

An update from EverGraze - April 2007

This newsletter will keep you up-to-date with progress and developments in the EverGraze project. It is issued quarterly and welcomes your feedback, contributions and comments. It is produced by EverGraze, a CRC Salinity, MLA and AWI research and delivery partnership.

In this issue

EverGraze is developing new grazing systems to increase profits and improve catchment health. With more perennials, better livestock and healthier catchments, EverGraze is aiming to increase profitability of livestock enterprises by up to 50% while simultaneously improving natural resource management outcomes of improved water management, perenniality, biodiversity and soil health. There are experimental sites in Western Australia, Victoria and New South Wales, with a network of supporting sites for on-farm evaluation.

Supporting Sites underway, [more](#)

A network of EverGraze Supporting Sites is getting underway on farms in catchments adjacent to the project's Proof Sites. Supporting Sites are on-farm demonstrations that allow groups of producer to explore new pasture and livestock systems that use perennial pastures to lift farm profitability and improve catchment health.

Three become six - introducing Proof Sites, [more](#)

CRC Salinity, MLA and AWI have partnered to provide a network of six Proof sites across the high rainfall zone. These sites are looking for new farming systems that can increase profitability by 50% and significantly improve NRM outcomes. Three sites are well underway and three more are coming on line.

Managing Chicory to improve persistence, [more](#)

A recent review of chicory performance undertaken by the EverGraze team at Hamilton has highlighted the potential and problems with growing and using chicory in southern Australia, winter rainfall areas.

Tall wheatgrass hedges protect lambing ewes, [more](#)

Hedges of overgrown tall wheatgrass a metre wide and 10 metres apart are being used at Hamilton to provide shelter for twin lambing ewes. Measurements during lambing in September 2006 found that the metre high hedges cut wind speed by 60-90% within three metres of the hedge.

Pasture Grabs - Albany Proof Site reflects dry season, [more](#)

As a result of the dry season pasture growth rates at the Albany site were less than 20 kgDM/ha/day for most of the year only reaching a maximum of around 50 kgDM/ha in spring on some pasture types.

Wagga weaning rates better than expected, [more](#)

Despite some of the worst seasonal conditions on record in southern NSW, EverGraze perennial pastures allowed lamb weaning percentages of up to 120% and weaning weights of 36 kg with little supplementary feeding.

Supporting Sites underway

Supporting Sites allow producer groups to test systems of interest to them in their own

locality and at a scale that they feel is realistic. Supporting Sites are about groups of producers evaluating new pasture concepts on their farms, with help from Proof Site scientists and local catchment or Landcare staff. It is not about DPI or other scientists undertaking research on a farm, but on-farm research driven and owned by a group of producers.

Already producers are considering:

- New perennial pastures or using pastures species not normally grown in the region, like sub-tropical species in areas where temperate pastures are normally grown
- Different grazing systems to improve pasture composition and pasture utilisation
- Complimentary mixtures of perennials, such as lucerne or chicory over-sown with annuals
- Hedgerows of perennials for shelter at lambing using tall wheatgrass, setaria or phalaris
- Summer active perennials to improve ovulation rates in sheep
- Effects of different pasture types on animal health, like chicory and worms in young sheep
- Managing native pastures to improve composition and animal production

Funding and support is available to assist with establishment of the sites (fencing, pasture establishment/renovation, water), to monitor the site and run farm walks and field days. However, producer group will be responsible for developing ideas for the site (with help from local DPI staff), managing pastures and animals, and assisting with monitoring.

Unlike Proof Sites where detailed measurements are made of soils, pastures and animals, an uncomplicated monitoring system has been developed to measure changes to the pastures and animal production. The same monitoring system will be used at all sites so data can be combined across sites to build a broad picture of which systems are working on farms. Training and assistance to do the monitoring will be provided by scientists from local Proof Sites and collaborating catchment groups.

