

# EverGraze & Caring for Our Country

## 6 Monthly Milestone

To be submitted 8<sup>th</sup> June 2012

### Purpose of Supporting Sites:

1. Develop awareness of EverGraze principles and practices among the local farming community
2. Assist members of producer groups to identify farm productivity, natural resource management, risk management and lifestyle issues that can be addressed using perennial pasture systems
3. Use EverGraze and other resources to assist members of producer groups assess the pros and cons of different options to select the right plant for the right place for the right purpose with the right management to address productivity, NRM, risk management and lifestyle priorities within their farming systems
4. Develop skills of producers for implementation, monitoring and evaluation of changes to the farming system
5. Use research results together with demonstration, monitoring and evaluation of Supporting Sites to develop confidence among producer groups to adopt practices
6. Develop skills and knowledge of Supporting Site coordinators to facilitate producer groups through decision making processes, utilise EverGraze research findings, products and tools, deliver skill development to producer groups and understand the interactions between elements of the farming system and the impact of pasture and animal practices and management decisions on whole-of-farm productivity, natural resource management, risk management and lifestyle.

### Section 1: Site details

1. **Name of the Site:** SM – MFS / Yelds
2. **Site location:** “Cobana”, Monaro Highway, Bombala NSW 2632
3. **Name of the host producer:** Brad Yelds
4. **Coordinator of the Site:** Nancy Spoljaric – Monaro Farming Systems
5. **Start date:** Paddock preparation – 1st spray 10th March 2010, 2nd spray and sow 27th April 2010
6. **Farm description (will be used in the case study)**
  - a) **Rainfall:** 850mm
  - b) **Enterprise(s) (eg. spring calving cows):** Fat Lamb enterprise
  - c) **Farm area (ha):** 1800
  - d) **Number sheep (ewes/wethers/weaners):** 3000 breeding ewes, Poll Dorset Stud
  - e) **Number cattle (cows/weaners):** 100 weaners
  - f) **Describe the combination of pastures, soils and landscapes on the farm:** predominantly improved pastures, with a mix of rye-grass, lucerne, phalaris, cocksfoot and some native country. Soil type is predominantly granite with derived sandy clay loam soils. Landscape is gently undulating country with a north easterly aspect.

General fertiliser program across the property is a Maintenance application at 0.8 kg/DSE/ha every 2nd year

### 7. The site and treatments

#### a) Describe the site (soils, original pasture, landscape)

Traditionally the paddock is an 18acre phalaris sown pasture with remnants of stipa, poa tussock and pin rush. It has a NE aspect and has both flat and gently sloping topography. Soil type is sandy clay loam derived from granite. For purposes of the trial it was cut into three treatment areas.

## **Paddock History**

1997 – Limed 1.6 t/ha and DAP (unsure rate)  
Australian Phalaris over sown Yatson Rye and Sub Clover

Oct 2004	100kg/ha	single super
Feb 2006	100kg/ha	single super
Feb 2007	100kg/ha	single super

## **b) Describe the treatments and management (fertiliser, pasture sowing/species and seasonal grazing management)**

### **Paddock preparation**

1st spray 10th March 2010 (3L/ha powermax, 1 L/ha Estericide LV, 200ml talstar)  
2nd spray 27th April 1L/ha powermax, 200ml talstar  
Sown 27th April 2010 with Granulock 15

### **Treatment 1 – 2.7ha**

Sown: 3kg/ha Holdfast GT Phalaris  
5kg/ha stamina GT6 Lucerne

### **Treatment 2 – 3 ha**

Sown: 3kg/ha leura sub-clover,  
3kg/ha seaton park sub-clover,  
5kg/ha kingston rye-grass,  
0.5kg/ha australian phalaris

### **Treatment 3 – 2.4ha**

Sown: 5kg/ha resolute fescue (winter active)  
2kg/ha leura subclover  
2kg/ha seaton park sub clover

(0.5ha strips of Kuratas Caucasian and Talish Clover 250gms of each)

## **Grazing Plan**

-Rotational crash grazing by predominantly crossbred lambs - 30 day rotation in spring, 70 days in summer, 40 days in Autumn, 60 days in winter. Heavy graze in spring to reduce annual grasses  
-Pastures will be rotationally grazed, once feed on offer reaches approx. 2000 kg/ha (will depend on rainfall) sufficient stock introduced to reduce the feed on offer to approx. 800kg/ha (sheep numbers and “type” may vary per plot to achieve this).

