

Holistic Development of Indian Sugar Industry



Sugarcane as a cash crop remains to be the major contributor to Indian economy and employment generation for rural youth in the country. Sugar Industry contributes about 2500 crore rupees as tax to both central and state governments. The industry size in terms of capital is more than Rs. 40,000 crore. Almost 50 million people depend on sugar industry for their livelihood. During last few decades several studies have been conducted by committees headed by Mahajan, Tuteja, ISMA, Rangarajan and others on sugar sector in India. In all the studies major emphasis was on integration of stakeholders viz., technologists, researchers, breeders, farm and process equipment manufacturers, logistic players, traders, distillers, bankers, policy makers etc. and to bring them on a common platform for the inclusive growth of Indian sugar industry.

Sustainable sugarcane yield and sugar recovery must focus on evolving new genotypes which are superior over the existing ones. Emphasis should be on developing new varieties with more specific characteristics such as high biomass, sucrose & fibre content, specifically adapted to drought and

high rainfall areas. Genetics and inheritance studies on characters of agronomic importance, resistance to major diseases and morphological characteristics such as self de-trashing, Genome mapping using the most recent biotechnological advances and marker assisted selection should be essential component of varietal improvement programme. Tissue culture technology for mass multiplication of quality seed in sugarcane may be helpful in increasing cane yield.

A paradigm shift in sugarcane husbandry research is desirable to achieve reduction in cost of production, optimization of cane crop cycle, enhanced physiological efficiency by reducing germination period and rapid tillering, efficient and balanced use of nutrients, improved cultural operations, efficient irrigation techniques etc. Bio-intensive technology module for diseases and insect-pests management for reducing chemical load in the agro-eco system and cane culture manipulation based on behavioural studies of insect-pests could be more appropriate strategy for crop protection in time to come. To minimize the adverse effects of labour shortage and to reduce costs of production, mechanization in sugarcane need to be further intensified, encompassing planting, intercultural & harvesting operations, GIS assisted farm layout and field planning and improving efficiency of transport system.

Better infrastructure in irrigation, power and proper roads for transportation of sugarcane from field to mills are areas where policy makers should take decisions for well-being of the sugar sector. The prosperity of the sugar industry is also closely linked to continuous modernization and technology upgradation for cost cutting and taking advantage of economies of scale. The technology upgradation of the industry is important to ensure its global competence and it should be driven by enhanced capital output ratio, improvement in plant efficiencies, energy conservation, optimizing cost of consumables and impact of sugar quality on price realization. The transport component of the sugarcane supply chain is one area where significant savings can be realized at a relatively low cost. One of the main cause of the inefficiency is the lack of a single centre to coordinate the system holistically and that need introduction of dynamic vehicle scheduling to avoid excessive queuing times, large numbers of no-cane-stops and poor vehicle utilization.

A high level of cooperation is required between farmers, harvest contractors, transport contractors and mill managers to ensure that the mill receives a steady stream of fresh cane. As small farmers constitute majority of growers base, the industry should take initiative for sharing of high cost farm equipments and harvesting by grower owned co-operatives. Last but not the least, the continuous upgradation of human resource skills through training and other programmes inclusive of motivation and reward should be the focus of strategy aimed to enrich manpower and knowledge skills critical for holistic development of the sugar industry.

S. Solomon

(S. Solomon)



SECTORAL NEWS : SUGARCANE AND SUGAR INDUSTRY

National Seminar on Mechanization of Sugarcane Harvesting

A National Seminar on *Mechanization of Sugarcane Harvesting- Opportunities and Challenges* jointly organized by IISR, Lucknow and Sugar Technologists' Association of India, New Delhi was held at IISR on April 27, 2012. The seminar was inaugurated by Mr. N. C. Bajpai, Dyputy Chairman, Planning Commission, UP Govt. Mr. Bajpai in his inaugural address appealed IISR scientists and delegates from R & D institutions to come out with a sound actionable plan to develop cost effective mechanical sugarcane harvester in near future. Dr. G. B. Singh, Ex. DG, UPCAR and Ex. DDG, ICAR, Guest of Honour at



