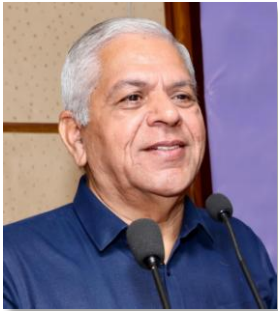


Happy
New Year
2025

IJIRA NEWSLETTER

December, 2024 / Vol. 12, Issue 8



From the Desk of the Director

- As the golden fibers of innovation weave through time, IJIRA's journey, a tapestry sublime.
- Three years of breakthroughs, a story to unfold, of jute's transformation, both daring and bold.
- From brightening raw fibers to a golden hue, to SUBHRA's accelerated retting, a process anew.
- Biochemical magic softens stubborn roots, while retrofits bring spinning frames astute.
- Roller drafter replaces the traditional screw gill's might, doubling production, a space-saving sight.
- Jute-PP composites, light as a feather, for auto parts that last more.
- Jute-wool agromulch, a green revelation, plastic's eco-friendly substitution.
- Bamboo and jute, a harmonious blend, for home furnishings that trends transcend.
- MOSH/MOAH testing, with Online-LC-GC-FID's grace, ensures food-grade bags for the export race.
- IJIRA's stamp, a mark of trust, for European buyers, it's now a must.
- A journey of progress, sustainability's dream, IJIRA's innovations reign supreme.
- From farm to factory, lab to land, natural fibers' future in IJIRA's capable hands.

Dr. A. K. Sharma
Director, IJIRA

In this Issue

- The Journey Over Past Three Years
- International Conference
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- NTTM Project
- Skill Initiatives
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- Events

Editorial Board

- Dr. Pradip Chakrabarti
- Soumita Chowdhury
- Partha Sanyal
- Ipsita Roy
- Apsara Nath
- Jitesh Kayal
- Kuntal Chakraborty

THE JOURNEY OVER PAST THREE YEARS

Commercial m/c installed in jute mill – Saving space and doubling production



Roller Drafter



Automated SD frame for jute spg.

Jute industry on way to adopt sustainability principle (less work load & power saver)

light weight auto components being used by OEM



Jute-PP composites



Cotton, Jute, bamboo blended cloth (25:50:25)

Novel blended cloth for home furnishing at pilot plant scale inching towards serial production

Step towards digitalization of jute trade



Bluetooth enabled Digital Jute Moisture Meter



Enhanced sweetness of dates

Jute-wool based agromulch as replacement of plastic mulch

SUBHRA- an accelerator for faster retting of Jute getting popularized among jute farmers

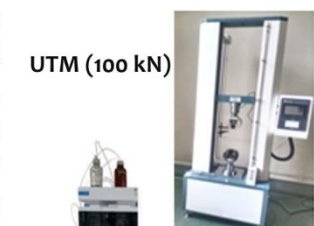


Retting using IJIRA-SUBHRA



Rolled out new technology for brightening of raw Jute fiber

New introduction in chemical & physical testing laboratories. Only laboratory to test MOSH-MOAH as per new European norms in India for exports of Food Grade Jute Bags and other food items, e.g. oil, spices, etc.



UTM (100 kN)



Ultrasonic Vibrator 25 Kg forging Hammer

New introduction in pilot plant



Online-LC-GC-FID

Export of Technology

Jute industry adopting Biochemical root softening for serial production



IJIRA stands out as the sole R&D institute under the Ministry of Textiles, Govt. of India consistently earning royalties from its innovations. The institute's royalty earnings have shown remarkable growth, increasing from Rs. 45 lakhs in 2021-22 and 2022-23 to an impressive Rs. 70 lakhs by December 2024 in the current financial year. This significant rise in royalty income underscores the commercial viability and industry acceptance of IJIRA's innovative technologies. In a groundbreaking achievement, IJIRA has expanded its reach beyond national borders. The institute has successfully exported its technology, earning technology transfer fees from international buyer. This milestone sets IJIRA apart as the first R&D institute under the Ministry of Textiles to achieve such global recognition for its innovations in the 21st century. The international adoption of IJIRA's technology not only brings in additional revenue but also establishes India's position as a leader in natural fiber research and development on the global stage. These achievements highlight IJIRA's commitment to advancing the Jute industry through cutting-edge research, sustainable practices, and commercially viable innovations. The institute's success in monetizing its research outputs and expanding its global footprint demonstrates the practical value and wide-ranging applicability of its work in the field of natural fiber.

