

Reporter

www.icar.org.in

JANUARY – MARCH 2014



News in Brief

From the DG's Desk	1
Workshops, Meetings, Seminars, Conferences	3
Conference of Vice Chancellors of Agricultural Universities and ICAR Dir...	3
85 th Annual General Meeting of the ICAR Society	5
Internet Protocol version 6 (IPv6)	6
Technical measures as tools for fisheries management in India	7
IPR in Agriculture	8
Third innovative and progressive farmers' meet	9
Mitigating micro-nutrient deficiency in fodder crops in southern India	10
International Linkages	
Combating staphylococcal mastitis in bovine	11
Steering Committee Meeting of CGIAR Research Programme on Dryland Systems	12
Success Stories	
Prosperity through technology interventions	12
Satellite fish nursery technique...	13
Celebrations/Awareness	
Eastern zone regional agricultural fair	13
Technology Week and <i>Krishi Mela</i> 2014	14
25 th Foundation Day of NRC Yak	15
National Science Day	16
World Water Day	17
Capacity Building	
ASHOKA-the first super computing hub in agriculture	17
National initiative on climate resilient agriculture for KVKs of Zone-V	17
Sun-boat solar power for eco-fishing	18
Bioinoculant laboratory building inaugurated at CPCRI	18
Visits	19
Trainings	19
Personnel	20

From the DG's Desk

Dear Readers,

Indian agriculture is facing diverse challenges and constraints due to growing demographic pressure, increasing food, feed, fuel, and fodder needs, natural resource degradation and climate change. Diversification of land use with agroforestry can address some of these challenges. Realizing the potential of agroforestry, ICAR initiated the All India Coordinated Research Project on Agroforestry (AICRPAF) in 1983 and subsequently established a National Research Centre for Agroforestry (NRCAF) on 8 May in 1988 at Jhansi (Uttar Pradesh) to accelerate basic, strategic and applied research in agroforestry.

Diagnosis and Design of the agroforestry practices, collection and evaluation, and propagation of Multi-Purpose Tree Species (MPTS) and development and management of agroforestry systems for different agro-climatic regions were the central themes of agroforestry research in the country. Diagnostic and Design survey by the centres generated valuable information and identified important agroforestry practices in the country. Tree selection and improvement of species such as poplar, *Eucalyptus*, *Dalbergia* sp., neem, *Acacia* sp., *Leucaena* sp., *Ailanthus* sp., *Pongamia* sp., *Casuarina* sp., *Anogeissus* sp., bamboos and *Mangium* constituted another principal focus of the scheme. Clonal seed orchards for a number of important tree species have been established. In 2003, the AICRP on Agroforestry also initiated systematic work on biofuel research with major emphasis on Tree Borne Oilseeds such as *Jatropha* sp., *Pongamia* sp., *Simarouba* sp. etc. Besides, agroforestry practices have been inter-twined with the several programmes/schemes like watershed development, rehabilitation of problem soils, treatment of degraded and other wastelands etc. Poplar and *Eucalyptus* based agroforestry in the Indo-Gangetic region; *Eucalyptus* and *Leucaena* based agroforestry in Andhra Pradesh and other southern states; *Ailanthus* based in Gujarat are prominent examples in this respect. The multifunctional homegardens in Kerala and other coastal states promote food security and diversity and provide basic needs of food, fuel-



wood, fodder, plant-derived medicines, and cash income from their small holdings. They also provide 70 to 84 % of the commercial timber requirements in these states. Agroforestry is also providing livelihood opportunities through livestock production, lac, apiculture and sericulture cultivation etc. Suitable trees for gum and resin have been identified for development under agroforestry.

Due to diverse options and products, the agroforestry systems provide opportunities for employment generation in rural areas through the MNREGA programme of the Ministry of Rural Development, Government of India. Increased supply of wood in the market also stimulated the small-scale industries dealing with wood and wood-based products in several localities in the country. Sericulture-based agroforestry systems on sloping areas combine soil conservation with production function and generate income as well as employment. At land management level, sericulture-based silvi-

Agroforestry is the only alternative to meet the country's target of increasing forest cover from present less than 25 to 33%. With the current area under agroforestry in India at 25.32 m ha i.e. 8.2% of the total geographical area of the country, the subject matter specialists have projected an increase in the area by another 28.0 m ha.

horti-pastoral system with mulberry, guava, pineapple (in paired rows) and grasses on bunds was found ideal on the hill slopes (30-45%) with 0.6-1.0 m soil depth. For the foothill and valley land situations, aquaculture system comprising composite fish culture with azolla, rice, vegetables, groundnut and fruit crops was profitable and provided employment to two persons throughout the year, besides ensuring food supply to the family. Livestock is one of the important components of an agroforestry system and fodder scarcity is a major concern particularly in the arid, semi-arid and hilly regions of the country. During summer and lean periods, the only source of fodder in many regions is the trees. Species like *Grewia optiva*, *Morus serrata*, *Celtis australis*, *Robinia pseudoacacia*, *Ulmus wallichiana*, *Quercus* spp., *Bauhinia variegata* etc. in the hilly regions and *Ailanthus*, *Albizia*, *Acacia*, *Leucaena leucocephala* etc. in the dry regions are well known.

Agroforestry also has the potential to provide most or all the ecosystem services viz. provisioning service (e.g. fuel-wood, fodder, timber, poles etc), regulating service (hydrological benefits, micro-climatic modifications), supporting service (nutrient cycling, agro-biodiversity conservation), and cultural service (recreation, aesthetics). Agroforestry land use increases livelihood security and reduces vulnerability to climate and environmental change.

During the past three decades, many agroforestry technologies have been developed and demonstrated. But most of them did not reach the farmers' to the desired extent, for want of awareness, inadequate

infrastructure and lack of policy support. In order to promote growth of agroforestry in India, the Ministry of Agriculture, Government of India has recently launched a National Agroforestry Policy which is expected to facilitate credit and insurance to farmers, besides improving market access to them and will help farmers to gain from agroforestry, and has potential to achieve sustainable production, improved livelihood in rural households, stable ecosystems and resilient cropping and farming systems.

Recently, World Agroforestry Congress (WCA 2014) was successfully organized in New Delhi with the theme 'Trees for Life: Accelerating the Impacts of

Agroforestry' jointly by ICAR and ICRAF. In the next 30 years, agroforestry is estimated to meet almost half of the demand of fuel wood, two-thirds of the small timber, 70-80% wood for plywood, 60% raw material for paper pulp and 9-11% of the green fodder requirement of livestock, besides meeting

the subsistence needs of households for food, fruit, fibre, medicine etc. Besides, agroforestry is the only alternative to meet the country's target of increasing forest cover from present less than 25 to 33%. With the current area under agroforestry in India at 25.32 m ha i.e. 8.2% of the total geographical area of the country, the subject matter specialists have projected an increase in the area by another 28.0 m ha. The major share of the land to be brought under agroforestry will come from fallows, cultivable fallows, pastures, groves and rehabilitation of problem soils. Thus, a total of 53 m ha, representing about 17.5% of the total reported geographical area of the country could potentially be brought under agroforestry in the near future, which will make agroforestry a major land-use activity, after agriculture and forestry.

With about 85% of India's farmers being small and marginal in landholding, the way forward in agroforestry research for development is to emphasize upon: (a) location-specific tree-based farming systems for small- and marginal-farmers, (b) suitable agroforestry models for different agro-climatic conditions, problem soils/sites, (c) harnessing the ecosystem services of agroforestry through micro-level assessment and planning, and (d) promoting adoption of agroforestry through cluster approach to translate the ecological foundation to market benefits.


(S. Ayyappan)

e mail: dg.icar@nic.in

WORKSHOPS, MEETINGS, SEMINARS, CONFERENCES, BRAINSTORMING SESSIONS

Conference of Vice Chancellors of Agricultural Universities and ICAR Directors 2014

Baramati, 19 January 2014. Hon'ble President of India, Shri Pranab Mukherjee, inaugurated three-day Conference of Vice-Chancellors of Agricultural Universities, and ICAR Directors at Baramati. Shri Mukherjee appreciated the scale of agricultural development in the Baramati region and said this development model is worthy of replication in other parts of India. He said that agricultural education has to be in the forefront of building a scientific base for research and extension. Our agricultural universities have to play an important role in imparting quality education to students, making them professionally competent and socially sensitive. He added that National Agricultural Education Project is aimed to improve and sustain the quality of higher agricultural education.

Hon'ble President of India also focused on the following points:

- Agricultural productivity has a direct correlation with farm-power availability. The present availability of 1.7 kilowatt/ha is quite inadequate to achieve the desired productivity levels. In a scenario of rising energy costs, it is vital to enhance energy-use efficiency. At the same time, in the context of growing scarcity of farm labour, it is critical to leverage farm mechanization.



- Horticulture is a sunrise sector of our economy. Development of better hybrids, rejuvenation of old orchards, pest and nutrient management, post-harvest management and protected cultivation are steps necessary for the development of horticultural crops. To build resistance to biotic and abiotic stresses in such crops, hybrid technology has to be developed. Such technology can also promote hybrids in rice, maize, sunflower, pearl millet and cotton, resulting in significant productivity gains in all these products.

