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## FROM THE DIRECTOR'S DESK

Since its journey in 1953, ICAR-CRIJAF (earlier name JARI) made commendable contribution in research for improvement in jute agriculture. In early days of partition of united Bengal, most of the fertile jute growing areas became part of East Pakistan (now Bangladesh) and it was a challenge to cater the jute industries with raw materials as most of the mills were in India. In 1950s, mostly long duration (170-180 days) capsularis jute (*White jute*) varieties (JRC 321, JRC 212) were cultivated with poor fibre yield of 10q/ha. The breakthrough came after the successful transfer of pre-mature flowering resistant gene from 'Sudan Green', resulting in a number of short duration (120-30 days) high yielding (20q/ha) olitorius jute (*tossa jute*) varieties (JRO 878, JRO 7835, JRO 524). These varieties developed during 1960s and 1970s replaced about 95% areas under olitorius jute. Further, the continuous efforts made by ICAR-CRIJAF in the areas like varietal improvement (JRO 66, JRO8432, S 19, JRO 204, JRO 128), agro-techniques like seed drill (for line sowing), nail weeder (for weed management), CRIJAF Sona (microbial retting formulation), INM and IPM technologies have improved the fibre productivity to 30q/ha. Currently almost 95% of jute growing area is covered with the CRIJAF-bred varieties and the entire Breeder Seed requirement of the country is produced by the institute. DJD, NJB, JCI and State DoA played important role in transferring the technologies developed by ICAR-CRIJAF to the farmers.



Still many new challenges have emerged in this sector. To address such challenges, the institute focused its research programme on quality breeding programme, use of genomic information for quality fibre production, fine tuning of retting technologies with better formulation and artificial free flowing retting arrangement, drought and pre-flower resistant varieties with intercropping of short duration pulse crop (as insurance crop) and location specific nutrient requirement.

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## MEETINGS / EVENTS

### Celebration of Republic Day-2018

Republic Day-2018 was celebrated at ICAR-CRIJAF, Barrackpore on 26 January, 2018. The celebration started with flag hosting by Dr. Jiban Mitra, Director, ICAR-CRIJAF. The Director and other senior officers of the institute emphasised the importance of the day and highlighted the hard work and dedication of Dr. B.R. Ambedkar the architect of Indian Constitution. The Director remembered the rich history and achievements of the Institute and appealed the employees to serve with full dedication for betterment of the stakeholders and the country.



Celebration of Republic Day-2018

### Foundation Day

The 65<sup>th</sup> Foundation Day was celebrated on 9<sup>th</sup> February, 2018. The celebration started with the event of cake cutting by the Director, CRIJAF. Sports and game competitions were organized among the staff and their family members and the winners were awarded with prizes. Director, Dr. J. Mitra greeted all the staffs and family members in this special occasion. Director, HODs and other senior officials deliberated on the achievements and golden history of the Institute. The contributions of promising scientists were also recalled. The speakers reiterated that every staff should dedicatedly perform so that the Institutional outcome is visualized by the farmers and stakeholders.



Celebration of Institute Foundation Day



Staff members participating in Foundation Day sports

### Web-telecast of Hon'ble Prime Minister's Address during 'Krishi Unnati Mela'

On the occasion of 'Krishi Unnati Mela' and 'Biennial National Conference of KVKs' on the 17<sup>th</sup> March, 2018 held at ICAR-IARI campus, New Delhi, a programme on "Pre-Kharif Farmer's Gosthi" was organized at ICAR-CRIJAF, Barrackpore along with KVK, North 24 Paragnas in its campus. More than 1000 farmers from 20 villages of North 24 Parganas, Nadia and Hooghly districts attended the programme. Dr. J. Mitra, Director, CRIJAF in his opening remarks informed all the farmers about objectives of Kisan Gosthi and address of Hon'ble Prime Minister of India regarding different central schemes for doubling of farmers' income. A web-telecast of the address by the Hon'ble Prime Minister was arranged for all the farmers, scientists and technical staffs of the Institute (Source: Dr. M.L. Roy).



Farmers watching the web telecast of Hon'ble Prime Minister's Address

### International Day of Yoga-2018

The Institute celebrated fourth International Day of Yoga on 21<sup>st</sup> June, 2018 at its HQs. The programme started as per the schedule with the opening remarks of Dr. R.K. Naik,

## MEETINGS / EVENTS

Senior Scientist & Chairman, E&MC (CRIJAF) in presence of Director, HODs, Scientists and other staff members. On this occasion Dr. Pranab Roy, District President, *Patanjali Yoga Samiti*, North 24 Parganas, Barasat delivered a talk on Yoga and its relevance to the mental and physical health.



Celebration of International Day of Yoga-2018

He also demonstrated some of the yoga positions and Asanas including Pranayams. About 70 staff of the Institute comprising Scientists, Administrative, Technical and Supporting staff attended the programme and practiced different asanas (Source: Dr. R.K. Naik).



### Training Programme on Improved Seed Production Technology of Mesta

A training programme on foundation seed production of mesta was organized with registered seed growers of Jaypur and adjacent blocks of Purulia district. In this occasion, 50 kg breeder seed of improved mesta (both roselle- HS 7910, HS 4288 and kenaf- HC 583) varieties were distributed among farmers. The farmers were sensitized to create awareness about mesta seed production. A total of 50 farmers participated in this training programme. Mesta (both kenaf and roselle) can be grown as *kharif* rainfed crop in uplands where paddy is not grown, as these crops are drought resistant and hardy. Dr. C S. Kar, Principal Scientist, Dr. Amit Bera, Senior Scientist and Mr. U.S. Roy, Assistant Botanist,



Training programme on Improved Seed Production Technology of Mesta

WBAS were present in this meeting. Dr. Kar deliberated on the importance and suitability of soil and climatic condition in this region for seed production of mesta. He also described

the objective of this programme so that farmers can get better price for their produce. Dr. Amit Bera gave detail presentation on methodologies of mesta seed production (Source: Dr. C.S. Kar).

### Brain Storming Meeting on 'Promising Future of Jute'

A brainstorming meeting was organized at ICAR-CRIJAF, Barrackpore on 10<sup>th</sup> April, 2018. RAC members from Kolkata, Director, ICAR-NIRJAFT, representatives from NJB, JCI, Jute Industries, seed growers (Nuzivedu Seed and Bharat Nursery), farmers' representatives and other stakeholders participated in the meeting. Exploring the world market for jute and allied fibres, product diversification, scientific and simple robust methods for "quality" assessment of fibres and 'products', development of cost effective low-water and quick retting methods were salient recommendations (Source: Dr. Subhojit Datta).



Brain storming meeting on jute

## MEETINGS / EVENTS

### QRT Meeting

Introductory meeting of QRT chaired by Dr. C.D. Mayee, Former Chairman, ASRB was held on 21.02.2018. He explained in detail about the reports and presentations to be made by Institute and AINPJAF Centres for the QRT. He also interacted with the scientists of the Institute.

The first meeting of QRT was held at CRIJAF HQ and CSRSJAF, Budbud from 17.04.2018 to 19.04.2018. Director, ICAR-CRIJAF welcomed the members and briefed about Institutional achievements. In the opening remarks Dr. C.D. Mayee, Chairman QRT expressed concerns about the jute sector, particularly the productivity plateau. He appealed the researchers for transforming the economic condition of farmers through appropriate technologies. Dr. N. Gopalakrishnan viewed that the institutional output is to be made stronger for practical problem solving through proper SWOT analysis. Dr. L.K. Hazarika appreciated the present research activities of the Institute and emphasized to concentrate more on HPR research to combat pest outbreak. Dr. S.R. Das expressed satisfaction on the varietal development programme. However, he stressed upon development of gene pool, creating greater genetic variability, more multiple evaluation for wider adaptability and breeding methods for targeting mega variety. Dr. D. Nag emphasized for the importance to allied fibre crops with special focus on quality. Dr. S. Satpathy, Member-Secretary, QRT presented the ATR and the background information of the Institute, jute and allied fibre sector. Division-wise and regional station-wise and AINPJAF (HQ) presentations were done by respective I/Cs. The CAO and FAO of ICAR-CRIJAF deliberated about the manpower, financial and administrative issues.