## **c) What were the main production issues being addressed or questions being asked?**

- What are the optimal, appropriate perennial species mixes for the predominant granite soil type based on persistence and animal production?
- To evaluate and compare three different perennial pasture mixes to assess their adaptation, production/ feed quality attributes and persistence in the Monaro seasonal environment.
- To Improve a run-down pasture to increase carrying capacity from 5 DSE/ha to a target of 8 DSE/ha

The trial will determine which pasture species mix demonstrates the best growth, yields, feed quality and persistence under a grazing regime for the granite soil type. Trial will also include a simple economic analysis to assess the financial grazing benefits by using a combination of measuring

grazing days, on-ground monitoring, feed availability, applying standard gross margin figures and using the software model “GrassGro3.2.5®” to help predict animal performance, pasture growth and economic gross margins for all three pasture types.

**d) What were the main environmental issues being addressed or questions being asked?**

The sub clover growing season is often a poor match for the slightly summer dominant rainfall pattern in the region, particularly with the apparent recent trend to lower winter rainfall, with more reliance on summer storms.

The sub-clover species for this trial were selected based on their seasonal growth patterns in regards to summer and winter activity and dormancy patterns in an effort to fit well with the Monaro climate and to assess their capacity to fill in the “winter feed gap” and ground cover deficiencies.

Acquiring knowledge of optimal perennial legume species to fit the unique Monaro environment, will encourage grazing practices which promote a resilient, balanced, bio diverse pasture system as well as achieving greater farmer engagement, awareness and knowledge.

The NRM outcomes for this trial were envisaged to be achieved by developing & maintaining a high level of perennial legume and grass ground cover which will also contribute to improved water use efficiency, soil health (increased root depth / penetration) and recharge, and optimizing long-term perennial grass species establishment.

In order for Monaro landholders to adapt to increasing climate variability, they need to be adaptive and opportunistic with flexibility in their pasture systems to capitalise on both summer and winter rainfall as well as pasture species that demonstrate persistence, drought tolerance and give long term reliable productivity.

## **Section 2: Measurements**

- 1. Outline the measurements that have been taken in the last 6 months (or 12 months if you didn't submit a November report) and when they were completed; remember soils, pasture data, livestock movements. Indicate any difficulties in getting measurements completed.**

<b>Monitoring undertaken</b>	<b>Date</b>	<b>Recording spreadsheet filled out and submitted to website</b>
Pasture dry matter cuts	March and May 2012	Results attached
Persistence estimates, FOO, green versus dead, % estimates etc	November 2011	Spreadsheet filled out (submitted as part of previous Nov 11 milestone report)
Feed Quality Tests	March and May 2012	Results attached
Soil Tests	April 2010, Dec 2010, May 2012	Results attached
Stock weights and grazing days recorded	Periodically through 2011 - 2012	Results attached

## **Section 3: Results**

- 2. Enter the results into the EverGraze Supporting Site monitoring spreadsheet, attach the updated spreadsheet and present the final results from the experiment (collated over the years) here.**

**a) Rainfall records (since the beginning of the demonstration)**

**Rainfall (mm)**

	<b>2010</b>	<b>2011</b>	<b>2012</b>
<b>January</b>	34.4	29.4	39.2
<b>February</b>	204.4	93.2	105.8
<b>March</b>	27.0	241.4	211.0
<b>April</b>	13.0	20.6	73.8
<b>May</b>	109.0	29.6	33.0
<b>June</b>	18.2	88.4	
<b>July</b>	14.8	42.2	
<b>August</b>	37.6	50.0	
<b>September</b>	31.6	18.8	
<b>October</b>	60.8	50.0	
<b>November</b>	123.8	123.6	
<b>December</b>	110.4	44.2	
<b>Total annual</b>	785.0	831.4	

**b) Trends in soil nutrient status (since the beginning of the demonstration)**

-nutrient trends not recorded, see soil test results, no fertiliser applied during trial period

