Above—from left, Dan, David, Helen, Sophie, Hannah and John McKemey. Background—A diverse cell-grazed pasture of valuable summer (redgrass and Parramatta grass) and winter (cocksfoot) active grasses.

Wool production & biodiversity

Testimonial

working together for

The McKemey Family

'Willow Park'

Location
25 km east of Guyra, New England Tablelands NSW, Macleay catchment

Property size
'Willow Park' 1500 ha (3707 acres)
'Karingal' 434 ha (1072 acres)

Paddocks
130 ('Willow Park') and
51 ('Karingal')

Average annual rainfall
813 mm (32 inches)

Main enterprise
Fine wool (16-19 micron) and beef cattle (both trading operations)

Stock numbers
15 600 Merino sheep (18 600 DSE), up to 250 cattle (2500 DSE) in summer

Stocking rate
10.9 DSE/ha (4.4 DSE/acre, combined sheep and cattle)

Main soil types
'Karingal' - red and black basalt soils
'Willow Park' - red and black basalt soils, grey ironstone-basalt soils

Vegetation types
Formerly grassy white gum, mountain gum and black sally woodland, now mainly cleared. 140 ha of silvertop stringybark and white gum old-growth open-forest on steep eastern fall of 'Willow Park'.

Elevation
1110-1350 m a.s.l. ('Willow Park')
1305-1355 m a.s.l. ('Karingal')

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Introduction

John and Helen McKemey and their children, Daniel, Hannah and David, own 'Willow Park' and nearby 'Karingal' and run the two farms as a family partnership. John's father purchased and developed 'Willow Park' in the 1940s.

The McKemeys run a Merino wool and beef cattle trading operation as well as back-grounding cattle. They source 16-19 micron Merino sheep which cut around 3.6 kg wool/head. They buy cattle in spring, fatten them across the summer and sell prior to winter. They changed to a trade operation in 1999 from a prime lamb enterprise for the preceding 40 years.

The McKemeys have progressively adopted high-intensity, short-duration ('cell') grazing since 1991. This testimonial describes their management and experience with cell grazing over the past 15 years, and the many positive changes they have witnessed for both farm profits and the environment.

Land use history

Most of 'Willow Park' and all of 'Karingal' have been heavily modified over the years. "Clearing began on 'Willow Park' in 1948 and continued at the rate of 50-100 acres per year until 1960," says John. "By 1963, the property was virtually all cleared and sown to pasture apart from small patches of trees."

Other modifications include drainage works, dam construction, potato growing, pasture fertilisation and the planting of introduced trees and shrubs.

"The sown pastures and fertiliser went pretty well for a while, but we learnt you can't stop still in land management if you want to stay in business," says John. "We applied a hundredweight of superphosphate to the acre for many years, but by the end of the 1980s, nothing was responding. Our regular fertiliser program ran out of steam - we weren't getting the response we used to. You have to try something different when the wheels fall off."

"After doing the 'Grazing for Profit' course with Resource Consulting Services in 1990, we decided to try cell grazing."

Pastures, paddocks & water

The McKemeys use 2-wire, steel-post electric fencing to subdivide their country for cell grazing. On 'Willow Park', paddocks range in size from 7-15 ha, while at 'Karingal', paddocks are smaller (7-8 ha). The country is subdivided according to land type (similar aspect and soil type).

John has become disenchanted with cultivating country. "Where pasture was sown after potatoes, I still see individual tussocks, not complete groundcover years later. I know we did it for decades, but the effects of cultivation are detrimental and long lasting - I think it might do the soil more harm than good."

"We prefer to go with fertiliser than a resowing program. We have enough of the good grasses, sown and native. If a pasture is not performing, we do a soil test, and if the test suggests we need to fertilise, we do. Daniel trialed five tonnes to the acre of cow manure with fantastic results. At 'Karingal', we had good responses to chemical fertiliser and rock phosphate."

Below—High intensity, short duration or cell grazing is practised at Willow Park.

Succession planning

The McKemeys believe in making the most of their human resources. Once the children were educated and ready to get involved in the family business, John and Helen included them in decision making, and encouraged them to take on different roles in the management team.

Today, Daniel and Hannah run the operation and make most of the day-to-day management decisions. David has been traveling and working in Australia and overseas for a few years, and will also return permanently.

Helen and John plan to stay on around the fringes to help mainly in a directorial capacity. They are keen that everyone gets to experience each role in the business. “We intend to move people around in the management structure so that everyone gets to try stock management or human resources or marketing, and has knowledge of the whole show,” says John. “It is very, very important that they’re taking on a business they are thoroughly familiar with”.

Background—The over-cleared Boundary Creek catchment. “Since we started cell grazing, the erosion has healed and you hardly notice the creek any more.”

Above—A diverse cell-grazed pasture of valuable summer (redgrass) and winter (cocksfoot) active grasses. Below—100% groundcover in a weeping rice grass (Microlaena)-white clover pasture in stringybark open-forest.

