ICAR Research Complex for Eastern Region, Patna
भारतीय कृषि अनुसंधान परिषद् का पूर्वी अनुसंधान परिसर, पटना

ICAR RCER NEWS

Vol. 10 No. 2 July – December, 2017

From the Director's Desk

The low and highly fluctuating agricultural productivity and farm income is causing detrimental effect on the interest in farming, and farm investment, and is also forcing more and more farmers, particularly younger group, to leave farming. It is apparent that income earned by a farmer from agriculture is crucial to address agrarian distress and promote farmers welfare. Realizing the need to pay special attention to the plight of farmers, the Hon'ble Prime Minister announced to double the farmers income by 2022 to promote farmers welfare, reduce agrarian distress and bring parity between income of farmers and those working in non-agricultural profession.

In spite of the natural resource endowments in terms of fertile soils, water resources and solar radiation, the productivity and per capita income of the farmers in the Eastern region is very low due to erratic climate variations, population explosion, land degradation, small and scattered land holdings, lack of quality seed and planting materials, poor extension mechanism, etc. However, the Eastern region of the country holds promise for a Second Green Revolution, which can be accomplished through holistic management of land, water, crops, biomass, horticultural, livestock, fishery and human resources.

The region has developed a large number of technologies related to agri-horti crops, vegetables, livestock, poultry and fisheries. The major technologies developed for the Middle Indo-Gangetic Plains include:

- Improving wheat productivity through zero tillage in rice-wheat system.
- Integrated farming system.
- Utilization of rice-fallows for pulse production.
- Enhancing productivity of sugarcane-based production system.
- Crop diversification.
- Promotion of secondary agriculture like mushroom cultivation, bee keeping, etc.
- Rejuvenation of unproductive fruit orchards.
- High density orcharding with drip irrigation.
- Supply of superior quality semen of cattle and buffalo.
- Regular de-worming and vaccination, and feeding of area-specific mineral mixture.
- Small scale mechanization in milking, washing, manure lifting & cleaning.
- Integrated fish farming cum refined aquaculture technology.

In order to enhance agricultural productivity and profitability, there is a need to make planned efforts for promotion and use of these technologies in befitting manner so as to increase farmer's income to ensure sustainable food and livelihood security.

Research Highlights

Determinate lines of Kabuli chickpea developed (*AK Choudhary*)

Kabuli chickpea (*Cicer arietinum* L.) is characterized by poor branching behaviour, light green foliage, white flower colour, and white and large seeds. Poor branching has been associated with indeterminate growth habit. Keeping this fact in view, segregating generations from a cross 'ICPK 2002-29' (a *Kabuli* chickpea variety) × 'BGD 9971' (a *Desi* determinate genotype) were grown, and four determinate (DT) types with different morphology were isolated during 2016-17. The main branch of these DT types terminates into a leaf, leading to profuse branching. These promising DT types are being assessed for different agronomic traits at ICAR RCER, Patna. Such DT types are expected to be management responsive as well.

Efficiency of micro sprinkler for water management in rice evaluated (*SK Singh and Ajay Kumar*)

Seven different water management treatments *viz*., SRI saturation till PI followed by 1" standing water till dough, saturation up to tillering followed by 1" standing water till dough, saturation till flowering followed by 1" standing water till dough, saturation all throughout, micro sprinkler saturation, 1" standing water all throughout and farmers practice were evaluated during *Kharif*, 2017 at ICAR – RCER, Patna. Saturation all throughout using surface irrigation as well as through micro sprinkler maintained superiority in yield (5.37 and 5.65 t/ha, respectively) as compared to other treatments. Micro sprinkler saved 40 % water with 0.82 kg/m^3 water productivity as compared to maintaining 1'' standing water all throughout. A total rainfall of 132.6 mm was received during the crop growth period of rice. Even after transplanting SRI as late as 18 Aug, good rice grain yield was achieved.

Yield and water productivity of vegetables enhanced through drip irrigation and plastic mulching (*Shivani*)

A field experiment was conducted during *Rabi* season to study the influence of irrigation methods *viz*. drip and surface irrigation with and without polyethylene mulch. The highest yield (44.82 t/ha and 53.21 t/ha), water productivity (20.2 and

16.8 kg/m^3) and economic water productivity (Rs.194/m^3 and Rs. 178/m^3) of brinjal and tomato, respectively was recorded by drip irrigation with mulching. Drip irrigation saved 23.3% and 25% irrigation water as compared to surface irrigation in tomato (372.1 mm) and brinjal (381.6 mm), respectively. Further, by using mulch this saving increased up to 38.3% in tomato and 34.4% % in brinjal. The least water productivity was found in unmulched surface irrigated crop (6.9 and 4.8 kg/m^3).

