

Persistent Perennials For Euroa Producer Demonstration Site Interim Report June- December 2009

Abstract

The Persistent Perennials for Euroa Producer Demonstration Site was established in May/June in association with the Euroa Grazing Group. The site is comparing the establishment, persistence and economic value of five perennial pasture species compared to an unimproved control and several annual ryegrass and grazed cereal crops. The 1 ha plots established well with excellent conditions through June and July. The two sites had differing preparation with one having a history of cropping and the other being in pasture before a single crop of millet prior to establishment. The group learnt the importance of good weed control with silver grass being a problem in the site previously in pasture. The cost of perennial pasture establishment was completed with analysis of the profitability of the annual crops and the control pasture being considered as opportunity costs. The future productivity and payback period will be considered throughout the trial. The Euroa Grazing Group has embraced the PDS with great enthusiasm and have already been inspired to try some of the treatments out as paired paddock trials on their own farms. Communication of results to the group with a monthly newsletter has proven effective as a means of maintaining this momentum. The PDS has also attracted the interest of the wider community reaching 190 producers outside the Euroa Grazing Group and featuring in two newsletter and two newspaper articles.

Project objectives

1. Determine the establishment cost (including production loss) and first year growth of 5 perennial pasture varieties grazed by cattle on 2 sites (by December 2009).
2. Determine the monthly and yearly pasture growth of 5 established perennial pasture varieties on 2 sites, and compare data to that produced by the MLA rainfall-pasture growth tool (December 2010 and 2011).
3. Determine the level of establishment and persistence of each perennial pasture species (Yearly measurements reported December 2009, 2010, 2011)
4. Determine the kg Beef/ha produced on the perennial pastures.
5. Conduct a partial budget on the Moglonemby site to determine the cost/benefit of using perennial pastures compared to cropping, and on the Longwood site to determine cost/benefit of using perennial pastures compared to unimproved pastures.
6. Engage the Euroa Grazing Group through a progress update at each monthly meeting, and utilise group meetings to work through methodology, analysis of results and relevant guest speakers (ongoing)
7. Engage the wider beef producer community through 1 field day hosted by Euroa Grazing Group in 2011, and linkages with local Beefcheque

groups and EverGraze through site visits and 1 article per year suitable for the Prograzier and EverGraze newsletters.

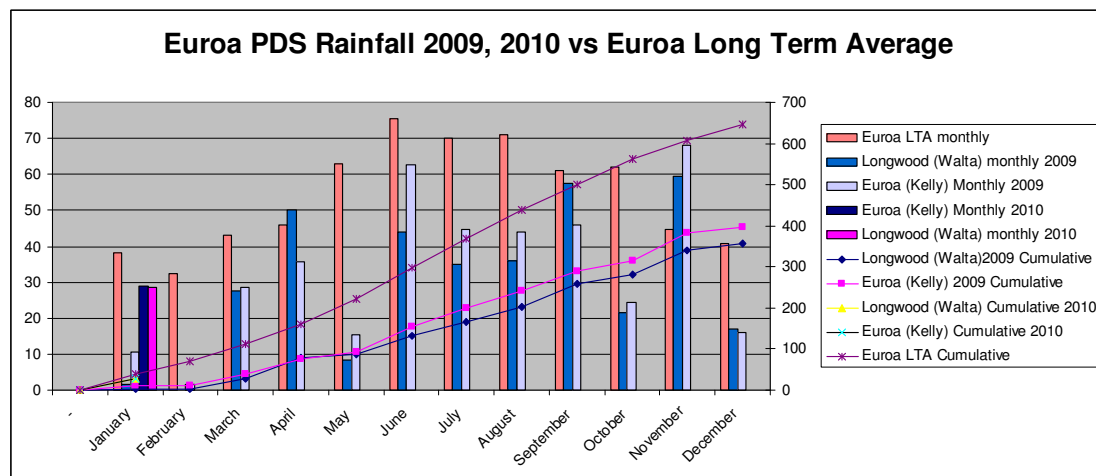
2009 activities

Communication:

Overall, the interest and enthusiasm for the site in its first year shown by both the Euroa Grazing Group and other members of the local and wider community has far exceeded expectations of the project manager. Please see Appendix 1 (communication plan) for the outcomes of the communication and training activities completed so far and future activities planned for 2010 and 2011.