Above—A circular ‘wagon wheel’ water point under construction. The high posts allow hot wires to pass over the top of ten gateways that will open on to a central trough.

Troughs are preferred for watering stock, as the sticky basalt dams were dangerous for the sheep when there was a lot of bare soil around them.

Water is pumped from Boundary Creek and reticulated across much of the property to large concrete round troughs watering several paddocks, often in a ‘wagon wheel’ design. One or two reliable, spring-fed dams were cleaned out, fenced and are also reticulated to troughs.

John was worried that timid sheep in the large mobs were not getting a drink because the circular concrete troughs are a bit high and some sheep were not approaching the central hub. Plastic troughs are now put along the line for the sheep in addition to the central troughs. In newly subdivided country, 5-m long troughs are being installed. “The stock don’t look as stressed in hot weather with this system.”

Boundary Creek and Wollomombi River have been fenced into small creek paddocks to provide water as part of the rotations.

Stock management

'Willow Park' runs about 17 000 dry sheep equivalents (DSE) in good years but stock are sold down to 11 000 DSE in droughts (e.g. 2002). 'Karingal' normally runs 3000 DSE in a mob. Dan says, "We're trying to change our focus from DSEs per acre to groundcover and livestock condition."

"The goal is to maintain 100 per cent groundcover, so mob size, number and the speed of the rotation are adjusted to ensure pastures have sufficient rest.”

In periods of active pasture growth, the grazing period on ‘Willow Park’ is as short as 0.50-0.75 days, followed by 60 days rest. In slower growth periods, the grazing period gets out to 1.0-1.5 days in, followed by up to 90 days rest.

The McKemeys feed bypass protein (e.g. cotton seed meal, urea or grain) in winter.

Pests & weeds

Invasive perennial grasses are John’s biggest concern—in particular, African lovegrass and Chilean needle grass. Infested areas are being subdivided and watered during 2006, and the McKemeys intend to monitor the effects on these species.

Because cell grazing favours perennial grasses, John worries that it could promote these species and even spread them as a result of stock movements. “Obviously, we try to miss badly infested paddocks when the grasses are in seed, but there may be one or two plants in paddocks that you are not aware of.”

“A patch of Chilean needle grass I have been watching since 1994 hasn’t become any worse since we began cell grazing it in 1996. This is heartening.

“Rabbits are the most feral thing we have. We’ve been working on them in a couple of areas, and I have been astounded by the difference in the pastures after we’ve cleared them up. I thought it might have been the soil or maybe the fertility in these areas, but it was probably the rabbits all the time.”

Monitoring

The McKemeys believe in monitoring their business and resource base to fine-tune their management. They do this in several ways.

Pastures and soils have been monitored annually on ‘Willow Park’ and ‘Karingal’ since 2001 by Dr Judi Earl from Agricultural Information and Monitoring Services.

“We get to know what direction our pastures are heading in,” says John. “Some respond very quickly to changes in grazing management, others show no response. It’s hard to predict or know why, but it’s important to be sure of any changes. Memory is not very reliable in these circumstances.”

In terms of farm business recording and mapping systems, Hannah has been using the Practical Systems’ software, *Farmbook*, *FarmMap* and *Cashbook*.

"The programs are a great way to record the day-to-day farm information, from finances to production," says Hannah. "The reports and ease of use make for efficient, valuable feedback on farm performance. All our cell grazing paddock and water designs have been done in *FarmMap*. This has made the process of fencing to land type and providing water far more accurate and easier than before."

Benefits of cell grazing

In the McKemeys' experience, subdividing the country and implementing cell grazing has allowed them to increase the number of stock and saved them time and money.

In the steeper eastern country which they only recently subdivided, there was a lot of poa tussock on the south facing slopes. John saw an immediate response in terms of pasture utilisation. "The stock trampled the tussock. This took away the shading and allowed the clover and softer grasses to come through. By forcing the stock into this country and utilising it, we increased production."

"By fencing to land type, we have also used fencing to push cattle into the swampy drainage flats. The sheep can now follow them in because there's less rank growth and better sheep pick," says John. "The swamp foxtail on the flats gives way to fescue and clover if it's kept short enough."

"Every year there have been changes. Scotch thistle has diminished. Poa tussock and blady grass have disappeared, and there is less Patterson's curse and bracken."

"The perennial introduced grasses and better natives like redgrass and paddock lovegrass are coming back due to the long rest periods. There's less rat's-tail fescue, crabgrass, barley grass and tussock under cell grazing. It allows all the better species, including the natives, to have a go."

"You don't see any sheep tracks in the pastures anymore—they're all healed. Native paper daisies filled in the tracks close to the woolshed, and palatable golden everlasting and poached egg paper daisies come and go in the different paddocks now where the thistles once did. Groundcover and litter have improved dramatically."

