



IARI NEWS



Vol. 35, No. 4

October-December, 2019

RESEARCH

New Yellow Mutant Variety of Chrysanthemum

Irradiation with gamma rays (10, 15 and 20 Gy) of 14 cultivars viz. Star Yellow, Star White, Pusa Anmol (yellow), Pusa Kesari, Vjay Kiran, Himanshu, Pusa Sona, Sadbhavana, White Prolific, Ajay, Datymed, Mother Teresa and Liliput were done with 30 uniform rooted cutting for each treatment during August 2017.



Himanshu

A yellow coloured mutant of white coloured spray type cultivar Himanshu have been identified and developed after irradiation of 15 Gy. This identified plant attains similar attributes of their parent except having yellow colour and best suited for pot cultivation.

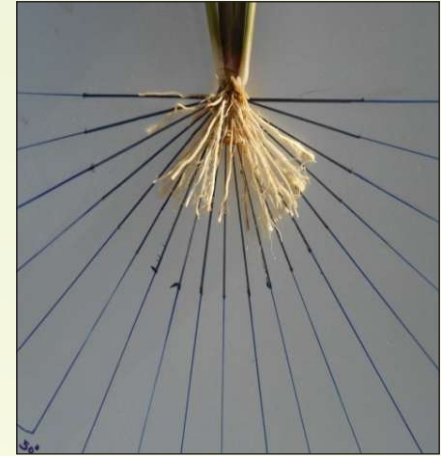
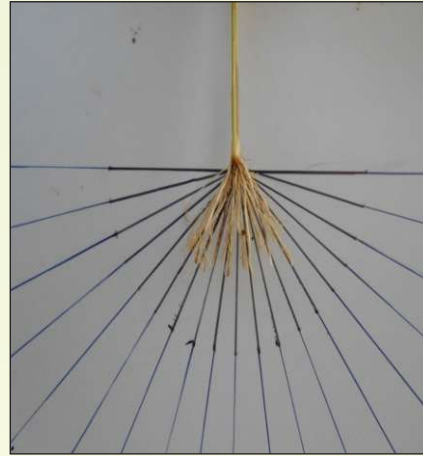
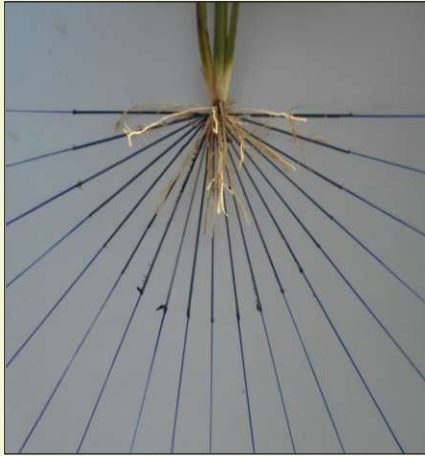
Identification of Donor for Dual-Nutrient Efficiency in Wheat

Nitrogen (N) and phosphorus (P) are the crucial inputs for



Himanshu Yellow Mutant

sustainable crop production. Seventy bread wheat genotypes were phenotyped in field for tolerance to low stresses for four years of individual nutrient treatments. Field evaluation was followed by physiological and biochemical evaluation of selected genotypes (HD 2781, Ajantha, HD 2824 and C 306) with precise N and P concentration in hydroponics for dual-nutrient stress tolerance. Traits such as root morphology, enzymes of nitrate assimilation, acid phosphatase activity in root exudate, leaf area and biomass were evaluated to identify the contrasting genotypes. Based on these responses, HD 2781 (tolerant/efficient) and C 306 (sensitive/inefficient) were selected to understand the molecular basis of dual-nutrient stress tolerance. Expression analysis of candidate genes involved in transport of N (NRT1.1, NRT1.2, NRT2.1) and P (PT2.1, PT1.2, PHT1.4, PT8) in roots, as well as genes involved in N assimilation (Nia2, GS1, AlaAT, GDH), P remobilization (PAP, SQD2, NPC4, DGDG1, MGDG1) and transcriptional



Method to measure root angle of cereals

regulators (PHO1:H2, PHO2, PHR1, IPS1.1, NLA1, SPX1) showed that HD 2781 is genetically efficient and responsive genotype, and can be used as 'donor' for developing varieties for N and P use efficiency.