**c) Costs of establishment, paddock development and management over time**

-Total Invoice Paid for establishment = **\$9,087 (incl GST)**

Chemical/seed -	\$842.98
Granulock 15 -	\$1,110.00
Troughs & Fencing -	\$4,500.00
Operations -	\$1808.00

<b>Treatment</b>	<b>1</b>	<b>2</b>	<b>3</b>
Seed and Treatment	\$114.30	\$92.04	\$81.90
Granulock 15 140kg/ha	\$155.40	\$155.40	\$155.40
Sprays	\$65.46	\$65.46	\$65.46
Operations	\$163.72	\$163.72	\$163.72
Total	\$498.88	\$476.62	\$466.48
Fencing & Water	\$472.50	\$472.50	\$472.50
Total per hectare	\$971.38	\$948.12	\$938.22

-no ongoing pasture or management costs after the initial set up costs as detailed above (time costs of host to weigh sheep in and out and rotate stock not included)

**d) Production – grazing days (since the beginning of the demonstration)**

-see attached excel spreadsheet

**e) Persistence (growing points and frequency)****f) Pasture condition**

- Ground cover - point of spring/summer break – Nov 2011

Paddock	Date	Fixed Point 1	Fixed Point 2	Fixed Point 3	Fixed Point 4	Fixed Point 5	Fixed Point 6	Fixed Point 7	Fixed Point 8	Fixed Point 9	Av
TMT 1	3/11/11	90%	95%	80%	85%	70%	85%	90%	80%	90%	85%
TMT 2	3/11/11	90%	75%	70%	65%	50%	90%	98%	70%	80%	76%
TMT 3	17/11/11	90%	85%	95%	80%	85%	90%	95%	90%	85%	88%

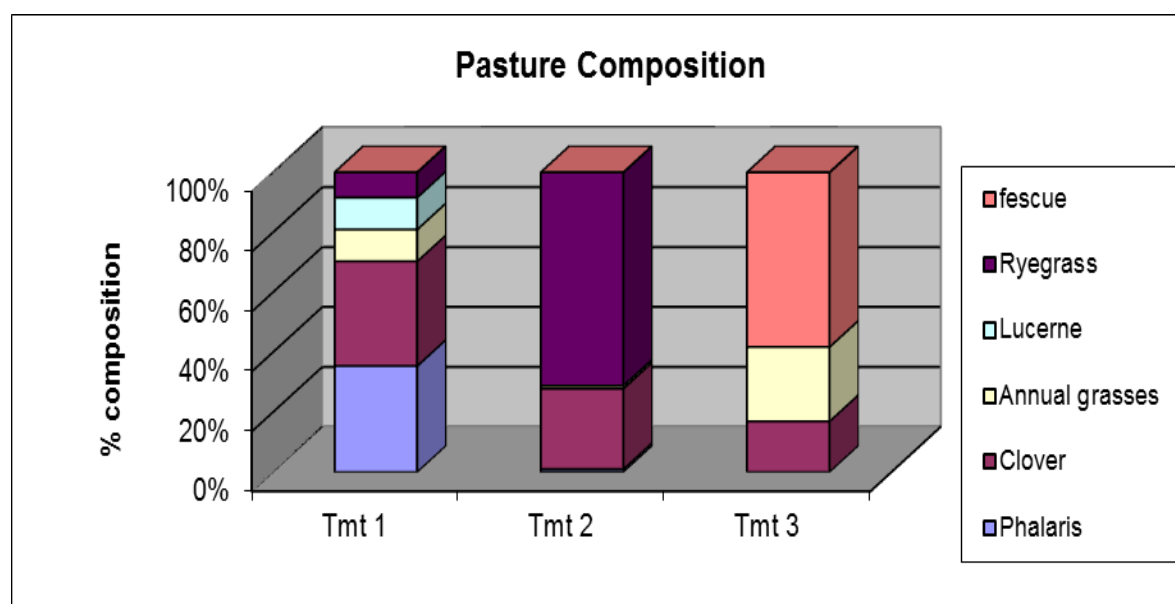
- % green – point of spring/summer break – Nov 2011

