



ICAR-IIFSR



हर कदम, हर डगर
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद

Agrisearch with a human touch

Newsletter

**ICAR-Indian Institute of Farming Systems Research
Modipuram, Meerut-250 110, Uttar Pradesh**

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ICAR-IIFSR

Mandate

- To undertake basic and strategic research in integrated farming system on production technologies for improving productivity and resource use efficiencies.
- To develop efficient, economically viable and environmentally sustainable integrated farming system models for different farming situations.
- To undertake on-farm testing, verification and refinement of system-based farm production technologies.
- To undertake human resource development and capacity building in integrated farming system.
- To act as a repository of information on all aspects of farming systems research and development.
- To coordinate and monitor integrated farming systems research in the country.

Superannuation of Director

Dr B. Gangwar, Director, ICAR-IIFSR superannuating on 31 January 2015 after completing more than 38 years of service in the council at various places including remote area of Port Blair (A&N Islands). His major contribution includes transformation of cropping systems research to farming systems at national level and made tremendous effort in up-gradation of PDCSR to PDFSR to IIFSR. The IIFSR family including all the staff of AICRP on IFS and NPOF extends best wishes for the happy retired life. He may be contacted at bgangwar53@gmail.com, Mobile No. +91-9412202070 & +91-9457817009.

Journey to ICAR-IIFSR

The Project Directorate for Farming Systems Research (ICAR-PDFSR) was given the status of full-fledged institute w.e.f. 27th November, 2014 and renamed as "Indian Institute of Farming Systems Research" (ICAR-IIFSR) with 4 divisions (Integrated Farming Systems Management, Cropping Systems & Resource Management, Organic Agriculture Systems and Transfer of Technology, Refinement & Human Resource Development). The AICRP on IFS and NPOF will also be integral part of the institute. The major highlights of the 12th plan approval is as follows.

ICAR-IIFSR, Modipuram

- The XII plan out lay of ICAR-IIFSR is Rs 1240 lakhs.
- The post of Project Director has been re-designated as the Director.
- Four Head of the divisions against four posts of Principal Scientists are approved.
- One new post of Junior Hindi translator is approved.

All India Coordinated Research Project on Integrated Farming System

- The AICRP-IFS will be headed by a 'Project Coordinator' under administrative control of the Director ICAR-IIFSR.
- During XII plan, all existing centers of the scheme will continue.
- IASRI, New Delhi has been approved as a new voluntary center of AICRP-IFS.

- The budgetary outlay is Rs 16800 lakhs as ICAR share and Rs 5117.05 lakh as state share for XII plan approved

Network Project on Organic Farming

- At IIFSR, NPOF will be coordinated by a Principal Scientist (as National, PI), under administrative control of the Director IIFSR.
- In addition to existing 13 cooperating centers of NPOF, following seven new cooperating centers have also been approved
 1. ICAR-RC NEH Regional Centre, Gangtok (Sikkim)
 2. MPUAT, Udaipur (Rajasthan)
 3. VPKAS, Almora (Uttarakhand)
 4. NRC Seed Spices, Ajmer (Rajasthan)
 5. SDAU, S.K. Nagar (Gujarat)
 6. CTCRI, Thiruvanthapuram (Kerala)
 7. RKVU, Belurmath (West Bengal)

Budget outlay of NPOF is Rs 1170 lakhs for XII plan

Milestones of the Institute

- 1952-53: "Simple Fertilizer Trials on Cultivators' Fields".
- 1956: 'Model Agronomic Experiments' were added and "All India Coordinated Agronomic Experiments Scheme".



- 1968-69: "All India Coordinated Agronomic Research Project (AICARP)" with two components viz.; 'Model Agronomic Experiments' and 'Simple Fertilizer Trials'.
- 1989: "Project Directorate for Cropping Systems Research (PDCSR)" with "All India Coordinated

Research Project on Cropping Systems" at Modipuram (Meerut).

- 2004-05: "Network Project on Organic Farming (NPOF)" with 13 co-operating was added.
- 2010: "Project Directorate for Farming Systems Research" PDFSR and "AICRP on Integrated Farming Systems", respectively.
- 2014: PDFSR renamed as ICAR-Indian Institute of Farming Systems Research. AICRP on IFS and NPOF as integral part of institute.

Director's Message

On 27th November, 2014, Project Director, Dr B. Gangwar called a staff meeting and exchanged greetings for the up-gradation of the Directorate to a full-fledged institute in a short span of time from it becoming PDFSR in 2010. He briefed the staff about the ceaseless efforts and appreciated QRT for considering the demand and ICAR for giving approval for the renaming. He called upon the scientist to endeavor in the research realm of emerging problems of agriculture and providing solutions through farming system approach.

68th Independence Day

The 68th Independence day was celebrated in the Directorate on 15 August 2014. On this occasion, Project Director, Dr B. Gangwar hoisted the national flag. In his address to the staff, he narrated the achievements of past one year and emphasized the importance of Farming System Research for the nutritional and livelihood security of ever increasing population of small and marginal farmers of the country. Bestowing the responsibility, he called upon the scientists to pursue the research in farming systems perspective which is considered to be the way forward for the future of Indian agriculture.



हिन्दी चेतना पखवाड़ा

निदेशालय के दैनिक कार्यों में हिंदी के अधिकारिक उपयोग को बढ़ावा देने एवं सभी कर्मियों में राजभाषा के प्रति अभिरुचि पैदा करने के उद्देश्य से वर्ष 2014 में 14-28 सितम्बर तक हिंदी पखवाड़े का आयोजन किया गया। पखवाड़े को सफलीभूत करने के उद्देश्य से इस दौरान हिंदी उपयोग को बढ़ावा देने संबंधी विविध कार्यक्रम जैसे- कविता पाठ, हिंदी सामान्य ज्ञान प्रश्नोत्तरी एवं अंत्याक्षरी की टोली प्रतियोगिताएं, हिंदी एवं अन्य भाषा-भाषी हेतु पृथक-पृथक वाद-विवाद एवं निबंध प्रतियोगिता, टिप्पणी एवं प्रारूप लेखन प्रतियोगिताएं कराई गयी जिसमें सभी संवर्ग के अधिकारियों एवं कर्मचारियों ने बढ़-चढ़कर भाग लिया। हिंदी पखवाड़े के दौरान संस्थान में दिनांक 17.09.2014 को अपराह्न 2.30 बजे मुख्य सभागार में हिन्दी कार्यशाला का आयोजन किया गया जो कि हिंदी भाषा की दशा और दिशा के बारे में जानकारी तथा कार्यालय कार्यों में हिंदी को बढ़ावा देने पर आधारित थी। इस कार्यशाला में डॉ० रविकान्त सरल, प्राचार्य, ए. एस. कालिज आफ एजुकेशन एण्ड टेक्नोलोजी, हापुड़ रोड़, मेरठ को मुख्य प्रवक्ता के रूप आमंत्रित किया गया था। उनके द्वारा दी गई हिंदी भाषा की जानकारी के लिए परियोजना निदेशक महोदय ने हार्दिक सराहना की। उपस्थित सभी अधिकारियों एवं कर्मचारियों ने हिंदी के प्रयोग के प्रशिक्षण/जानकारी को ग्रहण कर हिंदी के दैनिक कार्यों में अधिक से अधिक प्रयोग करने का संकल्प लिया।



