

# EverGraze

More livestock from perennials

October  
2011

## Update

Using  
growth  
curves to  
manage  
farm  
forage  
supply

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# Using growth curves to manage on farm forage supply

**Research at Tamworth has shown that the feed gap over Winter is limiting farm profitability.**

**To maintain the correct ewe condition score, the feed gap could be managed by introducing different feed sources.**

**Lester McCormick and Proof Site Leader, Sean Murphy, explain how understanding the growth curves of different fodder types enables producers to plan to meet stock needs.**

## Key points

► In a recent survey, 61% of respondents said feed supply, drought and climate variability limited farm profit.

► EverGraze research, in northern NSW, showed that ewe fat scores could not be met from native pasture alone.

► A range of forage sources results in greater flexibility to provide pasture based feed at critical times of the year. An understanding of the growth curves of a range of forage sources on farm can assist in planning to meet animal fat score targets.



A survey of graziers and advisors in northern NSW, showed that the major limitations to increasing farm income were;

- the lack of capital,
- feed supply,
- drought and
- the variable climate.

Feed supply, drought and climate variability accounted for 61% of the respondents' answers to the question on the limitations to increasing farm profit.

### Filling the feed gap

How does one improve the feed supply, when one of the major difficulties is managing the forage supply across seasons and years to match livestock feed requirements?

Livestock feed demands change based on what stage they are at, either reproduction or growing.

### Grazing experiment at Tamworth

The ewes represented in Figure 1 for Slopes Native Pasture were single bearing, grazing a native pasture containing redgrass (*Bothriochloa macra*), wiregrass (*Aristida ramosa*) and speargrass (*Austrostipa scabra*), and without supplements.

After weaning in December/January, the ewes failed to gain enough condition on the summer growing native grasses in a dry season to reach the target fat score at joining of 3.5.

During the first 100 days of pregnancy and the critical last 50 days, ewes continued to lose condition with the fat score falling to around 2 at lambing.

The fat score at marking was near to the target as growth in early spring had improved the quantity of green feed available.

At weaning, fat score had again fallen to just above 2 as the increased demand for quality green feed for lactation and lamb feeding could not be met by native pasture.

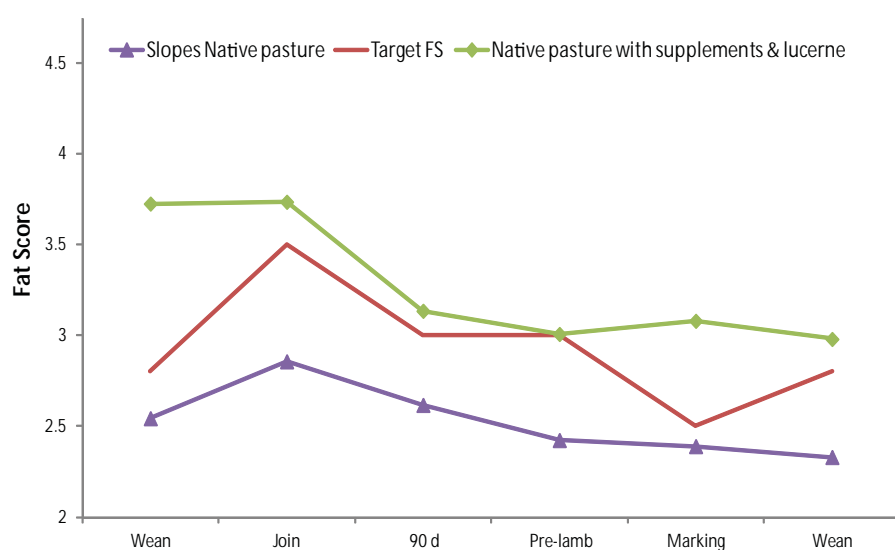
The poor profitability for the flock was clearly shown in lamb production.

The lamb weaning percentage was 78% and weaning weights ranged from 12-15 kg.

At this weight, lambs failed to meet market targets and had to be held over and/or fed until they met market specifications.

A second mob of ewes (represented in Figure 1) for 'native pasture with supplements and lucerne' were single bearing, grazing a native pasture containing redgrass (*Bothriochloa macra*) but with access to grain supplements and lucerne. The consistent supply of quality forage meant that target fat scores were consistently met, resulting in higher weaning percentage and weaning weights.

