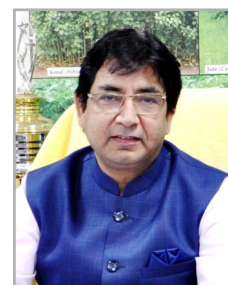


CRIJAF BULLETIN

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DIRECTOR'S MESSAGE

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Editorial Board:

Dr. A.K. Singh

Principal Scientist

Dr. N.M. Alam

Senior Scientist

Dr. S. Satpathy

HOD & Principal Scientist

Dr. G Kar

Director

Greetings!

The institute has made significant strides in advancing scientific knowledge and technological innovations through the coordinated efforts of its talented team of scientists, extension specialists, and farmers. By fostering this collaborative approach, the institute has been able to successfully outreach and disseminate its developed technologies to a wide range of stakeholders through various tailored programs designed for specific target groups. In this direction, institute has developed and released four new high-performing varieties of jute and mesta, with an additional three varieties identified for release in the coming year. The positive impact of adopting the institute's technologies has been clearly evidenced in optimization of water management practices and the enhancement of overall productivity for jute and allied fiber crops. The institute has also placed a strong emphasis on skill development initiatives, providing training and capacity-building programs specifically for marginalised Scheduled Caste farmers. This commitment to empowering underserved communities has been complemented by the widespread popularisation of the institute's technologies through partnerships with Krishi Vigyan Kendras and state agricultural departments. Furthermore, the institute has emphasised in commercialization of developed technologies, fostering entrepreneurship, and facilitating industry collaborations to bring these innovations to the market and directly benefit for end-users. These multifaceted achievements, highlighted in this newsletter, showcase its dedication to advancing scientific knowledge, driving technological progress, and creating meaningful impact within the agricultural sector.

We are deeply grateful to acknowledge the unwavering support and trust of our valued stakeholders and hardworking farmers, without whom our mission and efforts would not be possible. I am especially grateful to Dr. Himanshu Pathak, Secretary, DARE, and the Director General, ICAR, for graciously visiting our institute and providing us with his invaluable guidance and steadfast backing. Additionally, I extend our heartfelt appreciation to the dedicated editorial team and talented scientists of our institute, whose tireless efforts have ensured the seamless and timely publication of this informative bulletin.

Photography:

**K. Banik, Library Unit
& Scientists**



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ONE EARTH • ONE FAMILY • ONE FUTURE



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

Agr@search with a human touch



आत्मनिर्भर भारत

RESEARCH NOTES

New jute and mesta crop varieties identified for release

Three varieties of JAF crops; each in tossa jute (NJ-7068), white jute (JRC-9) and roselle mesta (AMV-11) have been identified by the Variety Identification Committee chaired by Dr. T. R. Sharma, DDG (Crop Science), ICAR, New Delhi during the 35th Annual Workshop of AINPJAF held at ICAR-CRIJAF, Barrackpore, on 22 February 2024 for their central release. The salient features of these varieties are here as under.

NJ-7068: This variety has recorded 32.23 q/ha average fibre yield in multi-location yield evaluation trials which is 12.85 and 5.66% higher fibre yield than check varieties JRO 524 and JRO 204, respectively. It also exhibited 20.66% and 10.39% more tolerance to stem rot than JRO 524 and JRO 204, respectively while it recorded 14% higher resistance to root rot than JRO 204. This variety has also exhibited 4 - 8% more tolerance to semilooper and comparable tolerance with both the check varieties for BHC. Variety NJ-7068 is suitable for West Bengal, Assam, Bihar, Maharashtra and Odisha in both rainfed / irrigated ecosystems for mid-march to April sowing.

JRC-9: White jute variety JRC-9 recorded 7 to 10% higher fibre yield over check varieties JRC 517 and JRC 698 in three years of AINPJAF trials. It is suitable for all capsularis jute growing regions of West Bengal, Odisha, Bihar, UP, Tripura and Assam. It exhibited 20 - 30% more tolerance to BHC than both the check varieties, 23.3% higher tolerance to yellow mite than JRC 517 and 8 - 11% more tolerance to jute semilooper. It also exhibited 6.0 - 8.0 % more tolerance to foot rot and less than 5% incidence of root rot indicated field resistance to both the diseases. Its fibre has 5 - 13% less root content, 6 - 8% less defects than the checks indicated its better fibre quality than checks.



Tossa jute NJ-7068



White jute JRC-9



Roselle mesta AMV-11

AMV-11: Roselle variety AMV-11 recorded 8 - 16% higher fibre yield than check varieties HS 4288 and AMV 5 with 29.04 q/ha average fibre yield. It is suitable for cultivation in mid and highland rainfed agro-ecosystems of Andhra Pradesh, Odisha, Tamil Nadu, Maharashtra and Bihar. It showed lower incidence of aphids (57-89% reduction) and whiteflies (48.40% reduction) over check varieties and also exhibits moderate resistance to foot and stem rot disease in comparison with check varieties. The fibre of AMV-11 (18.04 g/tex) was 1.52% stronger than the check variety AMV 5 with fine (3.47 tex) fibre quality.

S. K. Pandey, P. Satya, S. Mitra and N. M. Alam
ICAR-CRIJAF, Barrackpore

Release of jute and kenaf crop varieties for commercial cultivation

During 2023-24, four varieties of jute and allied fibre crops had been released and notified after four years of multi-location yield evaluation trials under AINPJAF, ICAR-CRIJAF, Barrackpore. These high yielding varieties include two varieties of tossa jute (JROP 4 and JROV 5) and one variety each in white jute (JRCP 7) and kenaf (JBMP 6) which were released and notified vide the Gazette of India notification no. S.O. 1560(E), dated 26 March 2024.

Tossa jute variety JROP 4 has been evolved through backcross method of breeding using S19 as a recurrent parent. It is specifically adapted to tossa jute growing belt in West Bengal, Assam, Bihar and Odisha in both rainfed and irrigated agro-ecosystem for sowing during April to July. Its average fibre yield is 31.24 q/ha with a potential yield of 38.72 q/ha. Another tossa jute variety JROV 5 is the first variety exclusively released as leafy vegetable edible crop. This variety is adapted to olitorius jute growing belt of West Bengal, Bihar, Assam and Odisha as leafy vegetable crop for growing during March to September which attains harvestable maturity at 30 days only. Its average foliage yield is 151.31 q/ha with potential yield of 262.2 q/ha. Vitamin C content in JROV 5 (1.05 mg/g fresh leaf wt) is significantly higher with comparable iron content to both the checks JRO 204 and JRO 524.