हिन्दी कार्यशाला

दिनांक 17.12.2014 को अपराह्न 2.30 बजे एक हिन्दी कार्यशाला, संस्थान के बड़े सभागार में आयोजित की गई। इस कार्यशाला में श्री प्रमोद कुमार त्यागी, सदस्य सचिव, न.रा.का.स., मेरठ को आमंत्रित किया गया था। उनके द्वारा "देवनागरी लिपि एवं मानक वर्तनी" के प्रयोग व नियम संबंधी विभिन्न जानकारियां दी गई, जिसके लिए डॉ० कामता प्रसाद, प्रधान वैज्ञानिक/प्रभारी निदेशक ने हार्दिक सराहना की। उपस्थित सभी अधिकारियों एवं कर्मचारियों ने हिंदी के प्रयोग के प्रशिक्षण/जानकारी को ग्रहण कर हिंदी के दैनिक कार्यों में "देवनागरी लिपि एवं मानक वर्तनी" के प्रयोग करने का संकल्प लिया।

कृषि शिक्षा दिवस

संस्थान में दिनांक 28, अगस्त 2014 को कृषि शिक्षा दिवस मनाया गया। इस अवसर पर डॉ० अरविन्द कुमार, उपमहानिदेशक (कृषि शिक्षा), भारतीय कृषि अनुसंधान परिषद नई दिल्ली मुख्य अतिथि के तौर पर उपस्थित रहे। कार्यक्रम में डॉ. वृहमप्रकाश, निदेशक, केन्द्रीय गौवंश अनुसंधान संस्थान मेरठ व डॉ० हरि शंकर गौड़, कुलपति, सरदार वल्लभभाई पटेल कृषि एवं प्रोद्योगिकी विश्वविद्यालय मेरठ भी विशिष्ट अतिथि के रूप में उपस्थित रहे। मेरठ के विभिन्न विद्यालयों के अध्यापक एवं छात्र-छात्राओं ने भी कार्यक्रम में हिस्सा लिया। कार्यक्रम का शुभारम्भ डॉ० प्रेम सिंह के स्वागत भाषण से हुआ। परियोजना निदेशक, डॉ० बाबूजी गंगवार ने सभी आगन्तुकों का स्वागत करते हुए हमारे देश की वर्तमान में कृषि समबन्धी चुनौतियों पर प्रकाश डालते हुए सीमान्त एवं छोटे कृषकों हेतु समन्वित कृषि प्रणाली की उपयोगिता के बारे में बताया। डॉ० वृहमप्रकाश ने कृषि शिक्षा में अतिरिक्त दक्षता के विकास पर जोर दिया। डॉ० हरि शंकर गौड़ ने भारत के सम्पूर्ण विकास में आजादी के उपरान्त कृषि शिक्षा के योगदान पर विस्तृत प्रकाश डाला। मुख्य अतिथि डॉ० अरविन्द कुमार ने बताया कि कृषि केवल आजीविका का साधन ही नहीं वरन् आज एक व्यवसाय भी है। आज सुदृढ़ आर्थिक व्यवस्था का मुख्य आधार हमारी कृषि है जिसके फलस्वरूप विश्वव्यापी मन्दी के दौरान भी हमारा प्रदर्शन लगभग स्थिर रहा है। उन्होंने बताया कि कृषि शिक्षा का उद्देश्य सामान्य जनमानस, विशेषकर नवयुवकों में कृषि ज्ञान के प्रति रुचि बढ़ाना है जिससे उन्हें अपने परिवेश में ही स्वरोजगार एवं अन्य अवसर प्रदान किये जा सकें। कार्यक्रम के दूसरे सत्र में कृषि शिक्षा सम्बंधी दो प्रतियोगिताओं का आयोजन किया गया। पहली, वाद-विवाद प्रतियोगिता "भारत को जैविक कृषि की तरफ बढ़ना चाहिये" नामक शीर्षक पर एवं दूसरी, चित्रकला प्रतियोगिता "भारतीय कृषि एवं महिलाएं" शीर्षक पर आयोजित की गयी। दोनों प्रतियोगिताओं के प्रतिभागियों को कुल 12 पुरस्कारों के अतिरिक्त सान्त्वना पुरस्कार भी प्रदान किये गये। वाद-विवाद प्रतियोगिता में कुमारी निवेदा सिंह, शोभित विश्वविद्यालय ने प्रथम तथा आकाश गुप्ता ने द्वितीय पुरस्कार प्राप्त किया। पेंटिंग प्रतियोगिता में कुमारी मीनल सिंह ने प्रथम एवं कुमारी मीनाक्षी ने द्वितीय पुरस्कार प्राप्त किया। पुरस्कार वितरण के बाद कार्यक्रम का समापन डॉ० बाबूजी गंगवार के धन्यवाद प्रस्ताव द्वारा किया गया।

Monitoring of on-going programmes under AICRP-IFS & NPOF

On-station-Hyderabad, S.K.Nagar, Palampur, Jabalpur, Bhubaneswar, Ludhiana, Coimbatore, Kanpur OFR- Anand	Dr B. Gangwar
On-station- S.K. Nagar TSP- Banaskantha	Dr Kamta Prasad, Dr N. Ravisankar Dr J. P. Singh
On-station- Kalyani TSP-Bali Island OFR-Kakdwip, Sirsa	Dr N. Ravisankar
On-station- Maruteru, Hisar, Kumarganj OFR-Ambedkarnagar, Warangal, Rudrur,	Dr J.P. Singh

New Initiatives

'Swachh Bharat Abhiyan'

'Swachh Bharat Abhiyan' was observed in the institute on 2nd October, 2014 on the eve of 'Gandhi Jayanti'. On this occasion the cleanliness was observed in all the premises of institute, experimental fields and residential complexes. In his message, Project Director, Dr B. Gangwar called upon the staff to observe cleanliness and to inculcate the habit of hygiene and sanitation in their houses, office and surroundings to make success the slogan of PM as "India can do it. People of India can do it."



Strengthening Inter-Institutional Linkages

In line with the ICAR strategy to deliver the technologies through farming system mode, IIFSR signed MoU/SoU with the following institutes.

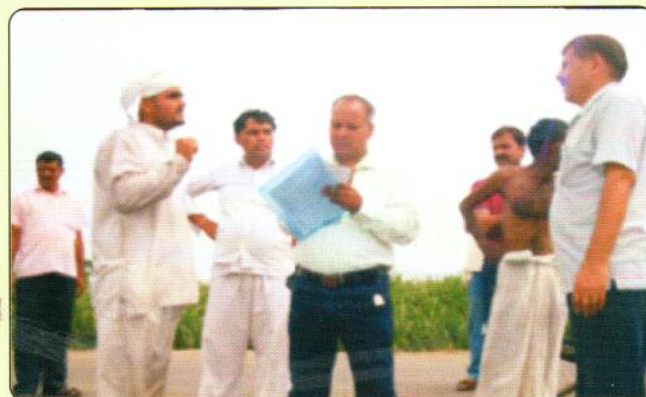
Institutes	Date of signing SoU/MoU
1. Uttrakhand Organic Commodity Board, Dehradun for Development of Integrated Organic Farming Systems Model	4 September, 2014
2. ICAR-Central Institute for Research on Cattle, Meerut	24 September, 2014

The best available technologies/ material will be shared by the above institutes and the same will be tested in farming system mode through AICRP on IFS network of ICAR-IIFSR.



