

# ICAR

# Reporter

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## From the DG's Desk

Dear Readers,

India is aware of the truth that the country's population has doubled in size in just 40 years. Therefore, the Government of India launched a Centrally Sponsored Scheme 'National Food Security Mission' (NFSM) in October 2007 to increase the production of rice by 10 million tonnes, wheat by 8 million tonnes and pulses by 2 million tonnes in five years' time. The systematic interventions together with appropriate investments made the Government to achieve and go beyond the targets. This success enabled the Government to introduce Right to Food Bill in the Parliament in the year 2012 and finally the act got passed in 2013.

To increase the production of food crops in India, the Indian Council of Agricultural Research (ICAR) led the National Agricultural Research System (NARS) in developing location-specific new high yielding varieties/hybrids and their matching production and protection technologies of food



crops. As a way forward to take the new varieties to the farmers' fields, the ICAR also shouldered the responsibility to produce breeder seeds that the developmental agencies multiply and mass produce for the farmers. But for such an institutional arrangement towards enhancement of productivity, the country could not have achieved thumping production for food security. For instance, 541 high yielding climate-resilient varieties/hybrids were developed and notified for commercial cultivation. Likewise, about 415 thousand quintal breeder seeds of food crops were also produced and distributed to different states during the last five years.

Further research in agricultural sciences has been focusing on employing molecular tools in breeding techniques to insulate high yielding varieties/hybrids against major biotic (diseases and pests) and abiotic stresses (heat, drought, cold/frost, salinity/alkalinity, acidity, etc.) of food crops with a great success. As one of the first products of this effort, a bacterial leaf blight



resistant variety of rice namely *Improved Pusa Basmati 1* was developed by successfully employing marker-assisted selection (MAS) through pyramiding of *xa13* and *Xa21* genes from the source variety IRBB 55 in the genetic background of *Pusa Basmati 1*. As of now, over 26 varieties/hybrids of different field crops have been developed using MAS technique and released for cultivation comprising 20 of rice, one each of wheat and pearl millet and four of maize.

Drought tolerant varieties of rice (Sahabhazi Dhan, DRR Dhan 42, CRR Dhan 200 series) and wheat (PBW 527, HI 1500, HI 1531, HD 2888, etc.) to overcome the drought effect and increase production of these crops in adverse climatic conditions have been notified for commercial cultivation. For water-logged conditions, Swarna sub-1 and IR 64 sub1 are the two rice varieties that can give reasonable yield even in submerged conditions. For promoting diversification in irrigated rice-wheat cropping system and also for crop intensification in other cropping systems, short duration climate resilient varieties of pulses namely JG 14, JG 11, JAKI 9218 and Phule G 8517 of chickpea and IPM 205-7 (Virat), IPM 02-3, IPM 2-14, HUM16, and TMB 37 varieties of mungbean have helped in introducing the pulses creating new niche and cropping systems.

In an effort to address the issues of malnutrition in the country, the ICAR instituted a research platform on bio-fortification, and developed bio-fortified varieties/hybrids of food crops possessing higher nutritional quality like high zinc varieties of rice (DRR Dhan 45 and Chhattisgarh Zinc Rice 1), high protein variety of rice (CR Dhan 310); high zinc and iron varieties of wheat (WB-2 and HPBW-01); high quality protein varieties of maize (*Pusa Nutri Q Makka 1*, *Pusa Nutri Q Makka 2*, *Pusa Nutri Q Makka 3* and *Pusa Nutri Q Makka 4*); high zinc and iron varieties of pearl millet (AHB 1200, *Pusa 1201*, *Pusa Composite 443* and HHB 299); high iron containing variety of lentil (*Pusa Ageti Masoor*). So far, 17 bio-fortified varieties have been developed and released. Similarly, we have bio-fortified varieties in vegetable crops such as cauliflower and sweet potato. In fruits, an iron-rich pomegranate variety *Bhagwa* is being promoted across the country.

Another major step towards addressing malnutrition is promotion of traditional crops, particularly millets that are known as nutri-cereals. Adapted to harsh environment of the semi-arid tropics, the millets are the backbone for dryland agriculture, as they can withstand high temperatures and grow on nutrient poor soils with little or no external inputs. The millets are nutritionally superior to wheat and rice owing to “their higher levels of protein with more balanced amino profile, crude fiber and minerals such as iron, zinc, and phosphorous” and can also help tackle health challenges such as obesity, diabetes and lifestyle problems as they are gluten free, have a low glycemic index and are high in dietary fibre

and antioxidants. The Government of India, on July 18, 2017, decided to start distributing millets under Public Distribution System (PDS) to improve nutritional security and subsequently, on the basis of the recommendations of NITI Aayog, the NFSM -Coarse Cereals has been divided into two components: NFSM (Makka and Jau) and *Sub Mission on Nutri-Cereals* covering *Sorghum (Jowar)*, *Pearl Millet (Bajra)*, *Finger Millet (Ragi)* *Little millet (Kutki)*, *Kodo millet (Kodo)*, *Barnyard millet (Sawa)*, *Foxtail millet (Kangni)* and *Proso millet (Cheena)* in 202 districts of 14 states of the country. As a contingent plan, the cultivation of millets is very suitable for small and marginal farmers. Further, procurement through profitable MSP and inclusion in the mid-day meal schemes in schools shall strengthen millet-based nutritional support system in the country.

Realizing pulses as a cheaper protein source, the Government felt the need for promoting pulses and also set targets for bringing self-sufficiency in the country. In this effort, to augment the availability of quality seeds of newly developed high yielding varieties of pulses in the major pulses growing districts of the country, the Union Agriculture Ministry launched a project for establishment of 150 “Seed-Hubs on Pulses” at 97 KVKs and 53 ICAR Institutes/SAU-AICRP Centres across 24 states with budget outlay of over ₹ 22500 lakh for 3 years since Kharif 2016. These “Seed-Hubs on Pulses” produced 52422 quintals seed in 2016-17 and 111801 quintals in 2017-18. As a measure to strengthen the existing seed chain of pulses with newly notified high yielding varieties, the Ministry also launched another project in *kharif* 2016 for development of seed infrastructure with a budget outlay of 2039 lakh and produced additional 6005 quintals breeder seed of pulses during 2016-17 and 4862 quintals in 2017-18. Along with NFSM-pulses scheme, which is being implemented in 638 districts of all the 29 states of the country since 2016 kharif, and strong policy support in terms of remunerative MSP, price stabilization, procurement, buffer stock and area expansion of pulses in rice fallows, these two interventions of ICAR on the seed front have eventually resulted in an unprecedented enhancement of 54.3% in pulses production in just two years, raising the production of pulses from 16.35 million tons during 2015-16 to 25.23 million tonnes during 2017-18.

Novel ideas such as nutri-gardens, nutri-farms and nutri-smart village concepts should be piloted for upscaling and outscaling apart from achieving climate resilience and sustainability in food production through diversified agriculture *per se*. Further, policy re-alignments and convergence of government programs shall fortify better efficacy of program outputs, and be linked to the *One Health Program* of the Government of India.

  
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# WORKSHOPS, MEETINGS, CONFERENCES, SYMPOSIA, SEMINARS

## Vice-President inaugurates annual group meet

Kanpur, 19 May 2019. Vice President, Honorable Shri M Venkaiah Naidu inaugurated the 24 Annual Group Meet on Mungbean and Urdbean. The three day meet was organized under ICAR-All India Coordinated Research Project on MULLaRP (Mungbean, Urdbean, Lentil, Lathyrus, Rajmash and Pea) and Cowpea, Clusterbean, Mothbean under the All India Network Project on Arid Legumes at Acharya NG Ranga Agricultural University, Guntur, Andhra Pradesh.



Shri Naidu stated that pulses are invaluable source of plant-based proteins, vitamins and mineral and provide nutritional security to the vegetarian masses; therefore, efforts are needed to make country self-reliant in pulses. Shri Naidu also awarded research centres of mungbean and urdbean with the “Best AICRP Centre Award”.