- The advent of genetic engineering has removed the natural barrier to gene exchange and transfer. Development of transgenic crop varieties having the novel traits of insect resistance, herbicide tolerance and hybrid production has led to significant cultivation of Genetically Modified (GM) crops. These crops presently occupy 170 million ha in 28 developed and developing countries. In India, Bt-cotton has boosted cotton production and enhanced its export earnings. He added that we have to pursue these new technologies for the benefits they provide. At the same time, public concerns have to be addressed through increased awareness and biotechnology education.

- Seeds and planting materials are crucial



productivity-enhancing factors. The institutes of ICAR and agricultural universities have to strengthen their programmes to produce quality seeds, with an emphasis on improving the seed replacement rate in crops.

- Water stress, in terms of access and availability, has thrown up significant challenges for researchers and institutions. In the 80 million ha rainfed areas of our country, technological interventions—rainwater harvesting and recycling, *in situ* moisture conservation—have raised farm production and reduced inequities in livelihood opportunity. Such technologies to conserve resources through increased input-use efficiency have to be pursued vigorously.

The Union Minister of Agriculture, Shri Sharad Pawar, reflected that Council is bringing about major changes in the lives of the farmers by reaching out to them through its innovations. Only solution to shrinking land and water resources is to increase productivity. He also said that it is necessary to create an environment of academic excellence to develop globally competent infrastructure, and technology generation, dissemination and human capacity building.



The Secretary (DARE) and DG (ICAR), Dr S. Ayyappan, informed the approval of Natural Agricultural Education Project (NAEP) by the Department of Economic Affairs, Government of India and stressed that agriculture universities must adopt the Model University Act as it is directly-linked with the support under NAEP.

Recommendations

- Vice-Chancellors should expeditiously take steps to implement ICAR Model Act and address faculty shortage.
- It was agreed that students who have done 10+2 in Agriculture would be admitted to B.Sc. (Agriculture) degree programme if necessary, with some remedial courses across all agricultural universities.
- The agricultural universities may collaborate with the ICAR Institutes to develop mutually beneficial

research programmes.

- Agricultural universities should take advantage and provide technical backstopping for the major initiatives taken by Ministry of Agriculture like Food Security Mission and Rashtriya Krishi Vikas Yojana.
- It was decided that transfer from AICRPs should be undertaken only by following Council's guidelines as included in the MoUs for the same.

During Vice Chancellors of agricultural universities conference three major issues emerged:

- Continued faculty shortage in agricultural universities.
- Motivating and inspiring youth in higher agricultural education.
- Encouraging capacity building and research culture in agricultural universities.

ICAR Directors' Conference 2014

Pune, 20 January 2014. The ICAR Directors' Conference 2014 was held at Samvad Auditorium, Yashwantrao Academy of Development Administration (YASHADA) under the chairmanship of Dr S. Ayyappan (Secretary, DARE & DG, ICAR). He lauded the role of the ICAR. Some of the points are given below.

1. E-Governance should be made operational in the ICAR system in greater way. The majority of the institutes have completed the process of ISO certification, however, those institutes which are yet to start the process should speed up the matter and complete the same at the earliest.
2. The excellent infrastructure facilities have been developed in recent past in the ICAR institutions. For better and effective utilization of the facilities, DG (ICAR) stressed the need to strengthen collaborative projects among ICAR institutions.
3. The Director (DARE), shared the information on 'International Cooperation in DARE'. It was informed that ICAR has entered into MoU with 7 countries under bilateral cooperation and 27 at institutional levels. Under the ASEAN-INDIA farmers exchange programme, the first group of 18 farmers and 9 officials visited Malaysia have taken place. For speedy process of formalities of deputation, it was stated that applications should be submitted at least one month in advance.

e mail: icarreporter@rediffmail.com

85th Annual General Meeting of the ICAR Society



New Delhi, 15 January 2014. The 85th Annual General Meeting of the ICAR Society was held at the NASC Complex under the Chairmanship of Shri Sharad Pawar, Union Minister for Agriculture and Food Processing Industries and President, ICAR Society. Shri Sharad Pawar informed the Members that the Indian Council of Agricultural Research (ICAR) has completed over eight decades of service to the nation and as a vibrant organization, continues to generate technologies for sustained development in the country. In the last ten years, the foodgrain production increased from 198 million tonnes in 2004-05 to 259 million tonnes by 2011-12. Two major staple cereals of the country, wheat and rice, registered an increase of nearly 50 million tonnes during this period. The foodgrain production increased continuously despite a virtual ceiling on cultivable area of 142 million ha. India is among the leading rice exporters in the world. A single rice variety, *Pusa Basmati* 1121 earned over ₹ 18,000 crores through export last year. India's export of agricultural and allied products increased from ₹ 1,78,800 crore in 2011-12 to ₹ 2,01,000 crore in 2012-13, registering a growth of nearly 11%. During 2013, ICAR released 104 new improved varieties/hybrids of different field and horticultural crops with potential for higher yields.

The National Initiative for Climate Resilient Agriculture (NICRA) of the ICAR is focusing both on strategic and on-farm demonstration for adaptation to climate variability. Climate variability is a major issue and major crop losses and distress to farmers is mainly due to either deficit or excess rainfall. The ICAR prepared a double and location-specific action plans of agriculture and allied sectors for rehabilitation and restoration of the affected areas in Uttarakhand, Odisha and Andhra Pradesh struck by natural calamities through technological backstopping in 2013. The research and development activities resulted in filing of 72 patents/intellectual property protection applications; commercialization of 82 technologies/products and piloting 51 new rural industries. A first of its kind, Agri-Tech Investors Meet was organized that brought inventors into direct

contract with industry and investors. The investors meet was able to successfully commercialize 58 technologies and earning resources for the Council.

The Union Minister of Agriculture also informed about establishment of Regional Research Station of Central Arid Zone Research Institute at Leh.

Shri Tariq Anwar, MoS (Agriculture and Food Processing Industries) highlighted that production of major food items are likely to be the highest so far which is the result of generation adoption of new technologies.

Dr Charan Das Mahant, MoS (Agriculture & Food Processing Industries) mentioned that the agriculture sector should be fine-tuned in the coming years to tap its full employment potential and poverty alleviation.

Dr S. Ayyappan (Secretary, DARE and DG, ICAR) said that the ICAR became one of the first departments to receive ISO 9001:2008 Certification by implementing the Quality Management System. This testified the organization's commitment to provide quality services to its clients. The ICAR achieved a composite score of 97.6% for 2012-13 in respect to its performance against the commitments made in the Results Framework Document (RFD). Among the major events, DG, ICAR highlighted the fact that agriculture in India accounts for over 14% of the GDP and 17% of the country's exports, providing employment to over 50% of the work force and striving towards food security as well as inclusive growth and development. This has been possible through pertinent agricultural research, education and extension enabling development and infusion of appropriate technologies by the ICAR Institutes and agricultural universities, and taking them across to farmers through Krishi Vigyan Kendras.

The DG, ICAR pointed out that the ICAR prepared doable and location-specific action plans of agriculture and allied sectors for rehabilitation and restoration through technological backstopping in the

affected areas of Uttara Khand, Odisha and Andhra Pradesh, which were struck by natural calamities of differential, but severe intensities. The Council has also prepared the climatic vulnerability atlas of the country and district level contingency plans to enable farmers to choose appropriate means and methods for mitigating the climatic variability in different agro-climatic regions. Further, the Council is committed to need-based, location specific research for agricultural development in the country through innovations and integrations. The DG, ICAR mentioned that the Council will accelerate the R&D

efforts in the following four major areas on which concerns have been expressed by all the Members as had emerged from the discussions:

- (i) Enhancing profitability in agriculture;
- (ii) Diversification from primary to secondary agriculture;
- (iii) Thrust on Post-harvest Management and Value Addition; and
- (iv) Attract and retain youth in Agriculture.

e mail: icarreporter@rediffmail.com

Internet Protocol version 6 (IPv6)

New Delhi, 27 February 2014. To sensitize and create awareness about IPv6 among ICAR institutes a Sensitization Workshop on 'Internet Protocol Version 6 (IPv6)' was organized by the Indian Agricultural Statistics Research Institute at NASC Complex. Dr S. Ayyappan (Secretary, DARE and DG, ICAR) emphasized upon following the National IPv6 Deployment Roadmap Version II released by DoT in March 2013. He lauded all the Nodal officers from ICAR institutes and Central Agricultural Universities for preparing the inventory of all the existing hardware, software and network devices. The DG, ICAR emphasized that procurement of the new hardware should be IPv6 enabled. He also called upon all the Nodal Officers to be in the front running in implementing IPv6 in their respective institutes.



Shri Arvind R. Kaushal (Secretary, ICAR and Additional Secretary, DARE) highlighted the importance of IPv6 in present scenario and emphasized upon the need to deploy IPv6 for enhancing the productivity and efficiency in DARE/ICAR.

Shri R.M. Agrawal (DDG, NT, DoT) explained that IPv6 is the next generation Internet Protocol (IP) that will supplement and eventually replace IPv4, the protocol most Internet services use today. He added that transition to IPv6 is an inevitable journey and it involves a collaborative effort on the parts of various stakeholders (Internet Service Providers, Content Providers, Service Providers, Vendors, Government and International Organizations).

