Australian Government
Department of Agriculture, Fisheries and Forestry

Future Drought Fund

SA DROUGHT HUB

This program received funding from the Australian Government's Future Drought Fund



Drought management for the health and longevity of perennial horticulture plants

LEAD ORGANISATION: SA Drought Hub

OTHER DROUGHT RESILIENCE ADOPTION AND INNOVATION HUBS INVOLVED: Southern NSW, Victoria (through Mallee Regional Innovation Centre), Tasmania (through the University of Tasmania)

SA PARTNER ORGANISATIONS INVOLVED: University of Adelaide, Wine Australia, Duxton Orchards, Green Brain, Ag Excellence Alliance, Plant and Food Research Australia, Department of Primary Industries and Regions SA

SA DROUGHT HUB NODE: Loxton

Project summary

Australia's horticulture industry is vital to the national economy, producing high-value crops such as grapes, citrus and almonds. As the climate changes, the industry faces a critical need for enhanced drought resilience.

Led by the SA Drought Hub, this project established 21 grape, citrus and almond demonstration sites across South Australia, New South Wales, Victoria and Tasmania. Remote capture cameras tracked canopy development and provided real-time data, which was integrated with data from weather stations and soil moisture sensors to provide an integrated platform for irrigation decision-making for increased water-use efficiency.

Project results

- Access to continuous data streams informed irrigation decisions, enabling growers to optimise water use and target specific areas.
- By fostering partnerships among Drought Hubs, growers and agtech companies, the project created opportunities for future collaboration.
- Plant Area Index (PAI) data collected from remote cameras proved accurate and valuable for irrigation management.
- PAI data can be integrated into tools such as VineLOGIC (a model of grapevine growth and development) to help growers optimise growth and sustain plant health in water-constrained settings.
- Workshops and extension activities reached a wide audience of growers, raising their skills, knowledge and confidence in modern drought management.

Outcomes

Short term

- Increased collaboration and partnerships among organisations working in research, development, extension, adoption and commercialisation (RDEA&C).
- Hubs work effectively as part of a national network/architecture.

Medium term

- Increased adoption and commercialisation of drought resilience technologies and practices.
- Technologies and practices adopted are effective in improving drought resilience.

"Growing grapes in the Riverland has become increasingly difficult with more extreme weather events and increasing water and power costs. Optimising my irrigation to suit the vines' needs is one way I can combat these changes."

Aaron Thompson, SA Riverland grape grower



Photo: University of Adelaide

Vic Drought and Innovation Hub

A one-stop shop for growers

Rebecca Wells, Chief Executive Officer, and Alina Saeed, Agriculture Manager, Mallee Regional Innovation Centre (MRIC), North-West Irrigated Horticulture Node

Working with the SuniTAFE SMART Farm and technology providers in Mildura, the team set up six mini-projects showcasing AgTech.



Photo: Paula Mastrippolito, MRIC

Through criteria developed for the mini-projects, 103 components of technology were installed and supported by two platforms and four apps.

Over six months, SuniTAFE accommodated 21 tours, which exposed 401 attendees to project activities. Visitors included nearly 300 growers, along with ag industry representatives, agronomists, policymakers, researchers and students.

Growers want to review technologies on site and in a virtual environment. They want a level of independence to the technology providers and opportunities to engage with 'champions', who use and advocate the technologies. Demonstration sites deliver this opportunity, providing a 'one-stop shop'.

Giving growers the ability to make well-informed decisions is crucial, as they only benefit from technology if they make the right choice for their situation.

The project led to SuniTAFE and the University of Melbourne signing a Memorandum of Understanding for a three-year extension to the activities, supporting further engagement and development of the technologies.

More information: eng.unimelb.edu.au/mric/drought-hub/field-activities/sunitafe-demonstration-sites

Partners: SuniTAFE, University of Melbourne, Swan Systems, Incyt by LX, RapidAIM, Metos, Phytech

Southern NSW Innovation Hub

Irrigation Masterclasses

In partnership with the Southern NSW Innovation Hub, the NSW Department of Primary Industries (DPI) worked with 60 citrus, almond, winegrape and cherry orchardists to co-design and deliver four irrigation 'Masterclasses' across southern NSW, equipping growers with new knowledge, skills and confidence to manage drought.



Photo: Dr Allen Benter, NSW DPI

On-farm demonstrations saved 0.6-2.2 megalitres of water using Masterclass irrigation practices and principles.

One citrus grower described how the Masterclass increased his understanding of water movement through the soil and how to optimise his irrigation. "I've gained confidence in what I have to do in a drought, how to handle it a lot better and to be water wise," he said.

There is interest in expanding the Masterclasses across the SA, Southern NSW, South West Western Australian, Victorian and Tasmanian Hub regions.

Partnering with NSW DPI created links between this project and the NSW DPI Climate Smart Pilots – Demonstrating Adaptation Program, which supported uptake of agtech for selected growers who completed the Masterclasses and participated in on-farm engagement activities.

TAS Farm Innovation Hub

Informing the irrigation industry about grape growers' needs

Professor Kathy Evans, Tasmanian Institute of Agriculture, University of Tasmania



Photo: University of Tasmania

Winegrape growers' main concerns are that their crops increasingly need more water, and that water is becoming harder to access at a price they can afford. They perceive weather conditions becoming more extreme and variable, making irrigation decisions more complex.

Solutions proposed by growers to optimise irrigation management include more accurate weather forecasts, irrigation technologies that support more informed decisions, and drought-tolerant varieties or rootstocks.

Our research identified aspects of vineyard operations and factors external to the wine business that need to be considered by developers of irrigation technologies. We also identified the types of support that growers will need to adopt technologies and adapt to changing weather patterns.

MORE INFORMATION

For more information on the project or increasing the water-use efficiency of your horticulture enterprise, contact Dr Cassandra Collins, University of Adelaide, at cassandra.collins@adelaide.edu.au.

Vic Hub DROUGHT & INNOVATION | Mallee Regional Innovation Centre | SOUTHERN NSW Innovation Hub | TAS FARM INNOVATION HUB

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