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FROM THE DIRECTOR'S DESK

Strategic amalgamation of existing technologies of improved scientific cultivation and the post-harvest management of jute is primarily needed to obtain higher productivity of quality jute. Besides, the new technologies are to be promoted to enhance the system productivity as a whole in the jute-based cropping system with an ambitious objective to double the existing income of farmers. During the recent years successful implementation of major promotional activities in collaboration with other organizations has indicated positive outcome of existing technologies in improving the productivity and quality of jute fibre. At this juncture, still it is the major challenge for the scientists to utilize the genome information in a systematic manner to develop the varieties with greater yield potential and other desirable traits under the influence of climatic aberrations. The yield target based nutrient recommendations are to be implemented to achieve the potential productivity of the varieties under different jute-based cropping systems. The current area under jute can only be sustained by maintaining the perfect balance between the approaches for continuous technology development addressing the immediate problems in jute and allied fibre sector *vis a vis* promotion of new technologies to double the profitability of jute farmers. Being a commercial crop, emphasis should be on quality maintenance and reasonable pricing of the raw materials to support the jute farmers adequately.



Chairman, Publication Committee : S Satpathy

Editorial Committee : S.K. Sarkar, C.S. Kar, B.S. Gotyal and M.L. Roy

Technical Assistance : Pradipta Samanta and Nilanjan Pal.

Photography : Kamal Banik



Published By

Dr. Jiban Mitra, Director

ICAR-CENTRAL RESEARCH INSTITUTE FOR JUTE & ALLIED FIBRES,
Barrackpore, Kolkata-700120

E-mail : director.crijaf@icar.gov.in

(<http://crijaf.org.in>)



MEETINGS / EVENTS

IMC Meeting

The 33rd Institute Management Committee (IMC) meeting of ICAR-CRIJAF for 2017-18 was held on July 6, 2017 which started after the formal welcome of the members by Mr. Rajeev Lal, CAO, ICAR-CRIJAF. The meeting was chaired by Dr. Jiban Mitra, Director, ICAR-CRIJAF. The agenda items were discussed in detail after a brief presentation by Dr. S. Mitra, SIC, AINPJAF. Other members present in the meeting were Prof. Srikumar Pal, DoR, BCKV; Mr. Ashis Lahiri, ADA, Govt. of West Bengal; Dr. A. Raja, Principal Scientist, ICAR-CICR; Dr. S.K. Mishra, Principal Scientist, ICAR-NRRI; Dr. A. Selvi, Head, Biotechnology, ICAR-SBI; Dr. Amitav Mohanty of DuPont India Pvt. Ltd; Mr. Ashok Kumar Das and Mr. Umasankar Singh, Farmers' representatives. Heads of the Divisions/Sections, SIC of AINP on JAF, ICs of Regional Stations, PC (I/c) of KVK Purba Burdwan and North 24 Parganas (Nilganj), SIC, PME cell and FAO, ICAR-CRIJAF were also present in the meeting. As Member Secretary, the meeting was co-ordinated by Mr. Rajeev Lal, CAO, ICAR-CRIJAF. (Source: Dr. S.K. Sarkar)



The IMC meeting is in progress

Farmers' Day

'Farmers' Day-2017' was organised on 25.07.2017 at Brahmapur village of Haringhata block in Nadia district to sensitize the farmers about the recent developments on improved production technologies of jute. More than 200 progressive farmers participated in this programme. Farmer-scientist interaction and retting demonstration were also conducted for better

awareness of the farmers about new jute production technologies. The farmers adopting the CRIJAF technologies also expressed their views. Farmers from Hooghly, Nodia, Murshidabad and North 24 Parganas districts participated in the programme. (Source: Dr. S.K. Jha)



Felicitating of best farmers by Dr. Jiban Mitra, Director, ICAR-CRIJAF



Demonstration on use of 'CRIJAF SONA' during the Farmers' Day

RAC Meeting

The Research Advisory Committee (RAC) meetings of the ICAR-CRIJAF were held at Barrackpore and CSRSJAF, Budbud, Burdwan during 7-8 November, 2017 under the chairmanship of Dr. S.A. Patil, Ex-Director, ICAR-IARI, New Delhi. The meeting was attended by the HoDs and scientists from Institute and all the substations. Presentation on brief achievements of research projects were made by the HoDs, I/c of the sections and substations. The committee discussed in details the research activities of scientists of ICAR-

CRIJAF during the last one year. The RAC was satisfied with the Action Taken Report (ATR) presented in the meeting. The committee also visited CSRSJAF, Budbud for acquaintance about the seed production activities of jute and allied fibre crops. The chairman suggested to organise a brain storming session with few member of the committee and the stakeholders to chalk out the future research programme. (Source: Dr. Subhojit Datta)



RAC meeting is in Progress

Awareness Programme on Pradhan Mantri Fasal Bima Yojana (PMFBY)

KVK North 24 Parganas (Nilganj) organized an awareness programme for farmers on PMFBY on 26.07.2017 at ICAR-CRIJAF, Barrackpore. The objective of the programme was to deliberate the farmers about the advantage and procedure of enrolling in PMFBY. Eighty-nine farmers and farm women from Barrackpore-I, Barrackpore-II, Barasat-I and Hasnabad block of North 24 Parganas district participated in this programme. Officials from Agricultural Insurance Company of India Limited (AICIL), Kolkata region sensitized the farmers about PMFBY. At the onset of the programme, Heads of Divisions of ICAR-CRIJAF, Nodal Officer and I/c PC of the KVK explained different aspects of the policy. After that the officials from AICIL discussed in details about the scheme with the farmers in a very simple and effective manner. Farmers were informed about the objective of the scheme, insurable crops for *Kharif* 2017, eligibility criteria for insurance, insurance cover, sum of insurance, rate of premium and subsidy etc. (Source: Dr. M.L. Roy)



Dr. D.K. Kundu, HoD, Crop Production Division, addressing the farmers



Mr. Ahijit Dey, A.O., AICIL deliberating on PMFBY scheme to the farmers

DUS Monitoring

The DUS testing presently conducted at ICAR-CRIJAF, Barrackpore and CSRSJAF, Budbud was monitored by a team constituting Dr. Jiban Mitra, Director, ICAR-CRIJAF, Professor A.K. Basu, BCKV, Dr. C.S. Kar, Principal Scientist; Dr. P. Satya, Principal Scientist and Dr. Amit Bera, Nodal Officer, DUS. The team visited the candidate varieties in the DUS field at ICAR-CRIJAF and CSRSJAF, Budbud. During 2017, total six candidate varieties namely JRCM-2, JROM-1, NJ-7010, NJ-7005, NJ-7050 and NJ-7055 were tested for DUS. Observations on claimed characters for distinctness of respective candidate varieties were checked and confirmed in field. (Source: Dr. Amit Bera)

MEETINGS / EVENTS



Field visit by DUS monitoring team

Independence Day Celebration



Dr. Jiban Mitra, Director, ICAR-CRIJAF hoisting the National Flag on Independence Day

Independence Day, 2017 was celebrated on 15th August 2017 at ICAR-CRIJAF. In this occasion, Dr. Jiban Mitra, Director, hoisted the National Flag followed by recitation of National Anthem. Director, Head of the Divisions, In-charges of the Sections and Units, Administrative Officer, Accounts Officer and other

senior officers conveyed the message of Independence Day and encouraged the young and the children, assembled at the venue, for dedication and service to the Nation. The family members of CRIJAF staff, children from the campus and outside were present during the celebration.