The high yielding green stem white jute variety JRCP 7 is adapted to rainfed /irrigated agro-ecosystem of West Bengal, Odisha, Bihar, UP, Tripura and Assam. Its fibre crop matures within 110-120 days of sowing (March-April sowing) whereas seed crop matures at 120-130 days when sown in July - August. The average fibre yield is 31.48 q/ha with a potential yield of 39.06 q/ha. Variety JRCP 7 exhibited tolerance to the major insect pest like, BHC, yellow mite, stem weevil and semilooper and fewer incidences of stem rot and root rot diseases as compared to check varieties JRC 698 and JRC 517.

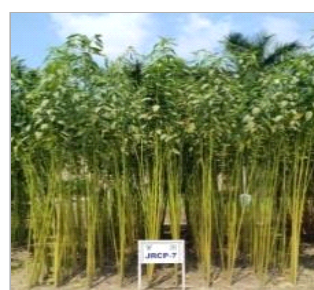
JBMP 6, a high-yielding coppery stem kenaf variety released and notified for commercial cultivation in mid and high-land soils of rainfed agro-ecosystem of Andhra Pradesh, Odisha, Maharashtra, West Bengal, Bihar and North-Eastern states for mid-April to May sowing. This variety has been evolved through modified back cross [(KEX-11 × AMC 108) × AMC 108] breeding followed by pedigree selection. Its average fibre yield is 28.06 q/ha and its potential yield is 36-37 q/ha in 120-130 days of crop duration. The seed crop is generally sown in the month of July-August which attains the harvestable maturity after 150-160 days of sowing.



JROP 4



JROV 5



JRCP 7



JBMP 6

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Potential biochemical index in no tillage and residue management under jute-rice-lentil cropping systems

The effect of no-tillage (NT) with various residue management practices (paddy straw, sesbania, and crotolaria @ 3 t/ha) on the potential biochemical index (PBI) in terms of soil microbial properties and enzymatic activity (soil microbial biomass carbon; SMBC, dehydrogenase activity; DHA, fluorescein diacetate activity; FDA, B-glucosidase activity) was evaluated under jute-rice-lentil cropping systems. The soil enzymatic activities were significantly higher in NT+ sesbania @ 3 t/ha followed by NT+ crotolaria @ 3 t/ha, NT+ paddy straw @ 3 t/ha against NT+ no residue (Table 1). Soils under residue management treatments had higher soil organic carbon and showed higher enzymatic and microbial activities, which resulted in a higher biochemical index. The changes in microbial activities can be attributed to fluctuations in crop residue availability, soil moisture, temperature, and rhizosphere effects as affected by different residue management treatments.

Table 1: Effect of no tillage and residue management on potential biochemical index (PBI) in terms of soil microbial properties and enzymatic activity

Treatments	SMBC (µg/g)	DHA (TPF/g /ha)	FDA (µg fluorescein g/ha)	B-glucosidase (µg pNP g/ha)	PBI
NT + No residue	310	1.08	5.69	19.95	23.51
NT+ Paddy straw	379	1.38	6.48	30.07	36.42
NT + Sesbania	470	1.67	7.40	44.52	57.34
NT + Crotolaria	393	1.56	7.02	40.23	48.33
CD (P= 0.05)	23.5	0.27	1.18	4.61	-

R. Saha, S. Mitra, S.P. Mazumdar, D. Datta, and G. Kar
ICAR-CRIJAF, Barrackpore

Screening of phosphate and potassium solubilizing bacterial isolates for Indole-3-acetic acid production

Indole-3-acetic acid (IAA), the most common, naturally occurring phytohormone of the auxin class, is regarded as one of the most physiologically active phytohormones that promotes plant growth. Rhizosphere bacteria play a key role in stimulating and facilitating plant growth through the production of IAA. The production of IAA by bacteria can differ between species and is also dependent on growth stage, culture conditions, and substrate availability. In the present study, we aimed to screen the PGPR strains for IAA production that were isolated from jute rhizosphere soil and had the ability to solubilize inorganic phosphate and potassium. Screening of rhizobacterial isolates for IAA production was done using a Salkowski colorimetric assay. The concentration of IAA was estimated using an IAA standard curve (10 – 100 µg/mL). Twenty-three phosphate solubilizing bacteria (PSB) and twelve potassium solubilizing bacteria (KSB) tested positive for the production of IAA (Fig. 1). Ten KSB isolates, including I-287, I-294, I-248, I-355, I-287, I-240, I-178, I-169, I-361, and I-231, showed higher IAA production (>30 µg/ml). Six PSB isolates, including I-347, I-31, I-93, I-60, I-97, I-85, and I-13, showed higher IAA production (>20 µg/ml).

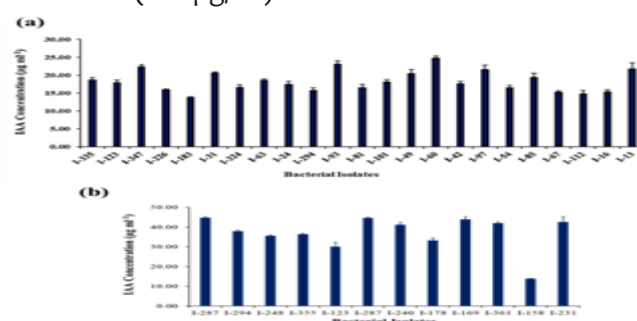


Fig. 1: Production of IAA by (a) phosphate solubilizing bacteria and (b) potassium solubilizing bacteria

A.K. Lavanya, S. Saha, S. Datta, S. K. Sarkar and D. Datta
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Optimization of deficit irrigation water usage for maximisation of jute fibre yield

India is the leading producer and exporter of jute, contributing to almost 70% of global production. However, the productivity of jute crops in India is often hampered by dry spells and erratic rainfall patterns. To explore the crucial role of dry spells on jute productivity and to mitigate their negative impact through optimization of deficit irrigation water usages, Open-field experiment was carried out on jute cultivation under varying soil depletion of available moisture (DASM) and estimated crop water requirement (ETc) level. The results of the study revealed that application of irrigation at '50% DASM with 75% ETc' or '75% DASM with 100% ETc' is beneficial to the crop during the pre-monsoon season for *olitorius* jute in alluvial soils of sub-tropical climate. The available soil-water regime at 100 to 50 percent soil water depletion produced the best fiber yield and water productivity. Yield increase of 23–44% was achieved with irrigation scheduling in comparison to the rainfed condition. Soil moisture, biomass, and canopy cover were all accurately simulated by the AquaCrop model. The study recommends deficit irrigation water usage as a method to reduce yield gaps and mitigate dry spells.