An Easy, Robust and Cheaper Method to Measure Root Angle of Cereals

Cereals are the most important component of the human diet. Abiotic stresses such as drought possess serious hindrance to increase in productivity of cereals. Deep rooting is a major component trait that contributes to dehydration avoidance. Root angle is surrogate trait for deep rooting. There is wide variability among genotypes for root angle. This variability is not utilized to a great extent due to the phenotyping bottlenecks. Available methods are expensive, complicated and time-consuming. Therefore, a reliable and high throughput method was developed to screen a large number of genotypes. To measure root angle, plant shoot was cut at 5-10 cm above the ground level along with cut roots

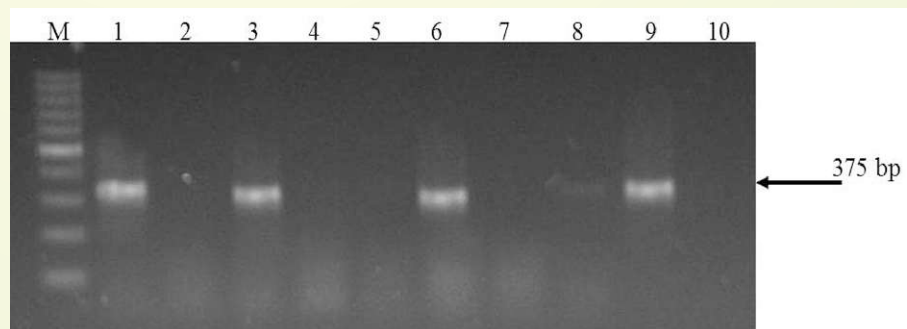
at 2-3 cm distance from the base of the stem. Entangled lateral roots were removed. The shoot along with the roots is held perpendicular and root angle was measured for one root. Same procedure was adopted for all the roots.

Viroids Infecting Grapevine Genotypes in India

A study was conducted at IARI on detection and characterization of 5 viroids in 22 commercial grapevine genotypes grown in Germplasm Block of Indian Agricultural Research Institute during May-November, 2017. Symptoms of red leaf or leaf roll including yellow speckle

characteristic of grapevine yellow speckle disease was observed in genotype Sharad Seedless.

Four viroids viz., Grapevine yellow speckle viroid-1 (GYSVd-1), Grapevine yellow speckle viroid-2 (GYSVd-2), Australian grapevine viroid (AGVd) and Hop Stunt viroid (HSVd) were detected either individually or in mixed infection in the tested samples by using specific primers through reverse-transcriptase polymerase chain reaction. GYSVd-2 was reported for the first time from India. No viroids could be detected in genotypes viz., Tempronillo,



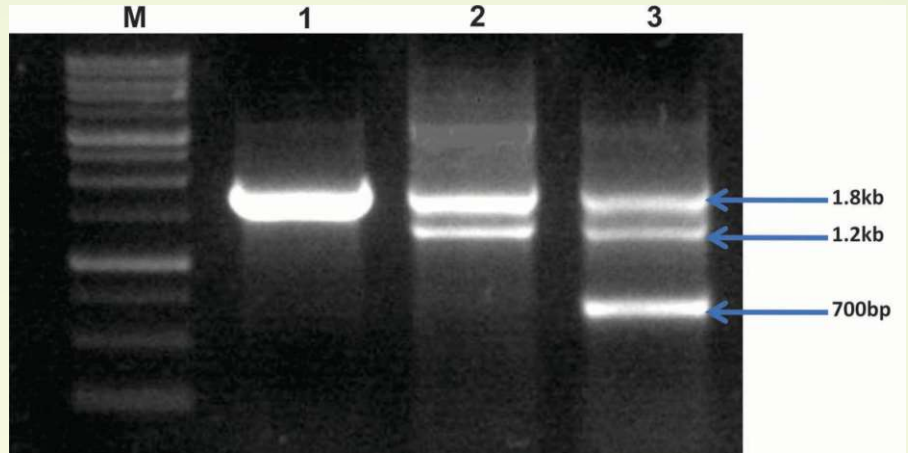
Reverse-transcriptase polymerase chain reaction for viroid detection Lanes: M:Marker 100bpDNA ladder ; 1: Thompson Seedless; 2:Chardonnay; 3: Flame Seedless; 4: Julesky Muscat, 5: Beauty Seedless; 6: Pusa Navrang; 7: Black Muscat; 8: Syrah ; 9:Black Prince; 10: NRC grape genotype

Syrah accessions, Black Muscat, Bharat early*Syrah, Bharat early and beauty seedless and were found free from these viroids. The phylogenetic analysis of all the four viroids indicated that they might have been introduced in India from other Asian, European or South American countries through the introduction of infected propagative material.