Paddock	Date	Fixed Point 1	Fixed Point 2	Fixed Point 3	Fixed Point 4	Fixed Point 5	Fixed Point 6	Fixed Point 7	Fixed Point 8	Fixed Point 9	Av
TMT 1	3/11/11	60%	70%	50%	60%	50%	65%	55%	65%	60%	59%
TMT 2	3/11/11	70%	70%	70%	70%	75%	75%	75%	70%	70%	72%
TMT 3	17/11/11	60%	50%	70%	60%	40%	70%	40%	50%	60%	56%

- % legume - point of spring/summer break – Nov 2011

Paddock	Date	Fixed Point 1	Fixed Point 2	Fixed Point 3	Fixed Point 4	Fixed Point 5	Fixed Point 6	Fixed Point 7	Fixed Point 8	Fixed Point 9	Av
TMT 1	3/11/11	15%	20%	15%	30%	5%	25%	20%	20%	10%	18%
TMT 2	3/11/11	50%	20%	10%	5%	0%	30%	85%	30%	40%	30%
TMT 3	17/11/11	5%	5%	25%	5%	5%	15%	0%	30%	35%	14%

- Pasture composition (if recorded)



## Section 4: Discussion

3. Provide interpretation of the results ie higher/lower animal carrying capacity, decline/maintenance of sown pastures and why?

Although there have been differences in weight gains across the three comparisons, no statistical analysis has been conducted to determine if differences are significant. Also the weakness in the experimental design which also limits the extent to which valid and accurate comparisons can be made is the fact that the treatment paddocks were not grazed simultaneously ie. at the same time with the same number of animals but instead animals were rotated across the paddocks, one after the other.

However going on observations and anecdotal evidence, the higher performance mix (going on liveweight gains and feed quality) which could consistently carry a higher stocking rate appears to be the Lucerne/phalaris mix across the 3 years (especially in Autumn period).

Due to the excessively high rainfall over the previous three years (>30inches annually) pasture growth has been excessively high and no pressure has been placed on the various pasture systems so it has been difficult to get an accurate comparison between the treatments of how they would perform in a challenging, dry year. For this reason, no obvious decline in the sown pastures has been observed.

### Host comments are as follows;

-the **lucerne/phalaris mix** is ideal to fill the summer feed gap as a perennial feed base and will continue to be integrated into the host producers farm system. It is ideally suited for merino weaners ie. growing stock who are weaned mid-to late summer. Visually this mix has performed higher than the other two treatments and also provided 2 more weeks of extra grazing in Jan/Feb due to the higher feed quality available.

Brad concludes that a Lucerne/phalaris mix (predominance of Lucerne) is most desirable in terms of production and environmental markers ie. ground cover, but it does require the highest level of management ie. this pasture does need a lot of timely, grazing pressure to restrain the phalaris and encourage the establishment and persistence of the lucerne. Brad is unsure if this mix, on a larger scale ie 200ha, would be cost effective and manageable again because of the grazing pressure needed to manage the phalaris growth stages due to the over-riding dominance of this species.

-the **fescue mix** is only a spring performer and not suitable for Brads current system. This trial has confirmed for him, the unsuitability of fescue based pastures in his pasture systems, specifically when looking at a fat lamb enterprise. Also although pasture growth can be high, feed quality and digestibility are low when compared to the other two mixes and therefore weight gains in a fat lamb enterprise are not optimised. Possibility fescue would suit a cattle enterprise where digestibility is not as important.

-the **ryegrass pasture mix** does not persist well on the Monaro on his soil type (in Brads experience) as it only seems to persist for 3-4 years whereas the host is looking for a pasture that can persist for 10-15 years. Also the pasture does not respond or take advantage of summer rain with little to no leaf present over summer. A lot of this pasture has run up into stalks and dried off.

However the results indicate that the Rye grass performed exceptionally well this autumn, see figures in table, and at one grazing period (30 days), lambs were nearly 3 kg heavier. In conclusion, if a good autumn rainfall is received the rye grass performs well. Brad also favours rye grass in a crop rotation as after the 2-3 years when the rye-grass is starting to decline, it is timely and easier to then transfer into a cropping rotation.

