



This edition of EverGraze Update focuses on recent survey results, the results of research on native perennials, pasture cropping and improving reproduction performance and lambing.

*Merry Christmas
&
Happy New Year
from the
EverGraze Team*

We wish you all a Merry Christmas and a happy, safe and prosperous perennials New Year.

We trust that you enjoy this edition of EverGraze Update and welcome any feedback via email at gill.fry@networksw.com.au

Update on EverGraze Proof Sites

EverGraze, along with other CRC projects, is preparing for the next three years of the Future Farming Industries CRC.

The Hamilton and Wagga Wagga Proof Sites are completing their research, undertaking further analysis and modelling as well as increasing the communication results.

In Western Australia there is a focus on farm case studies to determine the benefits of perennials across a wider range of regions.

The Proof Sites researching native perennials are continuing for at least this year. They have been in place for two years of very dry conditions and require at least an additional year of gathering data which will help to consolidate the results. This year the seasonal conditions contrast with previous dry years and provide the opportunity to further understand the EverGraze farming systems.

Research is continuing at the Albury/Wodonga Proof Sites. Data collection is being undertaken on the native pasture and phalaris systems at Holbrook and on the effect of soil fertility and rotational grazing on the productivity and persistence of native pastures at Chiltern.

The Orange Proof Site at Panuara has also been operating for only two years and the research on grazing management of native perennial pastures will continue.

The research at Tamworth has consolidated with the completion of the survey and monitoring of 18 farms and will now focus on lucerne-grass mixtures agronomy, hydrology component studies and economic analysis.

All of the research results will be analysed with the findings communicated through field days, events, this newsletter and on our website www.evergraze.com.au

December 2010

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Lucerne leads to 'more legs on the ground'

Chris, Margot, James and Barb Shannon are trying to achieve what most graziers are aiming for more legs on the ground.

When hearing about the ovulation research being undertaken at the Wagga EverGraze Proof Site, Chris was interested to try to replicate the positive results from this site on his own farm under more commercial conditions.

"When an opportunity was presented by the Murrumbidgee Catchment Management Authority (CMA) to become involved with the EverGraze Supporting Site project to run a Merino ovulation demonstration, I was keen to be involved.

The majority of my property is native perennial pastures. There is only a limited area that can be sown with improved pasture species. This includes small areas of limestone-derived soils and creek flats. It is on the limestone derived soils I have sown lucerne based pastures.

Traditionally these lucerne pastures have been used to increase lamb weight but I was keen to maximise its use and try to produce more lambs.

I have always scanned my ewes to separate singles from twins so I was happy to use this scanning to determine the potential benefits of flushing ewes with lucerne to increase ovulation rates and therefore multiple pregnancies.

On our property we run 4500 breeding ewes. 500 of these ewes

Chris Shannon and his Merino ewes



farm info.



Producer: Chris, Margot, James and Barb Shannon

Location: 'Talmo', Bookham

Property size: 1445 ha, plus two lease properties

Soils: limestone, granite derived sandy loams and sodic pipe clay soils

Enterprises: Merino breeding, most to Merino sires

Pastures: lucerne, phalaris and cocksfoot and native perennial pasture

"The results have been extraordinary. Initial positive scanning results inspired me to try flushing mobs of ewes for a week at a time during the 2010 joining period"

are joined to terminal dorset rams and the balance to Merino rams.

We also run 5500 breeding ewes on other properties that we lease.

When we tested the flushing system, we put the ewes on to the lucerne one week before joining and removed them three weeks after joining, at a stocking rate of 10 ewes per hectare.

We ran our control group ewes on a typical pasture paddock, with no green feed in it.

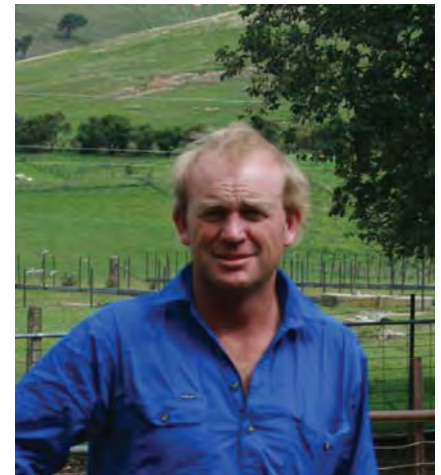
Ewes were joined in March and then scanned at 90 days to determine single, multiple or non-pregnancies. The result of this scanning is used to draft mobs that can be managed better according to the requirements of their pregnancies.