the occasion, clearly spelt out the urgent need of mechanizing sugarcane harvesting. Dr. S. Solomon, Director, IISR said that the Institute has developed many sugarcane machines like Sett cutting machine, planter, RMD, RBS planter etc. in the past which benefited farmers and sugar industry at large. He also reminded IISR commitment to develop mechanical harvester and informed the august gathering that IISR may come out with mechanical harvester very soon as a prototype has been developed and field verification is under progress. Dr. G. S. C. Rao, President STAI and Chief Executive, Shimbhaoli Sugars remarked that there is urgent need to increase sugarcane productivity and enhance farmers' income. This can be achieved by technological advancements and development of sugarcane harvester may be most desirable one. In the seminar about 150 delegates comprising senior bureaucrats, scientists, implements manufacturers, and senior officers from sugar & allied industry and progressive sugarcane farmers have participated.

R&D Road-Map for Sugar Industry of North India

IISR formulates a R&D Road Map to address the concern of sugar industry operating in sub tropics viz., UP, Haryana, Punjab, Bihar, Madhya Pradesh. To address & give refelction of concerns of sugar industry in this Road-Map IISR scientists interacted with senior officials of many sugar groups like Mawana, Shimbhaoli, DSCL, Triveni, Shadi Lal Enterprise, Sekasaria and visited cane growing areas for better understanding and diagnosis of most inflicting problems in cane cultivation. All the inputs derived were put into a frame to develop R&D Road map and was finalized in Research Advisory Committee meeting held under the Chairmanship of Dr. S. Nagarajan, Ex. Chairperson, PPV&FRA, Govt. of India.

Dr. Solomon, Director presented the salient features of this R&D map to the honorable members of RAC and emphasize that with support of sugar industry IISR will start its implementation as early to benefit the marginalized sugar industry and cane growers of sub tropics in India. The present R&D map is targeted to enhance sugarcane yield in sub tropics from average 55-60 t/ha to 80-100 t/ha with corresponding increase in sugar recovery from present average of 9.5 to 10.5-11.0% in coming years. Many interventions viz., increasing soil organic carbon and enriching soil with micro nutrients, developing sugarcane varieties suitable for drought, flood and saline condition, bio-intensive technology module to curtail the disease like GSD, insect-pests like borers, termite, white grub will be introduced in the sugarcane field. To address the problem of labour scarcity and high cost, the effort will be applied to mechanize cane cultivation operations like planting, interculturing, harvesting etc. In the road map emphasis is also given to develop high sugar and high fiber variety in order to promote co-generation and ethanol production capacity of sugar mills in coming years to address the National concern for energy requirement. To groom and develop the cane development staff of sugar mills as prospering and forward looking managers, IISR will organize human resource development training for sugar industry personnel. Dr. S. Nagarajan and other members of RAC applauded the IISR efforts to come out with much needed R&D road map and emphasized on its implementation in Public-Private Partnership (PPP) mode.

Sugarcane Breeders and Pathologists Meet

Sugarcane breeders and pathologists Meet was organized by SBI, Coimbatore in collaboration with AICRP on Sugarcane, Lucknow and the Society for Sugarcane Research & Development, Coimbatore on January 23, 2012 at SBI, Coimbatore. About 60 participants from across the country attended the meet. Dr. N. V. Nair, Director, SBI in his theme address stated that demand of sugar and alcohol is ever increasing and high cost of sugarcane production is matter of concern. He recalled that yields of existing varieties is very high and above 250 t/ha has been achieved by some farmers, but such varieties and technologies have not been fully exploited. He pointed out that some good varieties like Co86032 and CoC 671 which are susceptible to red rot sustained in cultivation with high returns. Therefore, disease screening methods should be relooked so that high yielding varieties can be released.