The QRT team visited CSRSJAF, Budbud on 18.04.18. Dr. C.S. Kar, Nodal Officer Seeds and Dr. H.R. Bhandari, I/C, CSRSJAF made a brief presentation on the jute seed scenario and achievements of the station. The team emphasised particularly for strengthening seed technology research and enhancing the breeder seed price.

On the third day of QRT meeting on 19.04.18 the team had a detail interaction with the scientists of different divisions followed by the representatives of Jute Industry, State Department of Agriculture, JCI, NJB, DJD, NGOs and farmer's representatives. (Source: Dr. S. Satpathy.)



QRT meeting Chaired by Dr. C.D. Mayee



Field visit of QRT at CSRSJAF, BudBud

### Webcasting of Farmers' Interaction with PM

As per the directives of the Council, the Institute organized the live webcasting of farmers' interaction with Hon'ble Prime Minister of India in various Krishi Vigyan Kendras on 20<sup>th</sup> June, 2018. On this occasion, a farmers-scientist interaction meeting was also organized in the Institute. Various issues related to jute agriculture like weed management, IPM, INM, jute based cropping system were discussed by the scientists of the Institute and queries raised by the farmers were adequately addressed. About 150 farmers participated in this programmes (Source: Dr. M.L. Roy).



Webcasting of Farmers Interaction with PM



Farmers-Scientist Interaction Meeting

## IRC Meeting

The Institute Research Council (IRC) meeting (2018-19) was conducted under the chairmanship of the Director, ICAR-CRIJAF to review the proposal of new research projects as well as progress of the on-going in-house projects and achievements of externally funded research projects during 21-22 May, 2018. The chairman complimented Dr. D. Buman, Sr. Scientist and his team for getting one externally funded project from ISRO and requested all the scientists to pursue for externally funded projects. He also appreciated the scientists for their commendable achievements and transfer of technologies especially in Jute-ICARE programme. Dr. S.K. Sarkar, Pr. Scientist and In-Charge, PME Cell coordinated the meeting (Source: S.K. Sarkar).



Presentation and discussion on various project report during IRC, 2018

## Hindi Workshop

One day Hindi workshop was organized at ICAR-CRIJAF on 29<sup>th</sup> June, 2018 with major objective to reduce the inertness among the employees to use Hindi in day to day official work. Director, Dr. J. Mitra chaired the inaugural session of the workshop. Dr. Chandra Gopal Sharma, Deputy Chief Rajbhasha Adhikari (JAG) Eastern Railway, Kolkata deliberated on Rajbhasha policies, rules, grammer etc. Dr. S.K. Pandey, Scientist In-Charge, Hindi Cell and Mr. Manoj Kumar, Assistant co-ordinated the programme (Source: Dr. S.K. Pandey)



Hindi Workshop chaired by Director, ICAR-CRIJAF

## 13<sup>th</sup> Annual Group Meeting of AINPJAF

The 13<sup>th</sup> Annual Group Meeting of All India Network Project on Jute and Allied Fibres (AINPJAF) was held on 10-11 February, 2018 at Bidhan Chandra Krishi Viswavidyalaya, Kalyani. Dr. C. Chattopadhyay, VC, UBKV inaugurated the workshop. Dr. Jiban Mitra, Director ICAR-CRIJAF welcomed the guests and participants. He emphasized for better execution of the projects to enhance the efficiency of AINPJAF. Dr. S. Mitra, In-charge AINPJAF presented the summary report on various trials under AINPJAF. The concurrent sessions on Crop Improvement, Crop Production, Crop Protection and Fibre Quality were conducted. Dr. R.K. Singh, ADG (Commercial Crops), ICAR, New Delhi chaired the Variety Release Committee meeting on February 11, 2018 (Source: Dr. S. Mitra).



Inaugural session of AINPJAF workshop at BCKV, Kalyani



The technical session of AINPJAF workshop is in progress

## MEETINGS / EVENTS

### National Sanitation Campaign under Swachha Bharat Mission activities of ICAR-CRIJAF

Under the banner of Swachha Bharat Mission, the Institute organized awareness programmes and cleanliness drive inside the premises and outside the campus.



Cleaning activities in CRIJAF campus

Besides the cleaning activities emphasis was given to create awareness among public towards cleanliness



Staff members of ICAR-CRIJAF participated in Swachha Bharat Mission activities

## KRISHI VIGYAN KENDRA

### Vocational Training of Women

KVK, Purba Bardhaman conducted two vocational trainings on 'Kantha Stitch' (15 days) for rural women and school dropout girls at Nurkona, Galsi I. Forty rural girls and women were benefitted from the training programme.



Vocational training on Kantha Stitch

### Mati Tirtha Krishi Katha -2018

KVK, Purba Bardhaman participated in 'Mati Tirtha Krishi Katha' organized by Govt. of West Bengal at Bardhaman from 2-8 January, 2018 and exhibited the latest technologies like integrated farming system, improved cultivars of crops,

women handicrafts, improved fish production technology and other profitable technologies developed by CRIJAF.



Exhibition of integrated farming system

### Technology Week

KVK, Purba Bardhaman celebrated 'Technology Week' during 15-17 March, 2018 to make farmers aware of the flagship technology and technology products in agriculture, horticulture, animal sciences, fisheries, home science, etc in PPP mode. Six lectures were delivered by distinguished experts. Film shows on latest agricultural technologies were also presented during the technology week. Around 300 farmers and farm families were benefitted from the week long programme.



Celebration of Technology Week at KVK, Purba Bardhaman

## XIV Scientific Advisory Committee Meeting

The XIV<sup>th</sup> Scientific Advisory Committee meeting was held at KVK, Purba Bardhaman on 18<sup>th</sup> January, 2018. The meeting was chaired by Dr. Jiban Mitra, Director, ICAR-CRIJAF, attended by officials of ICAR institutes, line department and bank officials and selected farmer representatives. FLDs and OFTs conducted during 2017 were discussed.



XIV<sup>th</sup> SAC meeting at KVK, Purba Bardhaman

## Web-telecast of Hon'ble Prime Minister's Speech at National Conference of KVK

KVK, Purba Bardhaman organized the live telecast programme of Hon'ble PM at National Conference of Krishi

Vigyan Kendra on March 17, 2018. Hon'ble PM urged the farmers to adopt organic farming, improved seeds, farm mechanization and integrated crop production technology to take forward the initiatives of the Government for doubling of farmers' income by 2022. 'Krisak Sammelan' was also organized at KVK in which 250 farmers participated.



Farmers attending the Web telecast of Prime Minister's speech during KVK conference

## Refresher Course of ATMA Functionaries

Two refresher courses for Assistant Technology Managers (ATM) and Block Technology Managers (BTM) under ATMA were conducted during June, 2018. Total of 75 ATMs and BTMs from the districts of Purba and Paschim Bardhaman participated in the training. Apart from KVK SMSs resource persons from ICAR institutes, universities and line departments deliberated on diverse technologies.



Participants of refresher courses of ATMA functionaries

# RESEARCH NOTES

## Jute and Allied Fibre Varieties Released

### Kenaf (*Hibiscus cannabinus*)

**JBMP 3 (Priya):** Average fibre yield of this variety is 26.16 q/ha with a potential yield of 30-32 q/ha. Better fibre quality in terms of fibre tenacity (23.24 g/tex) and fineness (3.08 tex) with 15-20% less root content and defects. It is 15-20% more resistant to stem rot and MYVM disease. It is recommended for cultivation in rainfed and irrigated agro-climatic conditions of A.P., Odisha, Maharashtra, West Bengal, Bihar and North Eastern states.



### Roselle (*Hibiscus sabdariffa*)

**JRR 17 (Ayush):** Its a high yielding variety with potential and average yield of 32-35 q/ha and 26.35 q/ha respectively. Its fibre tenacity is 20.20 g/tex and fineness is 3.0 tex coupled with 15-20% less root content and defects make its fibre quality better than cultivated check variety HS 4288. This variety has less bristles in stem and is resistant to foot and stem rot disease. It has been recommended for mid and upland areas of West Bengal, Odisha, Tamilnadu, Maharashtra, Bihar and Andhra Pradesh for cultivation in rain-fed condition. (Source: Dr. S. Mitra and Dr. S.K. Pandey, AINPJAF)



## Effect of Spacing on Growth of Sisal Bulbils in Primary Nursery

Sisal is mainly propagated by vegetative means known as 'bulbils' and 'suckers'. Bulbils develop from tiny buds present on each flower stalk (pole) which emerge after 11-12 years of active growth of sisal plantation. A bulbil is a plantlet consisting of a meristem, 3-4 reduced leaves and rudimentary adventitious roots. Primary nursery of fresh sisal bulbils collected during mid-February to mid-April is raised during 4-6 summer-rainy months. The growth of sisal bulbils planted at different spacing in primary nursery was studied in an experiment at SRS, Bamra.