Based on the 2009 scanning results approximately 30% more lambs, from increased twinning rates, were produced from the ewes flushed on the lucerne pasture compared to the control mob on the native pasture.

Using the \$67.00 we got last year for lambs off mothers - that is an extra \$2010.00 per 100 ewes.

These initial positive scanning results have inspired me to try flushing mobs of ewes for a week at a time during the 2010 joining period on one leased property.

The results from the lease property and the second year of the trial, this year, once again showed high twinning rates of 68%, but the control group was the



Chris Shannon

key points

- ▶ Ewes flushed on lucerne can produce more lambs.
- ▶ Ewe scanning is an important tool for managing feed resources for twin bearing ewes.
- ▶ Lucerne can reduce recharge - the cause of dryland salinity.
- ▶ Lucerne increases production and flexibility by providing year round green feed.

same due to an abundance of green feed in all paddocks from summer rain.

Looking at the results over the two years, it shows me that any green feed is enough to flush the ewes, but in normal seasons there is not a lot of green around. However, lucerne can be saved to do the job.

One of the major limitations of implementing this type of system on "Talmo" is the lack of area that can be sown to lucerne.

However, I think this system can work well for breeding operations. The lucerne can be used for flushing ewes prior to joining to increase lambing rates and later grazed with lambs to increase growth rates.

Managed right I can see this system has the potential to produce more lambs and increase profits."

Don't miss the opportunity to increase profitability on your farm

Increasing conception rate and improving lamb survival (converting those lambs born to lambs weaned) are critical steps for cashing in on the currently buoyant lamb industry. What opportunities are there on your farm to use perennial pastures to achieve either or both of these concepts for improving weaning percentages and overall profit?

The EverGraze Proof Site at Wagga has demonstrated that ovulation rates can be increased by up to 10% by flushing on live pasture, such as lucerne. Flushing is providing short-term nutritional supplementation. The purpose of flushing in sheep is to obtain optimal ovulations in ewes, which could result in an increased lambing percentage (increased % of multiple births and increased number of lambs born). The research site utilised lucerne as their source of green live feed (containing high levels of energy and protein) over summer to encourage the flushing effect. But in reality, a producer could use any green perennial at their disposal and this might include chicory or native perennials.

One EverGraze Supporting Site in particular has had great results with an extra 47 lambs scanned per 100 ewes from those flushed on lucerne compared to the control. More details can be found on the new ovulation fact sheet as shown on the back page of this newsletter, which has just been released on the website www.evergraze.com.au

Why not trial this in your farming system and set your ewes up for a better scanning percentage. One way to do this is suggested below.

Objective of setting up an ovulation trial:

To investigate whether short term flushing of ewes with green perennial pastures can increase number of lambs scanned.

Such a trial will look at the difference between the conception of two mobs of ewes joined on either a dry pasture or a green live pasture. For the best comparison, the dry control pasture should not have any live green component. If using a crop stubble, avoid paddocks with large quantities of spilt grain as this could impact on results.

What will be required to set up the trial?

- ▶ Minimum of 200 ewes of preferably the same age.
- ▶ 100 for the control flock to be joined on dry perennial or annual pasture.
- ▶ 100 for the flushed flock to be joined on a green perennial pasture.
- ▶ Both mobs of ewes will have to be condition scored and scanned.
- ▶ The ewes will need to be individually identified to determine your flock response to condition score.

Lifetime wool research has clearly demonstrated there is a strong relationship between ewe body condition score at joining and conception rate. The flushing effect demonstrated at Wagga is additive. This means that the increase in ovulation rate was most significant when ewes were at the optimum condition score at joining. If you already scan your ewes to add further value to your flushing trial there is the opportunity to determine how responsive your flock is to condition score which will then help to better allocate feed resources in the future.

There are guidelines for measuring and calculating the responsiveness of your flock to condition score available from the lifetime wool website <http://www.lifetimewool.com.au/reproductive.aspx>

Assuming your ewes were in good condition at joining and some were flushed on lucerne which has resulted in a good scanning percentage, the next step is to then keep the lambs alive at lambing time. In the March edition of EverGraze Update there will be an article exploring the opportunity to set up a shelter trial to improve lamb survival.

