



## Tropical Agriculture 4.0: efficient water management

Producers of avocado, cocoa, Tahiti lime, and papaya in Colombia, Ecuador, and Honduras will have an alternative for water management, supported by electronic and digital technologies to irrigate in a timely manner, without excess or deficit



**3 Und.**  
Infrastructure



**1 Und.**  
Irrigation App



**-50 %**  
Lower fuel consumption



**-50 %**  
Lower GEI pumping



**20 %**  
Water savings



**+4 %**  
Increase yield



**+3 %**  
Increase income



**2040 pers.**  
Traineds

The use of electronic and digital technologies in agriculture in LAC will optimize resources on the farm, which will be reflected in the territories

### Initiative

In accordance with CEPAL, FAO, and IICA (2022), the project 'Tropical Agriculture 4.0: Efficient Water Resource Management' aims to promote the efficient use of water through the application of Agriculture 4.0 technologies in tropical crops of high socioeconomic value. The project includes the development of precision irrigation technologies for four fruit species adapted to the agroclimatic conditions of Valle del Cauca

(Colombia); the assessment of current water use and the design of irrigation programs for cacao cultivation in Ecuador, and for Tahiti acid lime, papaya, and cacao in Honduras. A technology transfer program will be implemented to benefit more than 2,040 people across the three countries, fostering the adoption and sustainability of water management in agriculture.

A functional framework of a complete digital platform will be delivered, allowing for precise water management on the farm, quantifying storage in real-time to make informed irrigation decisions.

### Tech solution

This project involves the application of Agriculture 4.0 technologies to enable efficient water use at the farm level. Soil moisture sensors will be installed to provide real-time information on changes in soil moisture content at the root zone. This information will be transmitted via an IoT network to a server (the cloud). The data will be directly linked to a web application that will provide real-time updates on

soil moisture content and send alerts before and during irrigation events. Irrigation activation will be automated, allowing remote operation of irrigation based on the commands given by the operator. All developments in the project will be communicated to the public and those interested in technological advancements through various media channels.

MORE INFO



### Impacts and Results

Technical recommendation for irrigation management in three scenarios: 1. Standard program for producers who cannot access digital technologies, applicable in the area where the technology was developed; 2. Recommendation for producers not connected to the IoT network, who operate the application manually and can use it in any conditions where soil

moisture monitoring is available; 3. Producers connected to the IoT network, who receive irrigation recommendations directly from the Web application. Identification of the technology's value proposition: Producers will optimize resource use, resulting in economic, environmental, and social benefits. Entry into digital agriculture, enhancing their competitiveness.