IJIRA

NEWSLETTER

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From the Desk of the Director

INNOVATION IN ACTION
Pushing Boundaries, Powering Progress

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- **Home Decor Reimagined: Stunning Jute-Sisal Fabric Creations**
- **Skill Development for the Future – Training programs empowering jute industry professionals and introducing NSQF-aligned courses in geotextiles.**

Explore the full stories inside – Innovation, sustainability, and industry transformation – IJIRA is leading the way!

Dive in now!

Dr. A. K. Sharma
Director, IJIRA

NEW TECHNOLOGIES

Technology No. 1:

Cotton-Bamboo Blending – Industries Intervention

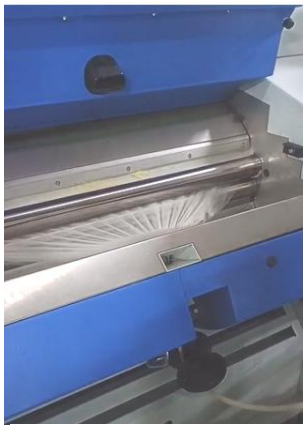
A 100% Export Oriented Unit (EOU) has commenced trials for producing cotton-bamboo (70:30) blended yarn using a short staple spinning system.

IJIRA's extracted bamboo fiber and its carded fleece were processed through the blow room, followed by carding, drawing, roving, and spinning. The trials showed promising results in blend uniformity and fiber handling, particularly in the blow room. The spinning of 10^S count yarn for terry loops is underway, with encouraging initial outcomes. More trials are planned to improve yarn quality.

This innovative blend leverages the absorbency and sustainability of bamboo with the strength of cotton, meeting the growing demand for eco-friendly, high-performance towels internationally.

Bamboo Fiber Opening

Blow room processing of cotton-bamboo blends



Carding of Blends

Draw frame Sliver

Blended Roving

Homogeneous Blended Sliver

NATURAL FIBER FACILITY – PROGRESSING WITH PURPOSE

The Natural Fiber facility at IJIRA is now operating regularly with pilot-scale equipment. Under the National Technical Textiles Mission (NTTM), the institute has successfully extracted nearly 480 kg of bamboo fiber using advanced mechanical and enzymatic methods—both efficient and eco-friendly.

Exceeding Expectations

Though the project aimed for Technology Readiness Level (TRL) 2, IJIRA has rapidly advanced to TRL 4–5 in just four months, demonstrating successful lab and pilot-scale validation.

Scaling Up for Greater Impact

To meet growing demand, IJIRA plans to expand the pilot plant with additional equipment—targeting a capacity of processing one ton of bamboo strips per day. This upgrade will boost output and support commercialization of sustainable fiber technologies.

Towards a Greener Future

These achievements reinforce IJIRA's leadership in bamboo fiber innovation and its commitment to the goals of the NTTM, paving the way for eco-friendly solutions in technical textiles.

IJIRA'S EFFORT IN BAMBOO EXTRACTION PROJECT THROUGH NTTM

Processed till Date	Meghalaya	Nagaland	Bengal
Bamboo Stalks Used	1980 Pcs.	175 Pcs.	30 Pcs.
Bamboo Sliver Processed	1780 Kg	400 Kg	180 Kg
Fiber Extracted	360 Kg	82 Kg	38 Kg
Total Fiber Extracted :	**480 Kg**		

Source Hills for Bamboo Cultivation Utilized in Fiber Extraction Process

Future Natural Fiber Facility

NEW TECHNOLOGIES

Technology No. 2:

Organic Mulch: Nature's Secret Weapon for Better Crop Yield and Quality

Recent field trials highlight the impressive performance of Jute-Wool (75:25) organic mulch over conventional plastic mulch in enhancing the yield and quality of key horticulture crops.

