



IARI NEWS



Vol. 32, No. 1

January-March, 2016

National Agricultural Fair “*Krishi Unnati Mela – 2016*”

National Agricultural Fair “*Krishi Unnati Mela-2016*” was organized at the campus of ICAR-IARI, New Delhi during March 19-21, 2016 in joint collaboration of DAC&FW, Ministry of Agriculture and Farmers' Welfare and Indian Council of Agricultural Research (ICAR). Different ICAR institutes, state agricultural universities, development agencies, leading companies from public and private sector and voluntary organizations participated and displayed their technologies and products. Over 1 lakh visitors and 500 public and private exhibitors from across the country participated and gained benefit from the Fair.

Exhibition of improved technologies of agriculture, horticulture, animal husbandry, dairy and fisheries, farm machinery and equipments as well as live demonstrations of varieties and practices were some of the major highlights of the Fair. Sale of high yielding seeds and plants was another attraction of the event. The Fair was organized in the sprawling *Mela* Ground of the prestigious Indian Agricultural Research Institute, New Delhi.

Hon'ble Prime Minister of India, Shri Narendra Modi

inaugurated *Krishi Unnati Mela* on March 19, 2016. Hon'ble Prime Minister, in his address, emphasized the important role of rural economy in enhancing and pushing up the national economy which largely depends on agricultural growth. He appreciated the initiative of organizing National Agriculture Fair, which is an effective outreach mechanism to demonstrate new technologies and innovations directly to the farmers. Hon'ble Prime Minister advised farmers to practice diversified agriculture i.e., regular farming of cereals, fruits, vegetables, etc.; plantation of tree species for timber on edges of the farms; and animal husbandry which should include dairy, fisheries, poultry and also the

profitable bee-keeping. He suggested adoption of organic agriculture and value addition for increasing profitability and income from farming. Stressing the need of effective market linkages for farmers, he elaborated upon the e-market initiative of the government. He further elaborated on some of the recent initiatives of the Government such as Soil Health Card Scheme, *Pradhan Mantri Krishi Sinchai Yojana*, *Pradhan Mantri Fasal Bima Yojana* and called upon farmers to take full benefits of these schemes which have been launched for welfare of the farming community.

Hon'ble Prime Minister also conferred *Krishi Karman* Awards to States and progressive farmers for the year 2014-15 for their



A farm-woman receiving *Krishi Karman* Award from Hon'ble Prime Minister of India, Shri Narendra Modi

outstanding performance. Hon'ble Chief Ministers and Agriculture Ministers received the awards on behalf of the respective States. The Prime Minister also launched a Mobile App called *Kisan Suvidha* for providing various farmer friendly services. Hon'ble Union Minister of Agriculture and Farmers' Welfare, Shri Radha Mohan Singh highlighted the major features of the National Agriculture Fair and also appreciated Hon'ble Prime Minister for his keen interest, dedication and involvement in farmers' welfare. Hon'ble Minister of State for Agriculture and Farmers' Welfare, Dr. Sanjeev Kumar Balyan delivered welcome address. Hon'ble Minister of State for Agriculture and Farmers' Welfare, Shri Mohanbhai Kundariya proposed the vote of thanks. Hon'ble Chief Ministers of Chhattisgarh, Haryana, Rajasthan and Meghalaya, and Agriculture Minister of Madhya Pradesh and Secretary, DAC&FW, the other dignitaries, were present on the dais.

During three day *Mela*, nine technical sessions were organized on important themes viz., PM *Fasal Beema Yojana*, PM *Krishi Sinchai Yojana*, Integrated Farming System (Horticulture and Fisheries), Agricultural Marketing, Integrated Farming System (Crop-Livestock), Processing & Value Addition, Increasing Crop Productivity and Enhancing Soil Health and Govt. Schemes related to each of the theme areas. Farmer – Scientist Interaction and Interaction with Innovative Farmers were also one of the major attractions and

received huge participation of the farmers visiting the *Mela*.

On concluding day, Hon'ble Union Minister of Agriculture and Farmers' Welfare, Shri Radha Mohan Singh delivered the valedictory address and also launched a mobile app called *Pusa Krishi*. Speaking on the occasion he remarked that "The app will work towards fulfilling the call of Hon'ble Prime Minister of India for taking technology from Lab to Land". The app will provide farmers with information related to new varieties of crops, resource conserving practices in crop cultivation as well as farm machinery and implements which will help in increasing returns to farmers.