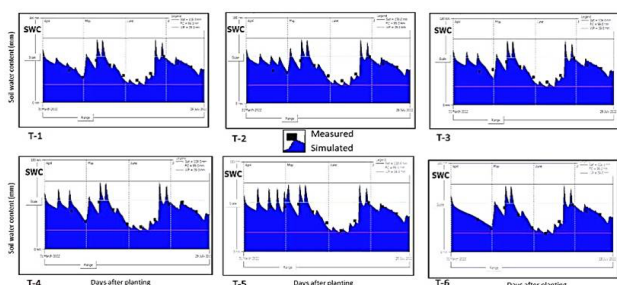


Fig.2: Simulated and measured soil water content for jute plants (t/ha) from germination to maturity grown in alluvial soils of West Bengal under irrigation treatments plotted in the Aqua Crop Model

D. Datta, A. K. Singh, N.M. Alam, D. Barman,
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Increasing productivity of sisal farming through INM

The effect of an integrated nutrient management (INM) system on the fibre yield of sisal was studied at the research farm of Sisal Research Station (ICAR-CRIJAF), Bamra, Odisha, under the AINPJAF Scheme, ICAR-CRIJAF. The experiment was laid out in a randomised block design comprising of 7 fertilizer treatments [T1: Control; T2: 30:30:60; T3: 60:30:60; T4: 90:30:60; T5: 120:30:60; T6: T3+ sisal waste @ 20 t/ha; T7: T4+ sisal waste @ 20 t/ha; N:P₂O₅:K₂O, kg/ha] replicated thrice. The pooled data on the fibre yield of sisal for the 2022–23 and 2023–24 crop seasons revealed that all the fertilizer treatments recorded significantly higher fibre yields than control (9.68 q/ha). The pooled data also revealed that T7 fertilizer

treatment [NPK @ 90:30:60 kg/ha + sisal waste @ 20 t/ha] recorded significantly higher fibre yield (22.33 q/ha) over other fertilizer treatments, and both INM treatments (T6 and T7) recorded significantly higher fibre yield over the highest fertilizer dose (NPK @ 120:30:60 kg/ha) (17.71 q/ha), thereby indicating a further scope of saving of N fertilizer by 30–60 kg/ha using decomposed sisal waste without affecting the fibre yield of the crop and is recommended for sisal in Odisha.

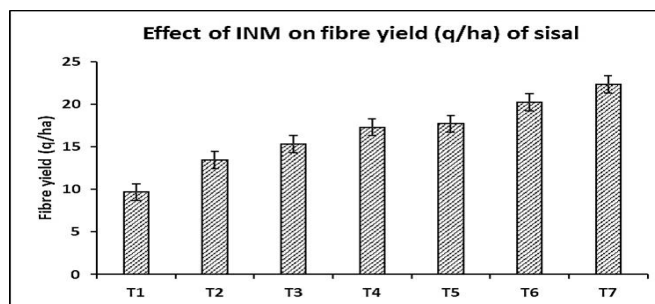


Fig. 3: Effect of INM on fibre yield of sisal in Odisha

S. Mitra, R. Saha, S. P. Mazumdar, N. M. Alam and G. Kar
ICAR-CRIJAF, Barrackpore

Profitable mesta based cropping sequences for Andhra Pradesh, Tamil Nadu and Maharashtra

The field experiments were conducted at ARS, Amadalavalasa, Andhra Pradesh; Aduthurai, Tamil Nadu; and Rahuri, Maharashtra, under ICAR-CRIJAF to identify the suitable mesta-based cropping systems for the mesta-growing regions of Andhra Pradesh, Tamil Nadu, and Maharashtra based on the higher productivity and profitability of the crop sequences. The experiment was laid out in a randomised block design with seven mesta-based crop sequences, viz., mesta-groundnut (T1), mesta-maize (T2), mesta-jowar (T3), mesta-green gram (T4), mesta-sunhemp (T5), mesta-black gram (T6), and sole mesta (T7), replicated three times at all three locations. All the mesta-based crop sequences recorded significantly higher system mesta fibre equivalent yield (MEY) over the sole crop of mesta at all three locations (Fig. 4). At Amadalavalasa, Andhra Pradesh, the mesta-groundnut crop sequence recorded significantly higher MEY (63.53 q/ha) over other crop sequences and was followed by T2 (51.78 q/ha) and T3 (48.62 q/ha) (Fig. 4). The B:C ratio was in the order of T3 (2.31) > T1 (2.21) > T2 (2.01). At Aduthurai, Tamil Nadu, the highest mesta equivalent yield (51.67 q/ha) was recorded with T2, which was statistically at par with T1 (48.90 q/ha), and both the sequences recorded significantly higher mesta equivalent yield (MEY) over other crop sequences (Fig. 4). The maximum B:C ratio (3.10) was recorded with T2, followed by T1 at Aduthurai. At Rahuri, Maharashtra, T2 recorded significantly higher maximum MEY (67.14 q/ha), gross return (Rs. 219985/ha), and B:C ratio (2.21) than T1. Based on the productivity and economics data,

the T1 and T2 (maize as grain) were found promising for the mesta-growing regions of Andhra Pradesh and Tamil Nadu, while for Maharashtra, the T2 (maize as fodder) and T3 crop sequences were found suitable and were recommended.