Zonal Breeders Meet for all the zones of AICRP on Sugarcane was also organized at the SBI, Coimbatore on January 24, 2012. In the technical session, discussion was held on promoting IVT entries to AVT based on red rot rating, sucrose (%) juice and field stand of the crop. Entries of AVT of all the zones were finalized. In addition, new zonal crosses were identified.

Sugarcane varieties released and notified

Two varieties viz., Co 0237 (Early) and Co 05011 (Midlate) for North West Zone (Punjab, Haryana, Rajasthan, Central & Western UP and Uttarakhand), and one variety Co 0403 for Peninsular Zone (Gujarat, Maharashtra, Karnataka, Kerala, interior of Tamil Nadu, interior of Andhra Pradesh, Madhya Pradesh and Chhattisgarh) were released and notified during the period January to June, 2012.

STEP FORWARD FOR WELL-BEING OF SUGARCANE & SUGAR SECTOR

IISR-Sugar industry interface

The prosperity of sugarcane and sugar sector in the country remains to be top priority for IISR. Further to move ahead in this direction, IISR-Sugar industry interface and stake holders meet was organised on January 20, 2012 at the institute. Dr. G.S.C. Rao, President, STAI, New Delhi and Executive Director & CEO, Simbhaoli Sugars Ltd. and Mr. Deepak



Guptara, President, U.P. Sugar Mills Association presented the concerns of Indian sugar industry and emphasized the need for modern cane management system for well-being of the cane growers and sugar industry. They highlighted the expectations of sugar industry from the IISR in the areas like mechanized cane cultivation & large scale trials on this aspect under All India Coordinated Research Project; varietal screening trials with ISMA; chemical and biological control of borers; crop surveillance for disease monitoring ; seed certification or system for analyzing purity of seed; capacity building of cane managers; and collaborative research on cellulosic ethanol production. Dr. S. Solomon, Director, IISR said that industry-institute interface would help in better understanding of each other's concerns and ultimately in the healthy growth of sugar sector of the country.

Collaborative Effort to address the problem of low sugar recovery in UP

To discuss and solve the problem of decreasing cane yield and sugar recovery in western Uttar Pradesh senior officials of Mawana Sugar Group and IISR Scientists mutually agreed to



initiate collaborative programme soon. Mr. Sunil Kakria, MD, Mawana Sugar Group along with other high level officials of the group had detailed discussion with scientists on February 14, 2012. Sharp decline in sugar recovery up to the tune of 1.0

unit, lack of high sugar early maturing variety, decreasing soil fertility and health, incidence of insect-pests, scarcity of labour, supply of poor cane quality are major concerns for sugar mills and due to these group is incurring huge revenue loss, as Mr. Kakria said. Dr. Solomon suggested complete package of cane cultivation practices including techniques of soil health improvement, improved sugarcane varieties, varietal planning, three tier seed production programme, ratoon management, bio-intensive management of top borer and red rot, technique to improve sugar recovery, training of sugar mill cane development staff etc., for improving productivity and sugar recovery on sustained basis. Seed and Soil Programme may be launched soon to address the sugar industry problem in more concerted and sustained manner.

IISR joins hand with sugar mills to enhance sugarcane & sugar yield

The technology and expertise available with IISR may be worthy to overcome the recurring problems of decreasing cane yield and sugar recovery over the years in command areas of sugar mills in Shamli, UP, said by Mr. Vivek Vishwanathan, Joint MD of Sir Shadi Lal Enterprises Ltd, Shamli, Prabudhnagar (UP) in Institute-Industry interface meeting held at IISR, Lucknow on June 25, 2012. Mr. Vivek



