FROM WHEAT STRAW TO WARDROBES

Fashioning a New Fibre Future

canopy

INTRODUCTION

The urgent need for forest-friendly fabrics

Each year, more than 300 million trees are cut down, many from the world's most climate critical and biodiversity rich forest ecosystems, to make viscose, lyocell, and other Man-Made Cellulosic Fibres (MMCFs). Fueled by a booming fashion industry and growing demand for alternatives to polyester and cotton, production of MMCFs continues to climb. This growth is outpacing what our planet can sustain, putting pressure on forests and pushing us further from global goals to protect 30–50% of the world's lands and waters. While part of the solution is to reduce consumption, meeting climate and biodiversity targets also requires the scale-up of significant volumes of low-carbon, low-impact, Next Generation alternatives to replace fibres derived from Ancient and Endangered Forests in the supply chain.

In India, the second-largest agriculture-based economy in the world, over 90 million tonnes of crop residue — primarily rice and wheat straw — are burned each year, driving public-health impacts from air pollution and increasing carbon emissions.[1] The burning of crop residues is responsible for up to 40% of Delhi's air pollution;[2] reduces life expectancy by up to 10 years in rural and urban areas;[3] and contributes to concentrations of harmful particulate matter (PM2.5) in Northern India that are, in recent years, 15–45 times higher than the World Health Organization's safety guidelines.[4]

Project Latvus was developed as a proof-of-concept pilot to demonstrate how agricultural residues — specifically wheat straw — can be transformed into a valuable feedstock for producing low-impact, low-carbon MMCFs, reducing waste and strengthening supply-chain resilience. A collaboration between Canopy, Laudes Foundation, and several global brands and supply-chain partners, the project set out to demonstrate that making fabric from Indian agricultural waste is a viable, cost-effective alternative for industry, unlocking new value streams while delivering measurable environmental and social benefits.

How does Next Gen, wheat-straw-based lyocell perform compared to conventional staple lyocell? Can it integrate seamlessly — from farm gate to finished garment — within existing supply chains? And is it cost-effective for both brands and farmers? Leveraging proven European technology to build the business case for a regional Indian enterprise, Project Latvus set out to answer these questions and demonstrate the commercial and technical viability of this Next Gen Solution.

ACKNOWLEDGEMENTS

Project Latvus was developed by Laudes Foundation, Canopy, Chempolis, Fashion For Good, H&M Group, Reformation, and C&A. Its success was driven by the unwavering dedication and optimism of its collaborators, who embraced and overcame complexity. Special thanks to Maija Rouhianen (Chempolis), Dr. Marcus Krieg (TITK), Lucia Gomes and Rui Martins (Inovafil), Anett Sóti (Yee Chain) and Dipanwita Ray (Fashion for Good) for their steady commitment; to Shahi, DBL, Filpucci and Yee Chain for creating the materials; to Karan Kumar (Laudes Foundation) and both Carol Steuri and Miki Tokashiki (Canopy) for their leadership and coordination; and to the participating brands for their engaged collaboration from start to finish.

WHEAT STRAW PROCESSING IN PUNJAB, INDIA.

YEE CHAIN'S KNIT FABRIC MADE WITH 100% LATVUS STAPLE LYOCELL FROM WHEAT STRAW.

LATVUS STAPLE LYOCELL FIBRE AT TiTK

HIGHLIGHTS

NO. 1

In 2021, Laudes Foundation launched a report titled "Spinning Future Threads"[5] outlining the promising potential of using agricultural wastes and residues in South and South East Asia as textile feedstocks.

Project Latvus continued the investigation in 2025, a collaboration between non-profits, global brands, and supply-chain partners, testing the viability of Next Gen lyocell made from Indian wheat straw to meet the needs of the fashion industry.

NO. 2

The social, economic, and environmental benefits of scaling Next Gen, wheat straw lyocell are far-reaching. Transforming agricultural residues into a valuable fibre source reduces air pollution, creates new income opportunities for rural communities, eases pressure on the world's climate-critical forests, and increases supply-chain resilience.

NO. 3

The pilot was a great success! Project Latvus demonstrated that pulp made from wheat straw can directly replace wood-based pulp in lyocell fibre production, resulting in an array of yarns and fabrics that meet brand performance standards.

