

Agtech advances bring solutions to all levels of farming

BUSINESS

The development of technology that combines Internet of Things sensors with AI and machine learning is the future of agtech, according to BDO.



An example of the technology is an agtech software system that has used artificial intelligence and satellite imagery to map every vineyard in Australia.

Developed by [Consilium Technology](#) in Adelaide, South Australia, the Geospatial Artificial Intelligence for Agriculture (GAIA) analysis algorithm scans high-resolution satellite images of Australia's wine regions to identify exactly where vineyards are located and how many vine rows are planted.

Funded by Wine Australia, the scan is the first of its kind in the world and replaces the old Australian Bureau of Statistics paper-based sector survey, last published in 2015.

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The new method has also measured vine row length, making it possible to assess planting densities by GI region and sub-region for the first time.

Michael Macolino, who heads up the agtech team at BDO in Adelaide, said this combination of imagery and data analysis helps producers save money by showing them parts of a vineyard or crop needs more water or fertiliser, for example.

“What that does is to allow the farmer to know where they should be spending their money,” said Macolino, who is also an Expert in Residence at the University of Adelaide’s agtech incubator at ThinLab.

“Rather than just having to put water across this entire crop, they are actually actively directing their inputs. That has an efficiency gain because they are not using as much water.

“These types of technologies would have been completely out of the reach of most family farms and would have required an agronomist to study the data to advise the client. Now it is in the reach of the farmers themselves.”

The multi-spectral imagery from Maxar’s WorldView-2 satellite and GAIA technology can also be used to provide insights into vine health such as assessing weather-related damage.

Consilium Technology has so far been working in a private Beta with 24 customers including Treasury Wine Estates, DeBortoli Wines, Brown Family Wine Group and a number of viticultural consultancies.

An interactive GAIA app was launched at the Australia Wine Industry Technical Conference in Adelaide last week to allow grape growers and winemakers across Australia identify and annotate their own blocks.

Consilium Technology chief technology officer Sebastien Wong said one part of the technology was the automatic identification of crops and the other was the ability to monitor crop health.

He said GAIA could be used across a range of high value agriculture industries such as almonds, avocados and citrus and had generated a lot of international interest.

“Wine is our first focus because the technology is ready to go and we’ve had good interest from international wine industries including North America,” Dr Wong said.

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BDO's Macolino said Consilium was a good example of the future of agtech, ensuring all the sensors and systems were integrated to provide agribusiness with predictive insights.

“At the moment these technologies are being adopted in isolation,” Macolino said.

“We have sensors collecting information about water and temperature. We have satellite data and in the back office we have farm management software to help farmer predict yield and profitability. It's still a very manual process.

“The future of agtech is a unanimous connection between all of these sensors, between the software in the back office and then having machine learning and AI basically being able to collect that huge amount of information, analyse it and provide predictive insights.”