



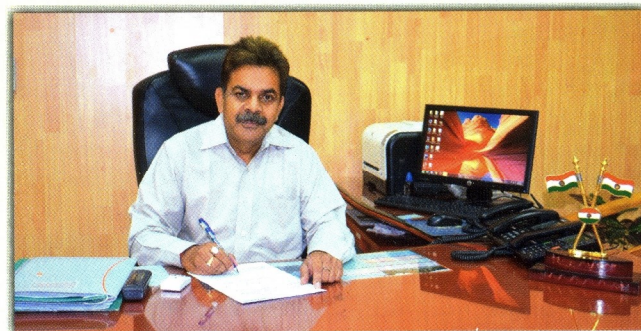
## Director's Desk

The Government initiative for "Doubling farmers' income by 2022" is a paradigm shift in transforming policies and programmes from production to income. There are several pathways through which the income of the farmers could be doubled. It may be through reduction in the use of inputs leading to cost reduction, increasing yield levels and ensuring remunerative prices of the produce, enhancing input use efficiency, adopting technological interventions to encourage more optimal use of natural resources, encouraging diversification and value addition, ensuring timely disposal of the produce and the timely payment of prices of the produce to the farmers. Hence, technological interventions to ensure higher productivity levels and input use efficiency are one of the several pathways to achieve the objective of doubling the farm income in agriculture, and sugarcane cultivation is no exception to it. The onus of providing such technological interventions in sugarcane farming falls on the research organizations including ICAR-Indian Institute of Sugarcane Research, Lucknow.

In consonance with this national objective, the ICAR-IISR provided the main thrust on fine tuning the technological interventions carried out in recent past for bringing in more efficiency in sugarcane farming and devising a more dedicated extension approach for their dissemination to the sugarcane growers. Collaborative efforts with UP State Cane Department and private sector (Sugar mills) were made to promote and prioritize the adoption of innovative sugarcane production

वर्ष 2022 तक किसानों की आय को दोगुना करने की योजना कृषि उत्पादन से आय तक की सभी नीतियों एवं कार्यक्रमों में आमूलचूल परिवर्तन का द्योतक है। आदानों के कम प्रयोग द्वारा उत्पादन लागत में कमी, प्रति इकाई उपज में वृद्धि, कृषि उत्पादों के लाभकारी मूल्य, निवेश उपयोग क्षमता में वृद्धि, संसाधनों के उचित प्रयोग हेतु प्रौद्योगिकी हस्तक्षेपों को अपनाना, विविधीकरण तथा मूल्य संवर्धन को प्रोत्साहित करना, उत्पाद का समय पर सुनिश्चित निष्पादन आदि कृषकों की आय में वृद्धि करने के मुख्य तरीके हैं। कृषि अनुसंधान एवं प्रौद्योगिकी क्षेत्र में नवीनतम उन्नत गन्ना प्रौद्योगिकी के अपनाने से इस वर्ष प्रति इकाई 25 प्रतिशत अधिक वृद्धि दर्ज होने की संभावना है।

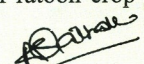
technologies in a more dedicated way, as 50 to 70% gain in cane productivity levels could be due to the adoption of improved technologies. Improved and locally adapted new varieties, such as CoLk 8001, CoLk 8102, CoLk 94184, CoLk 09709, CoLk 09204, CoLk 11203 and CoLk 11206 were developed and released for commercial cultivation. Institute developed variety CoLk 94184 was popularised to spread to large areas in waterlogged and flood prone areas of East Uttar Pradesh and Bihar. For reducing the cost of cane cultivation, demonstration of technology packages for improving nutrient use efficiency through rhizosphere engineering and distribution of soil health cards was carried out.



Water use efficiency was emphasized through adoption of innovative planting, irrigation methods and fertigation. Land use efficiency was emphasized by encouraging intercropping in sugarcane with short duration and high value crops like fenugreek (*methi*), garlic, mustard and other short duration crops. In order to encourage mechanization of sugarcane crop and reduce the total quantum of labour use per unit area, the sugarcane cutter planter was provided to farmers in identified and adopted villages and large scale demonstrations were carried out. Innovations in extension approach were carried out by encouraging collaborations with State Govt. machinery and private sector. A MoU was signed with DSCL Sugar for introducing all these technological interventions in eight adopted villages of four sugar mills in Central UP.

IISR efforts were also directed towards hitherto neglected areas such as entrepreneurship development for quality jaggery production in areas/states where there is no sugar mill. The establishment of IISR three-pan modern hygienic jaggery units in these pockets have been given major thrust in areas like MP, Bihar and Jharkhand. Efforts have been made to establish training centres in the Eastern UP and Bihar for hygienic and quality jaggery production by using modern techniques. Entrepreneurship in other associated activities such as micro-propagation of seed of improved varieties, biocontrol activities such as establishment of insect trap and tricho-card development and the establishment of sugarcane machinery manufacturing and maintenance units. In addition, the capacity building of extension personnel and farmers through training programmes, visits and exhibitions were also carried out and the information on these technological interventions were widely spread, in general, and in Uttar Pradesh and Bihar in particular.

The outcome of the implementation of the technological interventions in a more dedicated and collaborative efforts is expected to increase cane yield levels substantially to more than 75 t/ha and sugar production to more than 11 million tonnes in Uttar Pradesh. This will result in more than 25% increase in farm income levels. IISR efforts in future will be focussed to substantially increase the productivity levels of ratoon crop to ensure further increase in farm income levels.

  
(A.D. Pathak)



## SECTORAL NEWS: SUGARCANE AND SUGAR INDUSTRY

### ICAR-IISR and DSCL Sugar Mill Collaborative Efforts for Increasing the Income of Sugarcane Growers by 2022

ICAR-IISR, Lucknow and DSCL Sugar has signed a MoU under Public-Private Partnership for cane development activities in a time bound manner in selected villages in Sugar Mill Command Areas on August 19, 2017. Under the agreement, the probable ways of increasing farmers' income through increasing the productivity, reducing the cost of cultivation, promoting other allied activities and efficient marketing will be explored. ICAR-IISR team under the overall guidance of Dr. A.D. Pathak, Director of the Institute will execute the project in two selected villages in each of four sugar units of DSCL Sugar. The villages will be extensively surveyed for collecting baseline information and drawing baseline of socio-economic status of farmers. The sugar mills



selected are Ajbapur, Rupapur, Hariawan and Loni Units of DSCL Sugar. IISR team will introduce new improved sugarcane production technology in the selected villages to practically ensure that the yields of the crops have improved, cost of cultivation reduced and the income has enhanced.

Mr. Roshan Lal Tamak, Executive Director, DSCL Sugar informed that DSCL Sugar will provide the logistics support to IISR Scientists in the selected villages- Ajbapur and Mohamadpur Bhagat (Lakhimpur Kheri) and Munder, Kanhari, Ahmadi, Loni, Hariyawa and Nagla Bhagwan villages (Hardoi). DSCL sugar will also implement several welfare activities like organizing special camps for medical health and computer literacy, creation of self help group for centrally and State sponsored schemes for cleanliness sanitation and occupational health safety programmes, education, irrigation and infrastructure development. In addition to it, DSCL Sugar will promote soil health improvement programme, by distribution of decomposed press mud, green manuring and making compost pit.