Contacts in priority catchments will be provided in the next issue of EG Update, in the interim producer groups interested in getting involved with the Supporting Site network should contact National EverGraze Coordinator Geoff Saul, geoff.saul@bigpond.com

Three become six - introducing [Proof Sites](#)

There are six EverGraze Proof Sites covering both improved and native pastures, evaluating the affects of different grazing systems on pasture and animal production, and measuring the impacts of the farming system on recharge, biodiversity and soil health.

The **Albany (WA)** site is based on summer-active perennials and Merinotech Merinos. The site is testing the potential to increase profit from \$34/ha/year with a system of 30% crop, 70% *annual* pasture carrying 8.5 dse/ha, to over \$100/ha/year with 30% crop, 70% *perennial* pasture carrying 12.0 dse/ha, while reducing the leakage of water beyond the root zone by over 40 mm.

In 2005, the 60 ha site was sown to tall fescue (16 ha, 8 paddocks), lucerne (8 ha, 4 paddocks), kikuyu (18 ha, 2 paddocks), setaria/panic (3 ha, 1 paddock) and chicory (15 ha, 4 paddocks). In February 2006, 393 Merinotech ewes were delivered. They were joined to Poll Dorset rams in March and measurements started in autumn 2006.

Contact: Paul Sanford psanford@agric.wa.gov.au

The **Hamilton (VIC)** site was established from spring 2004 through to autumn 2005 with summer active perennials (kikuyu, tall fescue, lucerne, chicory) and temperate perennials (perennial ryegrass, Italian ryegrass). At this site computer modelling showed that the

current winter-active pasture species, perennial ryegrass and subterranean clover allow excessive leakage of water beyond the root zone. A combination of lucerne, perennial ryegrass and tall fescue has the potential to reduce leakage by around 35% compared to current pastures, while at the same time increasing profits by \$86/ha to \$260/ha. The site was stocked with CentrePlus Merino ewes in February and Angus steers on selected treatments in April 2006.

There are three pasture treatments:

1. Perennial ryegrass
 - Fitzroy, Avalon, Banquet cultivars sown on separate areas of crest, slope and flats respectively
2. Triple pasture system
 - Lucerne, Avalon plus N fertiliser, Tall Fescue on the three soil types
3. Novel pasture system
 - Chicory, Italian ryegrass, Kikuyu on the three soil type

The pastures are grazed by three animal systems. The sheep treatments compare the potential of new high fertility production systems with current farming practise.

- Single lambing ewes (ewes scanned to be carrying one lamb) allocated to the plots in June and remain on these pastures for the next 12 months.
- Twin lambing ewes (ewes scanned to be carrying twins) allocated to plots and remain for the next 12 months.

The third system has steers grazing on the Ryegrass and Triple pasture systems, comparing the impact of cattle versus sheep grazing on the different pasture types.

Contact: Ralph Berendt, ralph.berendt@dpi.vic.gov.au

The **Wagga Wagga (NSW)** site will contribute information to the national analysis of new farming systems with water use from a winter dominant rainfall area, lamb survival and the affect of pasture combinations on animal production and water use. The site was sown in July 2005, with phalaris, tall fescue (winter and summer active mix) and lucerne. In January 2006, 381 CentrePlus Merino ewes were allocated to one of four treatments:

1. Self replacing Merinos
 - Managed for a late July lambing joined to CentrePlus rams.
2. Split joining
 - 50% of ewes joined to a terminal sire (Elsted) for a late July lambing with remaining ewes joined to CentrePlus Merino ram for September lambing.
3. Later lambing
 - The heaviest 50% of ewes joined to terminal sire, lightest 50% to CentrePlus ram with all lambing in September.

4. High lucerne

- Heaviest 50% of ewes joined to terminal sire, lightest 50% to CentrePlus ram, all lamb in September.

These different systems have been designed to ensure mid-winter stocking rates are similar. Split joining can be considered as a lamb finishing system, while the later lambing system is providing feeder lambs.

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The **Albury-Wodonga (NSW & VIC)** site is investigating inexpensive management strategies that can be used on-farm to improve the contribution of native grasses to profitability and NRM outcomes across the whole-farm. The two sites ask:

- Is it possible to increase the profitability of native-dominated pastures and ensure the persistence of native perennial grasses by combining fertiliser with appropriate grazing management?
- Can grazing management increase the abundance of native perennial grasses in native pastures as part of an integrated whole-farm grazing system?

