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Jaf News

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FROM THE DIRECTOR'S DESK

Dr. P.G.Karmakar Director, ICAR-CRIJAF

Retting is the most important post-harvest operation for quality jute & mesta fibre production. About 90% of jute growers ret their harvest in stagnant water using mud, soil etc. as covering material for proper immersion in the water resulting in poor quality fibre not suitable for high valued diversified products. ICAR-CRIJAF was working on this aspect to come out with suitable retting technology in stagnant water, so that quality fibre can be produced to meet the requirement of jute industry. The institute has developed a talc based microbial consortium mediated retting technology suitable for stagnant water. The talc based microbial retting formulation known as "*CRIJAF SONA*" consists of

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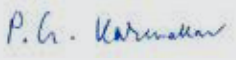
Agrisearch with a human touch

three bacterial isolates of *"Bacillus pumilus"* with very high pectinolytic and xylanolytic activity without any cellulase activity. The efficacy and suitability of this microbial formulation for retting in stagnant water was successfully carried out independently in various agro-climatic conditions under the All India Network Project on Jute & Allied Fibres in seven Agricultural Universities situated in the states of Assam, Bihar, Andhra Pradesh, Uttar Pradesh, Odisha and West Bengal for last three years. Besides this, ICAR-CRIJAF has carried out large scale demonstration (>1500 nos) in all the jute & mesta growing states during 2012-13 to 2014-15. The outcome of these demonstrations proved that this formulation can reduce retting duration by 6 to 7 days, improves the fibre colour, strength, lusture and ultimately the fibre quality by 1 to 2 grades and also increases the dry fibre recovery compared to conventional retting. The formulation has the viability for more than 5 months under room temperature and needs 25-30 kg formulation for retting of jute/mesta harvested from one hectare. The institute has initiated the process of commercialization of the product.

Barrackpore
January, 2015



P. G. Karmakar

Interview with Dr. H.S. Sen, former Director, ICAR-CRIJAF

Dr. H.S. Sen, former Director, ICAR-Central Research Institute for Jute & Allied Fibres, Barrackpore, West Bengal, is an eminent soil physicist having immense contribution as researcher and administrator. He was exclusively devoted to research in various capacities especially in the fields of 'Water Management & Soil Salinity and Ecology related to Coastal Ecosystem' and 'Water Management and Ecology under Rice-oriented Cropping System' from 1971 to 1982. A significant landmark during his tenure at CRIJAF was launching of Jute Technology Mission sponsored by GOI in 2006 for an all round improvement of these vegetable fibres including production technology, manufacture and marketing. He was also instrumental for establishment of KVK at Burdwan district of West Bengal under the administrative management of CRIJAF. He has devoted considerable attention on planning for future research strategies and livelihood securities in tidal dominated lower Gangetic delta covering India and Bangladesh. He has so far published more than 160 research papers in various forms. He has earned the national 'Vasantrao Naik Award' by ICAR on his contribution to rainfed agriculture in 1998. He is the Fellow of two professional societies and Honorary member of a number of other national and international societies & organizations. It was learning experience while interacting with him for his views about the jute and allied fibres and here are the excerpts:

What is the role of jute in changing climatic scenario?

Climate change is imminent. According to a report from Bangladesh, one hectare of jute plants consumes about 15 MT CO_2 and liberates 11 MT of O_2 in only 120 days whereas, the tropical tree plantations of pine and eucalyptus can sequester an average of 33 MT of CO_2 per hectare per year. The total amount of CO_2 consumed per year is about 22.5 million tons which is equivalent to 22.5 million CER. At the rate of 15 Euro/ton of CO_2 the total value is 337.5 million Euros, equivalent to 448.9 million USD. Estimated revenue per ha out of jute cultivation is about 299 USD equivalent to about Rs. 18,000.00. However, due to emission of small amount of CH_4 at the time of retting a little amount will be deducted. Jute crops incorporate 5.43 million tons of dry leaves per year to the soil during defoliation stage prior to retting. Through such green manuring process soil is enriched by an equivalent amount of 168750 tons of nitrogen, 56250 tons of phosphorous and 150000 tons of potassium. Savings of the said fertilizer cost may be considered as CER revenue to jute cultivation. The advantage of carbon credit in jute sector is however still unexplored in Bangladesh and India.

How to cope up with the fluctuating market price for raw jute?

This may be overcome by ensuring (i) there are no middlemen or at best should be minimal in procurement (ii) procurement is made with adequate transparency on grade vis-a-vis price being offered (iii) adequate warehouse facilities available for storage (iv) critical inputs like quality seeds, fertilizers, pesticides, are available on time (v) successful research is conducted to maintain productivity level in the face of inadequate rainfall particularly in two important areas like irrigation and retting (vi) MSP is decided with adequate transparency on the farmers' views, etc.

What are the issues and challenges ahead of jute sector in India?

There are some thrust areas of research on jute and allied fibres crops production. ICAR-CRIJAF is addressing most of the issues. Some of the issues which need to be addressed are (i) availability of HYV seeds of jute and mesta to the cultivators (ii) development of hybrids of jute (iii) increasing productivity of jute in under-explored zones where the productivity is 10-15 q/ha in Assam, Odisha and West Bengal (iv) large scale evaluation and popularization of frontier technologies for jute such as integrated nutrient, and pest and disease management, precision seeding using seed drill, economizing jute cultivation by using weeder/ herbicide and extraction of fibre by CRIJAF Bast Fibre Extractor (also for mesta) and quality improvement of fibre by following microbial retting (v) production of high quality jute fibre by using specific varieties such as JRC 321, JRO 8432, JRO 128 and JRO 66, S 19, JRO 662, and more recently developed ones (vi) increasing area and productivity of ramie (vii) production of specific varieties of jute, mesta, sisal and sunnhemp for paper pulp (viii) enterpreneurship development through Self Help Groups (SHGs) for diversification of jute products, particularly for women (ix) bast fibre market development research

What is your view about the value addition and product diversification of jute and allied fibre crops?

Value addition and product diversification is the only way for jute & allied fibres to survive. Since financial investment in the value-chain of agri-products by agri-retailors is an assurance, their roles are important for revamping the existing export infrastructures and strategies for both conventional and diversified products. Commensurate with the activities of JMDC and NCJD, agri-retail majors may involve in specific areas like (i) establishment of warehousing facilities in major JDP importing countries and identifying the existing IPR issues with a view to patenting Indian R&D efforts (ii) off-shore trade facilitator or overseas service providers (Trade Fair Organizers and Consultants) (iii) involvement in specific contracts for sale and purchase e.g., forward specific contracts, which is not ready delivery contract but where the quality or grade of goods, terms of payment, period and place of delivery are specified (iv) following the existing registration of sale contracts for sale/purchase of jute goods and arbitration procedure norms (v) support to individual manufacturers in brand promotion by the involvement in existing overseas market promotion and market development activities on major value added products by organizing trade fairs / exhibitions on JDPs, providing sale counters in the urban showrooms already operating for other products (vi) running of showrooms exclusively for JDPs in cities in collaboration with State / Central apex bodies and adopting suitable campaign strategy (vii) establishment of export processing zones for jute (jute parks) in the Public-Private Partnership approach mode (viii) organizing sustained generic campaign with the cut line 'Say Yes to Jute' to promote institutionalized uses of jute products as like geo-textiles and jute composites (ix) introduction of e-commerce in jute trade to sale products directly to the end users.

Why the costly natural fibre product should be encouraged instead of synthetic fibre products?

Because of its eco-friendliness on a number of areas. Moreover, with the increase in production and improvement of the technologies particularly for quality fibre developments the cost as per the norms of economics should automatically come down in future.

What should be researchable areas for development of jute and allied fibre crops?

In the field of raw fibre production, following are the areas identified:

1. Lack of crop varieties for quality fibre production, therefore there is a need for developing varieties or transgenics by appropriate blending of cutting-edge technologies with traditional approach for crop improvement programme.

2. Narrow genetic stock in the jute growing countries which may be overcome through direct exploration at the respective centres of origin.
3. Lack of infrastructural facilities and administrative goodwill for timely availability of good quality seeds at affordable price requiring a well knit plan cutting across all countries since all fibre growing regions are not suitable for seed production. There is need for certification protocol of kenaf seeds without delay, which is not available in most countries.
4. Dearth of appropriate technology for the retting of jute fibre, since the technology in use is century-old and still dependent on availability of large pool of water, preferably as streams, of appropriate quality which is gradually becoming limiting in each country. There is an urgent need to develop with adequate thrust a mechano-microbial/ chemical/ biochemical/ enzymatic technology which should be cost-effective as well as user- and eco-friendly, capable of producing quality fibre. Any attempt to again develop additional water pool facility only and banking on the traditional method on retting will certainly be a failure in the long term.
5. Lack of contingency plan to combat weather uncertainties as well as adverse situations arising out of global warming in the long run. Appropriate weather forecasting models are available which may be made use of, since the critical periods of the concerned crops are rain-dependent. There are needs of fine-tuning of integrated, eco- and cost-effective production technologies with emphasis on stress management. In order to make the cultivation of these crops more cost-effective along with others it is very much necessary to mechanize the cultivation practices for which there is considerable scope.
6. It is heartening that in spite of large scope there is very little research work in progress on kenaf either on raw fibre production or on identification of diversified products and their manufacture. Most of the works in this respect has been done in the West, although some work has been reported from China, details of which are not available. The crop has the distinction of its ability to fix atmospheric CO_2 at a much larger rate than a forest of equivalent size. It has large number of diversified applications, independent of jute, including significant usefulness as forage. Well planned programme of work with specific targets on all aspects should be launched on kenaf being suitable under very adverse soil moisture conditions with limited inputs.
7. Every jute and kenaf growing country has got its own raw fibre grading criteria, which should be a large hindrance to internationalize the crops in true spirit of research and marketing if value-addition has to be seriously addressed to. Like cotton, an international raw fibre grading criteria should be developed and fine-tuned.

Sir, How do you see the future of jute and allied fibre crops?

No doubt it is bright. I would like to put the following riders - in addition to individual researches in the fields of agriculture and technology, they must go hand in hand in mutual discussion with each other, commensurate with this market research to be conducted on future demands for each group of commodities, and the promotional activities to be launched accordingly. These are the three wings for which, I believe, there are adequate infrastructures available, what is required is systematic and far-sighted vision.

क्रिजेफ में हिंदी कार्यशला का आयोजन

केन्द्रीय पटसन एवं समवर्गीय रेशा अनुसंधान संस्थान, बैरकपुर, कोलकाता की राजभाषा कार्यान्वयन समिति के तत्वावधान में दिनांक 05 जुलाई, 2014 को हिन्दी का कार्यसाधक ज्ञान रखने वाले संस्थान के अधिकारियों/कर्मचारियों की हिन्दी में काम करने की झिझक को दूर करने के उद्देश्य से एक दिवसीय

श्रीमति पूनम दीक्षित, सहा. निदेशक (रा.भा.), हि.शि.यो., कोलकाता, संस्थान के अधिकारियों/कर्मचारियों को व्याख्यान देती हुयीं

हिन्दी कार्यशाला का आयोजन किया गया। इस कार्यशाला की अध्यक्षता संस्थान के निदेशक, डा. पी.जी. कर्मकार ने की। निदेशक महोदय ने अपने अभिभाषण में कहा कि संघ की राजभाषा नीति का मूल उद्देश्य हिंदी को जनमानस की भाषा के रूप में विकसित करना है ताकि सरकारी गतिविधियों व उपलब्धियों को आमजन तक आसानी से उपलब्ध कराई जा सके। उन्होंने संस्थान के अधिकारियों एवं कर्मचारियों से आग्रह किया कि वे कार्यशाला में प्राप्त व्यावहारिक ज्ञान का पूरा–पूरा लाभ उठाएं और कार्यालयीन कार्यों में ज्यादा से ज्यादा प्रयोग करें। कार्यशाला में व्याख्यान हेतु श्रीमति पूनम दीक्षित, सहायक निदेशक (राजभाषा), हिन्दी शिक्षण योजना, भारत सरकार, गृह मंत्रालय, राजभाषा विभाग, निजाम पैलेस, कोलकाता को आमंत्रित किया गया था। उन्होंने राजभाषा नीति, नियम तथा हिन्दी में टिप्पणी पत्र लेखन एवं मसौदा लेखन आदि विषयों पर विस्तृत जानकारी प्रदान करायीं।

Farmers' Awareness Camp

Farmers' awareness camp was organized at Madhusudanpur, Hoogly on 2nd July, 2014 and on 5th July, 2014 at Kumro village, Habra, North 24 Parganas to aware the farmers about improved production technologies of jute. Around 70 farmers attended the camp. Scientists from ICAR-CRIAJF delivered lectures on different aspects of jute production.