Farm Advisory

As a part of ICAR's countrywide strategy to deal with the prevailing drought/ deficient rainfall condition, a team of ICAR-IIFSR scientists consisting of Dr Prem Singh, Dr Anil Kumar, Dr B.K. Sharma, Dr Dushyant Mishra and Dr Chandra Bhanu visited the farmers of villages around Modipuram on 22nd July, 2014 to assess the adverse impact of deficient rainfall during the Kharif 2014 season. It was noteworthy that by the end of third week of July, there was 44% deficit in the rainfall in Western UP as per the estimate of IMD. This situation resulted in the problem of comparatively lower soil moisture and higher average



temperature leading to the incidence of several diseases and insect-pests in the standing crops. The scientists suggested suitable measures to farmers for reported problems. Subsequently, other extension strategies such as publication of popular articles in the local dailies in Hindi were also adopted by the Directorate.

Meetings

Regional Workshops

Three regional workshops on “Strengthening Partnerships and Refined Methodology for On-station experiments of AICRP on IFS” were organized during July to August, 2014 in which Nodal Officers of ICAR institutes, all the scientists and a technical assistant from each on-station centres of AICRP on IFS were participated. In the workshops, strengthening partnerships with identified ICAR institutes was worked out in which centre wise work plan for 2014-15 were discussed and targets finalized for Strengthening Inter-Institutional Linkage programme. Further, the refined methodology for on-station experiments of AICRP on IFS was discussed and methodology for preparation of synthesized IFS models for a NARP zone/district using primary, secondary, on-station and on-farm data was discussed and finalized. The details of the date, venue and states participated in each workshop are given below.

Sl. No.	Date(s)	Venue	States Covered
1.	09-11 July 2014	ANGRAU, Hyderabad	A&N Islands, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu & Telangana
2.	11-13 August 2014	CCSHAU, Hisar	Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Uttar Pradesh & Uttarakhand
3.	28-30 August 2014	SDAU, S.K. Nagar	Goa, Gujarat, Maharashtra & Rajasthan



Major Highlights of Consolidated Recommendations

I. Strengthening Inter-Institutional linkages

- All the partners of ICAR institutions and AICRP centres needs to put full effort in fulfilling the specified points of collaboration and try to achieve the target deliverables, discussed and finalized.
- Partnership is to be developed to have best utilization of the resources created/available among the partners. Since, the funding is from the same source, partners have to work and generate information within the sanctioned amount/funds under their scheme as ICAR can't provide additional funds for the collaborative work.
- Compiled Progress Report (CPR) on partnerships should be submitted by the concerned Nodal Officers in the first week of April of every year. The report should reflect the target deliverables and achievements.

II. Refined methodology for on-station experiments of AICRP on IFS

- Calculation of economics using appreciation and depreciation of assets are essential and should be used for preparing the bankable commercial models. However, for other reporting, only recurring costs and returns should be considered.
- Income from on-farm, off-farm and non-farm activities of farm household should also be accounted in the on-farm farming system models being developed by OFR units.
- Boundary plantation (for the purpose of biofencing) is mandatory for each on-station IFS model both for protection as well as production point of view.

- Manual on Integrated Farming Systems incorporating all the methodologies discussed in the regional workshops should be developed and be revised time to time.

III. Synthesis of IFS models for the NARP zone/district

Each centre should at least prepare 2 to 3 synthesized IFS model for NARP zones/year using the primary (characterization survey), secondary, on-station and on-farm data by using suggested standard methodology.



XXXI Biennial Workshop of AICRP on IFS

XXXI biennial workshop of AICRP on Integrated Farming Systems was organized by ICAR-IIFSR, Modipuram in collaboration with Tamil Nadu Agricultural University at Coimbatore during 22-24 December 2014. The workshop was inaugurated by Dr K. Ramasami, Vice Chancellor as Chief guest and presided over by Dr B. Gangwar, Director, ICAR-IIFSR. Dr K. Ramasami, in his inaugural address highlighted that the achievements of agricultural research is very important for development of the nation and called for transformation of agricultural scientists to



specialists in agri-business. He also informed that one cow-one acre system will prevail but we need to make them profitable by way of integrating tradition and science. He also asked the 'AICRP on IFS' group to develop tools and techniques for agricultural disaster management as IFS gives scope for flexible management of resources within the farm.

Dr B. Gangwar, Director, ICAR-IIFSR in his opening remarks highlighted achievements of the project during last one year including the strengthening of inter-institutional linkages and progress on on-station and on-farm IFS model development at various locations which could result in 86 success stories within the period of two years. He said, as our on-farm research reveals, 59% of marginal households are having two or less components for integration in their system; they need to be diversified for augmenting the income. Further, though we have achieved net income up to Rs. 3.75 lakhs/ha/annum, but we should target for Rs. 6 lakhs/annum in the coming years by appropriately mixing the profitable activities such as protected cultivation of high value crops, boundary plantations etc.

Dr M. Maheswaran, Director of Research and Dr K. Velayutham, Director Crop Management highlighted the achievements of the University in farming systems. Dignitaries also released the several publications including a book on Research in Farming Systems and CD on Tribal Sub Plan activities in farming systems perspective carried out by TNAU under AICRP on IFS. Dr N. Asoka Raja, Head, Department of Agronomy welcomed the delegates while Dr E. Somasundaram, Chief Agronomist proposed the vote of thanks.





During the three days' workshop, the on-going activities of 75 on-station and on-farm centers of AICRP on IFS were reviewed and suggestions were given for improvement. The new programmes were also discussed and finalized. Several recommendations of practical importance were also brought out during the workshop. Synthesis of bankable IFS models, modelling and capacity building of stake holders were identified as future thrust areas for the project.

Agronomist Meet

In order to comply with the recommendation of Research Advisory Committee (RAC), a meeting on "Farmers Perception on Climate Change & Farming System Success Stories" involving Agronomists of On-Farm Research Centers was organized during 21-22, November 2014 at ICAR-IIFSR, Modipuram. The recommendation of RAC was intended to have a quick survey with the farmers involved in the On-Farm Research, synthesize the results and compile the findings after thorough discussion with all the Agronomists. Further, the success stories generated from the farming system or nutrient response experiments of OFR were also discussed and finalized during the meeting. A total of 86 success stories from OFR experimental households were finalized and it is in the process of publication.