It was informed that 85 ICAR institutes have

appointed the nodal officers to carry out the IPv6 activities in their respective institutes. The workshop was organized in three technical sessions, covering the topics: 'IPv6 Scenario and Govt Policies', 'IPv6 Features' and Addressing', 'IPv6 Applications', 'IPv6 Transition Strategy', 'IPv6 project', 'IPv6 Readiness', 'Software Application enabling IPv6' and 'IPv6 Migration - Introduction and Adoption'.

e mail : himanshu@icar.org.in

Mango pest under climate change scenario

Ranchi, 26 February 2014. The two- day Annual Review-cum-Training Workshop of the NICRA project on 'Understanding host-pest interaction and dynamics in mango under climate change scenario' was started on 25 February 2014 at ICAR Research Complex for Eastern Region, Research Centre. The 30 CC-PIs and Project workers from all the 6 centres viz., CISH, Lucknow; IIHR, Bengaluru; RFRS, Vengurla; FRS, Sangareddy; AES, Paria, and NCIPM, New Delhi participated in the meeting. During the workshop, the progress made at each centre under the NICRA project was reviewed and a brainstorming session on 'Blossom Blight of Mango' was also conducted.

Dr A. Verghese (Director, National Bureau of Agriculturally Important Insects, Bengaluru) chaired the Review Workshop and emphasized on appropriate documentation of effect of extreme weather events on population dynamics of mango. He also suggested capturing the scenario of any pest outbreak in project domain. Dr B.P. Bhatt (Director, ICAR Research Complex for Eastern Region) stressed upon the need for inclusion of edaphic factors in sync with changing weather on 'emergence of pest of mango.' During the workshop, all the workers of the project were also provided training on use of RTPS software for mango pest and identification of insect pests and diseases of mango. It was also decided that focus be given to major insect pests and uniformity should be maintained in data collection, analysis and interpretations across the region.

e mail: sk_harp@yahoo.co.in

Self-sufficient and sustainable aquaculture in north-eastern region

Bhubaneswar, 5 February 2014. A consultative workshop on 'Self-sufficient and Sustainable Aquaculture in North Eastern Region' was organized by the Central Institute of Freshwater Aquaculture (CIFA) in collaboration with Department of Fisheries (Government of Tripura) at Pragna Bhawan, Agartala, Tripura.

Dr P. Jayasankar (Director, CIFA) announced that aquaculture demonstration programmes would be taken up in phase-wise manner during the next two years in the entire north-eastern region. Sri Manik Sarkar, Chief Minister, Tripura released two books: *Fish Farming for Earning* and *Mach-Prani-Ucchamulya Sabjir Samannita Palan* (Integrated farming with fish-livestock and high value crop). The Chief Minister appreciated CIFA and ICAR for their aquaculture activities initiated in the north-eastern region. He also appreciated CIFA Team for its active role in implementing updated technologies of freshwater aquaculture in the different parts of north-eastern states, with special reference to Tripura. Pabda breeding and culture technology in Tripura, has been a boosting support for livelihood generation of a large-scale fish farmers in the state. He also assured the institute of all possible co-operation from the Government of Tripura as and when required for aquaculture development programmes in the state.

Dr Dilip Kumar (Advisor of Fishery, BTC, Bihar and Uttar Pradesh) opined that CIFA and CIFRI should take wide demonstration programmes in all states to motivate State Fisheries Department as well as farmers to fulfill the gap of production and consumption of fish in each state in addition to supply of FRP hatcheries. The Fisheries Directors of the attending states stressed the need of demonstration of integrated aquaculture to minimize the cost of cultivation. Dr Jayasankar informed about CIFA's activities in the north-eastern region. The scientists informed other activities in relation to development in north-eastern states.

Progressive fish farmers from the north-eastern states were felicitated by CIFA in the workshop for their successful contributions.

Intervention of CIFA (ICAR) is required for future development of aquaculture in north-eastern states.

- Develop package and practices of breeding and culture of important indigenous fishes of the region,
- establish disease diagnostic, and soil and water testing labs,
- conduct training and demonstration in various fish culture techniques,
- make available genetically improved fish species

to the state fisheries departments and selected farmers, and

- support for establishment of FRP carp and *magur* hatcheries in the region.

e mail: pjayasankar@yahoo.com

Technical measures as tools for fisheries management in India

Cochin, 12 February 2014. Under the project 'Green Fishing Systems for Tropical Seas', funded by National Fund for Basic, Strategic and Frontier Application Research in Agriculture (NFBSFARA) of ICAR, the Fishing Technology Division, Central Institute of Fisheries Technology organized a CIFT-FAO International Workshop-cum-Training Programme on 'Technical measures as tools for Fisheries Management in the Indian Scenario'.



Dr Y.S. Yadava (Director, Bay of Bengal Programme Inter-Governmental Organization) inaugurated the workshop and stressed the importance of sustainable fishing. Dr Petri Suuronen (Fishery Industry Officer, Fishing Technology, FAO, Rome) specified the need for combining fishing technology with governance. Dr T.K. Srinivasa Gopal (Director, CIFT) pointed out the need for energy saving in the fisheries sector in the context of increasing fuel prices and the rising fishing fleet size.

During technical session deliberations included the conditionalities and necessities in Indian fisheries for future direction; technological advancements in Indian fisheries, responsible fishing interventions like energy efficient vessels, new gear designs, by catch reduction technologies and the scope for improving implementation; and impacts of fishing on the environment, fuel consumption issues, low impact and fuel efficient (LIFE) fishing, modifications to trawl gear to reduce ecosystem impact, fuel saving options in trawl fisheries, future trawling technology, alternative fishing gears, the need for changing fishing practices, and the barriers to transition.

In the group discussion, participants had an active interaction with the resource persons from FAO, BOBP and CIFT regarding the key elements and strategies

for implementing low impact fuel-efficient fishing (LIFE) strategies for fisheries management along the Indian coast with specific reference to use of technical management measures. The book, *Mechanised Marine Fishing Systems: India*, was released on the occasion.

Seventy stakeholders including scientists, researchers, academicians, policy makers, fishers and international experts participated. During the workshop-cum-training programme scientists deliberated how to make a roadmap for developing strategies for adoption of technical measures for effective management of marine fisheries in India?

e mail: tksgopal@gmail.com

Campaign for functional food value of camel milk

Bikaner, 5 January 2014. The three-day brain storming meet on 'Functional value of camel milk as compared to cow, buffalo, goat and sheep' was started at National Research Centre (NRC) on Camel. The deliberations were on 'research efforts of NRC on Camel directed towards promotion of camel as a milch animal and importance of camel milk as functional food to address the issues of human health; functional food quality and pharmacological properties of the camel milk in terms of its functional food values; the utility of value of mare and donkey milk for human health and its closeness to human milk in terms of nutritional quality; data on milk yield potential of Indian and exotic sheep breeds and value-based products prepared from sheep milk; utility of goat milk in term of its medicinal value and use of goat milk control dengue fever in human; and issue of collection and marketing of camel milk and its value-added products. It was informed that URMUL can support activity of marketing the processed camel milk and products from SARAS dairy booths locally as well as outside Bikaner. About 115 people engaged in camel rearing from villages of Dhoulia and its nearby areas were also present.

A *Kisan Goshti* involving famers—scientists and technical personnel was also held in Dhoulia village wherein the camel farmers narrated the difficulties in rearing camel in the area like loss of rangelands, acceptability and marketing of camel milk in the area, marketing of live animals, health problems and lack of policy.

Recommendations

- It was suggested to form Self-Help Groups of the camel farmers and inform possible quantity of milk collection so as to contact local dairy unions for milk collection and transport.
- It was also suggested to form Camel Breed Association by which the activities like rangeland

rejuvenation, development of milk processing facility, conservation of camel germplasm, health management measures can be undertaken collectively and appropriate agencies—local or government can be contacted.

e mail: nvpatil.nrccamel@icar.org.in

Review of flagship programme and soil-health assessment

Bhopal, 26 February 2014. Dr A.K. Sikka (DDG, NRM) reviewed the Flagship Programme of the Institute in the light of XII Five-Year Plan EFC at Indian Institute of Soil Science. Dr Sikka emphasized upon the need for more synergy between institute projects and AICRPs, institutionalization of interaction among institutes, divisions and AICRPs. He also called for finding the best ways and means for reconciliation of past data to give a unified picture from the institute and streamlining and fine-tuning sampling plan and analysis for soil mapping.



A national level consultation meeting was also held on Soil-health Assessment. The meeting envisaged identifying minimum data set for assessment of soil quality, proposing methodology for estimating soil quality indices, establishing threshold levels for soil quality, which would serve as tools in developing strategies for soil-health management and identify management sensitive indicators in relation to input use efficiency and food security. He also stressed on partnerships, policy, institutional support and location-specific technologies to reach to the teeming millions of the country.

e mail: rajvirsingh.nrm@gmail.com

IPR in agriculture

Ranchi, 28 February 2014. The National Academy of Agricultural Sciences, and ICAR Research Complex for Eastern Region jointly organized two-day the Eastern Regional Chapter Meet on 'IPR in Agriculture' on 27 and 28 February, 2014 at ICAR Research Complex for Eastern Region, Regional Research Centre. The meet aimed to discuss the issues related to Intellectual

Property Rights in different areas of agriculture and to advocate recommendations for IP issues in agriculture. Dr R. Ramani (Director, IINRG, Ranchi), suggested for innovative ideas for new products/formulations from the horticultural crop produce, which can be IP protected. He also briefed about IP scenario of natural resins and gum-based products.

