

Innovation and nature for water management

Optimization of water resources in fruit production systems in Colombia and Paraguay through the integration of AgTech 5.0 technologies and ecological reconnection strategies, improving productivity and climate resilience.

Argentina/Bolivia/Colombia/Paraguay

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+2

AgTech 5.0 pilot systems implemented
- 

+2

Territorial diagnostics
- 

+2

Participatory workshops with producers, associations and environmental authorities
- 

+2500

People trained in digital agriculture technologies
- 

+1

Manual with scalable regional model
- 

+1

Mobile irrigation app
- 

+1

Robotic Irrigation Module
- 

+2

Scientific articles to be submitted



Integrating digital 5.0 technologies and ecological restoration to optimize water management in tropical fruit production systems.

Initiative

This project addresses the challenge of water regulation in fruit-growing landscapes of Colombia and Paraguay, where fragmentation of tree cover affects water balance and productivity. Through an integrated water management approach, it will operate at the landscape scale through diagnosis and will generate recommendations for ecological

reconnection to improve infiltration, soil moisture, and resilience, while at the farm scale it will implement an intelligent AgTech 5.0 irrigation system. The alliance formed by AGROSAVIA, IPTA, INTA, INIAF, producers, and the private sector will integrate social appropriation of knowledge with traditional know-how and digital technologies.

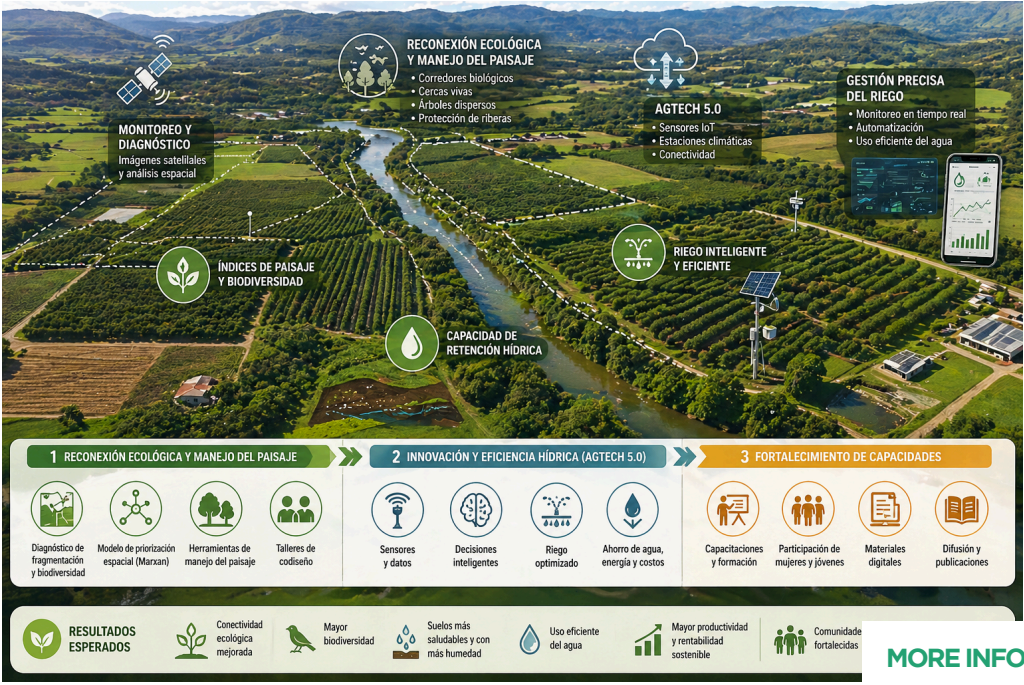
Smart irrigation systems using artificial intelligence and robotics, complemented by ecological reconnection strategies.

Tech solution

The technological solution combines natural infrastructure and digital intelligence to improve water management from the landscape to the farm level. At the territorial scale, it integrates satellite analytics, remote sensing, and spatial modeling to identify critical areas of fragmentation, ecological connectivity, and water regulation, guiding cost-effective investments in productive restoration. At the farm scale, it incorporates a modular and scalable AgTech 5.0 architecture, including IoT sensors, continuous telemetry, artificial

intelligence algorithms for dynamic irrigation scheduling, automation through RegaBot, and permanent technical assistance through DonRiego. Its main innovation lies in translating complex data into simple, actionable decisions for producers, facilitating technology adoption, cost reduction, water savings, and higher productivity. The model will be participatorily validated with producers and regional partners for scaling across Latin America through FONTAGRO.

Smart Agriculture for Resilient Landscapes



MORE INFO



Impacts and Results

The project represents a high-impact intervention aimed at ecological reconnection of the territory, digitalization of water management, and community strengthening. Among the most visible outputs are the implementation of an AgTech 5.0 system with IoT sensors, weather stations, an automated irrigation robot (RegaBot), and a smart application with chatbot (DonRiego) for technical assistance and real-time decision-making. At

the territorial level, diagnostics of fragmentation, biodiversity, and soil moisture will be generated, along with reconnection plans based on live fences, riparian corridors, and sustainable practices. In measurable terms, the project aims to train at least 2,500 producers and technicians, increase water-use efficiency, reduce water and energy consumption, lower greenhouse gas emissions, improve water productivity and agricultural yields, and increase rural incomes.

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