



## 17. Partnership and Linkages

The International Cooperation in DARE has been operating through the Memoranda of Understandings/Work Plans signed with various countries/International organizations with DARE as the Nodal Department, and through participation of ICAR in the MoUs/Work Plans signed by the Department of Agriculture and Cooperation as the Nodal Department. Besides, Ministry of Science and Technology has developed Programme of Cooperation with various International Organizations in which ICAR is the participating agency in the field of agricultural research. The Joint Commissions/Working Groups constituted by the Ministry of External affairs, and the Ministry of Commerce have the component of agricultural research in which DARE participates directly or through the Department of Agriculture and Cooperation.

The DARE organizes visits of foreign nationals on request. The Department also receives proposals for customized training courses for foreign nationals.

### Memoranda of Understandings

- Memorandum of Understanding between ICAR and Auburn University, USA was signed on 11 December 2014.
- Memorandum of Understanding between ICAR and the University Court of the University of Edinburgh, Scotland, United Kingdom for Cooperation in Agricultural and Veterinary Research and Education was signed on 16 February 2015.
- Memorandum of Understanding between ICAR and Eastern Africa Statistical Training Centre, Tanzania signed on 19 June 2015.
- Memorandum of Understanding between ICAR and Seychelles Agricultural Agency, Seychelles signed on 26 August 2015.

### Memorandum of Agreement

Memorandum of Agreement for setting up of an 'Advance Centre for Agricultural Research and Education' at Yezin, Myanmar to assist Government of Myanmar's efforts in capacity building of Myanmar's scientific and technical staff with support of equipment, training, research and participatory knowledge management in the vital areas of New Genetics (molecular breeding), Post-Harvest Technology, Participatory Knowledge Management and Capacity Building was signed on 21 September 2015.

### Work Plan

The Work Plan between ICAR and International

Livestock Research Institute (ILRI), Kenya was signed. The Work Plan *inter-alia* emphasises on joint animal science research activities on selected programmes of mutual interest viz. Animal Health, Animal Breeding etc.

## MAJOR EVENTS

### BRICS

The Brazil, Russia, India, China and South Africa (BRICS) economies are major producers, consumers and exporters of agricultural, horticultural and meat products. 'Enhance agricultural technology cooperation and innovation' is the theme to be coordinated by India in collaboration with other four countries. During the interventions at the Seventh BRICS Summit from 8 to 9 July 2015 in Ufa, Russia, Hon'ble Prime Minister, *inter-alia* proposed setting up of BRICS Agricultural Research Centre (BARC) in India. It was also suggested to establish a system whereby BRICS countries can cooperate for production and investment in infrastructure in major agriculture/land rich nations.

The 5<sup>th</sup> Meeting of the BRICS Agricultural Cooperation Working Group (ACWG) took place in Moscow, Russian Federation from 12 to 13 August 2015 which was attended by Indian delegation led by Additional Secretary (DARE) and Secretary (ICAR). India made a presentation on the main elements of the agricultural research priorities and current state of agricultural production, prioritized challenges and climate smart agriculture. The issue of establishment of BRICS Agriculture Research Centre was raised and discussed in this meeting. The countries agreed to consider the establishment of the BARC and asked India to provide more information about the Centre.

The Department of Agricultural Research and Education prepared a Draft Framework Document for establishment of BRICS Agriculture Research Centre and circulated to all BRICS Member countries.

The Meeting of the BRICS Ministers of Agriculture and Agrarian Development was held in Moscow, Russian Federation from 7 to 9 October 2015 which was attended by the Indian Delegation led by Union Minister of State for Agriculture and Farmers Welfare, Shri Mohan Bhai Kundariya. During the meeting, it was agreed to consider the initiative to establish the BRICS Agricultural Research Centre (BARC) proposed by India and to intensify cooperation in the areas of agricultural sciences, technology, innovation and capacity building including technologies for family farming and to increase yields and farmers' incomes.



### Meeting with Agriculture Counsellors of different countries

The DARE organized a meeting of Agriculture Counsellors in India on 14 September 2015 in New Delhi under the Chairmanship of Secretary (DARE) and Director General (ICAR) to showcase capability and technological strength of National Agricultural Research System (NARS).

### Meeting with Ambassadors/ High Commissioners of African Countries

The DARE organized a meeting of the Ambassadors/ High Commissioners of African countries in India on 15 September 2015 in New Delhi under the Chairmanship of Secretary (DARE) and Director General (ICAR). The purpose of the meeting was to work out mechanisms to promote mutual growth and prosperity through cooperation in agriculture and allied sciences. Discussions were held on various issues, including progress made on projects being implemented by the DARE under the India-Africa Forum Summit, opportunities for African scientists to undergo training programmes in the ICAR institutes and fellowships for African students in India.

