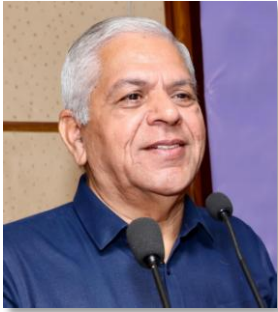


IJIRA

NEWSLETTER

March, 2025 / Vol.13, Issue 3



From the Desk of the Director

INNOVATION IN ACTION

Pushing Boundaries, Powering Progress

- **New Record in IJIRA's History!** Surpassing all eight Textile Research Associations (TRAs) in service to the industry indicated through royalty of Rs 1.25 Cr in 2024-25.
- **Expanding Horizons – From jute to bamboo and beyond!** A Future Fiber Facility is on the way to take innovations from lab to label.
- **Revolutionizing Natural Fibers – Game-changing breakthroughs in bamboo fiber technology**, paving the way for softer, finer, sustainable textiles.
- **Strawberry Farming Just Got Smarter – Field trials prove that organic mulch boosts yield and fruit size**, helping farmers grow more with less.
- **India's First ECB Testing Lab – IJIRA is setting up a state-of-the-art Erosion Control Blanket testing facility in Guwahati.**
- **Enhancing Loom Performance – Breakthrough S4A loom upgrades for better efficiency and durability.**
- **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

In this Issue

- **IJIRA's Breakthrough in Bamboo Fiber Technology**
- **IJIRA's Bamboo Fiber Pilot Plant under construction**
- **Strawberry Yields Soar with Organic Mulch: Nature's Secret Weapon**
- **IJIRA Sets Up India's First Erosion Control Blanket Testing Facility**
- **Enhancements in S4A Loom Performance**
- **Skill Initiatives**
- **Testing/Consultancy Services**
- **Events**

Editorial Board

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

Technology No. 1:

IJIRA's Breakthrough in Bamboo Fiber Technology

IJIRA has taken a game-changing leap in bamboo fiber innovation with a cutting-edge enzymatic consortium that enhances fiber fineness and softness—a major step toward sustainable textile production.

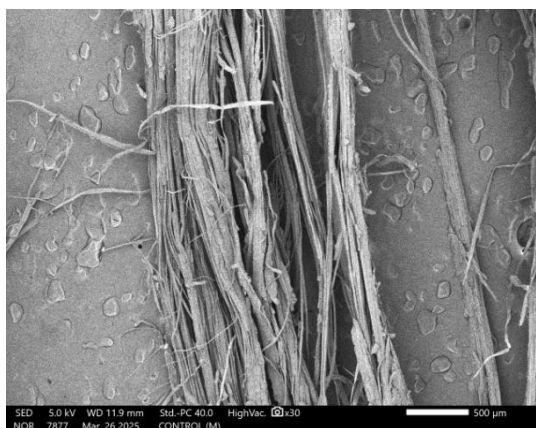
➤ **Boosted Fiber Production:**

- A new enzymatic process, combined with chemico-mechanical methods, now enables the production of 40 kg of soft bamboo fiber—ready for trials in bamboo-wool blends.
- Another 50 kg of soft fiber production is in progress, paving the way for ultra-fine viscose-bamboo blends with diverse textile applications.

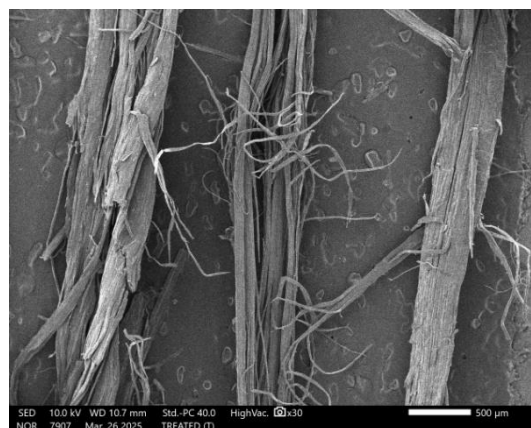
Future-Ready Innovation at IJIRA

➤ **Intensive Effort, Remarkable Output:**

- Over the last three months, 1,500 bamboo stalks were processed to produce 1,200 kg of sliver, which was then transported from Guwahati to Kolkata for fiber extraction.
- This rigorous process yielded 260 kg of bamboo fiber, marking a significant step toward sustainable textile innovation.
- Two patent applications filed



