

SUSTAINABILITY

Hyosung Transitioning Bio-based Spandex Feedstock From Corn to Sugar

Hyosung advances sustainability with sugarcane-based spandex, cutting carbon emissions significantly.

By FAIRCHILD STUDIO

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Hyosung's sugarcane upgrade provides numerous advantages. COURTESY

How sweet it is.

Hyosung, the world's largest producer of spandex by market share, leaned into sustainable stretch with its bio-based spandex made from dent corn feedstock. Ever since, it has been aiming to increase the content of its regen Bio Spandex, and now, it's found a solution in sugar.

The sugarcane-based bio-BDO is part of Hyosung's plan to support the textile industry in reducing carbon emissions by moving to more circular business models. Last year, Hyosung partnered with sustainable materials leader, Geno, to start construction at its

Vietnam plant to produce Bio-BDO derived from sugarcane, powered by Geno's proprietary BDO technology. For more than two decades, Geno has been developing and scaling technology to enable the production of sustainable materials derived from plant- or waste-based feedstocks instead of fossil fuels.

The South Korea-based fiber manufacturer cites three specifics for the sugarcane upgrade. "First, sugarcane has a higher yield per hectare than corn. Second, sugarcane is more effective at sequestering carbon than corn. Third, sugarcane's byproduct, bagasse, can be used as a renewable energy source, further reducing its carbon footprint," said Simon Whitmarsh-Knight, Hyosung's global sustainability director-textiles, adding that there is no compromise on durability and performance compared to corn, or even traditional spandex.

There is no change in the characteristics or the bio-based content of the bio spandex itself, stressed Whitmarsh-Knight. The functionality and quality of the spandex remain consistent, allowing customers to enjoy the same high-performance product while benefiting from a renewable input material.

Hyosung will be utilizing the bio-BDO facilities at its plant in Vietnam. The facility expects to start production in the first half of next year, with the potential of producing up to 50,000 tons of bio-BDO by the end of 2026.

"For the first time, the industry will have an integrated supply of bio-based spandex in one region, from raw material to fiber," Whitmarsh-Knight said. "This provides significant benefits to our customers such as faster speed to market, reduced development times and a more robust supply chain."

Having pioneered the use of sugarcane in spandex, Hyosung had the opportunity to develop a new value chain for this product, one also linked to traceability, transparency and certification.

"It was essential that we found a partner who had the practical knowledge, value chain connections and consulting expertise to help us build and track this new system," Whitmarsh-Knight said. "Having researched the market in depth, we decided that CZ [Czarnikow] offered the optimum balance of direct connections with farmers, logistical experience and sustainability know-how. In addition, their Vive platform provides well-established structure and processes to trace the product from farm to manufacturing facility."

Hyosung's brand and retail partners have already reaped the benefits of adding regen Bio spandex to fabric blends with other bio-based fibers, not to mention using it as a renewable stretch engine with cotton and merino wool. Hyosung plans to transition existing customers and their value chains from its Gen 1 corn-based spandex to its Gen 2 sugarcane-based version starting next year.

Transitioning Existing Partners

And since every brand takes a unique approach to sustainability according to their goals, Hyosung has expanded its bio Spandex offering to include various options for the yarn to be made with a higher content of renewable resources to include regen Bio + and regen Bio Max. Backed by third-party verified data and independent Life Cycle Assessments, regen Bio Max elastane delivers a 27 percent lower carbon footprint and 82 percent less ozone depletion than conventional spandex, marking a meaningful shift towards circular, regenerative materials.



Pangaia's seamless, bio-based activewear.

Making the transition even easier is the fact that the structure and ratio of bio-based content remain consistent even when switching the feedstock from corn to sugarcane.

Pangaia, the materials science company at the intersection of science, purpose and design, has successfully brought Hyosung's regen Bio spandex to commercial use and is on board for the sugarcane transition. Starting from women's activewear, expanding to men's, and now extending into their new 365 Seamless range with regen Bio Max, this continuous adoption highlights Pangaia's deep understanding and trust in bio-based products as part of their innovative sustainability strategy.

"The ongoing use of bio-based materials by such a pioneering brand demonstrates that the bio story resonates strongly with consumers," Whitmarsh-Knight said. "It is

clear evidence that our product is growing within both the fashion industry and sustainability movement.”

How each brand messages this material to their end consumers will ultimately depend on their respective communication strategy, but Whitmarsh-Knight feels sugarcane has the potential to resonate well with consumers interested in bio-based materials.

“That said, since bio-based spandex is still relatively new in the market, it may be more important at this stage to first help consumers understand the broader shift from fossil fuels to renewable resources. Once that foundation is established, brands will be better positioned to evolve their storytelling with more nuanced details about the specific feedstocks being used,” he said.

Beyond textiles, Hyosung also plans to also use its bio-BDO in footwear, packaging and automotive, so moving this to bio-BDO will represent a significant saving in carbon emissions across multiple industries.

To learn more about Hyosung’s textile materials, [click here](#).



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