Nutrient sufficiency range in mango orchards studied (*SK Naik*)

A survey was conducted to study the leaf nutritional status mango orchards in the state of Jharkhand in eastern plateau and hill region using diagnosis and recommendation integrated system (DRIS). Nutrient sufficiency ranges for mango derived from DRIS norms were, optimum nitrogen (N) ranged from 1.21-1.40 %, phosphorus (P) from 0.13-0.15 %, potassium (K) from 0.76-0.88 %, calcium (Ca) from 2.10-2.93 %, magnesium (Mg) from 0.24-0.43 %, sulphur (S) from 0.12-0.18 %, boron (B) from 13-16 mg kg^{-1}, zinc (Zn) from 19 -24 mg/ kg copper (Cu) from 17-31 mg/ kg, iron (Fe) from 86-125 mg/ kg, manganese (Mn) from 71-150 mg/ kg.

Resource recycling within integrated farming system (*Sanjeev Kumar*)

Nutrient recycling within the system is prerequisite for development or integration of any component in the IFS model. Priorities should be given to those components whose by-product can be recycled within the system or can be reused as input for another component to increase nutrient use efficiency on one hand and also for decreasing the cost of cultivation and addition of organic forms to the system for its sustainability. Under two-acre IFS model, 13.8 t of cow dung from two cows, 11.3 t of vegetable wastes and 1.21 t of duck dropping were produced and recycled within the system which added an amount of Rs. 4,826/year to the income. Likewise, in one-acre IFS model, 2.5 t of goat manure, 6.62t of vegetable wastes, 1.78 t of poultry droppings and 4.64t of rice/maize/lentil straws were recycled within the system which contributed Rs. 3,175 to the income and added 44.0 kg N, 29.5 kg P and 31.2 kg K in the soil which was equivalent to 93.0kg urea, 184.0 kg SSP and 52.0 Kg MOP. In addition to these nutrients an ample quantity of micronutrients was also added to the soil upon nutrient recycling.

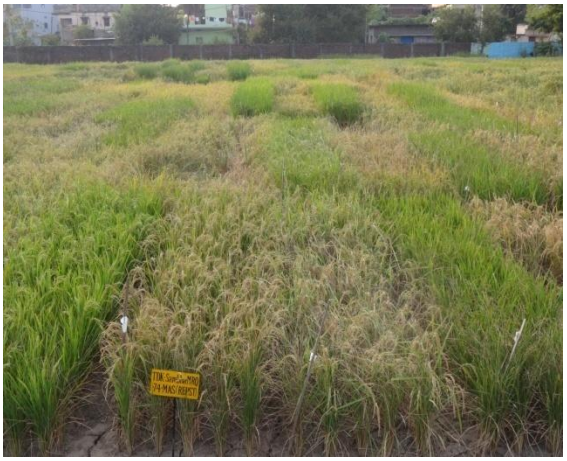
Carbon sequestration potential of litchi orchard studied (*SK Naik*)

Above and below ground biomass was assessed for different tree components in different age litchi plants varying from 2 to 10 years age. The biomass estimates of different aged plantation of litchi were computed by using developed models. The Richard's model was found best and fitted for estimation of carbon content in different tree components *viz*, bole (stem wood), branches, leaves, total above ground, total below ground and root biomass using collar diameter of the tree as independent variable. The stored biomass carbon stock in litchi plantation (branches, bole and roots) varied from 0.10 Mg/ ha in 2 year to 1.85 Mg/ ha in 10 year plantation. Emitted biomass carbon stock varied from 0.052 to 0.587 Mg/ ha in litchi plantation in 2–10 yr old plantations. The carbon mitigation varied from 0.052 to 1.26 Mg/ha during 2–10 years age, which

sequestered 0.19–4.63 Mg/ ha CO_2 from the atmosphere.

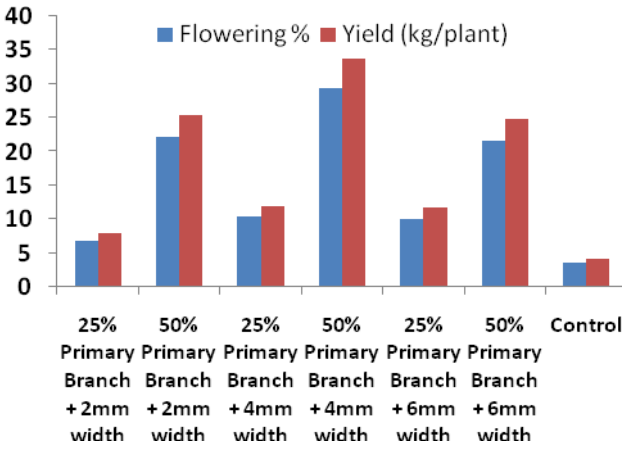
Rice genotypes for tolerance to reproductive stage drought identified (*Santosh Kumar*)