NO. 4

Improvements in cost-efficiency and in yarn and fabric performance can be made by optimizing the production process and scaling up volume. Differences in the pilot-project yarn, such as hairiness due to irregularities in the fibre, are expected to resolve with greater batch quantities, and technical learnings from the production trial can be used to perfect commercial outcomes including arrangements with farmers to ensure the straw bales are free of dirt and stones.

NO. 5

Collaboration between non-profit organizations, brands, and supply-chain partners is critical to advancing innovation efficiently. By sharing data, insights, and results, stakeholders can accelerate the adoption and traceability of Next Generation Solutions, strengthen supply-chain performance, and deliver measurable social and environmental outcomes.

NO. 6

Next steps include a techno-economic assessment to evaluate commercial scalability and investment readiness, positioning wheat straw as a viable, vital-forest-free input for Next Gen MMCFs in India and beyond.

INDIAN WHEAT STRAW USED AS FEEDSTOCK BY CHEMPOLIS TO PRODUCE DISSOLVING PULP

PROCESS

From agricultural residue to Next Gen fabric

Project Latvus's pioneering experiment in making fabrics from wheat straw was a multi-step, international collaboration in which each contributor played a crucial part. From the farmers, tasked with harvesting straw to precise, evolving specifications; to the storage and shipping companies, whose job it was to see that straw made it safely overseas to the Chempolis lab and pilot for processing; to the technicians and researchers, who pulped the straw and transformed it into yarn; to the supply-chain and brand partners, who wove that yarn into fabric for garment prototypes; to the traceability experts, who assessed the project's impact, everyone was learning along the way.
Here's what happened at each step:

STEP 1

COLLECTING THE HARVEST

Wheat straw was baled in Punjab and Haryana, India, under the supervision of the Laudes Foundation, with the process refined over two collection cycles to ensure the material was free from contaminants such as dirt and stones.

STEP 2

SHIPPING AND LOGISTICS

The baled straw was shipped in sealed containers to Chempolis in Oulu, Finland, for processing. As some of the straw was poor in quality, a portion of the three-tonne batch was not shipped. Finnish wheat straw was provided by Chempolis to make up the shortfall.

STEP 3

MAKING PULP

The Indian and Finnish wheat straw were cut into smaller pieces and pretreated to remove dust and fine particles. They were then pulped using Chempolis's formico® process. During bleaching, the pulp from the Indian straw was blended with the pulp from the Finnish straw.

STEP 4

FIBRE PRODUCTION AND YARN SPINNING

The pulp was dissolved and spun at the Thuringian Institute of Textile and Plastics Research (TITK), and converted to four different types of yarn by Inovafil to meet the specifications of brand partners H&M Group, C&A, and Reformation.

STEP 5

WEAVING FABRICS

Supply-chain partners wove the yarn into different fabric types to make various types of garments. Double knitted single-jersey for T-shirts, and Filpucci spun yarn to produce fully fashioned sweaters for Reformation. Shahi created a plain-weave fabric for womenswear blouses, and Yee Chain made warp-knit mesh.

STEP 6

PROTOTYPING

Test garments were created by each brand based on design-team requirements, then submitted for internal evaluation.