New India Manthan *Sankalp se Siddhi*

As per the directives of MoA&FW, Gol, on 26th August 2017, KVK North 24 Paragnas (Nilganj) celebrated "New India Manthan-Sankalp se Siddhi" to commemorate the



"Sankalp Se Siddhi" pledge administered by Director, ICAR-CRIJAF

75th anniversary of 'Quit India Movement' for making a New India by 2022 as envisioned by Hon'ble Prime Minister of India. Hon'ble Member of Parliament, Dr. Tapas Mandal as chief guest greeted the gathering. He also appealed the farmers to become the part of all development programmes of agriculture as launched for doubling of farm income in practical way. Hon'ble MP advised to focus on diversification of agriculture and take up integration of dairy, fishery and horticulture for sustainable agriculture and livelihood security. He lauded the role of ICAR-CRIJAF and its KVKs for the efforts put in by its scientists for serving the farming community. A video message for *Sankalp Se Siddhi*, an inspirational film was also shown to all the participants on this occasion. During the program, Dr. Jiban Mitra, Director of ICAR-CRIJAF in his welcome address highlighted the objective of the programme. All farmers and guests present in this programme took *Sankalp se Siddhi* pledge. The function was attended by about 200 farmers. (Source: Dr. S.K. Jha and Dr. M.L. Roy)

Celebration of Hindi Saptaha

Hindi Week was celebrated during 14th-20th September 2017 at ICAR-CRIJAF, Barrackpore. Director, Dr. Jiban Mitra inaugurated the programme. He requested the staffs of the institute to make efforts to use Hindi in official communication as the region is under 'C' zone. Smt. Rita Bhattacharyya, former Chief Manager, Rajbhasa Division of United Bank of India, Kolkata as chief guest highlighted the importance

of Hindi as Rajbhasa and appreciated the staff of the institute to develop habit of working in Hindi. Several competitions were also arranged and the staffs enthusiastically participated in the competitions. (Source: Dr. S.K. Pandey)



Celebration of 'Hindi Saptah' at ICAR-CRIJAF

Swachhta hi Seva campaign

The campaign entitled 'Swachhta hi Sewa' was celebrated during September 15 to October 2, 2017. The programme started with pledge taking ceremony. Various programmes like *Seva Divas*, *Samagra Swachhta Divas*, *Sarvanta Swachhta Divas*, *Swachhta* at tourist spot and low cost bio-toilet making were performed during this period. The staff of the Institute participated in various drives taken up in and off the campus with great enthusiasm. During the occasion, the message of importance of cleanliness was also given to the public outside the Institute.



Cleaning of North Farm gate



Cleaning of the Institute garden

Vigilance Awareness Week

Programme at Institute: As per the directives from the council, ICAR-CRIJAF conducted various programmes during the observance of Vigilance Awareness Week-2017 (30th Oct to 4th Nov. 2017). Dr. Jiban Mitra, Director, administered the Integrity Pledge to all the staffs of the institute on 30.10.17 followed by a debate competition on the theme topic, "My vision- Corruption free India". Quiz Competition was also organised on 01.11.17 to create interest and awareness among the employees on matters related to vigilance, corruption, major scams, institutions and organizations related to vigilance in India and outside. In a sensitization programme for staffs of different categories the Director, Head of Divisions, SIC of sections, Vigilance Officer and the Finance and Accounts Officer addressed the staffs and elaborated about the bad effects of corruption in public office, society and the country. The senior officials stressed about the importance of integrity, vigilance, good governance and self-discipline in public life.



Winner of debate competition during VAW-2017

MEETINGS / EVENTS

Programme outside the Institute: During the VAW-2017, ICAR-CRIJAF organized various programmes like Quiz Competition and Sensitization Programme at Sewli High School, Sewli, Sharada Shishu Shiksha Niketan, Sewli, West Bengal State University, Barasat and IRDM Faculty Centre, Ramakrishna Mission Ashram, Narendrapur. Besides, 54 farmers of Madhusudanpur and nearby villages of Singur block participated in an awareness programme on vigilance and corruption. (Source: Dr. S. Satpathy, Vigilance Officer)



Vigilance Awareness Programme organized at Sewli Boys' High School, Barrackpore



Awareness programme on vigilance organized by ICAR-CRIJAF at WSU, Barasat

Constitution Day

To emphasize and recognize the value of Indian constitution in the democracy of the country, 'Constitution Day' was celebrated on 27.11.17 at ICAR-CRIJAF and its sub-stations. The preamble of the constitution was read out on this occasion. The Director, CAO and other senior officials highlighted

the importance of constitution in the success of Indian democracy. Besides, the uniqueness and greatness of Indian constitutions scripted by Bharat Ratna Dr. B.R. Ambedkar were also remembered.

Celebration of Agricultural Education Day

The Birth Anniversary of Dr. Rajendra Prasad, first President and former Minister of Food and Agriculture of India, was celebrated as Agricultural Education Day on 3rd December 2017 at ICAR-CRIJAF, Barrackpore. The objective of the programme was to sensitize the school students on the contribution of Indian Agriculture in Indian Economy and livelihood and to provide an outlook of agricultural sciences as a future career option. A series of events were organized to celebrate this auspicious day at the Institute, including interactive discussion, essay competition, career counselling and field tour. About 60 students from nearby schools participated in these events. The topic of the essay writing competition was "Role of Agriculture in Indian Economy". Best performers were awarded with cash prizes. The students were also sensitized about different facets of agricultural science as career. In addition, a field and laboratory tour was arranged to familiarize the students with different jute and allied fibre crops. The event was very useful for the students. The students - scientist interface provided an opportunity for the students to enrich their knowledge on advances in agriculture research and the educational awareness in this field. (Source: Dr. P. Satya and Dr. Shamna A.)



Celebration of Constitution Day



Interaction with school children on Agricultural Education Day



Deliberation by Dr. Manik Lal Roy, KVK in charge on World Soil Day



Distribution of prizes to winning participants

Celebration of World Soil Day

A farmer-scientist interaction meeting and an awareness programme on importance of soil health and 'World Soil Day' was organized on 5th December 2017 by KVK North 24 Paragnas (Nilganj) at ICAR-CRIJAF, Barrackpore. Dr. Jiban Mitra, Director, ICAR-CRIJAF highlighted the importance of soil testing and urged the farmers to make use of the Soil Health Cards for the betterment of farming practices. About 100 farmers of North 24 Parganas district participated in this programme.



Participants in World Soil Day

A video film on World Soil Day-2017 from Soil Health Card Portal was screened to motivate the farmers to make best use of this farmer-friendly programme. Farmers were informed about the message of Hon'ble Prime Minister through 'Man ki Baat' programme on 27th November 2017 to motivate the farmers about use of soil health card and balanced soil nutrients for sustaining and improving soil health, yield and income and reducing cost of cultivation. Extension literatures on soil health management and soil sampling were distributed amongst the farmers. (Source: Dr. S.K. Jha and M.L.Roy)

Brainstorming workshop at Sisal Research Station, Bamra

A brainstorming workshop on "Sisal Grading and Electronic Instrumentation" was organised at Sisal Research Station, Bamra on 25th August, 2017 by ICAR- NIRJAFT, Kolkata. About 70 farmers from Jharsuguda and Sambalpur districts of Western Odisha participated in the programme.



Brainstorming workshop at SRS, Bamra

KRISHI BIGYAN KENDRA

New India Manthan- Sankalp se Siddhi Programme

As per directives from ICAR, CRIJAF KVKs duly observed 'Sankalp se Siddhi' to take the oath of doubling of farmers income by 2022. The programme was arranged by KVK, Purba Bardhaman at Ranigunj on 29.08.17 and was presided over by Hon'ble MoS, HI&PE, Shri Babul Supriyo. Around 450 farmers participated in that programme.



Hon'ble MoS, HI&PE, Shri Babul Supriyo addressing Sankalp se Siddhi programme at Ranigunj

Soil test awareness camps

Total of 6 nos of awareness camps were organized in Andal, Ranigunj, Jamuria and Barabani blocks of Burdwan district at the behest of Hon'ble MoS, HI&PE, Shri Babul Supriyo. A total of 1050 farmers participated in the camps and about 850 soil health cards were distributed.