INTERNATIONAL CONFERENCE



Two days International Conference sponsored by NTTM, Ministry of Textiles, Govt. of India was held in Taj Vivanta, Guwahati, Assam on 1st and 2nd December, 2024. Respected dignitaries on the dais were Shri Giriraj Singh, HMoT, Shri Pabitra Margarita, MoS, MoT, Shri V. K. Saraswat, Hon'ble Member, Niti Ayog, Smt. Rachna Shah, Secretary MoT, Shri Rajeed Saxena, Joint Secretary, MoT, Shri Siddharth Singh, Chairman IJIRA and Shri Rishav Kajaria, Dy. Chairman, IJMA. The conference was attended by 300+ learned audience.

Following were the deliverables of the conference :-

Focus on Eco-Friendly Technologies

The National Technical Textiles Mission (NTTM) must prioritize the development of eco friendly technologies for the extraction of natural fibers such as bamboo, ramie, pineapple, and banana. This focus is crucial for aligning with global environmental standards and leveraging the full potential of these sustainable resources.

Bridging the Technology Gap

To accelerate the commercialization of technologies, it is essential to bridge the silos between academicians, researchers, and innovators at various stages of technology readiness level (TRL). Institutions like IJIRA should play a pivotal role in technology transfer, facilitating the transition of technologies from the research phase to commercial viability.

International Collaborations

For expedited outcomes, joint projects with foreign institutes experienced in working with natural fibers are necessary. Prototypes developed internationally can be adopted and scaled up by local institutes in collaboration with industries. This approach, as seen in countries like China, can yield fruitful results.

Funding Allocation

Globally, it is recognized that 20% of funds should be allocated for basic research and 80% for commercializing these findings. Countries such as Singapore, Malaysia, the USA, Korea, and Vietnam have adopted this approach with tangible results. Suitable policies should be deliberated and implemented along these lines to ensure effective resource utilization.

Supply Chain Development in Composite Sector

The transition from synthetic to natural fibers in the composite sector requires the creation of a comprehensive supply chain. It is crucial to bring fibers closer to development and manufacturing centers, adding value at each stage. This effort demands global cooperation and will involve both quick wins and long-term initiatives

Addressing Supply Chain Issues

For fibers like hemp and flax, supply chain issues need to be addressed. Significant investments are being made in the Western world to replace synthetic materials with natural fibers for lightweight automobile components. R&D institutes should focus on developing underbody components such as battery trays using jute, bamboo, and ramie fibers.

Life Cycle Assessment

Conducting life cycle assessments of newly developed natural fiber components is essential to generate relevant scientific data. This data will help convince customers of the environmental and technical benefits of these components.

Quality Control and Regulatory Compliance

A stringent quality control mechanism is urgently needed for Indian jute bags to comply with European regulations, particularly regarding MOSH-MOAH transmigration into food products like cocoa and coffee. New European regulations set to be imposed from 2025 pose a challenge to exporters of food-grade jute bags in India and Bangladesh. The Indian jute industry must align its manufacturing processes with European regulatory norms. IJIRA's state-of-the-art infrastructure for certification of processes and products is a positive step, and the industry should adopt newly developed processes, such as replacing jute batching oil, to meet European standards and boost exports.

Technology No. 1:

Bio-agromulch to arrest plastic pollution economically in agriculture sec

Highlights of agromulch trials against plastic mulch

1. Place – Dhaanyaganga, KVK, Murshidabad
- Crop – Brinjal
- Productivity – + 37.3%
(enhancement)
- Soil nutrients – significantly retained
(after 150 days)