Dr V Damodar Naidu, Vice-Chancellor of the University underlined about the successful application of biotechnological approaches that helped in viral strains and molecular markers in developing MYMV resistant varieties in urdbean.

A bilingual android-based smartphone application was also launched on the occasion. The application is aimed at larger masses of farmers to provide them the latest technical-how of mungbean cultivation.

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## DG, ICAR inaugurates Joint Annual Group Meeting

Haryana, 7 April 2019. The joint 34<sup>th</sup> Annual Group Meeting of AICRP-NSP (Crops), 14<sup>th</sup> Annual Review

Meeting of ICAR-Seed Project and 22<sup>nd</sup> Annual Breeder Seed Review Meeting was organized by ICAR-IISS, Mau in collaboration with CCSHAU, Hisar. Dr Dinesh K Agarwal, Director (Acting), ICAR-IISS, Mau appraised about progress made by AICRP-NSP (Crops) and ICAR Seed Project. Dr DK Yadava, ADG (Seed), outlined the role played by AICRP-NSP (Crops) and ICAR Seed Project in catalyzing the seed production and research in the country. Shri. Ashwani Kumar, JS (Seed), DAC and FW, highlighted to deploy effective mechanism for promotion of new varieties in different platforms and need to focus for increasing the export of quality seed.



Secretary, DARE and DG, ICAR, Dr T Mohapatra emphasized to take-up cutting edge seed technology research keeping the global developments in view to make the seed programme more competitive globally. Dr Mohapatra also chaired the Annual Breeder Seed Review Meeting (ABSRM) and reviewed the status, shortfalls and non-lifting issues in breeder seed production during *Rabi* 2017-18 and *Kharif* 2018.

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## Scientific maize cultivation in Nagaland

Nagaland, 27 May, 2019. The ICAR-Research Complex for North Eastern Hills Region, Nagaland Centre and ICAR-Indian Institute of Maize Research (IIMR), Ludhiana, Punjab jointly organized a one-day State Level Workshop on “Promotion of Scientific Maize Cultivation and FAW Management in Nagaland”.

Dr Narendra Prakash, Director, ICAR-RC-NEH Region, Umiam highlighted the maize cultivation’s scope in *Jhum* land. He outlined the major constraints faced by the farmers, such as, non-availability of quality seed materials and lack of awareness among the



farmers about the scientific management practices. He urged farmers to work in convergence mode for proper monitoring and reporting of major destructive pest in the state for timely management of the pest.

Dr Sujay Rakshit, Director, ICAR-IIMR, Ludhiana emphasized on popularization of maize hybrids to improve the productivity of maize and the strategies for increasing the availability of quality seed of maize for the farmers.

The main aim of workshop was to discuss best possible ways to tackle recent threat of invasive pest, the fall armyworm (FAW), *Spodoptera frugiperda* (Lepidoptera, Noctuidae) in the maize cultivation and the need to promote the scientific cultivation of maize in Nagaland. Panel discussion was also held on the management strategies of FAW and promotion of scientific maize cultivation. A field visit to ICAR research farm was organised.

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## Management of 'Fall Army Worm'

Manipur, 17 May 2019. Maize cultivation in North Eastern States is under threat from a new invasive pest, native to USA, the Fall Army Worm, *Spodoptera frugiperda* (Lepidoptera, Noctuidae). ICAR Manipur Centre for the first time reported the incidence of fall armyworm in Manipur state in May, 2019.

To address the farmer's requirement for management of Fall Army Worm and scientific package and practices for enhancement of their productivity, a two-day National Workshop on "Management of Fall Armyworm in the Scientific Production of Maize" was organised jointly by ICAR-RC-NEH Region, Manipur centre and ICAR-Indian Institute of Maize Research (IIMR), Ludhiana, Punjab.



Dignitaries highlighted the threat posed by this invasive pest and called for designing effective strategies to manage this pest so that farmers could realise high economic returns from the cultivation of crops. Importance of use of bio-pesticides and natural enemies in the control of Fall Army Worm was emphasized.

Detailed technical sessions and farmers' scientists' interaction were also organised with emphasis on management of Fall Army Worm menace in the State and ways to protect the crops from it.

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## Lecture on plant genetic resources

New Delhi, 10 May 2019. Padma Shri, Professor BS Dhillon, Vice-Chancellor, Punjab Agricultural University, Ludhiana delivered 3<sup>rd</sup> Dr AB Joshi Memorial Lecture on Plant Genetic Resources for Food and Nutritional Security - 2019 at ICAR-National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi. The lecture was organized by Indian Society of Plant Genetic Resources.

Professor Dhillon stated that Plant Genetic Resources are the plant genetic materials which are of value for the present and the future generations of human beings (IPGRI, 1993). He said that about 3,00,000 flowering plant species have been documented till date out of which 3% are edible. He also stated that 30 species provide around 90% of calories to human beings.



Professor Dhillon stated that among the 12 mega-diversity centres, India has attained the position of the 10<sup>th</sup> Mega-diversity country in the world. India has the second largest Gene Bank after USA. Professor Dhillon mentioned that Punjab Jhaar Karela-1, the first variety of *Momordica balsamina* (locally known as Jhaar/Varh Karela) has been released in 2017. The variety is resistant to root knot nematode disease and can be used as root stock for Bitter Gourd.

Professor Dhillon highlighted on the remarkable instances of commercial deployment of the genes from the distant germplasm that are available in several crops. He said that a single accession of wild rice *Oryza nivara*, which is identified after screening of more than 6,000 genebank accessions, has provided protection against grassy stunt virus disease in almost all the tropical rice varieties in Asia for the last half a century.

Dr Trilochan Mohapatra, Secretary (DARE) and DG (ICAR) accounted major achievements made by Dr

Joshi in the designated field and stated that the global agenda is set to make more laurels in the field of plant genetic resources and accolade the country to be the best in the world.

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## ICAR-CAZRI and Guar Gum Industry meeting

Jodhpur, 15 April 2019. The ICAR-Central Arid Zone Research Institute organized a Discussion Meeting with the representatives of Guar Gum Industry.



Dr OP Yadav, Director, ICAR-CAZRI emphasized on the value of guar crop in the arid region and the importance of industry-academia dialogue to identify the research gaps.

The objective of the meeting was to share the mutual experiences and expectations of the industry. Scientists from ICAR-CAZRI made presentations on guar gum current export scenario, cultivation, genetic improvement, gum quality and value-addition. It was proposed to provide seed samples of guar cultivars by the Institute for testing in industry pilot plants for gum content and quality.

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## Camp for cyclone affected areas of Odisha

Kolkata, 6 June 2019. Scientists of Eastern Regional Station of ICAR-Indian Veterinary Research Institute, Kolkata organized the Animal Health-cum-Awareness Camp at Bagholpur village of Satyabadi Block in Puri District of Odisha. The camp was organized in collaboration with the Animal Disease Research Institute (ADRI), Government of Odisha.

The IVRI team explained to farmers about various steps to be taken including do's and don'ts for restoring the animal health as early as possible.

The IVRI team led by Dr Mahesh Chander, Joint Director (Extension Education) also presented ELISA kits for diagnosis and surveillance of PPR to the ADRI

officials on behalf of IVRI. The ELISA kits included PPR Antigen detection (Sandwich ELISA) kit for testing 200 samples and Antibody detection (Competitive ELISA) kit for testing 2,000 samples of goats and sheep.



The visiting team collected samples for lab diagnosis and future course of action and advisories were conveyed to farmers. Animals were examined, treated and medicines were provided; besides distribution of mineral mixture for the livestock to the farmers.

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## ICAR-NRC on Yak organizes programme for Yak herders

North Sikkim, 30 May 2019. The ICAR-National Research Centre on Yak, Dirang, Sikkim organized a programme for the "Farmers of Muguthang, Dongkong and adjoining areas of Lachen and Lachung area under Chungthang sub-division in North Sikkim with an immediate aid for their survived Yaks".