### Effect of spacing on growth parameters on bulbils

| Spacing       | No. of plants/m <sup>2</sup> | No. of leaves/plant | Mean leaf length (cm) |
|---------------|------------------------------|---------------------|-----------------------|
| 8 cm x 8 cm   | 160                          | 4.25                | 14.13                 |
| 10 cm x 7 cm  | 140                          | 4.32                | 14.57                 |
| 10 cm x 8 cm  | 120                          | 5.04                | 15.67                 |
| 10 cm x 9 cm  | 112                          | 5.20                | 15.83                 |
| 10 cm x 10 cm | 100                          | 5.56                | 16.20                 |
| CD (P= 0.05)  | 4.85                         | 0.34                | 0.51                  |



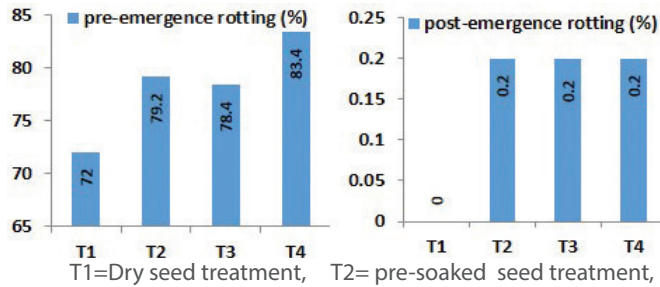
Primary nursery of sisal bulbils

The number of sisal bulbils in the primary nursery beds was higher (160/m<sup>2</sup>) at lower spacing (8 cm x 8 cm) and lower (100/m<sup>2</sup>) at higher spacing (10 cm x 10 cm). Highest number of leaves (5.56 per bulbil) was obtained with 10 cm x 10 cm spacing, followed by the number of leaves recorded at 10 cm x 9 cm (5.20) and 10 cm x 8 cm (5.04). The longest leaf was observed in 10 cm x 10 cm spacing (16.20 cm). Bulbil spacing at 10 cm x 8 cm was most ideal with relatively higher bulbil number without significant reduction in leaf size and number. (Source: S. Sarkar, A.K. Jha, D.K. Kundu and M.S. Behera, ICAR-CRIJAF, SRS, Bamra)

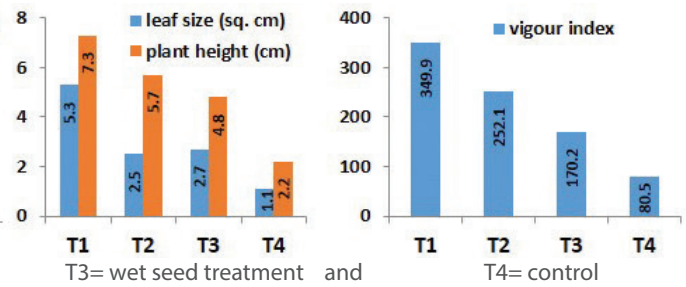


## Efficacy of Different Seed Treatment Methods with Carbendazim on Vigour and Disease Control of Jute

Among the 3 seed treatment methods (dry seed, pre-soaked seed and wet seed treatment) in jute (cv. JRO 204) with carbendazim 50 WP, dry seed treatment method significantly



reduced the emergence rotting as well as improved the vigour of the plant. Results on challenged inoculation at 30 DAS done by slitting the stem and placing the fungal bit on the slit showed that in all the methods of seed treatment, lesion size was less than the control. In control pot the inoculated plant died at 96 h of inoculation whereas in seed treated plant it was delayed. (Source: S.K. Sarkar and Anupam Jana, ICAR-CRIJAF, Barrackpore)



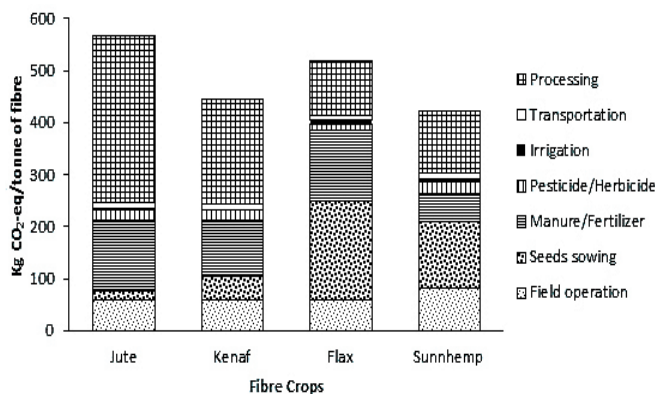
Dry seed treatment (T1)      Pre-soaked seed treatment (T2)



Wet seed treatment (T3)      Control (T4)

Effect of different seed treatment methods on disease control and growth promotion in jute

## Carbon Footprint and Energy Use in Jute and Allied Fibre Production



The system studied seven general processes which include field operations, seeds, fertilization, pesticides, retting, transportation and fibre processing on carbon footprint of jute, kenaf, flax and sunnhemp. The labour, machinery power, diesel fuel, chemical fertilizers, chemical pesticides and irrigation were identified as inputs to assess the amount of energy usage while the fibre and stick as output. The amounts of GHG emissions in jute and allied fibre production were calculated by using CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> emissions

coefficient of inputs. Energy productivity was lowest in flax fibre production as compared to other fibre crops. Flax fibre production consumed more chemical fertilizer, diesel, pesticides and seed energy in comparison to other fibre crops. The carbon footprints of all the fibre crops did not differ significantly and were in the order of 566, 520, 445 and 423 kg CO<sub>2</sub>-eq/ton of fibre for jute, flax, kenaf and sunnhemp, respectively. The carbon based sustainability index for jute (2.27) and kenaf (2.07) were highest due to better carbon use efficiency. Sustainability index of flax was found negative (-0.67) due to higher carbon emission. Fertilization and fibre processing contributed most to GHG emissions. Overall, the carbon foot print of bast fibres was found to be 20–50% lower than that of synthetic/artificial fibres.

Source: A.K. Singh, Mukesh Kumar and S. Mitra  
ICAR-CRIJAF, Barrackpore

## Impact of Tillage and Crop Residue on Soil Mechanical Properties and Structural Stability under Jute Based Cropping Systems

Short-term (3 years) changes in soil mechanical properties were evaluated in jute based cropping systems (jute-rice-wheat, jute-rice-lentil and jute-rice-mustard) under various tillage systems i.e. conventional tillage (CT) and no tillage

## RESEARCH NOTES

(NT) with or without crop residue retention (+R/-R). Soil bulk density didn't change appreciably. Soil resistance to penetration at 10-20 cm layer reduced under NT system with residue retention (NT+R), owing to greater soil water content. Addition of crop residue, irrespective of tillage, improved bulk soil organic carbon (SOC) content and soil aggregation, promoting a better root-zone hydro-physical regime in all crop-rotations. The SOC contents under No tillage with residue incorporated plots (NT+R) are much higher, maximum being in jute-rice-lentil. The tillage-cropping system interactions had significant impact on mean weight diameter (MWD) of air-dried aggregates at 0-15 cm layer. No tillage with residue incorporated plots (NT+R) showed higher aggregate stability (MWD: range-0.51-0.83 mm and WSMA: range- 41.1-62.8 %). Disruption of aggregates through different energy inputs was the least under NT+R, indicating predominantly higher amount of water-stable aggregates, providing a better soil structure. Soil microbial biomass carbon (SMBC) and soil moisture contents at surface soil (0-15 cm) were high under No tillage with residue incorporated plots (NT+R) as compared to conventional tillage practice.