Soil property analysis of the said soil is given below-

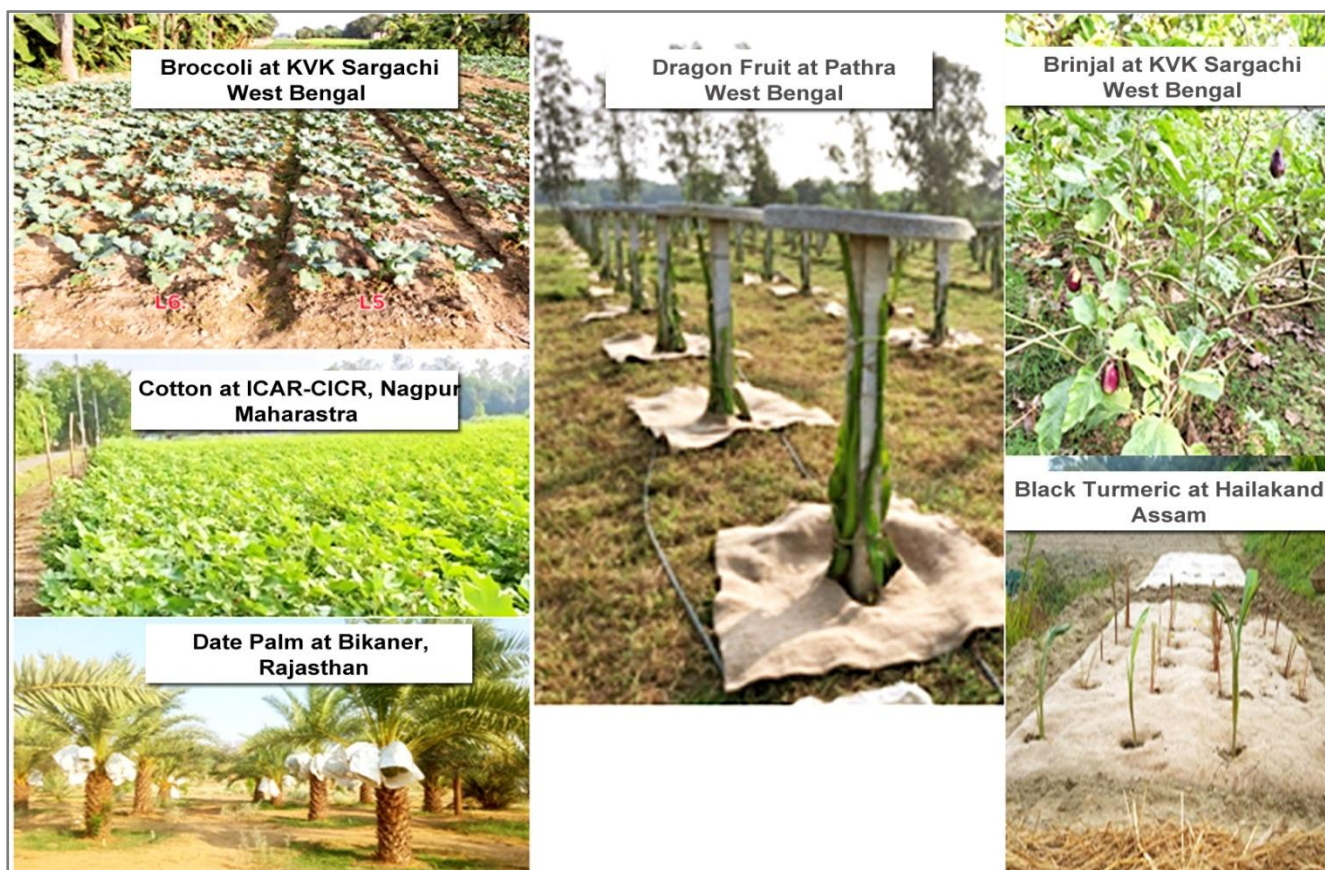
Experimental Sample	pH	E.C (dS/m)	OC %	N (kg/ha)	P (kg/ha)	K (kg/ha)
Before plantation	8.01	0.14	0.29	202.7	40.3	373.1
Organic Agromulch	7.69	0.114	0.36	201.6	15.7	135.5
Polymulch	8.18	0.114	0.26	176.4	12.8	114.2
Control	7.82	0.132	0.20	151.2	7.6	103.8

2. Place – Dhaanyaganga, KVK, Murshidabad
- Crop – Broccoli
- Soil Temperature – Remain same
- Soil Moisture – Remain same
- Plant Height - Increased

