

R&D INSIGHTS

THE LATEST UPDATES ON R&D WITHIN THE OLIVE INDUSTRY | MARCH 2026



R&D Insights contains the latest levy-funded R&D project updates, research findings and related industry resources, which all happen under the Hort Innovation Olive Fund.

Hort Innovation partners with leading service providers to complete a range of R&D projects to ensure the long-term sustainability and profitability of the olive industry.



Gamila at Beechworth's Gamila MacRury and Oliver Baker at the Dookie agrivoltaics research project site.

Olive grower learnings from Irrigation Symposium

Irrigation researchers and experts from across the globe gathered in regional Victoria in January for the *XI International Symposium on Irrigation of Horticultural Crops*, a six-day event hosted at the Tatura SmartFarm.

Joining them for two days were growers from a range of Australian horticultural industries, including six olive producers.

Sponsored by Hort Innovation and Agriculture Victoria, the growers attended a full day of symposium research and development sessions, presentations and an industry workshop on the theme *Sustaining future orchard profitability in years with reduced access to irrigation water*. The following day they joined a technical field tour with site visits to the Tatura SmartFarm, Sandmount Farms' Go.Farm at Katunga and the University of Melbourne's Dookie

Campus farm and agrivoltaics vineyard, finishing with a session on drone applications including a spraying flight demonstration.

The growers were there to listen, learn and explore the ideas discussed, with the aim that they would then share their learnings and contemplations with their peers.

Here's what they took away from the event:

Gamila MacRury, Gamila at Beechworth

Over the two days of the conference, a few key themes stood out. Academics are very focused on evapotranspiration rates, essentially trying to determine how much water leaves a plant through the canopy. Much of the research involves trials with gadgets in the canopy, combined with climate change coefficients, to answer the question of how much water trees should receive at any given day or time. This was the single major theme throughout the conference.

Lower MDB allocations

From the industry workshop, the message was clear: very little water will be available for agriculture from the Murray-Darling Basin. Reduced flows and reprioritisation of water are expected, and the Barmah Choke significantly limits the water reaching downstream irrigators. Anyone making agricultural decisions based on assumptions of stable water allocations is likely to be very disappointed.

Water quality issues

A more challenging issue discussed was managing salinity in irrigation water. Many groves use saline water, which requires extra water to flush the salt - but this also washes away other important minerals. Balancing the need to remove salt without depleting nutrients remains unresolved.

The conference also highlighted that desalinated wastewater, while safe for humans, isn't automatically safe for plants. For example, boron levels aren't monitored for human consumption but can be toxic to plants if too high. It's a subtle point, but one growers may need to consider.

Pulse irrigation was another focus. The technique — applying water in increments, allowing it to settle, then applying more — helps manage salinity while preserving nutrients. In Israel, this approach often concludes with fertigation to minimise nutrient loss.

Workshop takeaways: profitable irrigation in uncertain times

Several practical points came out of the workshop:

- **Design first:** Good irrigation design underpins effective water use. Don't improvise - plan for future-proofing, even if you don't implement everything immediately.

- **Measure, don't guess:** Farmers often over-irrigate. Invest in probes or monitoring tools rather than relying on calendar schedules or intuition.
- **Dedicate mental time:** Data is only useful if you can interpret it. Allocate time to understand what your technology is telling you and make decisions accordingly - or hire a consultant if you prefer.
- **Audit your system:** Check whether your irrigation setup meets your real needs. Look at each element and identify the true bottlenecks.
- **Leverage grants and subsidies:** Infrastructure improvements like header tanks or new pumps can effectively be 50% cheaper with government support. Take advantage of these opportunities.
- **Buy water early:** Water will never be cheaper than it is now. Plan ahead and don't leave purchases until the last minute.

Investigate tech support

Before investing in any irrigation technology, ensure adequate support is available.

Ideally, remote support should be possible so problems can be diagnosed and fixed without shipping equipment off-site. Downtime can be costly - not just for irrigation, but for other essential equipment like tractors. Quick, effective on-site support is essential.



Melanie Coid and Rob Whyte, Gooramadda Olives

It was a useful event and we were glad we attended. The presenters were great and we got a lot out of it, especially as we're currently looking at how to better utilise water here on the grove. We left with a lot to think about and some changes to play with.

Some of it was backing up what we'd already thought about ourselves but they had scientific data to back it up - like the drip-line set up kept the weeds down under the trees and those that were growing are in the middle of the grove. It confirmed for us that you're better off putting your dripper line out near the branchline rather than under the trees. And that spray heads grow weeds.

They also spoke about sloping trial sites so the water ran down, gravity-fed, which was great as ours is sloping.