For more detail on how to set up a simple ovulation trial on your farm and or determine how responsive your flock is to condition score, contact your local EverGraze Extension Coordinator (see contact details at the end of this newsletter).



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Native weeping grass has the edge

key research

Native grasses have the advantage of thousands of years of evolution to maximise their performance in Australia's unique environment.

Native perennial grasses play an important role in providing quality feed for production and maintaining ground cover and grassland biodiversity on non-arable landscapes.

EverGraze is investigating management for the persistence and recruitment of these species.

One of the native grasses common in native pastures is *Microlaena stipoides* (Microlaena, weeping grass, weeping rice grass, or meadow rice grass).

Meredith Mitchell is currently undertaking a PhD on Microlaena to understand the science of this plant to help inform future recommendations for pasture management.

Microlaena is widespread in native pastures of the high rainfall zone (> 550 mm) of south-eastern Australia.

This perennial grass is common on acidic soils. Microlaena plays an important environmental role in the stability of grazed pastures. This species produces highly digestible green growth year round and is a valuable feed source.

- Understanding the science of Microlaena to help inform future recommendations for pasture management.



key points

- A hardy plant - persists in non-arable, acid soils and has built-in survival mechanisms to tolerate hot, dry summers.
- A valuable feed source – highly digestible and palatable and responds to summer rain.
- In good seasons can spread prolifically through vegetative growth (rhizomes and stolons).
- Let it seed at least once per year in response to spring/summer rain to encourage recruitment in the following autumn.

Microlaena is very different to other pasture species that we are familiar with, either introduced or native. The tiller growth of Microlaena arises from corm-like structures. These corms are located approximately 20 mm below the ground surface (see Figure 1). Active buds arise from these corms. Some plants have growth arising from several different depths.

The presence and depth of the corm in the soil may provide protection from adverse seasonal conditions, particularly hot, dry summers and hard grazing. Microlaena has the ability to survive drought by dying back to the corm. It responds very quickly to summer rainfall events, by producing highly digestible forage.

Microlaena has the capacity to spread vegetatively, both above ground (via stolons) and below ground (via rhizomes). Yet each spring/summer this grass flowers prolifically and produces seed in response to summer rainfall events.

These seeds germinate in the autumn. The awns on the seed have an aerodynamic function that ensures the seed is dispersed and lands with the callus end down.

The backward facing hairs on the callus anchor the seed in the soil, and ensure that the seed remains in an upright position ready for germination (see Figure 2).

Fig 1. Location of rhizomes, new buds and corm of Microlaena

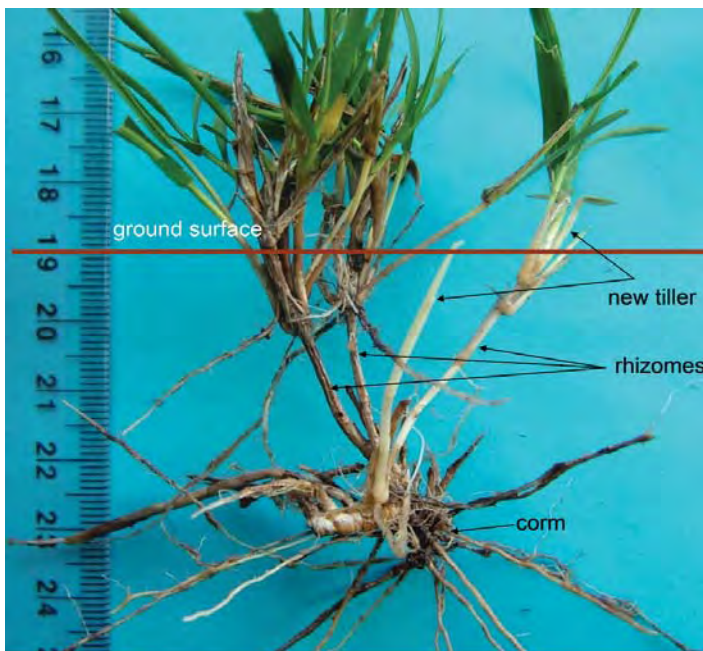


Fig 2. Microlaena seed and seedling



This PhD research is carried out with the support of Charles Sturt University, FFI CRC, AW Howard Memorial Trust and DPI.

