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A.K. Singh
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S. Satpathy

Dr. GOURANGA KAR JOINS AS DIRECTOR, ICAR-CRIJAF, BARRACKPORE

Dr. Gouranga Kar took over the charge of the Director of ICAR-Central Research Institute for Jute and Allied Fibres (ICAR-CRIJAF), Barrackpore on 4th March 2020. Before joining, he was serving as Principal Scientist, ICAR-Indian Institute of Water Management, Bhubaneswar and has done pioneering effort in quantification of water footprint in India on farm scale and also handled 35 National/International projects like IWMP, FPARP, DST, NICRA, TIFAC, UNDP and Fulbright scheme related to water and watershed management, crop growth modeling, climate change research, mitigation and adaptation, land use and cropping system using RS and GIS. He has published more than 200 research papers, review paper and book chapters of immense academic as well as practical importance.



For outstanding work in the field of natural resource management, Dr. Kar has received many prestigious awards like ISCA young scientist award, 2001; ICAR Vasant Rao Naik Award 2004; IARI Sukumar Bosu Memorial Award; ASWC Dr. K. G. Tejwani Award 2006; ISSS Golden Jubilee Commemoration Young Scientist Award 2007; ICAR Hari Om Ashram Trust Award 2007-08; USDA Norman Borlaug International Agricultural Science and Technology Fellowship Award 2008; NAAS Associateship 2008; DWM Proficiency Award 2008 & 2011; R.C. Patro Memorial Award 2009; Bharat Jyoti Award 2011; NAAS Recognition Award 2012; Fulbright Senior Research Fellowship (USA) 2011-12; Rajdhani Samman Award 2015; Ekamrashee Award 2016; IARI Hooker Award, 2018; ICAR-Swami Sahajananda Saraswati Award 2019; Rajbhasa Gaurav Puraskar 2019. He holds important editorial board member positions of several scientific journals of national and international repute in agricultural and allied sciences. He is also fellow of different scientific Societies like National Academy of Agricultural Sciences (FNAAS), Indian Society of Soil Science (FISSS), Indian Association of Soil and Water Conservationists (FIASWC), Association of Agro-meteorologists (FAAM), and West Bengal Academy of Science and Technology (FWAST). For his outstanding work in the field of natural resource management, ICAR also offered him National Fellowship.

Conceptualised and Published by
Dr. Gouranga Kar, Director

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FROM THE DIRECTOR'S DESK

ICAR-CRIJAF STANDS WITH JUTE GROWERS DURING COVID-19 AND AMPHAN CRISIS

In 2020, peak jute growing season during March-April coincided with COVID-19 pandemic across the jute growing states as well as in the whole country. Initially there was a setback in sowing operation due to break in input supply chain. But ICAR-CRIJAF has responded well to the challenges posed by COVID-19 pandemic by jute growers in the country. Institute had helped farmers and stakeholders by advising and boosting their confidence to perform time bound field operations such as sowing, inter-cultural operation, fertilizer application, spraying of pesticides and fungicides, irrigation and waterlogged area management etc. by using information technology tools like Android based apps (JAF-Safe) and web based form (JAF-Kisan), WhatsApp groups and Institute's website. Institute has issued agro-advisory and safety measures to be followed regularly through its website (<http://www.crijaf.org.in>) and through different WhatsApp groups for the benefit of the farming community. Several leading regional and national media also highlighted the agro-advisories and contingency measures to be followed by the farmers. These advisories have also been e-mailed to State Governments in local language and have enriched knowledge of about 5 lakh farmers. During the lockdown period, the institute also provided farm inputs and technology backstopping to farming community in West Bengal, Bihar, Assam and Odisha through different government schemes like ICARE, NFSM, SCSP, NICRA etc. During this period, a devastating cyclone 'AMPHAN' also wreaked havoc in the jute growing states on 20th May 2020. High wind speeds and rainfall, associated with cyclone damaged the jute crop in some parts of West Bengal, Assam and Odisha. The Institute issued special agro-advisory at right time to take measures to reduce the impact of cyclone and to revive the crop through several agro-techniques. To tackle the post COVID and AMPHAN, the institute has started working for social and technological empowerment for different social groups through value added diversified products from jute and allied fibre crops. The in-situ jute retting tank based farming system model developed by the institute during lockdown period shall create employment opportunities for migrant workers after converging with MGNREGA schemes. Amidst COVID-19 crisis, jute has been successfully sown in about 7.0 lakh ha in 2020, even in some states, 10-15% more crop sown area was reported.

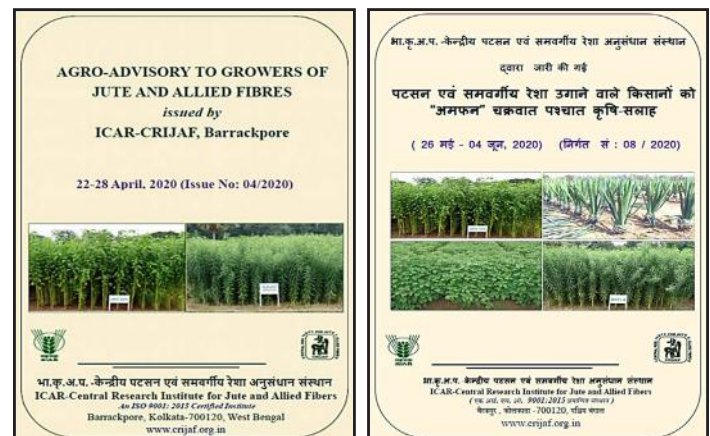
ICAR-CRIJAF Efforts to Mitigate Effects of COVID-19 and AMPHAN Crisis

The lockdown period declared from 25th March, 2020 by the government in order to prevent spread of deadly COVID-19 virus was coincided with normal sowing period of jute. It was a great challenge for the Institute to execute the crop sowing in experimental fields and implementation of various projects in farmer's field. Taking into consideration all the measures to be followed during the lockdown, the Institute with its motivated team planned its activities in such a way that the administration, research, extension, coordination and monitoring of the progress of jute sowing have least effect of the pandemic. The jute crop in its establishment phase suffered another blow from the cyclone AMPHAN on 20th May which devastated the crop badly in all the jute growing districts of West Bengal. In response to these calamities, institute proactively implemented following measures and efforts in this direction.

Circulating weekly crop stage and weather specific agro-advisory for jute growers and stakeholders

Agro-advisory services prepared by multi-disciplinary team of scientists emphasizing real time information flow on innovative and sustainable technologies along with weather forecast and best-practices for crops

was instrumental for farmers and other stakeholder during lockdown period. Agro-advisory released at 7-10 days interval was made simpler with pictorial farming tips as per phonological stage of the crop in Hindi and Bengali to cater a larger section of the users of jute growing states. This service has helped the farmers, extension officers, field functionaries to solve the jute farming related problems. The farmers were also responded and their problems related to jute farming were addressed with proper technology backstopping in time.



Agro-Advisory released during COVID-19 lockdown for farmers and extension personnel

Through the agro-advisory, ICAR-CRIJAF also suggested farmers to follow social distancing, safety measures and to maintain personal hygiene by washing of hands with soap, wearing of face mask, and protective clothing at each and every step during entire process of field operations in order to prevent spread of COVID-19 virus. The institute is also concerned about the health and working precautions to be taken by the jute mill workers. Comprehensive guidelines to be followed by the jute mill workers and owners to avoid the contamination of COVID-19 in jute mills were uploaded in the advisory portal of Institute's website.

Development and use of mobile apps for technology outreach and assisting farmers

ICAR-CRIJAF has developed two Android based Apps. JAF-Safe App through which farmers can get the pest and diseases related solution after assessing the situation in the field itself. By using JAF-Kisan App, the field functionaries can upload the data, photos and videos related to the field operations and crop condition directly from the farmers' field at 4-7 days interval and can get solution from experts. These were found highly useful for providing remedies at the field level.



Farming activities during COVID-19 lockdown at various locations of jute growing states using agro-advisory services of CRIJAF

Ensuring jute sowing at right time by the farmers

The institute has facilitated all possible farming operations to farmers so that they can sow the crop at right time, even seeds of improved varieties were supplied to needy farmers at free of cost through different schemes during the lockdown period. The scientists were also in contact with individual farmers, progressive farmers, farmer's club, FPOs and constantly advised them to carry out the essential farm operations with utmost care taking all precautions to check the COVID-19 spread and contamination in their locality. ICAR-CRIJAF has very closely monitored the progress of jute sowing in all jute growing states through WhatsApp, SMS, Mobile App, Website and local media.

The organizations like, Jute Corporation of India, National Jute Board and the State Agriculture Department of concerned states were sensitized through video conferencing and coordinated for the availability of improved seed, other inputs and progress of jute sowing in the respective states. Under Jute I-CARE programme, 603 MT seeds of JRO 204, 600 seed drill, and 900 cycle weeders developed by the Institute were provided to the farmers.

Because of concerted efforts, jute sowing was completed in time in West Bengal, Assam, Bihar, Odisha and Meghalaya in about 7.0 lakh ha, some states like West Bengal recorded 10-15% more sowing area.