Source: R. Saha, M.S. Behera, Mukesh Kumar, A.R. Saha, B. Majumdar, D. Barman, S.P. Mazumdar, R.K. Naik, D.K. Kundu and A. Paswan  
ICAR-CRIJAF, Barrackpore

### A Study on the Innovation Decision Process of Different Interventions Introduced at Makaltala, North 24 Parganas

A study was conducted at Makaltala village, North 24 Parganas to assess the number of farmers who are in the different stages of innovation decision process. The technologies introduced in the village under jute crop were Jute Variety, Nail weeder, Seed drill and Retting using CRIJAF SONA. The results indicated that retting using CRIJAF SONA was completely adopted by all the farmers. In case of jute variety JRO 204, only 40 % of the farmers had confirmed whereas 85% farmers had passed the implementation stage of the innovation decision process. Farmers reported that lack of availability of sufficient jute seeds of improved variety had caused the non-adoption of the technology by the remaining farmers.

In case of line sowing using seed drill and nail weeder, all the farmers had passed through knowledge and persuasion stages and finally 70 % farmers have adopted the line sowing using seed drill and 63.3% had adopted the Nail weeder. Rate of adoption of retting using CRIJAF SONA was highest, followed by seed drill, nail weeder and jute variety JRO 204.

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

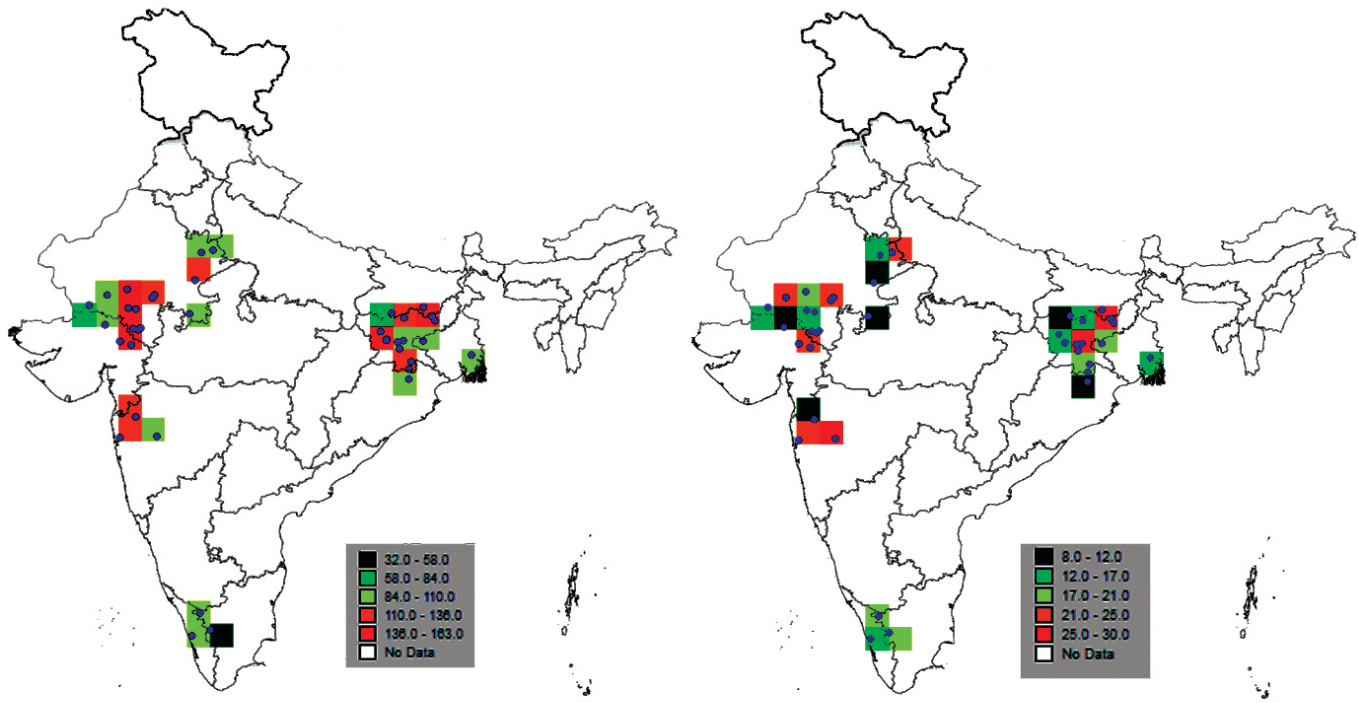
#### Distribution of farmers in various innovation decision stages

| Technology                   | Innovation Decision Process (2017) |            |           |                |              |
|------------------------------|------------------------------------|------------|-----------|----------------|--------------|
|                              | Knowledge                          | Persuasion | Decision  | Implementation | Confirmation |
| Jute Variety-JRO 204         | 60 (100%)                          | 60 (100%)  | 54(90%)   | 51(85%)        | 24(40%)      |
| Line sowing using seed drill | 60(100%)                           | 60(100%)   | 48(80%)   | 42(70%)        | 42(70%)      |
| Nail Weeder                  | 60(100%)                           | 60(100%)   | 55(91.6%) | 40(66.66%)     | 38(63.33%)   |
| Retting using CRIJAF Sona    | 60(100%)                           | 60(100%)   | 60(100%)  | 60(100%)       | 60(100%)     |

### DIVA-GIS Based Insight into Geographical Distribution and Diversity Spectrum of Indian Sunnhemp (*Crotalaria juncea* L.) Accessions

Geographical distribution pattern(s) and agromorphological diversity spectrum of forty-four sunnhemp accessions naturalized across diverse habitats of India were studied. Maps on the genetic diversity pattern of two traits viz., number of leaves per plant and seed yield per plant were generated in coordination with geographical coordinates (latitude and longitude) of the collection site.

High diversity index for number of leaves per plant was observed in the genotypes collected from parts of southern Rajasthan, Western Gujarat and Jharkhand regions. The highest diversity index for seed yield per plant was observed in accessions collected from central and northwest parts of Jharkhand and central parts of Maharashtra state. Grid maps further indicated that sunnhemp accessions collected from Tamil Nadu and Kerala recorded lowest diversity index for both the traits. The present study indicated the distribution of trait-specific diverse accessions of sunnhemp germplasm in various regions of the country and further enabled us to find out gaps in collection and diversity richness.



DIVA-GIS grid maps showing diversity index for (a) number of leaves/plant and (b) seed yield/plant in sunnhemp germplasm

Source: Maruthi, R.T. and A. Anil Kumar  
ICAR-CRIJAF, Barrackpore

### Identification of Larval Parasitoid, *Sisyropa* spp from Jute Semilooper, *Anomis sabulifera* (Guenee)

Adult parasitoids emerging from pupa of jute semilooper, *Anomis sabulifera* were collected for identification. Adults appeared greyish to blackish in colour resembling common house flies. Antennae were aristate type and characterized by robust bristles at the tip of the abdomen. Based on the morphological characteristics, the parasitoid was identified as *Sisyropa* spp. (Diptera: Tachinidae) at Zoological Survey of India, Kolkata. The parasitoid was prominent during the mid-April to last week of May. The later larval instar of *A. sabulifera* was more vulnerable to the parasitoid, *Sisyropa* spp is characterized to be a solitary endoparasite.



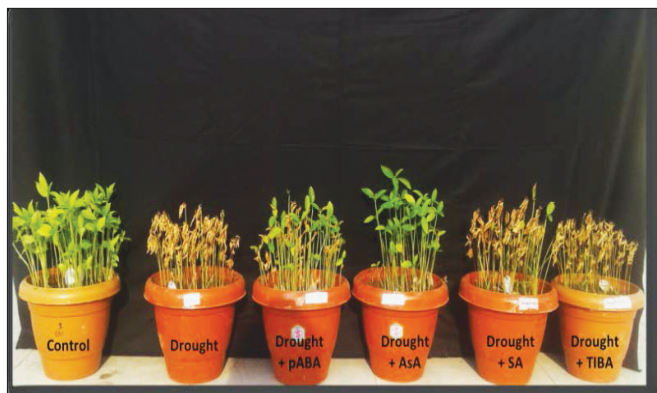
*Sisyropa* spp. adults, the solitary endoparasite of jute semilooper, *A. sabulifera*

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

## RESEARCH NOTES

### Physiological Response of Jute Seedlings to Plant Growth Regulators Under Drought

Twenty-seven day old jute plants were subjected to drought by withholding irrigation. Along with this, above ground part of additional sets of plants were sprayed with five different plant growth regulators/elicitors i.e., ascorbic acid (AsA), p-amino butyric acid (pABA), salicylic acid (SA), tri-iodobenzoic acid (TIBA), Urea + Magnesium sulfate and subjected to drought. Plants could withstand moisture deficit stress upto 6% soil moisture content at 5 cm depth. AsA showed the best performance among the exogenously applied growth regulators in terms of plant height as well as recovery followed by pABA.