Hon'ble MoS, HI&PE, Shri Babul Supriyo addressing the participants in soil test awareness camps

Mahila Kisan Diwas

As per directives from ICAR, KVK, Purba Bardhaman duly observed 'Mahila Kisan Diwas' on 15.10.2017 in its campus at Budbud with the objective of gender mainstreaming in agriculture. About 56 farm women from nine villages of Galsi I & II, Ausgram I, Kanksa blocks participated in the programme. The Selected progressive farm women were conferred awards for their achievements.



Celebration of Mahila Kisan Diwas

World Soil Day

World Soil day 2017 was observed by KVK, Purba Bardhaman on 05.12.17 at Ranigunj to make farmers aware about importance of soil health management for sustainable production. About 230 participants from various villages of Ranigunj, Andal and Jamuria blocks participated in the programme. This important day is also celebrated by KVK-II, North 24 Parganas at ICAR-CRIJAF, Barrackpore. About 100 farmers of North 24 Parganas district participated in this programme.



World Soil Day celebrated at Ranigunj

KRISHI BIGYAN KENDRA

quality seed in the region. The KVK earned ₹9 lakh from selling of the seed to various growers and progressive farmers in seed village mode.



World Soil Day celebrated at ICAR-CRIJAF, Barrackpore

Foundation Seed Production

KVK, Purba Bardhaman produced 240 q foundation seed of paddy (cv. MTU 7029) to cater the needs of



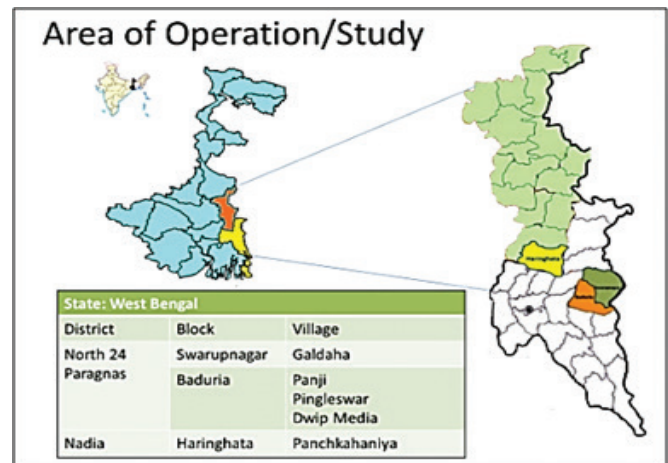
Foundation seed produced at KVK, Purba Bardhaman

RESEACH NOTES

Climate Smart Jute Farming through Capacity Building of SC Farmers in West Bengal

Jute cultivation is an important cash crop to the SC farmers of West Bengal. During the recent years, climatic change has been causing losses of crop yields due to pre-flowering, outbreaks of new pests and diseases, shortage of soil moisture leading to nutrient deficiency in jute. A DST-NRDMS sponsored project with an objective to disseminate the problem solving knowledge, farm implements and inputs to reduce vulnerability of weather aberrations and climate change shocks was implemented in three SC dominated Gram Panchayats (GP) of North 24 Parganas and Nadia districts of West Bengal. Altogether 150 SC farmers were selected as per their socio-economic condition, farming situation of village, and feasibility of capacity building programme for livelihood support. Primarily, the selected farmer's were trained on different aspects of improved jute farming along with the knowledge on mitigating the effect of climate change on jute production.

Area of Operation/Study



Capacity building of SC farmers by skill enhancement

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Field demonstration was done on 'Smart Jute Farming' covering 30 farmers in one GP of Swarupnagar block, North 24 Parganas district. Farm implements like Nail-weeder, Multi-row seed drill and Herbicide Applicator

developed by ICAR-CRIJAF were distributed to the farmers. Demonstration on jute retting using 'CRIJAF SONA' was conducted for all 150 participating farmers of the project.

Economic impact of CRIJAF technology in farmer's field (DST-NRDMS project, 2017-18)

| Technology | No. of Farmer | Area (ha) | Yield of jute fibre (kg/ha) | | Economic impact (Improved Technology) | |
|--|---------------|-----------|-----------------------------|-------------|---------------------------------------|-----------|
| | | | Improved Technology | Local Check | Av. Net Return (INR) | B:C Ratio |
| Line sowing with MRSD | 31 | 4.13 | 2850 | 2625 | 29355 | 1.42 |
| Seed sowing with intercrop (Green gram) using MRSD | 3 | 0.4 | 2850 + 510* | 2625 | 61645 | 1.88 |
| Mechanical Weeding (NW) | 31 | 4.13 | 2800 | 2400 | 27600 | 1.40 |
| Improved seed (JRO 204) | 31 | 4.13 | 3000 | 2400 | 34600 | 1.49 |
| INM | 31 | 4.13 | 2800 | 2400 | 27600 | 1.40 |
| IPM | 31 | 4.13 | 2800 | 2400 | 27600 | 1.40 |
| Retting with microbial formulation (CRIJAF Sona) | 151 | 20 | 3000 | 2400 | 34600 | 1.49 |

* Yield of green gram (kg/ha)



Project activities in farmer's field and demonstration site of ICAR-CRIJAF (DST-NRDMS Project, 2017-18)

A.K. Singh, B. Majumdar, S.K. Jha and M.L. Roy
ICAR-CRIJAF, Barrackpore

Relationship between Leaf Characteristics and Fibre Yield in Sisal

The effect of leaf characteristics on fibre yield in four important types of sisal (*Agave* sp.) namely *A. sisalana*,

Hybrid sisal *A. cantala* and *A. fourcroydes* was studied at SRS, Bamra, during 2011 and 2012. Maximum leaf length was recorded in *A. cantala* (94.67 cm) and *A. fourcroydes* (93.39 cm). Maximum leaf breadth was recorded in case of *A. fourcroydes* (11.04 cm).

Leaf characteristics and fibre yield in different types of sisal

| Sisal types | Leaf length (cm) | Max. leaf breadth (cm) | Leaf base area at cut (cm ²) | Green leaf weight (g) | Fibre yield per leaf (g) | No. of fibre strand per leaf |
|-----------------------|------------------|------------------------|--|-----------------------|--------------------------|------------------------------|
| <i>A. sisalana</i> | 75.28 | 8.30 | 3.79 | 202.11 | 8.33 | 463 |
| Hybrid sisal | 74.89 | 8.51 | 3.51 | 199.42 | 10.42 | 681 |
| <i>A. cantala</i> | 94.67 | 7.22 | 2.93 | 225.78 | 9.38 | 499 |
| <i>A. fourcroydes</i> | 93.39 | 11.04 | 7.82 | 378.89 | 3.30 | 507 |
| CD (P = 0.05) | 8.056 | 0.881 | 1.714 | 72.77 | 2.03 | 101.41 |

The leaf base area at harvesting cut surface was the highest in *A. fourcroydes* (7.82 cm²). The same leaf parameter for all other three sisal types were significantly lower and narrowly ranged between 2.93 and 3.79 cm². The green leaf weight at harvest was the maximum in *A. fourcroydes* (378.89 g). The highest fibre yield per leaf was recorded in Hybrid sisal (10.42 g), closely followed by *A. cantala* (9.38 g).



Leaf harvesting in Sisal

Hybrid sisal produced the highest percentage of its green leaf biomass into fibre yield (5.22%), whereas, only 0.87% of green leaf biomass of *A. fourcroydes* was converted in to fibre yield. The highest number of fibre strand per leaf was recorded in Hybrid sisal (681) and the other types of sisal produced lesser number of fibre strand per leaf (463 to 507).

