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From the Desk of the Director

- **Smart Roll Former Upgrade:** *Precision sliver length control, applauded by mills.*
- **Re-engineered Jute:** *Cleaner, shinier fibre through mechano-enzymatic processing.*
- **Ramie–Jute Synergy:** *Blends open doors for lifestyle & home textiles.*
- **Banana Boost:** *Sustainable Jute–Banana yarn spun on existing machines.*
- **Next-Gen Jute Machinery:** *RD Drawing Frame & Baxter Flyer boost efficiency.*
- **Easy Draft, Smarter Spinning:** *Electronic draft adjustment reduces downtime & costs.*
- **Global Impact, Patna Summit:** *₹1,070 Cr savings, carbon neutrality & India's fiber leadership.*
- **Skilling for Tomorrow:** *Training rural youth & technologists under NTTM & PMKVY.*
- **Trusted Testing & Services:** *2 lakh+ bags inspected, 130+ lab tests delivered.*
- **Strong Industry Connect:** *Driving change with mills, BIS & policy committees.*

Come, explore the threads of transformation...

Dr. A. K. Sharma
Director, IJIRA

Technology No. 1

Innovation in Action : IJIRA's Pneumatic Control Roll Former

On 25th June 2025, IJIRA showcased its indigenously developed Pneumatic Control Roll Former at the Pilot Plant before officials from nine leading jute mills. The system's performance drew strong appreciation, with mills suggesting the addition of a sliver length measurement feature.

Taking this feedback forward, IJIRA's team swiftly designed, integrated, and validated the new feature at the Pilot Plant. The upgraded system not only passed physical validation tests but was also successfully demonstrated in a jute mill, earning enthusiastic endorsement from industry stakeholders.

This journey—from demo to feedback to full-scale validation—highlights IJIRA's agility in innovation and its commitment to delivering practical, industry-ready solutions for the jute sector

Impact Highlight:

- Demonstrated before 9 jute mills – strong industry interest
- New sliver length measurement feature developed & validated
- Successfully trialed in mill – industry-ready innovation



Sliver length measurement unit

Technology No. 2:

Reinventing Jute: IJIRA's Mechano-Enzymatic Breakthrough

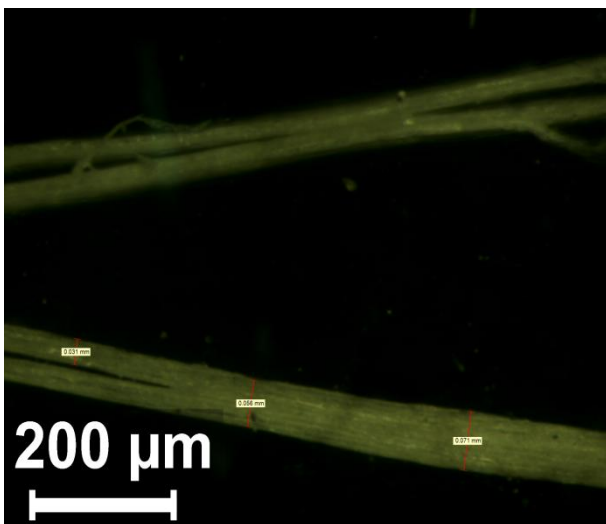
IJIRA has unlocked a game-changing transformation of raw jute into a superior textile fibre using an eco-friendly mechano-enzymatic process—without harsh chemicals.

Key Highlights:

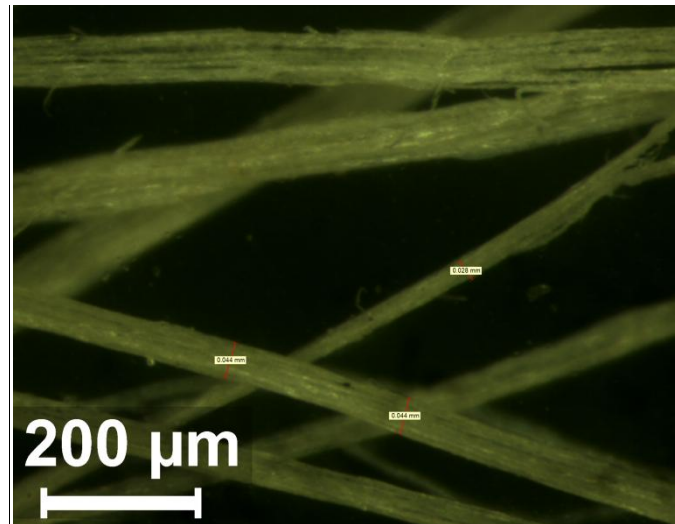
- Fibre fineness improved (Tex 3.20 → 2.63) : finer yarns & better spinnability
- Bulk density boosted (0.504 → 0.665 g/cc) : denser, smoother processing
- Root content & defects reduced by 60%+ : cleaner fibres
- Colour shine enhanced (18.4% → 31.2%) : premium aesthetic appeal

A trade-off: bundle tenacity dips by ~28%, requiring blending with cotton, ramie, or synthetics for strength-demanding applications.

