Can 'big data' step-change agriculture?

A major collaborative project is underway, as part of the Rural R&D for Profit programme, to investigate the potential for farmers from big data and precision agriculture. **By Nicole Baxter, GRDC GroundCover magazine**

Digital agriculture is rapidly becoming part of the farming landscape as growers, millers, and extension providers tap into this new toolkit.

One specialist in the area, Australian Farm Institute general manager of research Richard Heath, says one way to look at digital agriculture is to consider how precision agriculture, which is already in place, can better inform decision-making.

He has been involved with a research initiative called 'Accelerating precision agriculture to decision agriculture' (P2D), which is investigating the use of big data in Australian agriculture. The initiative is funded by the Federal Government's Rural Research and Development for Profit programme and draws support from all 15 of Australia's research and development corporations, including SRA.

Mr Heath says 'decision agriculture' has this name because it uses information from precision technology, which is connected seamlessly in the 'cloud' via information aggregation platforms. These platforms are linked to decision-support analytics to help improve decision-making.

As part of the P2D project, the Australian Farm Institute was tasked with writing case studies to show how big data is being used in agricultural supply chains in the US.

Agrian

One case study focused on the farm management software platform Agrian.

Mr Heath says Agrian started as a compliance-based system for horticultural production in California, one of the most regulated states in the US, but has been expanded to meet the needs of broadacre agriculture.

He says Agrian supports compliance through the supply chain, from an agronomist's recommendation to a farmer's actual use, ultimately helping to assure safe application of crop protection products.

Other information that can be stored on Agrian includes paddock records, planting data, yield maps, satellite imagery, the results of mobile scouting, crop planning and budgeting records, laboratory analysis results, nutrient management and crop protection use and variable-rate application data.

Another feature of the platform is a manufacturer product database that enables users to search for detailed product information as well as safety and compliance data, such as where use of a product might be restricted.

"Regulatory requirements for agriculture, particularly in relation to environmental sustainability measurements, are likely to increase over time," he said.

"Platforms like Agrian provide the opportunity for farm equipment and record-keeping software to interface and integrate with other compliance and stewardship programs."

Mr Heath says the end result is that compliance programs become less of a burden for farmers and more integrated with standard farm management practice. To illustrate how this might work, he points to the Canadian Field Print Initiative, a Canadian Government program to provide environmental best practice benchmarks for fertiliser application.

"The developers of Agrian worked with the Canadian Government to create APIs so that farm data collected on Agrian's platform feeds directly into the Canadian Field Print Initiative, eliminating the need to have duplicate systems for record-keeping."

Australian Government
Department of Agriculture and Water Resources

For more information
Richard Heath
(02) 9690 1388
heathr@farminstitute.org.au