*Figure 1. Target fat scores for spring lambing Merino ewes and the fat score achieved on native perennial grass based pasture in northern NSW.*





On-farm monitoring of a number of farms also showed that moving the forage base to a higher plane of nutrition (improved pasture, lucerne and forage crop) allowed a shift to a Merino with a terminal sire enterprise, further increasing potential profitability.

#### Using growth curves

A range of forage sources provides greater flexibility to provide pasture based feed at critical times of the year.

An understanding of the growth curves of a range of forage sources on farm can assist in planning to meet animal fat score targets.

In Figure 2, tropical perennial grasses, which are summer growing, increases the feed supply longer into autumn and earlier in spring than the contribution of native grasses.

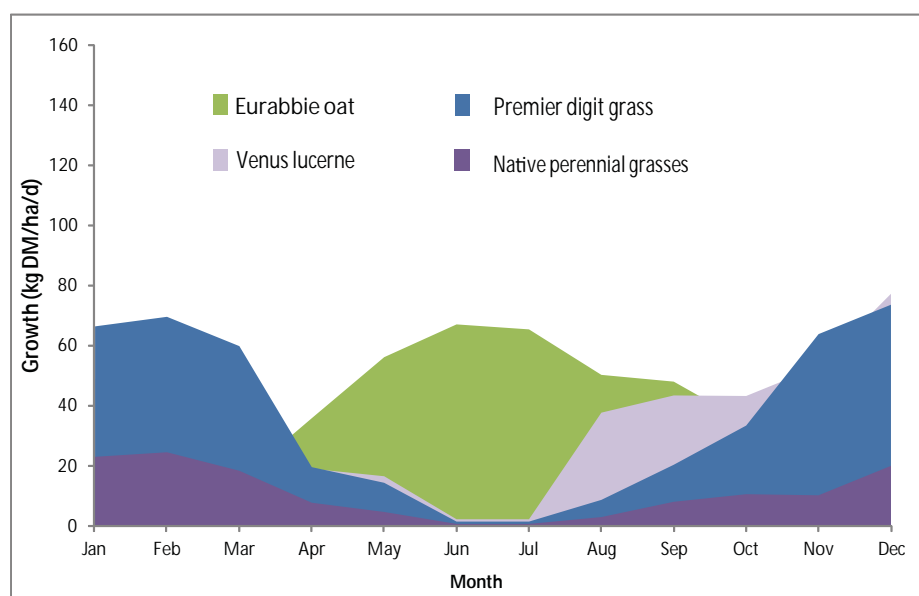
Lucerne, on the other hand, provides a small contribution in late autumn and winter to green feed production and can provide significant input to green feed supply in early to late spring.

This early and late spring period occurs before the native and tropical grasses get going.

#### Sheep enterprise at Tamworth



Figure 2: The contribution of four forages to the annual forage supply.



The stand out for filling the winter feed gap, in this example, is forage oats. With our drier autumns, oats need to be sown in February. If they are not, it becomes increasingly difficult for the oats to be productive on little or no autumn rainfall.

When the growth curves of the available forages are known, the impact of a rainfall event, or the lack of it, on feed production over the year can be planned and better managed for.

If oats are not sown in February or sowing is delayed, planning can be

put into place for little or no winter green feed. Should the dry period continue during winter, there will be little soil water to drive lucerne production or provide an early start to tropical grass growth.

With the knowledge on pasture growth curves, decision can be made in advance and alternative arrangements can be made to reach fat score and market targets.

It does not matter whether it is a sheep or cattle enterprise, fat score targets are set for breeding and the pasture benchmarks are set for different levels of growth.

Growth curves for a range of forages in different regions are available in the Feed Demand Calculator, which is currently being updated and can be found on the MLA website <http://www.mla.com.au>

*The EverGraze Feed Budget Rotation Planner can be used for development of fodder budgets for planning ahead, and can be downloaded from the EverGraze website. [www.evergraze.com.au](http://www.evergraze.com.au)*



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## Opportunity presented profits at Mooneys Gap

**Although the wet summer conditions of 2010/11 caused many headaches for farmers in the Ararat district of western Victoria, it also created an opportunity for a windfall profit for Rod & Bernadette Vearing.**

"We purchased our property at Mooneys Gap in 2000. It is host to an EverGraze Supporting Site conducted by the Perennial Pasture Systems (PPS) group. The site has two paddocks which are sown with lucerne and Holdfast GT phalaris respectively.