Development of a Multiplex PCR Assay for Detection and Identification of Chickpea Phytoplasma Utilizing Multilocus Gene Specific Primers

A multiplex PCR assay was developed by optimizing reaction components and cycles for the detection of phytoplasma associated with the chickpea phyllody disease. Three sets of primers corresponding to 16S rRNA universal primer pair P1/P7, nested primer pair R16F2n/R16R2 and *imp* gene specific primers (IMPIIF2/IMPIIR1) were used together.

Different concentrations of the PCR components such as primers, template DNA and PCR annealing temperature were examined and optimized for better amplification of phytoplasma DNA in a multiplex PCR assay. Expected fragments of 1.8kb (P1/P7), 1.2kb (R16F2n/R2) and 717bp (IMPIIF2/IMPIIR1) were amplified. The developed multiplex PCR assay provided a sensitive, rapid and cheap assay in identifying the phytoplasma



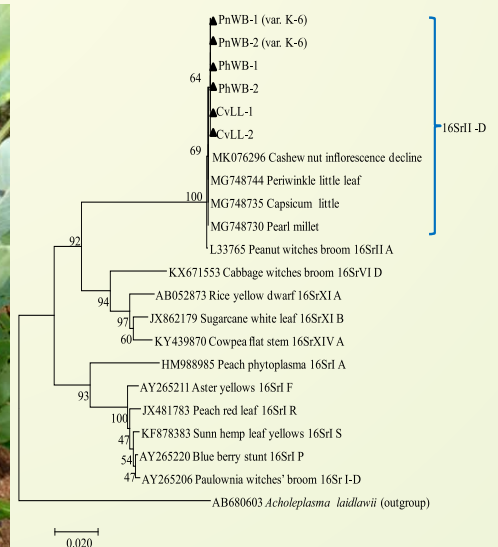
Multiplex PCR assay results for phytoplasma DNA amplification, M: marker 1 kb DNA ladder, 1: P1/P7 primer, 2: P1/P7 and R16F2n/R16R2 primers, 3: P1/P7, R16F2n/R16R2 and IMPIIF2 /IMPIIR1 primers

associated with the chickpea phyllody disease. The phytoplasma strain was efficiently identified as 16SrII-D subgroup based on 16S rRNA and *imp* genes both by PCR and the new developed multiplex PCR assay approach.

Report of a New Phytoplasma Disease Associated with Little Leaf and Shoot Proliferation in Peanut

'*Candidatus* Phytoplasma aurantifolia' was identified on

peanut variety K-6, at Kadiri and Gooty regions of Andhra Pradesh causing little leaf and shoot proliferation during the monsoon season of 2018-19. The phytoplasma association was confirmed by amplifying ~1.25 kb, 840 bp, 1094 bp and 465 bp DNA products of 16S rRNA, *secA*, *tuf* and *SAP11* genes from symptomatic plants using phytoplasma specific primers of these genes. The sequences comparison of peanut phyto-



Little leaf and witches' broom disease in peanut and phylogenetic tree constructed by the neighbor-joining method of 16S rRNA gene of the peanut phytoplasma strains

plasma isolate identified it as a member of the peanut witches' broom phytoplasma group (*Candidatus* Phytoplasma aurantifolia).