Other dignitaries present at the valedictory session were the Hon'ble Ministers of State for Agriculture and Farmers' Welfare; Shri Mohanbhai Kundariya and Dr. Sanjeev Kumar Balyan; Dr. Trilochan Mohapatra, Secretary,

DARE & Director General, ICAR; Sh. Shobhana K Pattanayak, Secretary, DAC & FW; Shri Ashok Kumar Angurana, Secretary, Department of Animal Husbandry, Dairying & Fisheries; Shri Chandrajit Banerjee, Director General, CIL, Shri Raghavendra Singh, Additional Secretary, DAC&FW; Shri Narendra Bhooshan, Joint Secretary, DAC&FW; and Dr. Ravinder Kaur, Director (Acting), Indian Agricultural Research Institute. Five farmers were bestowed with IARI Fellow Award and 39 farmers were conferred with Innovative Farmers' Award in recognition of their outstanding contribution in agricultural innovations, technology development and dissemination in partnership with IARI.

54th Convocation of IARI

The 54th Convocation of the Post Graduate School of the Indian Agricultural Research Institute



A farmer receiving Innovative Farmers' Award from Hon'ble Union Minister of Agriculture and Farmers' Welfare, Shri Radha Mohan Singh



Hon'ble President of India, Shri Pranab Mukherjee delivering the 54th Convocation address

(IARI) was held on February 5, 2016. The Chief Guest, Hon'ble President of India, Shri Pranab Mukherjee delivered the convocation address and presented the medals and awards to the students and faculty. Hon'ble Union Minister of Agriculture and Farmers' Welfare, Shri Radha Mohan Singh presided over the function. Dr. S. Ayyappan, Secretary, DARE & Director General, ICAR, Dr. V.L. Chopra, former member, Planning Commission, Govt. of India and Dr. R.S. Paroda, Chairman, TAAS & former Director General, ICAR also graced the occasion.

In the convocation address, he emphasized that the globalization of agriculture has increased the prospects for processed food commodities manifold. Our farmers and agri-preneurs must make full use of this opportunity. Increase in investment for agriculture technology development, rural agri-infrastructure, on-farm

processing and value addition, and storage facilities are needed. The critical issues that hinder the development of rural agri-businesses need to be addressed. Proliferation of the recently-launched "Start-up India" to the rural sector could provide fillip to the setting up of agro-based enterprises. The "Mera Gaon Mera Gaurav" programme of IARI, under which each scientist will adopt a village, should aim at changing

agriculture from subsistence farming to commercial farming.

Dr. T. Mohapatra, Director, IARI presented his report on the significant research achievements of the Institute during 2015. Hon'ble Minister of Agriculture and Farmers' Welfare, Shri Radha Mohan Singh released 15 IARI varieties of different crops.

During the Convocation, 242 candidates (120 M.Sc., 7 M.Tech. and 115 Ph.D.) including 16 (11 M.Sc. and 5 Ph.D.) international students were awarded degrees. One student each in M.Tech. (Ms. Supria Priyadarsani of the discipline of Post harvest Technology) and Ph.D. (Ms. Saritha M. of the discipline of Microbiology) were awarded the Best Student of the Year Awards. Five students each in M.Sc. and Ph.D. received IARI Merit Medals. Five faculty members of the Institute, namely, Dr. D.R. Biswas (Soil Science and Agricultural Chemistry), Dr. Man Singh (Water



Hon'ble President of India presenting the XIX Sukumar Basu Memorial Award to Dr. R. Asokan, Principal Scientist, IIHR, Bengaluru at the 54th Convocation

Science and Technology), Dr. A. Talukdar (Genetics), Dr. V.K. Sehgal (Agricultural Physics), and Dr. Dinesh Kumar (Agronomy) received the Best Teacher Award - 2015 for their achievements in academics. The XVI Dr. B.P. Pal Medal for the year 2015 was awarded to Dr. G.P. Singh, Principal Scientist, Division of Genetics, IARI, New Delhi for his outstanding research contributions on "Wheat Breeding and Genetics". The XVI Hari Krishna Shastri Memorial Award for the year 2015 was awarded to Dr. Tirtha Kumar Datta, Principal Scientist, Animal Biotechnology Centre, NDRI, Karnal for his outstanding research contribution in the area of "Animal Biotechnology". The XIX Sukumar Basu Memorial Award for biennium 2013-14 was awarded to Dr. R. Asokan, Principal Scientist, IIHR, Bengaluru for his outstanding research contributions on "Development of Pioneering Molecular Techniques for Pest Management".