JAF-Kisan App was found useful in collecting basic information for yield gap analysis. It also helped for right time and amount of pesticide, water and fertilizer to be applied after interaction with subject matter specialist. Under Jute I-CARE programme, 65 master trainers engaged in all the jute growing states were coordinated through JAF-KISAN App. Scientists and field functionaries, after assessing the situation at field level and interaction with the farmers updated the essential agricultural operations like seed availability, jute sowing operation, management of drought and waterlogging situation using our different digital platform like WhatsApp groups (ICARE Operation/ Jute extension and farmers), web portal for Agro-advisory and the mobile app (JAF safe). These digital platforms used by the institute proved very much useful for farmers especially during the pandemic and the natural calamity AMPHAN.



JAF Safe and Web-based form used under Jute I-CARE

Technology backstopping

Seven technologies of the institute pertaining to jute and allied fibre crops have so far been given wide coverage through different digital platforms. This technological backstopping done during the lockdown period could reach more than 5 lakh beneficiaries through different channels. Constant efforts of the Institute helped the farmers to adopt frontline technologies like use the high yielding variety of jute (JRO 204), line sowing, and proper use of fertilizers, pesticides, herbicides and mechanical weeding.

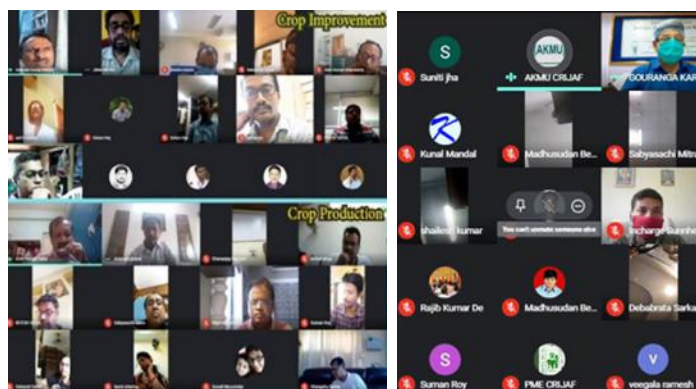
Under the SCSP component of NICRA project, jute as sole crop and jute-green gram as intercrop was sown covering an area of about 20 hectare in 2 villages of North 24-Parganas district (W.B.). Under SCSP programme, demonstration of proven technologies of jute based cropping system and value addition through jute based diversified products was done by mobilizing SC farmers and women SHGs. Under National Food Security Mission, 600 kg of jute seed of JRO 204 were procured and distributed among beneficiary farmers in Purba Bardhaman, Hooghly and North 24-Parganas district of West Bengal.



Seed distribution to SC farmers of West Bengal at ICAR-CRIJAF, Barrackpore

Video conferencing for conducting important meetings

Director and scientists of ICAR-CRIJAF used Google Meet / Zoom app for conducting and participating in important meetings of Council and Ministry of Agriculture and Farmer's Welfare, Govt. of India, other ICAR Institutes, National Innovations in Climate Resilient Agriculture (NICRA), National Jute Board (NJB), Jute Corporation of India (JCI), Ministry of Textiles, State government officials to ensure timely and proper execution of Institute and project activities. During the lockdown period, many important meetings including the Divisional Research Council (DRCs) and Institute Research Council (IRC) were conducted through video conferencing.



DRC and IRC meeting through video conferencing (Google Meet) at ICAR-CRIJAF during May-June 2020

Conducting field research of the institute by maintaining COVID guideline

Institute has prioritized the farm activities and all essential laboratory activities to maintain the seeds and breeding materials, harvesting of long-term experiments. Farm indents for tractors, irrigation and all other field and laboratory operations were processed through e-office to ensure timely sowing of experiments. The manpower for farm operations were managed from a pool of contractual workers and SSS of the institute who attended the duties in staggered time following all the COVID-19 protocols like wearing face masks, regular washing of hands with soap water and keep social distances. All the staffs were informed to install Arogyya setu app in their mobile phones.



Farm activities at ICAR-CRIJAF farm during COVID-19 lockdown period

Extensive media coverage of ICAR-CRIJAF agro-advisory and success story

Besides the agro advisory portal and use of other digital platforms, the institute also concentrated to highlight the issues related to input availability, impact of major changes of weather and its effect on crop, timely awareness regarding insect-pests problems, availability of farm machineries etc. for jute cultivation through print and electronic media. During the lockdown period, 32 press news was covered by various newspapers in Bengali, English and Hindi, and one AIR news was broadcasted for farmers and other stakeholders in jute sector during the reported period.

the pioneer
Date: 19/04/20

ICAR-CRIJAF vigilant on jute production

New Delhi: Jute is the important cash crop in India which supports livelihood of 5 million people of the country and earn foreign exchange of Rs 2,500 crore annually through export. The sowing of jute crop is in full swing in different jute growing States like West Bengal, Bihar, Odisha and Assam.

प्रभात खबर.com
Date: 16/04/20

कटेरेना से मुकाबला - किसानों को खादसुराप व फांन कर दी जा रही सलाह

पटसन की खेती के दौरान भी सोशल डिस्टेंसिंग पर जोर

कोलकाता, 16 अप्रैल: जूट की खेती के दौरान किसानों को सोशल डिस्टेंसिंग पर जोर देते हुए किसानों को खादसुराप व फांन कर दी जा रही सलाह दी जा रही है।

The Statesman
17th April, 2020

Amidst Covid-19 crisis, jute institute steps up to help farmers

RAJIB CHAKRABORTY
KOLKATA, 15 APRIL

While the fear of around 30 lakh jute farmers in West Bengal has coincided with sowing season of jute and normal sowing department and monitoring the availability of improved

प्रभात खबर
Kolkata 14 May, 2020

आईसीएआर-सीआरआईजेफ के उपाय से किसानों को मिली सहायता

कोलकाता, जूट पश्चिम बंगाल की सबसे महत्वपूर्ण फसल है, लगभग पांच मिलियन

krishijagran.com
india's largest rural media network
KOLKATA 29 May, 2020

पटसन किसानों की तकनीकी मदद करने के लिए आगे आया सीआरआईजेफ

कोलकाता, 29 मई: पटसन किसानों की तकनीकी मदद करने के लिए आगे आया सीआरआईजेफ।

The Statesman
KOLKATA 25 MAY 2020

Amphan destroys jute cultivation in Bengal

BHABHARATI GOSWAMI
KOLKATA, 25 MAY

The extremely severe cyclonic storm, Amphan has devastated

दैनिक विश्वमित्र
KOLKATA 21 June, 2020

तालाब आधारित पटसन खेती व सड़न मॉडल: एक नई शुरुआत

कोलकाता, 20 जून (नि.प्र.)। पूर्वी और उत्तर पूर्व भारत के करीब पचास लाख व्यक्तियों को पटसन आजीविका प्रदान करने के साथ-साथ अपने विभिन्न नस्लों के निर्माण तथा करीब 2,500 करोड़ मूल्य पर नई

पूर्वदिव्य Express

आईसीएआर क्राइजाफ के तकनीकी मार्गदर्शन से लॉकडाउन के दौरान भी क्राइजाफ सोना का उत्पादन

गुवाहाटी, 7 मई (पु.सं.)। पत्रिकाकारों के सामान सुनिश्चितता तथा सुविधाओं के बीच किसानों के लिए

बर्तमान
KOLKATA 17 June, 2020

रोगपोका दमने नजर, कम जले पाटि पाचानোর প্রকল্পে জোর রাজ্যের

दैनिक विश्वमित्र
Date: 03.04.2020

केन्द्रीय पटसन एवं समवर्गीय रेशा अनुसंधान संस्थान द्वारा कृषि सलाह

कोलकाता, 3 अप्रैल (नि.प्र.)। पटसन खेती के दौरान किसानों को सोशल डिस्टेंसिंग पर जोर देते हुए किसानों को खादसुराप व फांन कर दी जा रही सलाह दी जा रही है।

the pioneer
NEW DELHI, May 25, 2020

Agro-Advisory to jute farmers in post-Amphan scenario by ICAR-CRIJAF

NEW DELHI

Jute is the important cash crop in eastern India, particularly in West Bengal, Odisha, Bihar, Assam and about 5 million people are

the pioneer
www.daily-pioneer.com

ICAR-CRIJAF stands for jute farmers

A amid COVID-19 crisis, jute farmers of West Bengal and other jute growing states have done a commendable work by sowing the crop in more than 90

दैनिक विश्वमित्र
KOLKATA 26 May, 2020

अम्फान चक्रवात के बाद परिस्थिति - पटसन कृषकों को कृषि-परामर्श

कोलकाता, 26 मई (नि.प्र.)। पटसन खेती के दौरान किसानों को सोशल डिस्टेंसिंग पर जोर देते हुए किसानों को खादसुराप व फांन कर दी जा रही सलाह दी जा रही है।

सन्मार्ग
KOLKATA 26 May, 2020

क्रिजेफ ने जूट किसानों को दी पानी निकासी की सलाह

THE TIMES OF INDIA
KOLKATA 25 May, 2020

Manual to save Jute Inc post-Amphan

thimilukherjee@timesgroup.com

Kolkata: The Central Research Institute for Jute and Allied Fibres

the pioneer
NEW DELHI 19 June, 2020

In situ retting tank-based farming system model in jute

New Delhi: Jute is the important cash crop in eastern India which supports livelihood of about 5 million people of the country and earn foreign exchange of ₹2,500 crores annually through export of diversified jute products.