*Chemico-Mechanically extracted
Natural Bamboo Fiber (NBF)*



*Chemico-Mechanic-Enzymatic extracted
Natural Bamboo Fiber (NBF)*

➤ **Scaling Up for the Future:**

- IJIRA is finalizing its report for the National Technical Textiles Mission (NTTM) and actively setting up a pilot plant to accelerate bamboo fiber production.
- This achievement strengthens IJIRA's leadership in eco-friendly textile solutions, paving the way for a greener future.

IJIRA's commitment to sustainability is driving real impact — one fiber at a time under the motivation of HMoT.

IJIRA's Bamboo Fiber Pilot Plant under construction

Pilot Plant Development:

Efforts are underway to establish a pilot plant at IJIRA for the extraction of soft bamboo fiber. The following equipment has been received and is being installed:

- Automatic Fiber Opener (capacity to be confirmed post-installation)
- Two Retting Tanks (100 kg capacity each)
- HT-HP Decorticating Machine (100 kg capacity)
- Hydroextractor (100 kg capacity)
- Prototype of a Multiple Rollers Machine to reduce labor requirements
- A prototype Enzymatic Reaction Reactor, with plans for an optimized bulk-scale reactor





IJIRA's Automatic Fiber Opener (under erection)



HT-HP Decorticating Machine (100 kg capacity)



Hydroextractor (100 kg capacity)

Challenges and Future Needs:

Despite these advancements, certain critical equipments remain un-procured due to budget constraints:

- A 100 kg capacity dryer
- Multiple rollers machine
- Two carding machines

essential for refining bamboo fiber to be given to industry for development activities and market creation.

Furthermore, advanced testing instruments like:

- Scanning Electron Microscope (SEM)
- Fiber shape analysis tools
- Yarn & fiber strength tester

are required to ensure consistent quality across pilot plant batches.

Technology No. 2:

Strawberry Yields Soar with Organic Mulch: Nature's Secret Weapon

Organic Mulch Outperforms Plastic and No-Mulch Options

After just 113 days of growth, organic mulch proved to be a game-changer for strawberry production:

- 11.9% increase in yield compared to no mulch
- 8.6% boost over plastic mulch alternatives

Bigger, Juicier Berries

Organic mulch didn't just increase quantity – it supercharged fruit quality too:

- Average fruit weight: 19.23g
- 41% heavier than unmulched berries
- 10% weight gain over plastic-mulched fruit

These impressive results highlight organic mulch as a powerful tool for strawberry growers seeking to maximize both yield and fruit size. By harnessing nature's own materials, farmers can produce larger, more abundant harvests while potentially reducing reliance on synthetic alternatives



Technology No. 3:

IJIRA Sets Up India's First Erosion Control Blanket Testing Facility!

IJIRA, under the National Technical Textiles Mission (NTTM), is setting up India's only dedicated Erosion Control Blanket (ECB) Lab Testing Facility at its North-East Regional Centre (NERC) in Guwahati.

This cutting-edge facility will assess ECB performance under real-world conditions, including soil type, rainfall, and slope variations.