More details in the next issue of EG Update. Contact: Meredith Mitchell, Meredith.mitchell@dpi.vic.gov.au

At **Orange (NSW)** a range of grazing systems from low-intensity, which is still quite common among producers in the region - to high-intensity, short duration grazing will be compared. The animal enterprise will be a Merino first-cross lamb system using elite genetics and the site will also consider recharge, biodiversity and soil health.

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Tamworth (NSW) aims to identify, describe and consider farming system limitations to profit and NRM and assess the profitability and risk of sowing improved pastures and changing sheep production enterprises from store stock systems to fattening and breeding systems.

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More on Proof Sites as things develop or check out the fact sheet on the CRC Salinity website.

Contact: EverGraze Science Leader Angela Avery, angela.avery@dpi.vic.gov.au

Managing Chicory to improve persistence

A review of chicory performance by the EverGraze team at Hamilton has highlighted the potential and problems with growing and using chicory in southern Australian winter rainfall areas.

Chicory is a perennial native herb with high digestibility and mineral content compared to perennial grasses. It is quite dormant in winter, grows actively in spring, summer and autumn providing high quality forage at joining time or to finish lambs over summer. Because it is summer active and has a deep taproot, it is also very effective in accessing moisture from deep in the profile and reducing the threat of dryland salinity.

Attention to detail essential

Compared to lucerne and other temperate pasture species, chicory needs attention to

detail during establishment and careful grazing management and weed control for good production and persistence.

Chicory has advantages in that it can be grown on wetter, more acid soils than lucerne and doesn't cause bloat, but nitrogen must be applied for best results and it is easier to control weeds in lucerne. Paddocks with a history of thistles shouldn't be sown to chicory as controlling broad leaf weeds is difficult.

Chicory cannot be used as a crop to accumulate a large volume of herbage in spring for use in summer to overcome feed shortages, due to its habit of sending up unpalatable flower heads.

While chicory tends to thin out over time, it is possible to encourage natural reseeding, probably in the 3rd or 4th season after sowing.

To promote re-seeding

- Rotationally graze the chicory through spring, using high stocking rates to reduce seed set of annual weeds
- In November-January depending on location and seasonal conditions, spell the paddock and allow seed heads to develop and seed to ripen. Don't spell until weeds have been grazed out and finished growing otherwise the treatment will increase their prevalence
- Chicory flowers from late spring right through summer. Its flowering habit is like canola from bottom to the top but over an extended period. The seeds mature 20 days after pollination, so once the majority of seeds have matured it can be grazed, but not slashed until late summer.
- In autumn, graze off any green chicory leaf and then slash the paddock to spread the seeds, get rid of coarse stems and encourage new growth from the base of the plant.
- There needs to be some bare ground to allow seeds to germinate in autumn.

A fact sheet on chicory is being prepared and will be found on the CRC Salinity website shortly.

Tall wheatgrass hedges protect lambing ewes

Measurements at Hamilton during lambing in September 2006 found that metre high hedges of tall wheatgrass set 10 metres apart provided significant shelter for twin lambing ewes, by cutting wind speed by 60-90% within three metres of the hedge.

Hedges at Hamilton run north south as the prevailing winds in September are from the northwest, west or southwest and were established in areas that already had some natural protection, either from topography or existing shelter belts.

The tall wheatgrass hedges were direct drilled at 15 kg/ha in early spring 2004 after a total knockdown spray was applied. The drill was modified so that only a metre section was used. Inter-hedge areas were sown to annual ryegrass and cut for hay in December so no production was lost from the paddock.

During summer, the paddock was ungrazed to allow the wheatgrass to become tall and rank. In autumn and winter the area was rotationally grazed to use the inter-hedge pasture but avoid damaging the hedges. The area was closed up in July to save up 3000 kg/ha of pasture ahead of lambing in September.