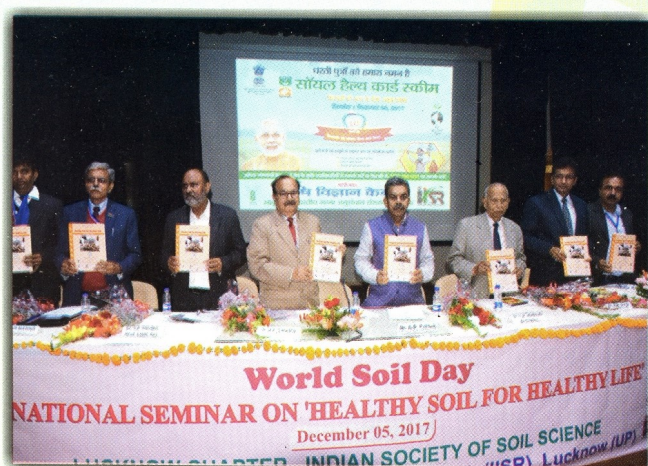
भाकृअनुप-भारतीय गन्ना अनुसंधान संस्थान, लखनऊ तथा डीएससीएल शुगर ने पीपीपी मॉडल के अंतर्गत चीनी मिल अधीनस्थ क्षेत्रों के कुछ चयनित गाँवों में एक निश्चित समय के लिए गन्ना विकास क्रिया-कलापों के लिए एक सहमति पत्र पर हस्ताक्षर किए हैं। सहमति-पत्र के अंतर्गत, किसानों की आय को बढ़ाने के लिए उत्पादकता बढ़ाने, उत्पादन लागत घटाने, अन्य सम्बद्ध क्रियाओं को बढ़ावा देने तथा प्रभावी विपणन के लिए सभी संभावित प्रयत्न किए जाएंगे।

## INSTITUTE HIGHLIGHTS

### World Soil Day Celebrated

A programme on "World Soil Day" was organized by Krishi Vigyan Kendra, ICAR-Indian Institute of Sugarcane Research, Lucknow in association with Indian Society of Soil Science, Lucknow Chapter at the Institute Auditorium on December 5, 2017. Dr. A.D. Pathak, Director of the Institute warmly welcomed the Chief Guest of the Programme, Dr. D.K. Sharma, Ex. Director, ICAR-CSSRI, Karnal (Haryana) and the other distinguished dignitaries namely Dr. V.W. Ambekar, Ex-Agriculture Director, Govt. of Uttar Pradesh and other guests. This programme was attended by about 300

farmers of Lucknow and Sitapur districts and about 150 other delegates involving Scientists and State Govt. functionaries of the Uttar Pradesh. On this occasion, Dr. A.D. Pathak, Director, ICAR-IISR, Lucknow stressed the need for improving the health of soil through various package of practices for enhanced field crops production without impairing the fertility of soil. He also highlighted the work being done by the Institute with a sugar factory in U.P. for doubling the income of farmers by 2022. Dr. D.K. Sharma, Chief Guest of the programme called upon the delegates, scientists, farmers etc., for enhancing the organic carbon content of soils to improve its structure and other microbiological properties of soils so that





enhanced field crops production could be ensured without degrading our soils and environment. On this occasion, other eminent Soil Scientists representing various Research Institutes/Organizations also expressed their views on soil health. Soil health cards were also distributed to the farmers.

Dr. S.N. Singh, Principal Scientist and Head, KVK, ICAR-IISR, Lucknow coordinated the programme and also presented a brief note of account regarding soil health management practices in field crops production. A Souvenir was also released to mark the occasion.

भारतीय गन्ना अनुसंधान संस्थान, लखनऊ एवं भारतीय मृदा विज्ञान समिति के लखनऊ चैप्टर के संयुक्त तत्वाधान में 5 दिसंबर 2017 को विश्व मृदा दिवस के अवसर पर संस्थान परिसर में "स्वस्थ जीवन के लिए स्वस्थ मृदा" विषय पर एक दिवसीय राष्ट्रीय संगोष्ठी का आयोजन किया गया। कार्यक्रम के मुख्य अतिथि, डॉ. डी.के. शर्मा, पूर्व निदेशक, केन्द्रीय मृदा लवणता अनुसंधान संस्थान, करनाल (हरियाणा) ने मृदा एवं पर्यावरण में अतिरिक्त हास किए बिना फसलों के उत्पादन में वृद्धि के लिए मृदा की संरचना, पादप पोषक तत्वों में अभिवृद्धि तथा अन्य सूक्ष्म-जैविक गुणों में सुधार के लिए मृदा में जीवांश बढ़ाने के लिए कृषकों का आह्वान किया। इस संगोष्ठी में कुल 41 शोध पत्रों (33 पोस्टर एवं 8 मौखिक) का प्रस्तुतीकरण किया गया।

### Agricultural Education Day Celebrated

Agricultural Education Day was celebrated to commemorate the birthday of the first Union Minister of Agriculture of India in 1946 and first President of Independent India, *Bharat Ratna*, Dr. Rajendra Prasad. On this occasion, Dr. A.D. Pathak, Director, ICAR-IISR, Lucknow addressed the UG/PG students, Ph.D. scholars SRF, JRF and young professionals working in the Institute and urged them to work hard towards their respective aims. He also encouraged them to be more focused and open with their innovative ideas as young people are torchbearers of the future.

On this occasion, Dr. L.S. Gangwar, Incharge, PME gave an exhaustive description of life sketch and achievements of Dr. Rajendra Prasad. The scientists and students also shared their views for improving the conditions of Indian agriculture. The day provided a good opportunity to interact with each other (teachers, trainers and mentors) for sharing their ideas, knowledge sharing, learning, motivation, encouragement, reducing communication gap and carry out interaction.



संस्थान के वैज्ञानिकों एवं स्नातक/परास्नातक/शोध छात्र-छात्राओं द्वारा भारत के प्रथम कृषि मंत्री एवं स्वतंत्र भारत के प्रथम राष्ट्रपति, भारत रत्न स्वर्गीय डॉ. राजेंद्र प्रसाद के जन्म दिवस 3 दिसंबर 2018 को कृषि शिक्षा दिवस के रूप में उत्साहपूर्वक मनाया गया। इस अवसर पर डॉ. अश्विनी दत्त पाठक, निदेशक ने अपने सम्बोधन में कृषि शिक्षा के महत्व को रेखांकित करते हुए सभी छात्र-छात्राओं से अपने लक्ष्य की प्राप्ति के लिए लगन से कठिन परिश्रम करने को कहा। डॉ. पाठक ने छात्र/छात्राओं को अपने उद्देश्य प्राप्ति के लिए अधिक फोकस रहने तथा सभी नए विचारों पर गहराई से विचार करने हेतु प्रोत्साहित किया।

### ICAR Inter-Institutional Zonal Sports Tournament for North Zone Organized

Four days ICAR Inter-Institutional Zonal Sports Tournament for North Zone was organized by ICAR-IISR, Lucknow at Sports Complex of the IISR at Ikshupuri Colony during October 30 – November 2, 2017. In this tournament, total 831 players, including 51 female players of 24 ICAR Institutes viz., IISR, Lucknow; IIPR, Kanpur; CARI, Bareilly; CISH, Lucknow; NBFGR, Lucknow; IIVR, Varanasi; CIRG, Mathura; NDRI, Karnal; CPRI, Shimla; VPKAS, Almora; CSSRI, Karnal; IISWC, Dehradun; NBAGR, Karnal; CIRB, Hisar; CIRC, Meerut; CIPHET, Ludhiana; IIFSR, Meerut; IIWBR, Karnal; NRC on Equines, Hisar; DCFR, Bhimtal; DMR, Solan; CITH, Srinagar; ATARI, Ludhiana and ATARI, Kanpur participated in various sport activities. In all, 34 events were organized in this mega sport event.



The tournament was inaugurated by the Chief Guest, Dr. S. Solomon, VC, CSAUA&T, Kanpur who urged the players to play their games with full zeal and true sportsmanship. A Souvenir was also released to mark this occasion. Dr. A.D. Pathak, Director, ICAR-IISR welcomed all the participants and administered the oath to all present for not taking and giving bribery and to report such matters to the concerned agencies as the 'Vigilance Awareness Week' was also being celebrated during that period. Dr. P.K. Singh, Principal Scientist was the Organizing Secretary for the event.