46th Lal Bahadur Shastri Memorial Lecture

The 46th Lal Bahadur Shastri Memorial Lecture was delivered by Dr. Soumya Swaminathan, Director-General, Indian Council of Medical Research, New Delhi on February 4, 2016 on the topic "Nutrition and Health Challenges for India and Possible Solutions". Dr. R.S. Paroda, Chairman, Trust for Advancement of Agricultural Sciences, New Delhi presided over the function.



Dr. Soumya Swaminathan, Director-General, Indian Council of Medical Research, New Delhi delivering the 46th Lal Bahadur Shastri Memorial Lecture

RESEARCH

New Natural Vectors of Sugarcane Grassy Shoot (SCGS) phytoplasma in India

Maieseas portico (MP) (Melichar) and *Cofana unimaculata* (CU) (Signored) were proven new natural and potential vectors to transmit the SCGS phytoplasma from diseased to healthy sugarcane plants in transmission assays.

New Report of Phytoplasma Disease on Wheat

Phytoplasma strain of 16Sr XI group was identified with a new wheat stunting and streak disease



Leaf yellowing and stunting symptoms in durum wheat genotypes : HI 8713 (left) and PDW 233 (right)

infecting both the *durum* and bread wheat genotypes at Indore.

Anthocyanin for Daily Requirement of Antioxidants

Anthocyanins were known to possess high antioxidant activity. Anthocyanin rich powder was extracted with food grade solvent and purified to get anthocyanin rich powder. This was further encapsulated in food grade matrix to get antioxidant powder, which can be used for day to day use. Sources used for the extraction of anthocyanin were black carrot (Pusa Asita), purple cabbage, black rice, rose, china rose, etc. DPPH assay revealed that ED₅₀ of these



anthocyanins ranged between 159.3-384.3 $\mu\text{g ml}^{-1}$ as compared to 123.2 $\mu\text{g ml}^{-1}$ of TBHQ (Synthetic antioxidant standard)

Long Term Rainfall Analysis of Eastern India

District wise long term rainfall data (100 years) of eastern India were analyzed for trend analysis. Significance test was done using linear regression as well as Mann Kendall test. Among seven different states of eastern India, all districts of Bihar and five districts of Chhattisgarh are showing a decreasing trend, few districts of eastern UP and Chhattisgarh are showing increasing and other districts are showing no change in

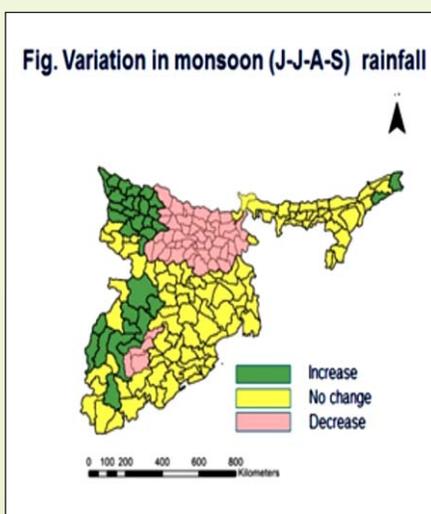
monsoonal rainfall pattern. Decreasing monsoonal rainfall may affect *kharif* crop production of rainfall deficient states especially Bihar. Proper crop management planning is essential for these states.

Institute Research Council (IRC-II)

Institute Research Council (IRC-II) meetings of various schools- Crop Improvement, Horticultural Sciences, Social Sciences, Natural Resource Management, Crop Protection & Basic Sciences were held from February 10 to March 04, 2016 under the chairmanship of Director, IARI.

Consultative Group Meeting on Landscape of Pusa Campus

ICAR-IARI, New Delhi organized Consultative Group Meeting on Landscape of Pusa Campus, New Delhi during January 12-13, 2016 in the Board Room of the Institute. The sessions of the consultative group meeting was chaired by Dr. T. Mohapatra, Director, IARI, New Delhi. The issues raised in the presentation were discussed. The experts visited the campus and suggested for present and future scope of landscaping in the Campus. The programme ended with the formal vote of thanks by Dr. S.S. Sindhu, Professor & Head, Division of Floriculture & Landscaping.