The programme was organized in collaboration with the Department of Animal Husbandry, Livestock, Fisheries and Veterinary Services, Government of Sikkim and ICAR-National Organic Farming Research Institute, Tadong, Gangtok under the Tribal Sub-plan and AICRP on FMD programme of the institute.

While expressing concern of ICAR and his grief on loss of their yaks, Dr P Chakravarty, Director, ICAR-National Research Centre on Yaks assured assistance in overcoming such eventualities in future. He also ensured for enhancing the farmers' economic upliftment through the yak husbandry by the adoption of technologies.

Most of the farmers were worst affected with the loss of their yaks due to starvation during unprecedented heavy and continuous snowfall during January to May, 2019. Farmers were provided with the basic amenities like tent, concentrate feed, salt, veterinary medicines including vaccines for FMD. Important implements like chaff cutter, silage bags and cream separators were also provided to help overcome crisis during the winter.

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## NAHEP National Workshop on Academic Excellence

Hyderabad, 30 April 2019. The National Workshop on Academic Excellence through Building Partnership and Resources Generation was organized at ICAR-NAARM under National Agricultural Higher Education Project Component 2A. The two-day national workshop was inaugurated by Dr NS Rathore, DDG (Education), ICAR in the presence of Dr Ch Srinivasa Rao, Director NAARM, Dr Vishnu Sharma, Vice Chancellor of Rajasthan University of Veterinary and Animal Sciences, Bikaner. While inaugurating the workshop, Dr Rathore emphasized that partnerships are well knit if they are based on the objectivity, transparency, effectiveness, fairness and inclusiveness.



The programme was organized by ICAR-NAARM, IASRI and Education Division of the Council involving all the Principal Investigators of NAHEP and ICAR Nodal Officers of 26 SAUs. The key speakers were Dr Sudha Mysore, CEO, Agri Innovate India Limited, New Delhi; Dr K Vijayaraghavan, Chairman of Sathguru Management Consultants, Hyderabad; Dr D Rama Rao, Ex-Director, ICAR-NAARM, Hyderabad and ICAR Emeritus Scientist, PJTSAU, Hyderabad and Dr Suman Preet Singh Khanuja, Former Director of Central Institute of Medicinal and Aromatic Plants (CIMAP/CSIR), Lucknow.

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## AICRP on women in agriculture

Hyderabad, 29 April 2019. ICAR-Central Institute for Women in Agriculture, Bhubaneshwar organized a two day brainstorming workshop on restructuring AICRP on Home Science to AICRP on Women in Agriculture at Professor Jayashankar Telangana State Agricultural University, Rajendranagar, Hyderabad.

Chief Guest, Dr NS Rathore, DDG (Agricultural Education), ICAR, New Delhi stressed on need for five important issues, namely, critical individual thinking, identifying researchable issues, formulating communication strategies and bringing leadership status among farm women in line with ICAR mandate.

Dr Ch Srinivasa Rao, Director, ICAR-NAARM stressed on need for working in collaboration with other AICRP-Units, ICAR Centres in Home Science and



Agriculture for effective coordinated approach for reaching out to farmwomen for all round development. Dr PS Pandey, ADG (EP and HS), ICAR provided a clear direction for moving forward with new integrated approach of community science with agriculture and other allied disciplines for strengthening the farmwomen socially, technologically and economically. Dr Lipi Das, Nodal Officer, AICRP along with other AICRP scientists finalized the research projects in five programme modes.

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## Annual Zonal Review Workshop of Zone-X KVKs

Hyderabad, 24 May 2019. The ICAR-Agricultural Technology Application Research Institute, Hyderabad organized a three-day “Annual Zonal Review Workshop of 71 KVKs in Zone-X (Andhra Pradesh, Telangana, Tamil Nadu and Puducherry)” at ICAR-National Academy of Agricultural Research Management, Hyderabad.

The workshop was inaugurated by Dr AK Singh, DDG (Agricultural Extension), ICAR who advised the Krishi Vigyan Kendras for working on a single window concept for serving as knowledge and resource center at district level.

Dr Randhir Singh, ADG (AE), ICAR launched the network project on New Extension Methodologies and



Approaches (NEMA) involving 11 ATARIs and 6 ICAR Research Institutes during the occasion.

Dr YG Prasad, Director, ATARI, Hyderabad presented the Annual Progress Report for the Year - 2018-19 of the KVKs in Zone-X and highlighted achievements on assessment of 714 technologies and bridging of yield gaps in pulses and oilseed crops through the cluster frontline demonstrations. Dr Ch Srinivasa Rao,

Director, ICAR-NAARM applauded the KVKs' contribution to develop the climate-resilient villages under the NICRA project. Dr V Praveen Rao, Vice-Chancellor, PJTSAU conferred certificates of appreciation to performing KVKs and urged KVKs for providing feedback for planning of research programmes.

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## International Linkages

### DG, ICAR meets High Commissioner of Kenya

New Delhi, 17 May 2019. Dr Trilochan Mohapatra, Secretary (DARE) and DG (ICAR) met the High Commissioner-Designate of the Republic of Kenya, Mr Willy Kipkorir Bett, EGH at Krishi Bhavan, New Delhi.

Dr Mohapatra discussed about the various challenges, such as, climate change, weather, etc., being faced by Indian agriculture and the eventful success stories that enables climate resilience.

The High Commissioner expressed keen interest in the Council's efforts and achievements to ensure the food and nutritional security of 1.3 billion citizens of the country. Both the countries renewed their commitment for strengthening the partnership with help of bilateral cooperation and exchange of information.

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### Expert Consultation Meeting for SAARC countries

Bengaluru, 21 May 2019. The Expert Consultation Meeting on "Identification of best practices in livestock and fodder production and management" for the SAARC countries was organized by the ICAR-National Institute of Animal Nutrition and Physiology, Bengaluru. The three day meet sponsored by SAARC Agricultural Centre, Bangladesh was organized from 21 to 23 May, 2019.



Chief Guest of the valedictory ceremony, Dr A Paturkar, Vice-Chancellor, MAFSU, Nagpur opined for the need of MoU between the NIANP and MAFSO for student exchange and collaborative research programmes.

Chief Guest of the inaugural ceremony, Dr JK Jena, DDG (Fisheries and Animal Sciences) urged for more cooperation among member countries in the areas of mutual interests. The meeting concluded with the certificate distribution to students and participants. Country representatives from Bangladesh, Bhutan, Sri Lanka and India attended the meeting.

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### ICAR participates in world's largest agriculture fair



Morocco, 16 April 2019. ICAR participated for the third time in a row in the 14<sup>th</sup> Edition of the Salon Internationale de l'Agriculture au Maroc (SIAM), one of the world's largest agriculture fairs, under the theme "Logistics and Agricultural Markets". The six days' exhibition was organized under the High Patronage of HM King Mohammed VI at Meknes. The main aim of the exhibition was to provide participants with a platform for sharing their achievements in the agriculture sector.

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## MoUs

### ICAR-IISWC Dehradun signs MoU with NSCBES, Dehradun

Dehradun, 15 April 2019. A triparty MoU has been signed between ICAR-Indian Institute of Soil and Water Conservation (IISWC), Irrigation Division, Srinagar, Pauri Garhwal District and Netaji Subhash Chandra Bose Educational Society (NSCBES), Dehradun, Uttarakhand with the objective of action research on Participatory Water Resources Development and Management for Improved Rural Livelihood Support through Profitable Agriculture and



Allied Activities in Kaljikhil block of Pauri Garhwal district, Uttarakhand. These three agencies have agreed to take-up their coordinated efforts in planning, implementing and monitoring scientific and technological interventions and converging other government schemes of rural development in the targeted area. Dr PR Ojasvi, I/c Director, IISWC, Shri Digember Singh Negi, Secretary, NSCBES and Er Sunil Kumar, Executive Engineer, Irrigation Division, Srinagar, Pauri Garhwal, Uttarakhand were signatories to this MoU.