Kisan Gosti

A Kisan Gosti on "Farmers' Awareness Programme on Impact of Climate Change in Agriculture" under NICRA Project was organized at village Dulhera, Modipuram on 17th November, 2014. Around 75-80 farmers participated in this event. This event was organized under the NICRA objective of "Farmers' participation in integrated farming system modelling to assess risk management in climate change and climatic variability scenarios". Under this objective, 15 farmers were selected in the village and bio-physical and socio-economic situation and other activities were closely monitored. Dr N. Subash, Senior Scientist and PI of the NICRA project along with Dr M.P.S. Arya, Pr. Scientist (Agronomy), Dr Vinod Kumar, Pr. Scientist (Animal Nutrition) and Dr. Chandra Bhanu, Scientist (Plant Pathology) participated in the program.



किसान गोष्ठी

संस्थान द्वारा दिनांक 13 एवं 14 दिसम्बर 2014 को मुजफ्फरनगर जिले के रसूलपुर-जाटान एवं बरवाला गाँवों में किसान मेले का आयोजन किया गया। मेले में भारतीय कृषि अनुसंधान परिषद के 11 शोध संस्थानों, कृषि विज्ञान केन्द्र, बघरा, अन्तर्राष्ट्रीय मक्का एवं गेहूँ अनुसंधान केन्द्र, मेक्सिको सहित कुल 17 सरकारी व निजी संस्थाओं ने अपने-अपने उत्कृष्ट शोध कार्यों एवं उत्पादों की प्रदर्शनी लगाई।

रसूलपुर-जाटान गाँव में मेले का उदघाटन भारतीय कृषि अनुसंधान परिषद के उपमहानिदेशक एवं मुख्य अतिथि डॉ. आलोक कुमार सिक्का ने किया। उन्होंने कृषि एवं पशुपालन के लिए आधारभूत संसाधन जैसे भूमि एवं जल के संरक्षण पर विशेष प्रकाश डाला। गंगा एवं यमुना जैसी पवित्र नदियों के दोआब क्षेत्र में होने के बावजूद भी क्षेत्र के कुछ खण्डों में गिरते भूजल स्तर के कारण "डार्क जोन" में चले जाने पर चिंता जताई।



किसान मेले का आरम्भ भारतीय कृषि प्रणाली अनुसंधान संस्थान, मेरठ के निदेशक डॉ. बी. गंगवार के स्वागत भाषण से आरम्भ हुआ। मेले के दौरान क्षेत्र के गिरते भू-जल स्तर की स्थितियों में उन्नत तकनीकों द्वारा भूमि एवं जल प्रबन्धन मुख्य बिन्दु रहा। डॉ. गंगवार ने गन्ने की खेती व क्षेत्रीय समस्याओं के ऊपर भारतीय कृषि प्रणाली अनुसंधान संस्थान द्वारा किये जा रहे उत्कृष्ट शोध कार्यों की जानकारी दी तथा क्षेत्र के किसानों को हरसम्भव मदद पहुँचाने की घोषणा की। उन्होंने कृषि विविधीकरण द्वारा गन्ना आधारित कृषि प्रणाली की उत्पादकता बढ़ाने व जल संरक्षण पर प्रकाश डाला। मेले के दौरान उत्कृष्ट शोध प्रदर्शनों के अतिरिक्त एक किसान गोष्ठी एवं कृषकों के प्रोत्साहन हेतु प्रश्नोत्तरी प्रतियोगिता का आयोजन भी किया गया। किसान गोष्ठी में डॉ. आलोक कुमार सिक्का, डॉ. सुरेन्द्र पाल सिंह, चौ. ब्रह्म सिंह, डॉ. आर.सी. श्रीवास्तव, डॉ. पी.के. मिश्रा, डॉ. ब्रह्म प्रकाश, श्री राजीव प्रताप सैनी, चौ. नरेश कुमार आदि विशिष्ट अतिथियों ने भाग लिया।

डॉ. ब्रह्म प्रकाश, निदेशक, केन्द्रीय गोपशु अनुसंधान संस्थान ने "फ़िजुवल" नामक संकर गाय के महत्व को बताया तथा किसानों से गोपशु संस्थान द्वारा उत्पादित उन्नत नस्लों वाले विकार रहित गोपशु वीर्य के उपयोग की सलाह दी। केन्द्रीय मृदा एवं जल संरक्षण व प्रशिक्षण संस्थान, देहरादून के निदेशक डॉ. पी. के. मिश्रा ने जलवायु परिवर्तन की परिस्थितियों पर प्रकाश डाला तथा मृदा एवं जल संरक्षण के साथ-साथ सिंचाई जल की गुणवत्ता के बारे में भी जानकारी दी। कार्यक्रम के दौरान मुख्य अतिथि द्वारा कृषकों को कृषि विज्ञान केन्द्र बघरा द्वारा विकसित "मृदा स्वास्थ्य कार्ड" भी वितरित किये गये।

बरवाला गांव में आयोजित किसान मेले का उदघाटन डॉ. आलोक

कुमार सिक्का एवं डॉ. ए. के. सिंह, उपमहानिदेशक (प्रसार) भारतीय कृषि अनुसंधान परिषद के कर कमलों द्वारा किया गया। डॉ. संजीव कुमार बालियान, केन्द्रीय कृषि राज्य मंत्री, भारत सरकार, मेले के मुख्य अतिथि रहे। गाँव के किसानों ने बड़ी गर्मजोशी से डॉ. संजीव कुमार बालियान का स्वागत किया एवं क्षेत्र के विकास के लिए उनके द्वारा किये जा रहे प्रयासों को सराहा। माननीय मंत्री जी ने अपने अभिभाषण में क्षेत्र के किसानों द्वारा आवश्यकता से अधिक जल एवं यूरिया के उपयोग पर चिंता जताते हुए जल संरक्षण एवं संतुलित पोषक तत्व प्रबंधन की सलाह दी। उन्होंने कृषकों को फसल एवं कृषि विविधीकरण द्वारा अधिक लाभ कमाने की सलाह भी दी। मंत्री जी ने किसानों को "मृदा स्वास्थ्य कार्ड" भी वितरित किये।



मेले के दौरान एक भव्य कृषि प्रदर्शनी एवं किसान गोष्ठी का आयोजन किया गया जिसमें क्षेत्र के गिरते भूजल स्तर की परिस्थितियों में उन्नत कृषि तकनीकों तथा कृषि एवं फसल विविधीकरण द्वारा कृषकों की आय बढ़ाने, जल संरक्षण एवं उनके संपूर्ण विकास पर चर्चा की गई। डॉ. बी. गंगवार ने सभी अतिथियों का स्वागत करते हुए कृषकों से कृषि विविधीकरण को अपनाकर अधिक लाभ कमाने की सलाह दी। डॉ. ब्रह्म प्रकाश ने उचित पोषण प्रबन्धन व संक्रमण नियंत्रण करके पशुओं के बाँझपन की समस्या के निदान व अच्छी नस्ल के गोपशुओं के वीर्य की उपलब्धता के बारे में विस्तार से जानकारी दी। डा. चन्द्रभानु ने गेहूँ व धान में बीमारियों की रोकथाम व पश्चिमी उत्तर प्रदेश में वर्ष भर मशरूम उत्पादन तकनीक की जानकारी दी। डॉ. सुरेश मलिक ने उन्नत मुर्गीपालन व अत्याधिक अण्डा उत्पादन हेतु उचित प्रबन्धन की जानकारी देकर क्षेत्र में मुर्गीपालन की संभावनाओं के बारे में बताया।