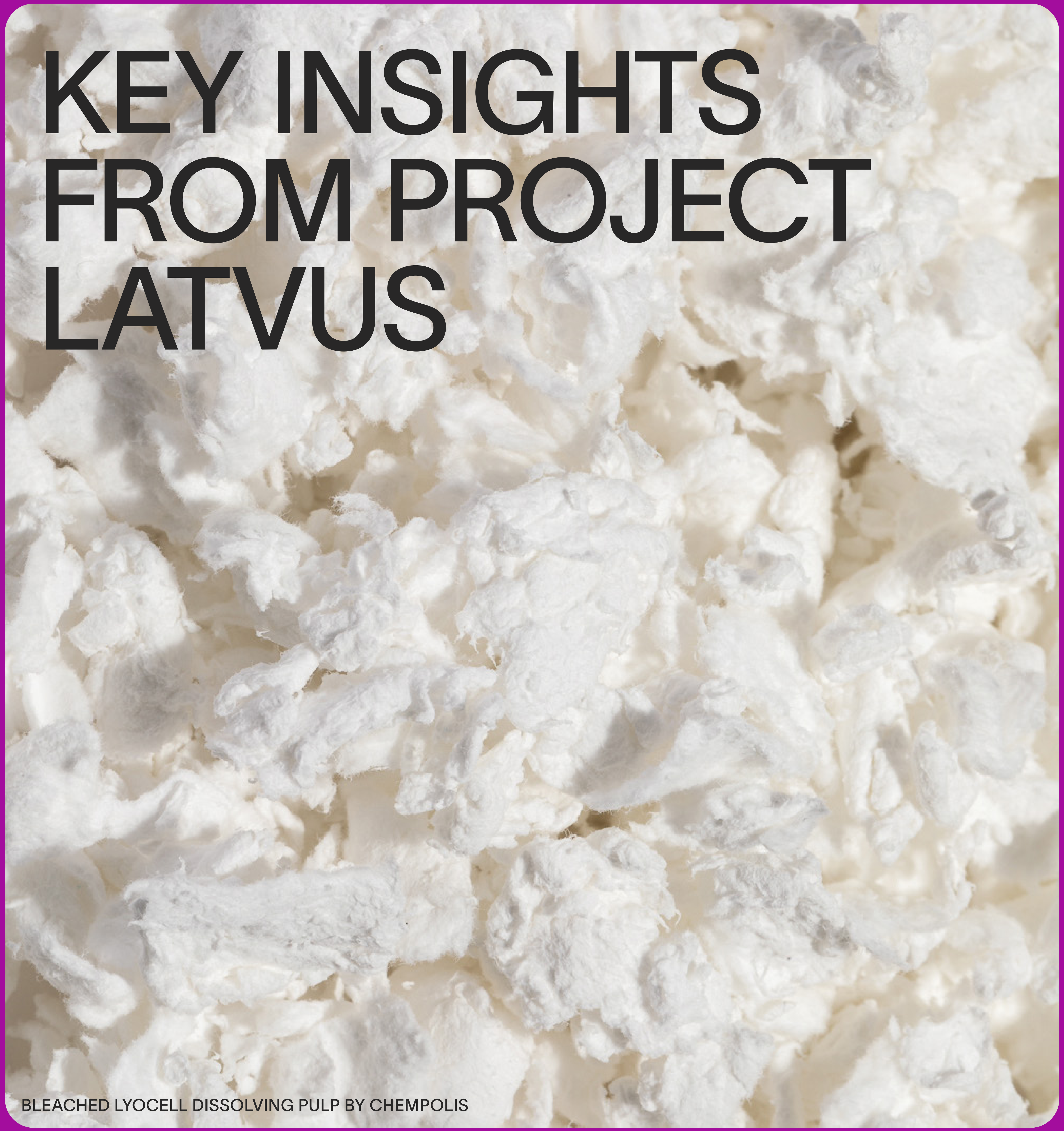
STEP 7

TRACEABILITY PILOT

TextileGenesis was engaged to map the journey from farm to finished product, ensuring full traceability across every stage of the supply chain and enabling a comprehensive assessment of the project's impact.

WHEAT STRAW PROCESSING AT CHEMPOLIS

KEY INSIGHTS FROM PROJECT LATVUS



BLEACHED LYOCELL DISSOLVING PULP BY CHEMPOLIS

INSIGHT 1

Wheat straw lyocell fabric is a viable alternative for garment-making

In the Project Latvus trial, the majority of participating brands successfully produced garments using the world's first wheat-straw-based lyocell, while others identified lessons for further exploration. Pulp produced in the project was comparable in purity to wood-based pulp, and yarn produced was able to be knitted and woven. The resulting fabrics, including warp-knit mesh, plain weave, jersey, and sweater knit, handled similarly to wood-based lyocell with no major quality concerns, showing strong potential, particularly in knit and sweater applications.

Reformation, one of the participating brands, conducted a direct aesthetic and technical comparison using a conventional lyocell reference from their supplier's material library. Their analysis found the Latvus fibre to be a strong aesthetic match, with commercial viability. Early access to baby cones allowed for timely colour development and dye testing, which revealed the need for slight formulation adjustments — but ultimately led to a successful match in saturation, hue, and performance.