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### ICAR-CIBA signs MOU with a fish breeder

Chennai, 8 May 2019. The ICAR-Central Institute of Brackishwater Aquaculture (CIBA), Chennai signed a MOU with Shri Joshy Paul, 'Ornamental Fish Entrepreneur', a progressive ornamental fish breeder and trader from Thrissur, Kerala. With this MoU, the ICAR-CIBA identified the brackishwater ornamental aquaculture as a sector with the greater growth prospects in the country. This is a maiden MOU by CIBA for promotion of brackishwater ornamental aquaculture with a farmer in a partnership mode, first time in the country.

Dr KK Vijayan, Director, CIBA, highlighted the need to develop brackishwater ornamental fish sector on principles of sustainability, through development of a value chain from breeding and rearing using



formulated feeds, rather than relying on unsustainable means, such as, capture from the wild. He underlined the need for adopting a holistic approach inclusive of nutrition, health management, genetics and novel marketing strategies in the country and overseas.

During the event the first batch of hatchery produced *Monodactylus argenteus*, Silver Moony Seeds were handed over to Shri Joshy Paul.

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### ICAR-CMFRI signs MoU with ISRO

Ahmedabad, 8 April 2019. In a major step towards conservation of small wetlands across the country, ICAR-Central Marine Fisheries Research Institute (CMFRI), Kochi has signed a Memorandum of Understanding (MoU) with the Space Applications Centre (SAC) of Indian Space Research Organisation (ISRO) at SAC Main Campus in Ahmedabad. According to the MoU a mobile app and a centralised portal with a complete database of more than five lakh small wetlands across the country will be developed aimed at real-time monitoring and further conserving the wetlands. The move was part of finding ways to mitigate the impact of climate change on fisheries and wetlands by the National Innovations in Climate Resilient Agriculture (NICRA) project of ICAR-CMFRI. Recently, CMFRI developed a national framework for fisheries and wetlands under the NICRA project. The MoU was signed between Shri Nilesh Desai, Associate



Director of SAC and Dr PU Zacharia, Principal Scientist and Principal Investigator, NICRA project of ICAR-CMFRI. The SAC will develop the web portal and mobile app as per the requirement of ICAR-CMFRI.

This is the first time that a fisheries institute is collaborating with ISRO to develop a comprehensive climate resilient framework for fisheries and wetlands. The common national portal and mobile app is for integration of wetland data into a common digital repository, helping the public to obtain time-to-time information on wetlands. ICAR-CMFRI will act as nodal centre for approving the latest data updates on wetlands submitted by collaborating fisheries institutions and stakeholders.

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## MoU on Mithun between ICAR-NRC and Mizoram government

Nagaland, 3 June 2019. An MoU was signed between Animal Husbandry and Veterinary Department, Government of Mizoram and ICAR-National Research

Centre on Mithun (NRCM), Medziphema, Dimapur, Nagaland. The MoU was signed by Mr Lalthangpuia Sailo, Commissioner and Secretary, AH and Veterinary Department, Government of Mizoram and Dr Abhijit Mitra, Director, ICAR-NRCM, Nagaland.

The MoU includes providing technology backstopping, guidance including Construction of sheds, etc. for semi-intensive rearing of Mithun in two districts of Mizoram and supply of 500 semen doses free of cost to the state for improvement.

The agreement also has the provision of training of veterinary officers, managers, and farmers in Mithun rearing activities i.e. semen collection and freezing, artificial insemination, value addition of milk, hide, meat and animal waste management at ICAR-NRCM, Nagaland and setting up of Feed Block Making Unit. Under the MoU, the ICAR-NRCM has also agreed to assist in the formulation of the project report, exploration of funding possibilities and to provide technical assistance for the establishment of Artificial Insemination Unit with a semen processing laboratory.

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## Capacity Building

### ICAR-CIBA commercialized fish waste technology of Plankton<sup>Plus</sup>

Chennai, 16 May 2019. Fish waste processing technology has been developed by ICAR-CIBA for the production of Plankton<sup>Plus</sup> from fish waste sourced from fish markets. It has been transferred to aqua-entrepreneurs, Sri Nagakishore Mudedla and Sri Syamala Rao Maradani, from Gudivada, Krishna district, Andhra Pradesh, through an MoU at CIBA Headquarters, Chennai. Under the agreement, ICAR-CIBA will transfer the Plankton<sup>Plus</sup> production technology on a non-exclusive basis and also provide the necessary training to entrepreneurs for producing Plankton<sup>Plus</sup>. Dr KK Vijayan, Director, CIBA, who executed the MoU for CIBA along with farmer entrepreneur Sri Nagakishore Mudedla, highlighted the importance of Plankton<sup>Plus</sup>, a product for boosting plankton production in aquaculture rearing systems.

Dr Debasis De, Principal Scientist and team leader for Plankton<sup>Plus</sup> development program of CIBA briefed



about the significance of this MoU and outlined the genesis and advantages of the technology in aquaculture. This technology has the potential in cleaning fish markets across the country and in providing alternative livelihood to produce wealth from waste.

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### DG, ICAR inaugurates administrative building of ICAR-ATARI, Umiam

Umiam, 1 June 2019. Dr Trilochan Mohapatra, Secretary (DARE) and DG (ICAR) inaugurated the Administrative Building of ICAR-ATARI, Umiam. Dr Mohapatra urged KVKs to devote their energy to double farmers' income in at least two villages per



district by 2022 in convergence mode with the line departs and other Institutes of NARS system.

Dr AK Singh, DDG (Ag. Extn) assured support for KVKs to successfully implement various projects like Farmer FIRST Program, ARYA, NARI, KSHAMTA etc. He also complemented the Director ICAR-ATARI, Umiam and his team for catering the needs of farmers in North-eastern region of India.

Dr KM Bujarbaruah, Vice Chancellor, Assam Agricultural University, lauded the efforts of KVKs to transfer the technologies to farmers and also proposed to promote agripreneurship development in the region. He stressed on strengthening of KVKs with additional facilities and support to fulfil the expectations of the stakeholders.

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## ICAR-CMFRI helps farmers reap bumper harvest of mussels

Cochin, May 30 2019. Farmers of Moothakunnam, one of the worst hit villages in Kerala during the devastating floods in August last year have started re-building their lives under the guidance of ICAR-Central Marine Fisheries Research Institute (CMFRI), Kochi. Farmers, mostly women, of the village in Ernakulam district, Kerala have had a bumper harvest of mussels with the scientific guidance from the ICAR-CMFRI. Five self-help groups in the region reaped a total yield of 6.5 tonnes of mussels in as many as five farming units. The farmers started the farming in January using a structure made of bamboo with a size of five metre each width and length.

The farmers, who turned into bivalve farming as an additional livelihood option, sustained severe loss in the floods which destroyed their oyster farming units in August last year. They were also worried that post-flood changes in the aquatic ecosystem may affect



the mussel farming. But, farmers are now relieved with a good harvest this time and are hopeful of making good their losses.

The farming that lasted 5 months was carried out under the guidance of the Molluscan Fisheries Division of the ICAR-CMFRI. After the harvest, the produce was undergone depuration, a scientific process of expelling contaminants from gills and guts of mussels by providing them with good purified seawater before they are used for consumption which was also

developed by the ICAR-CMFRI. As there is no need for feeding, the bivalve farming is less expensive compared to fish farming. However, the initial capital to set up the farming units is the major expense of the farming.

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## DG, ICAR releases nutraceutical product to combat hypertension

Cochin, 25 May 2019. Dr Trilochan Mohapatra, Secretary, DARE and Director General, Indian Council of Agricultural Research (ICAR) in the presence of Dr JK Jena, Deputy Director General (Fisheries), ICAR released Cadalmin™ Antihypertensive extract (Cadalmin™ AHe), a nutraceutical product developed by ICAR-Central Marine Fisheries Research Institute (CMFRI), as a natural remedy for hypertension.