डॉ. ए. के. सिंह, उपमहानिदेशक (प्रसार) भा.कृ.अनु.प. ने देश के कृषि विज्ञान केन्द्रों द्वारा नई-नई कृषि तकनीकों के प्रसार की विस्तृत जानकारी दी। उन्होंने गन्ने में उचित पोषण व सहफसली खेती की तकनीकों व कम जल उपयोग करते हुए अधिक उत्पादकता लेने के बारे में जानकारी दी। डॉ. ए. के. सिक्का, उपमहानिदेशक भा.कृ.अनु.प. ने क्षेत्र के घटते भूगर्भ जल स्तर व कई खण्डों के "डार्क जोन" में होने पर चिंता जताई। उन्होंने किसानों से उचित जल संरक्षण व उपयोग की तकनीकों को अपनाने की सलाह दी। फसल व कृषि विविधीकरण से उत्पादकता व जल संरक्षण के तौर-तरीकों को भी बताया। कुलपति डॉ. एच. एस. गौड़ ने जल-संसाधनों के सदुपयोग, उचित पोषण प्रबन्धन, पशुधन प्रबन्धन व पशु चिकित्सा सुविधाओं आदि के बारे में कृषकों को जानकारी देकर कृषि विश्वविद्यालय से हर सम्भव सहायता का आश्वासन दिया।

Research Highlights

Integrated assessment of impact of climate change on agricultural production

N. Subash, Harbir Singh and B. Gangwar

The current agricultural production system under climate change scenario would experience a decline in mean rice yield from 8-23% with APSIM. However, DSSAT simulations shows both decline (4-19% under climate scenarios GFDL-ESM2M, HadGEM2-ES and MPI-ESM-MR) as well as increase in mean yield of rice (2-5% for climate scenarios CCSM4 and MIROC5). In the case of wheat, APSIM estimates show decline in mean yield of wheat (17-29%), while DSSAT shows an increase in mean yield (6-15%). On the basis of Representative Agricultural Pathways (RAPs) and available empirical evidence on climate change impact on the livestock sector, it was assumed that milk yield is likely to decline by 10%.

Accordingly, the gains in mean net farm returns were found higher under DSSAT (14-15%) than under APSIM (11-12%) in all five climate scenarios for the current agricultural production system. Overall, the mean net farm returns are likely to decline by 12-16% under APSIM and 4-8% under DSSAT under the five climate scenarios. Similarly, the per capita income would decline approximately by 8-10% and 2-6% as per APSIM and DSSAT estimates, respectively, under five climate scenarios. As a result of decline in mean net farm returns and per capita income, the population poverty would increase by about 1-3% under climate change. The decline in mean net farm returns is not large enough to have significant adverse impact on population poverty. Though it looks that population poverty rate increases only marginally (1-3%), it has wider implications as there is a large proportion of adversely affected farms (53-79% losers) under climate change.

Predicting SOC stock in UGPs of India using geostatistical model approach

V.K. Singh

The soil organic carbon (SOC) dynamics, particularly changes in SOC stock is of paramount significance with respect to climate change and agricultural production systems. The present study was targeted to measure on site SOC content and estimate spatial variability using geostatistics, and to establish the cause-effect relationship between geo-physical characteristics, prevailing crop management practices and SOC stock. For this, 1089 soil samples were collected from pre-dominant cropping systems of Upper-Gangetic Plain (UGP) zone using Area Spread Index (ASI) approach. Among different geostatistical models attempted using sill, range, nugget, mean error (ME) and root mean square error (RMSE) for suitability of data sets, exponential ordinary Kriging (OK) with least RMSE value (0.1394) worked out to be best fit for spatial interpolation. Almost zero ME (0.00008) indicated least bias in the estimate of each prediction value. Scatter plot of observed versus predicted values for SOC ($R^2 = 0.77$) revealed consistency of the predicted model. Predicted surface map indicated that most of the soils of UGPs fall under medium (0.5-0.6%) SOC content (43.7% area) followed by medium high (0.61 - 0.75%) SOC content (28.4% area) and low (<0.5%) SOC content (27.4% area). Averaged across the cropping systems, maximum SOC content was recorded under Bhabar and Tarai Zone (BTZ), followed by Central Plain Zone (CPZ), Mid-western Plain Zone (MWPZ), Western Plain Zone (WPZ) and South Western Plain Zone (SWPZ). The SOC stock above optimum threshold i.e., >12.5 Mg C ha⁻¹ was 97.8, 57.6 and 46.4% , respectively in the soils of BTZ, CPZ and MWPZ whereas, only 9.8 and 0.4% fields of WPZ and SWPZ, respectively had SOC stock above threshold value. The variation in SOC stock was mainly attributed to geo-physical characteristics, cropping systems, land use efficiency, crop residue management, nutrient use and tillage. Adoption of best crop management practices such as conservation agriculture, balanced and integrated nutrient supply, inclusion of legumes and agro-forestry systems are the suggestive measures for enhancing SOC stock in the region.

Physiological evaluation of rice varieties

Sudhir Kumar, B. Gangwar and M. Shamim

To assess the physiological behaviour of rice under climate change scenario two varieties viz., Pusa Sugandha 4 and Saket 4, were evaluated physiologically under three dates of sowing i.e. 3rd week of June (D1), 1st week of July (D2) and 3rd week of July (D3) with two nitrogen (N) doses i.e. 60 kg N/ha (N1) and 150 kg N/ha (N2). Among the varieties, Pusa Sugandha 4 showed highest photosynthetic rate (32 μ mole m^{-2} s^{-1}), transpiration rate and stomatal conductance under D1 sowing. Leaf area index, a measure of radiant energy absorbing surface, Pusa Sugandha 4 showed higher value of LAI (4.5) with 150 kg N dose at 60 DAS. SPAD values, an indication of chlorophyll content, showed that higher N input increased the chlorophyll content proportionally. Pusa Sugandha 4 under D1 sowing at 60 DAS showed highest SPAD values with 150 kg N/ha. Though, date of sowing affects both the varieties but among three dates of sowing, D3 showed lowest values of different physiological parameters. From the observations it is evident that 150 kg N/ha increased the photosynthetic rate, chlorophyll content and LAI for both varieties but Pusa Sugandha 4 perform well, under all three sowing dates while higher N dose effect is more prominent in D1 sowing and its decrease as the planting is delayed.