चार दिवसीय भाकृअनुप अंतरसंस्थान क्षेत्रीय खेलकूद प्रतियोगिता (उत्तर क्षेत्र) संस्थान परिसर में 30 अक्टूबर-2 नवंबर 2017 के मध्य आयोजित की गयी। इस प्रतियोगिता में भारतीय कृषि अनुसंधान परिषद के 24 संस्थानों के 51 महिला खिलाड़ियों सहित कुल 831 खिलाड़ियों ने खेलों की 34 विभिन्न प्रतियोगिताओं में भाग लिया जिसमें फुटबाल, बास्केटबाल, वॉलीबॉल, बैडमिंटन, टेबिल टेनिस, कबड्डी, विभिन्न दूरी की दौड़, लंबी कूद, ऊँची कूद, भाला फेंक, गोला फेंक, डिस्कस फेंक, शतरंज एवं कैरम मुख्य आकर्षण थे।



In the valedictory session, Dr. S.P. Singh, VC, University of Lucknow was the chief guest and Dr. S. Rajan, Director, ICAR-CISH, Lucknow was the Guest of Honour. Dr. Singh honoured all the winners by distributing certificates, medals and trophies. While congratulating all the winners for their untiring efforts, Dr. Singh urged the other players not to lose the hope and try their best for winning medals next time. ICAR-NDRI, Karnal won overall Team Championship Trophy. The Award of Best Disciplined Team was conferred to ICAR-NBFGR, Lucknow. Sh. Anand Mohan Srivastava of IISR, Lucknow won gold medal in Carom. IISR team also won silver medals in javelin throw, high jump and table tennis.



### National Seminar on Farmer Centric Cinema Organized

Three days National Seminar on Farmer Centric Cinema, jointly organized by *Samagra Vikas* Welfare Society and ICAR-IISR, Lucknow was inaugurated by Dr. Om Prakash, Former Principal Secretary (Tourism) and Sugarcane Commissioner, Govt. of U.P. Delivering the inaugural speech, Dr. Prakash urged all the stakeholders involved in the development process to think differently to conceive social changes approach for inclusive growth of farming community and ensuring a better life for them. Dr. Prakash highlighted the various challenges being faced by the farmers and called upon them to adopt improved package of practices recommended by the Scientific group.

In his presidential address, Dr. A.D. Pathak, Director, ICAR-IISR told that Cinema which is the most complex and powerful art form in the present world, helps us to better understand our own lives, the lives of those around us and even how our society and culture operates. The Cinema sheds light on every facets of our daily life and can provide catharsis and perspective which may open our eyes to new ways of thinking,



feeling and pursuing our goals, Dr. Pathak added that the role of cinema has been increasing immensely due to frequent changes in technology, cultural phenomena and ethical views.

भाकृअनुप-भारतीय गन्ना अनुसंधान संस्थान, लखनऊ एवं समग्र विकास कल्याण समिति द्वारा संयुक्त रूप से संस्थान परिसर में आयोजित तीन दिवसीय कृषक केन्द्रित सिनेमा पर राष्ट्रीय संगोष्ठी का उदघाटन डॉ. ओम प्रकाश, पूर्व प्रधान सचिव (पर्यटन) एवं पूर्व गन्ना आयुक्त, उत्तर प्रदेश सरकार द्वारा किया गया। इस अवसर पर बोलते हुए डॉ. ओम प्रकाश ने विकास प्रक्रिया से जुड़े सभी हितधारकों को कृषक समुदाय के समग्र विकास के लिए सामाजिक परिवर्तन लाने के लिए सोचने पर बल दिया। डॉ. अश्विनी दत्त पाठक, निदेशक, भाकृअनुप-भारतीय गन्ना अनुसंधान संस्थान, लखनऊ ने अपने अध्यक्षीय उद्बोधन में विश्व में सिनेमा को बहुत सशक्त माध्यम बताते हुए इसे अपने तथा दूसरों के जीवन एवं समाज व संस्कृति के संचालन को बेहतर तरीके से समझने में सहायक बताया। डॉ. अजय कुमार साह, प्रधान वैज्ञानिक एवं प्रभारी (प्रसार एवं प्रशिक्षण) ने संगोष्ठी में उपस्थित सभी अतिथियों एवं प्रतिनिधियों का स्वागत करते हुए इस संगोष्ठी के विषय पर प्रकाश डालते हुए कृषक केन्द्रित सिनेमा से समाज पर पड़ने वाले प्रेरणात्मक प्रभावों की चर्चा की।

### RAC Meeting

XXIII Meeting of RAC of the ICAR-IISR, Lucknow was held on July 21-22, 2017 under the chairmanship of Dr. Y.S. Nerkar, former VC, MPUA, Rahuri. Dr. S.R. Maloo, Ex. Director Research, MPUAT, Udaipur; Dr. S. Sithanatham, Director, Sun Agro Biotech Research Centre, Chennai; Dr. Surendra Singh, Ex. PC (FIM); Dr. Rajvir Singh, Ex. Member, CACP, Govt. of India & Ex. Head, Division of Social Sciences, ICAR-NDRI, Karnal; Dr. Anoop Kumar, General Manager, (Cane), Biswan Sugar Mill, Sitapur; Farmers representatives viz., Sh. Shiv Kumar Rana from Meerut and Sh. Shivendra Mohan Dubey from Kanpur Dehat, Dr. A.D. Pathak, Director, ICAR-IISR, Lucknow and Dr. A.K. Sharma, Pr. Scientist (Ag. Econ), ICAR-IISR were the members of the committee. Following major recommendations were made:

- Spread of new varieties be hastened by production of high quality seed at three stages in sufficient quantities. Micro-propagation technique should be resorted for fast initial multiplication.
- With the objective of reducing the expenses on synthetic fertilizers, a field trial should be conducted using *Gluconacetobactor diazotrophicus*, PhosphateSB, PotashSB, etc. efficient microbes and levels of RDF. Microbiologist should be associated with the experiment.







- Survey and surveillance of pests may be supplemented with a pheromone trap based monitoring network initiative with the assistance of the personnel from sugar mills and KVKs.
- Two field experiments should be conducted; one on combining the periodic foliar sprays of different growth regulators like GA<sub>3</sub>, IBA, 6BA and NAA in addition to the recommended fertilizers; and another to test the role of Silica (by soil application and foliar sprays) in relation to productivity and tolerance to moisture stress, pests and diseases. Inter-disciplinary team involving a plant physiologist, soil scientist, entomologist and plant pathologist should be associated.
- Institute developed latest version of the tractor operated ratoon management attachment be popularized by demonstrating on farmers' fields in association with the sugar mills.
- Demonstrations should be arranged on farmers' fields to demonstrate the substantial gain obtained in cane productivity by GA<sub>3</sub> treatment.
- Periodical sugarcane, sugar and by-products production scenario should be analysed and economic intelligence be provided to all the stakeholders.

### IRC Meeting

The IRC meeting of the IISR was held under the Chairmanship of Dr. A.D. Pathak, Director, ICAR-IISR during August 8-14, 2017 to review and discuss the on-going research projects in the Institute. The IRC discussed the research findings of ongoing Institute research projects and the technical programme for the next year was finalized.

### IMC Meeting

Forty third meeting of IMC was held under the chairmanship of Dr. A.D. Pathak, Director, ICAR-IISR, Lucknow on December 15, 2017. Progress of R & D efforts was reviewed and various administrative matters were discussed in the meeting.

### IBSC Meeting

The IBSC Meeting was held on December 29, 2017 under the Chairmanship of Dr. A.D. Pathak, Director, IISR. The meeting was attended by Dr. Anil Kumar (DBT nominee), Dr. Manish Mishra (external expert), internal experts, Dr. Sangeeta Srivastava, Dr. M. Swapna and Dr. Sanjeev Kumar (Member Secretary). Various steps taken by different laboratories of the Institute in the area of biosafety were discussed. The present disposal systems of laboratory waste, buffers, plasticware, agarose gel etc., were also discussed.