Farmers' awareness camp at Madhusudanpur

Farmers awareness camp at Kumro village

Celebration of ICAR Foundation Day

ICAR foundation day was celebrated on 16th July, 2014. Dr. Mosiur Rahaman, Principal Scientist (Plant Breeding), Regional Research Station, Nuziveedu Seeds Ltd. Ghidah Rastapara, Nilganj, graced the occasion as chief guest. During the occasion Dr. P.G. Karmakar, Director, ICAR-CRIJAF and Head of Divisions briefed about the role of ICAR in uplifting

Dr. Mosiur Rahaman, Principal Scientist (Plant Breeding), Chief Guest delevering foundation day lecture

of Indian agriculture. Different cultural programmes were also presented by staff of the institute.

Observance of ICAR Foundation Day at ICAR-CRIJAF KVK, Budbud

ICAR Foundation Day was observed by ICAR-CRIJAF KVK on 16th July, 2014. About fourty progressive farmers and various stakeholders from different parts of the district participated in the programme where they were made aware about the contributions

Observance of ICAR foundation day at KVK-Budbud

of Indian Council of Agricultural Research (ICAR) towards Indian agriculture and national food security. The important agri-technologies generated by the different ICAR institutes, *viz.,* SRI, restoration of soil health, soil test based fertilization for crops, mass vaccination for livestock and poultry, area specific mineral supplementation to dairy animals, vermi-composting, jute retting using CRIJAF microbial consortium *etc*. were discussed by concerned subject matter specialist.

Farmers' Day at ICAR-CRIJAF

Farmers Day, 2014 was organized at CRIJAF, Barrackpore on 5th August, 2014 for promotion of farm technologies to make the stakeholders aware of the recent developments for enhancing the crop productivity. More than 200 participants including progressive farmers from major jute growing districts of West Bengal participated. Prof. S. K. Sanyal, former Vice Chancellor, BCKV and Chairman RAC, ICAR-CRIJAF graced the occasion as Chief guest. He urged the farmers to adopt technologies developed by ICAR-CRIJAF to enhance profitability. Dr. H S. Sen former Director, CRIJAF was the guest of honour and apprised the farmers for their effort to flourish the lost glory of jute crop. Dr. P. G. Karmakar, Director, ICAR-CRIJAF elaborated the research activities of

Prof. S.K. Sanyal, former Vice chancellor BCKV and RAC Chairman, CRIJAF addressing farmers

the institute for betterment of jute production and productivity. On that occasion, four farmers were felicitated with "Best Farmer" Award. The farmer-scientist interaction on the practical problems of

Er. R.K. Naik demonstrating sisal fibre extraction using sisal fibre extractor

farmers were discussed thoroughly. The programme concluded with vote of thanks by Dr. S. Sarkar, Principal Scientist & In-charge, Agricultural Extension Section, ICAR-CRIJAF.

Exhibition and Demonstration of ICAR-CRIJAF Developed Agricultural Machinaries

ICAR-CRIJAF developed agricultural machines related to mechanization of jute and allied fibre crops were exhibited and demonstrated at the All

India Seminar on "Appropriate Technologies of Farm Mechanization for Marginal and Small Farmers" organized by Agricultural Engineering Section of the

Demonstration of ICAR-CRIJAF developed agricultural machinaries by Dr. R. K. Naik

Institution of Engineers (India), West Bengal State Centre held at Kolkata during 8-9th August, 2014. The exhibition stalls were inaugurated by Dr. C.R. Kole,

Inauguration of ICAR-CRIJAF stall by Dr. C. R. Kole, VC, BCKV Mohanpur

Vice Chancellor, BCKV, Mohanpur and Chief Guest of the programme. The participating scientists from ICAR-CRIJAF were Dr. Bijan Majumdar, Dr. Sitangshu Sarkar, Dr. S.K. Jha. Dr. R.K. Naik. Scientist, Agricultural Engineering Section demonstrated all the machines in the exhibition.

Field Day Organized at ShRS (ICAR-CRIJAF), Pratapgarh

Farmers' field day was organized at Revrhia village of Pratapgarh, Uttar Pradesh by Sunnhemp Research Station on 13th August, 2014 to create awareness among the farmers about the improved production technology of sunnhemp. On the occasion, Dr. M.K. Tripathi, Scientist In-charge ShRS, Pratapgarh

Field visit and interaction of famers with scientists of ShRS, Pratapgarh

emphasized on production technologies, retting technology, management of insects pests, weed and fibre quality of sunnhemp. The farmers visited front line demonstration of sunnhemp. About 75 farmers of different villages; Saruawa, Revrhia, Pandeypur, Lokiyapur and Dubepur interacted with the scientists.

Celebration of Independence Day

The 67th Independence Day was celebrated on 15th August, 2014 at ICAR-CRIJAF, Barrackpore. Dr. P.G. Karmakar, Director, ICAR-CRIAJF, delivered the independence day speech and thanked all the staffs of the institute, for their contributions in the progress made by the institute in last one year and hoped for similar progress in forthcoming year.

Dr. P.G. Karmakar, Director & Dr. S. Satpathy, HOD, Crop Protection ICAR-CRIJAF unfurling the National Flag

Farmers Awareness cum Field Day on Ramie Cultivation at RRS (ICAR-CRIJAF), Sorbhog

Farmers Awareness cum Field Day on Ramie Cultivation was organized at Ramie Research Station (ICAR-CRIJAF), Sorbhog on 25th August, 2014 under

Inauguration of ramie fibre extraction unit in Uttar Burikhamar (District Chirana) BTAD Assam (Boro Farmers)

Tribal Sub Plan. A total of 100 farmers participated in the programme. Mr J. Brahma, Director Agriculture, Boro Territory Council, Kokrajhar, Assam was the chief guest of the programme. Dr. A.K. Sharma, Incharge, RRS, Sorbhog, interacted with farmers and told the farmers about the improved cultivation technology of ramie.

Observance of National Nutrition Day at ICAR-CRIJAF KVK, Budbud

On the eve of National Nutrition day, a village level workshop was conducted at Kuricha village

Dr. D. Ghorai, Coordinator, KVK, Budbud addressing audience

of Purbasthali-I block on 30th August, 2014. The workshop aimed at addressing the problem of malnutrition or under nutrition among children and farm women as well as to make them aware about the nutritional value of different pulses, cereals, fruits & vegetables, milk, meat and fish available in the locality. The workshop was attended by different Anganwadi workers, ASHA workers, school children, farm women and farmers from nearby villages.

क्रिजेफ मे हिंदी पखवाडा मनाया गया

सरकारी काम–काज में राजभाषा के रुप में हिन्दी के प्रति जागरूकता पैदा करने तथा उसके प्रभावों में गति लाने के उद्देश्य से संस्थान में 15 से 29 सितम्बर, 2014 के दौरान हिन्दी पखवाड़े का आयोजन किया गया जिसका उद्घाटन संस्थान के निदेशक, डॉ. पी.जी. कर्मकार द्वारा किया गया तथा मुख्य अतिथि के रूप में डॉ. एन. सिंह, पूर्व प्राचार्य, केन्द्रीय विद्यालय संघटन को आमंत्रित किया गया था। डॉ. पी.जी. कर्मकार, निदेशक, के.प.स.रे.अ. सं. ने अपने संबोधन में कहा कि हिन्दी एक सरल भाषा है तथा हम अपनी अभिव्यक्ति इसके माध्यम से आसानी से कर सकते हैं। उन्होंने आगे कहा कि हिंदी ही एक ऐसी भाषा है जो सम्पूर्ण राष्ट्र को एक सूत्र में पिरोने में सफल

डॉ. एन. सिंह, पूर्व प्रचार्य, केन्द्रीय विद्यालय संघठन, कोलकाता, कर्मचारियों को व्याख्यान देते हुए

रही है। हिन्दी पखवाड़े के दौरान 10 विभिन्न प्रकार की लिखित तथा मौखिक प्रतियोगितायें (तत्कालिक भाषण, हिन्दी टिप्पण एवं प्रारुप लेखन, हिन्दी श्रुतलेखन एवं पठन, कम्प्यूटरों पर हिन्दी टंकण (केवल यूनीकोड पद्धति द्वारा), हिन्दी अनुवाद, वाद–विवाद तथा हिन्दी अनुलेखन एवं पठन) आयोजित की गईं जिसमें संस्थान के अधिकांश अधिकारियों/कर्मचारियों ने बड़े ही उत्साहपूर्वक भाग लिया। हिन्दी पखवाड़ा समापन समारोह पर डॉ. आर.एस. पाण्डेय, पूर्व वैज्ञानिक अधिकारी एवं विभागीय अध्यक्ष, अनुसंधान विकास एवं प्रशिक्षण प्रभाग, एम.ए.टी.एम.ओ., सी.जी.ओ. कॉम्पलेक्स, साल्ट लेक, कोलकाता मुख्य

अतिथि थे। पखवाड़े के समापन समारोह में हिंदी पत्रिका 'रेशा किरण' के प्रथम अंक का विमोचन हुआ। अंत में निदेशक महोदय ने संस्थान में हिन्दी पखवाड़ा तथा इस दौरान आयोजित विभिन्न हिन्दी प्रतियोगिताओं के सफल आयोजन पर अपनी खुशी जाहिर करते हुए आशा व्यक्त की कि इस संस्थान में हिन्दी के प्रयोग में उत्तरोत्तर प्रगति होगी। सनई अनुसंधन केन्द्र प्रतापगढ़, रेमी अनुसंधान केन्द्र सरभोग, असम तथा सीसल अनुसंधान केन्द्र, बामरा, ओडिशा में भी हिन्दी सप्ताह का आयोजन किया गया।

डॉ. एस.के पाण्डेय, प्रभारी, राजभाशा कक्ष, हिंदी पखवाड़ा के अवसर पर स्वागत भाषण देते हुए

Swachchha Bharat Abhiyan

As per directive of Government of India, "Swachchha Bharat Abhiyan" was launched on 2nd October, 2014. The campaign was started with "Swachchhata"

Dr. Swapan Kumar Datta, DDG (CS) ICAR administering the pledge to the staff of CRIJAF

pledge administered by Dr. Swapan Kumar Datta DDG (CS), ICAR, to all the staff of the ICAR-CRIJAF. Dr. Datta along with Dr. P. G. Karmakar, Director, ICAR-CRIJAF led all the staff for cleaning the campus. DDG (CS) also directed to chalk out the plan for successful campaign in the locality as well.