THE HILLS TIMES

Crijaf Sona production in full swing by Next 2 nature

HT BIRSAUL
GUWAHATI, May 7: Next 2 nature is producing Crijaf Sona, a microbial formulation used for faster retting and

আনন্দবাজার পত্রিকা
30 জুন ২০২০ খ্রিস্টাব্দ ১৩ জুন ২০২০

পাটচাষীদের মোবাইলে পরামর্শ বিজ্ঞানীদের

Sensitization of FPOs and entrepreneurs for broadening the JDP market

The institute interacted with the members of local FPOs of West Bengal to ensure better income of the farmers. Various issues related to use of new technologies, diversification, financing, marketing and entrepreneurship development was discussed with the members of the FPO. Entrepreneurs engaged in the manufacture and marketing of JDPs was invited to the Institute for interaction with the scientists. The issues related to the JPD marketing and exports during the post pandemic situation were discussed in detail.

Reviving the crop after Amphan cyclone

During the COVID-19 crisis, a very severe cyclone 'Amphan' made landfall on 20 May 2020, lashing with maximum wind speed of about 155 kmph and 200 to 230 mm rainfall have devastated the jute crop in some parts of North 24-Parganas, Hooghly, Nadia, Murshidabad, East Midnapur and Howrah districts which are main jute growing belt of West Bengal. The effect of cyclone was also observed in some districts of Assam and Odisha. The cyclone severely affected the standing jute crop by lodging in such areas. As lodging of the plant and waterlogging adversely affect the further growth and fibre production. Institute released a special Agro-advisory services for farmers to tackle the post-Amphan cyclone scenario. The advisory mainly emphasized on adequate drainage by making the ditches in the field, tying together of plants for straightening the plants and spraying of protective fungicides to younger seedlings to protect the crop from diseases like blight and damping off.



Impact of Amphan cyclone on crop and Agro-advisory released by ICAR-CRIJAF to revive the damaged crop

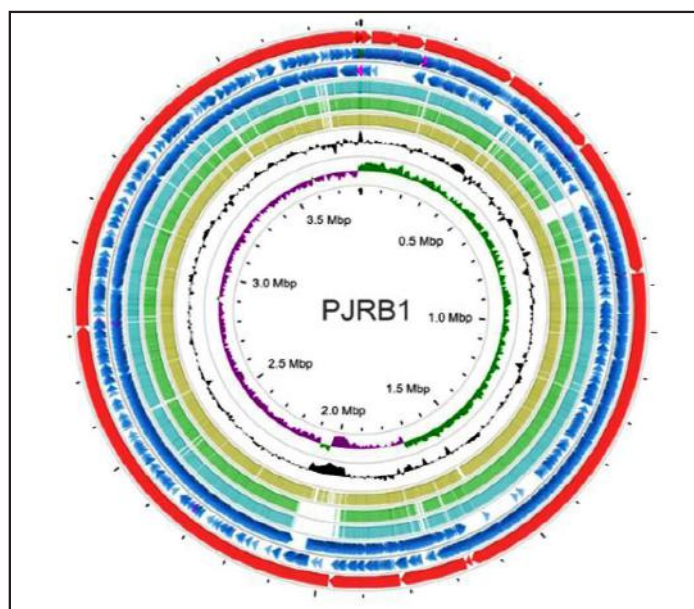
Extensive use of e-file system and complete e-governance

About 750 e-files processed during lockdown, highest number of e-file handling among crop science institutes and second among all ICAR institutes. Complete replacement of physical file movement has been made.

RESEARCH HIGHLIGHTS

Breakthrough in Jute Retting through Genome Sequencing of Microbes

Scientists of ICAR-CRIJAF have decoded the genome sequences of jute retting microbes. The in-depth genomic analysis significantly revealed three different species of *Bacillus* constitute the consortium strains. The genome sizes of these strains are ~3.8 Mb with 3729 to 4002 protein-coding genes. The sequence data has been submitted to the National Centre for Biotechnology Information (NCBI) database of NIH, USA. Genome sequencing also confirms that retting bacteria degrades pectin, hemicellulose and other non-cellulosic materials, non-harmful for fibre. The bacterial strains are also non-toxic and thus the retting water with microbial strains can successfully be used for irrigation purpose. Investigators of the findings opined that these breakthrough findings will help to further enhance the knowledge on the unique microbial retting process in jute and will accentuate the improvement in this microbial formulation. It is believed that this will also open up an avenue to characterize the enormous diversity of retting microbial population at the metagenome scale and incorporate other strains to complement the consortium. This will not only facilitate IPR protection of the indigenous microbiome but will also establish a correlation between the microbial diversities and regional differences in fibre.

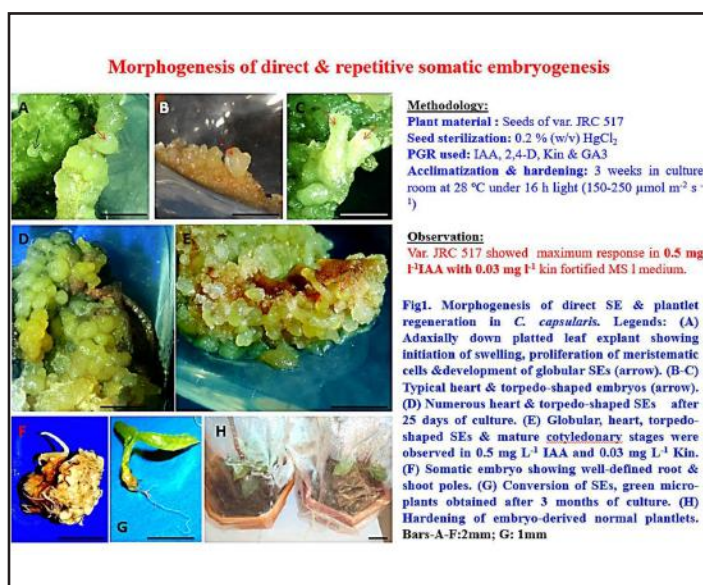


Circular representation of draft genomes and features of the PJRB strains

S. Datta, D. Saha, L. Chattopadhyay and B. Majumdar
ICAR-CRIJAF, Barrackpore

Somatic Embryogenesis in *Capsularis* Jute

Somatic embryogenesis (SE) was induced using leaf explants in *capsularis* jute var. JRC 517 and supported with morpho-histological, histo-chemical, ultra-structural and gene expression studies. Maximum (94%) direct and repetitive SE induced on MS medium (no exogenous MI added) containing 3% sucrose and 0.5 mg/l IAA & 0.03 mg/l kin, solidified with 3.5 g/l Gelzan. Germination of somatic embryos was 54.8% on ½ MS with 1 mg/l GA3 and conversion to plantlets rate was 31.8%. Embryogenic competency was achieved in MI free medium with enhanced SOD expression in SDS-PAGE after 14 days of induction, which leads to SE. Expressions profiles of six SE related genes viz. LEC 1, SERK, WUS, BRI1 and BAK1 were assessed through qRT-PCR showed differential expressions of all the genes at varying levels albeit with predominant expression of LEC1, SERK and BAK1 for induction of SE.



Asit B. Mandal
ICAR-CRIJAF, Barrackpore

Development of High Fiber Yielding Jute Genotypes through Hybridization

Altogether 47 germplasm lines of *Corchorus capsularis* were evaluated during Rabi 2019-20 at CSRSJAF, Budbud. The *capsularis* accessions recorded plant height in the range of 76.1 to 209.4 cm. The entry CIN-93 recorded maximum height (209.4 cm). Seed yield per plant ranged from 1.5 to 6.2 g. The entry CIJ-44 recorded maximum seed yield (6.2 g) on per plant basis.

Important quantitative traits in *capsularis* germplasm

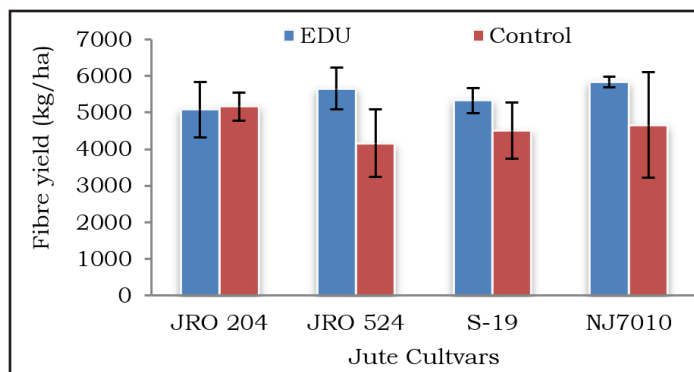
Trait	Range	Mean	Best entry
Plant height (cm)	76.1-209.4	151.0	CI-93
Basal diameter (mm)	6.8-13.3	9.5	CIJ-44
Number of pods/plant	23.8-70.3	41.2	CIN-285
Seed yield /plant	7.3-31.1	16.7	CIJ-44

The germplasm accessions were clustered into 5 groups by Mahalanobis D² analysis. Among all the traits, seed yield per plant had the maximum contribution (47.3%) towards total variability.