### India-Africa Forum Summit

The Department of Agricultural Research and Education (DARE) has been designated the nodal department for the following programmes under the India-Africa Forum Summit:

1. India-Africa Fellowships in Agriculture (under IAFS-I and II)
2. Establishment of various laboratories/centres in Africa (under IAFS-II)
  - (i) Soil, Water and Tissue Testing Laboratories
  - (ii) Agricultural Seed Production-cum-Demonstration Centres
  - (iii) Farm Science Centres
3. Pan African University of Life and Earth Sciences (PAULESI) at University of Ibadan, Nigeria (IAFS-II)

The India-Africa Fellowships programme envisaged a total of 200 fellowships for the M.Sc programme and 100 fellowships for Ph.D. programme in Agriculture. It has achieved major success, with 195 students joining M.Sc. and Ph.D. Programmes since its commencement, and with 106 students having successfully completed their course. With regard to the establishment of projects/laboratories in Africa together with the Pan African University of Life and Earth Sciences (PAULESI), the department is making considerable progress, and intends to impart training (both on sites and off sites) to the African experts in tandem with the commissioning of the projects, so as to facilitate full-fledged functioning of the laboratories and their successful replication in other African countries.

### Foreign Collaborative Projects with ICAR

Foreign Collaborative Projects (FCP) are undertaken by the different institutes of ICAR and same are examined

in consultation with SMDs and considered for approval. DARE has approved following Collaborative Projects for implementation during the year:

- ‘Low-Carbon Footprint Cool Storage Structure to Empower Farmers-Improving Storage and Enabling Processing of Perishable Produce’. The collaborate partners of the projects are Indian Agricultural Research Institute, New Delhi and Michigan State University (USA).
- ‘Cryopreservation of embryonic stem cells and primordial germ cells for transplantation and surrogate fish production. Its partners are Central Institute of Freshwater Aquaculture, Bhubaneswar and IIB-INTECH (CONICET-UNSAM).
- ‘Improving crop and water productivity in Indira Gandhi Canal Command Area (Phase-II). The collaborate partners of the project are International Centre for Agricultural Research in the Dry Area (ICARDA) and Central Arid Zone Research Institute, Jodhpur.
- ‘Developing and defining climate smart agriculture practices portfolios in South Asia’. This is sponsored by CGIAR Research Programme on ‘Climate Change, Agriculture and Food Security’. The collaborating partners of this project are CIMMYT, Agricultural Universities and ICAR.

## PROGRAMMES OF DARE

### ASEAN-India Cooperation

Under the Medium-Term Action Plan of ASEAN-India, following Joint Collaborative Projects in different areas are under consideration:

- Agroforestry interventions for livelihood opportunities.
- Proposal for visit of ASEAN Farmers’ delegation to India under ASEAN India Farmers Exchange Programme.
- Proposal for visit of Indian Farmers’ delegation to Thailand under ASEAN-India Farmers Exchange Programme.
- Capacity development in managing food security and price volatility in ASEAN Countries.
- Empowerment of India: ASEAN women through Cooperatives.
- Genetic improvement of hybrid rice parental lines for enhancing yield heterosis. The approval has been received from the Indian Mission ASEAN/MEA and the same is being examined/processed in Department of Agricultural Research and Education.
- Buffalo production using reproductive biotechnology.
- Sandwich Master Degree Programmes between India and ASEAN Member Countries.
- Exchange of scientists from agricultural research institutions in ASEAN Member States and India.





- ASEAN-India Fellowships for Higher Education in India and ASEAN Countries.
- Demonstration and Exchange of Farm Implement and Machinery.

### **Afghan National Agricultural Sciences and Technology University**

Afghan National Agricultural Sciences and Technology University (ANASTU) at Kandahar has been established with the support of the Ministry of External Affairs, Government of India under the bilateral cooperation programme between Afghanistan and India. Various initiatives taken are as under:

- A set of books for ANASTU library has been dispatched in May 2015.
- Laboratory instruments and farm equipment for ANASTU.
- Tele Teaching on 'Principles and Practices of Weed Management' was conducted by IARI in April 2015. Subsequently, courses on 'Water Management', 'Agronomy of Oilseed Crops' and 'Pulses' were completed. Courses on 'Agronomy of Commercial Crops' and 'Basic Design of Experiments' are in progress.
- Training of ANASTU faculty (16) for six-weeks by IARI is likely to commence in five different areas.

### **Consultative Group on International Agricultural Research**

It is an international organization that advances agricultural research for a food secure future by integrating and coordinating efforts of those who fund research and do the research. It works through various research centres located in various continents of the world. India is a donor member of CGIAR system and accordingly, provisions in Plan and Non-Plan budget have been made for the financial year 2015-16.