Effective pulse

The data that they showed us with the pulse irrigation and the effectiveness of that was especially useful. You run it for a couple of hours and turn it off, then run it again later. It's much more effective, and reduces both the cost of electric pumping and water usage. We're going to implement that in the grove here.

It's good timing, as we're in the process of changing our irrigation system over. We've got issues with cockatoos here, they rip out irrigation lines, so we're taking out the sprinkler heads and putting a new ground line in. We've done a trial section - you rip a hole and it goes in the ground and gets buried - but we weren't sure how far from the treeline it needed to go in. They had information at the symposium as to the distance it needed to be from the trees; we've had a play with a small section and are happy with how it worked.

Major takeaways

- The biggest takeaway was that we got to network with the people from Smart Farms, who are looking for smaller farmers to do some research projects. And another from the Rutherglen research station. I'll make contact with both of those as we're keen to take part in research projects they're working on.
- During the field visit I had a look at how they've trellised other trees; citrus and stone fruit. We might have a play with that.
- The pulse irrigation — running it, stopping it, then running it again - keeps the trees more effectively watered while using less water.
- The other thing was, if you're short of water, don't give them a little bit, just don't water at all. The trees will work it out.

Overall it was very interesting - quite academic but there were parts of it that were practical — and there was plenty of information to bring back to the grove and implement."



Russ and Tina Knight, Lisadurne Hill

As usual with field days and industry-relevant seminars and symposiums, there is always something new to learn and consider. The Irrigation Symposium was jam-packed with case studies on irrigation settings and, most importantly, the elements that need to be considered when assessing irrigation needs and outcomes for different horticultural crops.

Hitting the irrigation 'sweet spot'

The key message to be taken from the Tuesday speakers was the importance and difficulty of hitting the 'sweet spot' with irrigation, and in particular the importance of providing the root zone of the crop with the right amount of water. Too much water leading to root rot and too little not supplying adequate water for the crop. Each crop having its own unique requirements.

Where the speaker was able to accompany the talk with great graphics, showing a cross-section through the soil profile, the more demonstrable was the message.

Takeaways

Some of the important takeaways were:

- Where salt/brackish water was used to irrigate olives 50% more water was needed to leach out the salts that would accumulate at the root of the plants. A trade-off between quality and quantity of water needed.¹
- As water for irrigation is a tradeable commodity in Victoria, this prompts the reflection of water as a value and a cost. In times of low water allocation it may be more profitable to sell the water rather than use it on a lower value crop.
- Throughout the talks the information and knowledge base of all the contributing factors in soil health and crop sustainability were paramount. The role of water sensors, evapotranspiration rates, root zone health, the role of micro-nutrients and the specific requirements of any crop were the data-driven factors to achieve and maintain crop success.

What do farmers want?

At the end of the day a panel of speakers, researchers and one farmer addressed questions from the floor. A lot of the questions were addressed to the farmer, around the day-to-day experience of growing and irrigating crops. He

was particularly asked about what he would want from new technology.

The answer was a system that he could simply turn on and know that all relevant water and nutrients would be handled. While he used technology quite a lot it could only go so far and had not substantially reduced the labour needed.

What can we afford?

Missing from all the talks were details of the costs associated with data-measured equipment and software to analyse irrigation requirements. Realistic cost estimates of putting some of these wonderful data-driven scenarios into practice would have been useful. What can be afforded?

Action from learning

The symposium has prompted us to consider taking two out of eight of our olive sections and putting in more water sensors, together with doubling the irrigation lines.

There are three specific actions we propose to take based on the learnings from the symposium:

We are going to try a form of pulse irrigation. Instead of watering each section for 70 minutes per night, we will run two cycles of 35 mins. The objective is to maximise the moisture levels in the root zone and minimise leaching of nitrogen out of the root zone.

We will revisit the use of moisture sensors. We installed eight of them a number of years ago: they were difficult to install, unreliable and produced inconsistent readings. They are now hanging on the wall of our processing shed. I will research more sophisticated sensors.

We use a single dripline. We've been planning to install a second dripline. It is a big investment (27,000 trees).

We'll set up a few trials to measure the impact on yields. With the information from the sensors, together with working on evapotranspiration rates and watering for the root zone and no deeper, we would be able to see if tree health and tonnages improved.

It is certainly worthwhile as a trial for assessing setup and maintenance costs of a more insightful view into water use on our grove.

More information

Find out more about the Irrigation Symposium [here](#).

And if you want to dive deeper into any of the topics covered, there's also a book of abstracts available [here](#).

1. From Alon Ben-Gal talk on Non-Conventional Water Sources