The EverGraze website has posters and fact sheets on native perennials including 'EverGraze Action - Management of native grasses in Victoria'



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Pasture cropping with kikuyu

Pasture cropping is the concept of sowing a winter-active crop into a summer-active perennial pasture.

The summer verses winter dominance of the pasture and crop are complementary and this reduces the competition between crops growing in the same ground at the same time. In addition pasture cropping can utilise summer moisture for year round production. The system can be focused either on grain or forage production.

On the south coast of WA there is considerable interest in pasture cropping kikuyu, which can provide green feed in summer, reduce groundwater recharge and prevent soil erosion. While canola has been successfully tried in the past, producers are now also looking at growing grain legumes, such as lupins and peas. Legume crops are attractive as they can be used as a high protein diet for weaners or harvested for grain. In addition they can improve soil nitrogen fertility leading to improved kikuyu growth.

EverGraze is conducting trials on pasture cropping with the aim of determining effective rates of herbicides at pre-sowing and in-crop (if required) to sufficiently suppress kikuyu such that a profitable crop can be grown.

Fig 1. Lupins following kikuyu at Esperance, WA Nov 2010



key research

- ▶ Investigating the potential of pasture cropping with kikuyu and required herbicide application rates pre and post sowing.



The trials commenced this year in Wellstead in what turned out to be a drought year. Preliminary results show that one to 1.5 litres of glyphosate per ha is sufficient to suppress kikuyu pre-sowing and it appears through observation that crop yields will be reduced at lower rates. Final analysis will have to wait until next year when all of the measurements have been completed.

One thing we have learnt so far is that particular attention needs to be paid to the nutrition of pea crops grown on the light soils on which kikuyu is typically grown.

The peas at the EverGraze site did poorly due to variable nodulation and potash deficiency.

The crop at the lupin site has done better however it has received considerably more rainfall and is located on a more fertile soil.

However, neither is as spectacular as the site visited recently in Esperance as part of an EverGraze spring field day. This region has received adequate rainfall this year and the farmer

key points

- ▶ **Kikuyu is an acid soil tolerant perennial which is productive and persistent on infertile sands.**
- ▶ **EverGraze is conducting trials on pasture cropping with the aim of determining effective rates of herbicides at pre-sowing and in-crop.**
- ▶ **Pasture cropping kikuyu on the south coast of WA adds flexibility into a mixed farming system along with reduced land degradation.**

decided to sow lupins into his kikuyu stand for his weaners to graze in spring.

The suppression of kikuyu was spot on and the crop looks that good that the producer is now considering harvesting the grain before the weaners go in the paddock. Examination of the kikuyu beneath the crop suggests that once the crop is harvested it will grow vigorously given adequate moisture.

The incidence of pasture cropping kikuyu on the south coast of WA appears to be growing as producers realise the degree of flexibility it brings to their mixed farming system along with reduced land degradation.

The EverGraze website has several EverGraze Action fact

sheets including; 'Growing kikuyu for summer feed and soil cover'



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Survey results set the future for EverGraze

We would like to thank survey participants for their valuable feedback that will help shape the future of EverGraze.

A recent EverGraze phone survey revealed that researchers and livestock producers alike are reaping the rewards of investment into perennial grazing research and extension through the EverGraze program.

The survey of 360 EverGraze participants, 90 non-participants and 150 consultants, agency and CMA staff was undertaken in autumn 2010. The purpose was to help us to understand farmer attitudes and factors affecting adoption of EverGraze. By listening to EverGraze participants, we can prioritise extension, tools and training to meet farmer needs for the next phase of EverGraze from 2011.

Based on the results, we estimate that about 3100 producers have made changes on their properties over the last four years due to involvement with EverGraze.

The bulk of survey participants said EverGraze provided information that allowed them to be more profitable and environmentally sustainable.

Producers who were involved in EverGraze activities were significantly more likely than non-participants to:

- ▶ have increased the area of perennial pastures on their farms,
- ▶ be actively planning or considering making changes to management and use of perennials in future years,
- ▶ be planning to make changes to livestock management in future,
- ▶ be addressing environmental issues on their farms.

Changes to use and management of perennials

Since 2005, 75% of EverGraze participants and 59% of non-participants had changed use or management of perennial pastures. This shows that the EverGraze message of planting the 'right plant in the right place for the right purpose' is hitting its mark.

key research

- ▶ EverGraze survey helps us to understand farmer attitudes and factors affecting adoption
- ▶ By listening to EverGraze participants we can prioritise extension, tools and training to meet farmer needs



"You get more year-round production from perennials. EverGraze has really opened our eyes to more options with increasing the length of the growing season meaning less supplementary feed required".