As expected with a pilot, Project Latvus encountered some hiccups along the way, including lower pulp yields than would be expected at industrial scale, and a few minor issues with yarn and fabric production that will inform future efforts. Lower pulp yields were due mainly to pretreatment losses and are expected to improve significantly as batch size increases. An issue with yarn hairiness, caused by slight irregularities in the fibre, is also expected to be resolved as production scales up and batch consistency improves. While the pilot-project yarn showed slightly lower strength than conventional lyocell, and one supply-chain partner, Shahi, reported issues with colourfastness and dimensional stability after repeated washing, other partners did not encounter these challenges, indicating that Project Latvus lyocell performed well within the current parameters. Further optimization of fabric finishing and dyeing processes is expected to resolve these inconsistencies in future production runs.

Project Latvus demonstrates that Next Gen lyocell made from agricultural waste is a viable alternative to conventional, wood-based sources, and that efforts to date are paying off. In making the switch, brands and suppliers will support the development of a more sustainable option, which supports rural communities and takes pressure off the world's forests.

TESTIMONIAL

The resulting material analysis showed the Latvus fibre to be a strong aesthetic match to conventional lyocell with commercial viability.

– Reformation

The table below shows how the Project Latvus lyocell compared to conventional, wood-based lyocell at each stage of production

TECHNICAL PERFORMANCE OF PROJECT LATVUS LYOCELL

PRODUCTION STAGE	KEY OUTPUT	PERFORMANCE HIGHLIGHTS	DIFFERENCES FROM WOOD-BASED BENCHMARK
PULP	Bleached pulp brightness > 87 ISO; intrinsic viscosity 647 ml per gram	Comparable purity to conventional pulp; minor ash (silica) addressed in bleaching	Yield was lower due to the pilot scale
FIBRE	Staple lyocell: (1) 1.86 dtex × 40 mm (2) 1.86 dtex x 30 mm	Stable spinning: First pilot run was at 104 kg staple fibres (1.86 dtex, 40 mm, fibre tenacity: 32.9 cN/tex)	Impurities in the spinning dope reduced conventional filter life
YARN	(1) Ne 30/1, 100% Latvus pulp. (2) Ne 30/1, 50% Latvus pulp, 50% conventional pulp.	Acceptable for knitting and weaving. Tenacity results: (1) 19.89 cN/tex (no winding) (2) 18.81 cN/tex (winding)	Slightly lower strength than conventional lyocell
FABRIC	Warp-knit mesh, plain weave, jersey, sweater knit	Handled similarly to wood-based lyocell; acceptable dye uptake	Latvus lyocell behaved comparably to conventional lyocell from wood sources. No major quality concerns reported by partner mills. Minor issues were observed during fabric testing by Shahi.

EXTRUSION OF LATVUS LYOCELL FIBRE AT TITK

INSIGHT 2

Making fashion from agricultural residues is win-win for people and the environment.

Repurposing agricultural residues to make fabric and garments has the potential to benefit people, communities, and the environment in far-reaching ways.

India has the second-largest agro-based economy in the world, after China. Each year, farmers in India burn over 90 million tonnes[6] of crop residue, primarily rice and wheat straw. While stubble burning has some practical benefits for soil fertility and crop disease management, the scale of its current practice drives significant air pollution and carbon emissions, with serious impacts on public health.

A study by the Indian Agricultural Research Institute estimated that residue burning releases 149.24 million tonnes of carbon dioxide, 9 million tonnes of carbon monoxide, 0.25 million tonnes of sulphur oxides, 1.28 million tonnes of particulate matter, and 0.07 million tonnes of black carbon each year.[7] Crop residue burning is responsible for up to 40% of Delhi's air pollution[8] and reduces life expectancy by up to 10 years in both rural and urban areas,[9] with concentrations of harmful particulate matter (PM2.5) in Northern India reaching levels 15–45 times higher than the World Health Organization's safety guidelines.[10]

Conventionally produced lyocell, viscose, and other MMCFs also cause significant environmental strain, with over 300 million trees logged annually to meet demand, many of them from fragile ecosystems. As the world's largest terrestrial carbon sink, forests are critical in the fight to slow climate change. Deforestation, along with the degradation of forest landscapes, is responsible for over 10% of annual global carbon emissions,[11] with remaining forests serving as an irreplaceable buffer against the effects of fossil fuels. As home to the majority of the world's terrestrial species, forests are also crucial in the fight to preserve our planet's biodiversity. Currently, more than one in eight species of birds, for example, is threatened with extinction.[12] Keeping forests standing is one of the simplest, cheapest, and most effective ways to stabilize the climate, while simultaneously preserving habitat for endangered plants and animals.