H.R. Bhandari, C.S. Kar, Vikas Mangal and J.K. Meena
CSRSJAF, ICAR-CRIJAF, Budbud

Screening of Jute and Rice Cultivars for Ambient Ozone Tolerance

Day time ozone levels often exceeded 40 ppb (critical level) throughout the boro rice season. During jute crop experiment, ozone concentrations were above critical limit during main vegetative stage. IR-36 and GB-3 cultivars of rice and JRO-524, NJ-7010 and S-19 of jute cultivar under study were found sensitive to ambient ozone concentrations. There was no significant yield difference in MTU-1010 of rice and JRO-204 of jute cultivar in EDU treated and control plots and these varieties may be considered as well adapted to ozone exposure.



Impact of ozone on fibre yield of jute cultivars in West Bengal

A.K. Singh, M.S. Behera, R. Saha and S. Roy
ICAR-CRIJAF, Barrackpore

Improvement in Energy Use Efficiency of Jute Based Cropping Systems

Energy input and output relationships for various jute based cropping systems under no tillage with residue (NT+R) and conventional tillage (CT) resulted highest energy use efficiency (EUE) for J-R-L (10.43 and 11.36 under CT and NT+R, respectively) and lowest for J-R-M (9.22 and 9.86 under CT and NT+R,

respectively) cropping systems. NT+R treatment had 6.94 to 8.92% higher EUE as compared to CT across cropping systems. This is ascribed as no tillage treatment and does not require any land preparation either through tractor, diesel or labour. The energy productivity among the jute based cropping system ranged in between 0.17 - 0.20 t/GJ and 0.19 - 0.22 t/GJ in CT and NT+R, respectively. The highest productivity of jute, rice and lentil in J-R-L system resulted in their higher system productivity, output energy and highest energy productivity.

Energy analysis of different jute based cropping systems

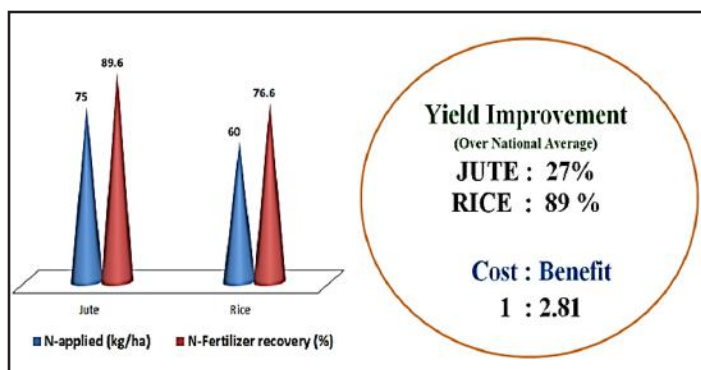
Cropping systems	Input energy (GJ/ha)		Output energy (GJ/ha)		Energy use efficiency		Energy productivity (t/GJ)	
	CT	NT+R	CT	NT+R	CT	NT+R	CT	NT+R
J-R-W	40.1	38.2	377.9	390.8	9.42	10.23	0.17	0.19
J-R-L	35.4	33.6	369.3	381.8	10.43	11.36	0.20	0.22
J-R-M	36.7	34.9	338.5	344.0	9.22	9.86	0.18	0.19

CT: Conventional tillage; NT+R:; No tillage with residue
J: Jute; R: Rice; W: Wheat; L: Lentil; M: Mustard

R. Saha, R.K. Naik, M.S. Behera, D. Barman and L. Sharma
ICAR-CRIJAF, Barrackpore

Diversifying Jute-Rice System to Improve Total Factor Productivity

Crop diversification with integrated land and crop management practices along with inter or mixed crops can significantly enhance total factor productivity. The study included two management systems: integrated soil-crop management (ILM_{soil}), and improved management (IM_{soil}). Jute-rice-mustard crop rotation was managed by using appropriate crop varieties and by optimizing plant densities and N fertilization.



N-applied and N-recovery under jute-rice-mustard cropping system with inter and mixed cropping

Inclusion of green gram and pumpkin as inter crop in jute and lowland rice, and lentil as mixed crop in mustard helped to meet 85% of cost of cultivation of all crops. Leguminous crops as inter and mixed crop

reduced weeds (~ 50%) and provided nitrogen (N) for subsequent crops. The yield was 9.30%, 27% and 16.15% higher in jute, rice and mustard, respectively under ILM_{soil}. Nitrogen use efficiency (NUE) and water use efficiency (WUE) were significantly increased in ILM_{soil} over other management practices.

A.K. Singh and A.K. Ghorai
ICAR-CRIJAF, Barrackpore

Effect of Tillage and Residue Management on SOC in Jute Based Cropping System

The changes in soil organic carbon (SOC) stock were evaluated in jute based cropping systems subjected to tillage systems i.e. conventional tillage (CT), no tillage (NT), and no tillage with additional crop residue retention (NT+R). Results after fourth year of experimentation depicted that SOC density varied in between 242.17–330.03 g/m² among the tillage treatments. Thus, the SOC density increased up to 59.40 and 95.79 g/m² in NT and NT+R plots, respectively over initial SOC density of 234.24 g/m², lowest being in CT (7.93 g/m²). A similar trend was observed for SOC stock. The maximum increase in SOC stock was observed under NT+R treatment, which is 41.03% over the initial SOC stock (2.34 Mg C/ha) followed by NT (25.21 %), lowest being in CT (3.42 %). The significant increase in SOC stock under NT+R and NT may be ascribed by mean annual absolute rate of change in SOC stock which is much higher (0.15-0.24 Mg C/ha/year) as compared to CT (0.2 Mg C/ha/year).

Changes in soil organic carbon (SOC) density and SOC stock under different tillage practices

Tillage treatments	SOC density (g C/m ²)		SOC stock (Mg C/ha)		Rate of change in SOC stock (Mg C/ha/yr)
	Status (2019)	Gain (2015-19)	Status (2019)	Gain (2015-19)	
CT	242.17	7.93	2.42	0.08	0.02
NT	293.64	59.40	2.94	0.59	0.15
NT + R	330.03	95.79	3.30	0.96	0.24
LSD (P= 0.05)	27.56	-	0.27	-	-

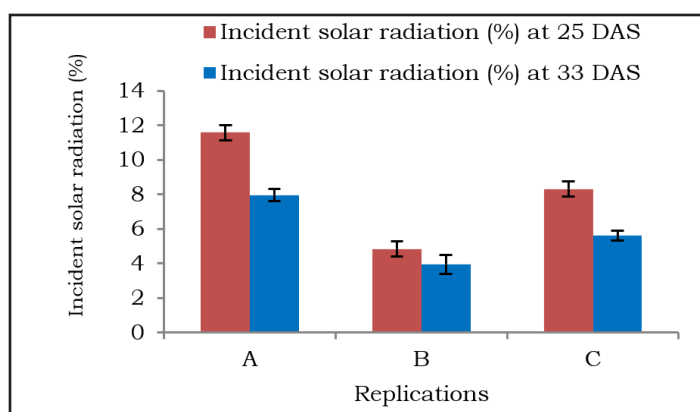
CT-Conventional tillage; NT-No tillage; NT+R-No tillage with residue

R. Saha, S.P. Mazumdar, D. Barman, B. Majumdar, M.S. Behera and A.R. Saha
ICAR-CRIJAF, Barrackpore

Weed Smothering in Jute by its High Density Broadcast Sowing

An experiment was conducted to control weeds in jute (cv.NJ-7010) field by its high density broadcast sowing (seed rate @ 6.75-7.5 kg/ha). Irrigation scheduling (1, 7, 21 and 35 DAS), fertilizer dose (N:P:K::80:80:80 kg/

ha) and fungicide requirement (Tebuconazole 1.5 ml/L at 15 and 21 DAS) were standardised. Only 45 cm wide strip (5% of total area) around the jute field was manually weeded to prevent seed formation of weeds in boarder areas. The dense jute canopy (268/m²) of 29 cm mean height at 25 DAS reduced the incident light at jute base up to 95% and dominated all C4 weeds. This system reduced the grass, broadleaf, sedges weed population and weed biomass up to 62 to 98%. The improved system produced 38.37q fibre/ha and eliminated weeding and thinning processes and saved 89-145 man days/ha (Rs. 22500-36250). This high density broadcast jute sowing is cheaper and safe over other weeding processes.