Actively managing ground cover, increasing the total area of perennials or establishing a range of perennials to match landscape, feed supply and demand were the most common changes (Figure 1).

In the next five years, 60% of participants and 41% of non-participants intend to increase their area of perennials (Figure 2).

A large number of participants are also planning to plant a greater range of perennials, especially in SW Victoria, WA and SA where at Proof and Supporting Sites, summer actives such as lucerne, chicory and kikuyu have demonstrated their value in providing valuable green feed after summer rainfall, which enables feed supply throughout the year.

Changes to livestock management

In the past five years, 63% of participants and 55% of non-participants made changes to livestock management (Figure 3). The most common changes related to using condition/fat scoring to monitor livestock, boxing mobs to assist with management and changes to calving or lambing time. The responses in the other category related mainly to changes in enterprise mix or grazing strategies such as implementing rotational grazing.

Influence of EverGraze on environment

Profitability and protecting our natural environment can go hand in hand. A greater percentage of Participants than Non Participants (83% vs 69%) were addressing environmental issues on their properties. The main issues were erosion, lack of biodiversity,

salinity, soil health and water quality, however, the priority of these issues varied across regions.

Consultant, CMA and agency staff recommendations

EverGraze not only directly informs farmers but also farm advisors, such as consultants, Catchment Management Authorities and government agency staff. Fifty per cent of consultants, CMA and agency staff increased their emphasis on use of perennials in the last five years.

The main areas of emphasis were;

- ▶ maintaining ground cover,
- ▶ matching species to landscape,
- ▶ varying intensity of grazing.

Livestock management practices promoted by advisors were;

- ▶ using condition scores to assist management,
- ▶ scanning and targeted management of twins and singles,
- ▶ calculating feed budgets.

Reasons for changing and not changing

There are many reasons why a farmer decides to change or not change their current practices.

The main reasons producers were changing their management were to increase profitability of their business, in response to dry/drought conditions and to better manage risk (particularly in WA, Central NSW and Gippsland).

Lack of capital to get started, drought conditions and workload were the biggest reasons for not changing. Drought conditions were the biggest reason in Gippsland and Southern NSW, with lack of capital being the biggest issue in all other regions.

Figure 1.

Changes to use & management of perennials in last five years

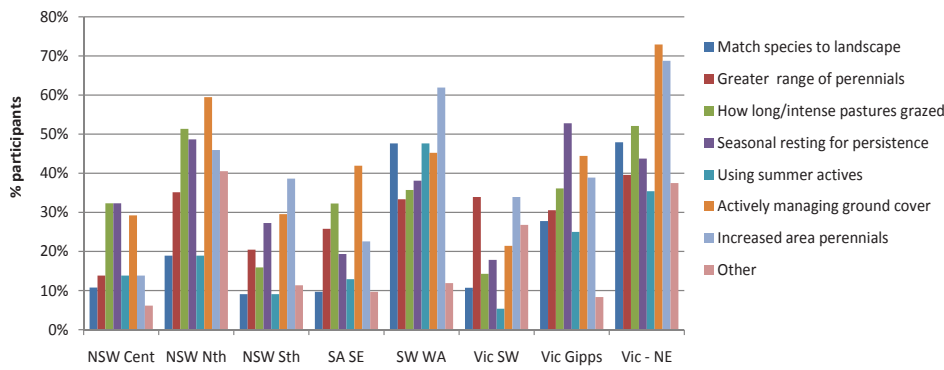


Figure 2.

