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Integrated farming antidote to input addiction

By Catherine Norwood

Easy access to cheap chemicals and fertilisers has created an increasing number of highly specialised farming systems addicted to inputs and vulnerable to growing weed and pest resistance, input price rises and product shortages.

It's a precarious position to be in, says Tasmanian farmer Robert Bradley, who has been investigating strategies to reduce input-dependence as a 2009 Nuffield Scholar, sponsored by Rabobank.

"We're running out of time," Mr Bradley says. "We're increasingly reliant on inputs, but there's no new chemistry coming along for better weed and disease control. We need to look more closely at how we can use natural biological processes to improve the resilience of our farming systems."

His strategy, and the impetus for his Nuffield Scholarship, is to improve on-farm sustainability through better integration of cropping and livestock. Improved soil health is a crucial part of his plan.

He and wife Jo run a mixed cropping and livestock operation based on 1200 hectares at Longford, south of Launceston, which includes 400 hectares of pivot irrigation. The operation is typical of many in the region, producing high value vegetable crops such as poppies and peas, in rotation with cereals and pasture. He also produces more than 2500 prime lambs, and operates a 500-cow dairy.

Mr Bradley says in the past they had consecutively cropped their irrigation areas for four years, followed by only a winter ryegrass pasture to provide a weed and disease break. But during the past decade the productivity of these areas has been declining and soil structure has deteriorated.

He has already identified pasture as playing an important role in improving the health of his soil, and visited the US, United Kingdom, Canada and New Zealand looking for strategies to improve the changeover from crops into pasture and from pasture back into cropping.

Horticultural crops are the "economic earners" in the Bradleys' farming system, but they are also the most damaging to fragile soils, as they require a fine seed bed for establishment and high levels of nutrient inputs. Pasture can help restore nitrogen and increase organic content, with manure contributions from livestock, but the conversion from pasture to horticulture can undo these benefits.

Mr Bradley says he found hope in US and Canadian research that suggests the soil carbon and nitrogen benefits of pasture can be retained if paddocks are converted for horticulture only once every five years. As a result, he is planning to reduce the number of horticultural crops and extend pasture phases in order to maintain soil productivity. He is also trialling the under-sowing of clover into cereal crops to speed the conversion to pasture once cereals have been harvested.

A major challenge of the changing emphasis in rotations will be maintaining high value livestock to maximise returns from pasture. With the collapse of the Australian wool industry during the past 20 years, prime lambs rather than fine wool Merinos are now the major source of income from pasture. Mr Bradley says the dairy added recently to their operations also helps to increase pasture returns.

“We bought an additional property that included a disused dairy, although we were only interested in cropping when we bought it. But the potential returns from the dairy industry were an incentive to get the dairy running again and we were fortunate enough to find a share farmer who runs it for us.”

In New Zealand many farms have extended pasture phases in mixed rotations and some farmers bring in livestock on contract rather than running their own. Mr Bradley says this could also prove a good option in Australia, where much of the wheat-sheep belt has become the wheat-wheat belt. “There is a younger generation of farmers who don’t want the burden or the lifestyle associated with livestock, and they might not even have the necessary skills.”

However, he says in many cases farms have also removed the infrastructure required for livestock – no fences, no shearing sheds or cattle yards – largely irreversible change, given the capital required to re-instate this infrastructure.

He sees it as a sign of reduced flexibility in Australian agriculture, which has become increasingly dependent on inputs, and no longer able to work with cycles of animal and plant interactions to build resilient, self-maintaining systems.

Mr Bradley says he still has much to reflect on following his Nuffield Scholarship, such as consumer-driven trends towards sustainability, rather than producer-driven trends.

“For instance in the US, McDonald’s got hold of some research that showed that mustard crops could effectively treat potato crops against some soil diseases. Soon after, they insisted all their suppliers use these green manure crops rather than synthetic fumigants.”

Although not an organic farmer, Mr Bradley says he was constantly directed to organic farmers when researching integrated systems. In the UK around four per cent of food is produced organically, as these systems have moved from “alternative” into the agricultural mainstream.

“I think there are benefits in these integrated systems that we’re missing out on. There have been billions of dollars spent on input-based research, but comparatively little spent on research into the benefits of natural biological processes and interactions. We need to fill the gaps in our understanding,” he says.

Rabobank will again be sponsoring a Nuffield Scholarship for a primary producer in 2011 and applications will close on June 30, 2010. Rabobank Australia is a part of the international Rabobank Group, the world’s leading specialist in food and agribusiness banking. Rabobank has more than 110 years’ experience providing customised banking and finance solutions to businesses involved in all aspects of food and agribusiness.

Rabobank is structured as a cooperative and operates in 48 countries, servicing the needs of more than nine million clients worldwide through a network of more than 1600 offices and branches. Rabobank Australia is one of the region’s leading rural lenders and a significant provider of business and corporate banking and financial services to the food and agribusiness sector. The bank has 53 branches throughout Australia.

For more information on Robert Bradley’s 2009 Nuffield Scholarship contact Mr Bradley, 03 6391 2404, mobile 0418 276 634, email robnjo4@bigpond.com

A high-resolution photograph of Mr Bradley can be downloaded from www.coretext.com.au/communications_images.php.

Please contact Catherine Norwood at Coretext Communications (03) 9670 1168, cnorwood@coretext.com.au if you have any problems accessing images.

Applications open for 2011 Scholarships

Applications are now open for Nuffield Australia Farming Scholarships for travel in 2011 and will close on 30 June, 2010. Winners will be announced in October 2010. Scholarships are for primary producers aged 28 to 40 years, although applications outside this range may be considered.

Each scholarship is valued at \$28,000, sponsored by major agribusiness and industry groups across Australia. All scholars take part in a six week Global Focus Program, with up to 10 weeks of individual travel to investigate a topic of their choice.

Scholars say it has been a life changing experience, building self-confidence and decision-making skills and introducing them to a network of leading primary producers and agricultural leaders around the world.

Nuffield Australia chairman David Brownhill says personal growth is a huge benefit of the program. Its primary aim is to improve the skills of Australian primary producers, provide a global perspective of agriculture and help scholars bring back new ideas and strategies for the benefit of both individual scholars, and their respective industries.

Recent scholars have been drawn from a wide pool of primary industries and include grain and rice growers, fishers and aquaculturists, chicken, beef, lamb, goat and pork producers, woolgrowers, dairy farmers, apiarists, orchardists, horticulturalists and vigneron. Study topics have varied from the basics of production such as soil, water, crop varieties, weeds and disease to production systems, new technologies, natural resource management, biofuels, carbon trading, supply systems, marketing and public relations.

Scholars are selected for their farming and leadership capabilities, and potential to make a valuable contribution to the future of Australian agriculture. They join a growing international network of scholars, which has more than 200 members in Australia and 1300 members worldwide.

Application forms are available from Nuffield Australia on 03 5480 0755, via email, enquiries@nuffield.com.au, or from the website www.nuffield.com.au.

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