Thirty five rice genotypes were evaluated during *Kharif*, 2017 under reproductive stage drought and control (non-stress) condition. Grain yield varied from 4.35-7.07 t/ ha and 2.11-4.54 t/ ha under non-stress (irrigated) and stress (drought) conditions, respectively. Drought stress at reproductive stage caused significant reduction in grain yield (42.2%), plant height (16.4 %), Effective tillers (10.4 %), Panicle length (10.3%), plant biomass (37.7%) and photosynthetic rate (18.9%) in rice genotypes; however, the responses varied among genotype. Among rice genotypes, IR 97073-26-1-1-3 (4.56 t/ha), IR 97069-1-1-1-1 (4.05 t/ha), IR14L572 (3.87 t/ha), IR 93329:61-B-21-12-21-1RGA-2RGA-1-B-B (3.84 t/ha), IR105690 -1-1-B-B (3.83 t/ha), IR 97034-21-2-1-3 (3.82 t/ha) showed significantly better drought tolerance at reproductive stage as compared to check varieties MTU 1010 (2.90 t/ ha), IR64 (2.37 t/ha) and Sahbhagi Dhan 3.02 t/ ha).



Bearing potential of litchi improved through girdling of primary branches (*Bikash Das and Mahesh K Dhakar*)

A trial was conducted to test the efficacy of girdling for inducing flowering in alternate bearing litchi cultivar China. All the girdling treatments resulted in significant increase in flowering intensity (%) and yield per plant. The treatment having girdling of 50 per cent of primary branches with 4 mm width showed the maximum flowering percentage (29.39 %) and fruit yield (33.80 kg/plant) as compared to control. Girdling also resulted in significant reduction in the incidence of



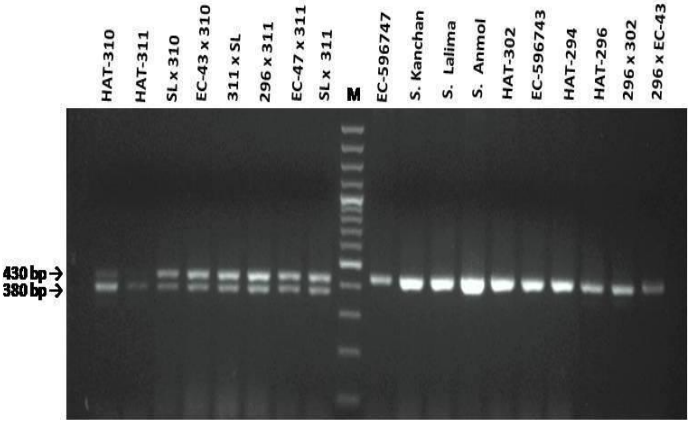
seed borer (2-5 %) as compared to control (30.45 %) which was mainly attributed to delayed development of red peel colour in the fruits of girdled plants.

Promising jackfruit germplasm for vegetable purpose identified (*Mahesh K Dhakhar and Bikash Das*)

A promising germplasm of vegetable type jackfruit was collected from the Gadri Tonka Toli village of Ranchi district of Jharkhand. The tree is more than 100 years old. This genotype gives two times fruiting in a year. First fruiting starts from 15th Dec. which comes under early fruiting type and again during July**.** Present yield level (Vegetable type): 700-800 kg /tree**.** It is very much suitable for the vegetable purpose as its firmness after boiling is 1.56 lbs as against 3 lbs and above noted in the normal vegetable type jackfruit. This accession of Jackfruit is maintained at National Germplasm Repository of Sub-tropical Fruit Crops, at ICAR - Research Complex for Eastern Region, Research Centre, Ranchi, Jharkhand. It was registered under NBPGR with IC- 0625182.

Nematode resistant germplasm in tomato identified (*P Bhavana*)

Tomato genotypes HAT 310 and HAT 311 and six crosses HAT-311 x Swarna Lalima, HAT-296 x HAT-311, EC-596747 x HAT-311, Swarna Lalima x HAT-310, EC-596743 x HAT-310 and Swarna Lalima x HAT-311 were found immune to root knot nematode. Molecular characterization with *Mi23*, a co-dominant marker, produced 380 bp fragments for the homozygous genotype (*Mi/Mi*) i.e. HAT-310 and HAT-311. Tomato plants which lack the *Mi-1* locus yielded the 430 bp fragment. The resistant crosses yielded two fragments 380 bp and 430 bp indicating heterozygous nature of resistance. Gene sequences (14) of nematode resistant germplasm were deposited in NCBI (MF471636, MF471637, MG557820-MG557831)



PCR product obtained using Mi23 marker

Zero-till maize+pea intercropping for higher returns: A success story (*Ujjwal Kumar*)

Bindeshwari Raut, from village Sukhet (Madhubani) used to grow maize along with pea by conventional method (sowing after ploughing the fields). Scientists from ICAR RCER, Patna convinced the 56 year old farmer and his wife, Amerika Devi to integrate zero till (ZT) pea within ZT maize.