Dr. Swapan Kumar Datta, DDG (CS) ICAR and Dr. P.G. Karmakar, Director, ICAR-CRIJAF taking part in Swachchha Bharat Abhiyan

ICAR-CRIJAF organized ICAR Zonal Sports Tournament (Eastern Zone), 2014

The ICAR Zonal Sports Tournament (Eastern Zone), 2014 was organized during 14-17th October, 2014 by ICAR-CRIJAF at State Armed Police (SAP) 2nd Battalion Grounds, Barrackpore, West Bengal. Sri Uttam Das,

Dr. S. Satpathy, Chairman, Orgnizing committee briefing about the event schedule of zonal sports

Chairman of Barrackpore Municipality inaugurated the ICAR Zonal Sports Tournament, 2014 by unfurling the ICAR Flag and administering the 'Oath' on 14th October, 2014. Dr. A.P. Sharma, Director, ICAR-CIFRI graced the occasion as guest of honour and addressed the participants. Dr. P.G. Karmakar, Director, ICAR-

CRIJAF and Chairman of the session highlighted the importance of ICAR Sports and thanked the ICAR for entrusting this responsibility to CRIJAF. Dr. S. Satpathy welcomed the participants, guests and presented about the sports meet in brief. A total of

Dr. P.G. Karmakar, Director, ICAR-CRIJAF and other Guests officially opening the tournament by releasing the balloons

418 participants from 17 ICAR institutes (Eastern Zone) *viz*., CIARI, Port Blair; CIFA, Bhubaneswar; CIFRI, Barrackpore; CRIJAF, Barrackpore; CRRI, Cuttack; DRWA, Bhubaneswar; DWM, Bhubaneswar; ICAR RCER, Patna; ICAR NEH, Umiam; IINRG, Ranchi; IVRI,

Mr. Manoj Kumar Verma (IPS), DIG, State Armed Police, W.B. and Dr. P.G. Karmakar, Director, CRIJAF, giving the Best Institute trophy to CRRI, Cuttack

Izatnagar; NIRJAFT, Kolkata; NRC Litchi, Muzaffarpur; NRC Mithun, Jharnapani; NRC Pig, Guwahati; NRC Yak, Dirang and IIAB, Ranchi actively perticipated in the events. There were 21 outdoor and indoor sports events of individual and team basis including football, athletics (100m, 200m, 400m and 800m and 1500m race and 100 x 4 m relay race), volley ball, kabaddi, badminton, table tennis, carom, chess, basketball, cycle race, long jump, high jump, javelin throw, discus throw and shot-put. Mr. Manoj Kumar Verma, IPS, Deputy Inspector General (State Armed Police), Govt. of West Bengal addressed the participants as chief guest and distributed the medals to the successful sports persons and teams in the closing ceremony on the concluding day of sports on 17th October, 2014.

Workshop on "World Food Day" at ICAR-CRIJAF-KVK, Budbud

Workshop was conducted on the occasion of World Food Day-2014 by ICAR-CRIJAF KVK on 16th October 2014 with the theme area of "Family Farming: Feeding the world, caring for the earth". The year 2014 was also declared as "International Year of Family Farming" by Food and Agriculture Organization. The pivotal role of family farming in

Observance of World Food Day at KVK-Budbud

agriculture and how family and small scale farming are inextricably linked with each other to eradicate hunger and preservation of natural resources was emphasized in the programme. Around 50 farmers and farm women from various blocks of the district attended the programme. Senior officials from state agriculture department participated in the farmers-scientist interaction organized during the occasion and deliberated on various options of family farming towards this end.

Observance of Vigilance Awareness week

The vigilance awareness week was observed at ICAR-CRIJAF during 27th October- 3rd November, 2014 as per the directives of Central Vigilance Commission, New Delhi on the theme "Combating Corruption - Technology as an enabler". The activity started with pledge of vigilance to all staff members administered by Dr. P. G. Karmakar, Director, ICAR-CRIJAF. He welcomed the gathering and explained the purpose of observance of vigilance awarness week. There was a special lecture session on 30th October at ICAR-CRIJAF where Sri. S. S. Naskar, Additional General Manager (Admn), Rifle Factory, Ichchhapur, spoke on different

Dr. S. Satpathy vigilence officer, ICAR-CRIJAF, administering the pledge

facets of corruption. Dr. S. Satpathy, Vigilance Officer emphasized the need to adopt the e-governance to make the system more viable, transparent and quick. On the occasion of vigilance awareness week, the debate competetion was organized in which all the staff of the institute participated.

Observance of National Integration Day

ICAR-CRIJAF has observed "National Integration Day" to commemorate Sardar Vallabhbhai Patel's birth anniversary on 31st October, 2014. Dr. P. G. Karmakar, Director, ICAR-CRIJAF administered pledge to the staff of the institute and also spoke about Sardar Vallabhbhai Patel's contribution in building the nation.

Dr. P.G. Karmakar, Director ICAR-CRIJAF and other staff taking oath

Kisan Mela Organized at ICAR-CRIJAF KVK, Budbud

Kisan mela was organized on 11th November, 2014 at KVK in collaboration of ICAR-CRIJAF, Barrackpore

Kisan mela at KVK, Budbud

and ICAR-ERS-IVRI, Kolkata to demonstrate various profitable technologies to the participating farmers, farm women and rural youths of the area. Dr. P. Biswas, VC, WBUAFS inaugurated the fair where officials from various ICAR institutes participated. Total of 350 farmers visited different stalls exhibited in the mela. The orientation programme of school kids was also organized on this occasion participated by nearly 200 school children.

Inauguration of Children Park

Dr. P.G. Karmakar, Director, ICAR-CRIJAF inaugurated the children park at ICAR-CRIJAF campus on 14th

Inauguration of Children Park by Dr. P.G. Karmakar, Director ICAR-CRIJAF

November, 2014. During the occasion all the staff of ICAR-CRIJAF and campus inmates participated. The Director was received by children from the campus and as soon as the 'ribbon cutting ceremony' was over the children hurried to find a place on the swings. As the Director made a tour of the park sporting slide, see-saw and swing the children ran all over the park trying out the various rides.

Exposure Visit at ICAR-CRIJAF KVK, Budbud

Exposure visit for farmers of Katihar, Bihar was organized from 20 – 22nd November, 2014 at KVK-Budbud to expose farmers to improved and cost-effective technologies on jute. They were taken to ICAR-CRIJAF on 21st November, 2014 where they were adequately trained by distinguished scientists of the institute. Theoretical as well as practical classes were arranged at KVK as well to make them abreast with latest developments in agriculture and allied fields.

Farmers getting training during exposure visit at KVK, Budbud

Institute Management Committee Meeting

The 31st Institute Management Committee (IMC), Meeting of ICAR-CRIJAF was held on 22nd November, 2014 under the chairmanship of Dr. P.G. Karmakar, Director, ICAR-CRIJAF. Other members present in the meeting were Dr. Satyanand Sushil, Plant Protection Advisor to Govt. of India, Dr. Major Singh, Head Crop Improvement Division, IIVR, Varanasi, Uttar Pradesh, Dr. (Mrs.) Mayabini Jena, Pr. Scientist (Agril. Entomology), CRRI, Cuttack, Odisha, Heads of

IMC meeting in progress

divisions/section, ICAR-CRIJAF, In-charge AINP on JAF, Scientist In-charge regional stations, Programme Coordinator, KVK, Budbud, In-charge PME Cell, SFAO and AO, were also present in the meeting as co-opted members. The achievements made in the research and development during 2013-14 was presented to members of the IMC. The IMC expressed satisfaction over the progress made by the institute over last one year.

Seed day at Central Seed Research Station for Jute and Allied Fibres, Budbud

"Seed Day" was organised on 29th November, 2014, at CSRSJAF, Budbud, Burdwan, West Bengal to enlighten the farmers about the importance of quality seed for production of jute and allied fibres and to aware the farmers about their rights on plant variety protection. Around 200 farmers from Burdwan, Bankura and Murshidabad districts of West Bengal and government officers involved in agricultural research, education, certification and distribution of seeds participated in the programme. The programme was chaired by Dr. P. G. Karmakar, Director, ICAR-CRIJAF, Mr. P. K. Mandal, Seed Certification Officer, Burdwan, narrated the need of foundation and certified seeds of jute and other crops in the region. Farmers interacted with scientists for solving various problems faced during jute cultivation. During field visit all the farmers were given an exposure to the methodology of nucleus,

breeder, foundation and certified seed production and grow out tests (G.O.T.) for testing of seed viability.

Dignitaries releasing bulletin '*Bijer utkrishta man o utpadan*'

Seed Day at ICAR-CRIJAF

Seed Day was organized on 6th December, 2014 at ICAR-CRIJAF, Barrackpore as part of HRD programme under ICAR Seed Project for creating awareness among farmers about production and use of quality seed of different crops including jute and allied

Inaugural address by Dr. P.G. Karmakar, Director, ICAR-CRIJAF

fibre crops. The programme was chaired by Dr. P.G. Karmakar, Director, ICAR-CRIJAF and attended by 180 farmers from different districts of West Bengal. Dr. Bidhan Chakraborty, DDA, (Seed Certification), Govt. of WB and Mr. Samir Ghosh, DDA, (WBP), Purulia, Govt. of WB delivered lectures and explained

Dr. C.S. Kar, Principle Scientist, briefing farmers about the jute seed production

various rules regarding seed certfication at farmers level. Scientists and farmers interacted during both field visit and feedback session.

Awareness Programmes at ICAR-CRIJAF KVK, Budbud

Awareness programmes on different aspects *viz.,* soil and animal health, improved jute retting technology, contingent planning for deficit and clean India campaign were organized by KVK-Budbud from July to December, 2014.

Soil and animal health camp

Demonstration on improved jute retting technology

Awareness camp on contingent planning

Clean India campaign

Training Conducted by ICAR-CRIJAF KVK, Budbud

A total of 65 short term trainings were conducted from July to December, 2014 at KVK-Budbud. A total of 1583 participants benefited with the trainings in the fields of Agriculture, Horticulture, Animal Science, Fishery Science and Home Science. One notable among these training was vocational training on broiler farming. A 7 day vocational training programme on this aspect for rural youths was organized by ICAR-CRIJAF KVK, Burdwan. Twenty rural youths from Durgapur, Bhatar, Loapur, Atpara villages participated in the training programme. Different aspects of broiler farming like housing, management, health care, vaccination, marketing, meat processing was covered in this training.

Training on broiler farming

Training on mushroom cultivation

Target group	No. of trainings	No. of participants						
		General			SC/ST			Trainee day
		Male	Female	Total	Male	Female	Total	
Farmers & farm women	45	672	108	780	276	12	288	1068
Rural youth	11 (3 days each)	201	0	201	84	0	84	285
Extension functionaries	4	99	3	102	6	0	6	108
Vocational training	5 (7 days each)	82	10	92	27	3	30	122
Total	65	1054	121	1175	393	15	408	1583

NFSM on Commercial Crops (Jute)

Seed Village Programme: Seed village programme has been implemented at Gopalpur village of Onda Block of Bankura district in 2014. A total of 6 hectare area on jute was sown with foundation seed JRO 204 (Suren) against a target of 10 ha involving 15 farmers with an objective to produce certified seed. Utility of CRIJAF seed drill and CRIJAF nail weeder were demonstrated in the seed village. Initiatives were also taken to develop liaison between private enterprises and farmers to register as producer and assure buy back of produced seed under this programme.

Representative from State Seed Certification Agency, Govt of WB and WB State Seed Corporation visiting farmers' field under seed village programme

FLDs on alternate retting technologies: The whole plant retting technology is being practiced in India for which large quantity of water is required. The whole plant retting with newly improved microbial formulation "*CRIJAF Sona*" was used in stagnant water in order to reduce the requirment of water, retting duration etc. Accordingly, FLDs on newly developed retting technology was undertaken by ICAR-CRIJAF, using *CRIJAF SONA* an advanced microbial formulation.