S. Sarkar, D.K. Kundu, A.K. Jha, A.R. Saha and C.S. Kar, ICAR-CRIJAF, Barrackpore

Changes in Physico-chemical and Microbiological Properties of Retting Water

Studies were conducted on changes in physico-chemical and microbial properties of retting water collected from Hooghly, Nadia, North 24 Parganas and South Dinajpur districts. The pH of pre retting water ranged from 6.63 to 7.44 in various districts which were found to reduce in post retting water (6.34 to 7.08). The Ec of post retting water increased by 2 to 4 times compared to pre retting water because of increased total soluble salts in post-retting water. The Ca+Mg and bicarbonate content in post-retting water increased substantially compared to pre-retting water in each district. The bicarbonate content in pre-retting water of Hooghly district ranged from 1.3 to 1.57 me/l, where as in North 24 Parganas. district, it was in the range of 2.1 to 3.05 me/l. The BOD and COD values in post retting water increased several times compared to pre retting water in each district. The COD values were higher than the BOD values in pre and post retting water. Nadia district recorded higher values of BOD (6.75 to 9.05 mg/l and 79.7 to 97.2 mg/l respectively in pre and post retting water) and COD (43.8 to 80.8 mg/l and 214.8 to 402.9 mg/l respectively in pre and post retting water) among the districts under study. The pectin, xylan, lignin and cellulose degrading bacterial population in post retting water were higher compared to pre retting water in each district. The pectinolytic bacterial log cfu of pre retting water in Hooghly district varied from 3.47 to 3.72, while in post retting water it varied from 5.8 to 6.1. Such variation in population was also found in case of xylan, cellulose

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and lignin degraders in all the districts. The population of lignin degrading bacteria was lower compared to pectin, xylan and cellulose degraders in pre and post retting water of each district. The higher microbial load in post retting water along with Ec, BOD, COD, bicarbonate is a big concern regarding water pollution under conventional retting in all the districts under study.

*B. Majumdar, S. P. Mazumdar, A.R. Saha, S. Sarkar, S.K. Jha, S.K. Sarkar, R. Saha, L. Chattopadhyay and S. Barai
ICAR-CRIJAF, Barrackpore*

Large Scale Training-cum-Demonstrations of Improved Retting with CRIJAF SONA under Jute-ICARE Project

Under Jute-ICARE project, 50 (fifty) large scale training-cum-demonstrations on retting technology were carried out by the scientists of ICAR-CRIJAF in the jute and mesta growing states of West Bengal, Bihar, Odisha, Assam and Andhra Pradesh during the month of July to October 2017. On an average, 75 farmers were present in each training-cum-demonstration of improved retting. Farmers were acquainted with the different aspects of improved retting with CRIJAF SONA through presentation and demonstration. The farmers were very enthusiastic and enquired about the dose, application procedure, safety for the fish and human. A total of 206 MT of CRIJAF SONA was distributed among jute and mesta growing farmers registered under the Jute-ICARE project. From the feedback data, it was observed that the application of CRIJAF SONA not only improved the fibre quality by at least 1 grade to 2 grade but also increased the fibre recovery by 5 to 10%.



Training-cum-demonstration of improved retting with CRIJAF Sona



Quality fibre obtained from retting with CRIJAF Sona

*B. Majumdar, S. Sarkar, S.K. Jha, R.K. Naik, A.R. Saha, R. Saha and S. Satpathy
ICAR-CRIJAF, Barrackpore*

Farmers' Feedback on Benefits of Improved Jute Production Technologies

In this study, an attempt has been made to analyse the feedback of the farmers of Hooghly, Nadia and North 24 Parganas districts about the benefits of using nail weeder, multi-row seed drill and CRIJAF SONA developed by ICAR-CRIJAF. Data collected from 150 jute growers (50 from each centre) who used these technologies during 2017 were analysed. The respondents had an average age of 45 years, attained education upto Vth to Xth class and possessed an average cultivable area of 0.61 ha. The average farming experience of the respondents was 22 years and average jute cultivated area of the farmers was 0.29 ha. CRIJAF nail weeder has reduced the cost of cultivation of jute by Rs. 10,000-15,000/ha compared to manual weed control. As per the opinion of farmers, use of multi-row seed drill has decreased the seed requirement for sowing of jute by 50% than the conventional broadcasting method and helped in intercultural operations in jute fields. The farmers realised that use of CRIJAF SONA for retting has reduced the retting duration by 6-7 days and improved the fibre quality by 1-2 grade. Farmers obtained an extra profit of Rs. 300-350/q from selling of jute fibres produced by using CRIJAF SONA for retting. In general, farmers were satisfied with the ICAR-CRIJAF technologies and intended to increase their jute cultivation area by 25-30% depending on the availability of the quality inputs.

Fruit-Fibre System: A Viable Option for Boosting Sisal Grower's Income

Inter-cropping of fruit plants like mango, custard apple, guava and sapota were taken up under high density planting in double row sisal plantation. The fruit plants in the sisal inter space significantly enhanced the growth and yield of base crop sisal due to decomposition of litter fallen from fruit plants, improvement in micro climate and better utilization of other natural resources. Sisal plantation with intercropped guava recorded the maximum sisal

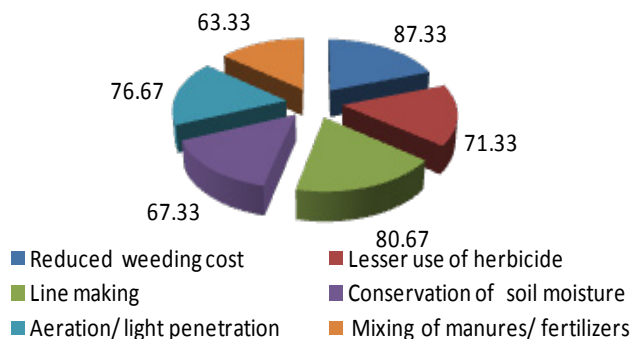
fibre yield of 7.5 q/ha and fruit crop yield of 48 q/ha resulting in increased net income of Rs. 86,850/ha and B:C ratio of 2.94. Having ability of faster growth and tolerance to pruning and drought, guava was found to be the best intercrop in sisal based fruit fibre system and this plant can be successfully adopted for higher return, food and nutritional security and improvement of soil fertility.

*M. S. Behera, D. K. Kundu and A. K. Jha
ICAR-CRIJAF, Barrackpore*

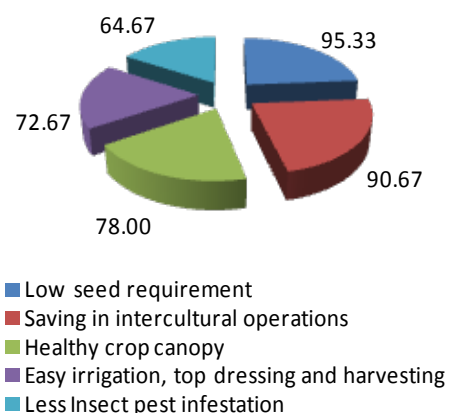


Sisal intercropped with guava, mango, custard apple and sapota

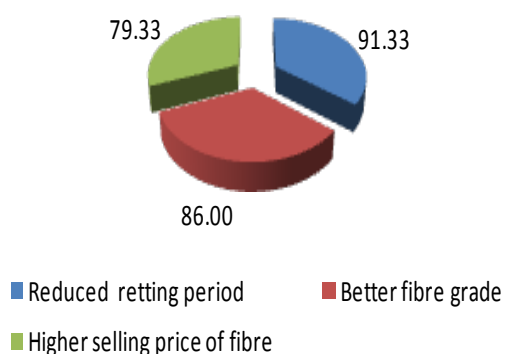
Farmers' (%) perception on benefits of using Nail Weeder (N=150)



Farmers' (%) perception on benefits of using Multi-row Seed Drill (N=150)



Farmers' (%) perception on benefits of using CRIJAF Sona (N=150)