Maize + pea were sown in both conditions (with and without ploughing by using

multicrop zero tillage machines). Row-to-row spacing of maize was 60 X 60 cm and pea was sown between two rows of maize. A benefit of Rs 47,771/ha and Rs 36,410/ha was obtained from ZT Maize + pea and conventional till maize + pea, respectively. There was a saving of Rs 11,361 in a hectare in ZT sown maize in comparison to traditional sown maize. This can be attributed to both an increased yield and decreased input/production costs. With the money made from the crop, Mr Raut was able to invest in paddy seed for future production, thereby expanding his earning potential and putting his farm and family in a more financially secure position.

Events Organized

Additional Secretary, DARE & Secretary, ICAR Visits the Institute

Shri Chhabilendra Roul, Additional Secretary, DARE & Secretary, ICAR visited ICAR Research Complex for Eastern Region, Patna on 17th July, 2017. During interaction with scientists and staffs of the institute, he emphasized on validation of the technology developed by the institute and also suggested to study socio- cultural limitations for the adaptation of the technologies developed by ICAR. He advised to co-opting the farmers in on-campus research programme and budgeting the research proposals accordingly. Sri Roul also visited institute farms located at the

main campus as well as at Sabajpura and WALMI of ICAR RCER; CPRS, Patna and the ATARI, Zone IV, Patna. Director, ATARI, Patna, scientists of ICAR-RCER, Patna, ICAR- NRC on Integrated Farming, Motihari and ICAR-CPRS, Patna participated the meeting.

XVth Annual Review Meeting on Network Project on Buffalo Improvement

XVth Annual Review Meeting on Network Project on Buffalo Improvement was held at ICAR Research Complex for Eastern Region, Patna during 21-22nd July, 2017 under the Chairmanship of Dr J.K. Jena, Deputy Director General (AS), ICAR, New Delhi. Dr Rameshwar Singh, Vice-Chancellor, Bihar Animal Sciences University and Dr B.P. Bhatt, Director, ICAR-RCER, Patna was also present in the meeting. The Chairman in his inaugural address emphasized the need to produce tangible results from the project and stressed that the outcome from the projects should directly benefit the farmers across the

country. He also asked the scientists to evaluate the generation wise milk yield improvement of buffalo inseminated with elite semen and emphasized the need of establishing the centre of elite buffalo germplasm in different parts of the country.

Foundation Stone of Farmers' Hostel of KVK, Ramgarh laid down

The Foundation stone of Farmers' Hostel of the KVK, Ramgarh of ICAR RCER, Patna was laid down the by Dr. Trilochan Mohapatra, Secretary, DARE & DG, ICAR on 22nd July, 2017. He took stock of all the activities being carried out at the KVK, Ramgarh. He also addressed the farmers

attending the *Kharif* Workshop of the KVK, and interacted with the farmers. In his address, he appreciated the pace of progress made by the KVK in a short period since its inception in 2014. He made an appeal to the farmers to adopt the technologies being promoted by the KVK for dodoubling their income.

On 23rd July, the Hon'ble Secretary DARE & DG visited ICAR RCER Research Centre Ranchi and laid the foundation stone of Hi-Tech Nursery and also visited the experimental farms of the research centre, and interacted with the scientists. He emphasized on generation of adequate and intensive research data under each of the

experiments for improving the scientific validity of the findings. He also advised scientists to identify the gap of seed supply in the state and plan accordingly with state department of agriculture and horticulture to overcome those gaps. On this occasion, Dr Parvinder Kaushal, Vice Chancellor, Birsa Agricultural University; Dr B.P. Bhatt, Director, ICAR-RCER, Patna; Dr K.K. Sharma, Director, ICAR-IINRG, Ranchi; Dr Anjani Kumar, Director, ATARI, Patna and Dr T.R. Sharma, Joint Director Research, ICAR-IIAB, Ranchi were also present.

Institute Research Council Meeting

The Institute Research Council Meeting was held on 29th July, 2017 under the Chairmanship of the Director, ICAR RCER, Patna to review the ongoing projects, to discuss and to approve new projects to be taken up by the scientists of the institute and its centers. The Chairman in his opening remarks emphasized that our mission should be 'research for total agricultural

development with practical implications'. All the Heads and Scientists of the institute and NRC-IF participated in the meeting.

Technology Week

Technology week from 1st to 6th August, 2017 was organized in KVK, Buxar. The main aim of this programme was to deliver the latest agricultural technologies to the farming communities in the district. Different aspects of agriculture i.e. crop production, horticulture, nutrient management, livestock and fisheries, farm mechanization and women empowerment were covered in the technology week. Each day 60 farmers in different fields were trained, and during the whole week up to 360 farmers were made aware about the modern agricultural techniques.