Date	Place	District	State	Crop	Farmers participated
13.08.14	Champadanga	Hooghly	West Bengal	Jute	50
13.08.14	Jangipara	Hooghly	West Bengal	Jute	50
18.08.14	Kaladanga	Berhampur	West Bengal	Jute	60
19.08.14	Jalangi	Berhampur	West Bengal	Jute	60
22.08.14	Moirabari	Nagaon	Assam	Jute	50
25.08.14	Berachampa	North 24 Parganas	West Bengal	Jute	45
25.08.14	Baduria	North 24 Parganas	West Bengal	Jute	50
23.08.14	Kaliabor	Nagaon	Assam	Jute	50
04.09.14	Benki	North 24 Parganas	West Bengal	Jute	60
08.09.14	Pratapganj	Purnia	Bihar	Jute	50
08.09.14	Tribeniganj	Saharsa	Bihar	Jute	50
09.09.14	Durgaganj	Purnea	Bihar	Jute	60
19.09.14	Kishanganj	Kishanganj	Bihar	Jute	45
01.11.14	Bobbili	Vizianagaram	Andhra Pradesh	Mesta	84
01.11.14	Balijipeta	Vizianagaram	Andhra Pradesh	Mesta	120
TOTAL					884

Jute fibre extracted using *"CRIJAF SONA"*

Microbial formulation *"CRIJAF SONA"*

Jute fibre extracted using traditional retting

FLDs on Production technologies: Production technology and intercropping demonstrations were conducted on jute. The location specific improved technology on nutrient use efficiency, weed management, efficient use of water, soil ameliorants, improved farm implements/machines etc. were demonstrated along with the newer varieties (not older than 10 years). New jute varieties like JRO 204 (Suren), JROM 1, JRO 8432, JRO 2407, and Co 58 were demonstrated for fibre production in a total of 50 ha area. A total of 288 farmers of five districts namely, Hooghly, Mursidabad, Nadia, North 24 Parganas and Burdwan were involved in FLD in production technology demonstration.

Training conducted by ICAR-CRIJAF under TSP

Trainings	Date	Beneficiary
"Rearing of Vanaraja birds and Khaki Campbell ducks" at Makaltala and Farmania villages North 24 Parganas	24-25th September, 2014.	75 tribal men and women from North 24 Parganas
"Soil test and targeted yield based system of jute fibre production" at Brahmapur village of Haringhata block in Nadia district	25th September, 2014	50 tribal jute farmers from Nadia district
"Improved production technology of sisal" at Sisal Research Station, Bamra, Odisha	24-26th September, 2014	30 tribal sisal farmers from Sambalpur and Jharsuguda disctrict of Odisha
"Improved mustard production technology for North-Bengal" at ICAR-CRIJAF, Barrackpore	17th November, 2014	48 tribal farmers of Tapan block of Dakshin Dinajpur
"Improved quality seed production techniques of field crops" at CSRSJAF, Budbud	27th November, 2014	250 farmers from Burdwan, Mushidabad and Bankura district
"Soil test and targeted yield based fertilizer application for increased crop productivity" at Karkanali, Simlapal block, Bankura	09th December, 2014	53 farmers from Bankura district
"Soil test and targeted yield based fertilizer application for increased crop productivity" at Tapan Block, Balurghat, South Dinajpur	23rd December, 2014	50 famers from Balurghat, South Dinajpur

MEETINGS / WORKSHOPS / TRAININGS etc.

Newspaper Coverage Regarding Improved Retting of Jute with "*CRIJAF SONA*"

Name of News paper	Place of activity	Date
Burdwan Jyoti, Burdwan	Purbasthali block, Kalna sub division, Burdwan	28.07.14
Dainik Jagaran, Durgapur	Kalana, Burdwan	31.07.14
Sabuj Sona, Ranaghat	Makaltala, Habra, North 24 Parganas	01.08.14
Burdwan Jyoti, Burdwan	Nandai, Purbasthali, Kalna sub division, Burdwan	04.08.14
Kalantar	Makaltala, Habra, North 24 Parganas	06.08.14
Lokshaved	Makaltala, Habra, North 24 Parganas	10.08.14
Uttarbanga Sambad, Siliguri	Patiram, Balurghat, South Dinajpur	13.08.14
Bardhaman Jyoti	Burdwan	08.09.14
Prabhat Khabar, Bhagalpur	Bhagalpur	10.09.14
Burdwan Jyoti, Burdwan	Burdwan	22.09.14
Sabuj Sona, Ranaghat	Makaltala and Paschim Simla, Habra, North 24 Parganas	01.10.14
Telugu Newspaper, Vizianagaram	Vizianagaram , Andhra Pradesh	02.11.14
Kalantar	Kalantar	07.11.14

Radio Talk

A radio talk delivered by Dr. Bijan Majumdar, Pr. Scientist, Crop Production Division, CRIJAF on " Improved retting of jute" in the programme "Ajker Chas Bas" broadcasted by Akashbani Kolkata on 29th July, 2014.

RESEARCH NOTES

Evaluation of Germplasm Accessions Collected from Tamil Nadu

Collection of jute and allied fibre germplasm and their evaluation is one of the activities of the NAGS for jute and allied fibres, CRIJAF, Barrackpore. Therefore, a total of 68 germplasm accessions of *Corchorus* spp. [*C. olitorius* (17), *C. aestuans* (23), *C. tridens* (12)] and *Hibiscus* spp. [*H. sabdariffa* (04), *H. cannabinus* (12)] collected from Tamil Nadu in February, 2013 were evaluated in *Kharif* season, 2013 for fibre yield and attributing traits. In *C. olitorius* plant height varied from 116.40 g to 235.40 g with

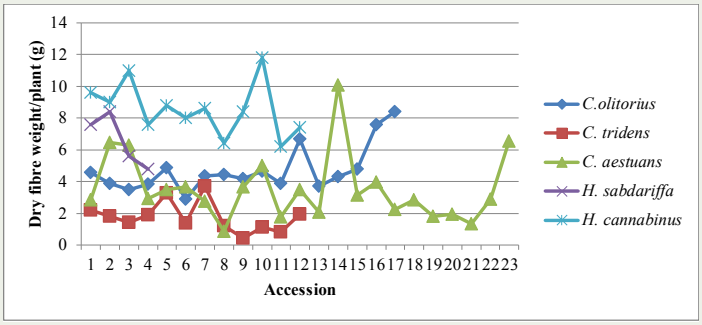


Fig.1. *Per se* performance of *Corchorus* spp. and *Hibiscus* spp. accessions

Table 1: Descriptive statistics for fibre yield and attributing traits in *Corchorus* spp. and *Hibiscus* spp. accessions

Species	Plant height (cm)		Basal diameter (mm)		Green weight (g)		Dry fibre weight (g)		Dry core weight (g)	
	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range
C. olitorius	204.86	116.40-235.40	11.16	9.21-13.71	104.36	74.0-164.0	4.73	2.88-8.42	12.36	7.64-21.74
C. aestuans	141.87	112.0-157.4	09.28	6.83-13.57	127.43	50.0-328.0	3.57	0.84-10.08	17.08	1.0-48.38
C. tridens	127.40	105.0-139.4	10.73	7.95-14.33	134.00	70.2-238.0	1.76	0.42-3.72	26.09	16.36-41.82
H. sabdariffa	201.75	170-246	17.32	16.04-18.55	195.59	161.9-231.8	6.6	4.8-8.4	14.75	4.2-23
H. cannabinus	246.15	215.6-291.8	16.66	14.84-18.92	185.99	145.4-223.7	8.56	6.2-11.8	23.68	16.0-29.8

a general mean of 204.86 g whereas, dry fibre yield/plant ranged from 2.88 to 8.42 g (Table 1). In *Hibiscus cannabinus* mean plant height recorded was 246.15 g and dry fibre weight/plant varied from 6.2 g to 11.8 g. *Per se* performance of different accessions of *Corchorus* spp. and *Hibiscus* spp. depicted in figure 1. Accessions HK/A/DK/R-80 (8.42 g) was highest fibre yielder (10.08 g) among *C. olitorius* accessions while one *C. aestuans* accession (HK/A/DK/R-29) yielded higher than best *C. olitorius* accession. In *Hibiscus* spp. one accession (HK/A/DK/R-110) recorded highest dry fibre yield/plant (11.80 g).

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Floral Phenology of Sunnhemp (*Crotalaria juncea* L.)

Sunnhemp possesses hermaphrodite flower but it exhibits anther dimorphism or hetero-anthery condition. Since it possess two types of anthers (Fig. 2) the question rises on which one of them is more viable and fertile. Pollen viability was tested by using acetocarmine staining method and fertility by pollinating 10 emasculated flowers from pollens of either of the whorls separately. The results indicated that both type of pollens were equally viable and effective in bringing about pollination (80-83 % pod set). For phonological studies 4 stages of flower buds were identified *viz*., S1 (closed bud), S2 (petals

Fig. 2. Two different types of anthers found in *Crotalaria juncea* L.

Table 2: Time of anther dehiscence at different time and different stages of sunnhemp flower

Time	1st whorl anther dehiscence				2nd whorl anther dehiscence			
	S1	S2	S3	S4	S1	S2	S3	S4
6:15	N	N	Y	Y	N	N	N	Y
7:15	N	N	Y	Y	N	N	N	Y
8:15	N	Y	Y	Y	N	N	N	Y
9:15	N	Y	Y	Y	N	N	N	Y
10:15	N	Y	Y	Y	N	N	Y	Y
11:15	N	Y	Y	Y	N	N	Y	Y
12:15	N	Y	Y	Y	N	N	Y	Y
13:15	N	Y	Y	Y	N	N	Y	Y
14:15	N	Y	Y	Y	N	N	Y	Y
15:15	N	Y	Y	Y	N	N	Y	Y

Table 3: Relative growth of floral parts of sunnhemp

Stage	Calyx (cm)	Standard petal (cm)	Style (cm)	Filament of 1st whorl (cm)	Filament of 2nd whorl (cm)	Anther length of 1st whorl (cm)	Anther length of 2nd whorl (cm)
S1	2.1	1.9	1.8	0.5	0.7	0.56	0.10
S2	2.1	2.2	1.8	0.5	0.8	0.41	0.10
S3	1.8	2.4	1.7	0.5	1.2	0.45	0.05
S4	1.7	2.4	1.8	0.4	1.1	0.45	0.06

start break out of bud), S3 (petals expanded) and S4 (open flowers). The 1st round of anthers was found to dehisce at 08:15AM in S2 stage flowers whereas the 2nd round of anthers began to dehisce at 10:15AM in the flowers of S3 stage (Table 2). Study on relative growth of floral parts shows that length of 1st whorl of stamen (filament length + anther length) was nearly half the length of the carpel and this difference was inhibitory to self-pollination (Table 3). The filaments of 2nd whorl of androecium elongates from S3 stage onwards, which is instrumental in pushing the pollen towards stigma upon its elongation thereby increasing the chances of self-pollination.