Vishwanathan, Mr. Sunit Malhotra and Mr. Anil Saxena of Sir Shadi Lal Enterprises sugar mills interacted with the scientists of IISR to know the viable solutions of low sugarcane productivity and decreasing sugar recovery in western Uttar Pradesh. During last 5-6 years the gradual decrease in cane yield, sugar recovery and cane availability has been cause of great concern for mill management. Sharp decline in sugar recovery, lack of high sugar early maturing variety, large area under single variety (85% area under CoS767), decreasing soil fertility, incidence of insect-pests specially white grub, scarcity of labour, supply of poor cane quality are major concerns for sugar mills and due to these, mills are incurring huge revenue loss to the tune of 30-40 crores rupees per year. IISR suggested 'basket of approaches' like adoption of improved sugarcane varieties, varietal planning, three tier seed production programme, FIRB wheat-sugarcane system, ratoon management, bio-intensive management of diseases and pests, post-harvest technique to improve sugar recovery; initiation of collaborative programme for evaluation of germ plasm, multiplication of healthy seed cane, soil mapping and crop surveillance for diseases and pests in mill zone areas; and capacity building of managerial staff in modern cane management techniques.

Bud chip technique for fast multiplication of sugarcane seed

Sugarcane is commercially planted using setts at the rate of 6-8 tonnes/ha amounting to around 10% of total produce. This large mass of planting material poses a great problem in transport, and storage of seed cane as well as leads to reduced viability of buds resulting in poor germination. Besides, with the advent of new improved varieties, transportation of their bulk cane seed material and slow multiplication rate (ratio being 1:8 to 1:10) is an important constraints to seed programme. The viable alternative to reduce the seed quantity and quick multiplication of seed is bud chip technique. This technique save the precious cane seed material ensures higher stalk population with a uniform crop stand and higher average cane weight. In bud chip technique, the left-over



cane could be utilised for crushing since it remains a full cane except for the scooped up bud portions. Scooped out bud chips are soaked in specially formulated plant growth regulator (PGR) solution & treated with Bavistin (0.2%), planted in plastic cups/trays filled with soil mixture containing soil, organic matter and sand in a ratio of 1:1:1. About 25-30 days old healthy settlings are transplanted in the well prepared field to obtain higher tillering and uniform plant population. Higher bud germination (90% as against 35 % in conventional system), saving in planting material (80%), higher seed multiplication ratio (1:60), higher tillering, cane weight & cane height and higher cane yield (about 100t/ha) are major advantages of bud chip technique.

INSTITUTE HIGHLIGHTS

Institute Technology Management Committee (ITMC)

A meeting of ITMC was held under the chairmanship of Dr. S. Solomon, Director, IISR, Lucknow on February 06, 2012. Important decisions taken in the meeting were as follows:

1. ITMC approved the training module of 3 – 6 months and a fee structure of Rs. 25,000 per student for such training.
2. A request for Post-Doctoral Research training in Sugarcane from an Iraqi scientist, subject to no-financial liability on the part of ICAR was approved.
3. Three proposals received for patenting were reviewed and it was decided that the applications be drafted as per requirements and the novelty of these applications may be established with the collaboration of CST, UP.
4. As per ICAR directives, 3 – 5% of the total Plan Budget of the 12th Five Year Plan is to be earmarked for intellectual property management and transfer/commercialization of Technology.
5. The commercialization / popularization of technology be thoroughly discussed in IRC.

Institute Research Council (IRC) Meeting

The meeting of the IRC of IISR was held under the Chairmanship of Director during February 8–9, 2012 to review the progress of research and discuss the new research projects.

In view of the current requirement of sugar industry and RAC recommendations, the Chairman suggested five high priority research programmes. These programmes are as follows:

1. Assessment of soil fertility status in sugar mill command areas of sub-tropical India
2. Development of sugarcane harvester for small farmers
3. Genome sequencing of red rot pathogen
4. Impact of climate change on sugarcane insect-pests dynamics & behavior
5. Use of reflective remote sensing for disease surveillance, nutritional disorder and yield prediction in sugarcane

Institute Management Committee (IMC) Meeting

The 33rd meeting of the IMC was held on February 10, 2012 under the chairmanship of Director, IISR, Lucknow in which Shri S.P. Singh, Additional Cane Commissioner, Govt. of U.P,

Lucknow, Shri S.K. Pankaj, Jt. Director, Cane Development, Bihar and Shri Dattatrya Bharane participated as external members of IMC in the meeting. Sh. S.K. Pankaj, Joint Director, Cane Development, Bihar suggested the development of sugarcane varieties for flood prone area & resistant to red rot and production of breeder seed by Motipur Research Station.