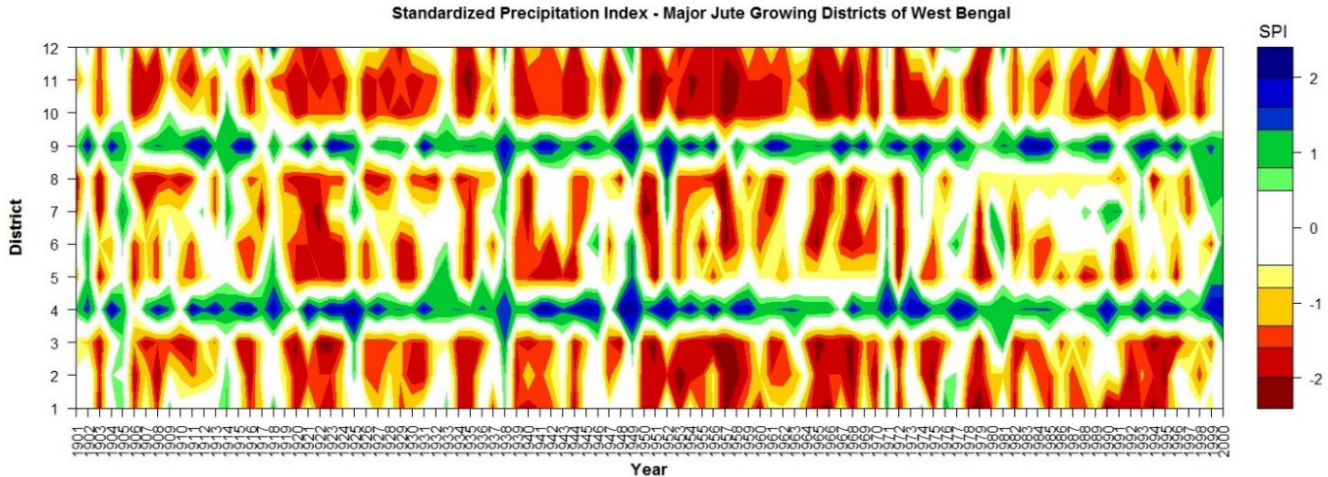


*M.L. Roy, S. Kumar, S.K. Jha and Shamna A.
ICAR-CRIJAF, Barrackpore*

100-Year Meteorological Drought Study in Major Jute Growing Districts of West Bengal Using Standardized Precipitation Index (SPI)

Meteorological droughts are defined as a shortfall of precipitation, over a period of time. Its intensity depends on the amount of the shortfall and the duration, which is specific to a location or a region. Eventually, jute production often experiences both the extreme climatic events during its 110-120 days growth period. A simple drought index, standardized precipitation index (SPI) was used to assess the exposure of jute in dry and wet situation. Two month-SPI was computed for each of the major jute growing districts of West Bengal from the sum of monthly total rainfall of April and May using 100-year (1901-2000) monthly rainfall data (data source: IMD, Pune). April-May rainfall data were considered for computing SPI because these two months are the crop establishment period of jute that is sensitive to any climatic aberration, and the occurrence of drought during this period has negative consequences in crop growth and yield, which will be ultimately considered as a vulnerability factor for jute production.

Temporal and spatial variabilities of drought severity were identified in 12 major jute growing districts of West Bengal using 2-month SPI values by following drought severity classification of FAO (Rome) based on SPI, viz. moderately drought (SPI: -1.00 to -1.49), severely drought (-1.50 to -1.99), and extremely drought (<-2.0). Frequency distribution of the 100-year 2 month-SPI values revealed that the highest number of extremely drought and severely drought during April-May occurred in the district of Malda (13 times) and Birbhum (54 times), respectively. But, the highest number (10 times) of moderately drought occurred in Malda, Birbhum and North 24-Parganas. However, there was no drought occurrence during April-May in the districts of Cooch Behar and Jalpaiguri. In general, on the basis of the total number of occurrence of drought during April-May, highest number of drought incidence were found in the district of Birbhum (76 times), followed by Malda (68), Bardhaman (63), Murshidabad (52), North Dinajpur (50), Hoogli and North 24-Parganas (47), Nadia (46), Howrah (39), South Dinajpur (28).



Temporal and spatial variability of drought in major jute growing districts of West Bengal using 2-month SPI value of Apr-May in 100-year period (1901-2000).

D. Barman, A. K. Chakraborty, Laxmi Sharma, R. Saha, P. Satya, S. Mitra and Abhishek Bagui ICAR-CRIJAF, Barrackpore

Evaluation of Acaricides for Toxicity and Persistency Against Yellow Mite of Jute

The tested acaricides had significant effect on the mite population density of yellow mite. The effect of acaricides on suppression of mite population was significant till 16 DAT. There was no mite infestation in fenpyroximate 5EC (0.005%) treated jute plants till 8 DAT and even 16 DAT recorded significantly least

number of mites (8.33 mite/cm²). Spiromesifen 22.9 EC was also quite effective. The mite population in this treatment was suppressed to 0.00, 5.00 and 17.33 mite/cm² till at 3, 8 and 16 DAT respectively compared to 46.33 mite/cm² during the pre-treatment period. At 16 DAT, the persistent toxicity of fenpyroximate 5EC was quite evidenced with significantly lowest mite population (8.33 mite/cm²) followed by spiromesifen 22.9 EC (17.33 mite/cm²).

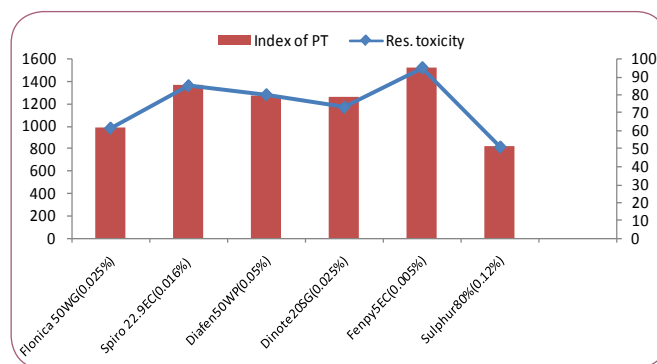
Effect of acaricides on population density of yellow mite in jute

| Treatments | Mite per cm ² leaf area | | | |
|---|------------------------------------|--------------------------|---------------------------|-----------------------------|
| | Pre-treatment | Post treatment-I (3 DAT) | Post treatment-II (8 DAT) | Post treatment-III (16 DAT) |
| Flonicamid 50WG(0.025%) 50.67(7.12) ^a | | 9.00(3.06) ^c | 16.33(4.10) ^b | 32.67(5.70) ^{bc} |
| Spiromesifen 22.9EC(0.016%) | 46.33(6.82) ^a | 0.00(0.71) ^d | 5.00(2.26) ^{cd} | 17.33(4.21) ^d |
| Diafenthiuron50WP(0.05%) | 50.67(7.07) ^a | 0.00(0.71) ^d | 2.33(1.54) ^{de} | 29.33(5.45) ^c |
| Dinotefuran20SG(0.025%) | 44.00(6.66) ^a | 0.00(0.71) ^d | 8.33(2.93) ^c | 32.67(5.74) ^{bc} |
| Fenpyroximate5EC(0.005%) | 56.00(7.50) ^a | 0.00(0.71) ^d | 0.00(0.71) ^e | 8.33(2.96) ^e |
| Wettable sulphur80%(0.12%) | 50.00(7.10) ^a | 18.00(4.29) ^b | 15.33(3.95) ^b | 40.33(6.38) ^b |
| Control | 44.00(6.67) ^a | 58.00(7.64) ^a | 42.33(6.53) ^a | 52.00(7.23) ^a |
| CD (P=0.05) | NS | 0.50 | 0.96 | 0.81 |

Figures in the parentheses are $\sqrt{(0.5 + x)}$ transformed values

RESEARCH NOTES

Among the acaricides, fenpyroximate 5EC (0.005%) showed highest residual toxicity (95) and Index of Persistent Toxicity (1520) compared to only 51 and 816 respectively in case of wettable sulphur. Spiromesifen 22.9EC (0.016%) also had very good residual toxicity. These two acaricides were most effective due the persistence toxicity, high translaminar activity and efficacy against both immature and mobile stages.