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Nucleus Seed Production at CSRSJAF, Budbud

In maintenance breeding, the production of nucleus seed is the starting point in order to obtain genetically pure seed. The production process of nucleus seed starts after the identification and release of a variety for general cultivation until it remains popular amongst the farmers and demand for the breeder seed exists. The nucleus seed is produced by growing plant to progeny rows and to be followed year after year maintaining proper isolation distance. Rigorous roughing of off type

and standard cultivation practices are followed. The single plant progenies are bulked to get the nucleus seed. Selection of individual plant followed by progeny row evaluation is done in two seasons and this cycle of nucleus seed production is to be carried out every year compulsorily. Selection of individual is mandatory before collection of bulk seeds from nucleus plots, to maintain true to the type seeds for growing next year in nucleus seed plots. The grow–out–test is conducted in the next season from sample of bulk seeds to ensure genetic purity of the variety. CSRSJAF, Budbud produces approximately 4.0 q nucleus seed of 45 varieties of jute and allied fibres every year following the standard package of practice. In year, 2014-15, twenty seven varieties of jute (*Corchorus olitorius* and *C. capsularis*), nine varieties of mesta (*Hibiscus cannabinus and H. sabdariffa*) and four varieties of sunnhemp (*Crotolaria juncea*) were grown for nucleus seed production. In 2014-15 a total of 231.4 kg of nucleus seed of jute was produced which includes fourteen varieties of *C. olitorius* and thirteen verieties of *C. capsularis.*

Fig. 3. Nucleus seed production plot in CSRSJAF, Budbud

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ICAR-CRIJAF, CSRSJAF, Budbud

DUS Testing on Jute at ICAR-CRIJAF Present Scenario

The Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act enacted in 2001, has the provision to provide protection to new varieties (including extant and farmers varieties) and safe guard the interest of breeders, farmers and communities who are involved in developing the new variety. Keeping in mind the requirements under PPV& FR, 2001 the guidelines for the conduct of test for distinctiveness, uniformity and stability on jute (*Corchorus olitorius* L. and *C. capsularis* L.) have been fixed. The minimum quantity of seed to be supplied by the applicant is 1000 gram with at least 85% germination, 9% moisture content, 97% physical purity, highest genetic purity, uniformity and phyto-sanitary standards. DUS test for jute is conducted in two independent similar growing seasons and at two test location (Barrackpore and Budbud). Distinctiveness, uniformity and stability are assayed based on 17 descriptors including plant, leaf, fibre, seed characters.

The progress and achievement so far under DUS testing programme are depicted below (Table 4).

Table 4: Status of variety registration with PPV & FRA

Crops	No. of application filed			Registration certificates issued
	Extant Notified	Extant VCK	New	
Jute (*Corchorus olitorius* L.)	9	1	4	A total of six varieties *viz*, JRO 204, Sourav (CO 58) (as new), JRO 8432, JRO 128, S 19, JRO 66 (as extant variety)
Jute (*Corchorus capsularis* L.)	9	1	2	Eight varieties namely, JRC 517, JRC 532 (as new), JRC 698, JRC 80, Monalisa, Bidhan Pat 1, Bidhan Pat 2, Bidhan Pat 3 (as extant variety)

During 2014-15, applications for registration of two new varieties *viz*. JROM 1 (*Tossa* jute) and JRCM 2 (White jute) have been sent to the PPV & FR Authority through NBPGR, New Delhi.

Table 5: Number of reference varieties maintained and characterized under DUS Project

Crop species	No. and name of the varieties maintained	Name of the varieties characterized (2014-15)
Corchorus olitorius L.	20 varieties *viz*. JRO 204, IRA, JRO 632, JRO 3690, JRO 66, JRO 524, JRO 7835, JRO 878, JRO 8432, S 19, JRO 128, JRO 620, Chinsurah Green, Sudan Green, Tanganyika-1, JRO 36E, JRO 2345, KOM 62, TJ 40 and CO 58.	One new variety JRO 2407 (Samapti) (second growing cycle) and VCK variety Bidhan Rupali (first growing cycle)
Corchorus capsularis L.	17 varieties *viz*. JRC 212, JRC 80, JRC 698, JRC 7447, JRC 4444, Padma, JRC 321, Monalisa, UPC 94, Bidhan Pat 1, Bidhan Pat 2, Bidhan Pat 3, KC 1 and KTC 1, D 154, JRC 517 and JRC 532.	-

The monitoring of DUS test was done at ICAR-CRIJAF, Barrackpore and CSRSJAF, Budbud on 02.09.14 and 03.09.14 respectively. The candidate variety, JRO 2407 (Samapti) showed more stem pigmentation (Red) under comparable incident of light with compare to reference varieties, JRO 878 and S 19. All other characters were found uniform and stable in all the varieties under consideration. The other candidate variety, Bidhan Rupali is distinct in case of stem color, stipule color and all the leaf characteristics (leaf lamina, leaf vein, leaf petiole) from the reference variety, JRO 632. The candidate variety (Bidhan Rupali) showed exclusively pale green color in stem, stipule, leaf lamina, leaf petiole and leaf vein color whereas the reference variety (JRO 632) showed completely green color in stem, stipule and all the leaf characters. All the other characters as specified by PPV & FR Authority in their guidelines were observed critically and found to be uniform in both the candidate as well as their reference varieties.

Fig. 4. DUS monitoring in progress at ICAR-CRIJAF

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ICAR-CRIJAF, Barrackpore

In vitro Culture Response and Regeneration of Plantlets in Mesta

An attempt was made to develop a robust *in vitro* regeneration protocol in mesta involving both the cultivated species of mesta *viz*., *Hibiscus sabdariffa* (5 varieties) and *H. cannabinus* (4 varieties). Seed germination was found to be maximum (100%) in HS 4288 and minimum (80%) in HS 7910 in *H. sabdariffa*, whereas, in *H. cannabinus* maximum (90%) and minimum (76%) values were observed in MT 150 and AMC 108 respectively. Twenty three combinations of plant growth regulators (NAA, 6BAP, Kinetin, 2, 4-D, TDZ and IAA) in MS medium were assessed for *in vitro* culture response involving cotyledon and hypocotyl explants. The best callus induction was observed with cotyledonary explant with maximum callus proliferation in HS 4288 on MS supplemented with 2mg/l 2, 4-D, 0.1mg/l NAA and 2mg/l Kinetin in *H. sabdariffa*. Whereas, in *H. cannabinus* maximum callus proliferation (66.8%) was observed in MT 150 on MS supplemented with 0.8mg/l IAA and 0.05 mg/l TDZ. Adjuvants showed good response in

Fig. 5. Different steps of *in vitro* cultures in mesta *Hibisuss sabdariffa* variety HS 4288, (a) axenic seeds culture on seed germination medium (MS basal) (b) surface sterilized leaf explants cultured on callus induction medium (CIM) (c) hypocotyl explants placed on CIM (d) calli on proliferating media (1/2 dose hormone) (e) greenish colour on callus indicating initiation of chlorophyll biogenesis (f) induction of shootlet on the surface of nodal explants at very early stage (g) developing roots from the same calli (h) shootlets with induced roots taken out from the culture vessel ready for hardening and transfer to green house.

callus proliferation, however no effect was observed on shootlet regeneration. Shootlet regeneration was found only in var. HS 4288 on 3.0 mg/l BA with 0.2mg/l IAA which were rooted on hormone free MS medium, that led to whole plant regeneration in mesta.

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Verification of Soil Test and Targeted Yield Based Fertilizer Application in Jute

A field experiment was undertaken in Gangetic alluvial soil (*Typic Ustochrept*) of West Bengal under different fertility gradient. The soil was medium in N, high in P and medium in K. Illite was the dominant clay mineral in the soil under this experiment. Fertility gradients was created by growing exhaust crop (maize) with different fertilizer doses. Jute crop (JRO 204) was grown in different fertility gradients with different treatment combinations. Basic data were calculated on nutrient requirement for one quintal of jute fibre production, per cent contribution of nutrients from soil, fertilizer and organic manure sources. Targeted yield equation was generated for jute (JRO 204) from basic data. Validity of yield target was tested in farmers' field at Haringhata block of Nadia district through follow up trials. Yield target for

Table 6: Average fibre yield, response ratio, net return, yield deviations and B: C ratio against fixed target of Jute (JRO 204) under follow-up trials, 2013-14

Treatment	Fibre yield (q ha^{-1})	Response Ratio (kg kg^{-1}NPK)	Yield deviation (%)	Net return (Rs. ha^{-1})	B:C ratio
Control (0:0:0)	20.0	-	-	6000	1.16
Farmers practice (23:59:59)	28.8	6.24	-	22106	1.54
RDF (80:40:40)	36.4	10.3	-	38372	1.92
ST-TY (40 q ha^{-1}) (85:10:10)	39.0	18.0	(-) 2.74	45082	2.11
ST-TY (40 q ha^{-1}) +FYM (79:10:10)	41.0	21.2	(+) 2.14	49846	2.24

jute (JRO 204) was fixed at 40 q/ha with and without FYM. The result showed that application of fertilizers as per ST-TY without and with FYM achieved the target of 40 q/ha fibre production of jute (JRO 204) with (-) 2.74 and (+) 2.14 % yield deviation, respectively. Integration of FYM @ 5 t ha^{-1} with fertilizers as per soil test values and targeted yield (40 q/ha) equation recorded highest response ratio (21.2 kg kg^{-1} NPK) and B:C ratio (2.24) over recommended dose of fertilizer (RDF) (10.3 kg kg^{-1} NPK, 1.92) and farmers' practice (6.24 kg kg^{-1} NPK, 1.54).

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Impact of Field Demonstrations of Improved Microbial Jute Retting Technology using *"CRIJAF SONA"*

Thirty five field demonstrations of improved microbial jute retting with CRIJAF microbial formulation popularly known as *"CRIJAF SONA"* were conducted during August, 2014 at 14 blocks of North 24 Parganas district in collaboration with Department of Agriculture, Govt. of West Bengal. Out of the 35 demonstrations, 4 were conducted at Bagda block, 3 each were conducted at Barasat-I & II, Amdanga, Habra-I & Deganga and 2 each were conducted at Bangaon, Gaighata, Habra-II, Basirhat-I & II, Baduria, Haroa and Swarupnagar.

The results of the demonstrations revealed that the improved retting technology reduced the retting duration in all the cases with a range of 1-8 days. In

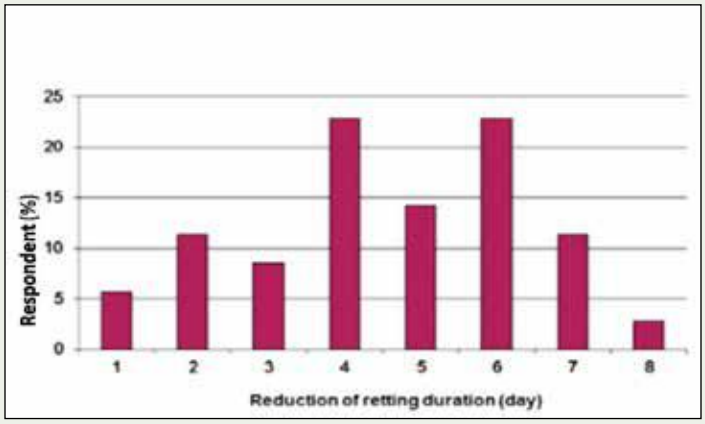

Fig 6. Effect of improved microbial jute retting technology on reduction of retting duration

71.5% cases the reduction of retting duration was 4-7 days as compared to the conventional retting methods followed by the jute farmers in the district (Fig 6).

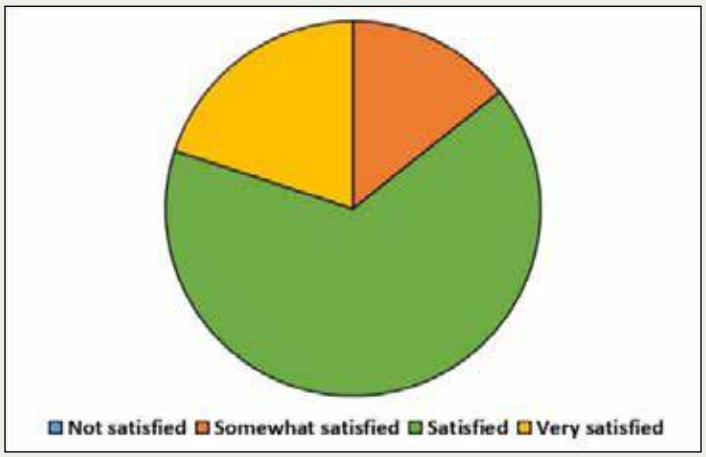

Fig 7. Farmers' response to the demonstrated improved retting technology

It was also recorded that 82.9% farmers considered under the demonstration of the technology, got better fibre colour (yellowish to bright golden) and only 17.1% observed slight improvement or no apparent improvement in fibre colour.

