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Renaissance BioScience Receives Genome BC Funding to Extend RNAi Biopesticide platform to target soil-dwelling crop pests

30 July 2026 | News

Project goal is to expand yeast-based RNAi biopesticide platform technology applications to the many global agricultural pests living below ground

Renaissance BioScience Corp., a global leader in yeast bioengineering providing solutions for environmental and industrial challenges in the agriculture, food, animal and human health, and energy industries, is pleased to announce a new Genome BC funded project to extend the reach of its yeast-based RNA interference (RNAi) biopesticide technology from above-ground insect pests to target soil-dwelling crop pests, beginning with destructive wireworms. The project will advance the development of a precision biopesticide against wireworms and represents a significant new application for the company's proprietary RNAi technology.

Opening the Door to Below-Ground Pest Control

Renaissance has successfully focused its RNAi technology on insect pests that feed on plant foliage. The wireworm project represents the company's first effort to adapt its hardy, yeast-based RNAi protection and delivery technology to pests that live and feed below the soil surface. This represents a fundamentally different technical challenge that, if successful, could significantly expand the number of insect targets and crop protection applications that RNAi biopesticides can address. Combined with advanced formulation technologies, Renaissance's yeast-based delivery platform will protect RNAi in the challenging soil environment while promoting ingestion by wireworms, overcoming key barriers to effective soil-applied RNAi biopesticides.

Wireworms are the soil-dwelling larvae of click beetles and are among agriculture's most persistent and destructive insect pests, damaging dozens of economically important crops. Globally, they are a significant pest to potatoes, root vegetables,

corn and cereals. Living underground for several years, they feed on germinating seeds and seedlings, often destroying stands before crops emerge, and continue feeding on roots and tubers through the growing season, making them especially difficult to detect and control.

The project will focus on developing a precision RNAi biopesticide targeting Agriotes species of wireworms, one of the world's most economically important soil-dwelling crop pests, responsible for substantial crop losses in Europe, North America, and other key agricultural markets. By identifying genes essential for survival that are conserved across two Agriotes species, Renaissance aims to develop a targeted solution capable of controlling more than one species with a single product. “Wireworms are one of agriculture's most challenging insect pests because they spend up to five years as larvae below ground, where conventional control options are limited,” said Dr. John Husnik, co-CEO and Chief Scientific Officer of Renaissance BioScience.

He added, “Beyond developing a solution for wireworms, this project is strategically important because it will help determine how our yeast-based RNAi platform can be successfully extended from leaf-feeding insects to also target soil-dwelling pests. Wireworms are just the beginning. If we can successfully adapt our technology for below-ground pests, it opens the door to developing precision biopesticides for an entirely new range of economically costly agricultural pests.”

Expanding the Commercial Applications of Renaissance's RNAi Platform

The wireworm program builds on Renaissance's growing portfolio of RNAi-based crop protection technologies, complementing the company's ongoing development of precision biopesticides for other damaging agricultural insect pests.

Owing to the underlying RNAi yeast platform has already demonstrated promise against above-ground pests, Renaissance believes this project could establish the foundation for future RNAi products targeting a broad range of economically important soil-dwelling insects and larvae. Successfully extending the technology below ground would represent a significant platform advance, opening new opportunities across multiple crops and agricultural markets while supporting the growing demand for environmentally sustainable alternatives to conventional chemical pesticides.

“This support from Genome BC recognizes the tremendous potential of precision biological technologies to transform sustainable agriculture, and we appreciate their support and vision,” added Dr. Husnik. “Our goal is to provide growers with a new tool for managing wireworms while expanding the capabilities of our yeast platform to address an entirely new category of agricultural pests.”