

The silver lining in data-filled clouds

Cloud-based technologies that capture farm analytics can unlock farm-management efficiencies

By Rebecca Jennings

■ South Australian grower Linda Eldredge never thought she would be hiking the Great Wall of China and talking to her guide about opportunities for Australian growers to meet global food demands.

She describes it as one of the many ‘ah-ha’ moments during her Nuffield Scholarship, supported by GrainGrowers, which she used to research low-cost, cloud-based technologies to assist with innovation and efficiencies in agriculture.

Linda and her husband Rhys run a mixed-farming enterprise at Clare and Appila in the mid-north of SA, incorporating about 1400 hectares of cropping, Merinos and crossbred lambs. Their children Bryce (22) and Jessica (19) work and study, in Sydney and Adelaide respectively, but, as the seventh generation to farm at Clare, still play a role in the business through its farm advisory board.

When Linda is not taking her turn in the tractor at seeding and harvest, she travels across Australia as a rural business consultant with a passion for production and financial analytics.

“I work with my clients to drill down into their terms of trade, to identify how they can be more efficient and to identify what opportunities exist,” she says. “We aim to increase profitability at all times when collecting data. For example, we have used analytics to demonstrate business opportunities and risk-mitigation strategies that, when presented to bankers, has lowered clients’ margins and interest rates.”

The emergence of smartphones and tablets was Linda’s catalyst to dig deeper into the analytics of farming and how data can be used and collected to drive innovation and efficiencies.

“During the 2011 harvest season, I would spend the day in the paddock and then check grain prices at night, only to find we had missed the chance to sell at a high,” she

says. “I thought: there has got to be a better way to do this. So, I bought an iPad and started checking grain prices on the go.”

This one technology allowed Linda to strategically sell grain, capturing an additional \$20 per tonne for wheat that season.

“This was the focus for my Nuffield research – to understand the value of new analytical tools and measure their value, effectiveness and potential impact on profitability.”

Linda travelled to the US, Canada, Qatar, India and China as well as to Europe in her quest to gain an insight into global agribusiness, and how low-cost, cloud-based innovations could be harnessed to meet industry demands.

She even gained access to leading technology companies Google and Facebook while travelling through the US with the GRDC’s manager digital products and services, Tom McCue.

“I believe a participatory approach in collaboration with social technology giants is critical to create a global solution for new, intuitive, voice-response cloud technologies,” Linda says. “Technologies that use the same hands-free, ‘push and pull’ capability as Google Glass could enable growers to intuitively process data from soil moisture probes, or in-cab technology to assess risk and opportunity on the go.”

While Linda believes such cloud-based technologies are the way of the future, she realises the challenges rural users face.

“Decision-making using cloud-based programs is already a reality; however, there are limitations with regional wireless and data connectivity.

“The ownership and use of big data is another emerging issue, so it is critical to carefully examine the terms and conditions of cloud-based products to ensure data is secure and not being on-sold.”

Linda says another barrier to technology uptake is the disconnect between



PHOTO: VANESSA STREET

South Australian grower Linda Eldredge from Clare used her GrainGrowers-supported Nuffield Scholarship to explore low-cost technology options for on-farm innovation.

analytical tools from different companies, meaning users have to duplicate data.

A key message from Linda’s research is that agribusinesses need to be discerning in their choice of cloud-based, real-time subscription tools in order to capture measurable production analytics.

“Data collection can be overwhelming, so start by identifying the gaps and risks in your business and then look for a few good tools to address these areas. If data doesn’t give you an edge, stop collecting it,” she says.

“It also about a balance of tools. The ‘top end of town’ technologies will deliver significant production gains, but simple tools such as a weather app or even Twitter can provide valuable, real-time information to guide decision-making.”

During her research, Linda realised there is a lack of investment into cloud-based applications specifically for agriculture.

She says one solution is to adopt participatory innovations from other industries, such as drones, infrared cameras and 3D printers, to drive management and production efficiencies in agriculture.

“Imagine being able to 3D-print a machinery part in your own shed instead of waiting for weeks for it to arrive from another country, or having your own private YouTube channel with all your physical operational procedures accessible to staff in a video format for training and ongoing reference. These low-cost technologies could drive increased efficiencies and profitability – now that makes for an exciting agribusiness future.” □

► **More information:** Linda Eldredge, linda@eldredgeandassociates.com.au

Linda’s Nuffield Australia report is available at: www.nuffield.com.au/linda-eldredge

PASTURE FIT FOR NEW HRZ MODEL

By Sharon Watt

■ A new farming system model for the southern cropping region’s high-rainfall zone (HRZ) is emerging as a result of a GRDC ‘pastures in crop sequencing’ project. The project, by Southern Farming Systems (SFS), aims to help increase adoption of pasture and fodder-based practices to solve problems threatening the long-term viability of cropping-dominant systems in the HRZ.

SFS consultant Simon Falkiner, of FalkinerAg, says the project, established in 2011, has helped growers overcome the challenges of working with a cropping system inherited from north of the Great Dividing Range.

“When we first started out on this project, we recognised the need for a legume or a break crop in our farming systems. This was an opportunity to put some pasture into our cropping rotation and to take the first steps in creating a new model for the HRZ.”

The project has four main areas of focus. The first is about combating weeds through pasture and forage systems and the second is the use of legume pastures as a source of nitrogen that did not “come out of a bag”. The third focus is about overcoming climate variability by finding methods to capitalise on rainfall that occurs out of season.

“We’re seeing more unusual rain events and so we want to find a way to capture the benefits

of those rainfall events,” Mr Falkiner says.

The fourth focus revolves around building soil carbon, aiming to improve soil biology and dealing with hostile subsoil.

“One of the key findings was that weeds were surviving our pre-emergent and post-emergent chemical sprays and our canopy wasn’t closing quickly enough,” he says.

“Germinations of ryegrass and radish were providing the seedbank for the following year. This project has worked on capturing those weeds and not letting them set seed.”

Craig Drum, director of Gorst Rural, said the initial cost might be a bit higher than doing nothing, but the gain from extra livestock production, nitrogen, weed competition and ryegrass control, was well worth it.

He said that SFS and the GRDC have worked together for a long time and this project has also allowed Gorst Rural to work with the University of Melbourne’s School of Engineering to develop a machine to take pasture and bury it in the soil profile. □

► **GRDC Research Code SFS00022**

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More information about this project can be found in the Pastures in Crop Sequencing YouTube video: <https://youtu.be/1fSi3DrIFM>

Applications open

Applications for 2017 Nuffield Australia Farming Scholarships are still open: closing on 30 June 2016.

Nuffield Scholarships for Australian Farmers give primary producers a life-changing scholarship to travel overseas and study an agricultural topic of choice.

Successful applicants receive a \$30,000 bursary to study a topic relevant to their business and industry. The tenure of study is 16 weeks taken over a two-year period.

The GRDC supports three scholarships for each of its three regions: northern (Queensland and New South Wales), southern (Victoria, South Australia and Tasmania) and western (Western Australia).

The 2017 program includes attendance at the 2017 Nuffield International Contemporary Scholars Conference in March in Brazil, where all global scholars spend a week networking, discussing and debating the biggest global issues facing primary industries.

There is also the Global Focus Program, a six-week international study tour in which about 10 scholars travel as a group through six to eight countries.

All scholars complete a minimum eight weeks of individual international study related to their chosen topic.

There are about 350 Nuffield Scholars in Australia.

► **More information:** Nuffield Australia, 03 5480 0755, enquiries@nuffield.com.au, www.nuffield.com.au