One of the remarkable benefits of the concerned improved retting technology was 'additional dry fibre recovery' due to associated positively contributing factors such as shortened duration of retting, and fibre recovery throughout the length of jute stem especially at the top end. The range of additional dry fibre recovery was 30 kg to as high as 510 kg/ha, with an average yield advantage of 191 kg/ha. At the present level of MSP for jute (of TD_5 grade), this benefits of improved retting technology adds farmers income by Rs. 4,590/ha.

Farmers considered in the improved retting

demonstrations received higher price for the jute fibre they produced with additional income of Rs.4,375/ha (considering a mean yield of 30 q/ha).

Farmers' overall response to the demonstrated improved microbial jute retting technology was also recoded. It was analyzed that 85.7% of the jute farmers were '*Satisfied*' to '*Very Satisfied*' and there was no farmer in the '*Not Satisfied*' category (Fig 7).

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Carbon Management Index as Affected by Nutrient Management Under Intensive Jute-Rice-Wheat Cropping System

The soil organic carbon (SOC) pool directly influences physical, chemical and biological attributes, as well as the self-organisation capacity of soils. Compared to a single measure such as total SOC, carbon management index (CMI) can be used as a more sensitive indicator of the rate of change of SOC in response to the cropping system and soil management changes. The integration of both soil organic carbon pool and carbon lability, can provide a useful parameter to assess the capacity of management systems to promote soil quality. The CMI provides an integrated measure of quantity and quality of SOC. A management system is considered sustainable, if the value of CMI is greater than 100. The present study aimed to investigate carbon management index as influenced by nutrient management and 43 years of jute-rice-wheat cropping sequence at ICAR-CRIJAF, Barrackpore, West Bengal. The treatments included 50% NPK, 100% NPK, 150% NPK, 100% NP, 100% N, 100%NPK+FYM and no fertilizer (control). Soil samples were collected after the harvest of the wheat crop in the year 2014 and were analysed for total SOC, labile carbon.

In the present study, the highest CMI values of 161 at 0-15cm soil depth, 154 at 15-30 cm soil depth, and 131 at 30-45 cm soil depth were obtained in treatment receiving integrated use of FYM and NPK fertilizers (Fig 8). Addition of 100% NPK fertilizers alone resulted in CMI values of 132, 123 and 117 at 0-15, 15-30 and 30-45cm soil depth, respectively. Improvement in CMI values under integrated use of organic and inorganic fertilizers over sole NPK application could be attributed to addition of organic carbon and other nutrients through these sources. In general, CMI values decreased from surface to sub surface soil irrespective of nutrient management practices. The higher values of CMI indicate that the system have greater soil quality than the other management systems. Integrated use of FYM and NPK fertilizers in intensive cropping system like jute-rice-wheat system could be considered as the sustainable management option for crop production.

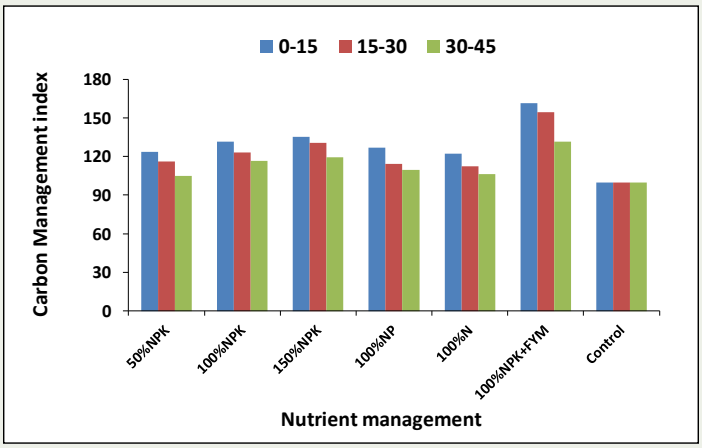

Fig. 8. Carbon management index as affected by nutrient management

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Effect of Long Term Use of Fertilizers and Manures on Penetration Resistance of Alluvial Soils Under Jute-Rice-Wheat Cropping Sequence

Soil penetration resistance (PR) strongly depends on soil type and properties, *viz*. soil moisture content, bulk density, porosity and organic matter content in temporal scale and on soil texture and other soil properties in spatial scale. In a same type of soil for a single cropping sequence soil PR would vary depending on the management factors practiced to the crops.

In a gangetic alluvial soil of Barrackpore which has been under jute-rice-wheat cropping system continuously for 43 years was selected as the study site. Soil PR up to 80 cm profile depth was measured with a cone type penetrologger in 100% NPK+FYM (@10t/ha), 100% NPK and control (without NPK and FYM) plots under jute-rice-wheat cropping sequence, and in tilled/cultivated fallow plot at CRIJAF-research farm, Barrackpore. Penetrologger graphs revealed that the soil penetration resistance among the treatments varied mostly between 10 to 30 cm profiles depths. Magnitude of soil PR was higher (2-4 MPa) in 100%NPK and control plots as compared to 100%NPK+FYM and fallow plots (2 MPa) (Fig. 9). This might be due to non-addition of organic matter which hinders to improve soil structure and friability.

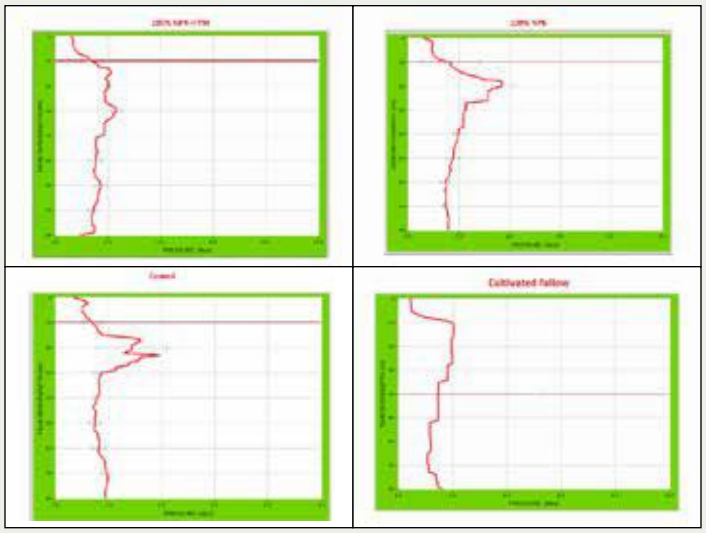

Fig. 9. Penetration resistance of soil profile of long term fertilizer experiment at Barrackpore

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B. Majumdar, A.K. Ghorai, M.R. Naik and D. Ghosh
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Application of Sulphur and Zinc Improves Seed Yield of Jute in Alluvial Soils

A field experiment was conducted on jute seed production in Barrackpore, to study the effect of nutrient management options on the productivity of jute seed.

Application of NPK + S + Zn (40:60:60 kg N: P_2O_5: K_2O + 20 kg S + 20 kg $ZnSO_4.7H_2O$ ha^{-1}) resulted into significantly higher seed yield (1.18 t ha^{-1}) as compared to all other treatments. The experimental data also revealed that sulphur application @ 20 kg ha^{-1} together with NPK (40:60:60 kg N: P_2O_5: K_2O ha^{-1}) recorded significantly higher seed yield (1.05 t ha^{-1}) compared with all other treatments except 40:60:60 N: P_2O_5: K_2O ha^{-1}, 20 kg S, 20 kg $ZnSO_4$. Application of S and Zn @ 20 kg S ha^{-1} and 20 kg $ZnSO_4.7H_2O$ ha^{-1} along with recommended dose of NPK resulted in higher jute seed production under late transplanted conditions on gangetic alluvial soils of West Bengal (Fig. 10).

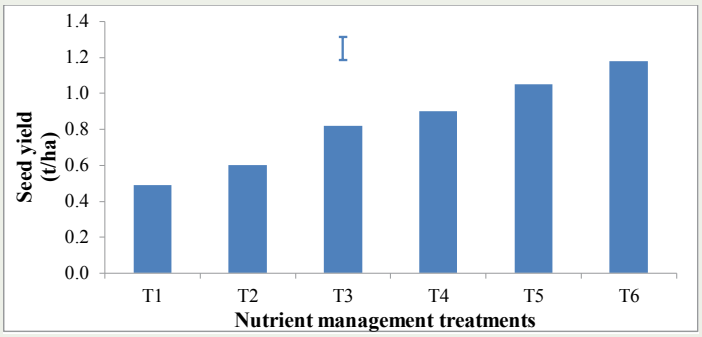

Fig. 10. Effect of nutrient management options on seed yield of jute. T_1 = Control (no fertilizer application); T_2 = N only (40 kg N ha^{-1}); T_3 = NP only (40:60 kg N: P_2O_5 ha^{-1}); T_4 = NPK (40:60:60 kg N: P_2O_5:$K_2O$$ha^{-1}$); T_5 = NPK +S (40:60:60 kg N: P_2O_5:K_2O + 20 kg S ha^{-1}); T_6 = NPK +S + Zn (40:60:60 kg N: P_2O_5:K_2O + 20 kg S^{-1} + 20 kg $ZnSO_4.7H_2O$ ha^{-1})

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ICAR-CRIJAF, Barrackpore

Performance of Jute (*Corchorus olitorius* L . & *C. capsularis* L.) under salt affected soils

Performance of jute under salt affected soils was tested at CSSRI, RRS experimental farm with high soil pH(8.7) and EC(0.8 dsm^{-1}). Five varieties of *C. capsularis* and three varieties of *C. olitorius* were tested. Observation taken data at 75 days after sowing were represented in Table 7. In case of *olitorius* jute higher plant height, green and dry weight were recorded by JRO 8432 (131 cm) and JRO 2407 (131 cm) whereas higher root length was recorded by JRO 8432 (26 cm) and JRO 524 (22cm). In case of *capsularis* jute higher plant height and root length were recorded in JRC 321 whereas higher green and dry weight were recorded in JRC 517. Root and shoot length was not always correlated to fresh and dry weight. It is anticipated that in addition to higher dry weight, longer and stronger root and shoot development will allow more successful selection for high salt tolerance.