### बैठकों का आयोजन

डॉ. वाई.एस. नेरकर की अध्यक्षता में 21-22 जुलाई 2017 को आयोजित संस्थान की शोध सलाहकार समिति की 23वीं बैठक तथा डॉ. अश्विनी दत्त पाठक, निदेशक, भागअनुसं, लखनऊ की अध्यक्षता में 8-14 अगस्त, 2017 को आयोजित संस्थान शोध परिषद की बैठक में संस्थान में चल रही शोध परियोजनाओं की समीक्षा की गयी। डॉ. अश्विनी दत्त पाठक, निदेशक की अध्यक्षता में 15 दिसंबर 2017 को संस्थान प्रबंधन समिति तथा 29 दिसंबर 2017 को संस्थान जैव-सुरक्षा समिति की बैठकें आयोजित की गयीं।

### IISR Signs MoU to Partner with Dr. Ram Manohar Lohia Awadh University, Faizabad

IISR, Lucknow signed a MoU with Dr. Ram Manohar Lohia Awadh University, Faizabad to work together in areas of common interest such as research and teaching in field of Science and Technology, Agriculture and Skill development and strengthen value based academic collaboration. The MoU also opens the prospects of mutual exchanges of scholars/ internships registered at both the Institutions.

The agreement was signed by Dr. A.D. Pathak, Director, IISR, and Prof. Manoj Dixit, VC, Dr. Ram Manohar Lohia Awadh University, Faizabad. Dr. Pathak said that IISR excels in carrying out State of the Art research and RMLU may build on IISR's strong research tradition and help accelerate innovation by opening up new opportunities.

Prof. Manoj Dixit, VC, Dr. RMLU highlighted that forming academic alliances with IISR will help RMLU in building fundamental and technological research collaborations as a part of the University's Inter-Disciplinary Centre's outreach programme.



भारतीय गन्ना अनुसंधान संस्थान, लखनऊ और डॉ. राम मनोहर लोहिया अवध विश्वविद्यालय, फैजाबाद के बीच शिक्षा और शोध में सहयोग और विस्तार हेतु एक समझौता पत्र पर हस्ताक्षर किए गए। इस समझौते के माध्यम से दोनों संस्थाओं को विज्ञान और प्रौद्योगिकी, कृषि, कौशल विकास एवं मूल्य-परक शिक्षा में शैक्षणिक और अनुसंधान जैसे क्षेत्रों में सहयोग के साथ काम करने में सहायता प्राप्त होगी। इस समझौते पर भारतीय गन्ना अनुसंधान संस्थान, लखनऊ के निदेशक, डॉ. अश्विनी दत्त पाठक और डॉ. राम मनोहर लोहिया अवध विश्वविद्यालय, फैजाबाद के कुलपति, प्रो. मनोज दीक्षित द्वारा हस्ताक्षर किए गए।



## TECHNOLOGY DEVELOPED

### Varieties Identified

Two sugarcane varieties, viz., CoLk 11203 (early) and CoLk 11206 (mid-late) were identified by the Varietal Identification Committee (VIC) of the All India Coordinated Research Project on Sugarcane, AICRP(S) for their release and notification. The final proposals of these two varieties have



Field view of the plants and bus of CoLk 11203

Field view of the plants and bus of CoLk 11206

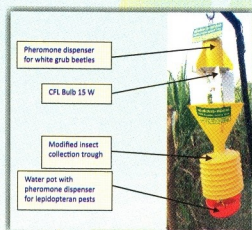
been submitted to the Central Sub-Committee on Crop Standards, Notification and Release of Varieties for their release and notification. Some key features and attributes of CoLk 11203 (early) and CoLk 11206 (mid-late) are given below:

### Salient features of CoLk 11203 (Ikshu-5) and CoLk 11206 (Ikshu-4)

Variety with parentage	Cane yield (t/ha)	CCS yield (t/ha)	Sucrose % at harvest	Pol % cane at harvest
CoLk 11203 (Ikshu-5)-Early Parentage: CoLk 8102 × Co 1148	81.97	10.52	18.41	13.44
CoLk 11206 (Ikshu-4) Mid-late Parentage: CoPant 90223 × Co 62198	91.5	11.20	17.65	13.42

### IISR-Combo Insect Trap- A New Version

The Institute's technology, IISR-Combo Insect Trap was further modified in collaboration with the firm under MoU. The new modified version of IISR-Combo Insect Trap is now made of polypropylene, the light source of CFL 15 W having separate insect collection trough with holes of 2.5 mm on upper surface to allow most of the small beneficial bio-agents to escape. Below the closed insect collection trough, hanging water trap (saucer filled with water) with pheromone dispenser for lepidopteran pests is also attached. The modified version of the trap is light weight, more eco-friendly, shock proof from electricity, rust proof without compromising the efficiency in trapping the scarabacids and other pests of sugarcane and other crops. Testing for efficiency of modified models of IISR-Combo Insect Trap was done in white grub affected area in Village: Mamdapur, Pravaranagar, District Ahmednagar (Maharashtra).



IISR-Combo Insect Trap (Modified version)



Field testing of different models of IISR-Combo Insect Trap

### ICAR-IISR R&D Efforts in Sugarcane Crop in Maharashtra State

#### Establishment of Biological Control Laboratory in Pravaranagar (MS)

The Govt. of Maharashtra has approved and sanctioned the "Establishment of Biological Control Laboratory for mass production of bio-agents against insect-pest and diseases and dissemination of technology for enhanced cane and sugar productivity of Maharashtra" under RKVY with the budgetary outlay of ₹ 5.9 Crore during the 23<sup>rd</sup> State Level Sanctioning Committee Meeting held on May 25, 2017 under the Chairmanship of Chief Secretary of Govt. of Maharashtra for IISR-Biological Control Centre, Pravaranagar.

- महाराष्ट्र सरकार ने प्रदेश में गन्ने व चीनी उत्पादकता में वृद्धि करने हेतु प्रौद्योगिकी का प्रचार-प्रसार करने तथा गन्ने की फसल में लगने वाले कीटों एवं रोगों के विरुद्ध जैव कारकों के वृहदस्तरीय उत्पादन हेतु जैव नियंत्रण प्रयोगशाला स्थापित करने के लिए राष्ट्रीय कृषि विकास योजना के अंतर्गत ₹ 5.9 करोड़ की धनराशि भारतीय गन्ना अनुसंधान संस्थान के जैव नियंत्रण केंद्र, प्रवरानगर को आवंटित की है।
- डॉ. पद्मश्री विठ्ठलराव विखे पाटिल सहकारी शक्कर कारखाना लिमिटेड, प्रवरानगर के अधीनस्थ तथा समीपवर्ती क्षेत्रों के विभिन्न गाँवों में गन्ने की फसल में श्वेत मक्खी, श्वेत भ्रंग, अगेती प्ररोह बेधक, पोरी बेधक, गुलाबी बेधक, ऊनी माहू, स्केल कीट व पायरिला जैसे प्रमुख कीटों व पीली पत्ती तथा पोक्का बोएंग रोगों की निगरानी के लिए जैव नियंत्रण केंद्र, प्रवरानगर में सर्वेक्षण किया गया।
- गन्ने के बेधक समूह के नियंत्रण के लिए ट्राइकोग्रामा किलोनिस के अंड परजीव्याभों का बहुगुणन करके खेत में निर्गत किया गया।

#### Survey and surveillance of insect pests and diseases of sugarcane

Surveys were conducted at the Biological Control Centre, Pravaranagar, Maharashtra for the seasonal prevalence of major insect-pests and diseases of sugarcane in the command and uncommand area of Dr. Padmashri Vitthalrao Vikhe Patil Sahkari Sakhar Karkhana Ltd., Pravaranagar. The following major insect-pests and diseases were recorded:

##### (i) Insects

**White fly (*Aleurolobus barodensis*):** Blackened spots at the dorsal side of leaves were recorded as the typical symptoms of pest incidence. The incidence of white fly was mostly observed in poorly drained moist soil coupled with the high temperature and high humidity. During July 2017, the incidence of whitefly was recorded on 600 ha area covered by four sugarcane varieties viz., CoM 265, Co 86032, VSI 8005 and MS 10001 with severe infestation on CoM 265. The most affected villages surveyed were Loni (Bk), Loni (Kh), Ashwi, Dadh, Pratappur, Umbri, Chinchpur, Pathare, Kolhar, Fatyabad, Dhanore, Lohgaon, Tijgaon and Hasanapur. Naturally, pest incidence was reduced due to rain in the last week of July 2017 after long dry spell.