One of the 15 CG Research Centres, International Crops Research Institute for Semi-Arid Tropics has its Hqrs. (Office) in India. IRRI and India have been successfully collaborating for more than 4 decades. ICAR as a nodal body for IRRIs programmes in India endorsed GRISP on 4 September 2010 and mutually agreed to continue and strengthen collaboration.

The Indian Council of Agricultural Research as nodal body has signed MoUs/MoAs with different Institutions. These CGIAR research centres are engaged in various kinds of agricultural CG research activities in India in accordance with their subject domain through collaboration with the ICAR Institutes by aligning their activities in line with National priority in the field of agriculture.

## **CENTRAL AGRICULTURAL UNIVERSITIES**

### **CAU, Imphal**

The Central Agricultural University, Imphal is premier centrally funded University at Imphal. It has jurisdiction over north-eastern states except Nagaland and Assam. The University has seven campuses, and nine Undergraduate,

fortyone Post-graduate courses and sixteen Ph.D. Programmes in different disciplines. During 2015-16, a total of 378, 144 and 19 students were enrolled in Undergraduate, Postgraduate and Ph.D. programmes, respectively. Altogether, 229 Undergraduate and 58 Postgraduate students completed their degrees. First Ph.D. Degree of this University was completed by one student of College of Veterinary Science and Animal Husbandry, Aizwal in the specialized area of Veterinary Microbiology during the current year.

The CAU, Imphal started classes at 4 new colleges namely B.Sc. (Agriculture) at College of Agriculture, Pasighat; B.Tech (Food Technology) at College of Food Technology, Imphal; B.Sc. (Horticultural Science) at College of Horticulture, Sikkim; and B.Sc. (Agriculture) at College of Agriculture, Barapani, Meghalaya.

### **RLBCAU, Jhansi**

The Rani Lakshmi Bai Central Agricultural University (RLBCAU) continued its academic activities by admitting second batch of students for B. Sc. (Agriculture) programme. The Government of Uttar Pradesh has consented to make available 300 acres of land presently in use by IGFRI and Central Agroforestry Research Institute at Jhansi for the establishment and use by Rani Lakshmi Bai Central Agricultural University. Similarly, Government of Madhya Pradesh has also allotted 175 acres at Datia. The University is to establish its headquarters and constituent College of Agriculture, and College of Horticultural Science and Forestry at Jhansi and two colleges, namely College of Veterinary and Animal Science, and College of Fisheries at Datia, Madhya Pradesh. The University initiated research activities under its newly established sub-centre of AICRP on Chick pea at Jhansi.

## **AGRINNOVATE INDIA LIMITED**

Agrinnovate India Limited (AgIn), established in 2011, is the commercial arm of the Indian Council of Agricultural Research. It identifies, protects and commercializes the intellectual property developed in ICAR. AgIn facilitates and accelerates the transfer of innovative technology from basic research to industry by working closely with industrial partners spanning the agriculture sector. Key operation areas of AgIn are Collaborative and Contract Research, Technology Management and Licensing, Strategic Collaborations and Turn Key Projects, Market Research and Marketing, Human Resource Development and Capacity Building and Business Incubation.

The Company is successfully moving towards meeting its objectives and building 'A world of Innovative Partnerships'. The Vision of the company is to stimulate, foster, enhance and catalyse innovation and capacity driven agricultural development through partnerships. AgIn coordinated various training and capacity building programmes for Biofertilizer and Biopesticides at IARI, Bioorganic Fertilization at IARI, Insect Biological Control (Mass rearing) of Agriculture Pests at NBAII,





Bengaluru, Training for 3 agricultural engineers of Seed Technology Centre-Iraq for 8 days at IARI, New Delhi, and training on Pesticide testing under FAO at IARI, New Delhi for two technical persons from Mongolian Government.

AgIn in partnership with Directorate of Knowledge Management in Agriculture, participated in the Global R&D Summit 2014 organized by Federation of Indian Chambers of Commerce and Industry (FICCI) wherein some of the cutting edge technologies, products and solutions of ICAR Institutes were exhibited to key customers, business buyers, investors, scientific community and media at large. AgIn has also licensed designs of 31 Agricultural Engineering Machineries from Indian Institute of Horticultural Research, Bengaluru to private sector on 19 January 2015.

Agrinnovate India Limited has also facilitated in organizing training programmes for West Africa Agricultural Productivity Programme for Nigerian candidates in Fish Breeding Technology at CIFA, Bhubaneswar course on Food Science Technology at Central Institute of Agricultural Engineering, Bhopal; and also a programme on Seed Technology at Directorate of Seed Research, Mau, for Nigerian candidates.