Physiological evaluation of maize under bio-intensification

B. Gangwar, Sudhir Kumar, M. Shamim and O.K. Tomar

With ever increasing population pressure the land holding size is decreasing considerably. The existing resources for agriculture are also shrinking with fast pace. Therefore, there is need to 'produce more with less'. Taking above into consideration, bio-intensification of crops on unit area of land in unit time with constant resources is the need of the hour. Maize being a major Kharif crop can be grown in biointensification with different crop combinations. Hence, the physiological performance of the crop was evaluated under different sowing dates i.e. 2nd week

of June and 2nd week of August. Observations revealed that at 60 DAS June sown crop showed higher photosynthetic rate, transpiration rate, LAI (4.6) and chlorophyll content of leaf (1.023 μ g/g). While August shown crop showed lower LAI (4.2), however, chlorophyll content was much higher than June shown crop i.e. 2.02 μ g/g of leaf, while photosynthetic rate was somewhat similar to June shown crop but transpiration rate was much lower. Photosynthetic water use efficiency (PWUE) and Photosynthetic radiation efficiency (PRUE) the indicators of efficient use of radiation and water by crops, respectively showed higher values for August sown crop. The August sown crop also recorded much higher fresh cob weight (625 g) and even the cob length was also higher. From the results it is evident that August shown crop was able to save photosynthates which are reflected in the cobs yield. Overall source sink relation in August sown crop showed that most of the photosynthates translocate to the economic part (cob) while the June sown crop had to withstand higher temperature during growth phase, leads to higher transpiration and some source sink misbalancing occur which leads to lower cob weight.

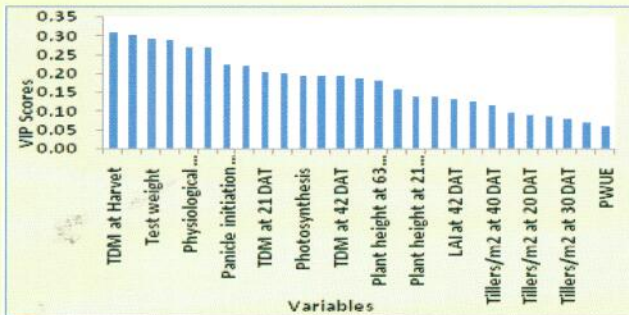
Parameters	June sowing	August sowing
Leaf area index (LAI)	4.6	4.2
Chlorophyll content	1.023 μ g/g	2.023 μ g/g
Photosynthetic rate	32 μ mole/ m^2 /s	31 μ mole/ m^2 /s
Transpiration rate	10 millimole/s	6.4 millimole/s
Plant Height	2.14 m	1.75 m
Cob fresh weight	480 g	625g

Variable importance in projection of grain yield of aromatic rice genotypes

M. Shamim, B. Gangwar, N.K. Jat, Vipin Kumar and Sudhir Kumar

Variable Importance in Projection (VIP) scores estimate the importance of each variable in the projection used in a PLS model and is often used for variable selection. Total dry matter at harvest, flowering days, test weight, plant height at 84 days after transplanting, days to physiological maturity, grains/panicle, days to panicle initiation, panicle length and total dry matter at 63 days after transplanting were identified major parameters in projection of the grain yield among 27 parameters

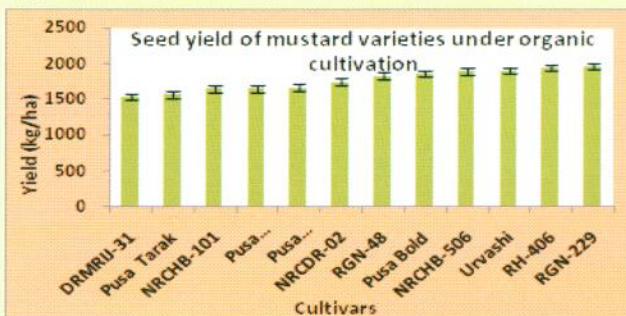
related to crop growth, morphology, physiology, phenology, yield and yield attributes of aromatic genotypes of rice. Among physiological parameters only rate of photosynthesis came forward in prediction of the variation in yield over the others.



Performance of different mustard varieties under organic cultivation

N. K Jat, Sudhir Kumar, Chandra Bhanu and Krishna Kumar

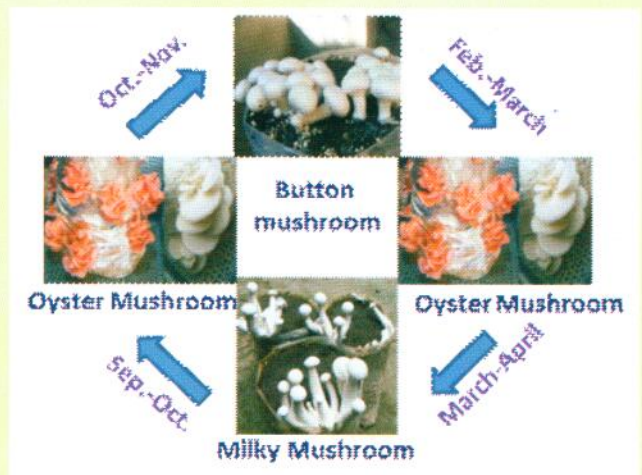
Twelve cultivars of mustard selected based on crop duration, nutrient requirement; water requirement and disease-tolerance were evaluated under organic conditions. The results reveal that among all the 12 cultivars of mustard, RH-406 and RGN-229 recorded the highest grain yield (1951 and 1968 kg/ha) which was 4.34 and 5.35% higher over Pusa Bold (area check). Cultivars RH-406 and RGN-229 also recorded higher LAI, photosynthetic rate and chlorophyll content. The yield attributes like secondary/tertiary branching and number of pods/plant were also followed the same pattern. Cultivars like DRMRIJ-31, NRCDR-2, NRCHB-101, Pusa Mustard-25, Pusa Mustard-26 and Pusa Tarak were found poor yielders (1534 to 1751 kg/ha) when grown in organic management under prevailing agro-climatic conditions. The cultivars like NRCHB-506, RGN-48, Urvashi and Pusa Bold were found medium in producing grain yield (1834 to 1905 kg/ha).



Year-round mushroom production module for western Uttar Pradesh

Chandra Bhanu and J. P. Singh

By adjusting the combinations of oyster mushroom (*Pleurotus* spp.), milky mushroom (*Calocybe indica*) and white button mushroom (*Agaricus bisporus*) a year-round production module of mushroom was developed by IIFSR, Modipuram. A crop room of 18 x 13 size with five tier racks was used for the module. Two crops of button mushroom from October-February with long method of composting, two crops of oyster mushroom during October-November and February-March and two crops of milky mushroom from March-September were taken in the module.



By utilizing 70% capacity of the crop room, 441 kg yield of mushrooms (200 kg button, 96 kg oyster and 145 kg milky mushroom) was harvested with additional yield of 3500 kg of high quality organic manure (from button mushroom spent compost) and 600 kg of animal feed (from spent straws of oyster and milky mushroom). From this module Rs. 45060 were obtained as gross return, Rs.26060 as net return with B:C ratio of 1.37 besides generation of employment of about 50-60 man days. The fruiting bodies of mushrooms were available during all the months except in June.