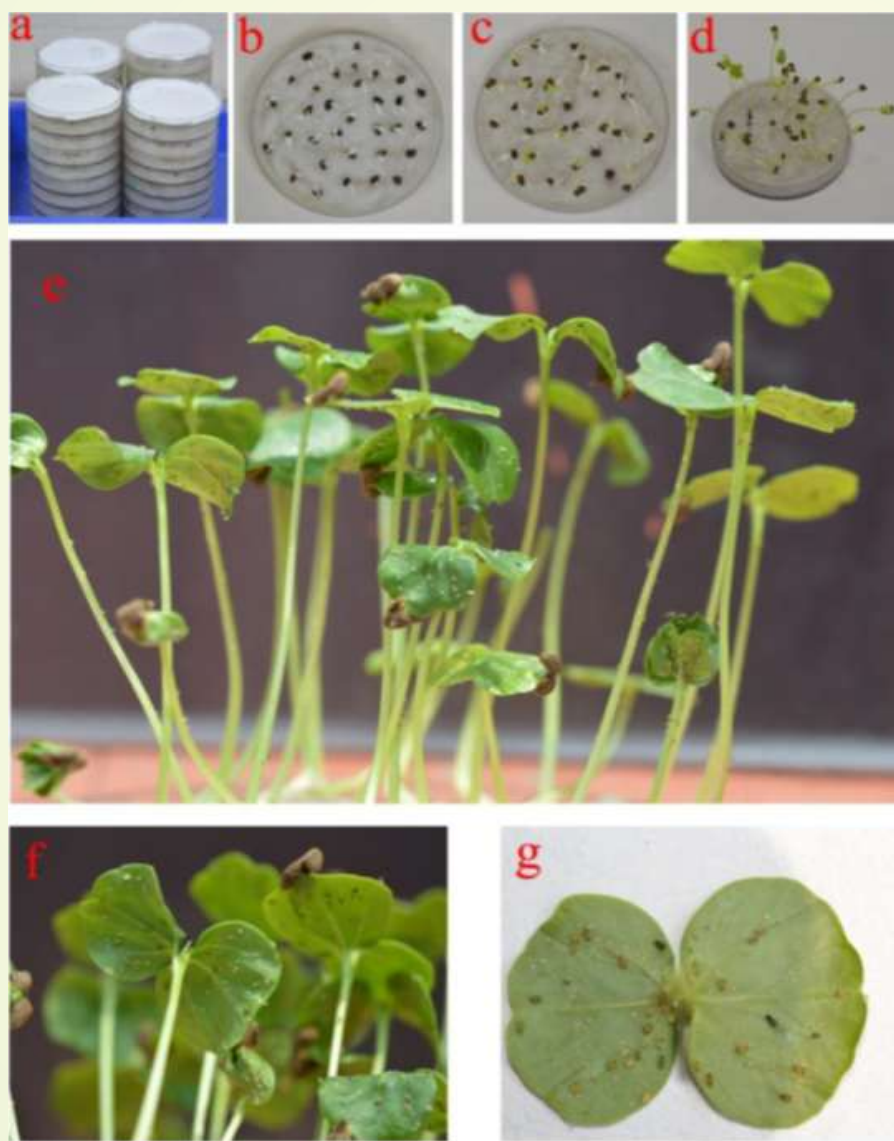
Also, on the basis of computer-simulated RFLP analysis of amplified 16S rRNA gene, assigned the peanut strain to subgroup D. This is the first report on the association of 'Ca. P.

aurantifolia' (16SrII-D subgroup phytoplasma) with peanut in India.

A Technique for Continuous Rearing of Cotton Aphid (*Aphis gossypii*)

For rearing of cotton aphid, *Aphis gossypii* potted cotton plant method has been extensively used which is a cumbersome process requires more time and space. The other methods such as

rearing on excised cotton leaves and using artificial diet are also not suitable for rearing in high number for longer periods. A simple rearing technique of *A. gossypii* on a natural host system of *Hibiscus cannabinus* L. was developed in the Division of Entomology, ICAR-IARI, New Delhi. Mesta (*H. cannabinus*) was selected for rearing of *A. gossypii* based on screening of different host plants. In this period, seedlings of *H. cannabinus* were grown on absorbent cotton in a Petri plate (10 cm ø) as substrate. This technique was found to be effective for continuous rearing throughout the year. Among different temperatures, 24°C was found most suitable to produce nymphs and wingless adults in high number. However, for the production of winged adults, rearing at 27°C was found to be best. This technique made simple and easy to practice as it avoids growing and maintenance of host plants in pots throughout the year. It is effective as it facilitate quick start of rearing and produce nymphs, wingless adults and winged adults in high numbers and feasible for continuous rearing on *H. cannabinus* seedlings for 30 days without transfer. This technique is simple and suitable for continuous rearing in lab studies and mass production of predators and parasitoids would be possible for laboratory.



Seed kept for germination: (a-d) 0, 1, 2 and 3 days after keeping for germination. (e) Aphid establishment at 18 days after release, (f) Aphid on both sides of leaf, (g) Different stages of aphid on underside of leaf.

Procedure of new rearing method of Aphid



Agriculture Education Day Celebrated at IARI

EDUCATION

Agriculture Education Day Celebrated at IARI on December 3, 2019

ICAR-IARI celebrated December 3, 2019 as "Agricultural Education Day", which is the birthday of the first Union Minister of Agriculture of India and the first President of independent India, *Bharat Ratna* Dr. Rajendra Prasad. In this programme, several events of painting, essay and debate competition on the theme "Mechanization in context of Indian Agriculture" were organized in Dr. B.P. Pal Auditorium, IARI. In after-noon session, Dr. Rashmi Aggarwal, Dean & Joint Director (Education), welcomed the speaker of the Day, Prof. R.B. Singh, Former Director IARI, Chairman ASRB, Chancellor CAU and President NAAS.