Bottom Line: IJIRA's mechano-enzymatic innovation positions jute as a versatile, sustainable, high-value fibre—ready to step beyond tradition and into the world of premium textiles.



Raw



Treated

Technology No. 3:

Ramie Reinvented: IJIRA's Breakthrough in Degumming & Blending

IJIRA's cutting-edge trials have perfected the degumming of Ramie, delivering fibres with remarkable softness and pliability. In a pioneering step, this upgraded Ramie was successfully blended with Jute (35:65) on modern bast fibre machinery to spin fine, high-quality yarns.

The outcome – A new horizon for premium lifestyle and home textiles, where Ramie's elegance meets Jute's strength – unlocking value-added opportunities for the natural fibre sector

Impact Highlight:

- Softer, more pliable Ramie through advanced degumming
- Blended with Jute (35:65) to spin fine yarns
- Opens doors for premium lifestyle & home textiles



Processing of Jute-Ramie blended sliver

Technology No. 4:***Jute–Banana Blend: Spinning Sustainability into Style***

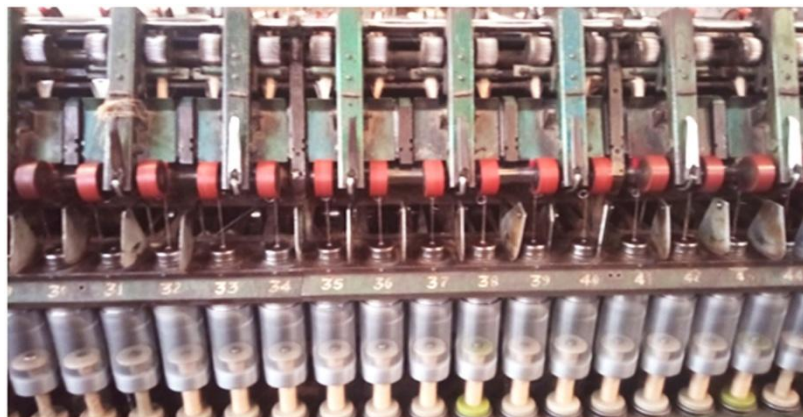
Fine Yarn of 4.5 lb/spy Jute–Banana (85:15) blended yarn has been successfully developed. The yarn has been produced using existing jute spinning machinery without any major modification. It is aimed at niche home textile and lifestyle applications, offering new opportunities in sustainable product development.

Impact Highlight:

- 4.5 lb/spy Jute – Banana (85:15) yarn developed
- Produced on existing jute machinery (no major changes)
- Unlocks niche home & lifestyle textile opportunities



Pre-opening of Banana fibre prior to processing in Jute Spg. system



Spinning of Jute : Banana (85:15) Blended Yarn in Apron Draft Jute Spg. Frame

Technology No. 5:***IJIRA Redefines Jute Processing Efficiency***

IJIRA has unveiled a commercial-scale high-speed Roller Drafting (RD) Finisher Drawing Frame, delivering higher productivity, lower maintenance, and consistent quality in jute processing.

In parallel, IJIRA introduced a modified Baxter Flyer for 4¼" Pitch Jute Slip Draft Spinning Frames, enabling greater yarn content per bobbin and enhanced spinning efficiency.

These breakthroughs, demonstrated before representatives from 10 leading jute mills and 2 machinery manufacturers, received resounding appreciation as path-breaking advancements for the jute industry.

Impact Highlight

- High-speed RD Finisher Drawing Frame → higher productivity, lower maintenance, consistent quality
- Modified Baxter Flyer (4¼" Pitch) → more yarn per bobbin & improved spinning efficiency
- Demo appreciated by 10 jute mills & 2 machinery manufacturers



Demonstration at the Mill floor

Technology No. 6:

Smart Drafting for Smarter Jute Spinning

To address the rising need for cost-effective, high-quality jute products with minimal manual intervention, IJIRA has developed a microcontroller-based electro-mechanical attachment for Slip Draft Spinning Frames.

The Easy Draft Change System replaces conventional gear-and-pinion adjustments with simple electronic draft control—just a knob or button. By removing five gears from the train, it reduces machine load while cutting costs and downtime.

Key Advantages:

- Quick, precise, user-friendly draft adjustment
- Better control over yarn quality & linear density
- Reduced downtime, longer machine hours
- Lower maintenance & inventory burden
- Smooth fit with existing processes

Proven Performance:

- Pilot Plant trials confirmed accurate, stable draft settings
- Mill-level trials validated seamless performance with no impact on output
- Commercial adoption underway at Kamarhatty Co. Ltd. and Birla Jute Mill
- With this breakthrough, IJIRA is driving the shift toward smart, efficient, and future-ready jute spinning.