Mandarin var. Kinnow: a promising fruit under agro-horti system for small farmer's condition

J.P. Singh

Under AICRP-IFS research programme on "Development of region specific IFS Models" plantation of 120 trees of mandarin Var. kinnow in an area of 1800 m² was done during August, 2010 at experimental farm of IIFSR, Modipuram. The kinnow plants started flowering in very second year of plantation, however, fruit setting and production was allowed in third year only. Very encouraging results of fruit production and net returns were observed in fourth year of plantation. Fruit bearing ranged as high as 320 to 610 number of fruits/plant. An area of 1800 m² kept under agro-horti system produced 70.3 q of kinnow fruits and 585 kg of food grains (rice & wheat) amounts to Rs. 1,22,505 (Rs. 6,80,583/ha/year). This gave a net returns of Rs. 89,445 from a small area of 1800 m² (Rs. 4,96,916/ha/year). The results emphasize the importance and need of growing early fruiting plants along-with cereal crops like wheat and rice as intercrops to fulfill family needs of food grains as well as nutritionally rich fruits giving high income compared to other existing systems of farming. Boundary plantations of guava and Karonda fruit plants all along the borders/boundaries of the fruit orchard also gave a sizable income and fruit needs of the family.



Processing and Value Addition in Farm Produce

Amit Nath, D. Dutta, Nisha Verma,
P. Kashyap, J.P. Singh and B. Gangwar

Preparation and Optimization of Bael Squash: For preparation of bael squash, fully matured bael fruits were harvested and after washing with clean water, sorted for removing the damaged fruits. These sound

fruits were made into halves with the help of hammer and fruit pulp was extracted with the help of SS spoon. Then the pulp was mixed with equal quantity of clean filtered water and fruit pulp was extracted with the help of SS strainer/sieve. Sugar syrup was prepared in different TSS viz., 50, 55, 60, 65 and 70% by adding required quantity of sugar in water. These syrups were mixed with the fresh pulps in different proportions viz., 40, 45, 50, 55 and 60% followed by addition of colour, essence and potassium metabisulphite @200 ppm as preservative. The final products was packed in 500 ml capacity PET bottles, sealed, labelled and stored in cool-dark place for at least three days before use. The final products were analyzed for total soluble solid (TSS) and organoleptic score. Among different treatments, the bael squash with 60% pulp and 65% syrup had recorded 45% TSS with high overall acceptability score (8.5) with attractive colour, flavour and taste.

Preparation of Tomato Ketchup: For preparation of ketchup, fully matured fruits of tomato were harvested and sorted for removing the damaged fruits after through washing with clean water. These cleaned and sound fruits were blanched in boiling water for 10-15 minutes and crushed in mixer grinder. The crushed pulp was strained with the help of SS strainer/sieve for removing seeds, skin etc. Pure pulp was heated along with 2/3rd sugar as well as spice bag till it reached 1/3rd of its initial volume. Additional required sugar was added along with acetic acid 1.2% and additives. Heating was continued till the final products reach TSS of 25% and more. When the products reached final stage, heating stopped and sodium benzoate @ 300ppm was added as preservative. After cooling of the product at room temperature for 1-2 hrs, it was packed in PET bottles (500 ml capacity), sealed, labelled and stored in cool-dark place for at least three days before use. The product was analyzed and the final product recorded 26% TSS and high overall acceptability score (8.1) with attractive colour, flavour and taste.



Tomato Ketchup

Success Story

Interventions in crop + dairy + poultry system double monthly income

Sh Sakhivel S/o Karuppiah (Mobile Number 09047434847), an active progressive farmer residing in Meyyapatty located in Thirumayam Block of Pudukottai District in Tamil Nadu is deriving livelihood from 3 acres of land (Latitude 10°15.944'N, Longitude 078°44.490'E and Altitude 339' feet) for his 5 member family including 3 children. The average annual rainfall of the region is only 685 mm with maximum area under rice-blackgram/sesame cropping system. Although he was cultivating puddled transplanted rice (PTR) during Kharif season and subsequently blackgram and sesame during summer in order to get sufficient income to meet out his family expenditure. In addition to this, he had maintained 2 cross bred Jersey cows and two calves. He also maintained a small amount of desi birds in his backyard. Over all, the yield of component crops such as rice (2000 kg/ha), blackgram (250 kg/ha), sesame (600 kg/ha) and milk yield from two cross bred Jersey cows (3150 litres/year) was low as compared to potential yield due to non-adoption of improved technology packages. The annual net income obtained from marketable surplus of crop and livestock components was only Rs. 83240/year i.e. only Rs. 6936/month for entire family.



During the year 2011, On-Farm Research Centre, Dryland Agricultural Research Station, Chettinad, functioning under TNAU, chosen Sh Sakhivel for implementing the on-farm research entitled "On-farm evaluation of farming system modules for improving profitability and livelihood of small and marginal farmers". With respect to crop module, the major constraints for low productivity in rice, blackgram and sesame were identified as traditional varieties, weed menace, imbalance nutrition (higher dose of N and lower dose of K), high incidences of stem borer, leaf folder, blast, bacterial leaf blight in rice, collar rot, root rot and yellow mosaic virus in blackgram and sucking pests, pod borer and phyllody in sesame. Similarly, in livestock module, the main constraints for low milk yield include lack of round the year green fodder and mineral deficiency in animals. Poor egg laying capacity, poor feed conversion ratio and higher mortality rate owing to non-adoption of vaccination scheduling was observed as constraints in the backyard poultry.



Module wise constraints were addressed through no/low cost and knowledge based interventions such as replacement of puddled transplanted rice with system of rice intensification (SRI), local and traditional varieties with high yielding varieties such as VBN 5 for T 9 blackgram, SVPR 1 for local sesame

variety, balanced fertilization which includes Soil Test Crop Response (STCR) based fertilizer application for all crops including application of micro nutrients, foliar nutrition with 'TNAU Pulse Wonder' during fifty percent flowering stage, pests surveillance based IPM strategies which includes traps, bio-inoculants and nano-pesticides. To alleviate weed problem, early post emergence herbicides such as bispyribac sodium & Azimsulfuron, imazithapyr and quizalfop-ethyl in rice and pulses, respectively were demonstrated and verified.

In case of dairy, problems were counteracted by year round supply of green fodder with the help of Bajra Napier Hybrid Co 5, supplementation of location specific mineral mixture, Artificial Insemination (AI) with Jercy, proper vaccination and deworming at regular intervals. In addition to this, regular capacity building programme on clean milk production was also imparted and required critical inputs were given to the animal components. The constraints observed in the backyard poultry were addressed by introducing dual purpose chicks Namakkal (NKL) 1 and Giriraja with proper nutrition and vaccination to check the mortality at the early stage.



Azolla cultivation and low cost silpaulin vermicompost production were also integrated under

optional module. Under the on-farm processing and value addition module, the family women was imparted training on cleaning, grading and packaging of vegetables during lean period.

Altogether, an additional cost of intervention involved in all the modules over conventional method was only Rs. 12900/year which contributed an additional income of Rs. 44930/year. Within one year, the net return per rupee invested on all the interventions stands at 2.83. Now, the household earns net income of Rs. 144630/year which is 31% higher than benchmark. Monthly income for the family is doubled from Rs. 6936 to 12052.