IISR Foundation Day

IISR celebrated its foundation day on February 16, 2012. Foundation day marks the beginning of the year long celebration “Year of Excellence- 2012”. The programme of many colours including lecture on healthy human life, *hasya vyanga kavi sammelan*, highlights of IISR technologies, honor to retired scientists and prize distribution was held.



National Science Day

National Science Day was organized at IISR, Lucknow on February 28, 2012 in which about 150 UG/PG students of BBA/Integral/Amity University and 6 other colleges participated. Dr. S. Solomon, Director highlighted the theme of National Science Day for the year 2012 i.e. “Clean Energy Options & Nuclear Energy” and elaborated the importance of sugarcane as a clean source of energy. Dr. A. Chandra, Head of Division, Plant Physiology and Biochemistry delivered a lecture on “biotechnological aspects of sucrose synthesis in sugarcane”. Dr. A. K. Sharma, Pr. Scientist & I/c, RCM presented an overview of IISR research and the efforts being carried out by the Institute in the capacity building of UG/PG students of colleges/ universities.

National SugarFest-2012 Organised at IISR

The year long celebration of IISR Diamond Jubilee Year-2012 started with colourful “National SugarFest” on March 23-24, 2012 organized at the Institute Campus to bring researchers, producers, processors and consumers on a common platform for increased exchange of ideas and resources. Chief guest at inaugural function of the Fest Mr Kamran Rizvi, Cane Commissioner, Govt. of Uttar Pradesh appreciated the efforts of the institute in bringing farmers, industry personnel, government agencies and consumer under common umbrella by hosting “National SugarFest – 2012”. On the occasion, Dr. S. Solomon, Director, IISR promised the good pace of technological development for sugarcane farmers in future.



Innovators from Sugar industry and progressive cane growers were honored for their contribution in overall development and improvement of the industry and sugarcane.

A farmers' awareness programme on PPV & FR Act was also organized on March 24, 2012 in which Dr. G. B. Singh, Ex. DDG, ICAR, New Delhi was the chief guest and Dr. S. Solomon, Director, IISR chaired the session. Major attractions of “National SugarFest” were :

- Live Demonstration/Exhibition of IISR technologies and exhibition stalls of 40 organizations.
- Agro Tourism: About 1000 children enjoyed the ride of bullock/horse carts to IISR farm on both days of Fest.
- Kisan mela: About 1000 farmers visited Kisan Mela.
- Competitions for Students/children: Competitions like debates, “seeing is believing”, drawing, Just-a-minute, cane chewing, dance, collage making, frog race, fancy dress were organized for different age groups in which about 1000 students/children participated and *numero-uno* were honored with prizes.

- Competitions for Housewives/Working Women/Girl students: Competitions like innovative food products made from jaggery or sugarcane juice, Mehendi, Music Chair, Housie were organized in which more than 300 ladies/students participated with full preparation and enthusiasm.
- Food Court: About 30 stalls on different food items were made available to visitors.
- Cultural Evenings: Cultural evenings on March 23 & 24 were organized to bring common man closer to the institute.

The electronic and print media gave huge publicity to the National SugarFest.