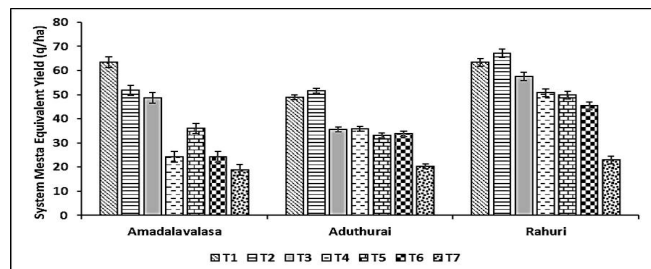


Fig. 4 : System mesta equivalent yield (MEY) of mesta based crop sequences at different locations

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D. V. Deshmukh, R. Saha, S. P. Mazumdar, N. M. Alam and G. Kar
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Performance of promising jute varieties in farmer's field

A field demonstration was conducted to evaluate the yield performance of five new jute varieties (JROB 2, JROBA 3, JROG 1, JROMU 1, and JRO 204) in three villages, namely, Char Krishnabati (Hooghly), Bishnupur (Nadia), and Panji (North 24 Pgs.) of West Bengal. There was an increase in fibre yield of 6.04–11.40 q/ha over the varieties used by the farmers. It showed that North 24 Parganas and Nadia districts have better chances to improve jute productivity than Hooghly districts. Irrespective of the locations, JROBA 3 gave the highest fibre yield of 39.10 q/ha. It showed more vigorous growth as well as plant height than other jute varieties. The field demonstration exhibited impressive performance of high-yielding jute variety, JROB 2, which produced an impressive average yield of 39.10 q/ha. This variety has demonstrated its potential to out perform other leading jute cultivars, with JROB 2 coming in second at 36.70 q/ha, followed by JRO 204 (35.84), JROMU 1 at 34.78 q/ha and JROG 1 at 33.74 q/ha. Based on this positive feedback and the clear yield advantages, agricultural authorities are now poised to promote the JROBA 3 variety more widely among jute growers in the major jute-producing regions. This new high-performing variety will gain wider adoption and help boost jute production to meet growing market demands.



A line sown jute field through
CRIJAF-MRSD at Panji



Yield recording of harvested jute
crop at Char Krishnabati

Shailesh Kumar, S.K.Jha, M.L.Roy, S. Sarkar and R.K.De
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Effect of climate variability on pest occurrences in jute-based cropping system

The jute-based cropping system is one of the most popular traditional cropping systems in the eastern region of India. Due to the global phenomenon of climate change and its resultant weather vagaries and climatic aberrations, the occurrence of various pests like weeds, insects, and diseases in this system has become variable. To address this issue, a study was conducted to explicit the perceptions of agricultural scientists as well as farmers about the effects of climate variability on pest occurrence in jute-based cropping systems and to see the degree of concurrence between the two perceptions for a reliable and valid conclusion. A comprehensive list of statements indicating the probable effect of climate variability on pest occurrences in jute-based cropping systems was prepared, and the respondents were requested to give their opinion against each statement on a five-point continuum ('strongly agree' to 'strongly disagree' with scores of 5 to 1). A separate mean score for each statement was calculated for scientists (MSS) and farmers (MSF), and the level of agreement between the two mean scores was adjudged by calculating the Spearman rank difference correlation coefficient (ρ). The significant value of ' ρ ' found in the analysis indicated good concurrence between the perceptions of the scientists and the farmers (Table 2).

Table 2. Effect of climate variability on pest occurrences in jute-based cropping systems

Sl. No.	Statements	MSS (N=35)	MSF (N=218)
1	Weed infestation has become high due to prolonged humid weather	3.82	3.99
2	Uncommon weeds have been seen due to dispersion effect of high wind in:		
	paddy	3.34	3.45
	jute	3.40	3.52
3	Uncommon insect(s) and disease(s) have been seen due to high winds and favourable pathogenic environment in:		
	paddy	2.85	3.00
	jute	3.28	3.49
4	Insect and disease infestation has become high due to prolonged hot and humid weather	4.20	4.32
5	Heavy fog in day time during winter season has increased insect and disease infestation in:		
	potato	3.543	3.70
	mustard	3.371	3.55

ρ (p)= 0.952**, significant at 1% level

By proactively addressing these climate-related pest challenges, jute producers can safeguard the long-term sustainability and productivity of jute-based cropping systems.

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

NEWS & EVENTS

Hon'ble Secretary DARE and DG (ICAR) inaugurates the Administrative Building of KVK (North 24 Parganas)

Dr. Himanshu Pathak, Hon'ble Secretary (DARE), and DG, ICAR, visited ICAR-CRIJAF, Barrackpore, on January 19, 2024, and inaugurated the Administrative Building of KVK, North-24 Parganas (additional). He also interacted with farmers, women SHG members, scientists, and staff of the ICAR-CRIJAF. He also visited the institutes' Skill Development Centre, Fibre Museum, and Exhibition Hall, where all viable technologies and diversified products have been showcased. He also interacted with students of Kolkata hub, and expressed satisfaction with the smooth academic activities of ICAR-CRIJAF. On this occasion, the firms commercialising the ICAR-CRIJAF technologies paid the royalty amount and exchanged MoUs for the commercialization of tractor-drawn jute seeder and jute ribboner. He congratulated the Director and staff of ICAR-CRIJAF for recent developments in the institute and suggested them to be more vibrant in their activities to meet the transformation being initiated in the Council. Around 400 participants (farmers, farmwomen, SHG members, scientists, and ICAR institute personnel) participated in this program.