Dr B.P. Bhatt (Director, ICAR-RCER) stressed upon strengthening the work of IPR in eastern region and the issues and commodities that are needed to be covered under IP management. From the deliberations it was strongly felt that intellectual property can be a driver of technology lead growth and it needs to be linked with various development programmes in the eastern region. A prioritized check list for creation of IP for different areas of agricultural sciences pertaining to eastern region should be prepared. Strong linkages are required to address the IPR issues among ICAR institutes including Bureau, SAUs, other partners including PPV&FRA. Much needed awareness should be created for registration of farmers' varieties. The IT case documented for the region need to be validated and refined to increase the agricultural productivity for the benefit of the stakeholders. In animal science, proper evaluation, conservation and documentation of indigenous animal germplasm (Black Bengal, Malkengiri, Edka and Raighar in goats; Garole, Shahabadi in sheep, Gunguru in pigs; Bachaur, Shahabadi, Binjharपुरi, Ghumsuri and Gaolao in cattle; and *Diara* and Sambalपुरi in buffalo) is required besides continuous monitoring of the germplasm to prevent genetic dilution. Likewise, in fisheries, feather back fish, *Labeo* species, pabda, pavo need to be conserved for better economic returns.

It was also emphasized that a prioritized check list for creation of IP needs to be developed through networking of different institutes working in the region. About 40 participants from different eastern states attended the meet on IPR.

e mail: drpbhatt.icar@yahoo.com

IPR Interface at CAZRI

Jodhpur, 10 January 2014. A National Workshop on 'Science, Technology, Innovation and Intellectual Property Rights (IPR): Envisaging the Interfaces', jointly organized by CAZRI and National Law University (NLU), Jodhpur, was organized at Central Arid Zone Research Institute. Dr S. Mauria (ADG, IP&TM) highlighted the necessity of understanding of various interfaces of intellectual property. He also appreciated the collaborative effort of CAZRI and NLU for organizing this workshop. Dr M.M. Roy (Director, CAZRI) described future roles of the institute in the area of IPR management and its interfaces.



Prof. K.K. Banerjee (Director, IP Studies, NLU and Co-convenor of the event) highlighted the relationship of science and law. During the workshop, future possibilities of developing suitable platforms/networks for effective and judicious knowledge sharing and capacity building across the disciplines and institutions of the regions were discussed. Teachers, scientists, students, administrators and policy makers from traditional and agricultural universities, IIT (Jodhpur), ICAR institutes, NLU, DST (Government of Rajasthan) and Biodiversity Boards of Rajasthan and Gujarat participated in the workshop.

e mail: mmroyster@gmail.com

Third innovative and progressive farmers' meet

Adugodi, 22 January 2014. The Third Innovative and Progressive Farmers' Meet was held at the National Institute of Animal Nutrition and Physiology, Bengaluru. Shri T.B. Jayachandra, Minister for Animal Husbandry, Law, Justice and Human Rights, Government of Karnataka elaborated that utilization of technology is vital for the faster economic growth of rural farmers; and emphasized that livestock sector is vital to tackle malnutrition problem in the country. He highlighted the efforts to take up FMD vaccination in pulse polio mode and sought the support of farmers.

Padmashree Dr M Mahadevappa (former VC, UAS, Dharwad) said that the farmers are the pioneers in development of new varieties of crops and livestock. Further, he emphasized the importance of secondary agriculture and its vitality for value addition to agricultural produce. Besides, he also highlighted that integrated farming is the key to the success in agriculture and livestock development. Shri N.A.Haris, an MLA, said that such programme should be taken up on large-scale as the success stories of farmers need to be propagated to enthruse more and more farmers and youth. He added that modern technology is essential for adoption by the farmers for their better economic returns. Dr A.S. Premnath (Managing Director, KMF) mentioned that supply of milk to school children in Government schools in Karnataka under '*KHSEERA BHAGYA*' scheme is well received by the people and has greatly helped in addressing the problem of malnutrition.

Dr C S Prasad (Director, NIANP) highlighted the various technologies developed by the institute like area specific mineral mixture, areca sheath as dry feed for animals, sheep and goat mineral mixture, use of azolla as green feed, value addition of pineapple fruit residue as silage for animals etc. He emphasized that this meeting is a platform to recognize innovative farmers who would act as ambassadors in spreading the knowledge.

More than 150 farmers from different parts of Karnataka participated.

e mail: directornianp@gmail.com

Mitigating micro-nutrient deficiency in fodder crops in southern India

Dharwad, 23 January 2014. Dr S.A. Patil (Chairman, Karnataka *Krishi* Mission, Government of Karnataka, Bengaluru) inaugurated a Brain storming Workshop on 'Mitigating micronutrient deficiency in fodder crops in southern India' at Southern Regional Research Station of Indian Grassland and Fodder Research Institute (Jhansi) located at Dharwad. Dr S.A. Patil suggested that a long-term integrated research programme is required to address the issue of micronutrient deficiency in soils, plant and animal continuum.



Dr R.R. Hanchinal (Chairperson, Protection of Plant Varieties and Farmers' Rights Authority) emphasized the need for identification of genotypes with higher micronutrient efficiency for achieving nutritional security of the country. He added that institutional policy support is required for fodder crops as India supports nearly 20% of world's livestock population. Dr H.S. Vijayakumar (Vice Chancellor, University of Agricultural Sciences, Dharwad) suggested that scientists should develop cost effective and farmer friendly micronutrient management technologies. Dr P.K. Ghosh (Director, IGFRI, Jhansi) stressed the importance of deficiency specific micronutrient management for animals and called for developing agro-climatic zone-wise ready reckoner using available micronutrient soil map. Dr A.K. Roy (Project Coordinator, AICRP on Forage Crops) presented the fodder scenario in southern India.

e mail: bgs Kumar@yahoo.com

KVK-ATMA interface meeting

Raipur, 4 January 2014. A KVK-ATMA interface meeting, jointly organized by IGKV, Directorate of Agriculture, Government of Chhattisgarh, and Zonal Project Directorate, Zone-VII, Jabalpur, was inaugurated by Minister of Agriculture, Government of Chhattisgarh, Shri Brijmohan Agrawal, at Indira Gandhi Krishi Vishwavidyalaya. He highlighted the need of integrated farming including livestock, fisheries and poultry to increase farmers' income. He emphasized that mono-cropping in the state is a major problem and crop diversification has to be promoted through convergence mode. Dr S.K. Patil (Vice-Chancellor, IGKV) appreciated the efforts of Zonal Project Directorate, Zone-VII, Jabalpur for initiating KVK-ATMA linkage model; KVK and Directorate of Extension, IGKV, Raipur for organizing the interface for enhancing and sustaining agricultural growth. Shri C.L. Jain (Director, State Agricultural Management and Extension Training Institute) stressed on the need of focusing on the agro-climatic zone-wise enterprise planning.

e mail: zpd7jabalpur@gmail.com

Lentil germplasm day and State level pulse farmers' meet

Tripura. 6 March 2014. Lentil germplasms are under evaluation at Tripura Centre under Biodiversity and Integrated Gene Management Programme (BIGMP) of ICARDA and AICRP (MULLaRP) to find out the promising Lentil lines under Agro-climatic condition of Tripura from 5 to 6 March 2014 at ICAR, Tripura Centre.



The State Level Pulse Farmers' Meet was organized at ICAR, Tripura Centre. From all districts of Tripura, 602 farmers had participated in the meeting. The 1,700 ha of rice fallow land was brought under Lentil production and out of which 60 ha of land was under Lentil (var. WBL-77, WBL-58, HUL-57 and PL-06) after the harvest of *kharif* rice by ICAR in farmers plot in collaboration with ICARDA. In the meeting, 8 numbers of technical bulletins mainly on pulses along with a publication on *Homestead farming by KVK, South Tripura*, were released. Improved seed of *mung*, *pre-*

kharif rice, mango and litchi seedlings were distributed among the farmers.

e mail: jdrtr.icar@gmail.com

VIII Group Meeting of AICRP on Nematodes Diseases

Thrivanathapuram, 5 March 2014. The three-day XVIII Biennial Group Meeting of the All India Coordinated Research Project (AICRP) on 'Plant Parasitic Nematodes with Integrated approach for their control' was started at College of Agriculture, Thrivanathapuram on 3 March, 2014.

Dr Swapan Kumar Datta (DDG, Crop Science) emphasized on the need to identify genes involved in parasitism in nematodes and resistance in host for developing transgenic plant through RNAi-mediated gene silencing in case of former and expression of trans-gene in latter, respectively. He highlighted the need of policy support for biotechnological interventions, bio-pesticide development and public-private partnerships in developing/popularizing new varieties in field and fruit crops for food and nutrition security of the country. The scientists expressed serious concerns about the losses in crops due to nematodes diseases; and deep concerns about the

spread of new nematode problems in coconut, banana, spices and vegetables in Kerala. They focused on the use of organic farming and ban of lethal insecticides in the Kerala.

e mail: rkjain_nem@iari.res.in

CRIDA research programmes reviewed

Hyderabad, 17 February 2014. Dr A.K. Sikka (DDG, NRM) critically reviewed various technical programmes to take forward into the XII Five-Year Plan, and emphasized the need of partnerships, policy, institutional support, location special technology to reach to the rainfed framers of the country. He also reviewed the budget and new infrastructure facilities being established at several ICAR Institutes under NICRA.