Meeting of the Research Advisory Committee (RAC)

The XVIII meeting of RAC of IISR, Lucknow was held on June 28, 2012 under the chairmanship of Dr. S. Nagarajan, Former Chairperson, PPV & FRA and Ex-Director, IARI, New Delhi. Dr. R.P. Sharma, Dr. Bachchan Singh, Dr. J.P. Mishra, Dr. N. Gopalakrishnan, Dr. S. Solomon and Dr. A.K. Sharma and all Heads of Divisions participated in the meeting. Dr. S. Gopalasundaram, Member Secretary of RAC, SBI, Coimbatore, Shri. S.K. Gangwar, GM (Cane), Mawana Sugars Ltd. and Shri. Ram Milan Singh, Advisor (Cane), DSCL Group participated in the meeting as special invitees. RAC emphasized upon following points:

- Systematic characterization of germplasm may be taken up with the multidisciplinary approach. Novel ways for managing red rot disease viz., RNAi and miRNA should be explored. Population dynamics study of insect pests should be an integral part of Institute activities.



- International trainings for capacity building of Sugarcane researchers in emerging and modern research techniques.
- Availability of exotic germplasm should be ensured for genetic base broadening.
- A separate independent unit of social science need to be created to strengthen extension activities.
- Periodic sugar industry-IISR dialogue should be organized.
- Pathologists should have more collaboration with Crop Improvement and Crop Production divisions.

TRANSFER OF TECHNOLOGY

Exhibition of Sugarcane Technology bring Laurels to IISR : 1st Prize to IISR Exhibition Stall

IISR received best Exhibition stall award under ICAR stall categories in *Pusa Krishi Vigyan Mela* organized from March 01-03, 2012 at IARI, Pusa, New Delhi. The IISR technologies was showcased through meaningful and systematic display of exhibits viz., posters, banners, jaggery, sugarcane machines, clump of sugarcane variety CoLk 94184, literatures etc. The Hon'bles Union Minister of State for Agriculture and Food Processing Industries, GoI Sri H. S. Rawat and Dr. Charan Das Mahant visited IISR stall on March 01, 2012 during inauguration of *Mela* and interacted with the scientists of IISR about recent technologies. During 3 days of *Mela* about 5000



farmers, entrepreneurs, industry personnel, scientists, dignitaries, students, house wives and others visited the IISR stall and interacted with scientists for know-how in latest sugarcane cultivation techniques developed by IISR.

IISR Exhibition Stall received 3rd Prize

IISR received 3rd prize for Exhibition stall in Krishi Fair- 2012 organised by *Shree Shriksetra Soochana* from May 14-18, 2012 at

Lucknow on 01-05 February, 2012 in which about 3000 students, scientists, teachers, entrepreneurs, manufacturers, delegates and development personnel visited the IISR Stall. Exhibition was also organized in *kisan mela* at DSR, Kushmaur, Mau on February 24-25, 2012. Exhibition and *Kisan Mela* was organized on the occasion of National SugarFest on March 23-24, 2012 at institute premise.

Farmers' Training Inaugurated by Sri Harish Rawat, Hon'ble Union Minister

A two days Farmers' training and *Krishak Goshthi* on sugarcane production technologies was organized by IISR, Lucknow at RBNS Sugar Mill, Laksar, Haridwar



(Uttarakhand) from April 09-10, 2012. The training was inaugurated by Sri Harish Rawat Ji, Hon'ble Union Minister of State for Agriculture & Food Processing Industries and Parliamentary Affairs, GoI on April 09, 2012. Dr. S. Solomon, Director IISR welcomed all the dignitaries, officers, scientists and farmers. Dr. Solomon presented a brief note of account on sugarcane cultivation and processing status in Uttarakhand and apprised the dignitaries about the technologies developed by IISR and sustained effort of the institute for extending benefit to the cane growers through such training programme. While delivering inaugural address Hon'ble Minister Sri Harish Rawat Ji remarked that the prosperity of farmers and sugar industry in the state much depend upon the cultivation status of quality sugarcane in Laksar Sugar mill zone area and in the Haridwar district as well. Hon'ble Minister appreciated the effort of IISR in organizing such training/*goshthi* at Sugar mill campus and said that this will be proved as a milestone in increasing cane and sugar productivity and enhancing income of farmers. In this training about 1500 farmers from Haridwar district participated. Scientists of IISR delivered lectures on various aspects of improved sugarcane production management. For the benefit of cane growers interactive