Recovery of jute plants on re-watering after seven days moisture deficit stress

Further, seedlings of two jute varieties, JRO-204 and S-19, were subjected to drought/osmotic stress with 8% PEG-6000 at twelve days growth stage. Additional sets of plants were sprayed with 10 mM AsA and 10  $\mu$ M pABA separately. Plants under drought showed reduced membrane stability, chlorophyll content, fresh and dry biomass, plant height and increased root length. Exogenous application of AsA and pABA showed better response in seedlings in terms of increased plant height, membrane stability and chlorophyll content under drought. Among both these elicitors, plants with ascorbic acid exogenous application showed better response. JRO-204 showed better performance as compared to S-19 at twelve days growth stage. Exogenous application of AsA seems to be a better source to counteract the drought mediated injury in jute.

Source: L. Sharma, S. Roy, P. Satya, D. Barman, S. Mitra and J. Mitra  
ICAR-CRIJAF, Barrackpore

### Effects of Climate Variability on Jute-Based Cropping System as Perceived by the Farmers

A pilot study was conducted taking a random sample of 50 farmers from North 24 Parganas district to identify the

effect of climate variability on jute-based cropping system as perceived by the farmers. The age of the respondents ranged from 30 to 60 years. The major information sources of the farmers were CRIJAF, ADA, KVK, KPS, TV and mobile. Jute-based cropping patterns practiced by them were jute-rice-potato, jute-rice-lentil/gram/pea and jute-rice-mustard. Majority of the farmers (90%) have perceived that climatic components and its occurrences have varied during last 10-15 years.

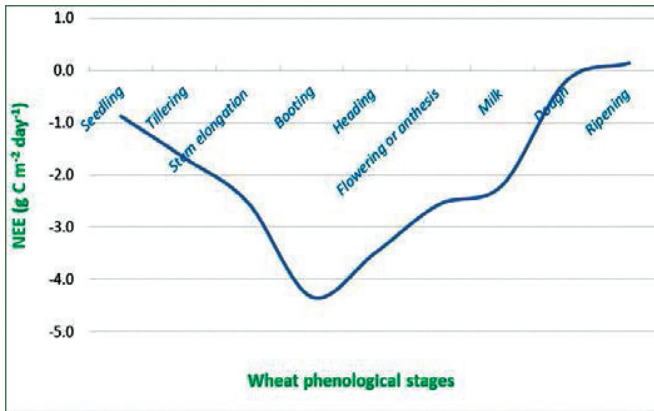
The effect of climate variability in jute-based cropping system as perceived by the farmers in descending order of weighted mean score (WMS) are: 'Heavy rainfall during harvesting has been causing huge yield losses' (2.16), 'Jute is being affected due to prolonged drought and incidences of heavy rainfall during its early growth stages' (2.04), 'Insect and disease infestation has become virulent and high due to prolonged hot and humid weather' (1.94), 'Heavy fog in day time during winter season has increased insect and disease infestation in potato and mustard' (1.90), 'Desirable soil moisture has become unavailable during sowing time of crops' (1.84), 'Soils have become drier and hard due to increased soil temperature' (1.70), 'Incidences of flower drops have been increased in lentil and pea due to high winter temperature and production suffers due to reduction in winter days' (1.64), 'Water availability during retting period has become scarce' (1.60), 'Water holding capacity of soil has been reduced' (1.52) and 'Duration of traditional cropping seasons has been distorted' (1.50).

Source: M.L. Roy, S.K. Jha, S. Sarkar, A.K. Ghorai, A.K. Singh, S. Satpathy and A. Chakraborty  
ICAR-CRIJAF, Barrackpore

### Eddy Covariance Measurement of Net Ecosystem Exchange (NEE) Of CO<sub>2</sub> in Winter Wheat Grown Under Jute-Rice-Wheat Cropping Sequence

The open path eddy covariance (EC) system was installed at Research Farm of ICAR-CRIJAF, Barrackpore to measure CO<sub>2</sub>, moisture, and energy fluxes in jute-rice-wheat ecosystem. The EC system can provide a measure of net ecosystem exchange (NEE) of CO<sub>2</sub>. The seasonal CO<sub>2</sub> flux under wheat ecosystem was characterised in winter season during December 2017 to March 2018. The first-hand computation of flux data revealed that the average NEEs at the phenological stages of wheat are of -0.88, -1.68, -2.53, -4.34, -3.50, -2.57, -2.20, -0.22, +0.13 g C m<sup>-2</sup> day<sup>-1</sup> in seedling, tillering, stem elongation, booting, heading, flowering or anthesis, milk, dough, and ripening stages, respectively (Fig. 1). The negative values showed that the C sequestration in biosphere during all the stages except the ripening stage at which it was opposite. This may be attributed to the higher rates of photosynthesis over respiration in former case, and

reverse in the later. The magnitude of NEE of CO<sub>2</sub> reached its maximum value at booting stage, and minimum at ripening stage. The integrated NEE in the irrigated wheat ecosystem was -2.39 Mg C ha<sup>-1</sup>. The wheat crops can also contribute as micro-sinks and cannot be ignored while modelling carbon balance in a region.



Net ecosystem exchange (NEE) at different phenological stages of irrigated wheat

Source: D. Barman, S. Roy, D.K. Kundu, R. Saha, A.K. Singh, S. Mitra, S.P. Mazumdar and A. Bagui  
ICAR-CRIJAF, Barrackpore & A. Chakraborty, P.K. Das, C.S. Murthy, ISRO

## Wild Jute, *Corchorus aestuans* (Accession number: WCIN-179): A Unique Resistant Source for Jute Hairy Caterpillar, *Spilosoma obliqua*

Till date there is no reported source of resistance against hairy caterpillar which is a regular pest of jute. Among wild jute species, *C. aestuans* accession namely, WCIN-179 was found to be highly resistant to jute hairy caterpillar during the four years of study at ICAR-CRIJAF, Barrackpore and ICAR-CTCRI, Regional Station, Bhubaneswar. This accession was confirmed to be resistant as evidenced through the biology, feeding preference and oviposition behavior of *S. obliqua* recorded on *C. aestuans* (Accession: WCIN-179) as compared to other *Corchorus* species. This accession recorded 71% less oviposition and 52% less preference for feeding by *S. obliqua* compared to cultivated variety, *C. olitorius* (cv. JRO-204). The larval growth on WCIN-179 was significantly impaired and the larvae failed to pupate and complete the life cycle. This accession has been registered by Plant Germplasm Registration Committee (PGRC) of ICAR on 02<sup>nd</sup> June, 2018 with registration details viz., KC/AK/DS-54 of wild jute (INGR 18023).



Wild jute, *Corchorus aestuans* (Accession No. WCIN 179)  
B.S. Gotyal<sup>1</sup>, S. Satpathy<sup>1</sup>, S.B. Choudhary<sup>2</sup>, K. Selvaraj<sup>3</sup>  
<sup>1</sup> ICAR-CRIJAF Barrackpore, <sup>2</sup> ICAR-NBPGR, Ranchi, <sup>3</sup> ICAR-NBAIR, Bengaluru

## Effect of Seed Treatment on Germination and Vigour of Mesta

Nine different fungicides namely carbendazim 50WP, mancozeb 75 WP, cu-oxyclozide 50WP, moximate, captan 80WP, tricyclazole 75WP, hexaconazole, metalaxyl 35WS, carbendazim (12%)+ mancozeb 63% were tested as seed treatment under blotter paper method. The germination and vigour index [(VI= germination x (root length + shoot length))] was recorded at 24h intervals. The performance of combined formulation (carbendazim + mancozeb) was the best in terms of germination as well as vigour index followed by mancozeb, captan and carbendazim. The rest of the fungicides showed growth inhibiting tendencies.