## CONSULTANCIES

Consultancy proposals as and when received from different ICAR institutes are examined in consultation with SMDs and considered for approval. The following consultancy proposals were approved during the reported year.

- Principal Scientist and Incharge, ZTM & BPD, Indian Agricultural Research Institute (IARI) has undertaken International Consultancy for technical advice to NSB/NARC for Intellectual Property Right (IPR) and Business Models for seed varieties and planning material to IFPRI, Washington, USA in Consultation with SMPS.
- National Fellow, IASRI, New Delhi provided consultancy for implementation of the Global Strategy to Improve Agricultural and Rural Statistics in Sri Lanka with home-based work as a sampling expert to assist with development of improved sampling design/methodology for crop yield estimation in the country at national and sub-national levels for 45 days in mission during 2015 and 2016 under the FAO Project.
- Consultancy proposal of IVRI, Izatnagar in the area of 'Videos for Farmers'.

## INTERNATIONAL WORKSHOPS/ CONFERENCES/SYMPOSIA

The Department of Agricultural Research and Education is the nodal Department for granting permission for organizing workshops/conferences/symposia in agricultural research and education. Following International Conferences, Seminars, Symposia have been approved during the reported period.

- XII Agricultural Science Congress (ASC 2015) on Sustainable Livelihood Security for Small Holder Farmers was held from 3 to 6 February 2015 at National Dairy Research Institute, Karnal.
- World Health Organization sponsored International Workshop on 'Third Pilot Session of the Five Keys to Safer Aquaculture Products to Protect Public Health' at Central Institute of Freshwater Aquaculture, Bhubaneswar (Odisha) from 2 to 4 February 2015.
- Joint International Workshop between Indian Council of Agricultural Research, India and University of Edinburgh, United Kingdom on 'Production, Animal Health and Welfare Research: Impact and Opportunities' was held from 16 to 17 February 2015 in New Delhi.
- Indo-French Workshop on 'Scientific Cooperation for Agricultural Research' was held from 9 to 11 March 2015 in New Delhi.
- Second International Symposium on 'Marine Ecosystems – Challenges and Opportunities (MECOS2)' was held from 2 to 5 December 2014 at Kochi, Kerala.
- Food and Agriculture Organization sponsored 'Expert Workshop on Food loss from Gillnet and Trammel Net Fishing' at Central Institute of Fisheries Technology, Cochin from 8 to 10 April 2015.
- International Conference on 'Plant Pathogens and People' with the mission 'Challenges in Plant Pathology to benefit humankind' from 23 to 27 February 2016, New Delhi.
- Asian Seed Congress, 2015 was held from 16 to 20 November 2015 in Goa.
- The 25 Asian-Pacific Weed Science Society Conference on 'Weed Science for Sustainable Agriculture, Environment and Biodiversity' was held in Hyderabad from 13 to 16 October 2015.
- International Conference on 'Pulses for Nutritional Security and Agricultural Sustainability (PulsCon 2016)' was held from 12 to 14 November 2015 in New Delhi.
- International Conference on 'Agroforestry in South Asia: The way Forward' was held from 8 to 10 October 2015 New Delhi.
- V International Symposium on 'Cage Aquaculture in Asia (CAA5)' was held from 25 to 28 November 2015 in Cochin (Kerala).

## PROTOCOL ACTIVITIES

### VIP Delegations

- Minister for Agriculture, Fiji's Mr Inia Batikoto Seruiratutour, led 15- member delegation from Rural and Maritime Development and National Disaster Management, Fiji visited Central Inland Fisheries Technology and Central Marine Fisheries Research Institute, Cochin from 25 January to 5 February 2015.
- Mr Akram Chehayeb, Lebanese Agriculture





Minister led a 15-member delegation and visited Indian Agricultural Research Institute on 6 February 2015.

- Minister for Food, Agriculture and Forestry, State of Bavaria, Germany, Mr Helmut Brunner led a 20-member high level business delegation and visited University of Agricultural Sciences, Bengaluru between 27 March and 2 April 2015.
- A six member Nepalese delegation visited India from 24 to 30 March 2015 under Indo-Nepal Joint Agricultural Working Group. The delegation visited NDRI, Karnal; IVRI, Izatnagar; and IARI, New Delhi.
- A Chilean delegation along with some diplomats from the Embassy of Chile, New Delhi visited Indian Agricultural Research Institute, New Delhi on 14 April 2015.
- State Minister of Agriculture from Zhejiang State, China led agriculture delegation to India in April 2015.
- Mrs Katia Abreu, Minister of Agriculture, Livestock and Food supply, Brazil and Mr Mericino Antonio Lopes President, Agriculture Research of the Cooperation (EMBRAPA) from Embassy of the Federative Republic of Brazil, visited IARI, New Delhi on 13 November 2015.