Field trials are in progress in the following locations-

Sl. No.	Field Trial	Agro-Product
1	Dhanyaganga KVK, Sargachi RKM, Sargachi, West Bengal	Brinjal
2	Dhanyaganga KVK, Sargachi RKM, Sargachi, West Bengal	Broccoli
3	AKK Organic Farm Co. Pvt. Ltd. Bikaner , Rajasthan	Date Palm

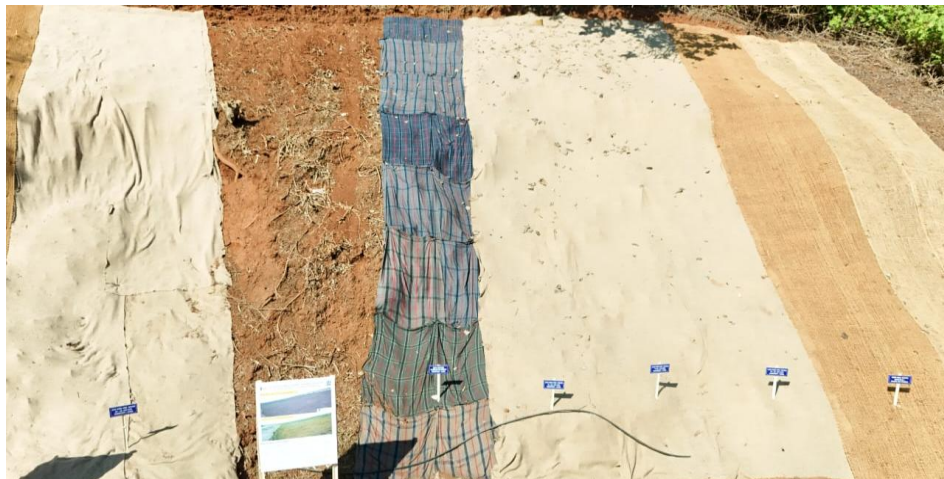
Sl. No.	Field Trial	Agro-Product
4	ICAR-CICR, Nagpur, Maharashtra	Cotton
5	Zero Cost Organics Pvt. Ltd., Pathra, West Bengal	Dragon Fruit
6	Hailakandi FPC, Zonal Reasearch Station , Karimganj, AAU, Assam	Black Turmeric
7	Hailakandi FPC, Zonal Reasearch Station, Karimganj AAU, Assam	Strawberry
8	Radali Farmer Producer Co. Ltd., Muktapur, Assam	Strawberry
9	IJIRA-NERC, Guwahati Assam	Yellow Cherry Tomato



Technology No. 2:

ESTABLISHMENT OF DEMO CENTER FOR SLOPE PROTECTION IN NORTH EAST REGION

Establishment of Demo site for slope stabilization using varieties of natural fiber based erosion control blankets in development stage.



Umling, Meghalaya

Technology No. 3:

ROLLER DRAFTING – RESULTS AT COMMERCIAL PRODUCTION LEVEL

	IJIRA's production process	Prevailing production process
Production / delivery/day (in kg)	340	180
No. of Drawings	2	3
Strength CV%	14 -16	18 -20



Roller drafting machine



Roller drafting machine

Technology No. 4:

RETRO-FIT FOR AUTOMATION OF SD FRAME FOR JUTE SPINNING

Industry captains showered praise on IJIRA's innovative approach during demonstration of IJIRA's technology of retro-fit on SD frame in a mill. The technology is being implemented on one spinning machine in a mill on its request.



Technology No. 5:

PNEUMATIC CONTROLLED ROLL FORMER AT CARDING MACHINE

The importance of the project is to comply with new European norms with respect to MOSH/MOAH concentration in the exports of Food Grade Jute Bags. This essentially eliminates the use of petroleum based oil and lubricants in the jute fiber processing.

The project targets are following-

- 1) Replacement of conventional oil pump in roll former.
- 2) Elimination of mechanical drive system
- 3) Automatic weight and moisture measurement of the breaker card jute rolls

Progress so far:

- 1) Pneumatic system installed and functioning smoothly.
- 2) Roll weight achieved upto 21 Kg
- 3) Compactness on the upper layers remains to be achieved.