Institute Research Council (IRC-II) meeting

EXTENSION ACTIVITIES

Launching 'Mera Gaon Mera Gaurav' Programme

IARI Regional Station, Kalimpong launched "Mera Gaon Mera Gaurav Programme" at lower Ichhay, Lower Dalapchand, Bada Mangwa and Lower Bong Busty on January 28, 2016, January 29, 2016, February 1, 2016 and February 2, 2016, respectively. Dr Sujit Sarkar, Scientist In-charge envisioned the role of "Mera Gaon Mera Gaurav" scheme in relation building between scientific and farming community and in solving their problems. Dr. Natasha Gurung emphasized the importance of Scientist-farmer interface. IARI tomato seedlings of the variety Pusa Rohini were distributed among farmers of the village on the occasion.



A view of Pusa Sabzi Vigyan Mela - 2016 held at IARI

Mela on January 20, 2016 in its sprawling research-cum-demonstration farm showcasing its technologies. The Mela was inaugurated by the then Director IARI Dr. T. Mohapatra in the gracious presence of Dr. K.V. Prabhu, Joint Director Research

of varieties/hybrids, exotic vegetables and production systems developed by the Institute were demonstrated in the vegetable demonstration unit so that farmers and amateur gardeners can see themselves potential of technologies. An exhibition of various fresh vegetable products from divisional varieties/hybrids and scientific information about these were also displayed for the awareness about health and nutritional benefits as well as means of higher income and profit in shorter duration. Farmers from Delhi and neighbouring states of U.P., Haryana, Rajasthan, Punjab, Himachal Pradesh and Uttrakhand participated in large number, highest ever before (around 700) in the Mela. Other attractions of the Mela were vegetable seed sale counters, Biofertilizers, Post Harvest Products, etc. Literature on package of practices was made available to farmers and amateur gardeners.



Distribution of tomato seedlings of Pusa Rohini variety during "Mera Gaon Mera Gaurav" programme

Pusa Sabzi Vigyan Mela - 2016

The Division of Vegetable Science organized Pusa Sabzi Vigyan

and Dr. J.P. Sharma, Joint Director (Extension), IARI. Various technologies including wide range



A view of Pusa Horticulture Show - 2016

Pusa Horticulture Show - 2016

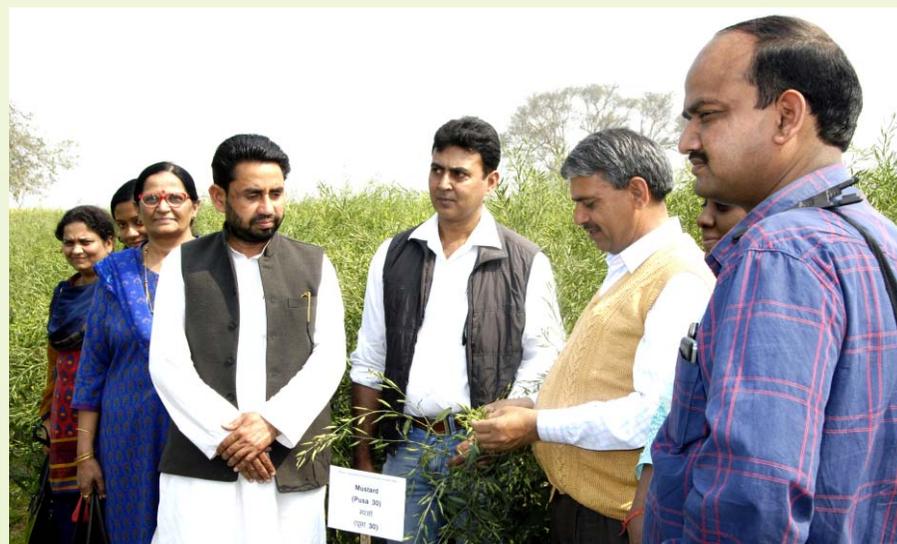
The Institute organized Pusa Horticulture Show at the lawns of Division of Genetics, IARI, New Delhi from February 27 to 29, 2016 for awareness among the garden enthusiasts, growers, amateurs, students, etc. The participants from different public and private organisations, growers, amateurs displayed their specimen/products in the show. The Pusa Horticulture Show was inaugurated by the Chief Guest Dr. T. Mohapatra, Secretary DARE & Director General, ICAR, New Delhi. A large number of visitors from Delhi and other states witnessed the event.