Puri (Odisha). Chief Guest Hon'ble Shri B. K. Tripathy, former Union Minister, Govt. of India and other dignitaries visited IISR Exhibition stall and interacted with IISR Scientist to know recent advances in sugarcane cultivation. They appreciated the effort of IISR team in organizing exhibition stall in systematic manner and providing information to visitors in lucid and interesting way. About 1000 farmers/students/city folks/officials from Puri and other districts of Odisha visited IISR stall.

An exhibition of sugarcane production technology was organized in "Science Expo" at Regional Science City,



sessions between scientists, farmers, cane development officials, sugar mill officers and KVK personnel were also organized in which viable solutions/suggestions were advised to the farmers on various aspects of sugarcane cultivation. An exhibition was also organized in which 20 organizations showcased their products/technologies.

Farmers' Training(s) at IISR

A ten days farmers' training on "Ganne Ki Unnat Krishi Taktik" sponsored by ATMA, Begusarai (Bihar) was

organized from February 08-17, 2012. In this training 25 farmers from Begusarai district of Bihar participated. A five days training sponsored by ATMA, Muzaffarpur (Bihar) was organized from March 13-17, 2012. In this training 20 farmers from Muzaffarpur district of Bihar participated. A five days farmers' training sponsored by *Mahila Samagra Utthan Samiti*, Daltonganj, Palamau, Jharkhand was organized from May 01-05, 2012. A total of 25 progressive farmers of Jharkhand state participated in this training. Knowledge in various aspects of sugarcane cultivation was provided to the farmers through theoretical/practical sessions and visits to technology park, workshop and jaggery processing unit.

Participation in Kisan Mela

IISR team participated in *Kisan Mela* and *Krishak Goshthi* organised at IGFR, Jhansi on March 29, 2012. About 200 farmers visited IISR exhibition stall and were explained about



sugarcane cultivation techniques and benefit of growing sugarcane on their field. Cane setts of CoLk 94184 were distributed to progressive farmers in the mela.



INTERNATIONAL COLLABORATIONS

Indo- Brazil Cooperation

Dr. S. Solomon, Director, IISR visited Brazil on the invitation of Govt. of Brazil to attend the second workshop under Indo-Brazilian Cooperation in Bio-energy as a member of Indian

Sri Lankan Minister with high level delegation visited IISR

"Dedicated efforts of IISR Scientists in developing technologies are commendable and wonderful", said Mr. Reginald Cooray, Hon'ble Minister of Minor export crops promotion, Govt. of Sri Lanka during their visit to IISR, Lucknow on June 03-05, 2012 along with a high level 5 members delegation. The Sri Lankan delegation led by Hon'ble Minister comprises of Mrs. Herath, Additional Secretary, Mr. S.K. Cyril, Chairman of Sugarcane Research Institute, Dr. N.C. Kumarsinghe, Director/CEO of Sugarcane



delegation, held during April 18-21, 2012 at FEQ-UNICAMP, Sao Paulo, Brazil. A paper entitled 'The Development of Indian Sugar Industry' was presented by Dr. S. Solomon in the workshop. A collaborative programme is underway between IISR and Govt. of Brazil.



Research Institute, Sri Lanka and Mrs. Chandrika Cooray, Assistant Secretary, MMECP visited IISR & Biswan sugar mill, Sitapur (UP) to study the research and development activities of Indian sugar industry. High cost of production, low yield, low profit margin, poor technology adoption and preference for cash crops like tea, rubber etc. are major problems of Sri Lanka sugar industry due to which sugarcane yield at 45 t/ha and the sugar recovery at 7.00% are very low. These led to import of 95% domestic requirement of sugar in Sri Lanka from other countries, said Hon'ble Minister Mr. Cooray. Sri Lanka Govt. is trying hard to achieve target to meet 30% domestic sugar requirement from own production in near future. Hon'ble Minister urged IISR scientists to extend help for strengthening research & development in Sri Lanka in order to improve sugarcane production. Dr. S. Solomon, Director

said that there are certain areas like introduction of high sugar variety, improved production technologies, bio-intensive management of pests & diseases, mechanization of sugarcane cultivation, application of GIS & GPS in sugarcane agriculture, water saving sugarcane technology, intercropping with sugarcane and training for human resource capacity building where IISR can extend help to improve sugarcane cultivation in Sri Lanka.