Sourcing inputs for fabrics such as viscose and lyocell from Indian crop residues addresses many problems at once: Farmers gain access to new income streams while air pollution from burning crop residues is reduced, leading to better health outcomes. Forests, with their crucial roles to play as habitat for endangered species and mitigators of climate change, are preserved. With all of this in mind, Project Latvus's successful trial at producing lyocell from wheat straw is an important step on the road to a more sustainable fashion industry.


AIR POLLUTION IN DELHI, INDIA.

WHAT ABOUT SOIL HEALTH?

Not all crop residues should be removed from a farmer's field. In fact, significant amounts should be left to maintain or build soil quality. Some of the technologies for pulping crop residues can create a fertilizer that can be traded back to farmers.

Canopy recommends that mills and brands using agricultural residue biomass to make MMCFs seek Roundtable for Sustainable Biomaterials (RSB) certification to ensure the amount of agricultural fibre removed from the fields is not causing soil degradation. There are also opportunities to plant fibrous crops such as hemp,[13] flax,[14] and jute[15] in rotation, which can help restore soil carbon while providing high-quality fibre for industrial use.

INSIGHT 3

Scaling up production will make wheat-straw-based lyocell cost-effective

Because Project Latvus operated at pilot scale, yields were lower and per-garment costs higher than typical manufacturing levels. However, increasing production scale is expected to enhance both efficiency and product quality.

At industrial scale, wheat-straw-based lyocell is projected to achieve cost parity with conventional, wood-based lyocell over time, owing in part to higher efficiency in the pretreatment and processing of the straw. Financial viability is further strengthened by the recovery of high-value co-products such as sulphur-free lignin, furfural acid, and acetic acid, each of which contributes to the overall profitability of the biorefinery concept.

Scaling up will also help to optimize fabric finishing, yarn dyeing, and other elements of the production process in ways that further improve garment quality and streamline manufacturing.

TESTIMONIAL

We are convinced that it will be possible to produce a raw material suitable for the Lyocell process from alternative sources such as straw, and that such a raw material can also be used in commercial scale.

— TITK

The table below compares the pulp yields from the pilot trial to the expected yields if the pulp were produced at an industrial-scale biorefinery

PRODUCTION STAGE		PROJECT LATVUS YIELDS		EXPECTED YIELDS AT INDUSTRIAL SCALE
PROCESS	MATERIAL	KG DRY	YIELD	YIELD
FRACTIONATION	Raw material in	1091	41% Indian Pulp	41%
	Pulp after de-esterification	450		
SCREENING AND FINES REMOVAL	Pulp to screening, washing with water and fines removal	450	58% Indian Pulp*	90–95%
	Pulp after screening, washing with water and fines removal	260 + 287 of Finnish pulp		
BLEACHING STAGE	Pulp to bleaching	547	76%	85%
	Pulp after bleaching	463		
TOTAL YIELD	Unbleached pulp	260 + 287 of Finnish pulp	24% Indian pulp	37–39%
TOTAL YIELD	Bleached pulp	418	76% from unbleached pulp	85% from unbleached pulp

LATVUS STAPLE LYOCELL YARN CONTROL AT TITK

CANOPY'S EXECUTIVE DIRECTOR EXAMINING WHEAT STRAW AT SATIA PAPER MILL, PUNJAB, INDIA

INSIGHT 4

Collaboration (and perseverance) is the key to smart innovation

Project Latvus came together as a collaboration between non-profit organizations (Laudes Foundation, Canopy, and Fashion for Good), global brands (C&A, H&M Group, and Reformation), and supply-chain stakeholders (Chempolis, TITK, Inovafil, Yee Chain, Shahi, Filpucci, DBL, and TextileGenesis) for the purposes of joint research and development. Its success highlights the necessity of working together across organization types and companies to innovate effectively and maximize shared benefits. As a pre-competitive collaboration, Project Latvus enabled partners to overcome traditional barriers such as cost and risk, validating the commercial viability of Next Gen technologies and generating insights to accelerate their adoption across the textile and apparel sector.