#### 4. What do the results mean in the context of managing the rest of the farm, and in addressing the production and environmental issues identified in Section 1?

- As outlined above, the host will continue to integrate more Lucerne and phalaris type systems across his farm with a clover base to continue trying to address the ground cover issue over the winter months. He will not be sowing any fescue based pastures and will continue rotating his cropping systems with rye grass based pastures. Other perennial species he is looking at are cocksfoot. He identifies that deep-rooted perennial species are the optimum end-point in a permanent pasture system in terms of ground cover and soil health.

#### 5. What does the collaborating group of producers and the host think about the results? To what extent have the results increased the confidence of the producer group to adopt the practices being demonstrated on the Supporting Site?

- The host believes the real value in the site will be realised in coming years when the persistence of lucerne in the phalaris/lucerne treatment 1 paddock can be measured against time and yearly pasture cuts will identify the long term persistence qualities of these species. These results have definitely increased the confidence of other producer members to continue to integrate perennial pastures on their highly productive country specifically this trial has reinforced the benefits of increasing the legume component of improved pastures. Other producers have used the feed quality data for the three treatments to assist in making decisions of what species to sow in terms of digestibility and quality.
- Doug Alcock (NSW DPI Senior Livestock Officer) is currently using the available information from this site (stock, pasture, weather, soil data) to model the three pasture systems using GrassGro software. Doug will then produce a report which will be distributed to members to clearly and critically assess the pasture systems and outline the benefits and disadvantages in terms of economics and environmental factors.
- This will give further information to the producer members on which to help base decisions.

### Section 5: Extension, monitoring and evaluation

#### 6. Outline key extension/communication opportunities completed List the details of field days/activities held in the last 6 months, include participant numbers and feedback

**A field day was held at the site on the 29th Nov 2011** (this table below has been reported on in Nov 11 Milestone Report). Due to other activities and projects the group has been involved in, no further field days have been held at the site however regular newsletters have reported progress.)

Activity	Key Result area and/or skills and knowledge areas delivered	Were any EverGraze results or messages presented?	Date	Numbers attending	General comments on feedback/assessment of success – use narrative format for more detailed responses
Field Day on interpretation of annual, bulk, group soil testing results.	-targeting fertiliser investment -setting fertility targets and	yes	Nov 2011	40	Brad Yelds (host producer) took people around the site and explained the different pasture mixes. Questions were asked about weight gains achieved and numbers of grazing days and comparisons between the different

	adjusting stocking rates				pasture mixes. The feed quality tests were received with interest.
--	--------------------------	--	--	--	--

**7. Please provide information on any highlights that have been achieved or comments you have heard during Field Days, Activities, etc.**

-has always been a challenge to manage lucerne in a pasture mix to facilitate persistence over 3-5 years, especially with competition from phalaris

-host producer highlighted the importance of matching his available feed quality with the varying stock feed demands during the year ie. he will match the high feed quality of treatment 1 with joining of breeding stock to maximise conception rates and use the lower value pasture mixes when maintenance of stock is required

**8. Feedback from group members in terms of practice change on farm**

Practice implemented (use one row per farm)	Issues addressed (and any indication of impact in terms of stocking rate etc)	Area of land covered
-greater amount of pasture sown to phalaris/lucerne	Inc. legume component of pastures, thereby increasing ground cover and overall soil health	150ha
-greater targeting of fertiliser applications to actual targets	Matching fertiliser investment to pasture quality	450 ha

**9. Please attach any handouts you have developed for the sites or articles that have been written about the site**

- See attached

**10. Please send a high res photo of your host farmer (with their permission) with the farm in the background; and any good photos of the site which highlight key results/contrasts of treatments etc for use in the case study.**

-see photos attached (did not get opportunity to photograph farmer on site)

**11. Please provide any final feedback on your experience in the EverGraze/CHAF Supporting Sites program**

This opportunity has been a huge learning experience for me as a project coordinator with little prior knowledge or skills in pasture assessment and experimental design. Evergraze has certainly made available an abundance of resources and support available to help with the process of pasture assessment and data collection and recording.

My disappointment is that time constraints have prevented me from taking full advantage of these resources and collecting a greater data base of results for this site which would have been useful in the evaluation process.