



# Systems-based research ensures a smooth operation

**A** desire to create a stable, yet progressive, production system has lead Holbrook graziers Vicky and Tony Geddes to actively seek information about new perennial pasture options and improved management techniques from many sources. Vicky recently shared her philosophies with Pamela Lawson.

“I have a strong background in science, which ensures I look for a high level of scientific rigour behind any new technologies we trial on-farm. But I also seek systems-based research that provides practical, useful results for the whole production system,” Vicky said.

“Before the drought our pastures were about 70% improved perennials, 20% annuals and 10% degraded native pastures. We were focused on improving the production of a large area of wiregrass-dominant native country, which was degraded and under-utilised. But once the drought really took hold, we needed to find the best way to manage and protect our perennial pastures.

We knew we would realise a far greater loss when the drought eventually ended if those pastures were lost or significantly degraded and needed re-sowing. We had always used a rough rotational grazing system, but with the pastures under stress we needed to better understand their physiology, so we could manage them for their health and persistence as well as satisfying our animal production needs.

## Information sources

“In the past, we relied on local resources, or information such as agronomists, the

## key points

- Holbrook grazier Vicky Geddes sees value in systems-based research based on a high level of scientific rigour.
- Paddock preparation through cropping aids weed control before pasture establishment.
- Lucerne has been reintroduced after an association with EverGraze and the breaking of the drought.
- On-farm trials offer evidence-based results that mimic real-life challenges.

## farm info.

**Case study:** Vicky and Tony Geddes

**Location:** Holbrook, New South Wales

**Property size:** 1800 ha

**Mean annual rainfall:** 700 mm

**Soils:** Clay-loam

**Enterprises:** Breeding self-replacing Merinos and prime lambs, trade beef cattle, cereal cropping



Holbrook grazier Vicky Geddes uses science-based perennial pasture information to make on-farm changes that benefit the whole production system. (Photos: Pamela Lawson)

Holbrook Landcare Group and Department of Primary Industries extension officers. We also received local and national research extension material from various organisations.

More recently we look to the internet to find more detail and background information about any new developments in pasture management, to see if and how they might best fit our production system.

Our phalaris-based perennial pastures were originally established and managed according to trial results from Broadford, Victoria. The trials focused on allowing phalaris to return to the four-leaf stage before grazing to maximise production and persistence.

Much of the work now done by EverGraze® has built on these results, so I was keen to do an EverGraze rotational grazing course (Whole Farm Grazing Strategies) during 2010. The course was exceptional in terms of delivering the technical understanding of plant and animal needs and then fitting both into a whole-farm grazing system.

The ethos of ‘Right Plant, Right Place, Right Purpose, Right Management’ was also front and centre.

My interest has now culminated in me being one of four producer representatives sitting on the EverGraze National Advisory Committee.

## Monitoring performance

We run 12,000-13,000 sheep, with a mid-winter stocking rate of 20,000 dry sheep equivalents (DSEs) running on our grazing country at a rate of 15-18 DSE/ha.

For most of the year, we rotationally graze our sheep in flocks of 2000 head. We add and remove trade cattle from the system according to seasonal feed availability, with 1000 head of cattle being traded during 2010.

To monitor pasture performance, we keep records for each paddock, showing flock numbers (as DSEs), days they grazed the paddock and the subsequent rest period.



This information, as well as other *EverGraze* tools, helps us plan future rotations and feed budgets, and determines the fertiliser needs of each paddock.

We used to follow a typical routine fertiliser program thought suitable for the local area, but now use the potential carrying capacity and past performance of a paddock to strategically apply phosphorus.

Our rotation records also identify under-performing paddocks quickly, allowing us to assess when best to bring them into our cropping rotation.

Through Holbrook Landcare I have also just completed a pilot phosphorus training course developed by NSW DPI (5 Easy Steps), which was extraordinarily good. It dramatically increased my scientific knowledge of phosphorus in our system and more importantly, the economics of production curves and phosphorus application rates.