Site establishment:

The sites were established in the last week of May and first week of June for Euroa and Longwood respectively. Small amounts of rain fell almost every day in the first week of June, and continued on and off throughout July with minimal frost days making for an ideal establishment period (see rainfall data in spreadsheet attached below). Although the rainfall was below average for almost every month of the year, good growing conditions were experienced.



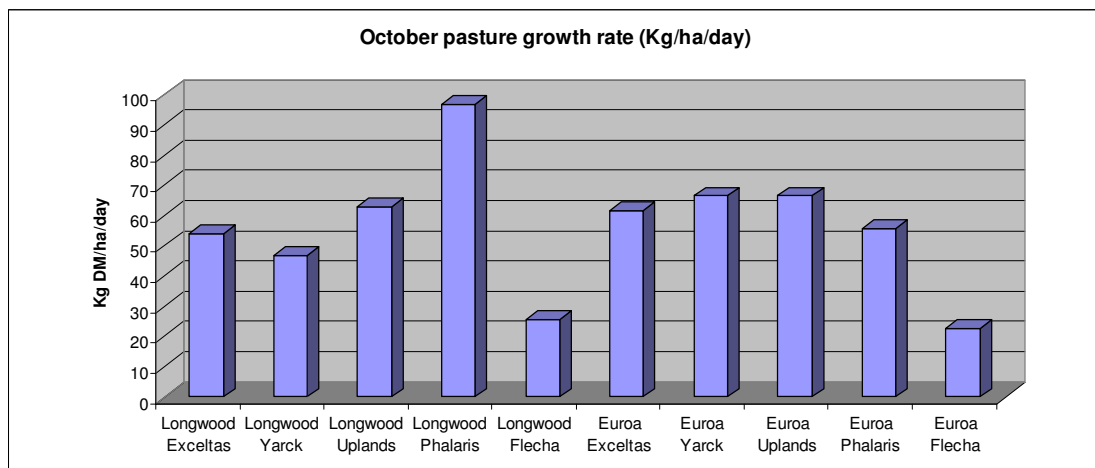
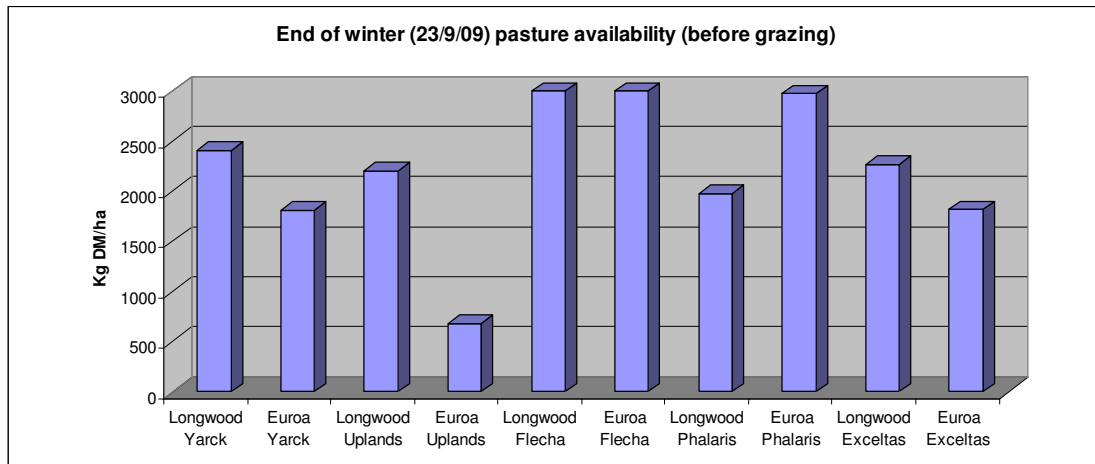
Soil tests:

Soil tests were conducted on the sites prior to establishing the pastures in May. Copies of the soil tests are provided in Appendix 3. Both sites had adequate soil fertility for establishing pastures, although the Euroa soil had particularly high fertility. A session was run with the group in September to interpret the soil tests and make fertiliser decisions for next year. Another soil test will be taken prior to fertiliser application in 2010.