Joint research and development saves time and money for all parties involved, allowing innovation budgets to be more efficiently spent. Rather than each organization having to individually fund and execute their own research, participants in Project Latvus were able to share the labour and split the bill. The time and money of the technology provider, Chempolis, was also used more effectively. Sharing data and findings ensured Project Latvus was genuinely innovative, investigating a new research question as opposed to an old one, and saved participants from having to reinvent the wheel.

As an innovative experiment in an ever-changing industry, Project Latvus was affected by several midstream transitions, including withdrawals, company acquisitions, and internal strategic shifts of partner companies. These developments led to delays at certain stages of the pilot and required the recruitment of new brand collaborators and funding partners to sustain momentum. But despite all challenges, Project Latvus progressed due to the persistence of its core team, whose commitment and adaptability saw the project through.

Project Latvus successfully demonstrated that wheat straw from India or Finland can be a raw-material substitute for tree fibre for the production of lyocell. As circular, textile-to-textile systems continue to be developed, agrifibre inputs can serve as a low-carbon, Next Gen complement to reduce the environmental harm caused by conventional MMCFs while improving health and livelihoods in India and beyond.

NEXT STEPS

WHEAT STRAW LYOCELL GARMENTS MADE BY REFORMATION AND YEECHAIN

STEP 1

Conduct a techno-economic assessment (TEA)

The Project Latvus pilot demonstrated the viability of wheat-straw-based lyocell for garment making using Chempolis' pulping technology at their pilot mill. It also, in general, opened the field of options to use in place of wood pulp for MMCFs. A TEA will evaluate the financial viability of scaling wheat-straw-based lyocell production, including yield targets, capital expenditure and operating expense modeling, cost competitiveness with conventional wood-based dissolving pulp for lyocell, and sensitivity to raw-material variability. A TEA is regionally specific, as costs and feedstocks vary across regions.

STEP 2

Optimize production processes

Project Latvus revealed a number of opportunities to refine the wheat straw lyocell production process. Providing guidance and training to farmers to ensure a clean feedstock supply and streamlining the collection and sorting of straw on the field will prevent machine filters from becoming clogged with dirt and stones. Using continuous filter systems, as well as enzymes to reduce pulp viscosity, could similarly extend filter life and make production more efficient.

STEP 3

Scale–up

With the findings of the TEA in hand, the next step will be for the two sides of the supply chain to lift each other up. Shifting from pilot to commercial production will require expressions of interest from brands, which will in turn build investors' confidence to finance a biorefinery such as Chempolis's to manufacture much larger volumes of wheat straw dissolving pulp to supply to lyocell fibre producers.

STEP 4

Communicate to customers

To bolster market support and empower consumers to make informed choices about the fabrics they wear and use, it's necessary to develop a clear set of claims that accurately convey the benefits of lyocell derived from agricultural residues. Integrating traceability verification, once the TextileGenesis pilot is complete, will strengthen these claims, as will seeking Roundtable on Sustainable Biomaterials (RSB) certification to verify sustainable straw sourcing.

CONCLUSION

Project Latvus demonstrates what's possible when innovation, collaboration, and a commitment to sustainability align across the textile value chain. By successfully producing wheat-straw-based lyocell for several fabrics, each comparable to commercially produced options, the pilot has proven that agricultural residues can serve as a viable, forest-free feedstock for MMCFs. While additional optimization and scaling are needed, the results point clearly toward commercial readiness, offering a new option for low-impact fibre production that benefits farmers, strengthens supply chains, and reduces dependence on forests.

Working together accelerates the adoption of Next Gen materials such as wheat-straw-based lyocell across the fashion industry as a whole, bringing these goods closer to market in a way that encourages further innovation in production and manufacturing processes and amplifies environmental and social benefits. With continued investment and partnership, this work can help chart a more resilient and resource-efficient future for the fashion industry.