The reduction of bare soil and erosion along Boundary Creek has been one of the most telling impacts of cell grazing for John. "We always had spring-fed, clear-flowing creeks, but they were eroding in places. Cell grazing healed the creek, and it happened very quickly. It's a great story. We skip the riparian paddocks in wet weather if we don't think the sheep will like it, so the river and creeks tend to get longer rests. They have really shown the benefits."

According to John, cell grazing has also helped with sheep parasites. "Barber's pole worm is non-existent here now. Worm control has been excellent and we may go a year without drenching. Fluke has reduced but can still be a problem. We conduct regular egg counts."

Reforestation

Much of 'Willow Park' and 'Karingal' is very bare of trees and shrubs. The plan has been to fence along ridge lines and plant trees and shrubs for shelter and wildlife. As Helen points out, "Restoring land costs money, and unfortunately the surpluses usually haven't been there in the past 20 years to do much conservation work".

However, in the past 5 years, with help from funds sourced by Southern New England Landcare, the McKemeys have fenced out 10-15 km of ridgeline and linked up remnant native vegetation in the process. A local nursery was contracted to plant 19 000 native Hiko seedlings in 8-row shelterbelts in the ratio 20:80 trees:shrubs, and to provide a range of flora for wildlife. Stock are excluded from the tree lines and most of the plantings have been successful as windbreaks for stock and wildlife corridors.

According to John, "We want to focus on improving 'Willow Park'

Below— Planted windbreaks of native trees and shrubs link to scattered trees and stands for livestock shade and shelter, and to encourage wildlife.

High-intensity short-duration grazing ensures even utilisation of pasture, including these (above) cocksfoot and (below) poa tussocks.

Below—A drainage plain formerly dominated by swamp foxtail, converted to cocksfoot-phalaris-fescue pasture by fencing to land type and cell grazing.

Below—Cell grazing has allowed palatable pasture plants like phalaris, paspalum and poached egg daisy to reclaim the sheep camps at the expense of thistles.

rather than buying country elsewhere. We want to see every ridge planted with a tree line. Our vision is to have a series of enclosed sub-catchments. It's a good feeling to be doing it, but you need to look after them; young trees take a lot of looking after."

Heritage values

The McKemeys recently bought steep, well-timbered country adjacent to 'Willow Park', running down to cleared slopes and flats along the Wollomombi River. The timber provides excellent shelter and the cleared country expands their production base. According to John, "There's platypus in the River and wallaroos in the timber. I was astounded to see so many different kinds of bird and mammal in the Land, Water & Wool surveys on our place."

The 140 ha of dense silver-top stringybark and white gum timber on the eastern fall contain old-growth trees and a dense shrub understorey. Wattles are regenerating in places and there's a steep gully with a permanent stream, rainforest vines and mesic shrubs amongst the timber.

"We protect the timbered areas but we also use them for stock shelter, and occasional fencing timber and firewood," says Hannah.

John explains "We run a longer, lighter rotation in the timber. The stock use the shelter when they need it, but they don't move into it much.

"We also have an Aboriginal site [stone arrangement] on top of one of the timbered hills. It's nice to have and it doesn't cause any problems."

Above—The eastern fall country running down to the Wollomombi River is currently being fenced and watered for cell grazing, with the heavily timbered areas fenced into larger paddocks.

Below—Dense stringybark timber with old-growth elements and a wattle and blackthorn understorey on the eastern fall country.

Positive outcomes

Financially, the business is sound, with gross margins for the wool and cattle enterprises of $200/ha and $190/ha (5-year averages), respectively. "You have to pay a lot of attention to economics to make it pay these days," says John. The McKemeys' business model of including the whole family in the decision making and allocating management roles underpins their financial success.

In terms of being ecologically and economically sustainable, "Cell grazing has been quite a success," says John. "It's not for everyone—you've got to be tuned into animal production. Some people are just not interested. We have trade stock, others like breeding, but that makes cell grazing complicated. With trade stock, you're not attached to them—you have much more flexibility. However, you have to be prepared to put on stock from all over the place, and that has disease and weed implications."

Cell grazing at 'Willow Park' and 'Karingal' has been positive for the environment, as well: 100% ground cover and high levels of pasture biomass even at the end of grazing periods means clean water, no erosion, and a highly productive mix of desirable native and introduced pasture species. The McKemeys' purchase of eastern fall forested country with significant natural, cultural and production values and the reforestation program of native tree and shrub corridors and windbreaks also make for a more sustainable business.

The commitment, innovation and pioneering grazing management of two generations of McKemeys are another fantastic, and inspirational example of profitable, biodiverse wool production.

Background—A stone arrangement atop one of the hills on the eastern fall.

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native vegetation and biodiversity
improving farm profits through biodiversity

The Native Vegetation and Biodiversity sub-program of Land, Water & Wool is working with wool growers and demonstrating that biodiversity has a range of values, can add wealth to the farm business and can be managed as part of a productive and profitable commercial wool enterprise.

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