**White grub (*Holotrichia serrata* and *H. consanguinea*):** During the survey in Maharashtra, *H. Serrata* and *H. consanguinea* species was recorded in Pravaranagar area



whereas *Leucopholis lepidophora* was observed in Sangli and Kolhapur. The natural occurrence of white grub was seen during first week of July and continued till first week of October, 2017. The white grub infestation in sugarcane was ranged from 30% to 90% in different villages like Rajuri, Mamdapur, Tisgaon, Kolhar, Loni, Chinchpur and Durgapur.

**Early shoot borer (ESB; *Chilo infuscatellus*):** The natural incidence of ESB was recorded during three-four months growth stage of the planted and ratoon crop. The occurrence of dead heart was the most typical symptoms observed under field conditions. The incidence of ESB was ranged from 10% - 25% in different villages like Pathare, Loni, Rajuri, Dadh, Kolhar, Tijgaon, Chicholi, Ashwi, Lohagaon and Chinchpur. Apart from these major pest incidences, sugarcane was also infested in traces by other pests such as internode borer (*Chilo sacchariphagus*), Pink borer (*Sesamia inferens*), Woolly aphid (*Ceratovacuna lanigera*) Scale insect (*Melanaspis glomerata*) and Pyrilla (*Pyrilla purpusilla*).

## (ii) Diseases

Surveys were conducted in Dadh area in planted crop and recorded incidence of yellow leaf disease (YLD) in more than 50 sugarcane genotypes maintained. The symptoms of the disease were recorded on YLD affected genotypes. Out of the total 50 genotypes, Co 11012, Co 12012, MS 14082, CoM 11082, CoM 11085 were found free from the disease. Whereas, severe incidence of 80% was recorded on Co 12019. In rest of the 44 genotypes, it ranged from 6.1% to 49.5%. Incidence of smut 5-10% was recorded on CoM 11081 and CoM 11082. Incidence of pokkah boeng 10-20% in ratoon and 1-5% in planted crops was observed in CoM 265 sugarcane variety at Bhableswar and Kolhar area. Similarly, the incidence of brown spot during the rainy season was recorded in sugarcane varieties CoM 265 and VSI 8005 at PDVVPSSK, Pravaranagar area.

## Mass multiplication and field release of egg parasitoid *Trichogramma chilonis* against borer complex of sugarcane

The effective bio-control agent, an egg parasitoid *Trichogramma chilonis* is employed for effective management of borer complex of sugarcane (early shoot, internode and top shoot borer). The *T. chilonis* was reared on its natural insect host (rice mealworm, *Corcyra cephalonica*) in laboratory and more than 2,500 green trichocard strips were prepared and distributed (1,800 strips) to 220 sugarcane growers in an area of about 450 acres for the field colonization against ESB in the command area of PDVVPSSK Ltd., Pravaranagar.

## Screening and evaluation of Entomopathogenic Nematodes (EPN) against white grubs in Maharashtra

The nucleus cultures (eggs) of *Galleria mellonella* were procured from ICAR-IARI, New Delhi and ICAR-NBAIR, Bengaluru. The *Galleria* larvae allowed to feed on artificial diet contained mixture of wheat bran, honey, glycerol, yeast extract and milk powder. The adult males were smaller in size and light brown in colour while females were larger than males and dark brown in colour. The eggs were oval and cream colour and laid in clusters. Egg hatching of *Galleria* occurred at about 30°C and neonates were fed on fresh artificial diet. There are 6 larval instars which pupate in cocoons spun by last larval instar. The 4<sup>th</sup> larval instars of *Galleria* were used for isolation, rearing, bio-efficacy and screenings of EPN isolates. Using soil bait technique, an indigenous isolate of EPNs (*Heterorhabditis* spp.) was isolated and reared on *Galleria* larvae for its *in vivo* mass production.

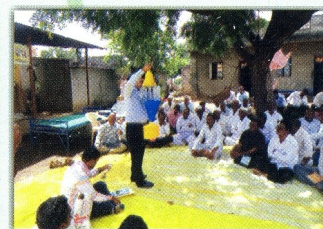
## Genetic diversity and transmission of pathogens causing Yellow Leaf Disease in sugarcane

Incidence of YLD was recorded in 50 sugarcane genotypes planted during January 2017 in an alpha design at Dr. Padmashri Vitthalrao Vikhe Patil Sahkari Sakhar Karkhana Ltd., Pravaranagar. The YLD affected sugarcane genotypes exhibited variety of symptoms that include mild yellowing of the mid-ribs, severe yellowing of the mid-ribs, necrosis of leaves from tip to downward, necrosis of whole plant and reduction in the length of the internodes. Incidence of YLD on the cane basis was ranged from 5% to 60% in these genotypes.

## TRANSFER OF TECHNOLOGY

### Frontline Demonstrations

- For fast spread of newly released cane varieties, twenty FLDs on seed cane production technology was conducted in farmers' fields in Sitapur, Lakhimpur, Barabanki, Ballia and Shrawasti districts of Uttar Pradesh and Motihari district of Bihar. Seed cane crop of varieties CoLk 94184, CoPk 05191, Co 05011, CoH 128, Co 0118, CoLk 09204, Co 0238, Co 98014, CoS 08272, Co 0232 and Co 0233 was raised in demonstration fields with recommended package of practices. Demonstrations on Ratoon Promoter were conducted at farmers' fields in command area of Biswan Sugar Mill, Biswan, Sitapur (U.P.) covering 10 villages, 20 cane growers and 10.00 ha area.
- A field demonstration of IISR-Combo-Insect Trap was carried out in the farmers' field at Mamdapur village of Pravaranagar (MS). The demonstration was conducted to showcase the technology for the famers from Rajuri and Mamdapur village. A farmer session/*goshti* was also organized for dissemination of the knowledge about pest biology and techniques for management of insect-pests.



## Establishment of Bael Orchard as a Demonstration Unit at KVK, ICAR-IISR

In view of its medicinal and economic importance, a programme on planting of *Bael* was initiated by Dr. A.D. Pathak, Director, ICAR-IISR, Lucknow at KVK farm of IISR on August 31, 2017. On this occasion, Dr. S.K. Shukla, PC (Sugarcane), Head of the Divisions, Officers in-charges and





Scientists of the Institute were also present. The planting of *Bael* was carried out in an area of 1.1 ha using varieties viz. Narendra Beal-5, Narendra Beal-7, Narendra Beal-9, CISH Bael-1 and CISH Bael-2 at the spacing of 8 x 8m on KVK farm. The programme was aimed to establish mother plant of different varieties of bael to develop healthy and genetically pure planting material for distribution to the farmers as well as for the development of a demonstration unit with intercropping of different annual and perennial horticultural and field crops. On this occasion, Dr S.N. Singh, Principal Scientist and Head, KVK informed that the planting material of *Bael* plantation will be developed and distributed to the farmers besides imparting training to them on this aspect.