State-of-the-Art Testing Capabilities:

- **Sedimentation Retention Device Flow Rate Testing (*ASTM D5141-23*)**
- **Rain Splash Experiment for Soil (*ASTM D7101-07*)**
- **Shear Strength Assessment Under Simulated Rainfall (*ASTM D7207-05*)**

Why It Matters:

- **Tackling soil degradation & sediment runoff with precision testing**
- **Supporting slope stabilization & soil conservation across India**
- **Strengthening IJIRA's role as a leader in erosion control research**

With installation in progress, this facility marks a major leap in technical textiles for environmental sustainability.

Stay tuned for more updates as IJIRA drives innovation in erosion management!



*Sedimentation Retention
Apparatus for Soil
(As per ASTM D 5141-23)*



*Rain Splash Experiment Apparatus
for Soil (ASTM D 7101-07)*



*Shear Stress Experiment Apparatus
for Soil (As per ASTM D 7207-05)*

Technology No. 4:

Enhancements in S4A Loom Performance

❖ **Initial Challenges:**

- Limited knowledge among maintenance staff on loom settings.
- High operating speeds causing frequent spear breakdowns.
- Frequent warp breakages
- Loom reed & bed projectile path damage.

❖ **Solutions Implemented:**

- Strengthened the spear.
- Developed a device to monitor the spear's path and loom bed circularity.

❖ **Outcomes:**

- Reduced warp breakages.
- Extended spear lifespan.
- Lower maintenance costs and downtime.
- Increased productivity of the S4A loom.



Rain Splash Experiment Apparatus for Soil (ASTM D 7101-07)

Skill Initiatives

❖ Ongoing Skilling Programme

- Jr. Supervisor in Jute Spinning (at IJIRA Kolkata): 20 Nos.
- Jute Product Stitching Operator (at IJIRA NERC): 12 Nos.

❖ Assessment on Skilling programme held under PMKVY 4.0 during March, 2024

- Jute Product Stitching Operator (at Ananda Marga Pracharak Sangha, Purulia): 36 Nos.
- Jr. Supervisor in Jute Spinning (at IJIRA Kolkata): 12 Nos.

❖ NCVET also approved NSQF aligned two courses on natural fiber based geotextiles applications for class X std.



*Practical Assessment on 'Jute Product Stitching Operator' at
Ananda Marga Pracharak Sangha, Purulia*

Testing / Consultancy Services

Performance of service departments–

	Physical Testing	Chemical Testing
Sample tested	46	58 (Non-FGJP)
Moisture Meter calibrated	29	-
FGJP Lot inspected & tested	-	05
Interim FGJP Audits	-	17
No. of bales of B.Twill/A.Twill bags inspected	1,63,740	
Training & Consultancy provided to Mills	01	

Events

- ❖ Mr. Gopal Mukhopadhyay attended Lagan Jute Machinery Pvt. Ltd. Angus, Bhadreswar on 5th March, 2025.
- ❖ Mrs. Soumita Chowdhury and Gopal Mukhopadhyay attended a meeting on protocol of raw jute testing and instrumental grading on 6th march, 2025.
- ❖ IJIRA's RAC was held on 7th March, 2025
- ❖ Mrs. Soumita Chowdhury and Mr. Partha Sanyal attended TXD -14 Sectional Committee meeting of BIS on 18th March, 2025.
- ❖ Mr. Partha Sanyal and Mrs. Soumita Chowdhury attended TXD -03 Sectional Committee Meeting of BIS.
- ❖ Mrs. Soumita Chowdhury had presented her findings in the BIS project in TXD 03 Sectional Committee on 21st March, 2025.
- ❖ IJIRA's 226th Council Meeting took place on 25th March, 2025
- ❖ Ms Ipsita Roy attended a meeting of Technical working group of European Cocoa Association.
- ❖ Ms Ipsita Roy attended Gunvatta Manthan, a meeting of Quality Council of India on 28th March, 2025.
- ❖ Dr. Pradip Chakrabarti visited Spinning King (India) Ltd. for discussion on bamboo fiber and its processing on 28th March, 2025.

Innovating Natural Fibre

for
Sustainable Future

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