MEETINGS

Industry and entrepreneurs meet on promotion of jute based products

Industry and Entrepreneurs Meet cum Interaction with Primary Stakeholders on "Potentials of jute and allied fibre crops and promotion of jute-based products" was organised on 8 February, 2024, at ICAR-CRIJAF, Barrackpore. The program was inaugurated by Dr. Subrata Gupta, Additional Chief Secretary, Department of Food Processing Industries & Horticulture, Govt. of West Bengal, along with Dr. D.K. Yadava, ADG (Seed), ICAR, New Delhi, Dr. Pravin Kumar, CEO, Agrinnovate India Ltd., New Delhi, and Mr. D. Mukherjee, Assistant Director (Marketing), National Jute Board, Kolkata. The program also witnessed the signing of the MoU between ICAR-CRIJAF, Agrinnovate India Ltd., and M/s Creative Pharm for the commercialization of CRIJAF SONA and the distribution of ICAR-CRIJAF-developed farm machinery and CRIJAF SONA to the farming communities. About 250 participants (industry people, entrepreneurs, SHG members, farmers, farmwomen, scientists of the Institute, etc.) participated in this program.



Participation of industry people, entrepreneurs, SHG members, farmers, farmwomen, scientists of the Institute during Industry and Entrepreneurs Meet 2024 of ICAR-CRIJAF



Interaction meeting with KVKs of West Bengal

An interaction meeting with the heads and in-charges of KVKs in West Bengal on “Roadmap for horizontal expansion and upscaling of ICAR-CRIJAF technologies” was organised at ICAR-CRIJAF, Barrackpore, on 25 January, 2024. Dr. Pradip Dey, Director, ICAR-ATARI, Kolkata, Prof. Pintu Bandopadhyay, Director, Extension, BCKV, Mohanpur, along with Dr. G Kar, Director, ICAR-CRIJAF, graced the meeting. There were several presentations given by ICAR-CRIJAF scientists on jute and allied fibre varieties, crop production technologies, farm mechanisation, improved retting techniques, diversified use of jute and allied fibre crops, and skill development training on jute-diversified products, along with various extension activities under NFSM, SCSP, and TSP. The event was attended by more than 25 KVK officials from various districts of West Bengal.



Participants during KVKs Meet, West Bengal at ICAR-CRIJAF

Interaction meeting with DDAs, West Bengal on promotion and upscaling of ICAR-CRIJAF technologies

An interaction meeting with DDAs in West Bengal on “Promotion and upscaling of ICAR-CRIJAF technologies” was organised at ICAR-CRIJAF, Barrackpore, on 27 June, 2024. The objective of this program was to sensitise the state agricultural department officials and line department about ICAR-CRIJAF technologies so as to demonstrate the technologies in the farmers' fields in various districts of West Bengal. Dr. Pradip Dey, Director, ICAR-ATARI, Kolkata, along with Dr. G Kar, Director, ICAR-CRIJAF, presided over the meeting. The event was attended by more than 40 DDAs and their representatives from state agriculture departments from various districts, ICAR-CRIJAF scientists, and KVK officials.



Director, ICAR-CRIJAF interacting with participants during Meeting

Scientific Advisory Committee meeting of KVK, N24Prg

The 5th Scientific Advisory Committee meeting was organised by KVK, North 24 Prgs (Additional) in the Committee Room on 25 June, 2024. Dr. G Kar, Director, ICAR-CRIJAF, chaired the meeting and Dr. Pradip Dey, Director, ATARI Zone-V, graced the meeting online. Dr. K.K. Gangopadhyay, Principal Scientist, ICAR-IARI; Dr. P. S. Banerjee, Principal Scientist, ICAR-IVRI ERS; Dr. A. K. Das, Principal Scientist, ICAR-CIFRI; Dr. A. K. Singh, Headquarter In-Charge, KVK; officers from the State Line departments; all the Heads/Incharges of the Divisions/Sections; Heads of KVK; representatives from FPC; and farmer members attended the meeting. Dr. Tanmay Samajdar, Head, KVK North 24 Parganas (Addl.), presented the action taken report of the 4th SAC Meeting. The annual report for the year 2023 was reviewed, and suggestions were given for improvement of the action plan 2024.



Participants during SAC meeting of KVK (North 24 Parganas)

MoA signing ceremony against the commercialization of ICAR-CRIJAF developed jute and flax seed varieties

A MoA signing ceremony for the commercialization of ICAR-CRIJAF-developed jute and flax seed varieties was organised at the ICAR-NBSS & LUP Regional Centre, Kolkata, on 3 June, 2024. The program was attended by the Hon'ble Secretary, DARE, and Director General, Dr. Himanshu Pathak, along with the directors and Heads of the divisions of ICAR institutes located in Kolkata. Jute varieties (JROBA 3 and JROB 2) and flax varieties (JRF 2) were licensed to M/s Delta Agrigenetics Pvt. Ltd., Hyderabad, M/s Bharat Nursery Pvt. Ltd., Kolkata, and M/s KR Lifesciences Pvt. Ltd., Kolkata, for commercialization for the next 5 years.



MoA signing ceremony for the commercialization of ICAR-CRIJAF-developed jute and flax seed varieties

Awareness-cum-capacity building program on NABL accreditation and quality assurance of soil testing labs

Awareness-cum-Capacity Building program on “NABL Accreditation and Quality Assurance of Soil Testing Labs” was organised at ICAR-CRIJAF, Barrackpore, on 14 June, 2024. The objective of this program was to create awareness among the stakeholders, initiate new programs supporting accreditation activities, and pursue organisational excellence through NABL accreditation of the research laboratories. Mrs. Malancha Das, Deputy Director, NABL, Kolkata, and Dr. Pradip Dey, Director, ICAR-ATARI, Kolkata, graced the program, along with Dr. G Kar, Director, ICAR-CRIJAF. The event was attended by more than 40 participants, including scientists, representatives from the State Agriculture Dept and KVKs.



Malancha Das, Deputy Director, NABL (Kolkata) interacting with participants along with Directors of ICAR-CRIJAF and ATARI

WORKSHOP

Annual Workshop of All India Network Project on Jute and Allied Fibres

The 35th Annual Workshop of AINPJAF was conducted at ICAR-CRIJAF, Barrackpore, Kolkata on 22-23 February 2024. During the inaugural session, Dr T. R. Sharma, Hon'ble DDG (Crop Science) ICAR, served as the Chief Guest, while Dr D. K. Yadava, ADG (Seeds & CC) at ICAR, and Mr A. K. Jolly, MD & Chairman of JCI, were the Guests of Honour. The Workshop was attended by 45 scientists from 9 AINPJAF centres and ICAR-CRIJAF, Barrackpore.



