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Drought turns up a thorny idea

By Catherine Norwood

Farming cacti could offer a solution to drought-induced fodder shortages in Australia's semi-arid region says Western Australia's Cameron Tubby, who has spent three months as a Nuffield Scholar investigating opportunities to improve the resilience of his family's farm business at Morawa.

He realises the suggestion could prove controversial because in Australia many cacti, such as the well-known prickly pear, have been declared noxious weeds north of the 26th parallel (which runs across Australia in line with the South Australia-Northern Territory border). However in many parts of the world, particularly arid countries, thornless cacti are farmed as important fodder source.

Cameron says he has seen cacti plantations in California in the US, in South Africa, Syria and Israel while travelling as part of his Nuffield Scholarship, sponsored by Landmark. Some plantations were irrigated and the fruit harvested. Others were grown for fodder and the plantations grazed, or the large flattened stems, called cladodes, harvested and fed out either whole or shredded.

Farming cacti is one of many ideas he has returned with to improve the sustainability of production on the 7600 hectare property he farms with his wife Teresa and his parents at Morawa, where they crop up to 4000 hectares of cereals and legumes.

He says he has also gained a wider perspective on drought and the potential to continue farming as a result of his travels. Cameron says he had "just about given up" on farming in 2008, after seven years of drought, when the average rainfall on his property north of Morawa for the May to September winter growing season fell to an average of only 144mm. Through the 1990s average in-season rainfall had been 253mm.

"The drought was one of the reasons I applied for the Nuffield Scholarship, to see what else was out there, what we could be doing, instead of waiting around for Exceptional Circumstances support."

Many of the researchers he visited including those at the International Center for Agricultural Research in the Dry Areas (ICARDA) in Syria were amazed that Australian farmers were able to produce any kind of crop with such low rainfall.

"For me it really was a testament to the skill of Australian farmers and I also realised that there's no silver bullet to drought-proof our farming systems, beyond the kinds of things we're already doing. But I have so many new ideas – little things, which I think can add up to make a big difference."

Among these are plans to switch most of the 5000-head flock the Tubbys run to the Van Rooy breed of sheep, a move he has been considering for a few years. Cameron says he has been impressed by the breed's ability to withstand arid conditions, and they are widely used in the Koroo veld and Kalahari Desert regions of South Africa. As a fat-tailed, hair sheep breed, there is no tail docking, mulesing or shearing required and they will help to simplify animal management.

The family already has a commercial flock of 5000 Damara ewes. After visiting a number of farms overseas, particularly in South Africa, he plans to cross Damara and Dorper sheep to produce a Meatmaster variety. Meatmaster is a concept that relies on selecting sheep for preferred performance criteria to meet environmental adaptation and meat market specifications, rather than any specific bloodline.

A consequence of the drought in Western Australia has been reduced productivity from the shallow, rocky soils around Morawa and an increase in 'sheeting' when it does rain – the water runs straight off into local salt lakes and creeks instead of infiltrating the soil.

Cameron is planning to try a few micro-harvesting techniques he found being used overseas to help hold water in the landscape. Using the equipment he has on hand, he will create contours and moisture traps, which can be planted with native grasses or commercially-available perennial pastures and other plants.

"For example saltbush is widely planted in saline areas here, but I think they could be used in other areas to help trap moisture and encourage grasses to re-establish. There is a whole range of perennial plants we could use, if we knew more about them," he says.

Time spent investigating aquaculture in Israel and the US has also given Cameron confidence to pursue the production of brine shrimp using saline groundwater from his property. The groundwater quality varies from half the salinity of seawater to slightly more saline than seawater and is currently being extracted into local salt lakes via deep drains. This water did not stop flowing during the drought, suggesting that it may be a drought-proof resource that he could make greater use of.

A Morawa Farm Improvement Group pilot project set up on Cameron's property, which Cameron project manages, and work being done at the Challenger TAFE at Fremantle, indicate brine shrimp could be produced on a 12 to 14 day cycle, as fish food for the aquarium and hatchery industries. He estimates production in tanks will take about half an hour of his time each day, and could make his saline groundwater a valuable asset to the farm business.

Cameron says his Nuffield Scholarship has made him aware of more options and opportunities that might otherwise have passed him by. "It's amazing, with the cactus for instance, that what is a standard practice in other parts of the world isn't even contemplated in Australia," he says. "Once you're aware there are options, you can get started and keep abreast of developments, even if it takes 10 years before you're able to do something about it on your own farm."

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High-resolution photographs of Mr Tubby 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.

Captions:

Tubby01 - Western Australian producer Cameron Tubby visits a cacti trial plantation at Bloomfontein, South Africa during his 2009 Nuffield Scholarship tour.

Tubby02 - Nuffield Scholar Cameron Tubby discovered shredded cacti cladodes used as a supplementary feed for Meatmaster sheep in South Africa during his investigation into drought resistance crops and farming systems.

Tubby03 - Cameron Tubby has returned from his Nuffield Scholarships with many new ideas about how to improve the resilience and sustainability of his farm at Morawa in Western Australia.