A freeware software named 'RELATOR v1.0' developed by AICRP on Agro-meteorology, CRIDA, Hyderabad was released. The software is intended to estimate the reliability of estimated/derived dataset by comparing with original/observed dataset using about 16 statistical tools.

e mail: rajvirsingh@gmail.com

International Linkages

Combating staphylococcal mastitis in bovine

Bengaluru, 3 February 2014. Dr B. R. Shome (NIVEDI) and Dr Mark A. Holmes (School of Veterinary Medicine, University of Cambridge) jointly coordinated a three-day Indo-UK Workshop on 'The use of molecular epidemiology and functional genomics to underpin the development of novel interventions to combat bovine *Staphylococcus aureus* mastitis in India' sponsored by The Royal Society, London and Department of Science and Technology, Ministry of Science and Technology, Government of India. National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI) on 1 February 2014. Twenty researchers engaged in various aspects of bovine mastitis from different parts of India and United Kingdom participated in the workshop.

Dr H. Rahman (Director, NIVEDI) stressed on the importance of the measures to be adopted for reducing the burden of mastitis. He also emphasized on the need to take up research specially to understand the molecular epidemiology of important mastitis pathogens keeping in view the agro-climatic conditions and vast geography of India and prospect of dairy sector in India.



Prof A. K. Srivastava (Director, NDRI, Karnal) briefed about the scenario of dairy sector in India and the impact of mastitis on economy. A brief road map was also suggested by Prof. A.K. Srivastava for further deliberations during the workshop. The speakers emphasized the impact of mastitis and need for research and development efforts including international collaboration and potential funding sources keeping in view the potential of Indian Dairy Sector. In the concluding session of the workshop, Prof Duncan Maskell (Chairman of the session)

outlined a roadmap including immediate establishment of Indian National Mastitis Council. Priority research areas identified were molecular epidemiology, understanding host-pathogen interaction and developing control measures including development of effective vaccine against staphylococcal mastitis using reverse vaccinology.

e mail: hricar@gmail.com

Steering Committee Meeting of CGIAR Research Programme on Dryland Systems

Jodhpur, 11 March 2014. The third steering committee meeting of CGIAR Research Programme on Dryland Systems (CRP 1.1) was organized by International Centre for Agricultural Research in Dry Areas (ICARDA) at Central Arid Zone Research Institute (CAZRI). Dr Mahmoud Solh (DG, ICARDA) chaired the meeting. Dr M.M. Roy (Director, CAZRI) highlighted the agricultural scenario of western Rajasthan and possibilities of ICARDA collaborations. Dr Maarten van Ginkel, DDG (Research), ICARDA presented the road map for



effective implementation of dry land systems CRP led by ICARDA. The issues related to gender strategy, capacity development in a system approach, CRP governance were deliberated. Dr Mahmoud Solh identified CAZRI as the major strategic partner in Dryland Systems (CRP 1.1) and other bilateral projects with ICARDA. Dr John Lynam, Chair of independent scientific advisory committee; including representatives of other CGIAR research institutes viz., ICRISAT, ILRI, WAC, advanced research institutes and ICAR participated in the meeting.

e mail: mmroyester@gmail.com

Success stories

Prosperity through technology interventions

Panchmahal is a part of eastern hilly region of Gujarat. It consists of eleven *talukas* having common features like drought proneness and undulating topography with low fertile soil. People of the district mainly depend on agriculture. Shri Ramesh Bhai Khunt (45), a 12 pass farmer, of Manipur village of Godhra *Taluka*, District Panchmahal has 20 acres land, in which 15 acres have irrigation facilities and remaining are under rainfed condition. Earlier, he was growing different crops like maize, pigeonpea, gram, wheat, chilli, brinjal and others by using traditional system of cultivation like local varieties, no spacing, no seed treatment, flood irrigation etc. With the technological support of KVK, Panchmahal, Shri Ramesh Bhai Khunt earned prosperity.

Interventions of KVK

During a Participatory Rural Appraisal (PRA) survey in the village by the KVK Team, Shri Ramesh Bhai came

in contact with KVK scientists and posed his agricultural problems. The KVK team studied the profile of his field and advised to participate in the vocational training programmes on production method of pigeonpea, seed treatment with *Rhizobium* culture, integrated pest management (IPM), use of raised bed and scientific cultivation of chilli.

On completion of the training courses, Shri Khunt's field was selected for Front-line Demonstration programmes under technology demonstration for harnessing pulse productivity of pigeonpea and production of chilli. Improved variety seeds of pigeonpea cv. Vaishali, and seedlings of chilli cv. GVC-111 were provided by KVK. Field days and *Kissan gosthis* were also organized at his field.



Crop	Traditional system/ pre KVK intervention				After KVK intervention			
	Cost of cultivation (₹)	Production (q/ha)	Income (₹)	B:C ratio	Cost of cultivation (₹)	Production (q/ha)	Income (₹)	B:C ratio
Pigeon pea (green pod)	14,800	36.20	39,347	2.66	24,650	115	1,25,000	4.87
Chilli	26,700	65.40	52,320	1.95	36,800	127.2	1,01,760	2.76

Impact

On success of the crop production Shri Ramesh Bhai harvested green pod of pigeonpea 115 q/ha, while 127.2 q/ha chilli. He earned ₹ 125,000 from pigeonpea and ₹ 101,760 from chilli. The cost of cultivation of pigeonpea and chilli in traditional system was ₹ 14,800 and ₹ 26,700 respectively. After intervention of KVK the cost of cultivation in pigeonpea and chilli became ₹ 24,650 and ₹ 36,800 respectively.

Shri Ramesh Bhai earned about ₹ two lakh in a short period by adoption of method given by KVK for cultivation of pigeonpea and chilli. Later, he purchased a mini-tractor from income of pigeonpea and chilli. Now, he also motivates several farmers to adopt the scientific cultivation method provided by KVK.

e mail: kvkpanchmahal@gmail.com

Satellite fish nursery technique: A new tool for livelihood improvement in north and middle Andaman

Diglipur. Mr. Sajib Kumar (34) resident of V.S. Pally Diglipur is a graduate and works as a conductor in Transport Department. He used to rear freshwater fishes, i.e. catla, rohu, mrigal (CRM) in his pond of size 60 m × 40 m and sold it directly to the market. Earlier, he was earning ₹ 20,000 to 25,000/year as an additional income. He was not happy the way his fish rearing business was progressing. There were problems in getting quality fish seeds from the mainland parties. The suppliers were giving him inferior and weed fishes in the name of CRM. To overcome this problem, he wanted to learn the technique of induced breeding and produce seeds with an objective to remove the mainland parties and provide quality seeds to other fishers.

Technical support of CARI

In 2012, Mr Sajib Kumar was identified as an enterprising farmer by Department of Fisheries, Andaman and Nicobar Administration. By joining hands with Central Agricultural Research Institute (CARI), Fisheries Science Division (FSD), Krishi Vigyan Kendra (KVK) and Outreach centre (ORC) Diglipur of North and Middle Andaman, an attempt was made to raise

nursery of freshwater fish in his pond. Technical support on the concept of satellite nursery from FSD of CARI in association with KVK and ORC and logistics jointly by Department of Fisheries and CARI motivated him to start the venture. A programme on 'Carp Breeding and Model for Satellite Nurseries in Andaman' from 11 to 14 June 2012 was conducted at outreach centre, Diglipur where he participated to learn the knowledge and skill involved in breeding. After gaining confidence, Sajib Kumar constructed five satellite nurseries of size 10 m × 10 m and 1.5 m deep. During the breeding season and building up of satellite fish nursery the flood destroyed his fish nurseries along with fishes on account of heavy downpour on 17 and 28 June 2012. At first instant, he wanted to back out due to heavy loss



incurred but the constant moral support of scientists and staff of CARI made him confident again to construct the nursery. He used to devote 5 hr/day in breeding fishes during the breeding season, apart from this, he employed four full-time and ten part-time employees to assist him in carrying out the fish breeding, management and selling of the fishes on time.

Returns

Mr Sajib Kumar started selling his first installment of fish seeds at the price ranging from ₹ 1.00 to 8.00 of various sizes. He earned an additional income of ₹ 70,000. On knowing about the availability of the quality fish seeds by the peer group from Kalipur to Keralapuram, 20 to 25 farmers placed their demand of fish seeds, i.e. around 40,000 seeds which he sold @ ₹ 5.00/seed. Finally, an additional income of ₹ 200,000 was earned by him.

Within a span of 6 months, he earned ₹ 270,000 from production of freshwater fishes. Presently, six farmers are practising the venture as livelihood option and many more youth have come forward to adopt the technology.

e mail: sibnarayan@gmail.com

Celebrations/Awareness

Eastern zone regional agricultural fair at CRRRI

Cuttack, 28 February 2014. The Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India organized a three-day (26-28

February, 2014) Eastern Zone Regional Agricultural Fair, 2013-14 at Central Rice Research Institute.

Dr Mangala Rai (Agriculture Advisor to Chief Minister of Bihar) inaugurated the fair and raised vital issues of future agriculture. He suggested ways and means

to improve the carbon content of the soil for sustainable production and sound health of the soil. He called upon the scientists to innovate technology to enhance water productivity and popularize integrated farming systems for ensuing livelihood security. He also inaugurated the exhibition and released RAF Souvenir on '*Rice-based Farming System for Food and Nutrition Security*'. Dr Trilochan Mohapatra (Director, CRRRI and Chairman of RAF) elaborated the objectives and importance of RAF at the outset and outlined the activities during the three-day event for the RAF.