Dr T. R. Sharma, Hon'ble DDG (Crop Science) of ICAR is releasing Annual Report-2023 of AINPJAF during workshop

Three varieties of JAF crops, viz., tossa jute (NJ-7068), white jute (JRC-9), and roselle mesta (AMV-11), have been identified by the Variety Identification Committee chaired by Dr. T. R. Sharma, DDG (Crop Science), ICAR, New Delhi, for submission to the Central Sub-Committee on Crop Standards, Notification, and Release of Varieties for Agricultural Crops, New Delhi for release. In the three concurrent technical sessions (Crop Improvement and Fibre Quality, Crop Production, and Crop Protection), the technical program of work for 2023-24 was discussed and finalised.

CELEBRATIONS

Republic Day celebrated

ICAR-CRIJAF celebrated its 77th Republic Day on 26 January 2024 with pride and remembered the great scarifies made by freedom fighter of the country. Dr G Kar, Director, ICAR-CRIJAF hoisted the national flag and delivered the speech.



72nd Foundation Day of ICAR CRIJAF

ICAR-CRIJAF celebrated its 72nd Foundation Day on 9 February, 2024. On this auspicious occasion, Prof. S.K. Datta, Vice Chancellor of Biswa Bangla University and former Deputy Director General (Crop Science, ICAR, New Delhi), graced the occasion as the Chief Guest. He inaugurated the exhibition stalls displaying proven technologies developed by ICAR-CRIJAF, KVKs, and SHGs. He appreciated the institute for putting in excellent effort to increase its visibility among the related stakeholders. Dr. G. Kar, Director, ICAR-CRIJAF, spoke about the reorientation of research projects as need-based and problem-solving technologies.



Prof. S.K. Datta is delivering speech during Foundation Day of ICAR-CRIJAF

FARMERS LINKAGES

Agri-Drone based precision spraying technology demonstration at farmers' field

Under the Drone Technology Demonstration Project, ICAR-CIRIJAF conducted demonstrations of agri-drones in precision spraying technology. The demonstrations were done at Beraberia, Rattanpur and Paschim Simla villages, in North 24 Parganas (W.B.) during 15 March, 2024 and 25 June 2024. This event was attended by more than 200 farmers covering an area of 20 hectares. Farmers were given an in-depth overview of the operational aspects of agri-drones and their benefits.



Drone technology demonstration by the scientists of ICAR-CIRIJAF

Paddy seed distribution program for SC farmers of Sundarban, West Bengal

A paddy seed distribution program was organised under SCSP on 20 June, 2024 at Kultali village, South 24 Parganas, in association with the Kultali Milon Tirtha Society for the livelihood and technological improvement of SC women farmers. The objective of this program was to make the small and marginal farmers self-reliant by enhancing their farm income through the adoption of modern farm technologies. Dr. G. Kar, Director, ICAR-CIRIJAF, graced the program. The event was attended by more than 500 SC farmers along with representatives from the press and media. In this program, 2.5 tonnes of certified paddy seed (Var. Swarna/MTU 7029) were distributed among the farmers.



Paddy seed distribution by the Director, ICAR-CIRIJAF

Training on farm mechanization in jute-based cropping systems for enhancing productivity and profit

A five-day training program on “Farm mechanisation in jute-based cropping systems for enhancing productivity and profit” was organised at ICAR-CIRIJAF, Barrackpore, during 2-8 January, 2024, under SCSP. Fifteen SC farmers from Beraberia and Ratanpur villages of Amdanga Block, North 24 Parganas, attended the program. The training dealt with the importance of farm mechanisation in jute-based farming systems and operation of oil engines, use of tractor and power tiller in agriculture, improved production technology of jute, safe use of plant protection equipment, role of custom hiring centres in farm mechanisation and maintenance of safety in the workplace.



Certificate distribution during valedictory of Training program

Awareness-cum-Training program on efficient use of agro-inputs for higher farm yield

Awareness program on “Efficient use of agro-inputs for higher farm yield” under SCSP, along with a training program on “Improved and scientific methods of cultivation for higher yield,” sponsored by Rashtriya Chemicals & Fertilizers Limited, Kolkata, was organised at ICAR-CIRIJAF, Barrackpore, on 8 January, 2024. A total of 100 farmers from the villages of Beraberia, Basudevpur, Paschim Suryapur, Chandigarh, and Taranghati in the North 24 Parganas participated in the program. A hands-on training session on efficient use of agro-inputs was organised in the field.



Participants of awareness-cum-training program on Agro inputs

Skill Development training on making of jute fibre based handicrafts

A ten-day training programme on “Making of jute fibre-based handicrafts” was organised at ICAR-CRIJAF-facilitated Jute Diversified Product Training-Production Hub, Gobardanga, North 24 Parganas, during 4–13 March and 15–24 March, 2024, under the SCSP program. A total of 30 SC women from Gobardanga and its nearby areas participated in this training program. The training was mainly focused on developing the primary skills in making flower vases, scenery with birds, Maa Durga memento, Lord Ganesha memento, folders, and bags by using jute fibre.



SC women participating in Skill Development training on making of jute fibre-based handicrafts

Skill development training on designing and making of customized jute bags

ICAR-CRIJAF organised skill development training on “Designing and Making of Customised Jute Bags” from April 22 April to 7 May, 2024 under the SCSP Program. Twenty farmwomen from Barrackpore-1 block, North 24 Parganas, had participated in the training program. The trainees were imparted skills in customised jute bag making. The trainees were very satisfied with the training content and had actively participated in the sessions. An exhibition of all the products made by the trainees was arranged during the valedictory function.



SC women participating in Skill Development training on designing and making of customized jute bags

Kisan Sangosthi

A Kisan Sangosthi was organised at Gobardanga Seba Farmers' Samity, North 24 Parganas, on 5 February 2024. Around 260 farmers, farmwomen, and FPC members participated in this program. Dr. G. Kar, Director, ICAR-CRIJAF, motivated the participants to adopt improved farming practices in jute-based cropping systems. He appraised the on-going extension activities of the institute in this area.