Incident solar radiation and jute canopy of high density plant

A.K. Ghorai and Suman Roy
ICAR-CRIJAF, Barrackpore

Weed Management Strategies in Ramie Crop

Based on the first cutting data of R-1411 variety of ramie crop, it was observed that the highest green weight (12.6 t/ha) was produced with T-10 (weed free) followed by T-7 (Oxyfluorfen 23.5% EC (PE) @ 1.0 lit/ha + Quizalofop-ethyl 10% EC (PoE) @ 38 g/ha + 1hand weeding) and the lowest biomass (2.59 t/ha) was recorded with T-9 (weedy check).



Weed management in ramie fibre crop at Sorbhog, Assam

Similarly, the maximum stripe weight (8.15 t/ha) as well as plant height (135.6 cm) were recorded with T-10 followed by T-7. The highest basal diameter (1.47 cm) was observed with T-10 followed by T-7 (1.12 cm). Similar trend was observed in R-67-34 (Kanai). The efficacy of weed management practices in terms of green weight was also calculated. The highest efficacy was found with T-7 in both cases.

Kajal Das, S. Sarkar, B. Majumdar and R.K. De
RRS, ICAR-CRIJAF, Sorbhog

New Insect' *Homona spp.* Infecting Sunnhemp, *Crotolaria juncea*

A new insect pest, *Homona spp* (Tortricidae: Lepidoptera) was found infesting sunnhemp, *Crotolaria juncea* at ICAR-CRIJAF Research Farm, during the months of March-May 2020. The larva was creamy whitish in colour with brown head capsule webbing all the terminal leaves of the plant 45-55 DAS and feeding within it. Pupation occurred in the silken webbings made by the final instar stage larva. Pupa is an obctect type formed from last instar larval skin. Damage symptoms include webbing of top two-five leaves and defoliation by feeding within it. Adult moths are small sized with a characteristic crescent shape on wing expansion. Adults are golden yellowish to brownish in colour. This is the first report of the pest infestation in sunnhemp.



Infestation of leaf webber, *Homona spp* in sunnhemp

V. Ramesh Babu
ICAR-CRIJAF, Barrackpore

Efficacy of Fungicides against *Fusarium udum* f.sp. *Crotolariae*

Efficacy of six fungicides was tested at three different concentrations by poison food technique. The per cent inhibition of the growth of the test fungus at different concentrations over control was calculated. Significant difference was observed among the fungicides in inhibiting the growth of *Fusarium udum* f. sp. *crotolariae*. Carbendazim 50% WP, Propiconazole 13.9%+Difenoconazole 13.9% EC, Carboxin 37.5%+Thiram 37.5% WS and Tebuconazole 25.9%

EC were successful in completely (100%) inhibiting the growth of *Fusarium udum* f. sp. *crotolariae*. Least inhibition of mycelial growth (67.38%) was observed in Propineb 54.2%+Tricyclazole 15% WP followed by Hexaconazole 5% SC (76.90) even at 0.1% compared to other tested fungicides.

In vitro efficacy of fungicides against *F. udum* f. sp. *crotolariae* of sunnhemp

Fungicides (F)	Per cent inhibition and Concentration (C)			
	0.025	0.05	0.1	Mean
Carbendazim 50%WP	100 (89.96)*	100 (89.96)	100 (89.96)	100 (89.96)
Propiconazole 13.9% + Difenoconazole 13.9% EC	100 (89.96)*	100 (89.96)	100 (89.96)	100 (89.96)
Propineb 54.2% + Tricyclazole 15% WP	41.19 (39.92)	48.69 (44.24)	67.38 (55.16)	52.42 (46.38)
Carboxin 37.5 % + Thiram 37.5 % WS	100 (89.96)	100 (89.96)	100 (89.96)	100 (89.96)
Hexaconazole 5% SC	24.52 (29.67)	33.37 (35.28)	76.90 (61.26)	44.93 (42.08)
Tebuconazole 25.9% EC	100 (89.96)	100 (89.96)	100 (89.96)	100 (89.96)
Mean	77.61 (61.75)	80.33 (63.66)	90.71 (72.24)	82.89 (65.55)
	Fungicide	Concentration	F x C	
S.Em ±	0.19	0.27	0.47	
CD at 1%	1.05	0.74	1.83	

Shivakumar K.V. and S.K. Sarkar
RRS, ICAR-CRIJAF, Pratapgarh

Development of Campus Dry Pond for Rainwater Harvesting and Pisciculture

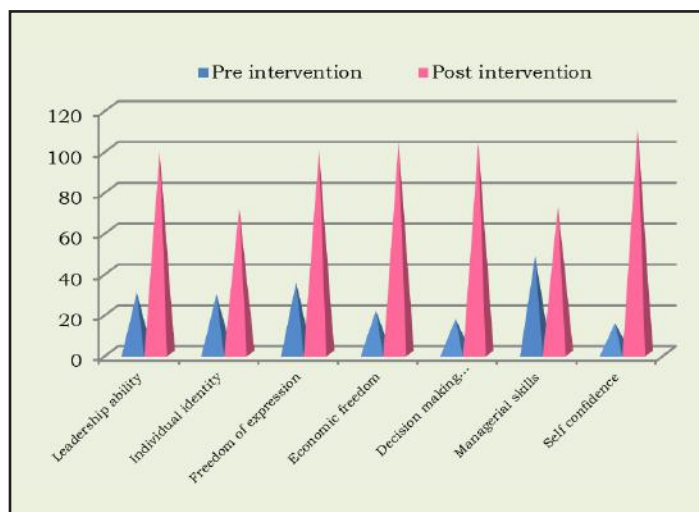
A pond situated in front of the main office building was first cleaned by uprooting all grasses, herbs and shrubs. All micro-pores were then filled up by rotavator and disking. Micropores were then filled up by puddling of the pond floor. As a result, seepage loss of water was checked. Now rainwater of the campus has been harvested in the pond successfully and it is being used for pisciculture activity.



Harvested rainwater in ICAR-CRIJAF pond after Reclamation

Women Friendly Technologies for Drudgery Reduction of Women in Jute Farming

A study on the impact of adoption of women friendly tools for line sowing of jute and intercropping of jute-green gram by CRIJAF Multi-row seed drill, weed control by CRIJAF-Nail Weeder or Single Wheel Weeder and retting by CRIJAF Sona in terms of personal development as a factor of women empowerment under tribal sub plan was done through pre-test and post-test score analysis. The result revealed that the adoption of these technologies by farm women resulted in higher improvement in their score on self-confidence, economic freedom, decision making power and freedom of expression. These technologies may improve the farm women's participation in farming and also help in reducing the drudgery and improving nutritional security through imparting training to Self Help Groups on various entrepreneurial activities.



Impact of women friendly technologies introduced under Tribal Sub Plan in North 24-Parganas, W.B.

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



Improved Push-Pull Type Manual-Weeder Developed

A manually operated 'single wheel jute weeder/cycle weeder' for weeding out young composite weed flora from narrow row spaced crops like jute, mesta, cereals, pulses, vegetables etc. developed. The weeder operates on a compacted rubber cycle wheel of 40 cm diameter for better stability and balance. The weight of the tool is 6 kg only. The weeding operation involves push and pull type and removes weeds completely from its operational width of 180 mm. The weeder is operated at a depth of 50-60 mm. The field capacity of weeder is 0.026-0.028 ha/hr. Its weeding efficiency is 81.65% and plant damage is less than 5%. It gives 60% saving in weeding time and cost of weeding in comparison to manual weeding. This weeder is light weight and easy to operate and can be used for line sown upland crops and vegetables also.



CRIJAF-single wheel weeder

R.K. Naik
ICAR-CRIJAF, Barrackpore

Impact of ICAR-CRIJAF Technologies under Jute I-CARE Scheme

An evaluation of proven ICAR-CRIJAF technologies in sampled area revealed that Jute I-CARE beneficiaries harvested 23% more yield in comparison to non-beneficiaries. Majority of the respondents reported that working condition of the farm has been improved (84%) followed by increasing interpersonal relation with fellow farmers (76%) and reduction in workload of farm women/family members (72%). One third of them (36%) had increased the area of jute cultivation.

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

Use of Sisal Poles as Trellis System for Growing Cucurbits in Sisal Plantation

Dried sisal pole which are generally 15-20 ft in height and 8-15 cm in diameter was used for making trellis system for growing different cucurbits such as pumpkin, bottle gourd, sponge gourd, etc. as intercrops. The trellis system made by sisal poles for growing intercrop of cucurbits generated additional income of ₹ 67,520 per hectare. It also saved about ₹ 12,000 as cost of wood material or bamboo for making trellis.



Trellis made from dried sisal pole for growing cucurbits as intercrop in sisal plantation

M. S. Behera, R. Saha, S. Sarkar and A.K. Jha
ICAR-CRIJAF, Barrackpore

New Varieties of Jute and Allied Fibres Identified (AINP-NF)

Three varieties of jute and allied fibre crops were identified for central release by the Variety Identification Committee Meeting in 31st Annual Workshop of AINPNF held on 14 February, 2020 at OUAT, Bhubaneswar, Odisha under the chairmanship of ADG (CC), ICAR, New Delhi.