Planned changes to the use and management of perennials next five years

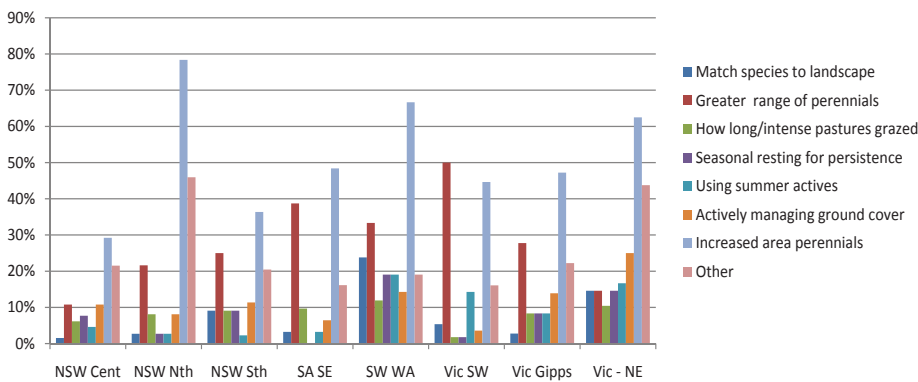
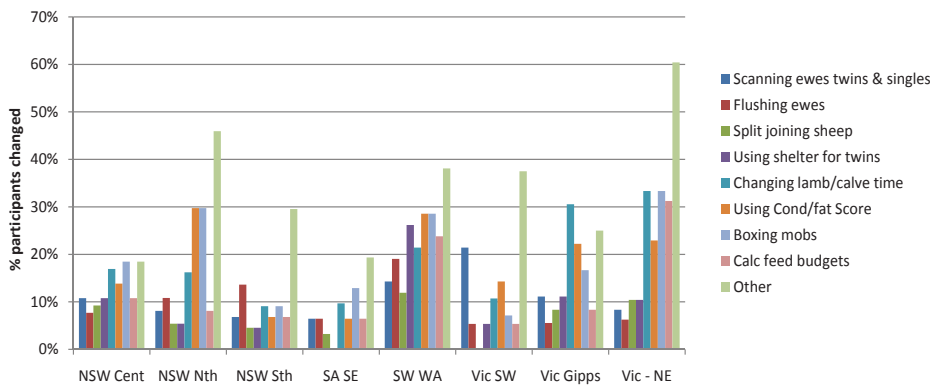


Figure 3.

Changes to livestock management last five years



Influence of EverGraze on knowledge and understanding

EverGraze participants had higher understanding of matching perennials to soils, using summer active perennials, managing grazing to maintain 70% ground cover, belief that perennial based pastures provide simultaneous environmental and economic benefits and building livestock systems combining genetic merit and well managed perennials. The number of EverGraze events attended by participants influenced the understanding of the use and management of perennials. Understanding of EverGraze

concepts relating to grazing management for increased ground cover, persistence and utilisation were high among participants.

Identifying native pastures and integrating the grazing management of native and improved pastures on different areas of the farm was improved for NE Victoria and southern NSW where this has been a focus for the Holbrook and Chiltern Proof Sites.

Understanding of concepts relating to native pastures was low in all other regions, so there is still a lot of work to do in this area.

Actions from participant feedback

► The EverGraze team has taken on board the feedback that EverGraze information needs to be regionally specific and that delivery needs to occur in local environments.

It is proposed that EverGraze Regional Packages will present the potential environmental, productivity, economic and risk management benefits of regionally specific perennial pasture-based practices in a whole-farm context. Research outcomes and information presented in the packages will come from Proof Site research in addition to new and existing research findings from a range of regionally relevant projects.

► EverGraze Caring for Our Country Supporting Sites and other local groups and events will continue to provide producers with a forum for developing new skills and knowledge and experimenting with practices in their own environment.

► Economic analysis of EverGraze Proof Sites and Supporting Site Case Studies will be combined with cost/benefit analysis tools for producers to make more informed farm management decisions. Synthesis and modeling of Proof Site results under a range of different climate scenarios is also taking place this year.

► Where do annuals fit into the system? The EverGraze team is currently looking at ways of addressing this question which came through very strongly in the survey. This may be addressed through linkages with the Future Farm Industries CRC EverCrop program which is investigating the economic and natural resource management implications of



integrating perennials into annual cropping systems.

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Short term flushing increases ovulation

In our last newsletter we wrote about the latest research on short term flushing of ewes increasing ovulation rates.

In this newsletter we show how this has been applied on Chris Shannons' farm (page 2) and some suggestions for setting up your own trial (page 3).

We now have developed an EverGraze Exchange which gives you all the details including;

- how flushing works,
- the EverGraze research results,
- does short term flushing work in unsynchronized ewes?,
- optimal condition score and nutrition,
- ovulation rate and lamb survival and
- short term flushing in practice.

A free version of the brochure can be downloaded from the information section of the website www.evergraze.com.au



www.evergraze.com.au

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