Workshop on Status of Seed Sector in Jharkhand

Workshop on status of Seed sector in Jharkhand was organized at ICAR RCER Research Centre, Ranchi on 8th August, 2017 in which representatives from all the 23 KVKs of the Jharkhand state and the concerned experts of Birsa Agricultural University, Dept of Agriculture, Dept. of Horticulture, Dept. of Fisheries and Dept. of Animal Husbandry, Govt. of Jharkhand participated. Deliberations were made on the demand and availability of seed in Jharkhand and the outcome was compiled and reported to the concerned authority**.** Dr A. K. Singh, Head of the Centre presided over the function. Dr K.K. Sharma, Director, ICAR IINRG, Ranchi, Dr A. K. Singh, Director ATARI, Patna, Dr Subash Singh, Director, SAMETI cum Joint Director, Agriculture, Govt. of Jharkhand and Dr R. P. Singh, Director, (Seeds & Farms), BAU participated as experts in the workshop.

Sankalp Se Siddhi Programme

ICAR-Research Complex for Eastern Region, Patna in collaboration of Agricultural Technology Application Research Institute (ATARI), Patna and Krishi Vigyan Kendra, Barh organized one-day programme on "New India Manthan - *Sankalp se Siddhi*" at Bihar Agricultural

Management & Extension Training Institute (BAMETI), Patna on 26th August, 2017.

Hon'ble Union Minister of Agriculture and Farmers' Welfare, Govt. of India, Sri Radha Mohan Singh graced the occasion as the Chief Guest and took oath from all participants for making new India and doubling farmers' income by 2022. Other dignitaries such as Dr Prem Kumar, Hon'ble Agriculture Minister, Govt. of Bihar, Mr. Sanjeev Chaurasia, Hon'ble MLA, Digha constituency, Bihar, Vice Chancellor, BAU, Sabour, Director, NRC, Litchi, officials from ICAR institutes, State Department of Agriculture, Animal Husbandry, Fisheries, Coconut Board, Central Integrated Pest Management Centre, Patna, and around 800 farmers participated in the programme. Scientist-farmers' interaction was also organized on this occasion.

'Farmer First' Training programme on Mushroom production

One day training programme on Mushroom production was conducted at ICAR RCER Research Centre, Ranchi on 23rd Sep 2017 under Farmer First of ICAR and NHM, Jharkhand, in which 50 women farmers were given training on mushroom production and kits were distributed among them.

हिन्दी चेतना मास

हिन्दी चेतना मास 2017 का उद्घाटन आज दिनांक 14 सितम्बर, 2017 अपराह्न 3:30 पर माननीय मुख्य अतिथि डॉ रामेश्वर सिंह, कुलपति, बिहार पशु विज्ञान विश्वविद्यालय, पटना के द्वारा सम्पन्न हुआ। इस अवसर पर अपने विचार व्यक्त करते हुए कुलपति महोदय ने कहा कि हिन्दी को बढ़ावा देने हेतु हमें सामान्य एवं बोलचाल की भाषा का प्रयोग अपने दैनिक कार्यों एवं वैज्ञानिक लेखन में करना चाहिए।

संस्थान के कार्यकारी निदेशक डॉ. अमिताभ डे ने कहा कि हमें किसानों के लिए उनकी भाषा में सरल तकनीकि शब्दों के साथ शोध सम्बंधी ज्ञान पहुँचाया जाए। उन्होनें हिन्दी चेतना मास में कार्यक्रम को और विविधिकरण करने और रोचक बनाने पर जोर दिया। कार्यक्रम में

उपस्थित सभी आगन्तुकों का स्वागत डॉ. अनिल कुमार सिंह, अध्यक्ष राजभाषा ने किया। इस अवसर पर डॉ. जे.एस. मिश्र, डॉ. सन्त कुमार सिंह, डॉ. अभय कुमार ने अपने विचार व्यक्त किये। राजभाषा अध्यक्ष, डॉ. अनिल कुमार सिंह ने बताया कि एक नया कार्यक्रम "हिन्दी की छाँव में कृषक एवं वैज्ञानिक" के तहत वैज्ञानिक गाँवों में जायेंगे। इस अवसर पर विभिन्न विभागों के अध्यक्ष ने भी अपने विचार व्यक्त किये। कार्यक्रम संचालन डॉ. मनोज कुमार ने किया। हिन्दी चेतना मास 14 सितम्बर, 2017 से 13 अक्टूबर 2017 तक मनाया जा रहा है।

स्वच्छ भारत मिशन के अंतर्गत ''स्वच्छता ही सेवा'' अभियान दिनांक 15 सितम्बर से 02 अक्टूबर 2017 तक मनाया गया

Model Training Course on Market Led Extension

An eight-day Model Training Course (MTC) on "Market Led Agricultural Extension-Concept and Practices" was organized during 4-11th October, 2017 at ICAR Research Complex for Eastern Region, Patna. The training course was sponsored by Directorate of Extension, Ministry of Agriculture and Farmers Welfare, Govt. of India. Dr Rameshwar Singh, Vice-chancellor, BASU, Bihar was the Chief Guest during the inaugural session. He advocated for sensitization of extension personnel to capture the market through proper supply chain management. This training was designed for the extension functionaries and officials working in field level for improving their knowledge, skills and understanding the production of quality agricultural produce for effective marketing as well as dissemination of market related information to different stakeholders.