बेल के महत्व को देखते हुए दिनांक 31 अगस्त 2017 को कृषि विज्ञान केंद्र, भाकृअनुप-भारतीय गन्ना अनुसंधान संस्थान द्वारा 1.1 हेक्टेयर क्षेत्र में बेल की विभिन्न प्रजातियों, नरेंद्र बेल-5, नरेंद्र बेल-7, नरेंद्र बेल-9, सीआईएसएच बेल-1 एवं सीआईएसएच बेल-2 का रोपण 8x8 मीटर की दूरी पर किया गया। संस्थान के निदेशक, डॉ. ए.डी. पाठक ने बेल के पौधे का रोपण करके इसके गुणों के बारे में अवगत कराया। इस प्रदर्शन इकाई को देखकर किसानों को प्रेरित करने और माननीय प्रधान मंत्री जी की महत्वाकांक्षी योजना के अनुरूप कृषकों की आय दोगुना करने के उद्देश्य से बेल बाग का विकास कृषि विज्ञान केंद्र, लखनऊ में किया गया। इस अवसर पर केंद्र के प्रमुख, डॉ. एस. एन. सिंह ने इसके महत्व के बारे में बताया तथा इसमें सह फसली खेती करने के लिए कृषकों को प्रेरित भी किया।

### Students Visit under Inter-institutional HRD Activities

Under inter-institutional HRD activity, visits of students and teachers from SHUATS, Allahabad; BHU, Varanasi; Amity University, Lucknow; Christian College, Lucknow; SRM College, Lucknow were conducted. About 300 UG/PG students visited ICAR-IISR. During their visit, they were imparted information on IISR research infrastructure, achievements and technologies developed through orientation lecture and visit to labs and fields.

### ICAR-IISR Exhibitions

The Institute participated in different programmes and events that were organized outside Lucknow and/or at other ICAR Institutes. These are as follows:

- “*Sankalp Se Siddhi*” programme organized under New India Movement (2017-2022) at ICAR-Indian Institute of Sugarcane Research, Regional Centre, Motipur (Bihar) on September 10, 2017
- Agriculture Exhibition of ICAR, Krishi Bhawan, New Delhi at Pandit Deendayal Upadhyaya Dham, Mathura on September 22-25, 2017
- All India Farmers' Fair and Agricultural Industry Exhibition at Chandra Shekhar Azad University of Agriculture and Technology, Kanpur on October 5-8, 2017
- Exhibition at ICAR-Central Institute for Subtropical Horticulture, Lucknow on November 30, 2017
- Exhibition at ICAR-Indian Institute of Pulses Research, Kanpur on December 2, 2017.

### Secretary, Agriculture, Cooperation & Farmers' Welfare, Govt. of India Visited ICAR-IISR

One day meeting on “Evolving strategies for enhancing wheat production with special reference to management of wheat rust and Karnal bunt disease in sugarcane based cropping systems of UP” was held at ICAR-IISR, Lucknow. Sh. S.K. Pattanayak, Secretary, Department of Agriculture, Cooperation and Farmers Welfare, Govt. of India inaugurated the meeting. Chairing the inaugural session, Sh. Pattanayak urged the Scientists to monitor the disease incidence of wheat rust and Karnal bunt disease which is emerging as a major challenge for wheat production. He informed that Lucknow was selected as venue for sensitizing the Scientists and development officials of the State to regularly monitor the incidence of these devastating diseases for its timely management. Sh. Pattanayak also visited laboratories, Engineering Workshop and Technology Park of the ICAR-IISR, Lucknow. During his visit to the Institute, he was apprised in detail about sugarcane technology developed by the Institute including machines, varieties and crop production technology. Sh. Pattanayak appreciated the efforts of the ICAR-IISR, Lucknow in developing remunerative cane production technology and outreach activities for disseminating technology to the end users.



भारतीय गन्ना अनुसंधान संस्थान में 6 अक्टूबर 2017 को आयोजित ‘गेहूँ में उत्पादन वृद्धि हेतु पीला रतुआ तथा करनाल बंट रोग के प्रबंधन की रणनीति’ पर आयोजित एक दिवसीय बैठक का उद्घाटन, श्री एस.के. पटनायक, सचिव, कृषि, सहकारिता एवं किसान कल्याण विभाग, कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार द्वारा किया गया। उद्घाटन सत्र की अध्यक्षता करते हुए श्री पटनायक ने गेहूँ उत्पादन करते समय पीला रतुआ एवं करनाल बंट के रोग के आपतन पर ध्यान रखने हेतु वैज्ञानिकों का आह्वान किया। इस अवसर पर डा. बी. राजेन्द्र, विशेष सचिव (फसलें), भारत सरकार; श्री राज प्रताप सिंह, कृषि उत्पादन आयुक्त, उत्तर प्रदेश सरकार; श्री सुधीर गर्ग, प्रधान सचिव (कृषि एवं बागवानी), उत्तर प्रदेश सरकार; डा. आई. एस. सोलन्की, सहायक महानिदेशक, भाकृअनुप व डा. जी.पी. सिंह, निदेशक, भारतीय गेहूँ एवं जौ अनुसंधान संस्थान, करनाल भी उपस्थित थे। श्री पटनायक ने संस्थान के तकनीकी पार्क, प्रयोगशालाओं व कृषि अभियंत्रण की कार्यशाला का भी भ्रमण किया। उनको गन्ना उत्पादन प्रौद्योगिकी में किए गए नवीनतम शोध कार्यों के बारे में भी जानकारी दी गयी। श्री पटनायक ने संस्थान के गन्ना अनुसंधान एवं विकास के कार्यों में संस्थान के प्रयासों की सराहना की।



## Dr. A.K. Singh, DDG (HS & CS) Visited ICAR-IISR, Lucknow

Dr. A.K. Singh, DDG (HS and CS), ICAR and Dr. R.K. Singh, ADG (CC), ICAR visited IISR, Lucknow on November 22, 2017. They visited various field experiments and laboratories and reviewed on-going R & D activities of the Institute. Various sugarcane technologies displayed in the Technology Park of the Institute were shown to them and explained in detail about potentiality of showcased technologies in enhancing farmers' income. They appreciated the efforts for wonderful display of technologies in Technology Park. Dr. A.K. Singh also chaired the meeting of Varietal Identification Committee held at ICAR-IISR, Lucknow.

Addressing the Scientists and Staff of the Institute, Dr. A.K. Singh appreciated the Institute Scientists for their wonderful achievements. He called upon the Scientists to develop improved varieties and production technologies of sugarcane which may be able to cope up with the future challenges, including the problems of climate change. He urged the scientists to put their sincere efforts in cutting down the cost of production for doubling the farmers' income by the year 2022. He appreciated the efforts of the ICAR-IISR in signing a MoU with DSCL Sugar Group for increasing the income of sugarcane farmers in eight adopted villages. He also urged the Scientists to promote technology driven innovations. Dr. Singh appreciated the efforts of the Division of Agricultural Engineering in developing number of machineries for mechanizing sugarcane cultivation which is labour intensive crop. Terming development of a Whatsapp Group of farmers as a welcome step for sugarcane farmers in suggesting suitable remedies for coping up with their problems, Dr. Singh called upon the scientists to follow up them also about the results received after adopting the suggested measures at the farmers



डॉ. ए.के. सिंह, उपमहानिदेशक (बागवानी विज्ञान एवं फसल विज्ञान), भाकृअनुप तथा डॉ. आर.के. सिंह, सहायक महानिदेशक (व्यावसायिक फसलें), भाकृअनुप ने भारतीय गन्ना अनुसंधान संस्थान, लखनऊ का 22 नवम्बर 2017 को भ्रमण किया। उन्होंने संस्थान के विभिन्न शोध परीक्षणों एवं प्रयोगशालाओं का भ्रमण करके संस्थान में चल रही शोध एवं विकास की परियोजनाओं की समीक्षा की। विशिष्ट अतिथियों को संस्थान के तकनीकी पार्क में प्रदर्शित विभिन्न गन्ना प्रौद्योगिकी को दिखाकर किसानों की आय में वृद्धि करने की क्षमता के बारे में विस्तार से बताया गया। उपमहानिदेशक महोदय ने तकनीकी पार्क में प्रदर्शित प्रौद्योगिकी के सुन्दर प्रदर्शन पर संस्थान के प्रयासों की सराहना की।

end. He encouraged the scientists to work for the farmers with more sincerity and assured them that they will be suitably rewarded by the Council for their outstanding contributions by their painstaking efforts towards the prosperity of farming community. Dr. Singh also urged the scientists to calculate the carbon sequestered by sugarcane which is a C<sub>4</sub> crop and bring it to the notice of LDA and CPCB to explain the role of sugarcane crop in controlling pollution and playing a pivotal role in the current scenario of climate change.

