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Upstream Biotechnology secures seed funding to advance stress-responsive crop protection platform

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Investment led by LeVert Ventures will accelerate development of SwitchBlade technology designed to improve disease resistance without compromising crop yields

Upstream Biotechnology has raised seed funding to accelerate the development of its proprietary SwitchBlade platform, a next-generation crop biotechnology designed to strengthen disease resistance while preserving plant productivity under normal growing conditions.

The financing round was led by LeVert Ventures, with participation from Corteva, through its Corteva Catalyst investment platform, alongside Silver Blue, Middleland Capital's VTC Ventures, and other investors. The company did not disclose the financial terms of the investment.

The North Carolina-based agricultural biotechnology company plans to use the capital to advance research and validation of the SwitchBlade platform across major row and specialty crops, expand its intellectual property portfolio and deepen collaborations with seed industry partners.

Unlike conventional approaches that keep plant defence mechanisms permanently activated—often resulting in reduced growth and lower yields—SwitchBlade is engineered to activate protective traits only when plants encounter disease or environmental stress. By regulating protein translation rather than continuous gene expression, the technology aims to improve crop resilience without the productivity penalties commonly associated with constitutive defence systems.

The platform addresses one of the most persistent challenges in agricultural biotechnology: balancing stronger disease resistance with sustained crop performance under field conditions.

Founded on research originating from Duke University, Upstream Biotechnology is building its technology around decades of scientific work on plant immunity, systemic acquired resistance and inducible defence pathways. The company believes this approach could provide a broadly applicable trait platform for seed companies seeking more efficient disease-resistance technologies.

The company has already demonstrated proof of concept for SwitchBlade across multiple crop systems and is advancing development programmes in soybean, corn, rice and several additional crops. Future validation efforts will focus on demonstrating the platform's commercial value across diverse production environments.

The investment also highlights growing investor interest in enabling technologies that improve crop resilience amid rising disease pressure, climate variability and increasing demand for sustainable agricultural productivity. Rather than developing traits for individual crops, Upstream is positioning SwitchBlade as a platform technology that could be integrated into multiple seed portfolios.

As global agriculture faces mounting pressure to improve productivity while reducing crop losses, inducible gene-regulation technologies are emerging as a promising frontier in next-generation crop protection, offering growers new tools to safeguard yields without sacrificing plant performance.