Mr. Sudhir Kumar, IAS, Principal Secretary, Dept. of Agriculture, Government of Bihar graced as Chief Guest during valedictory session of the training. He suggested several extension linkages to increase the income of farmers. Mr Kumar also emphasized on the formation of federation-union-cooperative model for perishable commodity such as milk, vegetables, fruits and flowers. Twenty one officials from different development departments (Agriculture, Horticulture, Animal Husbandry, Fisheries, Bhumi Sudhar Nigam, ATMA) of Bihar, Karnataka, Madhya Pradesh, Odisha and Uttar Pradesh participated in the MTC. Lecture was delivered by various resource persons.

Scientific Advisory Committee Meeting

The 8th Scientific Advisory Committee (SAC) Meeting of KVK Buxar was held on 12th October, 2017 at Training Hall of KVK, Buxar under the Chairmanship of the Dr. Anjani Kumar, Director, ATARI, Patna. The meeting was also attended by Dr. Ujjwal Kumar, Head DSEE, ICAR RCER, Patna, District Agriculture Officer (Buxar), Project Director (ATMA, Buxar), Mobile Van Veterinary Officer (Buxar), DDM, NABARD, PC and SMS/Staffs of KVK Buxar, Progressive farmers/member of this meeting and Officials from State Agriculture Department/other department.

Mahila Kisan Diwas

Mahila Kisan Diwas was organized on 15th Oct, 2017 at ICAR Research Complex for Eastern Region, Patna. The Chief Guest of the function was Dr. Prem Kumar, State Agriculture Minister, Bihar. Other dignitaries present were Shri Sanjeev Chaurasia, MLA, Digha, Shri Nityananda Rai, Member of Parliament, Dr. Rameshwar Singh, Vice Chancellor, BASU, Bihar, Shri N. Vijayalaxmi, Secretary, Animal and Fisheries Resource Dept. and Dr. B.P. Bhatt, Director, ICAR RCER, Patna. The Chief Guest in his address emphasized the role of women in agriculture and their importance. Approx 160 women farmers participated in the function from different districts and six women farmers were felicitated for their contributions in the various fields of agriculture. All the HODs and scientists of ICAR RCER, Patna also participated.

Pashu Arogya Mela

Pashu Arogya Mela 2017 was organized by ICAR Research Complex for Eastern Region, Patna in collaboration with Bihar State Milk Co-operative Federation Ltd.(COMFED at Village- Semuapur, Kesaria Block in East Champaran district of

Bihar during 28 – 29th October, 2017. Honb'le Union Agriculture and Farmers Welfare Minister, Shri Radha Mohan Singh graced the occasion as Chief Guest during the inaugural function along with Shri Sachendra Prasad Singh, MLA, Kalyanpur Vidhan Sabha Constituency. Hon'ble Minister emphasized that livestock is the most important income generating enterprise in Indian agricultural economy and plays a multifaceted role in providing livelihood support of even landless farmers. He

stressed upon the importance of indigenous breeds of cattle, buffalo and goat and their superiority over exotic breeds in climate change scenarios. Attention should be given upon selection of local breeds of dairy animals who can adapt in adverse climatic condition. Hon'ble Minister advised the farmers to adopt diversified farming like fisheries, poultry, piggery and goat farming which provide good alternative options in social development. He suggested the farmers that they can take assistance from different centrally sponsored schemes including National Gokul Mission.

Vigilance Awareness week

Vigilance Awareness Week was celebrated from 30th Oct 2017 to 4th Nov, 2017 at ICAR RCER, Patna and its centre and KVKs. Integrity pledge was taken in various schools, villages and office of the respective areas. Various events like a lecture on

procurement through GeM was also delivered at ICAR RCER Patna and Group discussion, round table discussion on vigilance, easy competition for students was carried out during the week.

Master Training on Vegetables and Mango

Four master trainings of five days each on vegetables and mango was organized from 30th Oct. to 1st Dec., 2017 at ICAR Research Complex for Eastern Region, Research Centre, Ranchi sponsored by the Jharkhand Tribal Development Society (JTDS). During the training total 93 master trainers of 14 different district of Jharkhand were trained for the improved cultivation of vegetable and mango.

