



Press Release No 4

FruitCREWS Strengthens Water-Smart Irrigation in European Fruit Orchards

Water scarcity is becoming one of the biggest challenges for fruit growers across Europe. Rising temperatures, irregular rainfall and increasing pressure on water resources are forcing producers to rethink how they irrigate their orchards.

The FruitCREWS COST Action has responded to this challenge by bringing together scientists, growers and technology experts from across Europe to improve irrigation management in fruit crops — from tree-level monitoring to practical decision support tools.

One of the first steps was to better understand how fruit trees respond to water stress. Researchers across the network compiled 88 irrigation trial case studies covering multiple crops and environments. They also launched a Special Issue in *Scientia Horticulturae* dedicated to plant-based and remote sensing solutions for irrigation management, alongside crop-specific reviews on almond, olive, grapevine, peach, apple and kiwifruit.

“Through integrated sensing approaches and shared knowledge, we are building reliable foundations for more precise irrigation strategies,” explains **Pasquale Losciale**.

In parallel to this publishing initiative, researchers within the network advanced new crop-water modelling approaches. Innovative work combined FAO-56 crop-water demand modelling with UAV-derived canopy measurements, leading to the development of a new **Relative Oversized Ratio (ROR) index** for diagnosing inefficiencies in drip irrigation systems. The workflow was released as open-source software to support transparency and benchmarking.

Another modelling approach, the **Geographic Water Budget (GWaB)**, was developed for almond orchards in arid environments. By integrating rainfall and soil water holding capacity into productivity functions, the model identifies optimal seasonal transpiration levels under water-limited conditions.

Beyond monitoring and modelling, FruitCREWS focused on practical irrigation scheduling. Reviews and analyses of irrigation protocols across apples, pears, berries, peaches, kiwifruit, olives, almonds and grapevines aim to provide clearer guidance for growers adapting to climate variability.

“We are still overirrigating,” says **Brunella Morandi**. *“We need to improve irrigation protocols to save water and ensure sustainable fruit production under climate change.”*

The Action also examined more than 30 irrigation decision support tools currently available to growers. Yet innovation alone does not guarantee adoption. A **multi-country survey**



involving more than 250 growers across 15 countries revealed that uptake of digital irrigation tools remains limited.

“Understanding the social and economic drivers behind technology adoption is essential to accelerate innovation,” notes **Alon Ben-Gal**.

Knowledge exchange has also been strengthened through the FruitCREWS **e-seminar series**. In the current season alone, five online seminars have brought together researchers and practitioners around timely irrigation topics, with participation reaching up to 50 attendees per session. These regular exchanges are helping to build a strong and connected European fruit-water community.

In its final phase, FruitCREWS will deliver **practical technical guidelines** to improve existing decision support systems, alongside with the identification of research priorities and **policy recommendations** to support wider adoption of water-efficient irrigation technologies. These outputs will be shared with EU stakeholders during the FruitCREWS final conference that will be held in Brussels on June 23-25

As FruitCREWS enters its final year, the network is actively preparing for what comes next. Building on its strong scientific foundation and engaged community, partners are identifying future research and innovation opportunities to ensure continuity beyond the COST Action. The aim is to **maintain collaboration**, address emerging gaps in fruit tree water management, and further strengthen Europe’s capacity to respond to increasing water scarcity.

By connecting plant physiology, modelling, field practices and policy perspectives, FruitCREWS is helping move irrigation science closer to the field — supporting more resilient and water-efficient fruit production systems across Europe.

Starting Date: October 2022

Duration: 48 months

Visit our website

<https://cost-fruitcrews.eu/>

Join us on social media

LinkedIn: [FruitCREWS Action](#)

Facebook: [FruitCREWS Action](#)

Twitter: [FruitCREWS Action](#)

Media contact:

mrkajic@inosens.rs

COST ACTION **CA21142**

Fruit tree Crop REsponses to Water deficit and decision support Systems applications