Effect of fungicides on germination and seedling vigour of freshly harvested mesta seed (cv. JBM 2003H) in blotter paper method

| Fungicides                                | Germination (%) (at 96 h) | Vigour index (at 96 h) |
|---|---------------------------|------------------------|
| Carbendazim 50WP @2g/kg                   | 74                        | 631                    |
| Mancozeb 75W @3g/kg                       | 75                        | 640                    |
| Cu-oxyclozide 50WP@4g/kg                  | 72                        | 250                    |
| Moximate @2g/kg                           | 70                        | 150                    |
| Captan 80WP @1.5g/kg                      | 76                        | 625                    |
| Tricyclazole 75 WP @2g/kg                 | 22                        | 180                    |
| Hexaconazole@0.1%                         | 60                        | 602                    |
| Metalaxyl 35 WS @2g/kg                    | 60                        | 235                    |
| Carbendazim 12% + mancozeb 63 % @ 2.5g/kg | 79                        | 718                    |
| Control (no fungicide)                    | 74                        | 540                    |

Source: S.K. Sarkar and Anupam Jana  
ICAR-CRIJAF, Barrackpore

# RESEARCH NOTES

## Performance of Seasonal Vegetables as Intercrop in Hybrid Sisal under Fruit- Fibre System

Feasibility of fruit-fibre system consisting of different dry land horticulture crops like pomegranate, amla, ber and lemon, grown in the inter-spaces of double row hybrid sisal plantation (Variety: Leela) was assessed in SRS, Bamra. To improve the system productivity, different traditional rainfed annual vegetable crops such as colocasia, okra,

radish and bottle gourd were evaluated in between the fruit plants. An additional income of Rs. 23,000/ha and with total sisal equivalent yield of 18.1 q was obtained with adoption of bottle gourd as inter-crop in lemon based fruit-fibre system. In terms of profitability, bottle gourd grown in lemon based fruit fibre system registered the highest net income of Rs. 67000/- with B:C ratio of 2.67 compared to radish raised in ber fruit fibre system (net income of Rs. 54200/ha and B:C ratio of 2.3). Therefore, growing of rainfed vegetables as intercrops with Hybrid sisal in the fruit-fibre system in *kharif* season is recommended for sisal farmers.



Bottle Gourd grown in Sisal interspace



Radish grown in Sisal interspace

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

## HUMAN RESOURCE DEVELOPMENT (HRD)

### Training organized by ICAR-CRIJAF

| Name of the Programme/Training   | Date                                       | No. of Participants |
|--|--|---------------------|
| Training on 'Operation & Maintenance of Farm Implements for Sowing and Weeding in Jute'                            | Goaldaha village<br>24 January, 2018       | 29                  |
|  | Panji village<br>27 January, 2018          | 53                  |
|  | Panchkahaniya village<br>14 February, 2018 | 24                  |
| Trainers' training on 'Improved Production Technologies of Jute' under Jute-ICARE Programme                        | ICAR-CRIJAF<br>20-21 February, 2018        | 65                  |
| Farmers' Training on 'Field Demonstration on Climate Smart Jute Farming'   | ICAR-CRIJAF<br>6-8 March, 2018             | 124                 |
| Training on 'Improved Production Technology of Jute and Allied Fibres' under NFSM (Commercial Crop) Jute Programme | ICAR-CRIJAF<br>20-22 March, 2018           | 20                  |
| Trainers' Training on Improved Retting Technology of Jute Under Jute-ICARE   | ICAR-CRIJAF<br>26-27 June, 2018            | 51                  |

**Seminar/Symposium/Conference/Workshop attended by the Scientists**

| Programme   | Place and date                                | Name of the participant/s                                      |
|---|---|--|
| 52 <sup>nd</sup> Annual Convention of Indian Society of Agricultural Engineers (ISAE) and National Symposium on "Doubling Farmers' Income through Technological Intervention" | AAU, Anand<br>8-10 January, 2018              | Dr. R.K. Naik  |
| National Conference on "Innovative Farming for Food and Nutritional Security in Changing Climate"   | BCKV, Kalyani<br>12-13 January, 2018          | Dr. S. Sarkar<br>Dr. S. Kumar<br>Dr. Shamna A.<br>Dr. M.L. Roy |
| Scientific Advisory Committee (SAC) Meeting   | KVK, Burdwan<br>18 January, 2018              | Dr. A.K. Singh   |
| International Symposium on "Biodiversity and Bio Banking"   | IIT Guwahati<br>27-29 January 2018,           | Dr. B.S. Gotyal<br>Dr. Maruthi, R.T.                           |
| National Seminar cum Panel Discussion on "Doubling Farmers' Income: Role of Agricultural Mechanization"   | Visva-Bharati, Sriniketan<br>29 January, 2018 | Dr. R.K. Naik  |
| 1 <sup>st</sup> International Extension Congress on "New Horizons of Extension-Challenges and Opportunities"  | ICAR-CIWA, Bhubaneswar<br>1-3 February, 2018  | Dr. M.S. Behera  |
| XVI-AZRA International Conference on "Applied Zoological Research for Sustainable Agriculture and Food Security"  | BHU, Varanasi<br>9-11 February, 2018          | Dr. S. Satpathy  |
| 13 <sup>th</sup> Annual Workshop of AINP-JAF  | BCKV, Kalyani<br>10-11 February, 2018         | All Scientists of<br>ICAR- CRIJAF                              |
| International Conference on "Sustainability of Smallholder Agriculture in Developing Countries under Changing Climate Scenario"   | CSUAT, Kanpur<br>14-17 February, 2018,        | Dr. M.S. Behera  |
| Workshop on "Developing multi-Disciplinary Approach in Project Formulations and Innovations in Agriculture & Allied Sectors"  | ICAR-CIFRI, Barrackpore<br>17 February, 2018  | Dr. A.K. Singh   |
| National Agronomy Congress on "Redesigning Agronomy for Nature Conservation and Economic Empowerment"   | GBPUA & T, Pantnagar<br>20-22 February, 2018  | Dr. A. Bera<br>Dr. Mukesh Kumar                                |
| Brain Storming-cum-Interaction Meet on "Engineering Interventions for Production and Processing of Different Crops"   | ICAR-CIAE, Bhopal<br>26-27 February, 2018     | Dr. R.K. Naik  |
| Krushi Odisha 2018  | DoA, Bhubaneswar<br>6-9 March, 2018           | Dr. M.S. Behera  |
| National Workshop on 'Revisiting FOCARS: Reflections and Feedback of Trained Scientists'  | ICAR-NAARM, Hyderabad<br>15-16 March, 2018    | Dr. V. Ramesh Babu   |
| Biennial National Conference of KVKs  | ICAR-IARI, New Delhi<br>16-17 March           | Dr. D. Ghorai<br>Dr. M.L. Roy                                  |
| International Conference on "Novel Applications of Biotechnology in Agricultural Sectors: Towards Achieving Sustainable Development Goals-2018"                               | BHU, Varanasi<br>20-21 March, 2018            | Dr. H.R. Bhandari  |
| Brainstorming Session on "Market, Prospect and Innovations of Natural Fibers"   | ICAR-NIRJAFT, Kolkata<br>26 March, 2018       | Dr. D.K. Kundu   |

|  |                                      |  |
|--|--------------------------------------|--|
| National Seminar on "Agri-chemicals for a Benign Environment" and the 5 <sup>th</sup> Annual Convention of the "Society for Fertilizers & Environment" | BCKV, Kalyani<br>29 March, 2018      | Dr. D.K. Kundu<br>Dr. R. Saha<br>Dr. D. Ghorai |
| DBT State Level Biosafety Workshop   | BCKV, Kalyani<br>3 April, 2018       | Dr. S. Datta                                   |
| 8 <sup>th</sup> meeting of Project Approval and Monitoring Committee, Jute Commissioner Office   | Salt Lake, Kolkata<br>12 April, 2018 | Dr. S. Datta                                   |

