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GreenLightâ??s RNA fungicide gets Mexico nod in milestone for agricultural biotech

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GreenLightâ??s Oifirax uses targeted RNA interference to control grape powdery mildew without genetically modifying crops, marking a potential shift toward more precise biological crop protection

Mexico has approved the commercial sale of an RNA-based biofungicide for grape powdery mildew, marking what could become a significant milestone in the evolution of crop protection technology. The Mexican government announced the approval of Oifirax on August 12, 2026, clearing the product developed by US-based GreenLight Biosciences for commercial use against grape powdery mildew caused by Erysiphe necator. The approval makes Oifirax the world's first RNA biofungicide authorised for commercial sale, according to the source.

The development moves RNA interference technology into a new area of crop protection. RNAi has already been commercialised in insect control, but its use against fungal diseases represents a broader application of a technology designed to act on specific biological targets rather than relying on conventional broad-spectrum chemistry. Oifirax works through double-stranded RNA (dsRNA) technology. Its molecular target is the CYP51 gene, which plays an essential role in the fungus's ability to produce ergosterol, a component required for maintaining fungal cell membranes.

Once applied, the RNA molecules are taken up by the target pathogen. The dsRNA then triggers a gene-silencing mechanism that suppresses CYP51, disrupting ergosterol production and ultimately causing the fungal cell membrane to fail. The approach is notable for its specificity. Rather than altering the plant itself, the technology is designed to interfere with a biological process inside the disease-causing fungus. Oifirax therefore does not involve genetically modifying the crop, according to GreenLight.

The company has also pointed to safety assessments covering non-target organisms. Bioinformatics analysis cited by GreenLight found the product to be safe for non-target species including monarch butterflies and honeybees. The RNA molecules are also designed to break down naturally in the environment through the action of enzymes and microorganisms. For an agricultural industry under growing pressure to reduce dependence on conventional chemical crop protection, the

commercial approval could have significance beyond grapes. Targeted RNA technologies are attracting attention because they offer the possibility of developing crop-protection products that are designed around the molecular biology of specific pests and pathogens.

The commercialisation of Oifirax follows more than 10 years of research, development and testing, according to GreenLight. The company has previously applied the technology in vineyards in California, providing field experience ahead of the Mexican market approval. GreenLight is also linking the regulatory milestone to a manufacturing expansion in Mexico. The company has announced plans to invest between $ 50 million and $ 100 million in a production facility in Mexico City. The proposed investment is expected to create specialised employment opportunities and establish a local manufacturing base for the technology.

The move could give Mexico a role not only as an early adopter of RNA-based crop protection but also as a potential manufacturing hub for the emerging technology. The significance of Oifirax extends beyond its application against powdery mildew. RNA interference has already demonstrated commercial potential in insecticides, and GreenLight's Calantha is an example of the technology being used to target the Colorado potato beetle.

The approval of Oifirax effectively expands the commercial application of RNAi from insect control into fungal disease management, broadening the potential addressable market for the technology. That transition also illustrates a larger shift taking place in agricultural inputs. The next generation of biological crop protection is increasingly focused on precision—identifying a particular genetic or molecular mechanism and designing an intervention around it.

For growers, the commercial value of such technologies will ultimately depend on more than regulatory approval. Product performance under field conditions, production costs, application economics, compatibility with existing crop-protection programmes and adoption by farmers will determine how quickly RNA-based products move from technological breakthroughs to mainstream agricultural tools. Oifirax nevertheless represents an important proof point for the sector. The commercial approval demonstrates that RNA interference can move beyond laboratory research and insect control into regulated fungal disease management.

The Mexican decision could also encourage further investment and regulatory interest in RNA-based agricultural products. As companies search for alternatives and complements to conventional crop-protection chemistry, technologies capable of targeting pathogens with greater biological precision could become an increasingly important part of the crop-input landscape. For GreenLight, the approval provides both a regulatory breakthrough and a platform for commercial expansion. For the wider agricultural industry, it offers an early look at what a more targeted generation of biological crop protection could look like.

The real test will now be whether Oifirax can translate its molecular precision into measurable value for growers—and whether the regulatory precedent established in Mexico accelerates the development and adoption of RNA-based solutions across other crops and disease categories.