## Cane Commissioner, Andhra Pradesh Led Delegation Visited ICAR-IISR, Lucknow

Sh. L. Murali, Director of Sugar & Cane Commissioner, Govt. of Andhra Pradesh led delegation of R & D officers visited ICAR-Indian Institute of Sugarcane Research, Lucknow on July 11, 2017. Sh. V. Venkatarao, Deputy Cane Commissioner, Department of Sugar, A.P.; Sh. G. Mutyalu, Assistant Cane Commissioner, Bobbili; Sh. G.V.V. Satyanarayana, Assistant Cane Commissioner, Ankapalle; Sh. V. Sanyasinaidu, Managing Director, The Thandava Cooperative Sugars Ltd., Payakaraopeta, Visakhapatnam; Sh. D. Venkateswararao, Managing Director, the Etikoppaka Cooperative Agricultural & Industrial Society Ltd., Etikoppaka, Visakhapatnam; Sh. K.R. Victor Raju, Managing Director, The Chodavaran Cooperative Sugars Ltd., Govad, Visakhapatnam; Sh. D. Narayana Rao, Sri Vijayarama Gajapathi Cooperative Sugars Ltd., Bhimsinghi, Vijayanagaram; Dr. M. Bharathalakshmi, Principal Scientist (Sugarcane), Regional Agricultural Research Station (ARS), Ankapalle and Dr. M. Hemanth Kumar, Principal Scientist (Breeding), ARS, Perumallipalli were other members of the delegation.

Sh. L. Murali, Director of Sugar & Cane Commissioner, Govt. of Andhra Pradesh informed that area under sugarcane in the State which was 2.64 lakh ha during 2006-07 has been reduced to 1.03 lakh ha during 2016-17. Similarly, the cane production of AP has also declined to 7.96 lakh tonnes as productivity declined from 82.2 t/ha to 66 t/ha during the corresponding period. He informed that the objective of visit of delegation was to study the factors responsible for higher production and productivity of sugarcane in Uttar Pradesh. The delegation was informed that improved variety Co 0238 and CoLk 94184 are playing a vital role in improving production and productivity of sugarcane in U.P., but these varieties cannot be recommended for planting in A.P. Several sugarcane machines were demonstrated for sugarcane cultivation. These machines could play effective role in improving quality of operation and cost reduction in Andhra Pradesh also.

Highlighting salient achievements of the Institute, Dr. S.K. Shukla, Project Coordinator, AICRP on Sugarcane informed that during 2016-17, Uttar Pradesh has surpassed national average sugarcane yield and the state recorded 72.4 t/ha cane





yield. He apprised that low productivity of sugarcane in sub-tropical India is due to the high temperature coupled with desiccating winds during growth phases, low temperature during germination phase and erratic distribution of rainfall, water stress during tillering/formative phase and water logging during elongation in eastern parts of subtropical region. Small holding size of sugarcane farmers and delayed sugarcane planting owing to rice-wheat system. He also informed about IISR varieties, crop production and protection technology along with machines developed during the research journey of the Institute.

The Institute also coordinated the visit of delegation with the Cane Commissioner, UP, with the cane development staff of Biswan, Nigohi and Azbapur sugar mills and the scientists of U.P. Council of Sugarcane Research, Shahjahanpur during four day visit of U.P.

श्री एल. मुरली, चीनी निदेशक एवं गन्ना आयुक्त, आंध्र प्रदेश सरकार के नेत्रत्व में गन्ना शोध एवं विकास से जुड़े एक प्रतिनिधिमंडल ने 11 जुलाई 2018 को संस्थान का भ्रमण किया। डॉ. एस.के. शुक्ल, परियोजना समन्वयक (गन्ना) ने संस्थान की मुख्य उपलब्धियों पर विस्तार से चर्चा की। प्रतिनिधिमंडल ने गन्ने की उच्च उत्पादकता तथा अधिक चीनी परता वाली व रोग व कीट रोधी प्रजातियों के बारे में जानने की उत्सुकता दिखाई। उनको संस्थान से विकसित गन्ने की खेती में प्रयुक्त होने वाली तकनीकों के बारे में विस्तृत जानकारी दी गयी जिसे आंध्र प्रदेश में अपनाकर गन्ना उत्पादन में वृद्धि के साथ-साथ उत्पादन लागत में भी कमी लायी जा सकती है। बैठक में संस्थान के सभी वैज्ञानिकों ने भाग लिया। प्रतिनिधिमंडल ने बिसवां, निगोही व अजबापुर चीनी मिलों का भी भ्रमण किया।

## PARTICIPATION IN NATIONAL CAMPAIGNS

### Swachchhta Mission

IISR, Lucknow organized *Swachchh Bharat* Mission Anniversary through launching of a campaign “*Swachchhta Hi Seva*”. The programme was launched at the Institute Campus by Dr. S.K. Shukla, PC (Sugarcane) by administering *Swachchhta Shapath* by all the Scientists and staff of the Institute. The employees took the oath to devote 100 hours per year for observing *Swachchhta* in their homes, mohallas, villages and working places.

An Office Order Writing competition for Institute's employees was organized on the occasion. The Institute celebrated ‘*Sewa Diwas*’ on September 17, 2017, in which all employees devoted two hours in the cleaning and sweeping of the entire campus/premises of the Institute.

The Institute celebrated ‘*Samagra Swachchhta Diwas*’ on September 24, 2017 in which all employees cleaned the village Berura in Block Sarojani Nagar of Lucknow. All the scientists and staff walked to the villagers' homes/huts and highlighted

the importance of cleanliness to the residents. The employees performed “*Shramdaan*” and “*Plantation*” in the village. On this occasion, the villagers were motivated to build toilets in their homes or community toilets and use them to prevent from number of diseases.

The Institute celebrated ‘*Sarwatra Swachchhta Diwas*’ on September 25, 2017 in which all employees devoted their services to the cleaning and sweeping of famous Kakori Martyr Memorial, Lucknow. On this occasion, Dr. M.R. Singh, Head, Division of Crop Protection paid the homage to the martyrs and remembered them for their immense contributions to the freedom struggle. The IISR team cleaned the premises of the Martyr Memorial and *Shaheed Smarak* Temple.

The Institute celebrated *Swachchhta* of nearby tourist spot on October 1, 2017 in which all employees devoted their services to the cleaning and sweeping of Eco-Garden, Lucknow. On this occasion, the IISR team under the leadership of Dr. A.D. Pathak, Director, IISR cleaned the premises of the Eco-Garden. The scientists and employees performed ‘*Shramdaan*’ in the Eco-Garden and participated in this drive in a big way. On October 2, 2017, the nearby areas of KVK was cleaned.



भाकृअनुप-भारतीय गन्ना अनुसंधान संस्थान, लखनऊ में 15 सितंबर से 2 अक्टूबर 2017 के मध्य ‘स्वच्छता ही सेवा’ नामक चलाए गए अभियान के अंतर्गत दिनांक 17 सितंबर 2017 को ‘सेवा दिवस’ के रूप में मनाया गया। कार्यक्रम का शुभारंभ, डॉ. सुधीर कुमार शुक्ल, परियोजना समन्वयक, अखिल भारतीय समन्वित गन्ना अनुसंधान परियोजना ने संस्थान के सभी कर्मियों को अपने कार्यस्थल, निवासस्थल, विद्यालयों, बाजारों, पार्कों व निकटवर्ती स्थानों को स्वच्छ रखने हेतु दृढ़संकल्पित होने हेतु आह्वान किया। इस अवसर पर वैज्ञानिकों, अधिकारियों तथा कर्मचारियों द्वारा संस्थान परिसर तथा आस-पास के क्षेत्रों में स्वच्छता हेतु श्रमदान किया गया। दिनांक 24 सितंबर 2017 को ‘समग्र स्वच्छता दिवस’ के अंतर्गत सरोजिनी नगर खंड के बेरुआ नामक ग्राम की स्वच्छता हेतु श्रमदान किया गया।