Cadalmin™ AHe was developed from seaweeds, which are commonly available in the Indian coastal waters. Cadalmin™ Antihypertensive extract contains 100% natural marine bioactive ingredients from selected seaweeds by a patented technology, and would be made available in 400 mg capsules. This nutraceutical does not have any side effects as established by detailed preclinical trials. Cadalmin™ AHe is the only product made by 100% natural marine bioactive ingredients from seaweeds as a natural remedy of hypertension.



The Director General said that giant leaps could be made through disruptive changes in technologies and innovations which will also bring in wider visibility across the spectrum nationally and globally. Dr Mohapatra urged young scientists to come forward to make constructive changes in their respective field by building their own ideas. Referring to the significance of marine fisheries sector, the DG said ICAR-CMFRI is playing a major role in the development of the sector which is crucial for blue revolution. He also released a book 'The Enigmatic Indian Oil Sardine: An Insight' authored by leading scientists of ICAR-CMFRI and posters on major edible and ornamental fishes of Lakshadweep Islands prepared by the Institute.

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## Success Stories

### Successful fish culture in canals of Sundarbans – a way to improve community livelihood

ICAR-CIFRI has taken initiatives for Partition Aquaculture System (PAS) in Barua canal, with an aim to enhance fish production and productivity from underutilized resources. It is located in Shivpur, Fraserganj (21° 36' 39.3"N 88° 15' 21.6"E) in Sundarbans and is a tidal fed canal connected to Hooghly river. The total length of canal is 2 km and width is 45 m (approximately) with a water depth ranging from 3 to 8 feet. PAS is a new form of enclosure culture system, where the canal is divided by installing HDPE net screen across the canal as barrier with the help of bamboo pole. The MoU is signed with the local stakeholders and ICAR-CIFRI. In collaboration with local stakeholders, a net screen barrier as partition system was installed in the canal. Three numbers of net partitions were constructed with dimension of each partition was 50m × 45m (L × B) covering each partition is 2,250 m<sup>2</sup>. In addition to the native fishes of canals Indian Major Carps *i.e.* *Catla catla*, *Labeo rohita* and exotic carp *Ctenopharyngodon idella* were stocked @ 2 nos./m<sup>2</sup> with the stocking ratio of : *L. rohita*: *C. catla*: *C. idella* : 50: 40: 10 in the month of October 2018.



Recent cyclone “FANI” has damaged the partition system, however, on the day the team could harvest a total of 150 kg of fish. It has encouraged the community to culture fish in canals. After six months of culture period, the maximum size reported for *catla*, *rohu* and *mrigal* was 1.2 kg., 1.0 kg and 0.800 kg respectively. Apart from IMC, good quantity of small indigenous fish (SIF’S) like *Puntius sophore*, *Puntius ticto*, *Amblypharyngodon mola*, *Salmostomo bacaila* and freshwater prawn *Macrobrachium rosenbergii* was also harvested. Fresh water prawns were eye catching, harvested fishes were sold in local market at high price value.

Though the recent cyclone “FANI” has adversely affected the culture system, the harvest was 150 kg of fish including 10% share of indigenous fish available in the canal. Complete harvesting is yet to be made and total fish production is expected to be still high. It has encouraged the community to culture fish in canals of Sundarbans.

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### Adoption of ICAR-FUSICONT technology

Being a sustainable medium duration cash crop with high return in irrigated lands, Banana is widely been cultivated by the small and marginal landholders. There has been a noticeable increase in the area under G-9 banana in Uttar Pradesh and Bihar. G-9 is the only variety that is cultivated in sub-tropical conditions. In June 2017, there was a sudden epidemic of the *Fusarium* wilt disease in the Sohawal block of Faizabad District. The disease caused by *Fusarium oxysporum f.sp. cubense* is a devastating disease of banana and particularly Tropical Race 4 (TR4) affects the Grand Naine (G-9) banana variety. The disease caused huge loss to growers and spread rapidly in soil and water.

The villages - Katrauli, Magalsi and Muksoonganj of Ayodhya district witnessed severe incidence of the disease with about 30 to 45% mortality of bearing plants. About 95% of areas (more than 140 acres) under the banana in these villages were found to be affected with the disease that resulted in loss of more than 50% of the total investments. The intensive survey conducted in Bihar and Uttar Pradesh revealed huge damage caused by the disease in many banana growing districts of Uttar Pradesh namely Maharajganj, Sant Kabir Nagar, Kushinagar, and Sitapur.

In Bihar – Katihar, Purunia, Baghalpur, Vaishali and Naugauchia districts, farmers experienced losses worth millions of rupees. These districts were known for commercial production of G-9 Banana. The farmers went after all the available options of fungicides and bio-products available in the market and tried their every level best to overcome the disease.

But, all efforts failed in yielding successful results ending in loss of crop by more than 50%. This compelled them to switch over to the other alternative cropping system as input cost in banana is too high. Economic losses caused by the disease alarmed not only the farmers, but government officials and scientists too. Scientists of ICAR-Central



A, B, C – Loss of crop before adoption of technology; D, E, F – Status of crop at 10 months after adoption of technology

Soil Salinity Research Institute (CSSRI), RRS, Lucknow and ICAR-Central Institute of Sub-tropical Horticulture (CISH) confirmed presence of the disease through the morphological and molecular techniques.

Based upon positive results obtained in the laboratory and pot experimental studies, scientists came up with a bio-formulation using the eco-friendly effective antagonistic microbes on a unique IPR protected bio-media with the defined protocol of application. The technology was immediately intervened in all the three affected villages of Uttar Pradesh. The farmers were made to adopt the new bio-formulation application protocol along with other precautionary measures to reduce the incidence of the disease through the community field sanitation and participatory technology adoption approach. The adopted fields witnessed 5 to 10% incidence of the disease while adjacent non-adopters faced rapid disease proliferation destroying more than 40% of the crop that compelled them to remove the crop.

Shri Anand Kumar Apte, a progressive farmer of Katrauli village decided to leave banana plantation. But, with help of ICAR-CSSRI and ICAR-CISH scientists, he adopted the management technology and successfully harvested a bumper crop with an income of ₹ 1.50 lakh from his one acre land.

Shri Shalikram, a banana grower of the Magalsi District was the first person in village, whose plantation was affected since four years. He continuously lost four crops of banana due to the disease. Upon obtaining the awareness and adoption of ICAR-FUSICONT technology, he could now, survive his 90% of the banana plants planted in the same fields. The technology proved to be a real helping hand for many other farmers namely - Shri Ganesh

Verma (Mukssonganj), Shri Ramesh (Magalsi), Shri Shoba Ram (Magalsi), etc., who had been successful in controlling about 90% spread of the disease with the help of the technology.

Based on these results the scientists team moved to work on more severely affected Katihar districts of Bihar with the objective of replicating the positive results of Sohawal. As a pilot demonstration, the product was tested in the Katihar District on over 60 acres of bananas. More than 30 farmers adopted the technology hoping to restore banana cultivation in the most severely affected area. The formulation was made available to the farmers of Katihar District from Lucknow through public transport services from time-to-time and disease spread was constantly monitored. The farmers were guided as per the requirements. Ten months after intervention of technology, drastic reduction in the disease to the level of 95% was witnessed in the survey. The farmers, who adopted the technology, were overwhelmed by the response to the formulation.

Shri Amarnath Jha, a progressive farmer of Dighri village of Katihar District in Bihar said that after adopting the technology, he did not find a single diseased plant in his 5 acres plantation after using the formulation in his orchard. He mentioned that the plantation was initially showing more than 30% of the disease inocula prior to the use of technology. Shri Naveen from Kursela also confirmed significant recovery of plants due to application of ICAR-FUSICONT, which were initially affected with the panama wilt disease.

The technology is capable to bring back banana cultivation of the region through community efforts.