Prof. M. Kar (Vice Chancellor, OUAT, Bhubaneswar) emphasized upon the conservation of natural resources.

e mail: directorcrrri@sify.com

Kisan Mela 2014 at IVRI

Izatnagar, 28 February 2014. A one-day *Kisan Mela* 2014 of Indian Veterinary Research Institute was inaugurated by Dr Raj Kumar Singh (Director, IVRI). Agro-industrial, agri-business, pharmaceutical firms, other entrepreneurs and stakeholders put up their stalls in *mela*. Latest agricultural technologies and livestock technologies were shown on these stalls in attractive and informative manner. Various research institutes, KVKs and state departments including farmers and students actively participated in *mela*. Regional Veterinary Science Students Debate Competitions were also held under the theme of 'Fostering Scientific Temper' on the occasion. Students from NDRI, Karnal; GBPUAT, Pantnagar; NDUAT, Faizabad; HAU, Hisar; PDDUUVS, Mathura and IVRI, Izatnagar participated in the programme.

e mail: directorivri@gmail.com

Technology Week and Krishi Mela 2014 at DDKVK

Dinajpur, 7 March 2014. The theme of this year's Technology Week was 'Sustainable intensification of small holder farms' during the 5-day Technology Week and *Krishi Mela* 2014 of Dakshin Dinajpur Krishi Vigyan Kendra (DDKVK), Uttar Banga Krishi Vishwavidyalaya which was organized from 3 to 7 March 2014. Technical seminar on the theme of *Krishi Mela* was held after inauguration along with technical video-show, Magic show by consumer forum department, followed by cultural programme in the evening.

The programme was covered by the *Uttar Banga Sambad*, *Ananda Bazar Patrika*, E-TV, *Chasi-Bhai Patrika*, *Sabuj Sona Patrika*, district press and journalist club media etc. KVK is ever grateful and thankful for successful organization of the event to the entire contributor as well as rural stakeholders

for whom the developmental event was exclusively organized.

e mail: ncsahu_ubkv@yahoo.co.in

Animal health camp, technology demonstration-cum-kisan mela

Bali, 21 March 2014. Eastern Regional Station (ERS) of Indian Veterinary Research Institute (IVRI), Kolkata organised an animal health-cum-vaccination camp, technology demonstration and *Kisan Mela* at Bali Island of Sundarban in collaboration with Ramkrishna Ashram KVK (ICAR), Nimpith, South 24 Parganas and Wildlife Protection Society of India (WPSI) Sundarban Branch, Bali. To prevent the major prevalent diseases of animals, which are being reared in almost every household, various vaccines such as FMD vaccine for cattle (105), Goat Pox vaccine for goat (200), Ranikhet Disease vaccine (R2B strain) for chicken (355), duck plague vaccine for duck (17) and antirabies vaccine, prebrite (10) were given to dogs. Scientist-farmers' interaction was held where the farmers raised several problems in connection with health, feeding, housing and management aspects of livestock and poultry, which were duly addressed by the scientists. Further, various technologies developed by IVRI such as development of cost effective anti-diarrhoeal therapy, vaccines such as HS, oil adjuvanted FMD vaccine, goat pox, PPR, area specific mineral mixture etc. were demonstrated to the farmers. Besides, one quiz competition was held among the farmers and prizes were given to the winners. In this quiz, majority of the participants were women who took part in the event with great enthusiasm. Leaflets in local language (*Bengali*) on vaccination schedules for cattle, chicken and duck; rabies, bird flu, parasitic diseases, tuberculosis, actinomycosis, brucellosis, *Peste des petits ruminants* (PPR), fishborne trematode parasites, integrated fish-cumduck farming and farming systems of cattle, goat, duck etc. were distributed among the farmers to raise awareness about zoonotic diseases and scientific animal farming systems.

e mail: subuicar@rediffmail.com

15th Foundation Day of ICAR Research Complex for Eastern Region

Patna, 22 February 2014. The XIV Foundation Day of ICAR Research Complex for Eastern Region was inaugurated by Padmabhushan Shri Chandi Prasad Bhatt (noted environmentalist social activist and Magsaysay Award Winner) shared his experience about Chipko Movement and his journey from the Himalayas to the Gangetic basin and cautioned the scientists about the possible impact of climate change and deforestation on agriculture in the Gangetic basin.

He felt the need of establishing Glacier Monitoring Agency in the country and expressed his concern about the nature, land, animal and people and focused on several aspects, and challenges faced by the country in the field of environment and agriculture. He urged the scientists to develop environment friendly technologies to secure food for every family. He stressed to consider the traditional knowledge system blended with modern science for storage, processing, value addition etc. for the upliftment and livelihoods of the rural poor.

Dr B. P. Bhatt (Director, ICAR Research Complex for Eastern Region) emphasized on the need-based focused research programmes to cater the diverse needs of the eastern India. The *Mushroom Production, Rainfed Rice Cultivation and Integrated Fish Farming* were released.

e mail: drbpbhatt.icar@yahoo.com

25th Foundation Day of NRC on Yak

Dirang, 23 January 2014. The National Research Centre on Yak celebrated 25th Foundation Day in presence of Chief Minister of Arunachal Pradesh, Shri Nabam Tuki who appreciated the significant achievements of the institute towards development of yaks in the country in last 25 years. The dignitaries visited the laboratories of National Research Centre on Yak and had interaction with the scientists and staff of the institute. Dr S.Ray inaugurated newly designed website of NRC on Yak (NRCY).

e mail: sm_deb@yahoo.com

27th Foundation Day of Directorate of Poultry Research

Hyderabad, 1 March 2014. The Directorate of Poultry Research celebrated its 27th Foundation Day. Dr S. L. Goswami (Director, NAARM) said that the Directorate should adopt a village for validation of technologies and successful performance of varieties developed by the Directorate. He also released a CD '*Digitalised Institute Publications*' containing all annual reports, newsletters and other publications of the Directorate since its inception in 1988. The farmers from Timmareddyguda village, Shabad Mandal, Ranga Reddy district of Andhra Pradesh attended the Farmers-Scientists Interface meeting. They expressed their satisfaction and happiness about the performance of the variety. The deliberations were on the development of more number of chicken varieties for rural farmers in the country depending upon their needs and available resources; role of the Directorate in strengthening rural economy by supplying different chicken varieties suitable for rural and tribal farmers.

e mail: pdpoult@ap.nic.in

53rd Foundation Day of CSWRI

Avikanagar, 4 January 2014. The Central Sheep and Wool Research Institute celebrated its 53rd Foundation Day at its campus. Padam Bhushan, Dr R.S. Paroda (Chairman, TAAS) and Shri Arvind R. Kaushal (Additional Secretary DARE and Secretary ICAR) stressed the need for focused research directly related to applied aspect of farmers' interest.



Dr S.M.K. Naqvi (Director, CSWRI) explained the progress of the Institute during last one year and the future plans. More than 200 farmers, out of which 50 were women farmers and 25 tribal farmers from Dungarpur tribal area of Rajasthan attended the function.

The Central Sheep and Wool Research Institute (CSWRI), has been granted the ISO 9001:2008 standards certificate on 30 December 2013 for three years. The said certificate was released on 4 January 2014.

e mail: naqrismk@yahoo.co.in

Annual Day at Project Directorate of Farming Systems Research

Modipuram, 23 February 2014. Annual Day, organized by the Project Directorate for Farming Systems Research, was inaugurated by Dr H.S. Gaur (Vice-Chancellor, SVPUAT) who emphasized the need for co-ordinated efforts among the agricultural institutions located in the Meerut. Dr Gaur precisely pinpointed the advantages of co-ordinated effort in teaching, research and extension which will lead to efficiency of all the organizations.

Dr B. Gangwar (Project Director, PDFSR) stated that only farming system approach could raise the productivity and profitability for 86% of marginal- and small- farm households in the country. He focused on new initiatives taken by the Directorate which includes emphasis on research on secondary agriculture (processing and value addition) and carbon accounting in farming system models being developed at on-station and on-farm programmes of

All India Co-ordinated Research Programme on Integrated Farming Systems. The farming community especially marginal farmers shared their problems with the scientists.

e mail : rajvirsingh.nrm@gmail.com

National Science Day

- Pakyong, 28 February 2014. The National Research Centre for Orchids, ICAR observed National Science Day at the training hall of the Jawahar Navodaya Vidyalaya. Dr R. P. Medhi (Director, NRC for Orchids) informed about the significance of Science



Day, and said that the children are the backbone of the nation hence they should have scientific exposure for building the nation. Later he also presented the brief scientific achievements of

the Centre. Shri O. P. Singh (Vice Principal, Jawahar Navodaya Vidyalaya, Pakyong) encouraged the participants and narrated about the Raman's effect on which the day is observed. Earlier Dr D. Barman (Principal Scientist, Horticulture) presented a lecture on Energy conservation. The participants were also shown a short documentary film on the 'Birth of Earth'.

e mail : nrcorchids@rediffmail.com

- Cochin, 28 February 2014. Prof. Ram Rajasekharan (Director, CFTRI, CSIR, Mysore) inaugurated the National Science Day celebrations at Central Institute of Fisheries Technology and presented 'Applaud-Aquatic Bio-functionals'.