Prof. R.B. Singh delivered Agriculture Education Day Lecture on the topic "Transforming

Agricultural Education to Build New India". During his lecture, he emphasized the need of education in agriculture and its implications in the transformation of existing agriculture system. He emphasized that education will help in utilizing the information related to weather, new crop varieties, resource conserving cultivation practices as well as farm machinery and its implementation for increasing farmer's returns. He said that only agriculture can help to make India

free from hunger and poverty. He suggested that our goal should be to alleviate hunger and poverty by 2030 and for this goal we have to shift from Land grant system to World grant system. Prof. R.B. Singh felicitated the participants. Dr A.K. Singh, Director (ICAR-IARI) & DDG (Agriculture Extension) briefed the audience about the event and also introduced the speaker. At the end of the programme Dr. K.M. Manjaiah proposed formal vote of thanks.

Orientation Programme for M.Sc. students of the Afghanistan National Agricultural Science and Technology University (ANASTU)

An 'Orientation Programme' was organized on October 7, 2019 for the new batch of M.Sc. students of ANASTU, Kandahar, Afghanistan in the discipline of Horticulture, Plant Protection, and Animal Husbandry in the Virology Auditorium, Division of Plant Pathology, IARI.



Research Advisory Committee (RAC) Meeting of the Institute

Research Advisory Committee (RAC) Meeting

The Research Advisory Committee (RAC) Meeting of the Institute was held from December 12-13, 2019 to under the Chairpersonship of Dr. V. L. Chopra, former Director General, ICAR & Secretary, DARE and former Member Planning Commission. The respective School Coordinators presented the Action Taken Report & the research achievements. The RAC Members Dr. K.V. Peter, Dr. A.K. Sikka, Dr. J.P. Khurana, Dr. B.S. Parmar, Dr. J.P. Tandon, Dr. R.S. Deshpande and Dr. D.K. Yadav attended the meeting.

EXTENSION

Field Day on Pigeon Pea

Two field days on pigeon pea under CFLD were organized on October 15 & 30, 2019 in Tajnagar and Borakalan village of Gurugram district, respectively. In these field days, 57 & 65 farmers and farm women were participated, respectively. During this programme the SMS of KVK provided the technologies of how to control pod borer insect and post harvest technology in pigeon pea pulses crop under Cluster Front Line Demonstration Programme and given the production technology like soil sampling, seed treatment, use of balance fertilizer, irrigation scheduling, weed control and plant protection measures etc. for *rabi* crops.

Soil health & Water Sampling Campaign

Four days campaign on soil sampling was organized to aware

the farmers about the soil health in Langra, Teekli, Borakalan, Khanpur of Gurugram district and a total of 109 farmers were benefitted. Farmers were demonstrated how to collect the soil sample and importance of soil testing. They were also suggested to apply the fertilizer and manures based on the soil test to reduce the cost of cultivation and maximize the yield.

Mahila Kisan Diwas

Krishi Vigyan Kendra, Shikohpur, Gurugram organized a Mahila Kisan Diwas on October 15, 2019 at village Chandu. On this occasion Head, Subject Matter Specialists and staff of KVK were given their valuable suggestions on role of farm women in agriculture as they are backbone of Indian Agriculture, and they are doing so hard work in the fields, crop management and livestock production management. In this programme 37 farm women and farmers were participated.

World Food Day

World Food Day was organized in KVK, Shikohpur, Gurugram on October 16, 2019 in which 61 farmers, farm women and students were participated. They were informed about the agricultural technologies like improved seed variety, use of fertilizer and insecticides on soil test based, drip irrigation to make it more profitable. They were also exposed about various

entrepreneurial skills like Dairy, Mushroom, Bee keeping, Vermicompost and Food processing that can make them earn money without migrating to cities.

Krishi Shiksha Diwas

The Krishi Vigyan Kendra, Shikohpur, Gurugram organized Krishi Shiksha Diwas on December 03, 2019. In this programme, 68 students of class 9th & 10th standard of Govt. Senior Secondary School, Shikohpur were participated. The students visited different demonstration units like polyhouse, crop, vegetable, dairy, mushroom, vermicompost, IT and soil testing laboratory and availed knowledge about these agriculture related enterprises.

Kisan Diwas

Krishi Vigyan Kendra, Shikohpur, Gurugram organized a Kisan Diwas on the birth anniversary of the 5th Prime Minister of India, Shri Chaudhary Charan Singh, on December 23, 2019 at village Bar Gujjar, Distt. Gurugram. In this training programme 80 farmers were participated. Several subject matter specialists had given their valuable suggestions about farming like INM, IPM and protected cultivation. Both SMS and farmers shared their experiences of farming.

