



Hitachi Vantara and Golden Grove Nursery harness data-driven analytics for water management

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Hitachi Vantara, the modern infrastructure, data management and digital solutions subsidiary of Hitachi, Ltd and Golden Grove Nursery, the dominant supplier of citrus nursery trees to the Queensland citrus industry (Australia), have applied artificial intelligence (AI), advanced analytics and sensor technology to inform data-driven irrigation water management practices for sustainable, environmentally friendly food production.

Golden Grove has installed an innovative combination of weight scales, soil moisture sensors, and analytics developed for horticulture use by Hitachi Vantara, Greenlife Industry Australia, Applied Horticulture Research, and ICT International. This solution measures and assesses moisture content in the growing media of pots, as well as crop water use, to provide insights that inform practices such as irrigation and fertilisation decisions. The implementation includes a free-standing weather station to monitor the microclimate and a range of pH, temperature, soil moisture, weight, and electrical conductivity sensors to monitor water quality and leachate.

"The best production nurseries have the best water," said Wayne Parr, Golden Grove Nursery Director. "With this project, we are using the power of data to improve our irrigation management processes which will, in turn, reduce the overheads of water usage, improve environmental outcomes, and ensure we maintain compliance with regulatory requirements."

With the new implementation, water is automatically sampled and tested every 15 minutes, as opposed to the manual process Golden Grove has been undertaking twice a week for more than 30 years. Sensors have replaced bottles dipped into the dam and fingers poked into a pot. Real-time data is uploaded to the cloud and presented on one screen – the Hitachi Supply Chain Control Tower, modified to holistically measure production nursery productivity and environmental stewardship by integrating sensor data, weather forecasts, and biophysical models. Nursery personnel can easily access depictions of predictive analytics such as irrigation requirements thanks to Hitachi's Lumada Manufacturing Insights.

Generations of experience, instinct and know-how are now supplemented with real-time insights that can give Golden Grove Nursery a data-driven edge. Within months of implementation, the nursery improved its irrigation practices by 30 per cent.

"It is a privilege to support both sustainability and operational efficiency objectives in tandem, in an industry like agriculture and horticulture that has such a direct impact on society," said Maggie Laird, Hitachi Vantara Senior Vice President of Business Transformation and Sustainability. "We are committed to developing the solutions and analytics that sector-leading innovators like Golden Grove Nursery need to make critical data-driven decisions that solve pressing challenges like modernising to remain competitive whilst protecting the land and surrounding waterways and fostering sustainability in food production practices."