Kisan Sangosthi at Gobardanga

Inauguration of skill development hall

Director, ICAR-CRIJAF inaugurated the ICAR-CRIJAF-facilitated Jute Diversified Product Training- and - Production Hub at Gobardanga, North 24 Parganas, West Bengal.

संस्थान में राजभाषा कार्यान्वयन की गतिविधियाँ

भाकृअनुप-केन्द्रीय पटसन एवं समवर्गीय रेशा अनुसंधान संस्थान, बैरकपुर में राजभाषा नियमों एवं अधिनियमों के अंतर्गत संस्थान में राजभाषा के कार्यान्वयन हेतु अनेकों सराहनीय कार्य किए जा रहे हैं। कार्यालय में राजभाषा अधिनियम की धारा 3(3) को बड़ी गंभीरता से लिया जाता है तथा इसके अंतर्गत आने वाले दस्तावेजों को द्विभाषी (हिन्दी-अंग्रेजी) रूप में जारी करने का कार्य किया जा रहा है। गृह मंत्रालय, राजभाषा विभाग भारत सरकार द्वारा जारी वार्षिक प्रतिवेदन के अनुरूप लक्ष्यों को पूरा करने के प्रति संकल्पित रहता है। संस्थान में क्रमशः दिनांक 16 फरवरी, 2024 तथा दिनांक 26 जून, 2024 को संस्थान के अधिकारियों/कर्मचारियों के कार्यालयीन कार्यों में हिन्दी कार्य को उत्तरोत्तर बढ़ावा देने के उद्देश्य से एक दिवसीय हिन्दी कार्यशालाओं का आयोजन किया गया। इसके अलावा राजभाषा कार्यान्वयन समिति की दो बैठकों का भी आयोजन क्रमशः दिनांक 22 मार्च 2024 तथा 30 मई 2024 को किया गया।

क्षेत्रीय राजभाषा पुरस्कार

भारत सरकार, गृह मंत्रालय, राजभाषा विभाग द्वारा दिनांक 8 मार्च, 2024 को सिलीगुड़ी क्षेत्रीय राजभाषा सम्मेलन में संस्थान को संघ की राजभाषा निति के उत्कृष्ट कार्यान्वयन तथा राजभाषा के प्रगामी प्रयोग के लिए वर्ष 2022-23 के लिए क्षेत्रीय राजभाषा पुरस्कार (प्रथम) से सम्मानित किया गया।

RESEARCH PUBLICATIONS

Journal of Environmental Biology
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Original Research Paper
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Retting with efficient microbial consortium helps in improving jute fibre quality and profitability: a study in Eastern India

B. Majumdar¹, S. Sarkar, S.K. Jha, S.P. Mazumdar, R. Saha, S. Barai, L. Chattopadhyay, N.M. Alam and G. Kar

Water Resources Management
<https://doi.org/10.1007/s11269-024-03897-7>

Optimization of Deficit Irrigation Water Usage for Maximisation of Jute Fibre Yield Using the Soil-water-crop Model in a Sub-tropical Climate

Debarati Datta¹ · Arvind Kumar Singh¹ · Girindrani Dutta¹ · Nurnabi Meherul Alam¹ · Dhananjay Barman¹ · Ranjan Kumar Naik¹ · Sourav Ghosh¹ · Gouranga Kar¹

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Industrial Crops & Products
journal homepage: www.elsevier.com/locate/indcrop

Exogenous ascorbic acid application ameliorates drought stress through improvement in morpho-physiology, nutrient dynamics, stress metabolite production and antioxidant activities recovering cellulosic fibre production in jute (*Corchorus olitorius* L.)

Laxmi Sharma^{1,2,*}, Suman Roy^{1,2}, Pratik Satya, Nurnabi Meherul Alam, Tinku Goswami, Dhananjay Barman, Amit Bera, Ritesh Saha, Sabyasachi Mitra, Jiban Mitra
ICAR-Central Research Institute for Jute and Allied Fibres, Barrackpore, Kolkata, India

water
Article
Enhanced Spatio-Temporal Modeling for Rainfall Forecasting: A High-Resolution Grid Analysis

Nurnabi Meherul Alam^{1,*}, Sabyasachi Mitra¹, Surendra Kumar Pandey¹, Chayna Jana^{2,*}, Mrinmoy Ray³, Sourav Ghosh¹, Sonali Paul Mazumdar¹, S. Vishnu Shankar¹, Ritesh Saha¹ and Gouranga Kar¹

Copyright Registration

Copyright of 'JAF Safe' and 'JUTEMET'

Copyright application for 'JAF Safe', An Android Mobile App for Jute and Allied Fibre Crops Pest Management has been registered by the Copyright Office, Govt. of India (Copyright Registration No. A-149973/2023) on 19.12.2023.

Copyright application for 'JUTEMET', a web-based agrometeorological database management system (ADBMS)-cum-agro-advisory system for management of climate data has been registered by the Copyright Office, Govt. of India (Copyright Registration No. A-154151/2024) on 25.06.2024.

Trademark of 'JuteWAT'

Trademark application of 'JuteWAT' logo has been registered under Trade Mark Act, 1999 of Section 23 (2), Rule 56(1) by Trade Marks Registry Office, Govt. of India (Trade Mark No. 6127737 in Class 42 Dated 27/09/2023) with validity up to ten years (26.09.2033).

COMMERCIALIZATION

Three jute and flax varieties and three technologies/products were commercialized. The details are as follows:

Name of the technology/variety	Name of the Licensee (s)	Date of Licensing
1. CRIJAF Jute Seeder	M/s Krishi Udyog, Howrah, W.B	19.1.2024
2. CRIJAF Jute Ribonner	M/s Krishi Udyog, Howrah, W.B	19.1.2024
3. CRIJAF SONA	M/s Creative Pharm, Howrah, W.B	8.2.2024
4. CRIJAF Jute variety (JROBA-3)	M/s Bharat Nursery Pvt. Ltd., Kolkata M/s Delta Agrigenetics Pvt. Ltd., Hyderabad	3.6.2024
5. CRIJAF Jute variety (JROB-2)	M/s Delta Agrigenetics Pvt. Ltd., Hyderabad	3.6.2024
6. CRIJAF Flax variety (JRF-2)	M/s KR Lifesciences Pvt. Ltd., Kolkata	3.6.2024

ROYALTY

A total amount of Rs. 56,87,788/- has been received as royalty and licensing fees of various commercialized technologies (CRIJAF SONA, Jute Seeder, MRSD, Jute Ribonner and Jute and Flax varieties) from authorized manufacturer and sellers during January-June, 2024.