Participation in Exhibitions

The Institute participated in following exhibitions:

- ❖ Vibrant India 2019' held at Delhi Haat, Pitam Pura, New Delhi from 18-19 October, 2019.
- ❖ India International Trade Fare, 2019 at Pragati Maidan from 14-27 November, 2019.

CAPACITY BUILDING

Trainings

- ❖ Institute's KVK at Shikohpur has organized training programme for farmers on application of fertilizer on October 22, 2019. In this training programme 63 farmers were participated.
- ❖ The Institute's KVK at Shikohpur has organized vocational training programme during November 1-8, 2019 on Production Technology of Button Mushroom. In this training programme 14 rural youths were participated. During training the production technology of button mushroom, oyster mushroom and milky mushroom were advised.
- ❖ The Institute's KVK at Shikohpur has organized a training programme on integrated plant nutrient management on December 20, 2019. In this training programme 24 Agriculture Development Officers of Haryana agriculture department Gurugram were participated.
- ❖ CATAT organized one to

two days eight training programmes each for 25 extension staffs and farmers sponsored by Development Department of NCR, Delhi.

- ❖ CATAT organized seven days training programme during October 10-16, 2019 on Improved Agricultural Practices & Post-harvest Management for 30 farmers from Ajmer (Raj) sponsored by ATMA, Ajmer.
- ❖ CATAT organized five days training from November 17-21, 2019 on Improved Agricultural Technologies for Higher Income for farmers of North Tripura District, Tripura. Twenty five farmers participated in the training.
- ❖ Training Programme on “Value added Products of Pearl millet” was organized by the Division of Agricultural Extension on November 6, 2019 under the DST funded

project in Mukari, Baghpat district, UP. The training programme emphasis was on awareness to the rural women about the nutritional benefits of pearl millet (bajra) for healthy living conditions.

- ❖ Division of Agricultural Extension organized an ICAR-IARI and IFPRI Collaborative Training Programme on “Impact Assessment Methodologies and Techniques” under ICAR network project on New Extension Methodologies and Approaches (NEMA) during October 14-19, 2019. There were 27 participants including 13 scientists, 7 SRFs and 7 postgraduate students. The valedictory session was graced by Dr. Shahidur Rashid, Director, IFARI, South Asia; Dr. Anjani Kumar, Research Fellow, IFARI, South Asia; Dr. J.P.



Chief Guest Dr. Shahidur Rashid being honoured by Dr. J.P.Sharma, Joint Director (Extension)

Sharma, Joint Director (Extension), IARI; and Dr. R.N. Padaria, PI of the project.

- ❖ Division of Agricultural Extension organized a training programme on “An initiative to empower lives of Rural Women” under the DBT funded project during October 16-18, 2019 in Basi village, Baghpat district, U.P. In the training programme, 50 rural women representing various Self Help Groups were participated. This training programme was mainly focused on the importance of nutrition, especially for young women and infants.
- ❖ Division of Agricultural Extension organized a training programme on “Organic Farming” during December 3-7, 2019. A total of 30 farmers from the Hapur, Bulandsher, Muradnagar, Aligarh, and Kanpur districts of UP state were participated. The trainees were also exposed to practical demonstrations about the mass production facilities of bio-fertilizers and other bio-agents at IARI, New Delhi. Further, they visited IARI innovative farmers field and discussed about the importance and success of organic farming under field conditions.

- ❖ Division of Plant Pathology organized a training programme on "Plant Disease Monitoring for Timely Management Options" from December 4-24, 2019. In this training eighteen Scientists/ Assistant Professor from 13 different states were participated. Dr. Rashmi Aggarwal, Head-Plant Pathology and Dean & Joint Director (Edn), IARI was the Course Director. Dr. Parimal Sinha and Dr M S Saharan, Principal Scientist, were the coordinators for this programme.

1st National Agro-chemicals Congress

The Division of Agricultural Chemicals and The Society of Pesticide Science India organized “1st National Agro-chemicals Congress: Country's Status on Various Fronts of Agrochemicals” from November 13-16, 2019. The

congress was inaugurated by Shri Narendra Singh Tomar, Union Minister for Agriculture and Farmers Welfare. He mentioned that agro-chemicals have played a significant role in boosting productivity; but, also emphasized that the pesticide industry should take steps to clear “doubts” about pesticide usage, to small and marginal farmers who comprise 86 per cent of the farm sector. In the concluding remark, Prof. Ramesh Chand, Member Niti Ayog, outlined the importance of responsible use of agrochemicals utilizing precision technologies to reduce wastage of applied chemicals into the environment. Dr. Trilochan Mohapatra, DG, ICAR addressing the session said that agrochemicals will continue to play a major input in agriculture to meet the crop production targets and we must strive to ensure their safe and judicious use.