Pasture Availability and Growth

Pasture availability has been measured using a pasture stick monthly since 23/9/09 by our contracted technical officer, Keith Dean. At the first measurement in September, the fescue and phalaris proved to have had the highest winter production with Uplands being the slowest. The availability measurements have been used in feed budgets to calculate pasture growth rates for the October period. Fescue slowed considerably as it went dormant

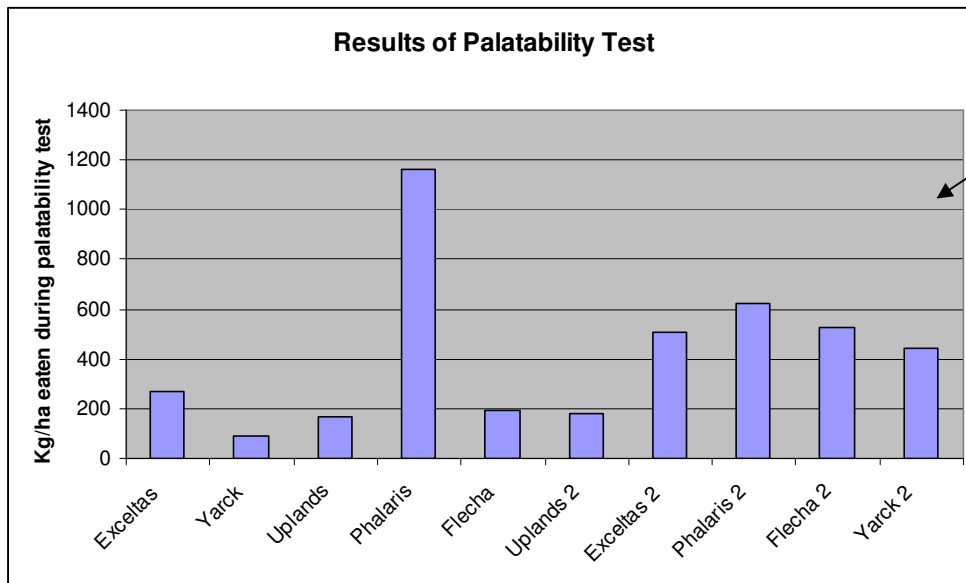
early and the phalaris and cocksfoots recorded the highest growth rates. See the data spreadsheet for more details.



Palatability experiment

Prior to erecting the fences in September at the Euroa site, 32 heifers were grazed over the 10 plots to determine any palatability differences. Phalaris was the preferred species. The cocksfoots were eaten least, but they also had the least available at the time. The fescue seemed to be least preferred given the large amount available. Results of this experiment can be seen under "Pasture Growth Kelly" in the data spreadsheet, and some good photos of the experiment can be found in the October newsletter.