Table 7: Performance of jute under high soil pH (8.7)

Varieties	Shoot length (cm)	Root length (cm)	Fresh weight (g)	Dry weight (g)
Corchorus olitorius				
JRO 524	115.6	22.6	348	89
JRO 2407	131.6	21.7	410	111
JRO 8432	131.6	25.8	435	115
Corchorus capsularis				
JRC 698	113	15.8	249	72
JRC 532	108.4	16.8	191	55
JBC 5	125.8	16.4	281	84
JRC 321	127.4	17.6	273	83
JRC 517	122.8	15	293	90

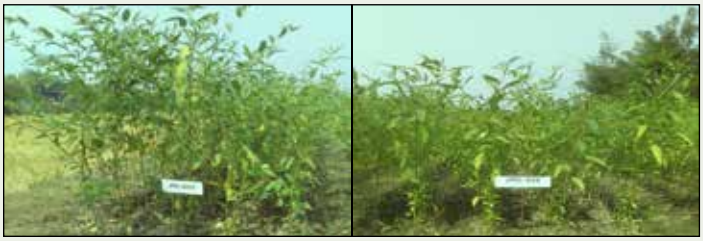

Fig. 11. Enactment of JRO-8432 and JRC-532 under high soil pH (8.7) at Canning Town

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*CSSRI, RRS-Canning Town,

Biochemical Degradation of Ramie Pectin

A study was conducted at ICAR-CRIJAF, Barrackpore to isolate efficient pectinolytic bacteria from the soil and also to identify the optimal conditions for higher pectinolytic activity of the strains for removal of gum the major constituent of which is pectin. One efficient pectinolytic strain isolated from the ramie grown soil of CRIJAF Farm was characterized as *Bacillus subtilis* by BIOLOG. Pectinase activity of the strain when studied over a wide range of temperatures (25 – 50^{0}C), showed maximum value (128 IU/ml) at 34°C. Maximum pectinase enzyme (pectate lyase and polygalacturonase) production by the strain

was observed at neutral to slight alkaline pH (7-8) (Fig. 12) of the culture medium and at 48 hours of incubation time. The strain efficiently used the apple pectin indicating its ability to degrade highly esterified pectin (esterification value 70-75%). The isolated strain also recorded maximum production of extracellular pectinase enzyme at 1.5% inoculum rate (Fig. 13). The experimental findings indicated the scope of the utilizing the pectinolytic strain for large scale biochemical degumming of ramie fibre.

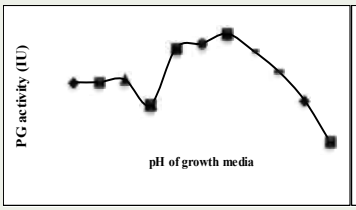

Fig. 12. Effect of pH on PG activity of the islolated strain

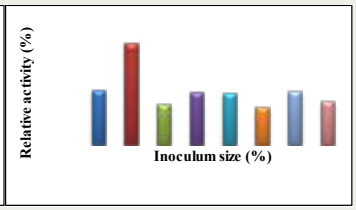

Fig. 13. Relative activity of the strain in different strain inoculum size

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Scope of Intercropping of Medicinal and Aromatic Plants with Sisal

Harvesting of sisal leaves for fibre starts 3 years after planting and continues up to 10 years. This crop generally does not utilise the available resources such as land, space, water, and nutrients fully as the active root zone of sisal is confined to only 30% of the available land area of plantation. The remaining area could be profitably exploited for raising some intercrops which will be beneficial in getting reasonable additional income from the plantation. Aromatic grasses such as lemon grass, vetiver, citronella, palmorosa can be very well grown as intercrop in degraded soil where sisal is generally grown. The intercropping of (Medicinal and Aromatic Plants) MAPs in sisal will result in increased productivity and net income per unit area. Keeping this in view, several medicinal and aromatic plants along with conventional crops were grown at Sisal Research Station, Bamra during 2014 to identify the profitable intercrops. The preliminary trend of some yield parameters in respect of MAP like satavar, muskdana, vetiver, aloe vera and traditional crops like horse gram, rice bean, sesamum and niger have shown promise. Performance of the crops was better when @ 5t FYM was incorporated along with recommended dose of fertilizer as compare to sole application of RDF. Out of several MAPs and traditional crops grown in interspace of sisal, medicinal plant safed musli recorded fresh root yield of 1275 kg ha^{-1} from which net return of Rs. 72,450 ha^{-1} was obtained. Similarly from first harvest of lemon grass and kalmegh, herbage yield of 2246 kg ha^{-1} and biomass yield of 2575 kg ha^{-1} were recorded respectively. It was found that different low duty conventional and MAP can be successfully cultivated in the interspaces of sisal bringing additional income during the gestation period (initial 3 years) of sisal. Thus medicinal and aromatic plants were more profitable than the traditional intercrops in bringing higher income for the farmers from sisal plantations.

Lemon Grass | Kalmegh

Safed Musili | Vetiver

Fig. 14. Growing of diffrent MAP in sisal plantation at SRS, Bamra, Odisha

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Record of Parasitoid, *Parachremylus* sp. (Braconidae: Hymenoptera) on Leaf Mining Beetle in Jute

During field survey the adults of leaf mining beetle, *Trachys pacifica* Kerremans was observed on leaves (*Corchorus* spp.) forming irregular white patches or zigzag passage in the jute crops at Central Research Institute for Jute and Allied Fibres (ICAR-CRIJAF), Barrackpore during 2012-13 cropping season (Fig. 15). The infested leaves were collected and kept in Petri dish to observe the adult and parasitoid emergence. The adults of the leaf miner emerged after 12-15 days of pupation which were hard bodied elongated beetles with three curved transverse stripes seen on the elytra. Besides this beetle, few parasitoid also emerged from the leaves infested with the grub with body length 2.5 mm and forewing length about 2.7 mm. The parasitoid along with host insect beetles were preserved and sent for identification to National Coordinator for Insect Biosystematics, Indian Agricultural Research Institute (IARI), New Delhi. The host insect and parasitoid specimens were identified as *Trachys pacifica* Kerremans (Buprestidae: Coleoptera) and *Parachremylus* sp. (Braconidae: Hymenoptera), respectively. *T. pacifica* basically a minor and sporadic pest of jute, its grub mines leaves under epidermis even all the leaves of plants during early stage of crop. Its activity predominantly restricted during rabi season and *C. olitorius* is more susceptible than *C. capsularis*. In case of parasitoid, according to literature the complete host range of *Parachremylus* has not been known yet. However, the members of related genera of the tribe Avgini (*Parahormius*, *Avga*, *Allobracon*) are recorded as parasitoids of the leaf-rollers or leaf-miners of the families Tortricidae, Gracillariidae, Coleophoridae, and Gelechiidae as well as rarely of leaf-mining Coleoptera (Buprestidae). Earlier, *P. litchii* was recorded from larvae of *Conopomorpha sinensis* and *C. litchiella* (Gracillariidae), both important pests of lychee and longan trees in Thailand. Perhaps, this is the first report of the genus *Parachremylus* as a larval parasitoid of *T. pacifica* in jute crop from India.

Fig. 15. *Trachys pacifica* infested jute plant and its adult parastoid, *Parachremylus* sp. (Courtesy: Photographer Direct.com)

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Prevalence and Characterization of Bacterial Wilt/Hooghly Wilt of Jute, *Ralstonia Solanacearum*

Bacterial wilt incidence was recorded at research farm of ICAR-CRIJAF, Barrackpore and farmers field at Murshidabad district of West Bengal during July to August 2014. Crop losses were recorded up to 20% due to this disease in jute (**Fig. 16a**). Epiphytotic record during 1950-70 declined due to discontinuence of cropping sequence of jute after potato and adoption of jute-paddy/potato-paddy crop rotation. Symptoms of the disease started as drooping of leaves, wilting of plants and brownish discoloration of stem and vascular tissues. Five different isolates of pathogen were established using triphenyl tetrazolium chloride (Kelman's TZC) medium from wilted plant samples. The bacterial cells of all the isolates were gram negative and rod shaped. The diversity was determined among all the test isolates by performing gram staining, morphological, cultural, physiological characteristics and pathogenicity test. All test isolates grew faster on the TZC media and their virulent and avirulent

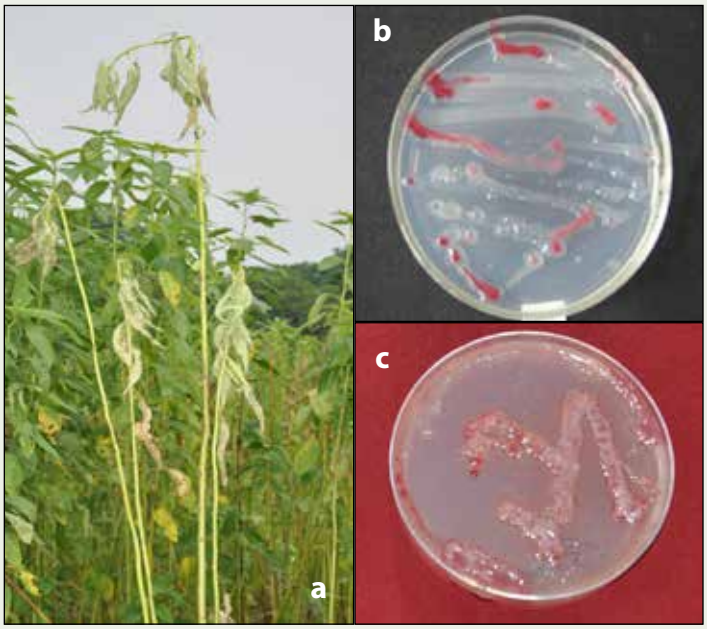

Fig.16. a) Incidence of bacterial wilt in jute. b) Virulent colonies of Ralstonia solanacearum. c) Growth of *R. solanacearum* on TZC (Kelmans) medium

(mutant) colonies could be differentiated on the medium (Fig. 16b). Test isolates were characterized on the basis of colony size and abundance of growth (Fig. 16c) and identified as *Ralstonia solanacearum*.

The pathogen is very difficult to manage because of its wide host range, exceptional ability to survive in the roots of non-host plants and in the soil, susceptibility of the commercial cultivars, and non feasibility of chemical control. Better understanding of population diversity/variability in the pathogen and cross infectivity/pathogenicity would lead to more detailed and precise studies on the genetics of wilt resistance, and development of targeted diagnostics for effective and economically viable management strategies.

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Influence of Pre-Acquisition Starvation Feeding Period on Mesta Yellow Vein Mosaic Virus transmission.

The experiment was conducted to ascertain the effect of pre-acquisition starvation periods on the rate of transmission of Mesta Yellow Vein Mosaic Virus (MYVMV) through whitefly. The whiteflies were starved for different duration and they were then given 24 hr acquisition and 24 hr inoculation feeding periods on test plants. After the treatment, the plants were sprayed with dimethoiate 30 EC and then test plants were allowed to develop the symptoms of virus. Pre-acquisition starvation period of 6 hr or more resulted in 100% transmission of virus (table 8). The whiteflies feeding period of 0.25, 0.5 , 1.0, 2.0, 3.0 and 4 hrs of feeding resulted 9.33, 23.17, 47.38, 57.19, 87.12 and 93.02% of mosaic disease symptom respectively

Table 8: Effect of pre-acquisition starvation feeding period on mesta YVMV transmission.

Pre-acquisition starvation feeding period (hr.)	Transmission (%)	Incubation period (days)
0.25	9.33	19.05
0.50	23.17	18.11
1.00	47.38	16.23
2.00	57.19	15.05
3.00	87.12	14.25
4.00	93.02	12.11
6.00	100.00	11.01
8.00	100.00	10.73
10.00	100.00	10.09
12.00	100.00	9.87
CD(P=0.05)	1.32	1.71

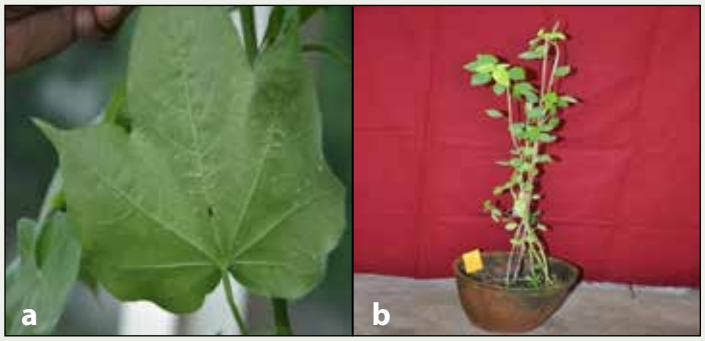

Fig. 17. a) Rearing of whiteflies on cotton plant. b) Symptoms of virus on test plant after pre-acquisition feeding period

(Fig 17b). Pre-acquisition starvation period required for the vector for successful transmission of the virus was 15 minutes in spite of the fact that the percentage of infection was increased with increase in pre-acquisition starvation period.