Persistent toxicity of acaricides against yellow mite

S. Satpathy, B.S. Gotyal and V. Ramesh Babu
ICAR-CRIJAF, Barrackpore

PUBLICATION

Research Papers

Singh, A.K., Mazumdar, S.P., Saha, A.R. & Kundu, D.K. (2017). Soil quality changes resulting from long-term fertilizer application under intensive cropping system in alluvial soils. *Communications in Soil Science and Plant Analysis*, 48(13): 1503-1510, DOI: 10.1080/00103624.2017.1373790

Sarkar, S. and Jha, A.K. (2017). Research for sisal (*Agave sp.*) fibre production in India. *International Journal of Current Research*, 9 (11): 61136-61146.

Srivastava, K., Bhandari, H.R., Reddy, G.E. and Kumar, Sunil (2017). Identification of suitable genotype of tomato for middle Gangetic plains of India. *Vegetable Science*, 44(2):79-84

Manna, U.S., Biswas, S., Mazumdar, S. P., Majumdar, B. and Sasmal, S. (2017). Effect of different jute (*Corchorus olitorius* L.) based cropping systems on soil quality under farmers' field condition in the eastern Indo-Gangetic plain. *International Journal of Current Microbiology and Applied Sciences*, 6(9): 3324-3334. doi: <https://doi.org/10.20546/ijcmas.2017.609.411>.

Nath, M., Majumdar, B., Das, Suparna, Mazumdar, S.P., Saha, A.R. and Sarkar, S. (2017). Optimization of fermentation conditions for pectin degrading enzyme production by pectinolytic microbial consortia used for jute retting. *International Journal*

of Current Microbiology and Applied Sciences, 6(11): 925-931. doi: <https://doi.org/10.20546/ijcmas.2017.611.108>.

Kumar, S., Shamna A. and Jha, S.K. (2017). Adoption of production technologies among jute growers in West Bengal. *Journal of Community Mobilization and Sustainable Development*, 12(2): 216-222.

Sarkar, S.K., Roy, A. and Satpathy, S. (2016). Integrated management of stem rot of jute (*Corchorus olitorius* L.) caused by *Macrophomina phaseolina* (Tassi) Goid in diverse agroclimatic condition. *Indian Journal of Natural Fibres*, 3(1): 77-80.

Sarkar, S.K. and Jana, A. (2017). Occurrence of Leaf blight of Roselle (*Hibiscus sabdariffa* L.) in West Bengal. *Journal of Mycopathology Research*, 55(3): 317-318.

Popular Articles

Sarkar, S.K. (2017). Disease-free Jute seed Production in West Bengal. *Indian Farming*, 67(04): 14-16; April 2017.

Sarkar S., Mitra Jiban, Majumdar Bijan and Sarkar, S.K. (2017). CRIJAF ke Janoon. *Krishi Jagaran (in Bengali)*, Year 2 issue 7, July 2017.

Sarkar, S. (2017). Sisal- *Bhārater sambhābanāmoy tantu fasal o tār utpādaner unnato projukti*. *Krishi Jāgran (in Bengali)*, 2(7): 44-45.

Sarkar, S., Mitra, J., Majumdar, B. and Sarkar, S.K. (2017). Protisthānke jānun-Kendriyo pāt o sahajogi tantu anusandhān sangsthā. *Krishi Jagrān (in Bengali)*, 2(7): 46.

Sarkar, S. (2017). *Ādibāsider ārthosāmājik unnayan o sisal cās. Yojana (Dhanadhānye) (in Bengali)*,

August, 2017: 43-47.

Saha, R., Sarkar, S., Majumdar B. and Bhattacharjee, S. (2017). *Uccho Falan o Arthik Munafar Lakkhe Fasal Baichitra (In Bengali). Yojana, December Issue, pp. 60-65.*

REGISTRATION AND COMMERCIALIZATION OF TECHNOLOGIES

- **Registration of germplasm:** WCIN-19 with specific characteristics of 'Resistant to jute hairy caterpillar, *Spilosoma obliquea*' have been submitted to ICAR-NBPGR, New Delhi for registration
- **Registration of new variety:** One olitorius jute variety- JROM 1 and one capsularis jute variety - JRCM 2 has been registered in PPV&FR Authority during the period.
- **Royalty earning from commercialized CRIJAF technology**



Royalty received from M/s Krishi Udyog

| Name of the technology | Farm | Royalty deposited (Rs) |
|--------------------------------------|--------------------------|------------------------|
| Nail Weeder and Multi-row Seed Drill | Krishi Udyog | 16,19,750/- |
| CRIJAF Sona | Next 2 Nature | 2,00,000/- |
| | WBPDCCL | 1,47,500/- |
| Multi-row Seed Drill | Jai Maa Tara Enterprises | 83,750/- |
| | Mettle Engineering | 43,750/- |

(Source: Dr. S.K. Sarkar)

HUMAN RESOURCE DEVELOPMENT (HRD)

Trainings organised by ICAR-CRIJAF and its sub-stations

| Name of the Programme/Training | Place | Date | Participants |
|--|--------------------------|----------------------|--------------|
| Farmers Training-cum-Scientist Interaction on "Smart Jute Farming through Capacity Building of Scheduled Caste Farmers in West Bengal" | ICAR-CRIJAF, Barrackpore | 22 July 2017 | 55 |
| Farmers' Day | Brahmapur, Nadia, | 25 July 2017 | 200 |
| Training Programme on Rice Cultivation under TSP | ICAR-CRIJAF, Barrackpore | 27-28 October, 2017 | 51 |
| Training on Improved Technologies for Seed Production under TSP | CSRSJAF, BudBud | 8 November 2017 | 150 |
| Farmers' Training-cum-Exposure Visit sponsored by ATMA, Gangarampur block, Dakshin Dinajpur | ICAR-CRIJAF, Barrackpore | 16-17 November, 2017 | 17 |
| Training on 'Identification of wild species of jute and allied fibres' | ICAR-CRIJAF, Barrackpore | 21-23 November, 2017 | 13 |

Seminar / Symposium / Conference / Workshop attended by the Scientists

| Programme | Place and Date | Participant(s) |
|---|---|---|
| Brainstorming Session on 'Reclamation of Acid Soils in Eastern Region of India' | ICAR-NBSS&LUP Regional Centre, Kolkata 11 August 2017 | Dr. D.K. Kundu Dr. A.R. Saha |
| Workshop on "Innovative Custom Hiring of Farm Machinery" | The Institution of Engineers, Kolkata 19 August, 2017 | Dr. R.K. Naik |
| 5 th Annual South Asia Biosafety Conference | Taj West End, Bangalore, Karnataka 11-13 September, 2017 | Dr. S. Datta |
| International Conference and Expo on Agriculture & Veterinary Sciences: Research Technology | Hyderabad, India 23-25 October, 2017 | Dr. V. Ramesh Babu |
| Third International Conference on 'Bio resource and Stress Management (ICBSM) | State Institute of Agriculture Management, Jaipur, Rajasthan 6-11 November, 2017 | Dr. Amit Bera |
| National Seminar on 'Crop Protection: Current Trend and Future Perspective' | SASRD, Nagaland University, Nagaland 16-18 November, 2017 | Dr. S. Satpathy |
| International Conference on 'Global Research Initiatives for Sustainable Agriculture & Allied Sciences (GRISAAS- 2017)' | MPUAT, Udaipur, Rajasthan 2-4 December, 2017 | Dr. S.K. Pandey |
| National Seminar on "Developments in Soil Science – 2017" | Amity University, Kolkata 11-14 December, 2017 | Dr. A.R. Saha Dr. B. Majumdar Dr. R. Saha Dr. A.K. Singh Dr. S.P. Mazumdar Dr. D. Ghorai |
| Review Meeting on "Progress on ZTMC (Zonal Technology Management Centre) Activities in ICAR Crop Institutes in the Southern Indian zone | IIMR, Hyderabad, 16 December, 2017 | Dr. S.K. Sarkar |