Deputy Director General (AE & NRM) Visits the Institute

Dr. K. Alagusundaram, Deputy Director General, Agricultural Engineering & Natural Resource Management visited ICAR-Research Complex for Eastern Region, Patna on October 31, 2017. In the morning he visited the research farm of the institute where he observed various field experiments and research activities. Later he addresses a scientist meet where he interacted with the scientists of the institute. On this occasion, director of the institute, Dr B.P. Bhatt made a brief presentation about the activities, research, new initiatives and other activities carried by the institute. The DDG pointed

out about the huge natural resources present in the eastern region of India with fertile soil, water resource and manpower. He advised scientists to work for betterment of the farmers. He quoted examples of agricultural development with scarce natural resources in Israel. The DDG pointed out the availability of limited facilities for processing, value addition of agro-produce and marketing in Bihar, without which it is not possible to increase farmers' income. He also advocated for system diversification to achieve doubling income of farmers.

Field Day

Field day was organized on 2nd November, 2017 and 3rd November, 2017, respectively, at Sukhet and Korahia, Madubani under SRFSI project to see the performance of rice crops under different establishment methods (Zero till direct seeded, unpuddle transplanted and puddle transplanted). Ninety one farmers including field staff of JEEViKA and State Govt. Officials participated in the field days.

Agriculture Education Day celebrated

Agricultural Education Day was celebrated at ICAR Research Complex for Eastern Region, Patna on 3rd December, 2017 wherein 126 students participated in the programme from two different schools of Patna. Field visit was carried out to all the fields and experimental farms of the institute, creating awareness regarding the importance of agriculture with a audio-video short films followed by debate competition.

World Soil Day

World Soil Day programme was organized on 5th December, 2017 at ICAR Research Complex for Eastern Region, Patna. Smt. Asha Sinha, Hon'ble, MLA of Danapur was the Chief Guest of the programme. On this occasion, a Video Film on soil health

containing message from Hon'ble Prime Minister of India (*Man ki Baat* on soil health), and from Hon'ble Minister of Agriculture & Farmers' Welfare, Govt. of India, was shown to the participants along with the distribution of Soil Health Cards prepared by the institute and a *kisan gosthi*. Around 60 farmers from Simra, Wadipur and Baghakole villages of Patna district attended the programme.

ICAR RCER, KVK, Ramgarh, Jharkhand also celebrated World Soil Day in which 500 farmers including 285 women farmers from all the blocks in the Ramgarh District had participated. Shri. Dushyant Kumar Patel, Member, Zila Parishad, Ramgarh, Jharkhand was the Chief Guest of

the function. Sh. Manoj Kumar Gupta, Block Development Officer, Mandu and Smt. Kanchan Devi, Deputy Chief, Block Mandu, Ramgarh were the Guest of Honours. At the meeting 300 soil health cards were distributed to the farmers.

Similarly, KVK, Buxar also celebrated World Soil Day wherein 525 farmers participated. Shri Sanjay Kumar Tiwari, MLA Buxar was the Chief Guest of the function. A total of 200 Soil Health cards were distributed to the farmers.

Mushroom Day

Mushroom Day was celebrated on 23rd December, 2017 at ICAR-Research Complex for Eastern Region, Research Centre, Ranchi, Jharkhand. The programme was inaugurated by Dr A. K. Singh, Head, ICAR-RCER RC Ranchi. Four successful Mushroom entrepreneurs of Jharkhand, Mr. Dinesh Prasad, Mycelia Labs, Mrs. Seema Sandesh, Basidia Labs, Ranchi, Mr. Shubham Modi, Ranchi and Mr. Sanjeev Mathur, Jamshedpur shared their experiences to start-up mushroom and its spawn production as an enterprise, quality mushroom spawn in enhancing its

productivity, compost preparation and post harvest management of mushroom. On the occasion hands on training on oyster mushroom was also conducted. Approx. 70 participants from Ranchi, Bokaro (Jharkhand), Bhagalpur (Bihar) and Dehradoon (Uttarkhand) participated in the programme.

Awards and Recognitions

- **Dr. B.P. Bhatt,** Director, ICAR RCER, Patna received **Dr. Rajendra Prasad Prushkar award** on 89th ICAR Foundation Ceremony of at New Delhi on 16th July, 2017 for his book entitled '*Ditya Harit Kranti Ki Aur Rastriya Ke Badhte Kadam'*.

- **Dr. J. S. Choudhary** received the **Best paper award** for his paper 'DNA barcoding and population genetic structure of *Bactrocera zonata* (Diptera: Tephritidae) in India: Implications for its better management strategies' in National Symposium on "Recent Trends in Polymers" organized by SANRAG & ICAR-IINRG, Ranchi at IINRG, Ranchi from 17.02.2017 to 18.02.2017.

- **Dr. (Mrs) P. Bhavana** received the **Best paper award** for his paper 'Characterization of bacterial wilt resistance in brinjal using molecular tools' in National Symposium on 'Recent trends in Biopolymers' organized by SANRAG & IINRG, Ranchi at IINRG, Ranchi from 17.02.2017 to 18.02.2017.