### Cropping supports productive pastures

Cropping is an increasingly integral cog in our pasture renovation program – it also helps to fill the autumn-winter feed gap.

We have had success retaining stubble to conserve summer rainfall, allowing us to sow early and have early autumn feed available.

If paddocks are suitable, we crop for five to six years before sowing pasture. The less suitable cropping paddocks are sown sooner.

We are still exploring whether it is best to go straight from cereals into pasture or tack on a grazing brassica as the last clean-up phase before pasture.

### The right mix

We are assessing where to head next with phalaris varieties and perennial species.

During the past two autumns we have had rust in one of our phalaris varieties and want to avoid a varietal or species monoculture in case something untoward happens and we lose or degrade this great pasture asset.

This year we are sowing a winter-active fescue in a wetter paddock, which will help fill our autumn and winter feed gap, and we have two paddocks down to phalaris.

Recent varieties include the new Advanced AT, which is more acid tolerant than previous varieties, as well as Grazier, Holdfast and Australian II. The mix also includes sub-clover, bladder clover and cocksfoot.

With a predominantly sheep operation, we prefer to supplementary feed grain if

necessary, so no longer conserve any fodder in the form of silage or hay.

### Return to lucerne

One of the most significant changes we are making to our pasture program, following our association with *EverGraze* and the drought breaking, is to reintroduce lucerne.

Before the drought, we had a couple of stands of lucerne, but they were too small to manage appropriately and did not satisfy our weaner summer feed requirements.

During the drought these stands did not persist and lucerne fell off our radar for a while as we replaced failed stands with grazing brassicas for late spring-early summer weaner feed.

But the trial results from the Wagga Wagga *EverGraze* Proof Site rekindled our interest in returning lucerne to our system.

I'm particularly impressed by its superior dry matter (DM) production compared to phalaris and how well it stacks up economically compared with establishing a brassica crop each year.

This time we will aim for a larger total area of lucerne, which will give us greater scale for production and allow optimal management. We will also select a variety that is better balanced for production and persistence.

While we will still use brassicas to clean up paddocks before pasture if necessary, during the next 3-4 years we aim to sow 10-15% of our pasture system to lucerne.

My one lingering concern about lucerne is its low ground cover on our sloping country. We are still exploring companion species, but the best advice so far is to sow winter-active fescue into the older stands when plant densities drop below our desired threshold.

This should also make it easier to manage our grazing, by providing a transition pasture when rotating stock from our fescue/clover and phalaris/clover pastures to pure lucerne, hopefully keeping the gut flora happy.

### New technologies

A new technology we have trialled is gibberellic acid, which we used during the drought to great effect.

It was brilliant after a late autumn break (when winter feed was short) to boost dry matter production in the phalaris, especially in lambing paddocks that had been locked up. Although we would not use it every year,

it certainly fits well with our production system.

It is really important to establish a stable production system, so the benefits of new technologies can be fully realised.

We want to learn to manage our baseline system really well and then incorporate new technologies as we tweak production in different areas. I think you can expend a lot of energy chasing the newest fad, without having perfected what you are already doing.

The idea of a stable yet progressive production system based on a whole-system approach is also integral to coping with future challenges, such as climate variability.

If you know your system well, you are better equipped to manage extreme dry or wet as you know how your system copes.

Our job as primary producers is to set the right system up, understand how it works and then manage it for resilience.

Producers need to continually ask themselves what change is needed (to fill a feed gap for example), what they want from this change (such as improved production, reduced costs or more leisure time), what resources are available and whether they can manage this change well and profitably.

Then it is the role of information providers to equip producers with enough knowledge to implement these changes and get the day-to-day management right. This will allow producers to react quickly and change things, such as grazing management, as needed before costly mistakes are made." ↓

 **For the Science Behind the story read *Lucerne – the model perennial option* on pages 8 and 9.**

- **EverGraze – More livestock from perennials is a Future Farm Industries CRC, MLA and AWI research and delivery partnership. For further information, go to [www.evergraze.com.au](http://www.evergraze.com.au)**

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