Training undergone by the Scientists/Staff Members

| Training Programme | Place & Date | Name of Participant |
|--|---|---------------------|
| Scientists | | |
| Harnessing NGS Data for Genetic Enhancement in Crops | ICAR-IIWBR, Karnal 3-12 October 2017 | Dr. A. Anil Kumar |
| Advances in Simulation Modelling and Climate Change Research towards Knowledge Based Agriculture | ICAR-IARI, New Delhi 16 November-6 December, 2017. | Dr. A.K. Singh |
| Nano-technological Approaches in Pest and Disease Management | ICAR-NBAIR, Bengaluru 15-24 November, 2017 | Dr. V. Ramesh Babu |

| | | |
|---|--|---|
| Good Practices in Extension Research and Evaluation | ICAR-NAARM, Hyderabad 11-16 December, 2017 | Dr. S.K. Jha |
| Multivariate Data Analysis | ICAR-NAARM, Hyderabad 14 – 20 December, 2017 | Dr. A.K. Chakraborty |
| Recent Advances of Bioinformatics in Agricultural Research: A Practical Perspective | ICAR-IASRI, New Delhi 01-21 December, 2017 | Dr. Maruthi R.T. |
| Administrative and Technical Staffs | | |
| Orientation programme on 'Public Financial Management System (PFMS), GFR, 2017 and Goods & Service Tax (GST)' | ICAR-NRRI, Cuttack 11-12 September, 2017 | Shri S. Ghosh Shri R.R. Debnath Shri T. Ghosh |
| Workshop on "E-Office-01" | ISTM, New Delhi 12-13 October, 2017 | Shri B.N. Mukhopadhyay |
| Training programme on 'Reservation in Service for SC/ST/OBC' | ISTM, New Delhi 13-15 November, 2017 | Shri S. Bhattacharyya |
| Seminar in the 11 th Indian Fisheries and Aquaculture Forum (IFAF) | ICAR-CIFT, Cochin, Kerala 21-24 November 2017 | Dr. G. Ziauddin |
| Orientation Training-cum- Refresher Course for SMSs | ICAR-ATARI, Kolkata. 01 December, 2017 | Dr. D. Ghorai |
| Orientation Training-cum-Refresher Course for SMSs | ICAR-ATARI, Kolkata 04 December, 2017 | Dr. S. Sarkar Mr. S. Garai |

AWARDS

Awards

- Dr. Amit Bera awarded best oral presentation in the theme entitled 'Effect of scarification treatments on seed coat imposed dormancy in five wild species of Genus *Corchorus*' at Third International Conference on Bio-resource and Stress Management on 8-11th November, 2017, Jaipur, India.
 
- Dr. D. K. Kundu, Head of Division (Crop Production) was inducted as *Fellow of the Indian Society of Soil Science* at the 82nd Annual Convention of the Society on 11th December 2017 in recognition of his "outstanding contributions in development of
 

techniques for improving nitrogen use efficiency in lowland rice, conservation and recycling of nitrate for sustaining soil fertility in rainfed rice through inclusion of drought-tolerant and dual-purpose legumes in cropping system".

- The ICAR-CRIJAF sports contingent participated in ICAR Zonal Sports Tournaments-2017 (Eastern Zone) held at ICAR-RCER, Patna from 12th to 17th November, 2017. Total 11 medals (3 gold + 4 silver + 4 bronze) were won by the contingents. Volley ball team (smashing) won the Gold Medal in team event. Among individual events Sh. Uma Sankar Das won Gold medal in Long jump and High jump, Sanjay Sethi won Bronze in Long jump, Laxman Pradhan won Silver in Cycle race. Sh. Ritesh Kumar won four medals in High jump (silver), 1500m race (Silver), 800m race (Bronze) and 400m race (Bronze).

AWARDS AND RECOGNITIONS



Winners of the ICAR-CRIJAF in ICAR Zonal Sports Tournaments-2017



Recognitions

- Indian Council of Agricultural Research selected ICAR-CRIJAF as the Regional Office for National Agricultural Education Accreditation Board (NAEAB) for Eastern and North Eastern Region. Dr. S.K. Sarkar, Pr. Scientist (Plant Pathology) has been selected as Regional Co-coordinator vide. F. No.Edn.5/112008-EQR (P-II) Dated: 04th September, 2017
- Dr. S. Satpathy, HoD, Crop Protection was invited to chair Technical Session on IPM and deliver a lead lecture in the National Seminar on "Crop Protection: Current Trends and Future Perspective" organized by SASRD, Nagaland University, Medziphema, during 16-18 November, 2017.
- Dr. S. Satpathy, HoD, Crop Protection was invited by Indian Society of Vegetable Science to deliver an invited lecture in the National Conference-NCVEG-17 at ICAR-IIVR, Varanasi during 9-11 December, 2017.
- Dr. A.K. Chakraborty, Scientist was invited as a guest lecturer at the Institute of Agricultural Science, Calcutta University for teaching course on Agricultural Statistics for M. Sc. (Ag.) students.
- Dr. D.K. Kundu, Principal Scientist has been selected as Editor for the Journal of Indian Society of Soil Science, New Delhi during the year 2017-18.
- Dr. D.K. Kundu, Principal Scientist has been selected as member of the Executive Council, Kolkata Chapter of the Indian Society of Soil Science for the year 2017-18.
- Dr. P. Satya, Principal Scientist, served as member, Editorial Board of Indian Journal of Genetics and Plant Breeding for the year, 2017-18.

DISTINGUISHED VISITORS

| Name of the Visitor | Affiliation | Date |
|-----------------------|---|-------------------|
| Dr. S. S. Singh | Director, ICAR-ATARI, Kolkata | 10 August, 2017 |
| Mr. Rajan Agrawal | Director, DARE and Chief Vigilance Officer, ICAR, New Delhi | 16 August, 2017 |
| Dr. Tapas Mandal | Hon'ble Member of Parliament | 26 August, 2017 |
| Mr. Chhabilendra Roul | Special Secretary (DARE) & Secretary (ICAR), New Delhi | 10 October, 2017 |
| Dr. S. A. Patil | Chairman, RAC | 7 November, 2017 |
| Mr. S. N. Tripathi | FA, DARE, New Delhi | 17 November, 2017 |
| Dr. R. K. Singh | ADG (Commercial Crops), ICAR, New Delhi | 7 November, 2017 |

AWARDS AND RECOGNITIONS



Dr. S.A. Patil, chairing the RAC meeting at ICAR-CRIJAF



Dr. Tapas Mandal, Hon'ble MP welcomed by the Director



Sh. S.N.Tripathi, FA, DARE visiting the Fermentation unit for preparation of CRIJAF Sona



Mr. Chhabilendra Roul visiting the fermentation unit of microbial retting formulation, CRIJAF Sona

PERSONNEL

Promotion



Shri Sandipan Garai
Programme Assistant (T-5)
Promoted to: Sr. Tech. Officer (T-6)
Date of Promotion: 18.04.2016



Shri Joydeep Pal
Sr. Technician (T-2)
Promoted to: Tech. Assitt. (T-3)
Date of Promotion: 06.07.2016



Shri Santi Nath Pal
Sr. Technician (T-2)
Promoted to: Tech. Assitt.(T-3)
Date of Promotion: 10.07.2016



