CASE STUDY

Friday, 25 November 2022

Smart Farming equips growers with the latest sustainable technology

To limit and control the effects of climate change, Australian production nurseries are increasingly looking to invest in, and adopt new innovative environmental and sustainable plant production practices to be able to maintain productivity and profitability in a changing environment.

That's according to David Hunt, Greenlife Industry Australia's (GIA) Smart Farming Project Officer, for the Hort Innovation and National Landcare funded 'Digital remote monitoring to improve horticulture's environmental performance project' (ST19024).

Technology developments are providing growers with cost-effective tools to continuously monitor cropping and environmental indicators, enabling them to quantify baseline performance, monitor and measure improvements, inform business decision-making, and drive good environmental stewardship and natural resource use which helps to build stronger markets.

This is where the Smart Farming Partnership project, part of ST19024, comes in. The project aims to help growers drive benefits from the latest technologies and spotlight a series of on-site digital monitoring points where collected data is fed to and stored in a central computer and demonstrate how the data can be best utilised.

As part of the project, GIA is conducting a series of Smart Farming workshops in each state over the next 12 months to present and discuss the technologies installed at the projects first **Smart Production Nursery**, Golden Grove at Torbanlea in Queensland.

The first workshop in October 2022, led by David Hunt, was held in Victoria, and included presentations from GIA's project partners, Applied Horticultural Research and Hitachi.

“The workshops seek to provide production nursery managers and staff with an opportunity to learn how some of these new sustainable plant production practices can be implemented within their businesses,” David said.

“The first workshop was a success, with 18 growers and production staff from various production nurseries around Victoria in attendance.

“We discussed the benefits of installing remote cameras, water quality sensors, container moisture and leachate sensors, and various other technologies to help industry better understand the value in monitoring production processes and how

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automated data collection can allow them to make more informed cropping and business decisions.

“There is an increasing preference by both plant producers and the consumer for products to be grown sustainably with a minimal environmental footprint. Nursery managers and the nursery industry in general take their environmental responsibilities seriously, which is why over the last 20 years, the industry has continually focused on developing more sustainable production practices.

"It is imperative that production nurseries keep up to date with the latest technologies to not only help them be more energy, cost and labour efficient, but to ensure their products meet the communities’ expectations."

Pilot Smart Production Nursery, Golden Grove Nursery

Golden Grove Nursery is located on the Great Barrier Reef catchment and is one of Australia's leading citrus production nurseries, providing commercial citrus growers with nursery stock produced under best management practices.

The production nursery currently supplies over 200,000 nursery trees per year to the Queensland Citrus Industry and other fruit tree industries.

Through the Smart Farming project, Golden Grove Nursery has implemented a new innovative irrigation control system, redesigned growing media for horticultural tree stock, and installed new environmental measuring devices, including:

- A leachate monitor to identify nutrient runoff
- Weight scales and soil moisture sensors to measure the growing media moisture content and the crop water use
- A free-standing weather station within the shade house to monitor the microclimate
- pH, EC and Redox sensors installed in the dam and drain to monitor water quality
- A residual chlorine monitoring system to ensure disinfestation systems meet BMP
- Four networked cameras to monitor dam overflow, pest activity via sticky traps, stem length and crop growth.

Data collected from this technology is uploaded to the cloud using modern communication technologies and presented live on a screen in the office, with new practices helping Golden Grove to enhance decision-making skills, production efficiencies, labour use and environmental performance.

“Technology constantly evolves, providing more practical benefits and uses. As seen by Golden Grove Nursery, it provides valuable solutions to our changing climate.

“Attending our Smart Farming workshops will provide growers and broader industry with inside knowledge on the latest technologies and how it

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can be utilised to improve productivity and profitability.

“We cover a wide variety of strategies and technologies at the workshops that nursery managers will want to adopt at their nurseries. We highly recommend you join us at the next one,” David said.

The next workshop will be held in South Australia early in the New Year (2023). The location and date will be advertised in the GIA newsletter and via the state association network.

The Smart Farming Partnerships project runs for 3.5 years, concluding at the end of 2023.

The project involves collaborators including Hort Innovation, Applied Horticultural Research, Freshcare, Hitachi Consulting, National Landcare and industry bodies Greenlife Industry Australia, AUSVEG, the Australian Banana Growers' Council, and Growcom.

Hort Innovation funded project ‘Digital remote monitoring to improve horticulture’s environmental performance’ (ST19024) using the Hort Innovation nursery products research and development levy and the Australian Government’s National Landcare Program.

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