### Lucerne and phalaris making the best of a wet spring/summer

The paddocks produced spectacular growth through the wet spring and summer, with the phalaris being rotationally grazed and the lucerne cut for hay. A first cut was undertaken but was severely rain damaged. The spoilt hay was baled to remove residue.

The lucerne was grazed prior to a second cut for hay in late February. It yielded 116 round bales (3.1 tonnes/ha). The lucerne was returned to the grazing rotation when the regrowth allowed.

### Confidence to take the opportunity

We had 280 white suffolk/merino lambs left from our 2011 drop of 1500, which were too light to sell to the trade. Normally these would be sold as stores to a lamb finisher.

We were confident that the EverGraze paddocks would continue to produce enough feed to finish the lambs, so we decided to keep them on.

The paddocks were grazed by the 280 lambs plus 120 first-cross ewes (15 DSE/ha). When it became apparent that even with below average autumn

rains, we would be able to finish the lambs, we locked into contract at the high prices that were available in early 2011 - (640 c/kg) for a July delivery.

This proved to be around \$1/kg better than the spot price at delivery, so the EverGraze paddocks have again proven their value.

In fact the phalaris and lucerne may have worked too well as 94 of the lambs weighed outside of the 26kg contract price and were discounted for being too heavy. This is another issue of managing these high production pastures that we will need to take account of in the future.

### Learning from Peers

I joined PPS when it was formed by a group of farmers in the upper Wimmera in 2007. It has changed my outlook on farm management. I used to be reluctant to discuss pasture issues with leading farmers in our area as their pasture management seemed superior to mine, but I soon found out that the PPS group was pushing to further everyone's knowledge and became confident in planning pasture improvement on our farm.

*The lambs on the EverGraze phalaris site in March 2011*



## EverGraze Supporting Site

**Producer:** Rod and Bernadette Vearing

**Location:** Mooneys Gap, Ararat, Victoria

**Property size:** 1000 ha

**Enterprise:** fine wool Merinos,  
1st cross ewes for lamb production.



*Rod Vearing (right) with the EverGraze team*

When we were asked to host the EverGraze Supporting Site at Mooneys Gap, there was no looking back. We have had great support from the site coordinator and PPS project manager, Rob Shea, as well as PPS executive member, Paul Harrington, who provides advice on the site's management. They have been joined by Cam Conboy from Gorst Rural (ex Seedmark) who provides honorary agronomic advice. We all learn something extra each time Cam inspects the site.

### Putting learning into practice

We are currently replicating the EverGraze Supporting Site with an adjoining paddock sown with Holdfast GT phalaris and another paddock in crop in preparation for lucerne establishment in 2012."

The site is an EverGraze Supporting Site and an MLA Producer Demonstration Site. It is supported by Caring for Our Country funding (via Central Highlands Agribusiness Forum).



Further information can be found on the EverGraze website  
[www.evergraze.com.au](http://www.evergraze.com.au)

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## EverFarm - putting EverGraze into practice

The EverGraze Proof (Research) Sites have finalised five years of results and now the team are working to instill confidence in the research messages at a whole farm scale. The aim was to use real farm case studies to determine the impact on farm profitability and sustainability by exploring different soil fertility, pasture type and livestock enterprise for typical farms across southern Australia.

### Farm facts

In south-west Victoria, the EverFarm case study is a productive 400ha farm, where annual average rainfall is 720 mm, mainly falling between April and December. Summer storms provide opportunities for summer pasture growth. August calving Angus cows make up 60% of grazing pressure with calves born in August-September kept for sale at 18 months. Crossbred ewes lambing in July are bought in, lamb at two years of age and make up 40% of the grazing pressure. Most lambs are sold in December with 20-30% held over and sold in April-May.

The farm currently runs about 20 DSE/ha, close to the top 20% of producers benchmarked in the region (Livestock Farm Monitor).

Pastures are mainly Victorian perennial ryegrass and fertiliser history is about 18 kg/ha P applied annually. Some paddocks have recently been sown to late season ryegrass and tall fescue and lucerne has been considered.

The farm is relatively flat but soils and topography vary with drier sandy soils on hilltops being prone to erosion and lower lying wet flats prone to waterlogging.

### Identified issues

Soil fertility: High phosphorus (P) and sulphur (S) but potassium was limiting growth and clover content.