THE RED DRESS AND PINK CARDIGAN ARE MADE OUT OF WHEAT STRAW LYOCELL BY CHEMPOLIS FOR REFORMATION
THE YELLOW BLOUSE IS MADE OUT OF WHEAT STRAW LYOCELL BY CHEMPOLIS FOR C&A
THE WHITE SKIRT IS MADE OUT OF WHEAT STRAW LYOCELL BY CHEMPOLIS FOR YEECHAIN
THE BLUE PANTS ARE MADE OUT OF REFIBRA BY LENZING


KNIT DOWN TRIAL BY REFORMATION USING 100% LATVUS STAPLE LYOCELL YARN


CONE OF UNFINISHED 100% LATVUS STAPLE LYOCELL BY FILPUCCI

REFERENCES

1. S. Bhuvaneshwari, H. Hettiarachchi, and J. N. Meegoda, "Crop Residue Burning in India: Policy Challenges and Potential Solutions," International Journal of Environmental Research and Public Health 16, no. 5 (2019), https://doi.org/10.3390/ijerph16050832
2. Tanvi Mehta, "India's North Shrouded in Smog as Delhi Pollution Hits Season High," Reuters, November 18, 2024, reuters.com/world/india/shrouded-smog-delhi-pollution-reading-is-highest-this-year-2024-11-18/
3. "Air Quality: Pollution Shortening Lives by Almost 10 Years in Delhi, Says Study," BBC News, June 14, 2022, bbc.com/news/world-asia-india-61793884
4. S. Barrett, S. Eastham, R. Lan, Tianjia Liu, and L. K. Norford, "Air Quality Impacts of Crop Residue Burning in India and Mitigation Alternatives," Nature Communications 13 (2022), doi.org/10.1038/s41467-022-34093-z
5. Spinning Future Threads: The Potential of Agricultural Residues as Textile Feedstock, laudes.h5mag.com/laudes/agri-waste_report_highlights/home/9656/agri_waste_report_2021_07_01.pdf
6. Bhuvaneshwari et al., "Crop Residue Burning," mdpi.com/1660-4601/16/5/832
7. Jitendra, Shreeshan Venkatesh, Ishan Kukreti, Kundan Pandey, Deepanwita Gita Niyogi, and Polash Mukerjee, "India's Burning Issue of Crop Burning Takes a New Turn," Down to Earth, May 22, 2017, downtoearth.org.in/coverage/india/river-of-fire-57924
8. Tanvi Mehta, "India's North Shrouded in Smog as Delhi Pollution Hits Season High," Reuters, November 18, 2024, reuters.com/world/india/shrouded-smog-delhi-pollution-reading-is-highest-this-year-2024-11-18/
9. "Air Quality: Pollution Shortening Lives," bbc.com/news/world-asia-india-61793884
10. Barrett et al., "Air Quality Impacts of Crop Residue Burning," doi.org/10.1038/s41467-022-34093-z
11. Pierre Friedlingstein, Michael O'Sullivan, Matthew W. Jones et al., "Global Carbon Budget 2023," Earth System Science Data 15, no. 12 (2023), essd.copernicus.org/articles/15/5301/2023/
12. "One in Eight of All Bird Species is Threatened with Global Extinction," DataZone by Birdlife, updated December 8, 2022, datazone.birdlife.org/articles/one-in-eight-of-all-bird-species-is-threatened-with-global-extinction
13. Lili Tang, Chao Fan, Hongmei Yuan, Guangwen Wu, Jing Sun, and Shuguan Zhang, "The Effect of Rotational Cropping of Industrial Hemp on Rhizosphere Soil Microbial Communities," Agronomy 12, no. 10 (2022), mdpi.com/2073-4395/12/10/2293
14. Zhenyu Gou, Yifan Wang, Zhengjun Cui, Bin Yan, Yuhong Gao, Bing Wu, and Lizhuo Guo, "Effects of Four-Year Oilseed Flax Rotations on the Soil Bacterial Community in a Semi-Arid Agroecosystem," Agronomy 14, no. 4 (2024), doi.org/10.3390/agronomy14040740
15. Mukesh Kumar, Sabyasachi Mitra, Sonali Paul Mazumdar, Bijan Majumdar, Amit Ranjan Saha, Shiv Ram Singh, Biswajit Pramanick, Ahmed Gaber, Walaa F. Alsanie, and Akbar Hossain, "Improvement of Soil Health and System Productivity through Crop Diversification and Residue Incorporation Under Jute-Based Different Cropping Systems," Agronomy 11, no. 8 (2021), mdpi.com/2073-4395/11/8/1622

TRANSFORMING BUSINESS FOR THE PLANET

NEXTGENNOW.CA
INFO@CANOPYPLANET.ORG
CANOPYPLANET.ORG