Economics of crop + dairy + poultry system

Parameters	Pre-intervention	Post-interventions
Gross income (Rs.)	158240	232530
Cost (Rs.)	75000	87900
Net income (Rs.)	83240	144630
Monthly income (Rs.)	6936	12052

Besides the higher income, the family meets the nutritional requirement by in-house production of quality products such as pulses, milk, egg and fresh vegetables. Apart from nutritional security, soil fertility status of the farmer's holding is improved through addition of organic matter in the form of vermicompost, composts and poultry droppings and crop residue which reflected in remarkable improvement in the soil organic carbon status (0.50%).

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Human Resource Development

International Training/ Workshop

- Dr V. K. Singh attended 20th World Congress on Soil Science at ICC, Jeju, South Korea during 8th - 13th June, 2014.
- Dr V. K. Singh, ICAR National Fellow, attended 12th Asian Maize Conference and Expert Consultation on "Maize for Food, Feed, Nutrition and Environmental Security" at Rama Gardens Hotel, Bangkok, Thailand during 30th October – 1st November, 2014.

National Training/ Workshop

- Dr Amit Nath, Pr. Scientist (Food Technology), attended the National Conference on "Pre-/post-harvest Losses & Value Addition in Vegetables" at IIVR, Varanasi (UP) during 12-13th July, 2014.
- Dr T. Ram, Sr. Scientist (Agronomy) attended "Refresher Course on Agriculture Research Management" at ICAR-NAARM, Rajendranagar, Hyderabad (Telangana) during 14-26th July, 2014.
- Dr M. Shamim, Scientist (Agril. Meteorology), participated in the training on "Conservation Agriculture: Developing Resilient Systems" at CSSRI, Karnal (Haryana) organized under the flagship of CSISA Project funded by USAID and Bill Gates Foundation (BMGF) during 27th September, 2014 – 04th October, 2014.
- Dr N. Subash attended International Symposium on "New-Dimensions in Agrometeorology for Sustainable Agriculture (NASA-2014)" held at GBPUA&T, Pantnagar (Uttarakhand) during 16-18th October, 2014.
- Dr M. Shamim attended International Symposium on "New-Dimensions in Agrometeorology for Sustainable Agriculture (NASA-2014)" held at GBPUA&T, Pantnagar (Uttarakhand) during 16-18th October, 2014.
- Dr N. K. Jat, Scientist (Agronomy) attended workshop on "Open Access to Agricultural Knowledge for Inclusive Growth and Development" at ICAR-NAARM, Rajendranagar, Hyderabad (Telangana) during 29-30th October, 2014.
- Dr Amit Nath attended the national meet on "Modernization of Jaggery Industry in India" at IISR, Lucknow (UP) during 1-2nd November, 2014.
- Dr A. K. Prusty, Scientist (Aquaculture) attended

10th Indian Fisheries and Aquaculture Forum at NBFGR, Lucknow during 12-15th November, 2014.

- Dr A. K. Prusty attended 5th Global Symposium on Gender Aquaculture and Fisheries at NBFGR, Lucknow during 13-15th November, 2014.
- Dr A. K. Prusty attended International workshop on Aquatic Animal Disease Surveillance at NBFGR, Lucknow during 14-15th November, 2014.
- Dr (Mrs.) Nisha Verma, Scientist (Family Resource Management) attended 21 days training on "Drudgery Reduction Technologies for Farm Women to Enhance Productivity and Safety in Agriculture" at MPUAT, Udaipur (Rajasthan) during 12th November - 02nd December, 2014.
- Dr Amit Nath attended the XXIII Indian Convention of Food Scientists and Technologists (ICFST) on "Fostering Innovative Research and Entrepreneurship (FIRE) for Indian Foods" at NIFTEM, Kundli (Haryana) during 13-14th December, 2014.
- Dr Amit Nath attended the CIPHET Silver Jubilee Seminar on "Present Status and Future Strategies for Processing and Value Addition of Agricultural Commodities" at PAU, Ludhiana (Punjab) during 19-20th December, 2014.

Transfer

- Dr G. C. Sharma, Principal Scientist relieved from the Directorate on 05th July, 2014 upon his transfer to CSWCR&TI, Dehradun.

Awards

- Dr Amit Nath was honoured with prestigious "Dr J. S. Pruthi Award-2013" for his significant contribution to the development of Fruit and Vegetable Industry in India.

Visitors

- Sh Surendra Singh Syokand, Deputy Chairman Pragatisheel Kissan Club, Kaithal, Haryana visited the institute on 20th September, 2014.
- Dr Santosh Srivastava, Associate Professor, SHIATS, Allahabad and Dr A. K. Mishra Assistant Professor, Sir Chhotu Ram Engineering College, CCS University Meerut visited the institute on 24th November, 2014.
- Dr Pradeep Dogra, Pr. Scientist, ICAR-CSWCRTI, Dehradun visited the institute on 29th November, 2014.
- Dr C. Chattopadhyay, Director, ICAR-NCIPM, New Delhi visited the institute on 9th December, 2014.

WAY FORWARD



I am happy to write a way forward for the first issue of Newsletter after the Directorate has become full-fledged institute with 4 divisions. The number of centres under AICRP on IFS increased from 74 to 75, while NPOF centres also increased from 13 to 20. This shows the importance given to farming systems and organic farming research programme by the government in general and council in particular. Up gradation of Directorate to Indian Institute of Farming Systems Research from 27 November 2014 has been made during the "International Year (2014) of Family Farming" which mainly targets marginal holders who manages the farms with their own manpower and depends less on market. Farming systems is the way of life for marginal holders and analysis of on-farm benchmark data reveals, marginal holders practice many combinations of enterprises and as high as 38 types of mixing are found. I am also happy to reveal that the family farming model of 1 ha developed by on-station centre at Sabour gives round the year income (ranging from Rs 13160 to 51950/month) with more than 3 lakhs as net returns/annum. A new beginning in the AICRP on IFS has also been made with identification and issuing of certificates to best performing centers. This will certainly improve the performance of other centres also in the years to come. Regional workshops for on-station staff and partner institutions resulted in harmonizing the minds, manpower, methods and materials among different AICRPs working within the universities. This can be further improved by regular one to one interactions and separate budget allocation for inter-institutional linkages. The on-farm activities in the Muzzafarnagar district of Uttar Pradesh also intensified and regular scientist-farmer interactions and *Kisan Melas* are being organized. However, concerted effort needs to be made by addressing the constraints in farming systems perspective especially sugarcane based farming systems in the district. Capacity building is a continuous process and very much required for the persons involved in farming systems research and development. *Although, I have begun my journey in Sugarcane Breeding Institute, Coimbatore, my professional foundation was made at CIARI (formerly CARI), Port Blair and then in the last 18 years at PDCSR, PDFSR and IIFSR, pursuing the cropping and farming systems research. I dream and wish that ICAR-IIFSR should and will become an institution of international repute with deemed university status offering courses in farming systems. All the best.*

(B. Gangwar)

Important Publications

1. Organic nutrient management in maize-potato-onion system
2. Annual Report 2012-13 of AICRP on IFS

Upcoming events

- Jan: Kisan-Vigyan Sammelan
Feb: Annual Day
Mar: Institute Management Committee meeting
Apr: Annual Group Meeting of NPOF
May: 2nd meeting of 7th Research Advisory Committee
June: 28th Institute Research Committee

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