दिनांक 25 सितंबर 2017 को ‘सर्वत्र स्वच्छता दिवस’ के अंतर्गत लखनऊ स्थित ऐतिहासिक “काकोरी शहीद स्मारक” की सफाई की गई। दिनांक 01 अक्टूबर 2017 को ‘सेवा दिवस’ के अंतर्गत निकटवर्ती पर्यटक स्थल ‘इको गार्डन’ की स्वच्छता हेतु श्रमदान किया गया। दिनांक 02 अक्टूबर 2017 को कृषि विज्ञान केंद्र के आस-पास के क्षेत्र की सफाई की गई।





## CAPACITY BUILDING

### Training Programme on “Development of Soft Skills for Attaining Excellence in Science” Organized

Under the auspices of NAAS, Lucknow Chapter, a one day training programme on “Development of soft skills for attaining excellence in science” was organized at ICAR-IISR, Lucknow on September 12, 2017. Dr. P.K. Chhonkar, Adjunct Faculty, ICAR-IARI and Ex-Head and Prof. ICAR delivered the interactive talks spread in three sessions namely interpersonal relationships and group work, improving work place and home environment and finally physical and mental fitness for higher output in ICAR Institutes. Dr. A.D. Pathak, Director, ICAR-IISR, Lucknow welcomed the participants and other dignitaries. Dr. P.S. Pathak, Former Director, ICAR-IGFRI, Jhansi and Convener, NAAS, Lucknow Chapter introduced the speaker. Dr. K.K. Lal, Director, ICAR-NBFGR, Lucknow and Dr. D.K. Sharma, Former Director, ICAR-CSSRI, Karnal graced the occasion. Scientists from ICAR-IISR, ICAR-NBFGR and ICAR-CSSRI RRS, Lucknow attended the programme. Dr. Amaresh Chandra, Organizing Secretary proposed the vote of thanks.



### ICAR Sponsored Ten Days Short Course Organized

ICAR sponsored ten days Short Course on “Modern genomic tools and breeding strategies for biotic and abiotic stress management in sugarcane” was organized at ICAR-Indian



Institute of Sugarcane Research, Lucknow from October 25 to November 3, 2017 with Dr. Sanjeev Kumar, Principal Scientist (Agricultural Biotechnology) as Course Director and Dr. J. Singh, Principal Scientist (Plant Breeding) and Dr. Somnath K. Holkar, Scientist (Plant Pathology) as Course Coordinators. Fifteen candidates including two women participated having backgrounds like Genetics and Plant Breeding, Biotechnology, Biochemistry, Microbiology, etc. The Short Course was inaugurated by Dr. K.K. Lal, Director, ICAR-National Bureau of Fish Genetic Resources, Lucknow. The Short Course ended on November 03, 2017. Dr. Ram K. Singh, Assistant Director General (Commercial Crops), ICAR, New Delhi graced the valedictory session. The compendium of the lectures including laboratory protocols in the form of a Training Manual was released on this occasion.

### Capacity Building Programme for Cane Managers of Sugar Industry

A 15 days sponsored training on Sugarcane Management and Development for cane development personnel of sugar mills was organized at ICAR-Indian Institute of Sugarcane Research, Lucknow from July 1-15, 2017. A total of 24 cane managers/officers from different sugar mills of the country participated in this training. The major objective of this training was to groom cane development officers of sugar mills in latest cane production and processing technology and update them with latest sugarcane development technology as a step towards its large scale adoption in sugar mill zone areas.





## AWARDS/HONOURS

### Awards/Recognition

- Institute's *Rajbhasha Patrika "Ikshu"* bagged *Rajbhasha Kirti Puraskar* (First Prize) for the year 2017-18 in the 'Ka' region.



- Institute's *Rajbhasha Patrika "Ikshu"* bagged *Ganesh Shankar Vidhyarthi Puraskar* (First Prize) of Indian Council of Agricultural Research for the year 2016-17.



- Dr. A.K. Mall was conferred Young Professional Award 2017 by the Society for Community-Mobilization for Sustainable Development, New Delhi on November 10, 2017.
- Dr. A.K. Sah was conferred Excellence in Appreciation Award by the SVWS in National Seminar on Farmer Centric Cinema held on October 14-16, 2017.

- Dr. S.K. Holkar was conferred Young Sugarcane Scientist Award by the Bhartiya Sugar Industry, Kolhapur on July 28, 2017.
- Dr. Rakesh Kumar Singh was conferred "Excellence in Research Award" by the Samagra Vikas Welfare Society in National Seminar on Farmer Centric Cinema held on October 14-16, 2017.

- संस्थान की राजभाषा पत्रिका 'इक्षु' को राजभाषा विभाग, गृह मंत्रालय, भारत सरकार द्वारा 'क' क्षेत्र के लिए वर्ष 2017-18 का राजभाषा कीर्ति पुरस्कार (प्रथम पुरस्कार) से पुरस्कृत किया गया।
- संस्थान की राजभाषा पत्रिका 'इक्षु' को भारतीय कृषि अनुसंधान परिषद द्वारा गणेश शंकर विद्यार्थी पुरस्कार (प्रथम पुरस्कार) से पुरस्कृत किया गया।
- डा. ए.के. साह, प्रधान वैज्ञानिक (प्रसार एवं प्रशिक्षण) को सोसायटी फॉर कम्युनिटी मोबलाइजेशन द्वारा 10 नवम्बर 2017 को *यंग प्रोफेशनल एवार्ड* से सम्मानित किया गया।
- डा. ए.के. साह को समग्र विकास वेलफेयर सोसायटी द्वारा 14 अक्टूबर 2017 को *एप्रेसिएशन एवार्ड* से पुरस्कृत किया गया।
- डा. एस.के. होल्कर, वैज्ञानिक, जैव नियन्त्रण केन्द्र, प्रवरानगर को इण्डियन शुगर इन्डस्ट्री, कोल्हापुर द्वारा 28 जुलाई 2017 को 'युवा गन्ना वैज्ञानिक पुरस्कार' से पुरस्कृत किया गया।
- डा. राकेश कुमार सिंह, विषय वस्तु विशेषज्ञ (पशु विज्ञान), कृषि विज्ञान केन्द्र को समग्र विकास वेलफेयर सोसायटी द्वारा 14 अक्टूबर 2017 को *एक्सेलैन्स इन रिसर्च एवार्ड* से पुरस्कृत किया गया।

### ISO 9001:2015 Certification to ICAR-IISR

ICAR-Indian Institute of Sugarcane Research, Lucknow got ISO 9001:2015 Certification on December 4, 2017 vide certificate No. BN 18119/16812 for the period of three years.



**प्रकाशक** - डॉ. ए.डी. पाठक, निदेशक  
**सम्पादक** - डॉ. एल.एस. गंगवार, प्रधान वैज्ञानिक  
 डॉ. ए.के. शर्मा, प्रधान वैज्ञानिक  
 श्री ब्रह्म प्रकाश, मुख्य तकनीकी अधिकारी

भाकृअनुप-भारतीय गन्ना अनुसंधान संस्थान

पोस्ट दिलकुशा, लखनऊ - 226 002

☎ +91-522-2480726, 2491800, 2491999, फैक्स: 0522-2480738

वेबसाइट : [www.iisr.nic.in](http://www.iisr.nic.in),

ई-मेल : [director.sugarcane@icar.gov.in](mailto:director.sugarcane@icar.gov.in)

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 Dr. A.K. Sharma, Principal Scientist  
 Mr. Brahm Prakash, Chief Technical Officer

**ICAR-Indian Institute of Sugarcane Research**

P.O. Dilkusha, Lucknow - 226 002

☎ +91-522-2480726, 2491800, 2491999, Fax: 0522-2480738

Website: [www.iisr.nic.in](http://www.iisr.nic.in),

E-mail: [director.sugarcane@icar.gov.in](mailto:director.sugarcane@icar.gov.in)