Release of Publications by Hon'ble Minister of Agriculture and Farmers Welfare, Shri Narendra Singh Tomar

Workshop

- ❖ CATAT organized a workshop on October 3, 2019 under the chairmanship of Dr. A.K. Singh, DDG (AE), ICAR and Director, IARI. The workshop was organized to review the performance of the crops/technologies under demonstrations during *Rabi*, 2018-19 and to decide the future course of action under National Extension programme in collaboration with ICAR Institutes/ SAUs and IARI-VOs partnership outreach programme.
- ❖ Division of Entomology organized a workshop on “Genotyping of whitefly species complex and its associated endosymbionts” on December 5-6, 2019. The inauguration of the workshop was done by Dr. A K Singh, DDG (Ag. Extension), ICAR and Director, ICAR-IARI, New Delhi. Dr. Rashmi Agarwal, Dean and Joint Director (Edn.), ICAR-IARI, Dr. Harish Kumar, Nodal Officer (Animal Sciences), DST-SERB, Dr. Subhash Chander, Professor, Division of Entomology, Dr. S. Subramanian, Course Director of the workshop were present in the inaugural function. Twenty nine participants from sixteen different universities/ institutions belonging to ten states were participated in the workshop.

MISCELLANEOUS

Externally Funded Projects Sanctioned

- ❖ “Diversity of Tortricoidea and Cossioidea (Lepidoptera) from North Eastern India” funded by MoEF&CC. Amount Rs. 39.83 lakhs for 3 Years. Principal Investigator: Dr. P.R. Shashank, Scientist, Division of Entomology.
- ❖ “Use of Modular Green Wall Technologies for the Improvement of the Air Environment of Buildings” funded by DST. Amount Rs. 10.40 lakhs for 2 Years. Principal Investigator: Dr. Ajay Kumar Tiwari, Principal Scientist, Division of F&LS.
- ❖ “Candidate Gene Association Mapping for Tolerance to Iron Toxicity and Low Phosphorus Stress in Rice” funded by DBT. Amount Rs. 27.21 lakhs for 3 Years. Principal Investigator: Dr. Renu Pandey, Principal Scientist, Division of Plant Physiology.
- ❖ “Development of Prolific Baby Corn Hybrids through Marker-assisted Introgression of Teosinte Branched-1 (tb1) Allele from Teosinte Accession (*Zea mays ssp. parviglumis*)” funded by DBT. Amount Rs. 61.34 lakhs for 2 Years. Principal Investigator: Dr. Firoz Hossain, Sr. Scientist, Division of Genetics.
- ❖ “Analyses of Genetic Variability and Validation of Candidate Genes for Folate (vitamin B9) Accumulation in Maize Kernel” funded by DST-SERB. Amount Rs. 36.53 lakhs for 3 Years. Principal Investigator: Dr. Rajkumar Uttamrao Zunjare, Scientist, Division of Genetics.
- ❖ “Genome Editing for Imparting PRSV Resistance” funded by NASF. Amount Rs 74.02 lakhs for 3 Years. Principal Investigator: Dr. Anirban Roy, Pr. Sci., Plant Pathology.
- ❖ “Development of Sustainable Management Tools for the Invasive Pest, Fall Armyworm *Spodoptera frugiperda* (J.E. Smith) in Maize” funded by NASF. Amount Rs 29.194 lakhs for 3 Years. Principal Investigator: Dr. Vinay Kalia, Pr. Sci., Entomology.
- ❖ “Molecular Breeding to Develop Resistance against Anthracnose (fruit rot) in Chilli” funded by SERB-DST for 3 Years. Amount 21.50 lakhs. Principal Investigator: Dr Lakshman Prasad and Co-PI- Dr V. Shamungam, Division of Plant Pathology.
- ❖ “Designing and IARI Technology based Eco-friendly Wastewater Treatment Facility for RK Overseas site in Ghilot

Industrial Area, Rajasthan” funded by RK Overseas. Amount Rs. 5.9 lakhs for 12 months. Principal Investigator: Dr. Ravinder Kaur, Principal Scientist, WTC.