JROB-2/Purnendu (Tossa Jute): A tossa jute variety developed from progenies selection of gamma ray treated population of JRO-204, specifically suitable for green biomass production (59.1 ton/ha) along with fibre yield (31.5 q/ha) coupled with better fibre quality and resistance to stem rot and premature flowering. This variety is suitable for both production of green biomass for paper pulp industries as well as cultivation as fibre crop owing to its high fibre yield. As a fibre crop it is suitable for all tossa jute growing regions of West Bengal, Odisha, Bihar and North-Eastern states especially Tripura and Assam. This variety can replace or supplement the widely cultivated jute varieties JRO-204 and JRO-524 for comparatively high yield and better fibre quality in terms of less root content, stronger fibre with better fibre fineness.

JRCJ-11 (White Jute): This is a white jute variety developed by crossing CIN-146 × JRC 321 followed by pedigree selection for higher fibre yield coupled with better fibre quality. The average yield observed was 31.45 q/ha with a potential yield of 41.07 q/ha as per multi-location AINPNF trials. This variety can be adapted to white jute growing areas especially in West Bengal, Bihar, Odisha, Assam and Tarai region of Uttar Pradesh for sowing time between 3rd week of March to 2nd week of April. This variety is also tolerant to stem rot and other major diseases and pest.

KIJ-259. This is a coppery red stem variety with average fibre yield of 28.56 q/ha mainly suitable for cultivation in rainfed and irrigated agro eco-system of mesta growing states of West Bengal, Odisha, Andhra Pradesh, Maharashtra, Bihar and NEH region. It has better fibre tenacity (20.60 g/tex) and fibre fineness (3.30 tex) coupled with tolerance to yellow vein mosaic (YVM) and stem rot disease.

S.K. Pandey, N.M. Alam and S. Mitra
AINP-NF, ICAR-CRIJAF, Barrackpore



JROB-2
(Tossa Jute)

JRCJ-11
(White Jute)

AMV-10
(Central Roselle)

JROMU-1
(Tossa Jute)

JRHC-3
(Central Kenaf)

AMV-10 (Central Roselle): This HS mesta variety has been developed at ARS, Amasalavalasa (ANGRAU) from a cross between R-118 × AMV 5 followed by pedigree selection for higher fibre yield. This variety is suitable for medium to light soils under rainfed agro-ecosystem of Andhra Pradesh, Odisha, Maharashtra and Bihar for mid-May to mid-June sowing. This variety can replace the widely cultivated roselle varieties like HS 4288, AMV 5 and AMV 7 owing to its higher fibre yield (27.22 q/ha) coupled with better fibre strength (20.2 g/tex) and resistant to foot and stem rot disease.

JAF Crop Varieties Released and Notified

Recently JROMU-1 of tossa jute and JRHC-3 of kenaf were notified and released by the Central Sub-Committee on Crop Standard, vide the Gazette notification No. S.O.99(E) dated 6.1.2020.

JROMU-1 (Tossa Jute): A high yielding tossa jute variety developed through mutation breeding by irradiating cultivar JRO-204 with gamma ray. Its average yield potential is 32.89 q/ha and can be adapted to entire tossa jute growing states like, West Bengal, Bihar, Assam and Odisha for sowing time between 3rd week of March to 2nd week of April. It has fairly good fibre strength (20.80 g/tex) and fine fibre (2.90 tex) quality and pre-mature flowering resistance.

JRHC-3 (Central Kenaf): This kenaf variety developed through pure line selection in the germplasm line

INSTITUTE RESEARCH COUNCIL MEETING

The meeting of the Institute Research Council (2020) of ICAR- CRIJAF was held during 8 - 9 June 2020 under the chairmanship of Dr. Gouranga Kar, Director, ICAR-CRIJAF, Barrackpore. In order to contain the spread of COVID 19, the meeting was conducted through both online and offline modes maintaining health protocols and guidelines of the Ministry of Health and Family Welfare, Govt. of India. In the first session, an overview of progress of the Divisions/ Sections/Regional stations during the year 2019-20 was presented by the respective HoDs/In-Charges. In the second session, 14 new research project proposals were presented.



Director, HODs, In-charges (AINP and PME Cell) and Member Secretary (IRC) of ICAR-CRIJAF during IRC meeting

Since April 2020, Director held a series of discussions with scientists and desired that few new 'need of the hour' projects should be formulated to improve the productivity of quality jute and allied fibres. Accordingly, the Divisional Research Councils (DRCs) after detailed deliberations recommended 14 new project proposals for consideration in the IRC meeting. Chairman emphasized that PIs must give at least 30% time and the roles of each Co-PIs must be justified and specified in the technical programmes. It was also recommended that PIs who are proposing collaborative projects with other organizations, must get the MoU signed before initiating such projects. After thorough discussions the House approved 11 projects with some suggestions for modification in objectives and technical programmes. IRC meeting for RPP-II/III and sponsored projects is scheduled to be held in the month of July 2020.

EVENTS ORGANIZED

Republic Day Celebration

Republic Day was celebrated on 26 January, 2020 at ICAR-CRIJAF campus in presence of CRIJAF staffs and their family members. Dr. Jiban Mitra, Director hoisted the National Flag followed by recitation of National Anthem. Director, Head of the Divisions, Scientists, Officers of Administration and Finance, etc. conveyed message of Republic Day on this occasion.



Director, ICAR-CRIJAF hoisting the National Flag on 26 January 2020

67th Foundation Day Celebration

ICAR-CRIJAF celebrated 67th Foundation Day on 9th February 2020 at its headquarter, Barrackpore. Plantation of tree saplings and sports activities for staff and family were organized on this occasion. Scientists and other officials of ICAR-CRIJAF, ICAR-NBSSLUP, ICAR-NINFET and ICAR-IVRI graced the celebration with their presence.



Director of ICAR-NINFET planting a tree sapling on Foundation Day

Director, ICAR-CRIJAF welcomed all the invitees and cited about the significant contributions of institute in terms of research development and release of several JAF varieties by the ICAR-CRIJAF. The 'Best Worker Awards' were also given to Administration and Technical staffs.



Sri Prahlad Singh, Administrative Officer receiving Best Worker Award from the Director on Foundation Day (2020)

हिन्दी कार्यशाला का आयोजन

भाकृअनुप- केन्द्रीय पटसन एवं समवर्गीय रेशा अनुसंधान संस्थान, बैरकपुर में दिनांक 7 मार्च एवं 26 जून 2020 को संस्थान के निदेशक की अध्यक्षता में सोशल डिस्टेंसिंग का पालन करते हुए "राजभाषा कार्यान्वयन" एवं "भारतीय संविधान" विषय पर एक दिवसीय हिन्दी कार्यशाला का आयोजन किया गया। कार्यशाला में कुल मिलाकर 76 प्रतिभागियों ने (35 अधिकारी और 41 कर्मचारी) ने प्रत्यक्ष रूप से भाग लिया। COVID-19 लॉकडाउन के दौरान, इस कार्यशाला का एक लिंक तैयार करके कार्यालय में उपस्थिति सभी प्रशासनिक अधिकारियों एवं कर्मचारियों

को वितरित कर दिया गया था जिसमें वे ऑन लाइन एक्टिव थे और वीडियो कॉन्फ्रेंसिंग के माध्यम से इस कार्यशाला में भाग लिए। राजभाषा का कार्यालय में प्रयोग, राजभाषा नीति, नियम तथा हिन्दी टिप्पणी/मसौदा लेखन एवं यूनिकोड विषय पर एक दिवसीय हिन्दी कार्यशाला का आयोजन किया गया। कार्यशाला में मुख्य वक्ता के रूप में श्री लखन कुमार सिंह, हिन्दी प्राध्यापक, हिन्दी शिक्षण योजना, राजभाषा विभाग, गृह मंत्रालय, भारत सरकार को आमंत्रित किया गया था। दिनांक 2 जून एवं 29 जून 2020 को हिन्दी राजभाषा कार्यान्वयन समिति की बैठक का भी आयोजन किया गया।



हिन्दी राजभाषा कार्यान्वयन समिति को संबोधित करते हुये संस्थान के निदेशक डॉ. गौरांग कर जी

Swachh Bharat Mission- CRIJAF Initiatives during COVID-19 Lockdown

ICAR-CRIJAF, Barrackpore with its Regional Stations and KVKs actively and effectively observed *Swachh Bharat Mission* Campaign through various cleanliness oriented activities and awareness programmes. During the COVID-19 lockdown, the scientists and other staffs of the institute followed social distancing, wearing of face mask, and other protocols as suggested by Ministry of Health & Family Welfare, Government of India in order to prevent spread of COVID-19 virus. Removal of weeds, leaf litters from backyards of the office buildings, residential areas and roads was regularly done. Mosquito repelling treatment has also been carried out.



