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GreenLight advances RNA revolution in agriculture with first RNA-based fungicide

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Oifirax gains regulatory traction in Brazil, opening a new chapter in precision crop protection and residue-free disease management

GreenLight Biosciences is positioning Brazil at the centre of its global growth strategy following regulatory progress for **Oifirax (ES-43)**, a novel RNA-based fungicide designed to combat powdery mildew in grapes and other high-value crops. The product is being promoted as the world's first topical RNA-interference (RNAi) fungicide, signalling a potential breakthrough in the evolution of biological crop protection technologies.

The company received a significant boost after Brazilâ??s Ministry of Agriculture (MAPA) included Oifirax on its priority regulatory review list, accelerating the approval process for the innovative bio-input. The development strengthens Brazilâ??s role as a strategic launch market for emerging agricultural technologies and reinforces the country's growing importance in the global biologicals sector.

GreenLightâ??s expansion strategy is being supported by a recent **US$25 million investment from Just Climate**, the climate-focused investment platform linked to Generation Investment Management, co-founded by former US Vice President Al Gore. The funding is expected to support the companyâ??s commercial scale-up and strengthen its operational footprint in Brazil, which GreenLight views as a key hub for future international expansion.

The company is initially focusing on Brazilâ??s viticulture sector, where powdery mildew remains one of the most economically damaging fungal diseases affecting vineyards. With approximately **75,000 hectares of vineyards** across the country, producers face continuous pressure to manage disease while meeting increasingly stringent residue requirements in domestic and export markets.

Unlike conventional fungicides that rely on broad-spectrum chemical activity, Oifirax employs **RNA interference technology**, a highly targeted biological mechanism that silences specific genes essential for fungal survival and reproduction. The technology allows the product to attack the pathogen without altering plant genetics or affecting beneficial organisms,

positioning it as a non-GMO solution aligned with sustainability objectives.

According to company data, field evaluations conducted across multiple Brazilian production regions, including the SÃ£o Francisco Valley, demonstrated disease control performance comparable to or exceeding conventional chemical fungicides, even at lower application rates. The product is also being evaluated for future use in crops such as tomatoes, cucumbers, coffee and cocoa, all of which face significant fungal disease challenges.

One of the key differentiators of RNA-based crop protection products is their environmental profile. GreenLight says Oifirax degrades rapidly after application, leaves no detectable residues at harvest and poses minimal risk to pollinators and beneficial insects. These characteristics are increasingly important as global regulators, food companies and consumers place greater emphasis on sustainable agricultural production systems.

The commercialisation of Oifirax is supported by GreenLightâ??s proprietary cell-free RNA manufacturing platform, which is designed to produce double-stranded RNA at scale and at lower costs than traditional RNA production methods. The technology addresses one of the historical barriers to agricultural RNAi adoptionâ??economic viability for large-scale farming applications.

While the active ingredient is currently manufactured in the United States, GreenLight has indicated plans to localise production in Brazil over time. The company already maintains a significant presence in the country through its insecticide adjuvant business, with Brazil accounting for the majority of global sales for its Fortivance product portfolio.

Looking ahead, GreenLight intends to leverage its Brazilian operations as a regional export platform serving Latin American markets, including Argentina and Chile. Simultaneously, regulatory submissions are progressing in the European Union, targeting major wine-producing regions in Italy, Spain and France.

As biological crop protection technologies continue to gain momentum worldwide, the launch of Oifirax could mark a pivotal moment for RNA-based agriculture, offering growers a new generation of precision disease management tools that combine efficacy, sustainability and regulatory compliance.

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