- **Dr. Mahesh Kumar Dhakar** received the **Best Doctoral Thesis Award** by Green Reap Welfare Society for Outstanding contribution in the field of Horticultural Science on the occasion of National Conference on 'Technological challenges in social, environmental and Agricultural reforms' during 9th – 10th Sep 2017 at ICAR- IIRR, Hyderabad.

- **Dr. Santosh S. Mali** received the **Young Scientist Award** by Green Reap Welfare Society for Outstanding contribution in the field of Soil and water conservation engineering on the occasion of National Conference on 'Technological challenges in social, environmental and Agricultural reforms' during 9th – 10th Sep 2017 at ICAR-IIRR, Hyderabad. He also received the **Best Research Paper Award** in the category of Engineering and Hydrology for the paper titled 'Groundwater modeling for assessing the recharge potential and water table behavior under varying levels of pumping and recharge' by Indian Association of Soil and Water Conservation

- **Dr. B. K. Jha** received the **Best Paper Award** for the paper 'Yield, water productivity and economics of vegetable production under drip and furrow irrigation in eastern plateau and hill regions' by International Journal of Agricultural Sciences and research, Tran stellar Journal Publications.

- **Dr. A. K. Singh**, was conferred the prestigious "**Dr Bishwajit Choudhary Memorial Outstanding Scientist Award-2016"** by Indian Society of Vegetable Science on the occasion of National conference on "Food and nutritional security through vegetable crops in relation to climate change" during 9th – 11th Dec 2017 at ICAR IIVR, Varanasi.

Selections/Promotions/Retirements

Our new colleagues

- Dr. Manoj Kumar, Scientist, Soil Science *w.e.f.* 22.07.2017

- Mr Abhishek Kumar, Sr. Technical Officer *w.e.f.* 01.09.2017
- Dr. Nongmaithem Raju Singh, Scientist, Agroforestry *w.e.f.* 13.10.2017
- Mrs. Mridusmita Debnath, Scientist, Land and Water Management *w.e.f.* 13.10.2017
- Ms Manisha Tamta, Scientist, Agrometerology *w.e.f.* 13.10.2017

Promotions

Scientists

- Dr. Santosh Mali Sambhaji, Scientist, Soil & Water Conservation Engineering promoted from GP 6000 to 7000 *w.e.f.* 12.06.2012
- Dr. B. K. Jha promoted from Senior Scientist to Principal Scientist *w.e.f.* 09.07.2012
- Dr P. R. Kumar promoted from Senior Scientist to Principal Scientist *w.e.f.* 04.09.2014
- Dr. Bikash Das promoted from Senior Scientist to Principal Scientist *w.e.f.* 22.06.2015
- Dr S. K. Naik promoted from Senior Scientist to Principal Scientist *w.e.f.* 31.03.2017

Technical

- Shri Manual Lakra promoted to Sr. Technical Officer *w.e.f.* 01.01.2016
- Shri P K Singh promoted to Sr. Technical Officer *w.e.f.* 18.03.2017
- Shri Dev Narayan promoted to Technical Officer *w.e.f.*28.12.2016
- Shri Ashok Kumar promoted to Sr. Technical Assistant *w.e.f* 16.09.2015
- Shri Kamlesh Mahto prmoted to Technical Assistant *w.e.f.* 06.09.2012
- Shri Prakash Khatiwada promoted to Sr. Technician *w.e.f.* 11.10.2016
- Shri Prem Kumar promoted to Technician *w.e.f.* 10.08.2017
- Shri Surendra Yadav promoted to Technician *w.e.f.* 08.08.2017
- Shri Dayanand promoted to Assistant *w.e.f.* 30.03.2011

Transfers

- Dr. Anuradha Srivastava, Scientist, Food Technology transferred to DMR, Solan *w.e.f.* 16.09.2017
- Mrs Snatashree Mohanty, Scientist, Fish Health transferred to CIFA, Bhubaneswar *w.e.f.* 22.09.2017
- Dr. Asit Chakraborty, Senior Scientist (LPM) transferred to Animal Resource Development Dept., Govt. of Tripura *w.e.f.* 16.12.2017

Retirements

- Sh. Sona Ram Rajak, AAO w.e.f. 31.12.2017
- Sh. Nand Kishore Ram, SSS (Messenger) *w.e.f.* 31.12.2017

Obituary

- Late Baleswar Lakra, SSS, Research Centre Ranchi on 09.07.2017
- Late Jibiya Oraon, SSS, Research Centre Ranchi on 28.07.2017

Compiled & Edited by

Dr. J. S. Mishra and Dr. (Ms.) Tshering Lhamu Bhutia
ICAR Research Complex for Eastern Region
ICAR Parisar, P.O. Bihar Veterinary College, Patna, 800014, Bihar
Tel: 0612-2223962/2228882; Fax: 0612-2223956
Email:drbpbhatt.icar@yahoo.com
Web:www.icarrcer.res.in