### Training undergone by the Scientists/Staff Members

| Training Programme   | Place & Date  | Name of Participant  |
|--|---|--|
| <b>Scientists</b>  |   |  |
| Short Course Training Programme on "Isolation, Identification and Characterization of Sex Pheromones in Lepidopteran Pests".     | CSIR-IICT, Hyderabad<br>26 December, 2017– 04 January, 2018 | Dr. V. Ramesh Babu   |
| Training of Trainers Program for Agriculture Extension Service Provider  | IGKV, Raipur<br>4-6 January, 2018                           | Dr. S.K. Jha   |
| Training on 'Agriculture Knowledge Management'   | MANAGE, Hyderabad<br>19-21 February, 2018                   | Dr. S. Sarkar  |
| Training on 'Increasing Genetic Potential of Jute and Allied Fiber Crops Through Novel Breeding and Biotechnological Approaches' | ICAR-CRIJAF, Barrackpore<br>5-15 March, 2018                | Dr. S.K. Sarkar<br>Dr. S.K. Pandey<br>Dr. A. Bera<br>Dr. B.S. Gotyal<br>Dr. A.K. Jha<br>Dr. S. Roy<br>Dr. L. Sharma<br>Dr. Soham Ray |



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## Germplasm Registration

| Crop | Botanical Name                | National Identity | Donor/Other                                | Novel Unique Trait(s)   |
|------|-------------------------------|-------------------|--|---|
| Jute | <i>Corchorus olitorius</i> L. | IC0503186         | OMU 005                                    | Superior fibre wedge length and diameter  |
| Jute | <i>Corchorus olitorius</i> L. | IC0503703         | OMU 007                                    | Superior bark cross section length  |
| Jute | <i>Corchorus olitorius</i> L. | IC0503297         | OMU 018                                    | High number of fibre cells/fibre bundle   |
| Jute | <i>Corchorus olitorius</i> L. | IC0621946         | Sdf (Super dwarf) mutant                   | Extremely dwarf mutant with around 1/10 <sup>th</sup> plant height of wild type   |
| Jute | <i>Corchorus olitorius</i> L. | IC0621948         | llpf (low lignin phloem fibre mutant)      | Low lignin content of fibre (6.7%) at 120 days after sowing. Unique morphology having undulated stem petiole and main leaf vein |
| Jute | <i>Corchorus olitorius</i> L. | IC0621949         | Pfr 59 (pre-mature flowering resistant 59) | Absolute absence of pre-mature flowering when sown in the first week of February  |
| Jute | <i>Corchorus olitorius</i> L. | IC0621650         | WCIN 009                                   | High iron content in leaves (173.75 mg/kg fresh weight)   |
| Jute | <i>Corchorus aestuans</i> L.  | IC558459          | WCIN 179                                   | Resistance to jute hairy caterpillar, <i>Spilosoma obliqua</i>  |

Source: S.K. Sarkar



MoU signed with M/s Bengal Biotech & Research

**Commercialization of the technologies** M/s Bengal Biotech & Research, W. Bengal has been awarded the non-exclusive license for large scale production and sale of CRIJAF SONA for a period of 1 year w.e.f. 15<sup>th</sup> March, 2018

(Source: Dr. S.K. Sarkar).

### MoUs

- **Commercialization of CRIJAF technology:** Memorandum of understanding between M/s

Bengal Biotech & Research and ICAR-CRIJAF was signed on 15<sup>th</sup> March, 2018 for manufacturing and commercialization of CRIJAF SONA, a talc based microbial retting consortium.

- **Students training and post graduate research:** Memorandum of understanding between The Adamas University, Barasat and ICAR-CRIJAF has been signed on 26<sup>th</sup> June, 2018 for extending students' training and post graduate research by CRIJAF.
- **Consultancy project:** Memorandum of understanding on consultancy project-Augmentation of alternative livelihood options of fisherman through comprehensive (integrated farming in Balagarh Block of Hooghly (Improvise jute retting) was signed on 21.06.2018 between Nature Environment and Wildlife Society, Kolkata and ICAR-CRIJAF for extending technical expertise.
- **ISRO-NRSC Collaborative Project:** The memorandum of understanding (MOU) has been signed between ICAR-CRIJAF, Barrackpore and ISRO-NRSC, Hyderabad for a collaborative project on "Quantitative assessment

## REGISTRATION AND COMMERCIALIZATION OF TECHNOLOGIES

of carbon and moisture fluxes over Jute based agro-ecosystem: Integrating ground observations, satellite data and modelling” for the 3 years duration (2017-20) under the National Carbon Project of ISRO Geosphere Biosphere Programme.

### Royalty earning from commercialized CRIJAF technology (01.01.2018-30.06.2018)

| Name of the technology | Farm         | Royalty (Rs) |
|------------------------|--------------|--------------|
| Nail Weeder            | Krishi Udyog | 19,375/-     |

|                          |                    |                   |
|--------------------------|--------------------|-------------------|
|                          | Creative Displayer | 62,500/-          |
| CRIJAF Sona              | Next 2 Nature      | 61,500/-          |
| Multi-row Seed Drill     | Krishi Udyog       | 24,500/-          |
| Single Wheel Jute Weeder | Creative Displayer | 62,500/-          |
| <b>Total</b>             |                    | <b>2,30,375/-</b> |

(Source: Dr. S.K. Sarkar)

## DISTINGUISHED VISITORS

| Name of the Visitor | Affiliation  | Date                                |
|---------------------|--|-------------------------------------|
| Dr. A.K. Vass       | ADG (HRD), ICAR, New Delhi   | 12 January, 2018                    |
| Mr. Sujit Mitra     | Director (Personnel), ICAR, New Delhi                                  | 27 January, 2018                    |
| Dr. R.K. Singh      | ADG (Commercial Crops), ICAR, New Delhi                                | 11 February, 2018                   |
| Dr. C.D. Mayee      | Former Chairman, ASRB, New Delhi and Chairman, QRT, ICAR-CRIJAF        | 21 February, 2018<br>17 April, 2018 |
| Mr. Arvind Kumar    | Secretary, National Jute Board, Kolkata                                | 4 May 2017<br>21 February, 2018     |
| Dr. K.V.R. Murthy   | MD, JCI, Kolkata   | 21 February, 2018                   |
| Dr. V.S. Tomar      | Former VC, JNKVV, Jabalpur   | 10 March, 2018                      |
| Dr. D.K. Sharma     | Former Director, ICAR-Central Soil Salinity Research Institute, Karnal | 23 March, 2018                      |



Dr. A.K.Vass, ADG (HRD), ICAR, New Delhi addressing the scientists



Dr. C.D. Mayee, Chairman, QRT, ICAR-CRIJAF interacting with the scientists

## AWARDS AND RECOGNITIONS

- Dr. S. Sarkar, Principal Scientist was invited by the Society for Advancement of Agricultural Innovations (SAAI) for Lead Lecture/ Paper on “Jute: Best alternative to polythene” at the National Conference on “Innovative farming for food and livelihood security in changing climate” organized at BCKV, Kalyani during 12-13 January, 2018
- Dr. D.K. Kundu, Principal Scientist was nominated as

Chairman of the Stakeholders Awareness Programme organized by the Intellectual Property Facilitation Centre at ICAR-CRIJAF, Barrackpore on 12.3.18









- Dr. S. Satpathy, HoD, Crop Protection delivered an invited lecture in the XVI-AZRA International Conference on Applied Zoological Research for Sustainable Agriculture and Food Safety held at I. Ag. Sci, BHU, Varanasi during 9-11 February, 2018.