Iraqi Scientist under Post Doctoral Programme at IISR

Under the programme for promotion of sugarcane research and development in Afro-Asian countries, Dr. N.F. Almubarak, Assistant Professor & Head of Field Crop Department, College of Agriculture, University of Diyala, Sabbatical Leave, Iraq is undergoing a Post Doctorate Research Programme in Crop Production Division at IISR.

HUMAN RESOURCE DEVELOPMENT

Republic Day

Republic Day was celebrated on January 26, 2012. All the scientists, officers and staff members participated in flag hosting ceremony organized in front of the main Institute building. A tug of war was also organized on the occasion. On this occasion, the winner of IISR logo competition was awarded.

ICAR Inter-Institutional (North Zone) Sports Meet

The IISR participated in ICAR Inter-Institutional (North Zone) Sports Meet at NDRI, Karnal on April 25-28, 2012. In 400 mts. Relay Race IISR team comprising Sri Inder Singh Chauhan, Sri Sudhir Kumar, Sri Dharmendra Singh and Sri Kuldeep bagged 2nd Prize. IISR Table Tennis Team led by Sri Raj Kumar Yadav with team members Sri Anand Mohan Srivastava, Sri Pankaj Arora, Sri V. P. Tewari and Sri Nageshwar Lal was Runner up in the meet.

Collaboration with Academic Institutions

To promote the sugarcane research at Post Graduate level and for capacity building in sugarcane IISR has taken many initiatives during last few months. To begin with, MoUs with

reputed institutions/universities like CSA Univ. of Agriculture & Technology, Kanpur, Amity University, Lucknow and Sam Higginbottom Institute of Agriculture, Technology & Sciences (Deemed University), Allahabad was signed for joint Ph.D. research programme in different disciplines of science with special reference to sugarcane.

Awareness Programme on Health

1. Say No to Tobacco campaign
2. Awareness programme on health and nutrition
3. Lipid profile estimation



PERSONALIA

New Joining

Ms. Sonali Chopra, appointed as Assistant (on direct recruitment quota) and joined on 21.05.2012

Superannuation

Dr. R.S. Verma, Pr. Scientist (Agronomy), superannuated on 31.01.2012.

Dr. G. M. Tripathi, Principal scientist (Agricultural Entomology), superannuated on 31.01.2012.

Shri Harish Chandra, SSS, superannuated on 29.02.2012.

Shri Shatruhan Kumar, A.O., superannuated on 31.03.2012.

Dr. (Ms.) Bandana Gupta, T-5 (Hindi Translator), superannuated on 31.03.2012.

Shri Ram Hit, T-6, superannuated on 30.04.2012.

Dr. A. C. Srivastava, Principal Scientist (FMP), superannuated on 31.05.2012.

Shri R. K. Pangasa, Principal Scientist (Electronics and Instrumentation), superannuated on 30.06.2012.

Transfer

Dr. R. S. Dohare, Principal Scientist (Agril. Extension) joined on 21.05.2012 on transfer from Zonal Coordinating Unit VI, CAZRI Campus, Jodhpur.

Shri Abhishek Kumar Singh, T-4 (Hindi Translator) joined on 29.05.2012 on transfer from ICAR Research Complex for Eastern Region, Patna.

Dr. Ram Ratan Verma, Scientist (Soil Science) joined on 01.06.2012 on transfer from ICAR Research Complex for Goa, Goa.

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