Impact Highlight:

- Easy Draft Change System → electronic draft adjustment with a knob/button, replacing gears & reducing downtime
- Better control & efficiency → improved yarn quality, longer machine hours, lower maintenance & inventory
- Proven & adopted → validated in IJIRA trials, now commercialized at Kamarhatty & Birla Jute Mill

IJIRA at Global Summit on Technical Textiles, Patna (22–23 Aug 2025)

Inaugurated by Hon'ble Union Minister of Textiles, Shri Giriraj Singh, the Summit brought together policymakers, industry leaders, machine makers, and R&D institutions. IJIRA made a powerful mark with innovations, proven impact, and a bold vision for India's fiber future.

IJIRA Highlights at the Summit:

- Innovation Showcase: Yarns, blended fabrics, and products from jute, ramie, sisal, flax, bamboo, wool – including the iconic *Jawahar Jacket* with Kamarhatty Co. Ltd.
- Commercial Impact: IJIRA's technologies already save the Government ₹1,070 Cr annually; jute brightening is scaling rapidly for farmer benefit.
- Future Fiber Facility (FFF): A strategic hub for cost-effective bamboo, ramie, banana & sisal extraction—standardizing supply for industry clusters.
- Agro-Waste to Wealth: Auto components (parcel shelves, door liners) from residues now used by Nissan, Renault, Mahindra; bio-agromulch to replace plastic mulch.
- Sustainability Edge: One hectare of jute absorbs 30–40 tons CO₂/season, enabling carbon neutrality & credits.
- Strategic Ask: More R&D funding, cluster creation, international certification, and dedicated commercialization funds via IJIRA's Common Facility Centre.

India's Natural Fiber Leadership:

With jute as the world's #2 natural fiber and India as its largest producer, IJIRA stressed that no other country is investing in bamboo, ramie, banana, and sisal R&D. India now has a unique chance to become the global hub for sustainable natural fibers, delivering rural jobs, export growth, and climate advantage.

Impact Highlight:

- IJIRA's innovations already save the Government ₹1,070 Cr annually and boost farmer incomes.
- 1 hectare of jute absorbs 30–40 tons CO₂, powering carbon neutrality & credits.
- Positioned to make India the global hub for sustainable natural fibers.



Skill Initiatives

1. Ongoing Skilling Programmes under NTTM

- Skilling programmes are currently being conducted at IJIRA, Kolkata and Nafarchand Jute Mills, North 24 Parganas, under the NTTM.

2. Assessment under PMKVY 4.0

- An assessment for the Skilling Programme under PMKVY 4.0 was successfully conducted on 19th August 2025 at Ananda Nagar, Purulia.

3. Internship Programme under GIST 2.0 (NTTM)

As part of the GIST 2.0 Programme of NTTM focused on Technical Textiles, a group of 04 B.Tech (7th Semester) students from the Department of Textile Technology, NIT Jalandhar, successfully completed their internship programme from 11th June 2025 to 11th August 2025 on,

- *“Characterization of Bamboo Fibres for Technical Textile Applications.”*
- *“Studies on Soil Erosion in Vulnerable Spots of Hill Slopes for Designing Suitable Natural Geotextiles.”*



Campus Interview Session by Shri A. P. Mishra, General Manager, Yucon Exports Pvt. Ltd., for candidates pursuing the Skilling Program on 22.08.25. Five candidates were selected during the campus interview

Testing / Consultancy Services

Performance of service departments :-

	Physical Testing	Chemical Testing
Sample tested	26	88 (Non-FGJP)
Moisture Meter calibrated	42	-
FGJP Lot inspected & tested	-	04

No. of bales of B.Twill/A.Twill bags inspected	2,07,880 approx
Consultancy /Technical services to Mill(s): - RDB Textiles	01

Events

- ❖ Smt. Ipsita Roy Attended the 38th Meeting of BIS regarding Chemical Methods of Tests, Sectional Committee, TXD 05 (11 August 2025) and submitted the draft standard for MOSH/MOAH analysis in jute bags.
- ❖ Partha Sanyal and Dharmendra Kumar Singh visited Wellington Jute Mill for Jute Banana Blended Yarn trial.
- ❖ Partha Sanyal and Dharmendra Kumar Singh visited Linyarn Textiles for Jute Ramie Blended Yarn trial.
- ❖ Partha Sanyal & Buddhadeb Das visited Empire Jute Mill for the trials on Roller Drafting Drawing frame and modified Baxter flyers for 4 ¼" SD Spinning frame.
- ❖ Smt. Soumita Chowdhury visited Bharat Jute mill for demonstration of Easy Draft System.
- ❖ Smt. Soumita Chowdhury attended a meeting has been attended on VC. For TXD 01 committee on 20.08.2025.
- ❖ Smt. Soumita Chowdhury attended sub-committee meeting at Office of The Jute Commissioner for modification in IS 5177 standard of Rope and Cordage committee (TXD 09) on 25.08.2025.
- ❖ Smt. Soumita Chowdhury attended a meeting on VC. For TXD 09 committee on 26.08.2025.

Innovating Natural Fibre

for
Sustainable Future

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