- **Strawberry: Higher Yield & Superior Fruit Quality**
  - **Higher Yield: Yield increased by 7.75% over plastic mulch and 42.7% over control (no mulch).**
  - **Larger Fruits: Average fruit weight reached 18.68 g, up 7.67% over plastic mulch and 34.7% over control.**
  - **Greater Yield per Plant: Yield per plant rose by 7.87% and 42.77% compared to plastic mulch and control, respectively.**

These results highlight the effectiveness of organic mulch in improving both the quantity and quality of strawberry harvests.

Strawberry cultivation with Organic Mulch

❖ Cherry Tomato Trials at IJIRA-NERC, Amingaon

- Jute-Wool mulch increased average yield by 64% over plastic mulch.
- Plant height improved by 0.9%.
- Fruit length increased by 5%.

Cherry tomato without mulch (Control)

Cherry tomato with Plastic mulch

Cherry tomato with Jute : Wool mulch

❖ Cabbage Trials Show Strong Growth Response

- Plant height rose by 19%.
- Number of cabbage leaves increased by 55%.
- Head diameter expanded by 13%.
- Head weight showed a modest increase of 1%.

These results highlight that organic mulching not only increases yield but also improves the overall quality and health of diverse crops. By choosing organic mulch, growers can achieve better harvests while supporting sustainable agricultural practices

Cabbage Crop treated without Mulch

Cabbage Crop treated with Jute:Wool Mulch

NEW TECHNOLOGIES

Technology No. 3:

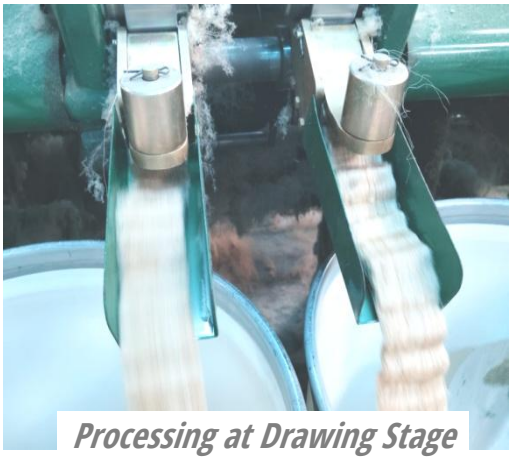
Processing of Sisal fiber on jute system to get Jute-Sisal blended yarn

IJIRA conducted trials for making blended yarn using Jute and Sisal fiber. Sisal fiber was provided by CRIJAF. It was observed that 20% sisal jute blended yarn could be developed in the existing jute processing machines.

Jute-Sisal Fiber

Blending at Spreader Stage

Processing at Carding Stage



Processing at Drawing Stage

Spinning of Jute-Sisal blended yarn

Different stages to prepare Jute-Sisal blended yarn

NEW TECHNOLOGIES

Technology No. 4:

Blended Jute-Sisal Fabrics Showcased for Home Décor Applications

Jute-Sisal (80:20) blended yarns were woven into two types of fabric combinations:

- **Hessian fabric using 7 lb jute warp and 8.5 lb jute-sisal weft**
- **Canvas fabric using 10.5 lb jute warp and 16 lb jute-sisal weft**

The fabrics were processed in two finishes—bleached and softened, and natural (untreated) – with 3 meters of each variety treated and 3 meters kept untreated.

The final fabric qualities achieved were:

- **Hessian: 51" width, 51×51 DM, 270 GSM**
- **Canvas: 34" width, 93×39 DM, 384 GSM**

These fabrics were used to develop printed table mats and wall hangings, which were showcased during the visit of the Hon'ble Minister of Textiles (HMoT) and other government officials.