Mosquito repelling treatment of CRIJAF campus and cleaning of leaf litters under Swachh Bharat Mission

International Day of Yoga-2020

On 21st June 2020, 'Yoga at Home and Yoga with Family' was performed by staff and family members of ICAR-CRIJAF. On this occasion, Dr. Gouranga Kar, Director told that Yoga plays a crucial role in promoting health in a holistic manner by improving physical, mental and spiritual health which ultimately helps in fighting stresses and also alleviate other ailments including depression and anxiety.



Dr. Gauranga Kar, Director addressing scientists and staffs on eve of International Yoga Day

International Women's Day Celebration

Women's Cell of ICAR-CRIJAF, KVK (North 24-Parganas) and Socio Legal Aid Research and Training Centre (SLARTC, Barrackpore) jointly celebrated International Women's Day on 8th March 2020. In this programme, detail about the women empowerment, nutritional garden, bio-fortified varieties as well as nutri-thali was discussed. Mrs. Anwara Bibi (Member, Sewli Panchayat) and Mr. Manabendra Mandal (Director, SLARTC) urged the women to take full benefit of the panchayat for their empowerment through various government schemes. Altogether 61 farm women participated in the programme. Plant saplings were also distributed to the farm women.



Women group participating in International Women's Day

Participation in State Level Farmers' Fair

State Level Farmers' Fair was organized in collaboration with ICAR-ATARI, Zone VI at Guwahati, Assam under NEH Scheme on 26th February 2020. A total of 800 farmers participated in the Programme.

Release of JAF-Safe Mobile App for Farmers and Extension Personal

JAF-Safe mobile app has been developed to guide farmers for diagnosing the damage of pests & disease in field condition and its control as per Integrated Pest Management options. The App was released by Union Minister of Agriculture, Shri Narendra Singh Tomar and Shri Piyush Goyal, Union Minister of Railway along with Minister of State for Agriculture Sri Kailash Choudhary and Parsottam Bhai Rupala on 27th Feb 2020 during 91st Annual General Meeting of ICAR, New Delhi.



Release of JAF-Safe apps by Hon'ble Union Ministers

Celebration of World Environment Day

World Environment Day was celebrated on 5th June 2020 by organising discussion on Covid-19 pandemic and measures to prevent spread of virus followed by plantation programme. The HOD, In-charges, Scientist, CAO, FAO, Medical Doctors and staffs of institute were present for the celebrations.



Tree plantation by Dr. Gauranga Kar, Director (ICAR-CRIJAF) on the occasion of World Environment Day

Farmers Innovation Expo

Farmers Innovation Expo 2020 was organized during 5-6 March, 2020 at College of Agriculture,

Meghalaya on the theme "Integrated agriculture and rural bio-entrepreneurship for doubling the farmer's income". The event was jointly organized by College of Agriculture in collaboration with ICAR-CRIJAF, IRRI, ICAR-RC for NEHR, CPGS-AS and NESAC. About 3000 farmers from NEH states participated.

31st Annual Workshop of All India Network Project on Natural Fibres

The 31st Annual Workshop of All India Network Project on Natural Fibres was organised at OUAT, Bhubaneswar during 14-15 February 2020. Scientists from ICAR-CRIJAF and Cooperating Centers of AINPNF across 8 SAUs based AINP Centers participated in two days deliberation. The research achievements (2019-20) were discussed and reviewed in various technical sessions and plan of work (2020-21) was formulated. The meeting of 'Variety Identification Committee' was held under the chairmanship of Dr. R. K. Singh, ADG (CC), ICAR, New Delhi in which 3 varieties of JAF crops were identified for release. Various publications of JAF crops were also released by the dignitaries during the inaugural session of workshop.



Release of publications on JAF crops during 31st Annual Workshop of AINP-JAF at OUAT, Bhubaneswar

Seminar on Jute Diversified Products

A seminar on "Jute diversified products: Opportunities and potential" was held on 19 June 2020 at ICAR-CRIJAF, Barrackpore. Mr. Supradip Mullick, MD & CEO of Mullick Jute Industries, Kolkata presented about diversified jute products and its scope in both national and international market. Dr. Gauranga Kar, Director of ICAR-CRIJAF chaired the session and appreciated the efforts made by Jute Industries in West Bengal. He emphasized on working for social and technological empowerment for different social groups through value added diversified products from jute and allied fibre crops to tackle post COVID-19 economic crisis. All scientists and Head of Divisions attended the programme through both offline and online modes.

HUMAN RESOURCE DEVELOPMENT

Training on Technological Empowerment of Farm Women

Training on “Technological empowerment of farm women” was jointly organised by the Women Cell and All India Network Project on Natural Fibres during 5-7 March 2020 at ICAR CRIJAF. Altogether 55 women farmers from five villages of North 24-Parganas and Nadia Districts participated in the programme.



Director addressing farm women during Technological Empowerment training programme

During inaugural function, Dr. Gauranga Kar, Director of the institute in his remarks stressed on the importance of entrepreneurship development programmes for women and also urged the participants to utilise the opportunities to the best. In the training, major emphasis was given on new and improved women friendly agriculture technologies, various women empowerment schemes and empowerment of women through Self Help Group. A quiz competition was also conducted for the participants.



Participation of farm women during Technological Empowerment

Farmer's Training on Climate Resilient Jute Based Cropping System

A farmer's training-cum-Scientist interaction was organized under SCSP component of NICRA project on 12th March 2020 at ICAR-CRIJAF to disseminate the problem solving knowledge and farm input products as developed and standardized in farmer's field by the scientists. Altogether 57 Scheduled Caste farmers of West Bengal participated in the training. In the valedictory session, Dr. Gauranga Kar, Director stressed up on adoption of climate resilient technology and emphasized on production of diversified jute products. Farm inputs like seeds and pesticides were distributed to all farmers for line sowing of jute seeds and intercropping with green gram to overcome climate change problem due to weeds, moisture stress, pests and diseases. Dr. A.K. Singh, PI of NICRA project organized this training programme.



Farmers receiving certificate from the Director, ICAR-CRIJAF

SC Farmers Trained on Operation and Maintenance of Farm Implements

A three days training programme for rural youth farmers of SC community was organized at ICAR-CRIJAF, Barrackpore during 10-12 February 2020 under SCSP. The objective of the training was to provide first-hand information on operation, maintenance and repair of oil engines and different farm equipment to the trainees. The training was a two way interactive mode i.e. theory and practical. Participants were also visited Faculty of Agricultural Engineering, BCKV, West Bengal for first-hand information on latest farm machineries. A team of Drs. R.K. Naik, Shamna A. and S.K. Jha conducted the programme. Farm tools and inputs like multi-row seed drill, single wheel jute weeder and hand compression sprayer were distributed to the Scheduled Caste farmers.



SC farmers trained for O & M of farm implements at ICAR-CRIJAF, Barrackpore

Training on Sunnhemp and Flax for SC Farmers

Training programmes on “Improved package and practices of sunnhemp cultivation for enhancing fiber productivity” and “Integrated insect pests and disease management in sunnhemp and flax” were organized at Sunnhemp Research Station, Pratapgarh, U.P. on 26th February 2020 and 13th March 2020, respectively under SCSP. An intensive training schedule was followed with blended learning of theoretical lectures and hands-on-practical demonstration. Altogether, 124 farmers from 12 villages of Pratapgarh district participated in these training programmes.



Distribution of farm inputs to SC farmers in sunnhemp and flax training programme

Skill Development of SC Farm Women in Jute Bag Making

Training on ‘Skill development of SC farm women in jute bag making’ was organised during 2-7 March 2020 at ICAR-CRIJAF, Barrackpore under SCSP. Altogether 21 women from North 24-Parganas district (W.B.) participated in the program. The master

trainers from SHG “Paat Rani Swanirbhar Ghoshti” were also invited to share their success story with the participants. Thirteen different types of bag designs were taught during the training program. The trainees were very much enthusiastic in developing their own skill in making jute bags. The best trainees were also awarded during the valedictory function. Dr. Shamna A., Senior Scientist conducted this training programme.



SC farm women learning jute bag making during training programme

Farmer-Scientist Interaction Meeting on In-situ Tank based Farming System in Jute

Interaction meeting on “In-situ tank based farming system in jute for enhancing fibre quality and supplementing farmers’ income” was organized on 26th June 2020 at ICAR-CRIJAF, Barrackpore. The meeting was chaired by Dr. Gouranga Kar, Director, ICAR-CRIJAF. Dr. Kar explained benefits of in-situ retting tank for jute and mesta and its use for integrated farming system. The system can create employment opportunities for jute and mesta growing farmers. Farmer members of Sabka Apna Farmer Producer Company, FPC and Scientists of ICAR-CRIJAF participated in this programme.



In-situ retting tank for jute and mesta at ICAR-CRIJAF

National Training for Extension Personal on Improved Production Technology of JAF

A three day national level training on “Improved production technology of jute and allied fibres” under NFSM-CC (Jute) was organized during 12-14 March, 2020 at ICAR-CRIJAF, Barrackpore. Altogether 20 participants from jute growing states of West Bengal and Andhra Pradesh attended the programme. Dr. Gouranga Kar, Director in his inaugural address emphasized the need of adopting modern technologies of jute production for doubling farmer’s income. Trainees got acquainted with practices of improved technologies, basic principle of integrated pest and disease management and ICT based agro advisory service. Training programme was coordinated by Dr. Shailesh Kumar, Principal Scientist.