Shri Avtar Singh
Sr. Technician (T-2)
Promoted to:Tech. Assitt.(T-3)
Date of Promotion: 11.12.2016



Shri Sanjib Ghosh
Sr. Technician (T-2)
Promoted to:Tech. Assitt.(T-3)
Date of Promotion: 11.12.2016



Shri Om Prakash Chowdhury,
Sr. Tech. Asstt. (T-4)
Promoted to: Techn. Officer (T-5)
Date of Promotion: 01.01.2017

PERSONNEL

| | | | |
|---|---|--|---|
|  | <p>Shri Soumya Sarathi Kundu Farm Manager (T-5) Promoted to: Sr. Tech. Officer (T-6) Date of Promotion: 06.01.2017</p> |  | <p>Shri Sourav Biswas Sr. Tech. Asstt.(T-4) Promoted to Tech. Officer (T-5) Date of Promotion: 20.04.2017</p> |
|  | <p>Shri Shiba Pada Datta Tech.Asstt.(T-3) Promoted to: Sr. Tech. Assitt.(T-4) Date of Promotion: 16.07.2017</p> |  | <p>Shri S. P. Prajapati, Technical Asstt. (T-3) Promoted to: Sr. Tech. Assitt.(T-4) Date of Promotion: 16.07.2017</p> |
|  | <p>Shri Kalyan Broto Roy, Sr. Tech. Asstt.(T-4) Promoted to: Tech. Officer (T-5) Date of Promotion: 17.09.2017</p> |  | <p>Shri Akshay Mondal, Sr. Tech. Asstt. (T-4) Promoted to: Tech. Officer (T-5) Date of Promotion: 17.10.2017</p> |
|  | <p>Shri Rakesh Kumar Roshan Sr. Tech. Asstt. (T-4) Promoted to: Techni. Officer (T-5) Date of Promotion: 29.10.2017</p> |  | <p>Shri Dulal Ch. Dey Skilled Support Staff Promoted to: 3rd Financial upgradation under MACP Scheme Date of Promotion: 01.12.2017.</p> |
|  | | <p>Shri Shib Shankar Halder Skilled Support Staff Promoted to: 3rd Financial upgradation under MACP Scheme Date of Promotion: 16.02.2018</p> | |

Superannuation

| | | | |
|---|--|---|--|
|  | <p>Shri Sudhendu Mukherjee Skilled Support Staff Retired on 31.10.2017 Place of Posting: Barrackpore</p> |  | <p>Shri Gobinda Gopal Basu Tech. officer Retired on 31.11.2017 Place of Posting: Barrackpore</p> |
|  | <p>Shri Swapan Kumar Dey Skilled Support Staff Retired on 31.12.2017 Place of Posting: Barrackpore</p> |  | <p>Shri Panchu Das Skilled Support Staff Retired on 31.12.2017 Place of Posting: Barrackpore</p> |

New Colleagues

| | | | |
|---|---|--|---|
|  | Shri Surajit Barman Assistant Date of joining: 04.08.2017 |  | Swati Kumari Assistant Date of joining: 05.08.2017 |
|  | Shri Avirup Das Assistant Date of joining: 07.08.2017 |  | Shri Ritesh Kumar Assistant Date of joining: 11.08.2017 |
|  | Ms. Satarupa Roychowdhury Assistant Date of joining: 31.08.2017 |  | Shri Nilesh Ray Assistant Date of joining: 26.09.2017 |
|  | Shri Sonu Kumar Suman Assistant Date of joining: 24.10.2017 |  | Ms. Madhumonti Saha Scientist Date of joining: 12.10.2017 |
|  | | Dr. Soham Ray Scientist Date of joining: 16.10. 2017 | |

Transfer

| Name | Designation | Place of Posting | Date of Relieve |
|----------------------------|---------------|-------------------------------------|-----------------|
| Dr. Hariom Kumar Sharma | Scientist | ICAR-DRMR, Bharatpur | 07.07.2017 |
| Dr. Sashi Bhusan Choudhary | Scientist | ICAR-NBPGR, Regional Station Ranchi | 07.07.2017 |
| Dr. Amarpreet Singh | Scientist | ICAR-CICR, Regional Sration, Sirsa | 14.07.2017 |
| Dr. M.K. Tripathy | Pr. Scientist | ICAR-IISR, Lucknow | 19.07.2017 |
| Mr. L.L. Kharbikar | Scientist | ICAR-NIBSM, Raipur | 29.07.2017 |

Fallouts of climate change and global warming on complexity and abundance of biotic stresses in field crops with special reference to JAFs

Global warming as the resultant of climate change has become an issue of serious concern worldwide for its potential effect on agriculture. Over past hundred years, the global temperature has increased by 0.8°C and is expected to reach 1.1-5.4°C by the end of next century. Major factor affecting the global warming and the climate change is the concentration of greenhouse gases like carbon dioxide, methane and nitrous oxide. On the other hand, CO₂ concentration in the atmosphere has increased drastically from 280 ppm to 370 ppm and is likely to be doubled in 2100.

The Indian climate has shown gradual shift from the normalcy by manifestation of increasing trends in annual temperature with an average of 0.56°C rise over last 100 years. The post monsoon period is experiencing more temperature and number of hotter days is more frequent in winter. Even though, there was slight increase in total rainfall received, number of rainy days decreased. The declining total rainfall in the rainfed zone of the country has gradually become a regular phenomenon.

In India, the losses attributable to insect damage are likely to increase as a result of decreased crop diversity and increased incidence of insect pests resulting from global warming. Insects have short generation times and high reproductive rates, and hence they are more likely to be affected by climate change because environmental factors have a strong influence on the development, reproduction, and survival of insect pests and their natural enemies. In totality these changes in climate will influence the insect pests by affecting the diversity, abundance geographical distribution, development, population dynamics, host-plant resistance to insects and effectiveness of management interventions. Potential responses will include changes in phenological patterns, habitat

selection and expansion, and/or contraction of geographic distribution. Changes in climatic variables have led to increased frequency and intensity of outbreaks of insect-pests like sugarcane woolly aphid, *Ceratovacuna lanigera* in Karnataka and Maharashtra, rice plant hoppers, *Nilparvata lugens* and *Sogatella furcifera* in North India and, mealybug, *Phenacoccus solenopsis* on cotton, vegetables and ornamental plants in the cotton growing belts of the country, largely due to prevalence of higher temperature and changed cropping environment. Recently, *P. solenopsis* has emerged as a new threat to jute crop. An insight into the weather parameters indicated that slight increase in the maximum and minimum temperature, low rainfall and less number of rainy days between January and May inflicted population bulid up of mealy bug on jute and other alternate hosts.

The jute and allied fibre crops have witnessed the effect of the gradual shift in the climatic pattern in terms of increased diversity and intensity of biotic stresses. The recurrent infestation of cotton mealybug, *Phenacoccus solenopsis* in jute and mesta crop in South Bengal and Northern Andhra Pradesh has confirmed the increasing pest status of mealybug particularly during the dry, hot period in the early crop growth stage. The elevated pest status of Bihar hairy caterpillar (BHC), *Spilosoma obliqua* is evident from few outbreaks in jute and sunnhemp. Development of favourable isle of intensive infestation due to ideal micro-climate under dense cropping triggers such population explosion of BHC. In 2011, there was an outbreak of a phytoplasma like disease on *roselle* in different villages of two districts North coastal of Andhra Pradesh which spread in an area of 5000 ha cropped area. The occurrence of some diseases like stem rot caused by *Macrophomina phaseolina* has become erratic sometimes causing heavy damage in different jute growing pockets of India with more frequent incidence. It's time to retrospect on such changes and effect of climate changes on biotic stresses of jute and allied fibre crops of and alter the research initiatives to combat it.

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E-mail : starlink_india@yahoo.com # M : 9830198824



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