

# Rancho Guejito: Saving water with moisture sensors, dense tree canopy

By **TANYA CASTANEDA**  
For the Capital Press

SAN DIEGO COUNTY, Calif. — Whenever Al Stehly hears an idea to make fruit groves more water-efficient, his ears perk up. He has pioneered the combined use of both moisture uptake sensors and high-density planting for citrus trees at Rancho Guejito.

Located in drought-prone Southern California, the ranch makes water conservation a top business priority for its 500 acres of organic trees. Stehly, principal of Stehly Grove Management, is contracted to oversee the ranch's groves.

"We are very conscious of how much water we use, and we don't want to over-draft," Stehly said.

Stehly enjoys being an early adopter. Back in 2010, growers were starting



Rancho Guejito

**A worker views the Phytech app to check grove conditions.**

to use high-density planting method for avocados. The method, used in Israel, entails pruning trees to create a low, thick canopy that holds in moisture.

Stehly approached Rancho Guejito Chief Operating Officer Hank Rupp with a bold idea — planting mandarins, lemons and

grapefruit at high density, even though the method was untested for citrus. After reviewing the data, Rupp agreed to the plan.

"It's all part of being a good steward of the ranch and its water resources," Rupp said. "If we take care of this land and manage it sustainably, it will remain



Rancho Guejito

**Organic lemon groves at Rancho Guejito.**

in agriculture, growing food for future generations."

The investment paid off. The water savings were immediate — the same amount of water per acre, for quadruple the fruit. Rancho Guejito now plants 432 citrus trees per acre, which is four times as many as the standard density.

An added bonus: workers like the shorter trees, which make it easier and safer to pick fruit.

Rancho Guejito is now

the largest organic producer of citrus and avocados in San Diego County. The ranch appears to be one of the only high-density citrus growers but Stehly predicts its success will attract imitators.

A few years later, the ranch launched another water-smart initiative — contracting with a company named Phytech to place sensors on its citrus trees.

"I liked the idea and concept of measuring how much water is absorbed by the tree, rather than soil moisture," Stehly said.

Phytech Vice President Oz Ben-David said the company's water-smart technology is designed to optimize production based on direct tree data, saying: "Rancho Guejito is a great example of how farms can make the most of limited water resources."

The devices, about the size of a sardine can, are placed on three trees per section. They sense the delicate swelling and contraction of the trunk to check whether the tree is absorbing enough water — sending updates on grove conditions to the Phytech cell phone app.

In the past, ranch crews would irrigate groves on hot days. But on a recent 95-degree day, the sensors showed that the trees were not stressed — likely because of the high-density planting.

So Stehly shut off the water for a day, saving "hundreds of thousands of gallons" of water.

Growers need to embrace change and try new solutions, he said.

"I used soil moisture sensors for 40 years," Stehly said, "but now we don't watch soil moisture other than kicking the ground."

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