Supplementary feeding costs: High (\$163) compared to the district average (\$101) due to a shortage of quality pasture in late summer and autumn when weaner cattle are being carried through.

Sheep enterprise more profitable (\$560/ha gross margin) than cattle enterprise (\$272/ha gross margin).

### Options

An eight person team of producers, agronomists, economists and animal scientists had a close look at the current soils, pastures, management and livestock.

In consultation with the owners, they suggested alternative pastures, animal and management options. These alternatives were modelled using the GrassGro computer program to estimate the impact on production, profits and the variability or risk associated with each. Other considerations are stress levels, family involvement and lifestyle.

### Soil nutrients and stocking rates

Modelling suggested the greatest increase in productivity and profitability occurred when nutrient deficiencies were corrected, increasing pasture production by about 3000 kg/ha and allowing higher stocking rates to be maintained across the farm (up to 32% increase from 20 DSE/ha to 25-28 DSE/ha depending on the contribution of sheep or cattle).

Gross margin per hectare increased for both systems by around 50%, from \$272 to \$453/ha for the cattle and \$560 to \$872/ha for the sheep. Correcting soil nutrient deficiencies is low risk as there is good information available on likely responses and critical soil levels.

### Adding lucerne

The modelling showed that increasing soil fertility and sowing 25% of the farm to lucerne did not increase the stocking rate any further for either system, but it



*The EverFarm team look over the property in south west Victoria*

generated an additional \$70/ha gross margin for the cattle due to the reduced supplementary feed costs over summer. 25% lucerne had no effect on the mean gross margin/ha of the prime lamb system as there was limited need for high quality pasture in summer since most lambs were sold in December. The main benefit of lucerne in both systems was to reduce the exposure to risk associated with dry years.

The system with lucerne had greater gross margins (\$44/ha sheep and \$71/ha cattle) in the worst 10% of years. The addition of lucerne on 25% of the farm resulted in reduced recharge by 16 mm/year (15%) and runoff by 0.2mm/year.

### Return on investment.

If the farm continued to run 60% cattle DSE's and 40% sheep, an additional \$8,900 extra return per year could be generated by improving soil fertility, increasing stocking rates and sowing 25% lucerne. This is compared to just improving soil fertility and increasing stocking rate.



*More details about EverFarm will be on our website soon.*

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## Regional packages - making national research relevant

**As the majority of Proof Site field work comes to a close, EverGraze is now working on making the messages from our national research relevant to local farms.**

**The approach: to develop at least six regionally relevant information packages. These will include south coast WA, northeast Victoria/southern slopes NSW, Central Tablelands NSW, northern NSW, southwest Victoria and Gippsland. Packages in other regions are being considered.**

### National Research Achievements

EverGraze Proof Sites have demonstrated that substantial increases in profitability can be achieved while improving environmental management by putting the EverGraze Principle of 'Right Plant, Right Place, Right Purpose, Right Management' into action. Through this research, the project has developed recommendations for:

1. The feedbase (selecting and establishing the right combination of plants to best meet livestock requirements cost effectively).
2. Grazing strategies (integrated into whole-of farm management for manipulation of pasture composition, persistence, feed supply/demand, quality and ease of management on native and introduced pastures).
3. Livestock systems (selecting the right livestock genotypes, lambing/calving times and target markets to maximise the benefits of improved pasture and grazing management).

*Livestock systems*



*Feedbase*



*Grazing management*



4. Soil management (to ensure production and persistence on native and improved pastures).
  5. Tactical management of pastures and livestock (within-year options to manipulate feed supply/demand with variable seasons and markets).
- All of these recommendations are supported by evidence from the EverGraze Proof Sites, modelling, local farm demonstrations and case studies that tell the full story around the profit, risk and natural resource management (NRM) impacts.

### Uniquely Farm Systems

Every farm is unique in terms of its goals, soils, landscape, enterprise and existing practices. For farmers to make sense of the options available they need to know;

1. The cost and potential impact of each option compared to other competing investments,
2. The potential fit of the options into their existing management,
3. Changes necessary to realise the potential benefit of investment.

Regional Packages aim to provide the necessary information and tools to assist farmers to answer these questions for their farm situation.

### How will you access the packages?

The regional packages will be made available on a new interactive website. The website will help farmers and advisers to find the information they need to make informed decisions. Pros and cons of practices will be described with regionally relevant evidence from research and linked to information, decision support tools and training.