Technology No. 6:

EXTRACTION OF BAMBOO FIBERS

IJIRA signed a MOU with NECBDC. The followings are its salient features,

1. NECBDC will shortlist three species of bamboo for fiber extraction
2. NECBDC will assist IJIRA in providing bamboo stripes of each species for trials
3. IJIRA will develop natural bamboo fiber extraction process and work out its techno-economics
4. NECBDC will take necessary initiatives to develop clusters for extraction of natural bamboo fibers based on IJIRA's technology

IJIRA developed a process for extraction of fiber from stripes provided by NECBDC. The pilot trials of fiber extraction are in progress to address quality and consistency issues. The extracted fiber is also being tested under mill conditions for making suitable jute-bamboo blended yarn.



NTTM PROJECT

Following two projects have been sanctioned under NTTM scheme of Ministry of Textiles, Govt. of India,

- Development of different extraction techniques for long Bamboo fiber – Rs. 94.38 Lakhs (*6 months*)
- Slope protection and erosion control for clean water management and better infrastructure using natural fiber based geotextiles for North East Region - 99.90 lakhs (*18 months*)

SKILL INITIATIVES

- ❖ New Training Centre created :
Ananda Marga Pracharak Sangha (TC280294), Purulia
Kankinarrah Jute Pvt. Ltd. (Unit - Nafarchand Jute Mills)
- ❖ Skilling programme started under PMKVY 4.0
 - Jute Product Stitching Operator (at Ananda Marga Pracharak Sangha): 43 Nos
 - Programmable Logic Controller (PLC) Programmer and Troubleshooter: 24 Nos.
 - Jr. Supervisor in Jute Spinning (at IJIRA Kolkata): 22 Nos.
- ❖ Assessment on Skilling programme held under PMKVY 4.0
 - Jr. Supervisor in Jute Spinning (at IJIRA Kolkata): 18 Nos
 - Jute Product Stitching Operator (at Kanaknagar SD Institution H.S): 17 Nos.
 - Jr. Supervisor in Jute Spinning (at Kanknarrah Co. Ltd): 15 Nos.
 - Jr. Supervisor in Jute Weaving (at IJIRA Kolkata): 10 Nos. (Self Sponsored)

TESTING / CONSULTANCY SERVICES

Performance of service departments–

	Physical Testing	Chemical Testing
Sample tested	38	122
Moisture Meter calibrated	47	-
FGJP Lot inspected & tested	-	8
Interim FGJP Audits	-	3

No. of bales of B. Twill bags inspected	188336
Consultancy provided to Mills	1

EVENTS

- ❖ The Director attended a meeting through VC with *NECBDC* regarding the development of Bamboo Fiber. The above meeting was followed by a physical meeting with the Director, IJIRA, and his team on 8th November 2024, in *NECBDC*, Guwahati, Assam.
- ❖ Hon'ble Union Minister of Textiles, Shri Giriraj Singh has visited IJIRA on 21st November, 2024.
- ❖ One day industry meet chaired by Hon'ble MoT was held at IJIRA on 21st Nov, 2024 where IJIRA and Industry jointly presented acceptance of the IJIRA's technology by the Industry.
- ❖ Shri Shubhayu Basu, Deputy General Manager, NSDC, Gol Visited at IJIRA Kolkata & at Kanknarrah Co. Ltd. and for TP10557 facility and final approval for FY 2024-25 on 28.11.2024
- ❖ Two days International Conference was held sponsored by NTTM at Taj Vivanta, Gowahati on 1st and 2nd Dec, 2024.
- ❖ Participated 9th Meeting of the Empowered Programme Committee (EPC) under National Technical Textiles Mission (NTTM) on, 4th December 2024.
- ❖ The Director attended 54th EC meeting of CWDB, MoT, Govt. and presented IJIRA's proposal for setting up Common Facility Center (CFC) at IJIRA for agro mulch production.
- ❖ Dr. Pradip Chakrabarti and Smt. Ipsita Roy attended a meeting on I-CARE scheme held at NJB, Patsan Bhavan.
- ❖ Dr. Pradip Chakrabarti and Shri Partha Sanyal attended Expert Monitoring Committee Meeting on 16th December, 2024 on agromulch project at NJB, Patsan Bhavan.
- ❖ Michiel Kokken from the European Cocoa Association visited IJIRA's MOSH MOAH Testing Facility on December 5, 2024.

Together
For a

**SUSTAINABLE
WORLD**

**THINK PEOPLE
THINK COMMUNITY
THINK PLANET**