Field Days

The Institute's Krishi Vigyan Kendra (KVK) at Shikohpur organized three field days on: i) "Carrot and Mustard" in Chandu and Hasanpur villages on January 20, 2016 & February 10, 2016, respectively (29 & 31 farmers participated in the programmes,

respectively); ii) "Diamond Back Moth Management in Cauliflower" in Bhoda Kalan village on February 12, 2016 (48 farmers participated); and iii) "Gram" in Langra, Teekli and Bhodakalan villages on March 8, 11 & 15, 2016, respectively (78, 68 and 65 farmers/farm women participated in the programmes, respectively).

The Institute organized carrot field day for private seed companies on February 24, 2016.



Scientists interacting with farmers while explaining importance of mustard variety, Pusa 30

Representatives of 26 private seed companies participated in the field day. In total, 48 hybrids of normal season carrots were displayed including 31 of red colour, 11 of purple/black, four of orange and two of orange-red. Participants were apprised about the promising and multi nutrient rich carrot hybrids *vis-a-vis* their future prospects. QRT team led by Dr. Panjab Singh, former Secretary, DARE and DG, ICAR visited carrot field and interacted with the scientists for knowing future prospects of multi-nutrient carrot hybrids.

ZTM & BPD Unit, IARI organized Mustard Field Day on February 26, 2016 at Field No. 2C of the Division of Genetics. This event was primarily geared towards showcasing 'Brassica Improvement Program'.

Farmer-Scientist Interface on Mustard Variety Pusa 30

IARI organized Field day on mustard variety Pusa 30 at

Lehchoura Village, Baghpat (Uttar Pradesh) on February 27, 2016. On this occasion, a farmer-scientist interface was organized where the scientists from the Divisions of Agricultural Extension and Agricultural Economics explained the importance of nutrition and ways to achieve it. Dr. D.K. Yadava explained the importance of mustard variety, Pusa 30 with low erusic acid with respect to health. He also motivated mustard growing farmers to develop market linkages for Pusa 30.



Training on "Durum Wheat Production, Marketing & Consumption"

Honey Day

A honey day was organized in Kankrola village on February 10, 2016 in which the farmers were advised to adopt beekeeping so that they may be engaged in self employment. The importance of beekeeping in increasing crop production through pollination was also explained to the participants.

CAPACITY BUILDING

Trainings

The Institute's Krishi Vigyan Kendra (KVK) at Shikohpur organized four vocational trainings on: i) "Preservation of Seasonal Fruits and Vegetables" from January 18 to 23, 2016 (15 rural women of Kumbhawas village participated); ii) "Plant Protection, Biopesticides Production & Pest Control" at its campus from January 18 to 27, 2016 (16 rural youth participated); iii) "Dairy Farming" from January 18 to 28, 2016 (40 rural youth/farm women

from different villages of Gurgaon and Rewari districts participated); and iv) "Motor Winding" from February 16 to 25, 2016 at the Division of Agricultural Engineering (9 rural youth from Gurgaon district participated).

IARI Regional Station, Kalimpong organized a two-day farmers' training programme on January 15 and 31, 2016 on "Sustainable Practices of Darjeeling Mandarin and Large Cardamom". Forty farmers from different places of Darjeeling district attended the programme.

The Division of Plant Pathology conducted a training under CAFT on "Functional Analysis of Pathogenicity Genes of Plant



A training on "Dairy Farming" at KVK, Shikohpur

Pathogens" from January 2 to 22, 2016. Sixteen trainees from different states participated in the training.

IARI Regional Station, Indore organized two-days interactive state level training on "Durum Wheat Production, Marketing & Consumption" sponsored by Directorate of Wheat Development, Ghaziabad from February 22 to 23, 2016. Twenty participants from different organizations like Agricultural Universities, KVKs, State Departments, Seed growers and Industries attended the training programme.

The Division of Agricultural Physics in collaboration with CATAT (Centre for Agricultural Technology Assessment and Transfer) organized a model training course on "Participatory GIS for Sustainable Natural Resource Management" from February 24 to March 2, 2016. Twenty trainees from the State Government and ICAR departments

across disciplines of agriculture, horticulture, civil engineering, animal husbandry, environmental sciences and information technology participated in the programme.