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# Celebrations

## ICAR-CIFT celebrates World Food Safety Day

Cochin, 7 June 2019. The ICAR-Central Institute of Fisheries Technology, Cochin celebrated World Food Safety Day. The theme was "Food Safety, everyone's business". Dr Ravishankar CN Director, ICAR-CIFT urged people to uphold tenets of food safety in their daily life. He stressed on the fact that food security requires food safety for its existence. He urged people to collectively take the onus to achieve food security.

The Director, ICAR-CIFT administered pledge to staff members to promote safe food and prevent the food borne risks. The video films on DART (Detecting Adulterants with Rapid Testing) developed by FSSAI for rapid detection of adulterants in household food items were also screened in order to create awareness about methods for detecting food contamination in daily life.

Dr MM Prasad, Head, Microbiology, highlighted emerging concepts like dysbiosis, "order from noise" and underlying relationship between microbiome and human health.

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## XIV convocation of ICAR-CIFE

Mumbai, 22 April 2019. The ICAR-Central Institute of Fisheries Education (CIFE), Mumbai the premier organization in the country involved in human resources development in the field of fisheries and aquaculture, celebrated its XIV convocation. Dr Trilochan Mohapatra, Secretary, DARE and DG, ICAR was the Chief Guest. Dr Gopal Krishna, Director and Vice Chancellor, CIFE underlined the research and thrust areas and achievements in flagship programmes taken up and new academic initiatives taken by the institute. Dr Mohapatra urged students to work towards bringing in blue revolution in the country and stressed upon the need for entrepreneurship development to make the graduates



as 'job providers' rather than 'job seekers'. He explained the true education by saying "there are two types of education - one should teach us how to make a living and the other as how to live".

Dr S Ayyappan, Chancellor, Central Agricultural University, Imphal and Dr Harish Kumar Bhanwal, Chairman, NABARD were awarded honorary degree of D Sc, 134 MFSc and 80 PhD degree were awarded besides presenting 30 gold medals to meritorious students. Ms Jerushma S and Ms Jenishma JS secured top ranks for the Years - 2015-17 and 2016-18, respectively.

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## Foundation day celebrated

### ICAR-IISWC, Research Centre, Vasad



ICAR-Indian Institute of Soil and Water Conservation, Research Centre, Vasad celebrated its 65<sup>th</sup> foundation day. The occasion was graced by spiritual gurus from *Swaminarayan Sansthan* and *Brahma Kumari Ishwariya Vishwa Vidyalaya*, Vasad. More than 70 staff members including retired staff participated. Dr PR Bhatnagar, Head of Vasad Centre elaborated on the achievements and extension of various technologies developed by the centre in due course of its 64 years of existence under various activities viz., research, technology transfer, *Mera Gaon Mera Gaurav*, training and consultancies provided to outside agencies.

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### ARC, ICAR-CSWRI, Bikaner

Bikaner, 4 April 2019. The Arid Region Campus (ARC) of ICAR-Central Sheep and Wool Research Institute, Bikaner celebrated its 46<sup>th</sup> foundation day with full zeal and fervor. Chief Guest Professor (Dr) Vishnu Sharma, Vice-Chancellor, Rajukas and SKRAU urged sheep farmers for adopting mixed farming system combining agriculture, horticulture and animal husbandry. Special Guest of the occasion, Dr Ashok



Kumar, ADG (Animal Health), ICAR applauded the Institute's role to upgrade the sheep breeds in the desert region and protect the sheep from diseases. Dr Kumar also outlined the scientific information about the sheep's better health management.

Dr Arun Kumar Tomar, Director, ICAR-CSWRI, Avikanagar highlighted the usefulness of different sheep breeds. He also discussed about the sheep's scientific management for increasing the sheep's productivity. Dr Tomar underlined the sheep farming's role to ensure a source of permanent income to the poor and marginal families.

One Farmers' Diary for TSP beneficiaries and two technical folders entitled "Artificial insemination in sheep and the main forage vegetation available in desert ecosystem for promotion of sheep husbandry" were also released on the occasion. Around 230 farmers interacted with scientists during farmers'-scientists' meet.

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### ICAR-CIFT, Cochin

Cochin, 29 April 2019. ICAR-CIFT, Cochin, commemorated its 62<sup>nd</sup> foundation day. The function was graced by Dr B Meenakumari, former Chairperson of National Biodiversity Board, Chennai and former DDG (Fisheries), ICAR and also the former Director, ICAR-CIFT as Chief Guest. Dr Ravishankar CN, Director, ICAR-CIFT highlighted prominent



contributions of the Institute during the last year (2018-19). It included the release of path breaking rapid test kit aptly named as 'CIFTTest Kit' for detecting fish contamination by spurious chemicals in fish markets, its impact in controlling adulteration in fish preservation, ICAR-CIFT's recognition by FSSAI as a *National Reference Laboratory* for fish and fish products collaborating with Cochin Shipyard Limited (CSL) for designing deep sea fishing vessels being built at Cochin Shipyard at Kochi, global accreditation as major research partnership with FAO on anti-microbial resistance (AMR) mitigation linking more than 20 institutions across the country, active participation in formulation of KMFRA guidelines for Kerala, major role in preparation of national 'Blue Economy' policy document and in addition playing an active role in recent flood relief measures during 2018 and conducting post flood damage assessment in fisheries sector.

Chief Guest Dr B Meenakumari applauded accomplishments of the Institute during its 62 years of fruitful existence during which the Institute has catered the requirement of harvest and post harvest sectors in fisheries immensely, that has been affirmed by the growth in fishery exports and trade. ICAR-CIFT honoured representatives of the different categories of the retired staff of the Institute.

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### ICAR-DWR, Jabalpur

Jabalpur, 22 April 2019. The ICAR-Directorate of Weed Research, Jabalpur celebrated its 31<sup>st</sup> Foundation Day. The Chief Guest, Dr PK Bisen, Vice-Chancellor, JNKVV, Jabalpur emphasized on competing capacity of weeds with the crops for the various resources and their roles in the reduction of crop yield. Dr Bisen stressed that the weeds are not only reducing yield, but also harboring the insect and diseases.



Guest of Honor, Dr Aparup Das, Director, ICMR-National Institute of Research in Tribal Health, Jabalpur briefed about mutual collaboration between ICAR and ICMR at national level. He also stated about the working of both the organizations for the betterment of the people of the country in terms of nutritional and health security. Dr Das urged for all the possible collaborations between ICAR-DWR, and ICMR-NIRTH, Jabalpur.

Around seven staff members of the Directorate were felicitated for providing memorable services to ICAR for more than 25 years. Two staff members were awarded for their outstanding contribution in ICAR Sports at Zonal and National Levels.

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### ICAR-IISS, Bhopal

Bhopal, 16 April 2019. The ICAR-Indian Institute of Soil Science (IISS), Nabibagh, Bhopal celebrated its 32<sup>nd</sup> Foundation Day with full zeal. Chief Guest, Dr RJ Rao, Vice-Chancellor, Barkatullah University highlighted different ecosystem functions of the soil and underlined the soil's role in the survival of mankind, animal and plant kingdom. He equated soil health with human and animal health. Dr Rao stressed on the fact that the soil which is poor in nutrients and minerals affects the whole food chain.

Guest of Honor, Dr Pankaj Srivastava, Director, Indian Institute of Forest Management (IIFM), Bhopal stressed on saving soil as it is a finite resource. Referring a report of ICAR, Dr Srivastava highlighted that 20% productivity increase can be ensured by arresting the soil erosion.



Dr Ashok K Patra, Director, ICAR-IISS underlined the Institute's mission for improving the soil productivity with the minimal environmental degradation. He underlined the Institute's various achievements, viz. soil testing kit (*Mridaparikshak*), soil fertility maps for 536 districts, rapid composting unit and use of nanotechnology for soil nutrients from waste mica and rock phosphate.

