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The search for improved grain returns

By Kellie Penfold

When 2006 Nuffield Scholar Bruce Thompson returned earlier this year from his international travels, continuing dry conditions only heightened his concerns as to how Australian grain growers would cope with the dramatic changes occurring in agriculture locally and worldwide.

“The community is enduring another rollercoaster season and worried about another crop failure. I’m still analysing what I’ve seen overseas, and where Australia fits in a changing agricultural world,” says Mr Thompson, who runs a 5000 hectare grain-growing and sheep production enterprise at Temora in southern NSW with his wife Leanne, parents Neville and Catherine, brother David and David’s wife, Jenny.

“It has been said the influence of the demand for energy is the biggest thing to hit US agriculture since the Industrial Revolution. The flow-on impact on Australian agriculture has to be pretty big as well,” he says.

Mr Thompson, whose Nuffield scholarship was supported by the Grains Research and Development Corporation, spent 17 weeks travelling through New Zealand, the US, Brazil, Argentina, Mexico, Canada, China, France and England researching what Australian growers could embrace to remain competitive. Interested in how grain growers gain efficiencies in a competitive market, Mr Thompson focused his research on two areas – the use of agricultural robotics in reducing labour inputs and the opportunities GM varieties offer for achieving better performing crops.

“Every country has its own agricultural issues. In Australia it has been coping with climate change, in New Zealand it is market access and in California it is retaining a cheap labour force in illegal immigrants,” he says.

“But overall the emphasis is on gaining critical mass in farming – how do you produce more from less land with less labour units. It appears it is difficult to gain economies of scale in livestock. There are no handpieces or drench guns that will do 10 sheep at a time, but efficiencies can be gained in cropping.”

In the past 18 months in Temora a number of people have left to take up jobs in the mining sector. Although many of these people were not working on farms, they were the mechanics, electricians or plant operators who are important in supporting agriculture. Mr Thompson saw a similar trend in Canada where the oil and gas sector was attracting a lot of the people and “most shops had a staff-wanted sign on the window”.

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However, Australia's mining boom could go some way to solving the country's agricultural labour shortage through the mining industry's financial support for the development of robotic or driver-less machinery, he says.

"Aviation and mining are leading the way in robotic machinery – 'dozers without drivers to work on unsafe ground and robotic dump trucks. The technology exists to do the same with tractors and other farm machinery but there are two problems. The first is the legalities and the second is the agriculture sector isn't worth as much to the developers of these machines."

In the United States, Mr Thompson says, farm machinery robotics were successfully trialed in the early 2000s but, due to legal wrangling over intellectual property and patents, commercialisation is still some way off.

Safety is another issue, he says. "A mine is a closed site with restricted access – how do you achieve that on a farm? Put a security fence right around the paddock?"

However Mr Thompson sees much potential in robotics for Australian agriculture and envisages a day when one operator can manage three or four machines in a paddock at one time.

"Companies are saying: 'When the header is full it will be able to communicate with the chaser bin to pull up alongside and maintain distance, direction and speed until signalled that the unloading is completed; the chaser bin will then return to the unloading area'. It's not unrealistic when you think about the robotics that already work in farming – such as travelling or centre pivot irrigators that were developed years ago and originally had all sorts of hassles."

GM POTENTIAL

As well as investigating the possible production efficiencies offered by robotics, Mr Thompson looked into the likely gains that could come through planting GM varieties. He says it is time for Australia to embrace the potential they offer, especially in keeping pace with a changing global market. He believes Australia is limiting its opportunities by taking a cautious approach.

"The demand for ethanol will affect plant breeding programs worldwide. This US mandate (the US has mandated that 20 per cent of its fuel contain biofuel by 2013) has had a rippling effect, with crop rotations changing due to perceived returns or because of increasing input costs," Mr Thompson says. "One breeder I met was working on stripping the leaves from lucerne for stock feed and using the stalks for ethanol production.

"The way to come up with the varieties to meet these changing demands will be through genetic modification. I'm pretty sure the debate we are having now can be compared to the wide comb dispute that took place in the wool industry."

In Canada, Mr Thompson saw canola consistently yielding 65 per cent of wheat yields. On the Thompson's property it is usually around 40 per cent.

"It's taken 10 years for Canada to get to where it is with GM varieties. You'd have to think we could do it in half the time in Australia and hopefully give farmers easier management options and more consistent returns."

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PHOTO: Nuffield Scholar Bruce Thompson. Photo credit: Kellie Penfold

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