DISTINGUISHED VISITORS

1.	Dr. H. Pathak , Secretary (DARE) & DG (ICAR)	19/1/24
2.	Dr. Subrata Gupta , Additional Chief Secretary, Dept of Food Processing Industries & Horticulture, GoW.B.	8/2/24
3.	Dr. D. K. Yadava , ADG (Seeds & CC), ICAR	8/2/24 22/2/24
4.	Mr. D. Mukherjee , Asstt. Director (Marketing), National Jute Board, Kolkata	8/2/24
5.	Dr. Pravin Kumar , CEO, Agrinnovate India Ltd., New Delhi	8/2/24
6.	Prof S.K. Datta , Former DDG (Crop Science)	9/2/24
7.	Dr T. R. Sharma , DDG (Crop Science), ICAR, New Delhi	22/2/24
8.	Dr. D. K. Yadava , ADG (Seeds & CC), ICAR	22/2/24
9.	Mr. A. K. Jolly , MD & Chairman, JCI, Kolkata	22/2/24
10.	Dr. Pradip Dey , Director, ICAR-ATARI, Kolkata	25/1/24 27/6/24
11.	Mr. S.B. Singh , Secretary, NJB, Kolkata	2/8/24

PERSONNEL

Promotion

Name	Designation	Promoted to	Date
Dr Amit Bera	Sr. Scientist	Pr. Scientist	7/1/23
Dr Dhananjay Barman	Sr. Scientist	Pr. Scientist	8/1/23
Sri A.M. Pitre	Tech. Asstt.T-3	Tech. Asstt.T-4	31/12/23

New Joining

Name	Designation	Date
Shri Palash Tiwari	FAO	22/4/24
Sri Pawan Kumar	UDC	10/6/24
Technician	T-1: 21 nos.	5/2024

Superannuation

Name	Designation	Date
Sri L.N. Ghosh	STA (T-6)	31/01/2024

EDITORIAL

A systematic Overview of Research Developments in Jute and Allied Fibre Crops

Jute and allied fibre crops has long been a subject of extensive research and development, as these naturally-occurring, biodegradable materials hold immense potential for a wide range of industrial and commercial applications. Over the years, a systematic body of research has emerged, delving deep into the intricate properties, cultivation techniques, and processing methods associated with these versatile fibres. From the chemical composition and molecular structures of jute, kenaf, and roselle, to the optimal agronomic practices for maximizing yields, researchers have meticulously mapped out the various facets of these underutilized crops. Innovative extraction processes, such as enzymatic retting and green chemistry approaches, have been explored to enhance the quality and sustainability of fibre production. Meanwhile, studies have also examined the suitability of jute and its counterparts for diverse end-uses, ranging from textiles and composites to geotextiles and biofuels, unlocking new avenues for their commercialization.

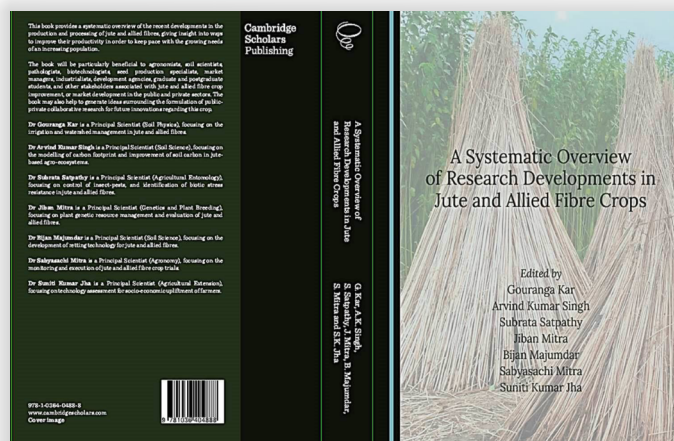
Furthermore, the research landscape has expanded to include the environmental benefits of these natural fibres, highlighting their biodegradability, carbon sequestration potential, and ability to contribute to a circular economy. As the global demand for eco-friendly, renewable materials continues to surge, this systematic body of research has paved the way for the strategic utilization of jute and allied fibre crops, positioning them as vital resources in the transition towards a more sustainable future.

This newly published book of ICAR-CRIJAF from Cambridge Scholar (UK) delves into the multifaceted world of jute and allied fibres, providing a systematic and comprehensive overview of the recent advancements in this vital agricultural sector. Spanning a diverse range of topics, the book offers a deep dive into the management and utilization of plant genetic resources, exploring the latest developments in genomic resources and innovative approaches to crop improvement. Readers will gain insights into the evolution of mesta breeding, from

conventional techniques to cutting-edge 21st-century applications, as well as the intricate processes of jute fibre quality evaluation, grading, and enhancement. The publication also sheds light on the critical aspects of seed production technology, empowering farmers to adopt climate-smart farming practices tailored to the unique demands of jute and allied fibre crops. Delving into the post-harvest realm, the book examines the advancements in jute retting and post-harvest management, ensuring the efficient and sustainable processing of these important natural fibres. Recognizing the ecosystem service values of jute and allied fibres, the book explores the role of farm mechanisation in supporting small and marginal

farmers, as well as the dynamic interplay between pest-disease dynamics and climate change. Leveraging the power of information and communication technologies (ICT), the book showcases innovative strategies for effective pest and disease management, complemented by a deep dive into host plant resistance to insect pests and diseases. Ultimately, this comprehensive publication aims to empower jute growers,

fostering technological and economic advancements, while also highlighting the value chain development opportunities within the jute sector. This meticulously curated work is poised to serve as an invaluable resource for research workers, teachers, industrialists, development agencies, and students alike, offering a wealth of knowledge and insights to drive the continued evolution and prosperity of the jute and allied fibre industries.



Important link for purchase of the publication:

<https://www.cambridgescholars.com/product/978-1-0364-0488-8>

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