The Chief Guest and dignitaries released various publications such as institute's newsletters, IISS profile and also launched an e-magazine "HARIT DHARA". Farmers from the villages adopted under the *Mera Gaon Mera Gaurav* (MGMG), Farmers' First and CRP on Conservation Agriculture schemes and the National and State Level Award Winning Farmers were felicitated. A farmers'-scientists'-interaction was also held on the theme "Site specific soil and water management technologies".

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### ICAR-CIRC celebrates World Veterinary Day - 2019

Meerut, Uttar Pradesh, 27 April 2019. The ICAR-Central Institute for Research on Cattle, Meerut celebrated the World Veterinary Day - 2019 at its campus. Chief Guest, Dr Ashok Kumar, ADG (Animal Health), ICAR, New Delhi stressed on the routine vaccination of the dairy animals to maintain their health and get assured profits from the production of better quality milk. Dr Kumar also opined the farmers



for dispelling the myths among the people about the drop in milk yield due to vaccination. He also made them aware about the availability of a number of high quality vaccines now-a-days in the markets that are capable enough to protect the animals from falling prey to the outbreaks of diseases. The ADG also highlighted the ICAR's role in making the products like FMD vaccine that is thermo-stable and effective.

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### KVK, Rohru, Shimla celebrates Himachal Day

Rohru, Shimla, 15 April 2019. The Krishi Vigyan Kendra, Shimla celebrated the Himachal Day at its campus today. Chief Guest, Dr Rajbir Singh, Director, Agricultural Technology Application Research Institute, Zone-1, Ludhiana addressed the seeds and pesticides dealers undergoing Diploma in Agriculture Extension and Services for Input-Dealers (DAESI). He emphasized on agricultural input dealers' role in transferring technology to farmers as they are the first persons to be contacted while planning crop production or to address any problem in crop





production. The Scientists'-Orchardists'-Interaction Meetings were also organized in the cluster of villages. Groups of 30-40 farmers participated and shared their experiences and problems in apple cultivation.

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## 5th International Day of Yoga

New Delhi, 21 June 2019. ICAR Hqrs. and IARI, New Delhi celebrated International Day of Yoga on 21 June 2019 at ICAR-IARI ground. Shri Kailash Choudhary, Union Minister of State for Agriculture and Farmers



Welfare, Dr Trilochan Mohapatra, Secretary (DARE) and Director General (ICAR) and other senior officials of ICAR were present on this occasion and performed yoga with employees of ICAR Hqrs. and other Delhi based institutes of ICAR.

Institutes of ICAR also celebrated International Day of Yoga with enthusiasm. Senior officers and staff members performed yoga under guidance of yoga instructors of their respective areas. The main event for 5<sup>th</sup> International Day of Yoga was held in Ranchi, capital of Jharkhand which was led by Honorable Prime Minister of India, Shri Narendra Modi. The theme this year was 'Yoga for Heart'.

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## Visits

### Shri Kailash Choudhary visits KVK, Barmer-II (Rajasthan)

Barmer-II, 9 June 2019. Shri Kailash Choudhary, Union Minister of State for Agriculture and Farmers Welfare, visited the Krishi Vigyan Kendra, Barmer-II (Gudamalini). The Minister urged farmers to properly utilize natural resources, especially, water for maintaining agro-ecological sustainability.

The Minister took part in *Kharif Kisan Mela* and monitored the various facilities of the KVK campus. Addressing the gathering of farmers he monitored various welfare schemes including vaccination for



proper management of foot and mouth diseases of animals. The Minister emphasized upon implementation of need-based work plan for doubling the Farmers' Income by the Year - 2022.

Dr OP Yadav, Director, CAZRI underlined different technological options suitable for the arid zone of Rajasthan. Dr SK Singh, Director, ICAR-ATARI, Jodhpur highlighted the different methodologies and approaches being followed by the KVKs for learning, applications and sustainable livelihood security. Dr Ishwar Singh, Director (Extension Education) outlined the major initiatives undertaken by the Agriculture University, Jodhpur to strengthen the effective functioning of KVK. More than 1,500 farmers registered their participation in the programme.

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### DG, ICAR visits ICAR-CIFT, Cochin

Cochin, 25 May 2019. Dr Trilochan Mohapatra, Secretary (DARE) and DG (ICAR) along with Dr JK Jena, DDG (Fisheries Science), ICAR and Dr P Pravin, ADG (Fisheries Science), ICAR visited ICAR-Central Institute of Fisheries Technology, Cochin. The DG inaugurated the newly established National Referral Laboratory at ICAR-CIFT. The Director General also inaugurated the Fish Behaviour Laboratory and CIFT



Solar Boat II developed at ICAR-CIFT.

He applauded the great work done by ICAR-CIFT and emphasized on perfection in work. He appreciated ICAR-CIFT for providing great visibility to ICAR. He called for better communication of salient achievement to stakeholders and asked for preparation of brief flyers on all available technologies.

He released six new technologies developed by ICAR-CIFT namely; Squalene powder, Fish Soup Powder, ChitoPro, Tunnel Dryer, Table Top Fish Descaling Machine and Fish Freshness Sensor. The DG officially released three new mobile apps developed by ICAR-CIFT namely *CIFT FISHPRO*, *CIFT LABTEST* and *CIFTraining* during the function.

The event also witnessed release of ICAR-CIFT training calendar and eight other publications. The DG also launched products developed by Incubates at ABI of ICAR-CIFT namely Cashew Oats Cookies by Smile and Take, Ready to Cook Mussel (Retort) by Foo Foods, Dry fish products by Emma Foods, Dry fish products by Chef n Kitchen, Dried fish and Dry fish products by Mr Fish.

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## Secretary, Department of Fisheries visits ICAR-CIFT, Cochin

Cochin, 4 April 2019. Smt Rajni Sekhari Sibal, IAS, Secretary, Department of Fisheries, Government of India visited ICAR-Central Institute of Fisheries Technology, Cochin. Smt Sibal was on three days official visit to Cochin in which she visited different NABL accredited laboratories of Institute, FSSAI lab, net mending workshop, engineering workshop and BPD unit, etc., and applauded the Institute's technologies. Smt Sibal stressed on organization of exclusive workshops on harvesting and post-harvesting for disseminating the technologies to the various fisheries stakeholders on a wide scale across the country.

The Secretary discussed with members of Sea Food



Exporters Association of Kerala about seafood trade's status, its problems and opportunities Dr Ravishankar CN, Director, ICAR-CIFT underlined the Institute's roles and accomplishments in the field of harvest and post-harvest research in fisheries. He highlighted the Institute's working since last six decades in a convergence mode with all the research and development organisations namely different State Fisheries Departments, NIPHAT, CIFNET, MPEDA, NFDB, EIA and FSSAI, etc.

Dr Ravishankar stated that the tremendous impact in the sector in recent past created by the Institute because of its unique recognition by FSSAI as the "*National Referral and Reference Laboratory*" for fish and fish products; invention of real-time, rapid detection kit commercially known as "*CIFTest Kit*" for detecting the adulteration of formaldehyde and ammonia in fresh fish, etc.

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## Secretary, ICAR visits ICAR-IISWC, RC, Agra

Agra, 13 March 2019. Shri Sushil Kumar, Additional Secretary (DARE) and Secretary, (ICAR) visited ICAR-IISWC, RC, Agra. He took a keen interest in research works and visited facilities and research farm of the Center. He emphasized on strengthening linkages of the research centre with the mandated states to ensure large-scale transfer of soil and water



conservation technologies through training, demonstrations and such other means that help widespread adoptions by the end-users. He showed interest to help solve the existing administrative difficulties by mobilizing concerned departments and officials. He suggested exploring the possibility of bringing more research and development fund from funding agencies like DST to strengthen the research and facilities of the Center.

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## Secretary, ICAR visits ICAR-CIRCOT, Mumbai

Mumbai, 1 May 2019. Shri Sushil Kumar, Additional Secretary (DARE) and Secretary (ICAR) visited the ICAR-Central Institute for Research on Cotton Technology, Mumbai.