National Workshop

The Agricultural Knowledge Management Unit (AKMU), ICAR-IARI organized a two-day National Workshop on “Strengthening and Sustainability of E-Granth” from February 26 to 27, 2016 at NASC Complex, New Delhi-110012. Dr. N.K. Krishna Kumar, Deputy Director General (Horticultural Science), ICAR inaugurated the workshop. Dr. Ravinder Kaur, Acting Director, IARI, stressed on the importance of digital access. Dr. P. S. Pandey, ADG (EP&HS), ICAR, the guest of honour, emphasized on the need of integrated digital repository and virtual library of National Agricultural Research & Education System (NARES). The workshop provided an opportunity to librarians of SAUs and ICAR institutes to join the E-Granth. A total of 72 participants from various State Agricultural Universities and ICAR institutes participated in the programme.

International Conference

The Division of Plant Pathology conducted the 6th International Conference on “Plant, Pathogens and People: Challenges in Plant Pathology to Benefit Humankind” from February 23 to 27, 2016 at IARI, New Delhi, India.

MISCELLANEOUS

Externally Funded Projects Sanctioned

- ❖ “Minimization of juvenile period in *Lilium* through introgression of precocious flowering traits from *Lilium formosanum*” funded by MIDH. Principal Investigator: Dr. M.R. Dhiman, IARI Regional Station, Katrain.
- ❖ “An innovative green technology for treating municipal and industrial wastewater entering rivers and streams” funded by DBT. Principal Investigator: Dr. Khajanchi Lal, WTC, IARI.
- ❖ “Doubled haploids (DHs) production and use for hybrid development in short day tropical onion (*Allium cepa* L.)” funded by DBT. Principal Investigator: Dr. Anil Khar, Division of Vegetable Science.
- ❖ “Molecular breeding of citrus for enhancing hybrid seedling recovery using embryo rescue and molecular markers” funded by DBT. Principal Investigator: Dr. Anil Kumar Dubey, Division of F&HT.
- ❖ “Marker assisted elimination of off-flavour generating lipooxygenase-2 gene from kunitz trypsin inhibitor free soybean genotypes” funded by DBT. Principal Investigator: Dr. Akshay Talukdar, Division of Genetics.
- ❖ “Introgression of begomovirus resistance genes to tomato (*Solanum lycopersicum* L.)” funded by DBT. Principal Investigator: Dr. R.K.Saritha, Division of Plant Pathology.
- ❖ “Isolation, characterization of guava wilt pathogens and their control through bioagents” funded by SERB, DST. Principal Investigator: Dr. A. Nagaraja, Division of F&HT.
- ❖ “Development of protected cultivation technology in grape for enhancing yield and fruit quality under subtropical climate” funded by SERB, DST. Principal Investigator: Dr. M.K. Verma, Division of F&HT.
- ❖ “Evaluation of selectivity of insecticides against different mealy bug species and their major natural enemies associated with cotton, tomato, brinjal and papaya” funded by SERB, DST. Principal Investigator: Dr. K. Shankarganesh, Division of Entomology.
- ❖ “E-Granth library strengthening (strengthening & development of high agricultural education)” funded by ICAR. Principal Investigator: Dr. A.K. Jain, Incharge, AKMU.
- ❖ “Quantification of agro-ecosystem services from organic and conservation farming systems” funded by ICAR. Principal Investigator: Dr. Dinesh Kumar Sharma, CESCRA.
- ❖ “Wireless sensor based irrigation and fertigation systems for horticultural crops” funded by ICAR.

