Waste to Wealth and Green Energy in Agriculture. We had diverse speakers from Punjab Renewable Energy Systems Pvt Ltd (PRESPL), Punjab Energy Development Agency, TERI and Kriya Labs. Session was moderated by our incubate Mr Sukhmeet Singh, Founder A2P energy private limited in this meet to discuss phenomenal research and recent trends in the field of Waste to Wealth and Green Energy in Agriculture which could be a change maker towards eradicating various issues like burning of Paddy Straw, landfill and re-inventing waste management system.

• Launch of Incubation Program UPJA

UPJA was launched on April 22, 2021 which is an incubation & business acceleration program for Minimum Viable Product's stage startups. This program helps to scale-up agri-startups that have passed the stage of prototype and have developed product with market traction. Under this programme 244 applications were received and 94 were called for RIC-1 meeting in last week of June. After careful evaluation total 45 startups were selected after technical assessment & business viability by Selection committee of RIC-1. 2 Month Online Incubation program will start from August 02- October 01, 2021.

• Launch of Incubation Program ARISE 2021

ARISE was launched on June 16, 2021 which is an incubation & business acceleration program for prototype stage start-ups. This is a program to scale-up agri-startups that have passed the stage of ideation

and have developed a prototype which has market potential. Under this programme 757 applications were received and 24 were called for RIC-1 meeting in July. After careful evaluation, startups would be selected for 2 Month Online Incubation program which will start from Aug. 2- Oct. 1, 2021.

Awards

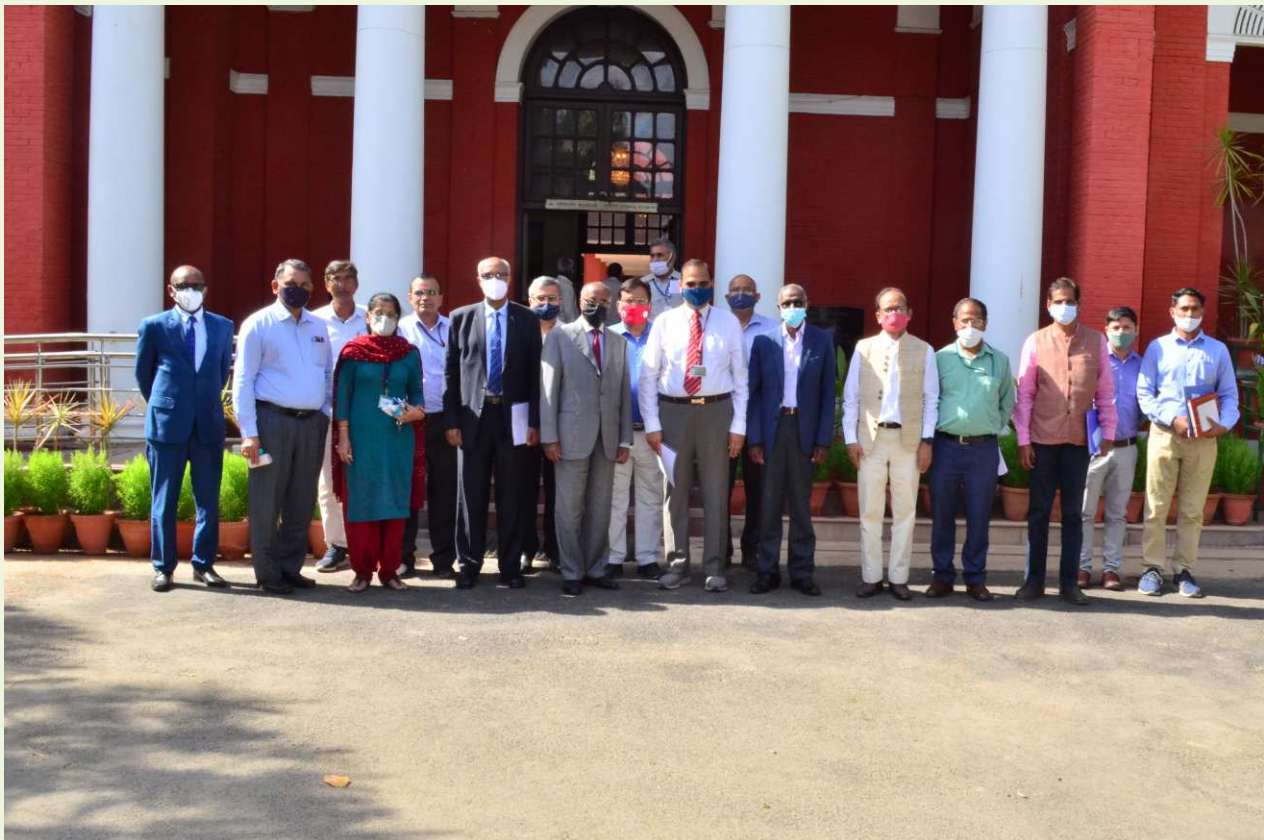
Dr. Rashmi Aggarwal, Head, Division of Plant Pathology and Joint Director (Education), IARI was conferred “Dr T S Thind Outstanding Plant Pathologist Award” by the Indian Society of Plant Pathologist (INSOPP) on May 4, 2021 in virtual meeting held at PAU, Ludhiana.

Corporate Membership

In the said quarter, Unit enrolled new membership of ten industry partners and membership of 28 existing members was renewed thereby generating revenue of ₹ 186500.

National & International Visits at IARI

The delegation from Eritrea H.E. Mr. Osman Saleh Mohammed, Foreign Minister of Eritrea visited at IARI on April 09, 2021 to discuss the possible collaboration between two countries.



Eritrean Delegation with IARI team