- ❖ “Designing an IARI Technology based Eco-friendly STP for Construction of Polishing Unit for the Work of Creation of New Water Body at Sector 25, Rohini STP under EE(NW)-II of Delhi Jal Board” funded by M/s Tirupati Cement Products. Amount Rs. 9.98 lakhs for 15 months. Principal Investigator: Dr. Ravinder Kaur, Principal Scientist, WTC.

Patent Granted

The 3' polymorphic primers for species-specific

detection of begomovirus (Patent No. 201911051754)

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Technologies Commercialized

Four IARI Technologies i.e. Wheat variety HD 3226, HD 3086 and Maize Hybrid- Pusa Jawahar Hybrid Maize-1 (PJHM-1) and STFR Meter Technology were licensed to Eighty Four (84) industry partners, generated a revenue of Rs. 41.75 lakh in this quarter.

Incubation Programs/Events Organized

- **SAMARTH - Review & Planning Workshop**

Z T M & B P D Unit organized a three days workshop, Samarth Phase-4 from November 18-20, 2019

at NASC Complex, New Delhi to review the progress of all RABIs & KPs under RKVY RAFTAAR Project in the last one year and their role in promoting regional agri-preneurship through Startup Incubation. SAMARTH was attended by the agribusiness Incubation Professionals representing 20 agri-incubators pan India.

- **Maitri Indo-Brazil Agri-tech Cross Border Incubation Program**

Pusa Krishi Incubator (IARI) launched a first of its kind Maitri: Indo-Brazil agri-tech cross-border incubation programme on December 09, 2019 at NASC Complex, New Delhi in collaboration with Embassy of Brazil, New Delhi and ICAR-Indian



Maitri Indo-Brazil Agri-tech Cross Border Incubation Program

Institute of Millets Research (IIMR), Hyderabad with support from Department of Science and Technology, GoI. The objective of Maitri was to provide agritech startups access to the global market through mutual benefits and shared learning. The Chief Guest, H.E. Shri Andre Aranha Correa do Lago, Ambassador of Brazil to India and Dr. Trilochan Mohapatra, Secretary (DARE) & Director General (ICAR) regarded the venture as an auspicious occasion highlighted the importance of such programmes for strengthening the partnership with the agriculturally-rich countries like India and promoting the best agricultural practices internationally. Maitri Indo-Brazil Agri-tech Cross Border Incubation Program

- **Agri-preneurship Development Program (ADP)**

Division of Food Science & Postharvest Technology (FS&PHT) and Zonal Technology Management & Business Planning and Development (ZTM & BPD) Unit organized an Agripreneur Development Programme on “A hands-on-training on Valorization of Horticultural and Arable Crops” from December 2-7, 2019.

In this programme sixteen participants from SHGs,

academia, farmers and MSME from PAN India participated to become a successful agripreneurs in near future.

Corporate Membership

In this quarter, a total of 191 members were registered, generating revenue of Rs. 7.41 lakhs.

MOU Signing Ceremony of Partnership Agreement for Ph.D. Programme

Under the approved MoU executed between ICAR and Western Sydney University (WSU), Australia, and as a part of agreed work plan on human resource development and student exchange, a signing ceremony of partnership agreement for dual award and

higher degree research candidature for the student exchange between Western Sydney University (WSU), Australia and IARI, for the academic session 2019-2020 held on November 21, 2019 at 11:30 AM at the ITC Maurya Hotel, New Delhi in the presence of Mr. Dan Tehan, Honourable Minister for Education, Australia. From IARI, New Delhi, Dr. A.K. Singh, Director, and from WSU, Australia, Dr. Barney Glover AO, Vice Chancellor and President, WSU, Australia signed the agreement. Dr. Rashmi Aggarwal, Dean & Joint Director (Education); Dr. K.M. Manjaiah, Associate Dean, short-listed students and their Supervisors from IARI also participated in this signing ceremony.



Signing ceremony of partnership agreement for Ph.D. programme

Visitors from Abroad

During the period October-December, 2019 two delegations from Chile & BIMSTEC visited the Institute. The delegation from Chile was led by Mr Eugenio Aguiló – Agricultural Attaché of Chile in India and BIMSTEC delegation was led by Han Thein Kyaw Director, BIMSTEC Secretariat.



Chile delegation with IARI Team



BIMSTEC delegation with IARI Team

Published quarterly by the Publication Unit on behalf of the Director, Indian Agricultural Research Institute (IARI), New Delhi-11 0012, and printed at M. S. Printers, C-108/1 Back Side, Naraina Industrial Area, Phase-1, New Delhi-110024, Tel.: 011-45104606

Joint Director (Research): Dr. A.K. Singh; **In-charge, Publication Unit:** Dr. G.P. Rao

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