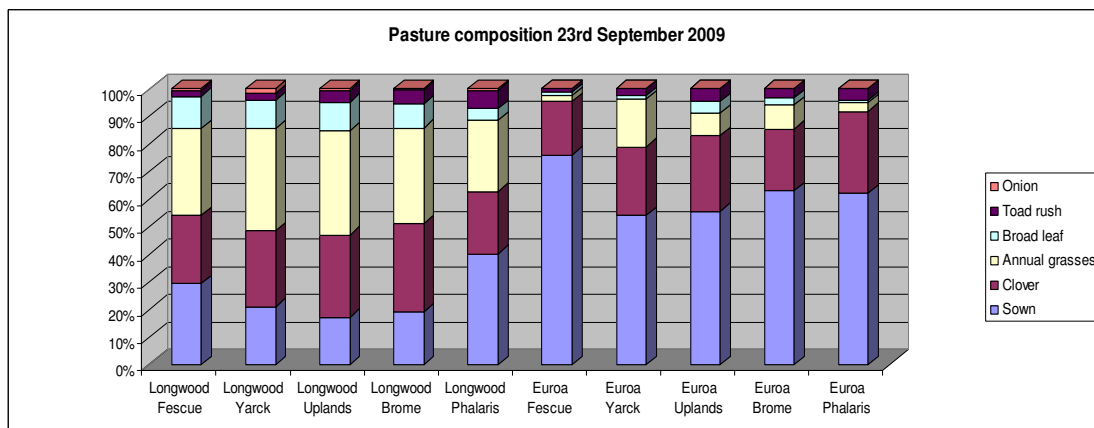
http://bestwoolbestlamb.com/Files/Group_files/euroa_grazing/Euroa_Grazing_Group_Letter_October_2009.pdf

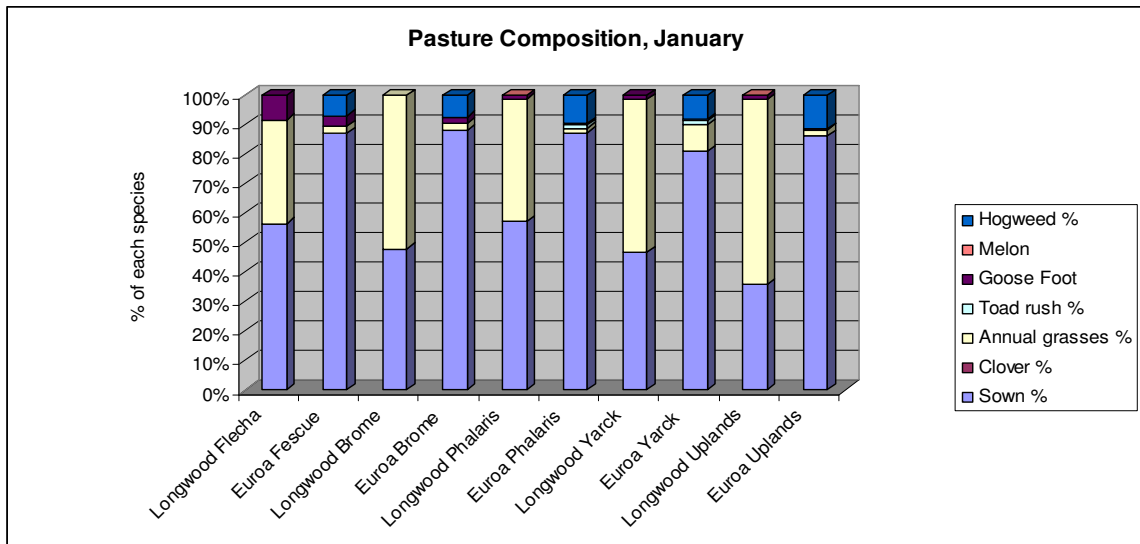


This was the preferred end of the paddock next to the bulls

Plant counts and composition experiment:

The plant count experiment with Tom Hooke from La Trobe University commenced on the 25th of June. Plant counts were collected for two months after which it was difficult to distinguish plants from tillers, so composition and ground cover measurements commenced to determine the success of establishment. Overall, the fescue and phalaris were the strongest in establishment with the cocksfoots and brome being much slower and more susceptible to weed invasion. The lack of weeds resulting from a number of years of cropping at the Euroa paddock proved important in the success of establishment compared to the Longwood paddock which suffered a burden of silver grass and annual ryegrass, particularly in the cocksfoots. See Appendix 2 for the full report from Tom Hooke on the plant counts experiment. Composition measurements can be found in the data spreadsheet.