Producers and advisers will be trained on developing whole farm implementation plans for pasture, livestock and grazing systems which achieve environmental, profitability and risk management objectives.

Packages will be made available on the EverGraze website in mid-2012.

### What's happening in EverGraze research?

During 2011-12, EverGraze research at Chiltern and Orange is continuing to investigate the economic and environmental benefits of rotational grazing and fertiliser on native pastures.

At Chiltern new work to determine the effect on meat quality of finishing lambs on improved versus native pastures is being undertaken.

Tamworth continues research on the productivity and persistence of lucerne/grass mixtures.

Our improved pasture sites at Hamilton, Wagga and Albany have, for the most part, come to a close. You will have the opportunity to hear the final results at field days at Hamilton on December 1 and Wagga in Autumn next year.

From now until 2014, the research teams will interrogate their research results with computer models, which simulate livestock systems over many decades. This will achieve a better understanding of practices which can be integrated into regional packages.

New species and varieties developed by Future Farm Industries CRC including lotus, new varieties of fescue, phalaris, cocksfoot and tropical pastures will be included in the models to determine the potential for these to improve EverGraze systems.

*For more information, contact your local Regional Coordinator or Kate Sargeant.*



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## New Research Leader for EverGraze ~ Paul Sanford

I have been with EverGraze from the beginning as part of the team of scientists who developed the program back in 2003.

In 1990 I commenced a research position with the Western Australian Department of Agriculture and Food investigating the efficiency of nitrogen fixation in pasture legumes across the south coast of WA. Upon the completion of this project I took up a role to determine the value of perennial pastures for animal production in the high rainfall zone of southwest WA.

I was subsequently appointed to the role of WA Research Site Leader and national Pasture Theme Leader in the Sustainable Grazing Systems project.

From 2003, my EverGraze role has consistently been that of WA Proof Site Leader and I will continue in that role as the new National Research Leader. I am unashamedly a strong supporter of research. I see my role as supporting the science team to complete their EverGraze work and publish it in the scientific literature. It is also important that this high quality research is delivered to the industry and used to inform future research.



Paul Sanford

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## Introducing Tony Cox ~ EverGraze Extension at Orange

I was appointed in September as the new District Agronomist and EverGraze Extension Coordinator based in Orange. Part of my role is to coordinate the development and delivery of the EverGraze regional package for the Central Tablelands NSW and working with Orange Proof Site leader, Warwick Badgery. I will chair the upcoming field day at Orange Proof Site, Panuara on October 26 (see Diary Dates below). Participants at the field day will hear from the scientists on the latest results of the native pasture rotational grazing experiment, including results on selective grazing, and a special presentation on the feed required to successfully join ewe lambs.

I have a Masters degree in sustainable grain production and have previously worked in farming systems with National Variety Trials, a nation wide organisation looking at different species of wheat, chick peas and other cropping systems.

### contact

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## Diary dates

Thursday 20 October	Lucerne and Bent Grass management Mount Wallace, <b>VICTORIA</b>	Neil James, P: 0417 353 929 E: Neil.James@dpi.vic.gov.au
Wednesday 26 October	Flexible Grazing systems Panuara Proof Site - Orange, <b>NSW</b>	Warwick Badgery P: 02 6391 3814 or 0427 274 034 E: warwick.badgery@Industry.nsw.gov.au
Wednesday 26 October	Increasing lamb turnoff - Warncoort EverGraze Supporting Site, <b>VICTORIA</b>	Glenda Jackson, P: 5226 4722 or 0429 124 743 E: glenda.j.jackson@dpi.vic.gov.au
Thursday 10 November	Determining the need for lime Stradbroke <b>VICTORIA</b>	Samantha Monks P: (03) 51 851497 or 0419 371497 E: samantham@wgcm.vic.gov.au
Friday 11 November	Tamworth Proof Site Research results, Tamworth, <b>NSW</b>	Lester McCormick P: 02 6785 1790 or 0427 401 542 E: lester.mccormick@industry.nsw.gov.au
Thursday 1 December	Hamilton Proof Site Research results, Hamilton, <b>VICTORIA</b>	Ralph Behrendt P: 03 5573 0900 E: ralph.behrendt@dpi.vic.gov.au

**Dont know where to start?  
Contact your Regional Extension Coordinator**

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