- Principal Investigator: Dr. Neelam Patel, WTC.
- ❖ “Rooting behavior in wheat in response to modified pore size distribution in soils under conservation tillage practices” funded by ICAR. Principal Investigator: Dr. Debashish Chakraborty, Division of Agricultural Physics.
 - ❖ “Soil microbiome modulation strategies to enhance nitrogen acquisition efficiency in rice” funded by ICAR. Principal Investigator: Dr. B. Ramakrishnan, Division of Microbiology.
 - ❖ “Improving water productivity in moisture stress areas – rhizosphere centric integrated approaches based on improved hydrogels” funded by ICAR. Principal Investigator: Dr. Anupama, Division of Agricultural Chemicals.
 - ❖ “A study of skill gaps in agricultural education in India: Industry and farmers needs” funded by ICAR. Principal Investigator: Dr. Jyoti Ranjan Mishra, Division of Agricultural Extension.
 - ❖ “Analytical study of experiential learning and andragogical methods for developing entrepreneurial human resources” funded by ICAR. Principal Investigator: Dr. Rashmi Singh, Division of Agricultural Extension.
 - ❖ “Alleviation of moisture deficit stress in groundnut, soybean, chickpea and pigeonpea by application of endophytic bacteria” funded by ICAR. Principal Investigator: Dr. K. Swarnalakshmi, Division of Microbiology.
 - ❖ “Study on *Sclerotinia sclerotiorum* with emphasis on management of *Sclerotinia rot*” funded by ICAR. Principal Investigator: Dr. Lakshman Prasad, Division of Plant Pathology.
 - ❖ “Development of high yield heat tolerant wheat cultivars by utilizing genomics, molecular and physiological information and resources” funded by ICAR. Principal Investigator: Dr. G.P. Singh, Division of Genetics.
 - ❖ “Spring X Winter Wheat hybridization for yield enhancement under stress” funded by ICAR. Principal Investigator: Dr. S. V. Sai Prasad, Head, IARI Regional Station, Indore.
 - ❖ “Development of ethylene powder for ripening of fruits” funded by ICAR. Principal Investigator: Dr. Abhijit Kar, Division of FS & PHT.
 - ❖ “Development of cloud networked drone (UAV) assisted sprayer” funded by ICAR. Principal Investigator: Dr. J.P. Sinha, Division of Agricultural Engineering.
 - ❖ “Development of robotic precision planter” funded by ICAR. Principal Investigator: Dr. H.L. Kushwaha, Division of Agricultural Engineering.
 - ❖ “Design and development of pulse electric field, ohmic heating and ultrasound pre-treatment systems for enhanced extraction of essential oils from basil, lemongrass and coriander” funded by ICAR. Principal Investigator: Dr. Sangeeta Chopra, Division of Agricultural Engineering.
 - ❖ “Design and development of integral power equipment for small farm mechanization” funded by ICAR. Principal Investigator: Dr. Indra Mani, Head, Division of Agricultural Engineering.
 - ❖ “Enhancing farm income through adoption of Hi-Tech agriculture” funded by ICAR. Principal Investigator: Dr. Pramod Kumar, Division of Agricultural Economics.
 - ❖ “Standardization and validation of scales for measuring socio-psychological constructs related risk adjustment and entrepreneurship behaviors of farmers” funded by ICAR. Principal Investigator: Dr. R.N. Padaria, Division of Agricultural Extension.
 - ❖ “Rooting behavior in wheat in response to modified pore size distribution in soils under conservation tillage practices” funded by ICAR. Principal Investigator: Dr. Debashish Chakraborty, Division of Agricultural Physics.
 - ❖ “Determinants of adoption and socio-economic impact of

NARS technologies in Indo-Gangetic Plains” funded by ICAR. Principal Investigator: Dr. R.R. Burman, Division of Agricultural Extension.

- ❖ “Data management Component of XII Plan EFC as KRISHI” funded by ICAR. Principal Investigator: Dr. Vinay Sehgal, Division of Agricultural Extension.
- ❖ “Indo-Australian Programme on triple rust resistance in wheat” funded by ICAR. Principal Investigator: Dr. Sivasamy, Head, IARI Regional Station, Wellington.
- ❖ “Pre-breeding for broadening genetic base by integrating conventional and biotechnological approaches” funded by ICAR. Principal Investigator: Dr. Sivasamy, Head, IARI Regional Station, Wellington.
- ❖ “Characterization and natural spread sources of phytoplasma affecting major floriculture crops of India” funded by ICAR. Principal Investigator: Dr. G.P. Rao, Division of Plant Pathology.
- ❖ “Characterization and epidemiology of phytoplasmas infecting major horticultural crops” funded by ICAR. Principal Investigator: Dr. G.P. Rao, Division of Plant Pathology.
- ❖ “Capacity building of rural youth for agri-entrepreneurship” funded by ICAR. Principal Investigator: Dr.

Anjani Kumar, Incharge, KVK Shikohpur.

