

NATURAL LIMITS

NATURAL DYES HAVE THE POTENTIAL TO BECOME PART OF THE DENIM INDUSTRY'S SUSTAINABLE TOOLBOX IF THEY CAN OVERCOME COST-RELATED HURDLES.

BY ALEX HARRELL

Nature's influence on denim runs deep. The fiber-obsessed industry is diversifying ingredients, evolving from its cotton-rich past into a future based on recycled and cellulosic blends. Players are investing in regeneratively grown crops and supporting the broader regenerative agriculture movement. Mills are developing biodegradable solutions for jeans at the end of their life and designers continue to cull inspiration from the outdoor market, marrying denim's inherent durability qualities with gorpcore fashion.

The dyes used in denim are also getting a makeover by Mother Nature. The recent color explosion on the runway has coincided with innovations in natural dyes that tend to require less chemicals—a windfall for an industry that is struggling with chemical auditing.

"We all know fashion has a tremendous negative impact on the planet, considering its water use and carbon emissions," said Didem Aksoy, a shareholder of Denge Kimya, a Turkey-based textile chemical company. "Dyeing fabrics with synthetic dyestuff requires even more water, and wastewater becomes polluted with toxins and heavy metals. This wastewater from synthetic dyes is thrown back into nature, adversely affecting the health of the ecosystem of all living beings. Imagine the harm being done considering the 20 percent of water waste in the world is a direct outcome of fabric dyeing and processing."

Stony Creek Colors has become an industry darling for its efforts to scale natural indigo. The female-founded company produces the only 100 percent plant-based indigo dye certified by the USDA BioPreferred Program. The indigo is made from 100 percent *Indigofera* plants

grown by U.S. farmers and processed by Stony Creek Colors at its factory in Tennessee.

"Our vision remains rooted in the belief that with appropriate investments across the indigo value chain—from agronomy and plant genetics to chemistry and engineering—the technical barriers to bringing plant-based indigo to scale could be overcome," said Sarah Bellos, Stony Creek Colors founder and CEO. "Sustainable and regenerative agriculture presents a huge opportunity to allow textile solutions to go beyond being 'less bad' to actually create a positive impact."

The 10-year-old company is focused on delivering a climate-positive dye that can replace the synthetic petrochemicals. Its natural dye products offer consistent and high-purity indigo that functions almost identically to synthetic indigo in any mill process.

Cone Denim and Levi's Well-Thread were early supporters of the indigo. In December 2022, it

closed a second Series B2 funding round of \$4.8 million co-led by Levi Strauss & Co. and Lewis & Clark AgriFood, a growth equity firm.

"While we have worked to develop a drop-in replacement for synthetic indigo, we don't want to perpetuate 'business as usual,'" Bellos said. "Natural indigo is a premium product, due in part to the externalities that are unaccounted for in synthetic indigo, such as the true cost of petroleum, toxic residues or worker health."

AG Jeans worked with Stony Creek Colors to create small capsule collections for Spring/Summer 2022 that challenged conventional methods to produce them. The collection was dyed with Stony Creek Colors' madder paste extract, producing deep reds, terracotta oranges, pale pinks and warm browns, and myrobalan powder, making buttery yellow, sand, warm umber and muted browns, sourced from a women-led farmer's collective in India.

AG's The Jeans of Tomorrow Capsule