Shri Kumar applauded the Institute's progress and the linkages established with the industrial stakeholders. He also urged for focusing on the frontier areas of research. During the visit, Shri Kumar opined the scientists to collaborate with the associated professional organizations like FICCI and CII; research organizations like TIFR, BARC, Mumbai University, etc., and explore possibility to bring more research



and development fund for strengthening the research facilities. Shri Kumar also reviewed the Institute's administrative and financial matters.

On 30<sup>th</sup> April, 2019, Shri Sushil Kumar also flagged-off a team of Jalmitra from the institute for *Mahashramdaan Programme* of Paani Foundation to build the water conservation structures for the ground water recharge in drought prone village of Sawarde in Sangli District.

Two publications on incubation programmes under CIRCOT-R-ABI were released. The occasion also marked the inauguration of website of the CIRCOT RKVY-RAFTAAR Agri Business Incubator.

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## Achievements of agricultural research make India proud— Shri Narendra Singh Tomar

New Delhi, 3 June 2019. Shri Narendra Singh Tomar, Honorable Minister of Agriculture and Farmers Welfare was introduced to senior officers of DARE and ICAR and reviewed activities and achievements of the Department and the Council. Shri Tomar stressed on making targeted research and asked to do research to strengthen the Indian agricultural system. The achievements of agricultural research are such that the country and society should feel proud and agricultural research will increase their confidence in generation of income, as well as increase production, productivity and income for future generations.

On this occasion, Union Minister of State for Agriculture and Farmers Welfare, Shri Parshottam Rupala gave special emphasis on making agricultural research more self-made by earning more money.

The Union Minister of State for Agriculture and Farmers Welfare, Shri Kailash Chaudhary, asked to pay attention to proper management for not being negatively impacted by the price of higher production.

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Secretary, DARE and DG, ICAR welcoming Shri Narendra Singh Tomar, Honorable Union Minister of Agriculture and Farmers Welfare.



Secretary, DARE and DG, ICAR welcoming Shri Parshottam Rupala, Honorable Union Minister of State for Agriculture and Farmers Welfare



Secretary, DARE and DG, ICAR welcoming Shri Kailash Chaudhary, Honorable Union Minister of State for Agriculture and Farmers Welfare

## ICAR's New Ministers

### Shri Narendra Singh Tomar



Shri Narendra Singh Tomar is the Union Minister of Agriculture and Farmers' Welfare, Rural Development and Panchayati Raj, Government of India.

Shri Tomar was born on June 12, 1957 in village Morar, district Gwalior in Madhya Pradesh to Shri Munshi Singh Tomar and Smt Sharda Devi Tomar. He completed his graduation (B.A.) from Jiwaji University, Madhya Pradesh and took a plunge into politics in the late 1970s becoming the President of Chhatra Sangh in Shaskiya Mahavidyalaya Murar, Gwalior.

Shri Tomar was briefly the Member of Parliament in Rajya Sabha before being elected from Gwalior Lok Sabha constituency in 2009. Shri Tomar was inducted as a cabinet minister in charge of various portfolios like

Labour and Employment, Steel, Mines, Drinking Water and Sanitation, Panchayati Raj, Rural Development and Parliamentary Affairs.

### Shri Parshottam Rupala



Shri Parshottam Rupala is Union Minister of State for Agriculture and Farmers Welfare, Government of India.

Shri Parshottam Rupala was born on 1 October 1954 in Ishwaria (Mahadev),

District Amreli (Gujarat) to Late Shri Khodabhai Madhabhai Rupala and Smt Hariben Khodabhai Rupala.

He did his B.Sc., B.Ed. from Saurashtra University, Rajkot and Gujarat University, Ahmedabad in 1976-77. He was elected to Rajya Sabha (second term) from 5 July 2016 - 30 May 2019 and served as Minister of State in the Ministry of Agriculture and Farmers Welfare, as Minister of State in the Ministry of Panchayati Raj April 2018. He was re-elected to Rajya Sabha (third term) on 30 May 2019 onwards as Minister of State in the Ministry of Agriculture and Farmers Welfare.

### Shri Kailash Choudhary

Shri Kailash Choudhary is Union Minister of State for Agriculture and Farmers Welfare, Government of India.

Shri Kailash Choudhary was born on 20 September 1973 to Shri Tagaram Chaudhary. He did his Graduation and B.P. Ed.



He is a Member of Parliament from Barmer constituency. He was a former Member of the Rajasthan Legislative Assembly from 2013 to 2018 elected from Baytoo Vidhan Sabha constituency of Rajasthan.

On 23 May 2019, Shri Kailash Choudhary got elected as Member of Parliament from Barmer-Jaisalmer constituency. On 31 May 2019, Shri Kailash Choudhary became Minister of State for Agriculture and Farmers Welfare.

### Jai Kisan, Jai Vigyan

- A total of ₹ 788.33 crores have been sanctioned for opening six new agricultural colleges for eastern India under Central Agricultural University, Imphal, and a new Central Agricultural University in Meghalaya.
- For the establishment of two new agricultural research institutes in Assam and Jharkhand, a sum ₹ 100 crores is allocated.
- First academic session of the Rani Lakshmbai Central Agricultural University has been allocated for four new agricultural colleges in Datya and Jhansi.
- An Memorandum of Understanding was signed for transforming the Rajendra Central Agricultural University, Pusa, Samstipur, Bihar. A proposal of ₹ 400 crores is submitted in EFC.
- Post-Graduate Institute of Horticulture is being established in Amritsar, Punjab.
- Foundation stone of the Indian Institute of Agricultural Biotechnology is laid at Ranchi for promoting agricultural biotechnology.

## Trainings

Rehmankhhera, 5 April 2019. The ICAR-Central Institute for Subtropical Horticulture, Rehmankhhera organized 200 hours (1 month) Gardener Training Programme under the *Pradhan Mantri Kaushal Vikas*



*Yojana* (PMKSY), Agriculture Skill Council of India (Ministry of Skill Development and Entrepreneurship). The programme was inaugurated by Dr S Rajan, Director, CISH.

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Dehradun, 2 May 2019. Off-Campus Training programmes on “Motivation, Positive Thinking and Communication Skills for Technical Officers (T-5 and above) of ICAR institutes” was concluded at ICAR-Indian Institute of Soil and Water Conservation,



Dehradun. The six day training programme was jointly organized by ICAR-NAARM and ICAR-IISWC, Dehradun.

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Cochin, 8 May 2019. Mumbai Research Centre of ICAR-CIFT conducted three days training cum demonstration programme on “Value addition of fish and fishery products” for students of department of Zoology and department of food processing and nutrition, Akkamahadevi Women’s University, Bijapur,



Vijayapura District, Karnataka. The programme was conducted in collaboration with the Fisheries Research and Information Centre, Bhutnal, Karnataka

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Lucknow, 12 May 2019.

The ICAR-Central Institute for Subtropical Horticulture, Lucknow organized one day training programme on Ready to Fruit Bags Milky Mushroom Cultivation. The programme was inaugurated by Dr Shailendra Rajan, Director, ICAR-Central Institute of Subtropical Horticulture, Lucknow. Dr Rajan underlined the nutritional and beneficial effects of milky mushroom.



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## Retirements/Relievings

Name, Designation and Address	Date of retirement
Dr PP Biswas, Principal Scientist, ICAR Hqrs.	30.04.2019
Dr KK Singh, Director, CIAE, Bhopal	Voluntary retirement w.e.f. 15.04.2019 (selected as Member, ASRB)
Dr PK Chakrabarty, Principal Scientist, ICAR Hqrs.	-do-
Dr Pawan Kumar Agrawal, ADG (NASF), ICAR Hqrs.	Relieved from Council’s service w.e.f. 13.05.2019 (selected as V C)
Dr SD Sawant, Director, NRCG, Pune	Relieved from Council’s service w.e.f. 25.05.2019 (selected as V C)

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