Further trials are planned to develop finer yarn counts for expanded product possibilities

Preparation of DW Canvas and Hessian Fabric from Jute-Sisal blended yarn


Bleaching and Softening of the Jute-Sisal blended fabric


Table Cover *Wall Hanging*

Jute-Sisal printed fabric (Bleached and softened)

SKILL INITIATIVES

- **Ongoing Skilling Programme**
  - **Jr. Supervisor in Jute Spinning (at IJIRA Kolkata): 20 Nos.**
  - **Jute Product Stitching Operator (at IJIRA NERC): 12 Nos.**
  - **Jute Product Stitching Operator (at Ananda Nagar, Purulia): 44 Nos.**
- **Assessment on Skilling programme held under PMKVY 4.0 during April, 2024**
  - **Programmable Logic Controller (PLC) Programmer and Troubleshooter: 12 Nos. (at IJIRA Kolkata)**

- **Indian Jute Industries' Research Association (IJIRA) empanelled for Internship Support in Technical Textiles (GIST) 2.0 of National Technical Textiles Mission (NTTM),Ministry of Textiles, Govt. of India.**

- **Events:**
  - ✓ **Virtual inspection made by Shri L. S. Meena, Director, MSDE on 01.04.2025**
  - ✓ **Physical inspection was carried out by Shri Shubhayu Basu, Deputy General Manager, NSDC on 17.04.2025**
  - ✓ **Physical inspection was carried out by Shri Bikram Das, NSDC, Eastern Region on 17.04.2025**

Interaction by Shri Shubhayu Basu, DGM, NSDC with students at IJIRA, Kolkata under skilling program of PMKVY 4.0

Practical Assessment on 'Programmable Logic Controller (PLC) Programmer and Troubleshooter' at IJIRA, Kolkata

TESTING / CONSULTANCY SERVICES

Performance of service departments–

	Physical Testing	Chemical Testing
Sample tested	**45**	**54 (Non-FGJP)**
Moisture Meter calibrated	**30**	**-**
FGJP Lot inspected & tested	**-**	**05**
Interim FGJP Audits	**-**	**-**

No. of bales of B.Twill/A.Twill bags inspected	**1,74,778 approx**
Training & Consultancy provided to Mills	**01**

EVENTS

- Director visited FRI, Dehradun for a meeting chaired by HMoT, GoI on 21st April, 2025
- Director, IJIRA visited Raipur for discussion with Shri B.S. Kasare, Director, Kasare Vanya Silk Mill Pvt. Ltd.
- Director, IJIRA attended 30th Board meeting of National Jute Board at New Delhi on 23rd April, 2025
- The inauguration of the "Future Natural Fiber Facility" center by the Hon'ble Minister of Textiles, Government of India, was held on 25th April, 2025 at IJIRA.
- IJIRA has signed 12 MoUs with leading industry partners to collaborate on advanced research, innovation, and commercialization in the field of natural fibers.
- Shri Partha Sanyal, Scientist and Shri Gopal Mukhopadhya, Tech. Officer attended 2nd Meeting of the Panel constituted by the Jute & Jute products sectional committee – BIS at Office of the Jute Commissioner on 29th April, 2025
- Smt. Soumita Chowdhury visited Birla Jute Mill, Gloster Ltd. & Anglo India Jute Mill for BIS project
- Shri Partha Sanyal & Shri Dharmendra Kr. Singh carried out an experimental study at Mahadev Woolen Mill, Sundarnagar, HP
- Shri Partha Sanyal & Shri Dharmendra Kr. Singh carried out an experimental study at Linyarn Textiles, WB
- Dr. Pradip Chakrabarti carried out an experimental study at Saradha Terry Products Pvt. Ltd., Coimbatore
- Smt. Soumita Chowdhury & Shri Gopal Mukhopadhyay carried out experimental studies in Dalhausie Jute Co., & RDB Textiles Ltd.
- A patent on "Automatic Fiber Opener Machine for Mechanical extraction Of Natural Fibers" has been applied bearing application no. 202531037857 dated 20.04.2025


FUTURE NATURAL FIBER FACI
Inaugurated by
SHRI GIRIRAJ SINGH
Hon'ble Minister of Textiles
Govt.of India
on
25th April,2025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Shri Giriraj Singh
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