Participants of training with Director and Scientists of ICAR-CRIJAF, Barrackpore

Capacity Building of Farmers under SCSP

In order to develop knowledge and skill of SC Farmers by identifying and addressing the technological grievances in the field of agriculture and allied field, ICAR-CRIAF has conducted various capacity building programmes like trainings and input distribution programmes for several states like West Bengal, Odisha, Assam and Uttar Pradesh. During Jan-June 2020, altogether 22 Trainings were conducted and about 1169 SC farmers were trained under the programme.

In order to augment crop yield, productivity, farm income and to reduce drudgery, critical agriculture inputs like improved variety of seeds (jute, paddy), vegetable kits, fruit planting materials, herbicides, vermicompost units, mushroom spawns and farm implements/tools (CRIJAF Nail Weeder, Cycle Weeder and Sprayers) were given to more than 2100 farmers.



Farmer receiving farm implements under SCSP training programme held at ICAR-CRIJAF, Barrackpore

Training on Advances in Molecular Breeding of Industrial Crops for Researchers

A 10-days ICAR-sponsored HRD training programme on “Advances in molecular breeding of industrial crops” for scientists/researchers was conducted during 25 Feb - 5 Mar, 2020 at ICAR-CRIJAF, Barrackpore. The training programme was based on the need for providing advanced knowledge and hands-on learning experience on molecular breeding tools and techniques used for industrial crops. Altogether 15 trainees from ICAR-NRRI, UBKV, BCKV, RRS (Chinsura) and ICAR-CRIJAF participated in this programme. Scientists of ICAR-CRIJAF, ICAR-NRRI and ICAR-NINFET; and faculty from IIT (Kharagpur), RMVERI (Narendrapur) and Burdwan University shared their experience with participants. Dr. Gouranga Kar, Director, ICAR-CRIJAF in his valedictory session advised the trainees to utilize the knowledge in their future research programmes. Overall, the trainees were satisfied with the outcome of the training programme. Training programme was coordinated by Dr. P. Satya, Principal Scientist.

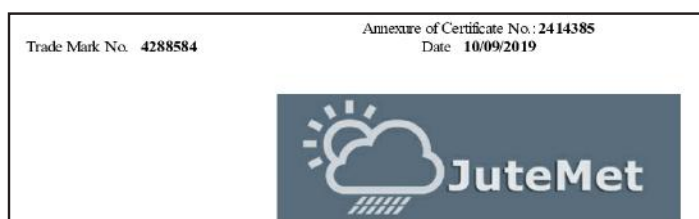


Participants and Resource person of Training on Advances in Molecular Breeding of Industrial Crops at ICAR-CRIJAF

REGISTRATION & COMMERCIALIZATION

Registration

Trademark application of JuteMet, an agrometeorological database management system-cum-agro-advisory system was registered in Class 44, Under No. 4288584, dated 10.09.2019. Certificate was issued on 07.03.2020.



Commercialization

i. Rate revision

Ex-factory rate of CRIJAF SONA was fixed at ₹ 55/- per packet of 1 kg w.e.f. 01.04.2020

ii. Royalty

During Jan-Jun, 2020, total ₹ 7,07,380 received as royalty from authorized firms commercializing CRIJAF technologies namely CRIJAF SONA and CRIJAF Single Wheel Jute Weeder.

PERSONNEL

New Colleagues

Name	Designation	w. e. f.
Dr. Gouranga Kar	Director	04.03.2020
Dr. Debarati Datta	Scientist	04.04.2020

Orientation training for newly joined scientist

Dr. Debarati Datta, Scientist (Agronomy) joined ICAR-CRIJAF on 4th April 2020 and successfully undergone orientation training after joining ICAR-CRIJAF during 23 April to 22 May 2020.

Transfer

Name	Designation	Place of posting
Dr. Monu Kumar (w.e.f 02.06.2020)	Scientist	ICAR-IARI Hazaribagh

Superannuation

Name	Designation	Date of Retirement	Place of Posting
Sh. Fakir	SSS	31.01.2020	SRS, Bamra
Sh. Kishore Das	SSS	31.01.2020	CSRSJAF, Bud Bud
Sh. Dulal Ch. Dey	SSS	29.02.2020	CRIJAF Hqrs
Sh. Pramod Kr. Singh	TSCL	31.03.2020	SRS, Pratapgarh
Sh. Bishu Chetty	SSS	30.04.2020	KVK, North 24 Pgs.
Sh. Prahlad Singh	AO	31.05.2020	CRIJAF Hqrs
Sh. Baul Sarkar	T-5	30.06.2020	CRIJAF Hqrs

AWARDS AND RECOGNITIONS

Award

- Alam, N.M., Gotyal, B.S., Barman, D., Satpathy, S., Mitra, S. and Sarkar, S.K. (2020) received Best Poster Award in National Seminar on “Agrometeorological intervention for enhancing farmers’ income (AGMET-2020) during 20-22 January, 2020 at Kerala Agricultural University.
- Dr. S. Satpathy, Head, Crop Protection Division was conferred with AZRA-Fellowship Award-2019 for his research contribution in biology and bionomics of major insect pests of jute and their management during the International Conference on “Frontier Research in Applied Zoology and Insect Pest Management Strategies : A way Forward for Food and Nutritional Security” held at UAS, Raichur, 12-14 February, 2020.

Recognition

- R. K. Naik, Senior Scientist nominated as
 - Paper Setter in the M.Tech. (Agril. Engg.) Course (Simulation Modelling in Farm Machinery & Power Engineering) and Ph.D. External Theory Examination of CAET, OUAT, Bhubaneswar.
 - Expert member for conducting interview for the post of “Master Trainers” under Jute-ICARE, Phase-VI held at RLD (JCI), Bhadrak, Odisha on 17 February, 2020.



Dr. M.L. Roy and Dr. A. Rahman of ICAR-CRIJAF receiving prize for exhibition stall at Livestock-cum-Agricultural Mela, Bolpur, W.B.

EDITORIAL

Impact of Climate Change on Jute Farming

Climate change impacts on agriculture are being witnessed all over the world, but countries like India are more vulnerable in view of large population depending on agriculture, excessive pressure on natural resources and poor coping mechanisms. Several models predict that rising temperatures, increased climatic variability and extreme weather events could significantly impact agriculture production in coming years. In recent years, the impact of climatic variability is causing significant fluctuations on jute production and is likely to affect its yields in the long-term. Among the climatic factors, temperature and rainfall are the most dominating components for the growth of the jute plant. Historical weather data of the last 100 years shows a noticeable increase in ambient temperature and large variation in monsoon rainfall in the lower IGP region where jute is grown.

An increase of 1.04°C in annual average surface air temperature has been recorded, and by the 2050s, average ambient temperature is expected to rise by another 2 °C. The seasonal variation in rainfall is also likely to increase in the coming decades. Under high humidity and temperature, many insect pests (mite and indigo caterpillar) and disease (stem rot disease, blight and damping off in seedling) appear and damage the crop. As per climate projections of the CORDEX experiment (IIT Mumbai), there would be significant increase in maximum and minimum temperatures and decrease in precipitation till 2100.

Jute is predominantly grown as a rainfed crop and requires about 500 mm water for its growth and development. Over the last 40 years, rainfall deficit have been in the order of 40-50% from the 12th week (mid-march) to the 15th week. The uneven distribution of rainfall exposes jute to early season drought, a

serious abiotic limiting factor inhibiting nutrient acquisition by roots and restricting jute production. The decrease in natural water resources during jute harvesting time affects fibre quality.

Further, West Bengal has two cyclone seasons—pre-monsoon (April-May) and post-monsoon cyclone (Nov-Dec). Jute growing areas of North 24 Parganas,

Howrah, Hooghly, Nadia, Murshidabad, Malda, Dinajpur (Uttar and Dakshin) and Cooch Behar may encounter with high to very high damage risk zone (V=47 - 50 m/s). Lodging of the plant and water logging adversely affect the further growth and fibre production if proper post-cyclone care is not taken.

The strong trends in climate variability and its extremes already evident indicate that the likelihood of further changes occurring, and the increasing scale of potential climate impacts give urgency to addressing agricultural adaptation more coherently. If climate resilience measures in the form of adaptive strategies are implemented, 70 to 80 per cent of the losses can be averted. Therefore, concerted efforts are required for mitigation and adaptation through agro-management and contingent planning to reduce

the vulnerability of jute production to the adverse impacts of extreme weather events and climate change and making it more resilient.

During COVID-19 pandemic period, farmers are advised to follow social distancing, safety measures and maintain personal hygiene by washing of hands with soap, wearing of face mask, and protective clothing at each and every step in the entire process of field operations in order to prevent spread of corona virus.

Wish You All Hearty, Happy and Safe Stay

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