Ewes were stocked at up to 50/ha at lambing time with no obvious problems from ewes "stealing" other lambs. The hedges appear to provide privacy and with adequate high quality pasture available, the ewes remained close to their lambs.

Following lambing, the area was again closed up and the inter-hedge areas cut for hay in December. Now that the hedges are well established, it should be possible to rotationally graze the areas throughout the year without damaging the tall wheatgrass. Hedges should be grazed in January February to allow stock to eat the seed heads and prevent movement

of seeds into water ways.

Contact: Ralph Berendt, Ralph.berendt@dpi.vic.gov.au

Pasture Grabs - Albany

EG Update will regularly update pasture results from the Proof Sites.

We start with Albany where due to the dry season pasture growth rates were below 20 kgDM/ha/day for most of the year only reaching a maximum of around 50 kgDM/ha in spring on some pasture types. Peak spring growth rates are typically 80-100 kgDM/ha/day in SW WA.

The highest yielding pastures were kikuyu (5,900 kgDM/ha), tall fescue (4,750) and lucerne (3,950) however all were below expected yields of between 7,500 and 10,000 kgDM/ha based on 15 to 20 kgDM/ha/mm of rainfall. Interestingly, the highest yielding pasture kikuyu achieved 21kgDM/ha/mm. Only kikuyu and tall fescue out yielded the adjoining annual pasture. Chicory's low yield of 1,500 kgDM/ha is likely due to low annual species content.

Pasture availability reflected the lack of soil moisture and subsequent poor pasture growth, rarely exceeding 1,400 kgDM/ha and the normally reliable spring flush did not eventuate. Competition for moisture was intense with subterranean clover and other annuals competing poorly against the perennials.

Chicory consistently recorded the highest dry matter digestibility. As expected the sub-tropical grass pastures were lower than the temperate grasses. Lucerne swards had the highest annual species content and this is reflected in the digestibility values, low in summer/autumn and increasing during the growing season.

Contact: Paul Sanford, psanford@agric.wa.gov.au

Wagga weaning rates better than expected

Despite some of the worst seasonal conditions on record in southern NSW (annual rainfall 620 mm, but in 2006 just 250mm), the EverGraze site at Wagga Wagga allowed lamb weaning of up to 120% and weaning weights of 36 kg with little supplementary feeding.

The early lambing treatment, with lambs born in July/August, was the most profitable during 2006, due to lower supplementary feed costs. Early lambing ewes were run at 4 ewes/ha (or approximately 6 DSE/ha), while later September/October lambing ewes were run at 8 ewes/ha (12 DSE/ha) in the expectation that they would be lambing onto a spring flush of feed.

The early lambing ewes weaned 120% lambs with weaning weights of 31 kg for straight Merinos and 36 kg for first cross terminal Merinos.

The September drop lambs did it a lot tougher with a weaning percentage of 100% and weaner weights in December of 19 kg for Merinos and 24 kg for crossbreds.

In the end, despite a very tough season, an income of more than \$350/ha was achieved for the early lambing systems and more than \$470/ha for the later lambing systems.

While supplementary feed costs were much greater for the later lambing systems this year (about \$250/ha compared to about \$50/ha for the earlier lambing, lower stocking rate system), in a normal year the team expects minimal supplementary feed required and increased lamb income due to target weights being reached, really showing the potential of perennial-based grazing systems.

One of the key profit drivers is ewe conception rates and the Wagga team has had what appears to be a significant breakthrough in increasing ovulation rates.

For the past two years they have been attempting to increase ovulation rates by either feeding 500 g of lupins per day for 10 days or grazing synchronised ewes on chicory and lucerne pastures for 10 days.

The results suggest that provided sufficient green chicory or lucerne is available, offering this to ewes can result in ovulation rates similar to or better than ewes fed lupins. In one example, ovulation rate was 20% greater than in ewes grazing dry pasture only.

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The full story can be found in issue #40 of *Focus on Salt*

http://www.crcsalinity.com/documents/focus_on_salt/FOS%20Issue%2040.pdf

Events/meetings

Hamilton site field day 18 May

Wagga site field day

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