- ❖ “Standardization of agro-techniques for bitter gourd cultivation under protected structures” funded by ICAR. Principal Investigator: Dr. T.K. Behera, Division of Vegetable Science.
- ❖ “Network project on transgenics in crops-functional genomics mango component” funded by ICAR. Principal Investigator: Dr. S.K. Singh, Division of F&HT.
- ❖ “High density linkage map and genome sequencing of mango (*magnifera indica* cv. Amrapali)” funded by ICAR. Principal Investigator: Dr. Manish Srivastav, Division of F & HT.
- ❖ “Establishment of Agri-Business Incubation (ABI) Centre at ZTM & BPD Unit” funded under XII Plan Scheme National Agriculture Innovation Fund (NAIF), ICAR. Principal Investigator: Dr. Neeru Bhooshan, Incharge, ZTM&BPD Unit.
- ❖ “Strategies for wastewater use in crops and aquaculture sectors” under CRP on water funded under XII FYP 2012-17, Lead - Indian Institute of Water Management, Bhubaneswar. Principal Investigator: Dr. Ravinder Kaur, PD, WTC.
- ❖ “Low-carbon footprint cool storage structures to empower farmers: improving storage and enabling processing of

perishable produce” funded by Michigan State University, Global Center for Food Systems Innovation (GCFSI). Principal Investigator: Dr. Sangeeta Chopra, Division of Agricultural Engineering.

Technologies Commercialized

Three (3) IARI Technologies, i.e., Pusa STFR Meter, Pusa Soya Nut and VAM Biofertilizer technologies were licensed to four (4) industry partners and generated a revenue of ₹ 6, 50,000 in this quarter.

Corporate Membership

In this quarter, 11 new members were registered and 8 corporate memberships were renewed, generating a revenue of ₹ 95,000/-

Honours/Awards

- ❖ Dr. Pritam Kalia, Head, Division of Vegetable Science received Dr. Biswajit Choudhury Memorial Award of the Indian Society of Vegetable Science for the year 2015 in National Symposium on Vegetable Legumes for Soil and Human Health at IIVR, Varanasi.
- ❖ Dr. Susama Sudhishri, Principal Scientist, Water Technology Centre, IARI received gold medal from Indian Association of Soil and Water Conservationists for her outstanding contributions in the field of watershed based natural resource management, water management and flourishing IASWC.

- ❖ Dr. Lakshman Prasad, Senior Scientist, was awarded as Fellow of Society for Plant Research-2015, during National Conference on “Plant Science Research: Looking Beyond 21st Century for Environmental & Agricultural Revolution” held at Department of Botany, University of Delhi.
- ❖ ZTM& BPD unit, IARI received the Gold in Flame Awards Asia, 2016 of Rural Marketing Association of India (RMAI) for successful commercialization of inventions from lab to land on March 11, 2016.

Dr. Ravinder Kaur Takes over the Charge of Director

Dr. T. Mohapatra was appointed as Director-General, ICAR & Secretary, DARE on February 19, 2016. He took the charge on February 22, 2016 at ICAR Headquarter after handing over the charge of Director to Dr. Ravinder Kaur, Project Director, WTC.



Dr. Ravinder Kaur, Project Director, WTC is taking over the additional charge of Director (Acting) from Dr. T. Mohapatra, Director-General, ICAR and Secretary, DARE

Visitors from Abroad

During the period January-March 2016, three delegations – one each from Nepal, Japan and Afghanistan visited the Institute. The Japanese delegation was led by Mr. Toshiaki Sato, President of Japan Pulse Foundation; and the Afghan delegation was led by H.E. Deputy Agriculture Minister of Afghanistan. Others who visited the Institute include H.E. Sergo Karapentyan, Minister of Agriculture of Armenia and Prof. Shmuel Wolf, Dean from the Hebrew University of Jerusalem, Israel.



The Japanese delegation interacting with IARI team

Published quarterly by the Publication Unit on behalf of the Director, Indian Agricultural Research Institute (IARI), New Delhi 110 012, and printed at Venus Printers and Publishers, B-62/8, Naraina Industrial Area, Phase II, New Delhi - 110 028.

Joint Director (Research): Dr. K.V. Prabhu; In-charge, Publication Unit (English): Dr. S.S. Sindhu

Website : <http://www.iari.res.in>