He spoke on the importance of healthy oils containing omega-3 fatty acids. He stressed the importance of marine fish oil and how it helps in preventing heart diseases and related problems. He suggested mechanisms of producing omega-3 fatty acids in plant oils for the benefit of vegetarians. In the diet omega-3/omega-6 ratio of oil used has to be confirmed for healthy usage of oil. Dr Rajasekharan concluded importance of nutraceuticals in the days to come will be remarkable, whether it is of fish or vegetable origin.

e mail : tksgopal@gmail.com

- Hyderabad, 28 February 2014. The Directorate of Poultry Research celebrated National Science Day to commemorate the remarkable discovery of Sir C.V. Raman by popularizing the science among masses. On this occasion, the Institute has organized an exhibition on Poultry Science by highlighting several technologies and varieties developed at the Institute. Dr R.N. Chatterjee (Director) inaugurated the exhibition stall and explained about the activities of the Institute and its role for the benefit of the farmers particularly in the rural area. He also narrated the role of science in everyday life and emphasized for popularizing science for upliftment of countrymen in particular the rural farmers. Dr T.K. Bhattacharya (ICAR National Fellow) informed about the history of commemorating National Science Day in the country.

e mail: pdpoult@ap.nic.in

- Port Blair, 28 February 2014. The theme of five-day celebration of Science Day was 'Fostering Scientific Temper' at Garacharma Research Complex of Central Agricultural Research Institute from 24 to 28 February 2014.

Dr S. Dam Roy (Director, CARI) emphasized on the opportunities and scope in agriculture sector. Farmers from different villages of South Andaman were shown mini incubator hatchery in Animal



Science Division, Sub-DIC, Dweep Krishi Darpan, Polyhouse, Watershed and other models established in the Institute. They interacted with

scientists. Over 50 farmers participated in the session. Over 30 women participated in poster competition on the topic 'How to overcome Anaemia in women?' and extempore speech.

e mail: sibnarayan@gmail.com

'Field Day' under NICRA at CSWRI

Avikanagar, 24 March 2014. A 'Field Day' under the project on National Initiative on Climate Resilient Agriculture (NICRA) was organized at Central Sheep and Wool Research Institute. Professor M.P. Yadav (Secretary, NAAS) presided the meeting and expressed concern on depleting water, feed, fodder and other natural resources in ensuing climate change scenario. He further emphasized to come out with animal husbandry technologies resilient to Climate Change that can be recommended to State Animal Husbandry departments and other Stake holders. Dr S.M.K. Naqvi (Director, CSWRI) affirmed greater concern on nutrition

and shelter management strategies to resist any decline in overall production of small ruminants and ensuring net benefit to the farmers. Dr A. Sahoo emphasized on exploring feeds and feeding strategies based on promising locally available feed resources and newer sources like cactus, Oont Kantela (*Blepharis indica*), monsoon forage-based complete feed blocks and shelter management strategies to ameliorate climatic stress.

e mail: naqvismk@yahoo.co.in

World Water Day

Ajmer, 22 March 2014. National Research Centre on Seed Spices celebrated World Water Day. Balraj Singh (Director, NRCSS) delivered a lecture on 'Water availability, its uses and challenges in conservation'. He briefed about importance of water for any civilization and its consequences due to excess exploitation. Due to urbanisation, industrialisation and

climate change availability of water and its access is a great challenge to an individual and for mass at global level. An enlivening discussion session was followed involving scientist, technical officers and staff of NRCSS, ARSS and KVK Ajmer to aware and adopts the different package and practices which utilises less water and emphasised to popularise such technology by considering the importance of water.

Dr Singh also stressed on the importance of Drip Irrigation, Plastics Mulching, use of Hydro gel and Laser Levelling to increase the water productivity. He emphasized on rain water harvesting mandatory clubbed with protected cultivation. He told that it is need of time that we should standardize our scientific work by keeping standards of maximum productivity per drop. The session was ended with a vow by all scientist and staff to save water and its judicious use at their individual level.

e mail: drbsingh2000@yahoo.com

Capacity Building

ASHOKA-the first super computing hub in agriculture

New Delhi, 15 January 2014. The Union Minister of Agriculture and Food Processing Industries, Shri Sharad Pawar, dedicated 'ASHOKA' (Advanced Supercomputing Hub for OMICS Knowledge in Agriculture) to the nation at Indian Agricultural Statistical Research Institute (IASRI), New Delhi. Shri Tariq Anwar and Shri Charan Das Mahant, Union Ministers of State for Agriculture and Food Processing Industries were also present at the inaugural ceremony. The National Agricultural Bio-computing Portal and Genome Sequence Submission Portal were also launched.



Dr S. Ayyappan (Secretary, DARE and DG, ICAR) briefed the unique features of ASHOKA. He said that 'ASHOKA' is the proud outcome of the NAIP component-1 sub-project 'Establishment of National

Agricultural Bioinformatics Grid in ICAR' and is established under the aegis of Centre for Agricultural Bioinformatics of the Indian Agricultural Statistical Research Institute. He added that it is the most advanced computational inclusion in the National Agricultural Research and Education System. The state-of-the-art facility is first of its kind dedicated exclusively for Indian agricultural research. The supercomputing hub is poised to bridge the gap between genomic information and knowledge by utilizing statistical and computational sciences. The hub hosts micro-satellite markers of pigeon pea, tomato, buffalo, goat and other agricultural commodities of global importance to help scientists for development of elite varieties and breeds. The DG, ICAR further added that ASHOKA is a milestone facility fostering biotechnological research in agriculture and bioinformatics in the country.

e mail: ucsud@iasri.res.in

National initiative on climate resilient agriculture for KVKs of Zone-V

Hyderabad, 21 February 2014. The Zonal Project Directorate, Zone-V started two-day Capacity Building Programme for implementing the project on 'National Initiative on Climate Resilient Agriculture for KVKs of Zone-V' on 20 February 2014. Dr N.Sudhakar (Zonal Project Director, Zone-V) emphasized that Krishi Vigyan Kendras working on National Initiative on Climate Resilient Agriculture must undertake Natural Resource Management

interventions as there is need for improvement of water-harvesting structures for effective groundwater recharge. Dr P. Raghava Reddy (former Vice-Chancellor, ANGRAU) suggested that there is need to understand the situation specific problems according to changing climate and identify and implement problems more relevant to climate.

The celebrations were on: (i) methodology in conducting demonstrations in NICRA villages; (ii) interactive session regarding interventions to be followed during different climatic vulnerabilities; (iii) planning interventions in relation to climatic vulnerabilities; (iv) planning, formulation, implementation and documentation of interventions regarding NICRA activities; and (v) planning Interventions in livestock component of NICRA.

e mail: zcu5hyd@gmail.com

Sun-boat solar power for eco-fishing

Cochin, 23 February, 2014. The CIFT Sun boat, a solar powered boat, was launched by Minister for Fisheries, Ports and Excise, Government of Kerala, Shri K. Babu, at a function organized by the Fishing Technology Division of the Central Institute of Fisheries Technology (CIFT) at Matsyafed Njarakkal Fish Farm. The Minister said that such ventures will make fishing more viable especially in the context of limited fossil fuel.



The CIFT Sun boat with length of 3.6 m is twin hulled and is solely propelled by solar power. It can be put to use in aqua-farms for aqua-cultural purposes and for gillnetting, line fishing, transportation and aqua-tourism. The main advantages are that it does not burn fuel, there is no atmospheric or sound pollution, has more deck space with clean FRP surface for fish handling and is suitable for shallow waters. The CIFT Sun boat is costlier than the conventional boat but the additional cost is compensated by the fuel saved. The Minister said that such ventures would make fishing more viable especially in the context of limited fossil fuels.

e mail: tksqopal@gmail.com

New administrative building of ZPD, Zone-I

Ludhiana, 5 January 2014. Dr. S. Ayyappan (Secretary, DARE and DG, ICAR) inaugurated administrative building of Zonal Project Directorate, Zone-I, and expressed his happiness over the good collaboration and coordination of Zonal Project Directorate with state agricultural universities in the zone and said that Krishi Vigyan Kendras (KVKs) contributed a lot in increased agricultural production in the country. Dr K. D. Kokate (DDG, Extension) said that construction of this building would further boost the performance of KVKs of Zone-I.

e mail: narula512002@yahoo.co.in

Bioinoculant laboratory building inaugurated at CPCRI

Kasaragod, 8 March 2014. Dr S. Ayyappan (Secretary, DARE and DG, ICAR) inaugurated the Bioinoculant Laboratory Building at Central Plantation Crops Research Institute. This was followed by field visit where collection of coconut sap, '*Kalparasa*', by a unique method developed by the CPCRI was demonstrated. Dr S. Ayyappan distributed two PGPR-based bioinoculants, *Kera Probio*, a talc formulation of *Bacillus megaterium* effective for raising robust coconut seedling and *Cocoa Probio*, containing *Pseudomonas putida* effective for raising healthy cocoa seedling (developed at CPCRI) which were the output of ICAR funded network project on 'Application of Microorganisms in Agriculture and Allied Sectors' operated by NBAIM, Mau. Dr S. Ayyappan made public '*Kalparasa*' the sweet coconut sap collected by CPCRI method and coconut sugar produced from coconut sap.

He also released two important publications: *Research-farmer-extension interface on coconut and arecanut—an effective strategy for bridging the knowledge gap* that gives an account of the technologies developed for coconut and arecanut, the details of interface programmes conducted in Karnataka, the suggestions and feedback received from farmers and the strategies for strengthening the interface programmes. *Thengu Krishi Reethikkal* in Malayalam gave a detailed account of technologies for enhancing productivity and income from coconut farming.