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V. Ramesh Babu and S. Satpathy
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PUBLICATIONS

Research Paper & Articles:

Bandyopadhyay, S., Gotyal, B.S., Satpathy, S., Selvaraj, K., Tripathi, A.N. and Ali, N. 2014. Synergistic effect of Azadirachtin and *Bacillus thuringiensis* against Bihar hairy caterpillar, *Spilosoma obliqua* Walker. *Biopesticides International*, 10(1): 71-76.

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DISTINGUISHED VISITORS

Date	Name of visitors	Affiliation
19.09.14 & 02.10.14	Dr. Swapan Kumar Datta	DDG (CS), ICAR, New Delhi
19.09.14	Dr. H.S. Sen	Former Director, ICAR-CRIJAF, Barrackpore
19.09.14	Prof. Tapash Dasgupta	Director, Institute of Agricultural Sciences, Calcutta University, Kolkata
19.09.14	Dr. K.K. Satapathy	Former Director, ICAR-NIRJAFT, Kolkata
19.09.14	Prof. Srikanta Das	Dean, Faculty of Agriculture and Professor, Plant Pathology, BCKV, Mohanpur
22.11.14	Dr. Satyanand Sushil	Plant Protection Advisor to Govt. of India
22.11.14	Dr. Major Singh	Head Crop Improvement Division, ICAR-IIVR, Varanasi, Uttar Pradesh
22.11.14	Dr. (Mrs.) Mayabini Jena	Pr. Scientist (Agril. Entomology), ICAR-CRRI, Cuttack, Odisha
27.11.14	Dr. D.L.N. Rao	Project Coordinator(Biological Nitrogen Fixation), ICAR-IISS, Bhopal
27.11.14	Dr. D. Sen	Former Director, Extension, BCKV, Mohanpur
27.11.14	Prof. A.K. Sarkar	Former, Dean (Agril.), BAU, Ranchi
31.12.14	Dr. D.K. Sharma	Director, ICAR-CSSRI, Karnal, Haryana

Participation of Scientists and Staff Members in Seminar/Symposia/ Conference/ Training

Seminar/symposia/conference/training	Place and date	Name of the participant/s
Management Development Programme on Leadership Development (Pre-RMP)	15-26 July, 2014 at ICAR-NAARM, Hyderabad	Dr. S. Satpathy, Head , Crop Protection Division, ICAR-CRIJAF
Refresher Course on "Agriculture Research Management"	14-26 July, 2014 at ICAR-NAARM, Hyderabad	Dr. M. S. Behera, Sr. Scientist, ICAR-CRIJAF
Training on "Planning, Implementation, Monitoring and Evaluation of Micro Enterprises"	21-25 July, 2014 at SIPRD, Kalyani, West Bengal	Dr. Monica Suresh Singh, SMS, KVK, Budbud
International conference on "Natural Fibres" organized by The Indian Natural Fibre Society, ICAR-NIRJAFT, Kolkata	1-3 August, 2014 at Hotel Grand Oberoi, Kolkata (W.B.)	All scientist of ICAR-CRIJAF, Barrackpore
Seminar on "Appropriate Technologies of Farm Mechanization for Marginal and Small Farmers"	8-9 August, 2014 at Agricultural Engineering Division of The Institution of Engineers (India), West Bengal State Centre, Kolkata	Dr. R.K. Naik, Scientist, ICAR-CRIJAF
Workshop on "Writing Success Stories"	27-29 August,2014 at ZPD, Salt Lake, Kolkata	Ms. Poli Saikia SMS, KVK, Budbud
Training on "Home Science Knowledge Management"	3-23 September, 2014 at ANGRAU, Hyderabad	Ms. Poli Saikia SMS, KVK, Budbud
11th Advanced Level Training on "Soil Testing, Plant Analysis and Water Quality Assessment"	04-24 September, 2014 at ICAR-IARI, New Delhi	Sk. Abdullah, Technical Officer, ICAR-CRIJAF
Workshop on IX Annual Review Meeting of ICAR seed project "Seed Production in Agricultural Crops"	22-23 September, 2014 at ANGRAU, Hyderabad conducted by DSR, MAU.	Dr. C.S. Kar, Pr. Scientist, ICAR-CRIJAF
National Symposium on "Management Options for Enhancing Farm Productivity and Livelihood Security Under Changing Climate"	29-31 October, 2014 at OUAT, Bhubaneswar	Dr. M. S. Behera, Sr. Scientist, ICAR-CRIJAF
Workshop on "Open Access to Agriculture Knowledge for Inclusive Growth and Development" conducted by NAARM in partnership with Global Forum on Agricultural Research (GFAR) of FAO	29-30 October, 2014 at ICAR-NAARM, Hyderabad.	Dr. C.S. Kar, Pr. Scientist, ICAR-CRIJAF
National Symposium on Climate Resilient Forage Production and Its Utilization	13-14 November, 2014 at BCKV, Mohanpur, West Bengal	Dr. Chandrakanta Jana, SMS, KVK, Budbud
National Symposium on "Agricultural Diversification for Sustainable Livelihood and Environmental Security"	18-20 November, 2014 at PAU, Ludhiana, Punjab	Dr. Amarpreet Singh, Scientist, CRIJAF
National Seminar on "Developments in Soil Science -2014" during 79th Annual Convention of the Indian Society of Soil Science	24-27 November, 2014 at ANGRAU, Hyderabad	Dr. D.K. Kundu, Pr. Scientist, Dr. A.R. Saha, Pr. Scientist, Dr. B. Majumdar, Pr. Scientist, Dr. Sonali Paul Mazumdar, Scientist, CRIJAF
"India Biodiversity Meet-2014" organized by AERU, ISI, Kolkata	21-23 November, 2014 at Indian Statistical Institute, Kolkata (W.B.)	Dr. A.N. Tripathi, Scientist, CRIJAF

AWARDS & RECOGNITIONS

	Dr. D.K. Kundu, Head, Crop Production Division, Delivered Dr. N.P. Datta memorial lecture on "Sustainable productivity of rice soils under changing climate: Issues and options related to nitrogen availability" organized by Ranchi chapter, ISSS, BAU & ISSS New Delhi on 15th September, 2014. Dr. Kundu also received Purusottam Jiban Dash Memorial Bio-Research Best Paper Award-2014 of GCBR for outstanding research achievements and contribution in the field of Biological Science. The Award was given at Bhubaneswar, Odisha on 12th December, 2014.
	Dr. Babita Chaudhary was felicitated by Uttar Pradesh Council of Science and Technology (District Science Club, Pratapgarh, U.P.) for outstanding contribution in agriculture on dated 11th August, 2014.
	ICAR-CRIJAF won a total of 11 medals (5 gold, 3 silver, 3 bronze) in different events in ICAR Zonal Sports Tournament (Eastern Zone), 2014 organized by ICAR-CRIJAF, Barrackpore during 14th-17th October, 2014. ICAR-CRIJAF was champion in Volleyball (Smashing), Table Tennis (Men), High Jump (Men), Long Jump (Men), Carrom (Women), first runner up in Carrom (Men), Shot Put (Men), Discus Throw (Men) and second runner up in Long Jump (Men), Javelin Throw (Women), 100 m race (Women).
	Dr. Amarpreet Singh, Scientist, Division of Crop Production, obtained Fertilizer Association of India (FAI) Golden Jubilee Award for Outstanding Doctoral research on Fertilizer Usage for the year 2014 during FAI Annual Seminar held on 10th December, 2014 at New Delhi.

PERSONNEL

Our New Collegues

	Dr. Subhojit Datta, Senior Scientist (Biotechnology) has joined CRIJAF, Barrackpore on 18.11.14. Before joining CRIJAF, Dr. Datta was working as Senior Scientist at ICAR-IIPR, Kanpur. After completing M. Sc. & Ph. D in Molecular Biology and Biotechnology from National Research Centre on Plant Biotechnology, IARI, New Delhi, Dr. Datta joined ARS in May 2000. He has been offered a position of National Fellow by Indian Council of Agricultural Research.
	Dr. Ritesh Saha, Senior Scientist (Soil Physics & Soil & Water Conservation) has joined CRIJAF, Barrackpore on 15.12.14. Dr. Saha joined ARS in November 1999 and served in various ICAR institutes like CIFRI, Barrackpore; ICAR Complex for NEH Region, Barapani; CHES, IIHR, Bhubaneswar and Indian Institute of Soil Science, Bhopal.

Promotion

	Dr. S.K. Pandey, Sr. Scientist, Plant Breeding promoted to next higher grade with effect from 10th July, 2012 through CAS.
	Dr. Babita Chaudhary, Sr. Scientist, Plant Breeding promoted to next higher grade with effect from 30th December, 2013 through CAS.
	Dr. R. K. Naik, Scientist, Farm Machinery & Power promoted to Scientist (SS) with effect from 27th June, 2010 through CAS.
	Dr. H.K. Sharma, Scientist, Plant Breeding promoted to Scientist (SS) with effect from 4th November, 2013 through CAS.
	Dr. S.P. Gawande, Scientist, Plant Pathology promoted to Scientist (SS) with effect from 3rd May, 2014 through CAS.

Superannuation

Name of the employee	Designation	Date of retirement
Mr. Jayanta Das	Assistant	31.08.14
Mrs. Minati Das	Assistant	31.10.14
Mr. Gopal Mandal	SSS	31.12.14
Mr. Anil Rishi Das	SSS	31.12.14
Mr. Sukumar Samaddar	SSS	31.12.14
Mr. Arun Kumar Patra	SSS	31.12.14

EDITORIAL

ICAR-Central Research Institute for Jute and Allied Fibres (ICAR-CRIJAF) endowed with the responsibility of undertaking agricultural research for growth and development of six natural fibre crops *viz*., jute, mesta, sisal, ramie, sunnhemp and flax. Due to increasing environmental concerns the demand of natural fibre based products is increasing. Although the technologies developed by CRIJAF could enhance the productivity to sustain the present level of production of raw jute with the changing fragile climate and raising cost of cultivation, market demand and consumer preference, the research strategies need to be re- oriented.

ICAR-CRJAF has developed various technologies like varieties of jute and allied fibre crops, development of suitable cropping systems, integrated nutrient management, integrated weed and insect pest management technologies, production and post-harvest technologies. The institute has devised very simple and useful machineries like multi-row seed drill, nail weeder, precise- herbicide applicator and fibre decorticator, which reduced the cost of cultivation and drudgery to great extent. The talc based microbial formulation has proved its feet in farmers field across the jute growing states by reducing the retting time and improving the quality of fibres. Site specific soil management tor maximize soil agro-system services and minimize soil disturbances and concurrently increasing soil carbon reserve, site and region specific nutrient recommendation package integrating locally available organic manures should be taken care of for higher nutrient use efficiency, improved soil health and increased crop productivity of jute and allied fibres crops. In the backdrop of changing pest and disease status emphasis is to be given in developing preventive pest management technologies through induced resistance to be harnessed through in-depth study of bio control agents their survival, proliferation and multiplication with respect to specific delivery mechanism into the substrate/ plants. Concerted multidisciplinary research for mitigating effects of climate change has been prioritised in the future research agenda in these crops. Breeding varieties for diversified uses (biomass, edible purpose, bioenergy) of jute and allied fibres, with integration of conventional breeding and biotechnology will establish varieties for diverse use. The ICAR-CRIJAF has been playing a significant role to bring prosperity of the jute and allied fibre growers in the country by adopting frontier areas of science to develop technologies for adequately addressing the problems in the crops of this sector.

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