## PERSONNEL


### Promotion

|   |   |  |   |
|---|---|--|---|
|    | Dr. Dhananjay Barman, Scientist<br>Promoted to Sr. Scientist<br>Date of Promotion: 07.01.2017               |    | Dr. Amit Bera, Scientist<br>Promoted to Sr. Scientist<br>Date of Promotion: 08.01.2017                          |
|   | Dr. Arroju Anil Kumar, Scientist<br>Promoted to Scientist, RGP of Rs. 7000<br>Date of Promotion: 15.09.2015 |   | Dr. Hemraj Bhandari, Scientist<br>Promoted to Scientist, RGP of Rs. 7000<br>Date of Promotion: 16.12.2014       |
|  | Dr. Maruthi R.T., Scientist<br>Promoted to Scientist, RGP of Rs. 7000<br>Date of Promotion: 01.01.2017      |  | Dr. Veegala Ramesh Babu, Scientist<br>Promoted to Scientist, RGP of Rs. 7000<br>Date of Promotion: 15.09.2015   |
|  | Dr. Arvind Kumar Singh, Sr. Scientist<br>Promoted to Principal Scientist<br>Date of Promotion: 06.12.2016   |  | Dr. Madhusudan Behera, Sr. Scientist<br>Promoted to Principal Scientist<br>Date of Promotion: 11.06.2016        |
|  | Dr. Ajit Kr. Jha, Sr. Scientist<br>Promoted to Scientist, RGP of Rs. 9000<br>Date of Promotion: 20.10.2014  |  | Dr. Ranjan Kumar Naik, Sr. Scientist<br>Promoted to Scientist, RGP of Rs. 9000<br>Date of Promotion: 27.06.2018 |

# PERSONNEL

|  |   |   |  |
|--|---|---|--|
|   | Dr. B.S. Gotyal, Scientist<br>Promoted to Sr. Scientist<br>Date of Promotion: 10.02.2018                          |   | Dr. Shamna A., Scientist<br>Promoted to Sr. Scientist<br>Date of Promotion: 23.06.2018                     |
|   | Sh. P.N. Meena, Scientist<br>Promoted to Scientist, RGP of Rs. 7000<br>Date of Promotion: 01.01.2018              |   | Sh. M. Ramesh Naik, Scientist<br>Promoted to Scientist, RGP of Rs. 7000<br>Date of Promotion: 01.01.2018   |
|   | Sh. Laxman Pradhan<br>Sr. Technician (T-2)<br>Promoted to Tech. Asstt. (T-3)<br>Date of promotion: 17.01.2018     |   | Sh. Nilanjan Paul<br>Asstt. CTO<br>Promoted to CTO<br>Date of promotion: 15.05.2017                        |
|  | Dr. Monica Suresh Singh<br>Sr. Technical Officer (SMS)<br>Promoted to Asstt. CTO<br>Date of promotion: 09.07.2017 |  | Sh. B.L. Prasad<br>Sr. Technician (T-2)<br>Promoted to Tech. Asstt. (T-3)<br>Date of promotion: 17.01.2018 |

## New Colleagues

|   |  |
|---|--|
|  | Sh. Pradyumna Kumar Jain,<br>Chief Administrative Officer<br>Date of joining: 08.01.2018 |
|---|--|

## Superannuation

|  |   |
|--|---|
|  | S. P. Dutta, T4<br>Retired on 30.4.2018 |
|--|---|

## Transfer

| Name                 | Designation | Place of Posting        | Date of Relieve |
|----------------------|-------------|-------------------------|-----------------|
| Mrs. Madhumonti Saha | Scientist   | ICAR-IISS, Bhopal, M.P. | 27.06.18        |

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Kolkata-700120

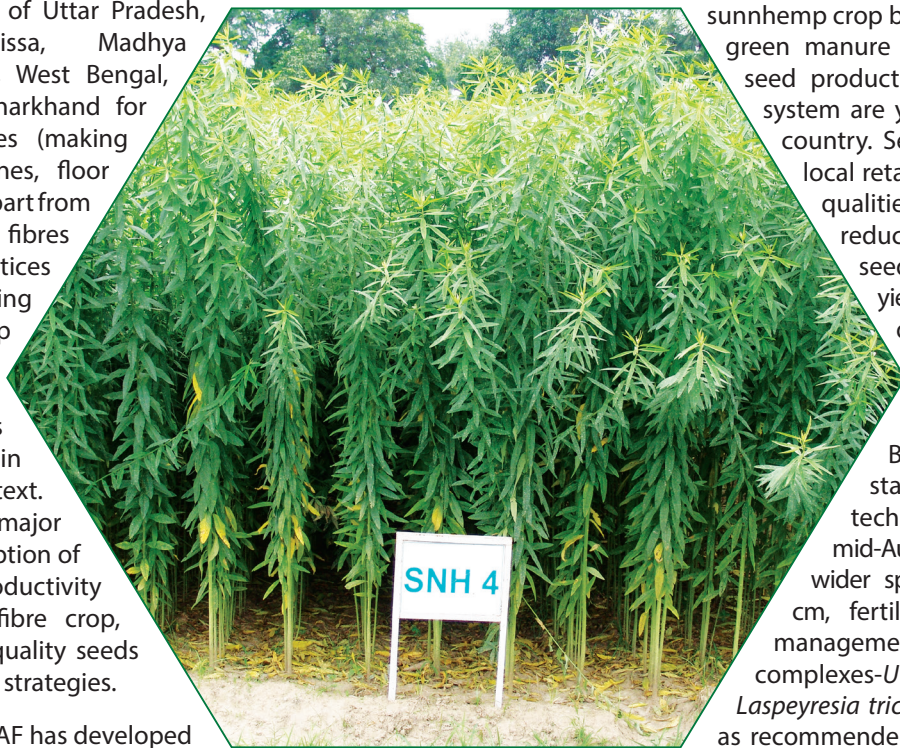
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## Sunnhemp crop: some important issues

Area under sunnhemp (*Crotalaria juncea*: Fabaceae) cultivation as fibre crop has gradually declined from 2 lakh ha during mid-sixties to about 0.3 lakh ha, which is attributed to various reasons like use of cheaper polypropylene, growing of remunerative and fertilizer (NPK) responsive HYVs of cereals, vegetables and intensive cropping system. Presently sunnhemp cultivation is mostly confined to small and marginal farmers of traditional areas of Uttar Pradesh, Maharashtra, Orissa, Madhya Pradesh, Rajasthan, West Bengal, Tamil Nadu and Jharkhand for their domestic uses (making ropes, strings, twines, floor mat, fishing nets). Apart from bio-degradable fibres the age-old practices of green manuring with sunnhemp (higher biomass -15t/ha and faster decomposition) is more pertinent in present day context. However, the major bottlenecks for adoption of the crop are low productivity of sunnhemp as fibre crop, non-availability of quality seeds and poor marketing strategies.

Although ICAR-CRIJAF has developed some important varieties (through selection) like K12 Yellow, SH-4 (Shailesh), SUN-053 (Swastika), SUIN 037 and JRJ 610 during the last decades, the productivity of sunnhemp is still less (10-12 q/ha) as compared to other bast fibre crops like jute (30-35 q/ha) and mesta (20-25 q/ha). This is mainly attributed to lower fibre content (2-3%) of the crop in comparison to jute and mesta (4-6%). Systematic research efforts on understanding of self-incompatibility and identification of self-compatible lines and male sterile lines are needed for breakthrough in sunnhemp productivity enhancement. Ideotype breeding specific to usage like fibre, biofuel and green



manuring purpose with higher biomass, high cellulose content and reduced lignin are the need of the hour. Wide genetic diversity of *Crotalaria juncea* exist in the Indian subcontinent (centre of origin) particularly in NE region and peninsular India, but being an obligatory insect (*Xylocopa latipies*, *X. fenistroides* and *Megachile lanata*) pollinated crop, maintenance of germplasm is a difficult task.

Non-availability of adequate quantity of quality sunnhemp seed is one of the limiting factors for expansion of sunnhemp crop both as fibre as well as green manure purpose. Systematic seed production and distribution system are yet to take off in the country. Seeds available in the local retailers are very poor in qualities which drastically reduce the fibre and seed productivity. Seed yield varies from 10-25 q/ha in various parts of country with highest productivity in West Bengal. Following standardized agro-techniques (sowing time: mid-August-mid-September, wider spacing : 40 cm x 10 cm, fertilizer: N<sub>20</sub>:K<sub>40</sub>:K<sub>40</sub>, and management of pod borer complexes-*Utetheisa pulchella*, *Laspeyresia tricentra* and *Nazara* sp) as recommended by ICAR-CRIJAF for sunnhemp seed production may be a profitable venture.

Marketing with assured price is also an important constraint. Sunnhemp fibre is used in unorganized cottage industry at village level and organized industry. After the incoming of cheap synthetics the demand from organized sector reduced to almost nil and at present it is mainly used in the unorganized sector at village level. Therefore, village cottage industry may be encouraged through KVIC for preparation of biodegradable carpets, handmade papers, floor mat etc. so that sustainability of demand can be created.



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

Agrisearch with a human touch