Dr N.K. Krishna Kumar (DDG, Horticulture) released the draft genome sequences of plant growth promoting *Rhizobacterium* of coconut, cocoa and arecanut, an outcome of public-private partnership between CPCRI and SciGenom Lab Pvt. Ltd. Kochi. The draft genome sequences have been deposited with European Bioinformatics Institute.

e mail: georgevthomas@yahoo.com

Visits

Chairman (TAAS) and Secretary (ICAR) visits CSWRI

Avikanagar, 4 January 2014. Dr R.S. Paroda (Chairman, TAAS) and Shri Arvind R. Kaushal, (Additional Secretary, DARE and Secretary, ICAR) visited various livestock sectors and scientific divisions/sections of the Central Sheep and Wool Research Institute including the Wool Processing Plant; and interacted with the scientists on research and development activities of the institute. They visited various infrastructural development activities of the Institute and extended appreciation and support in this cause. The newly renovated building of NPB, Security Section, Horticulture Section and Sale Counter of the institute were also inaugurated. Shri Arvind R. Kaushal (Secretary, ICAR) presided the meeting of scientists and administrative staff and stressed upon maintenance of coherent environment for sound research and development of the institute.

e mail: naqvismk@yahoo.co.in

DDG (NRM) visits Climate Smart Village in Ropar

Ropar, 11 January 2014. The Krishi Vigyan Kendra (KVK) Ropar is implementing NICRA programme at Rasidpur village in Ropar district. Dr A K Sikka (DDG, NRM) had farmers- scientists interaction programme at Farmers' Service Station of NICRA. He talked with the representatives of Village Climate Risk Management Committees and got their feedback on custom hiring centre. They said about 90% of the farmers belong to small- and marginal-category thus mechanization through CHC is helpful in adopting the technologies. Dr Sikka shared the outcome of NICRA interventions and exhorted the Project Co-ordinator to lay special thrust on agroforestry as it is more suitable for this area and also one of the options to tackle climate issues. He emphasized to train the farmers on this aspect meanwhile he talked to NRC on Agroforestry for imparting training in NICRA village near future.

Dr Sikka said besides other benefits adoption of new improved machinery in agriculture like Happy Seeder, Zero tillage techniques, sprinkler irrigation system and protected vegetable cultivation is also encounter the terminal heat effect. He also visited the field of Mr Baljit Singh to observe the performance of newly introduced poplar clone (PL 5) in agroforestry system. He suggested to develop model nurseries of best poplar clones for wider dissemination of poplar-based agroforestry system.

e mail: kvkropar@pau.edu

Trainings

- The Krishi Vigyan Kendra, Cuttack organized a Training-cum-Workshop on 'Protection of Plant Varieties and Farmers' Right Act-2001'.
e mail: kvkcuttack@gmail.com
- The Directorate of Extension Education, Bihar Agricultural University, Sabour, Bhagalpur, Bihar organized a training programme on Agricultural Marketing for Practitioners at Bihar Veterinary College, Patna from 28 to 31 January 2014 in which 60 personnel from Krishi Vigyan Kendra, Research Institutions and Agricultural Colleges located in the state participated. The training programme aimed at highlighting the principle of agricultural marketing in India, reforms in agricultural marketing and linking of small markets to the farmers of the state.
e mail: zpdkolkata@gmail.com
- Raipur, 3 March 2014. The National Institute of Biotic Stress Management organized a 5-day (27 February to 3 March, 2014) training on 'Biotic Stress Management of Crops'.
e mail: director.nibsm.cg@nic.in
- Puttur, 25 February 2014. The Directorate of Cashew Research, Puttur conducted training programme on 'Pest management in cashew for tribal farmers' at Bettampady village in association with Shree Kshetra Dharmasthala Rural Development Project, Puttur.
e mail: dircajures@rediffmail.com
- Patna, 7 March 2014. The ICAR Research Complex for Eastern Region (ICAR-RCER), organized a 10-day (26 February-7 March 2014) training on 'Integrated Fish Farming' for selected 25 fish farmers from different districts of Bihar.
e mail: drbpbhatt.icar@yahoo.com
- Izatnagar, 3 March 2014. The 3-week Center of Advanced Faculty Training in Animal Nutrition, IVRI completed 41st advanced short course on 'Nutrition, Productivity and Product Quality in Farm Animals'. It was started on 11 February 2014.
e mail: directorivri@gmail.com
- Hyderabad, 15 March 2014. Directorate of Poultry Research, Rajendranagar, Hyderabad organized a six days training programme on 'Poultry Production and Disease Management' to the extension officers working with the tribal farmers of the Odisha from during 10 to 15 March 2014. The programme was sponsored by an NGO 'Swarna Jyoti Women Poultry Co-operative Federation Ltd., Parabada, Jeypur, Koraput, Odisha.
e mail: pdpoult@ap.nic.in
- Visakhapatnam Research Centre of CIFT conducted a three-day Training-cum-Demonstration Programme under Tribal Sub Plan, Government of India at Jagadalpur in Chhattisgarh from 4 to 6 March 2014. During the programme, training-cum-demonstration sessions were conducted on use of coracles, foldable fish traps, gill nets and preparation of value added products from fishes.
e mail: tksgopal@gmail.com
- Shimla, 22 March 2014. A two-days training programme was organized by CPRI, Shimla in collaboration with CAZRI-Regional Research Station, Leh; KVK (SKUAST(K), Leh and State Department of Agriculture, Leh at Leh covering three villages and at Shara covering villages Shara, Shermos and Phukse from 21 to 22 March 2014.
e mail: ms_leh@cazri.res.in

Appointments

Name	Designation and Address	Date of Appointment
Dr S. K. Chaudhary	ADG (S&WM), ICAR (Hq), New Delhi	1 January 2014
Dr Sreenath Dixit	Zonal Project Director (Zone III), Bengaluru	6 January 2014
Dr N. P. Singh	Director, IIPR, Kanpur	28 January 2014
Dr S. K. Singh	Director, NBSS&LUP, Nagpur	1 February 2014
Dr R. K. Singh	Director, IVRI, Izatnagar	4 February 2014
Dr H. P. Yadav	Project Co-ordinator (Pearl Millet Improvement), Jodhpur	10 February 2014
Dr R. K. Gupta	Director, CIPHET, Ludhiana	14 February 2014
Dr Atul Kumar Singh	Director, DCWFR, Bhimtal	19 February 2014
Dr Anupam Mishra	Zonal Project Director (Zone VII), Jabalpur	20 March 2014

Superannuations

Name	Designation and Address	Date of Retirement
Dr A. S. Sidhu	Director, IHR, Bengaluru	31 January 2014
Dr M. C. Sharma	Director, IVRI, Izatnagar	31 January 2014
Dr Deepak Sarkar	Director, NBSS&LUP, Nagpur	31 January 2014
Dr D. Chaudhary	Project Co-ordinator (UAESAE), CIAE, Bhopal	31 January 2014
Dr S. L. Goswami	Director, NAARM, Hyderabad	28 February 2014

MoU/Work Plan

- Memorandum of Understanding was signed between ICAR, New Delhi, India and the Board of Trustees the Royal Botanic Garden (KEW), United Kingdom on 13 February, 2014.
- Work Plan between ICAR, New Delhi, India and Cornell University, Cornell, USA for 2013 - 2015 was signed on 7 March, 2014.

VIP Delegations

- His Excellency Dr Ali Mohamed Shein (President of Zanzibar and Chairman of the Revolutionary Council) and Mrs Mwanamwema Shein visited IARI, New Delhi on 4 February, 2014. Besides there was also a visit of an advance team from the Zanzibar and Tanzanian High Commission, New Delhi from 25 to 27 January 2014.
- Dr H.R. Tayebi (Deputy Minister and the President, Academic Centre for Education, Culture and Research, Iran) visited IARI, New Delhi on 17 January 2014.
- Three Member delegation led by Dr S. Ayyappan, (Secretary, DARE and Director General, ICAR) visited Putrajaya, Malaysia from 18 to 19 March 2014 to participate in the Fourth Meeting of ASEAN - India Working Group on Agriculture and Forestry.
- Shri Arvind R. Kaushal (Additional Secretary, DARE and Secretary, ICAR) visited Mexico to attend Bourlaug Summit on wheat for food security for 4 days i.e. from 25 to 28 March 2014.

Visits

- Dr H. S. Gupta (Director, Indian Agricultural Research Institute, New Delhi) visited London, United Kingdom from 4 to 7 March, 2014 to attend meeting in connection with Stolen Roerich Painting from IARI, New Delhi.
- Dr A.P Sharma (Director, Central Inland Fisheries Research Institute, Barrackpore) visited Dhaka, Bangladesh as part of Indian Delegation for participating in the First India-Bangladesh JWG on Fisheries from 12 to 13 March 2014.

Editorial Board

Chairman

Dr S Ayyappan
Secretary, DARE and DG, ICAR

Members

Dr Arvind Kumar, DDG (Education)
Dr S K Datta, DDG (Crop Science)
Dr K D Kokate, DDG (Agriculture Extn.)
Dr N K Krishna Kumar, DDG (Horticulture)
Dr B Meena Kumari, DDG (Fisheries)
Dr K M L Pathak, DDG (Animal Science)
Dr D Rama Rao, National Director (NAIP) and
DDG (Agricultural Engineering)
Dr A K Sikka, DDG (NRM)

Member-Secretary

Dr Rameshwar Singh, Project Director (DKMA), ICAR
Ph: 25842787, pddkma@icar.org.in