

Digital platform for intelligent water management in tropical fruit production

COLOMBIA, ECUADOR, HONDURAS



Webstory



Technological solution

The technological solution addresses the low efficiency of water use in tropical fruit production systems, where irrigation decisions are often based on empirical criteria that increase costs and reduce productivity. The digital platform enables producers and technicians to make informed decisions through the monitoring of soil moisture and climatic variables, generating irrigation recommendations tailored to crop conditions. This approach optimizes water use, reduces energy and operational costs, and improves producers' economic performance. It also decreases the labor burden associated with irrigation and facilitates the adoption of digital tools, promoting generational renewal. The solution is adaptable to different production contexts, supporting its scalability.



Technological description

The technology consists of a digital platform for efficient water management in tropical fruit production. It integrates field monitoring (soil moisture sensors and climatic variables), data processing, and a web/mobile interface that provides real-time irrigation recommendations. Based on soil, climate, and crop information, it optimizes water use, reduces operational costs, and improves economic performance through more precise irrigation management. Additionally, training materials will be developed, including instructional videos and technical documents with indicators, results, and recommendations, facilitating adoption and scaling. The solution contributes to generational renewal by incorporating digital tools attractive to younger rural populations and improves producers' quality of life by reducing labor demands and irrigation-related expenses.



Impacts and results

A functional digital platform for efficient water management in tropical fruit production, validated under field conditions and integrated with an IoT monitoring network for soil, climate, and plant variables across three countries and four economically important crops. Support tools will be developed, including web/mobile interfaces, water dynamics models, and automated reports to support decision-making. Knowledge transfer materials will be produced, such as instructional videos and technical documents containing results, indicators, and crop-specific recommendations, facilitating technology adoption. The project will directly benefit 2,040 producers and value chain actors, promoting efficient water use, reducing operational costs, and improving quality of life in the targeted territories. The system will be consolidated as an operational pilot beyond the project's duration, with potential to serve as a model for water management by decision-makers.