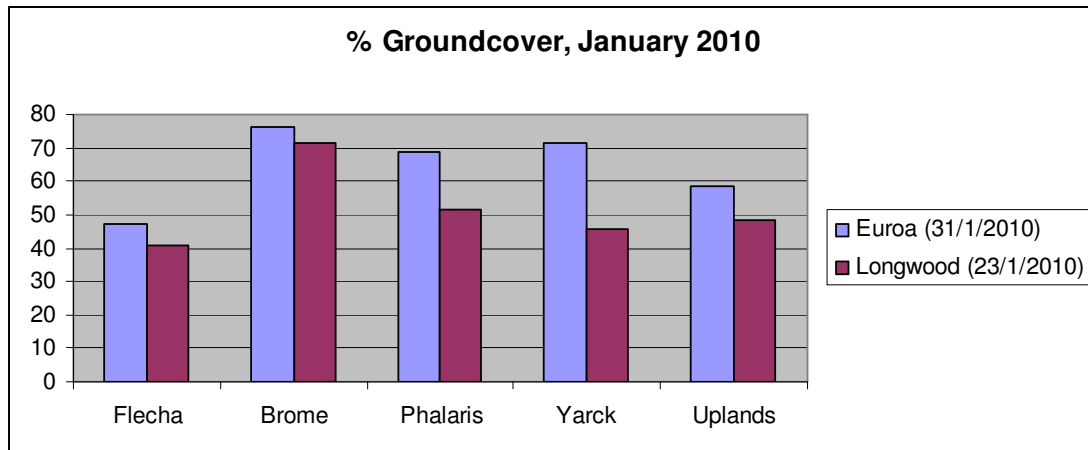


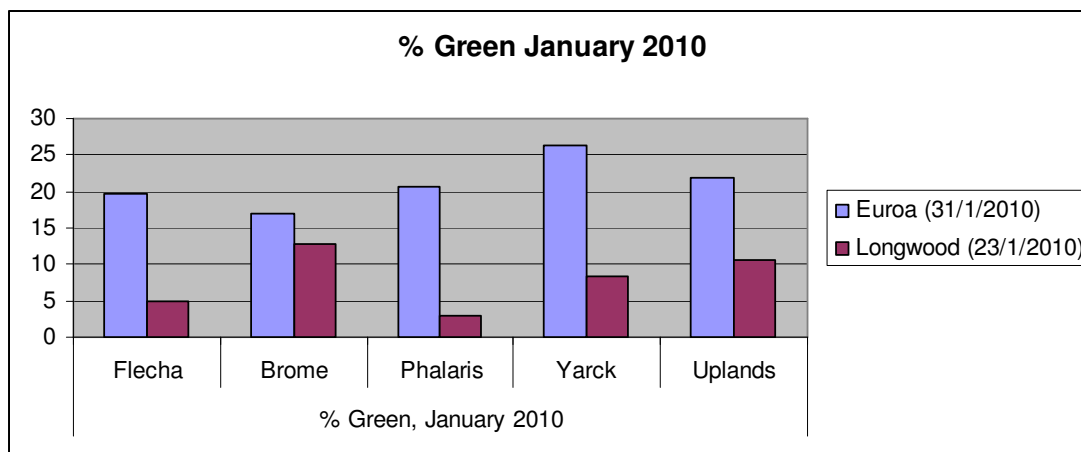


The silver grass invasion lingered into summer at the Longwood plots and will be the main competitor for 2010.

Ground cover and green vs dead in summer

The Yarck cocksfoot had the best response to early summer rains and provided good green feed in December. The brome was not far behind, and this helped to maintain ground cover in these plots. The Flecha was least responsive to summer rain and also had the lowest ground cover. Most of the green had gone out of the pasture by the time the Longwood measurements were taken in late January.





Grazing completed and kg beef produced:

Grazing has been recorded as DSE grazing days/ha on the trial plots as well as a control unimproved pasture, Southern Green ryecorn, Jackie triticale, Banquet II ryegrass and chicory (all established in 2009) at the Longwood site, and an annual ryegrass control on the Euroa site.

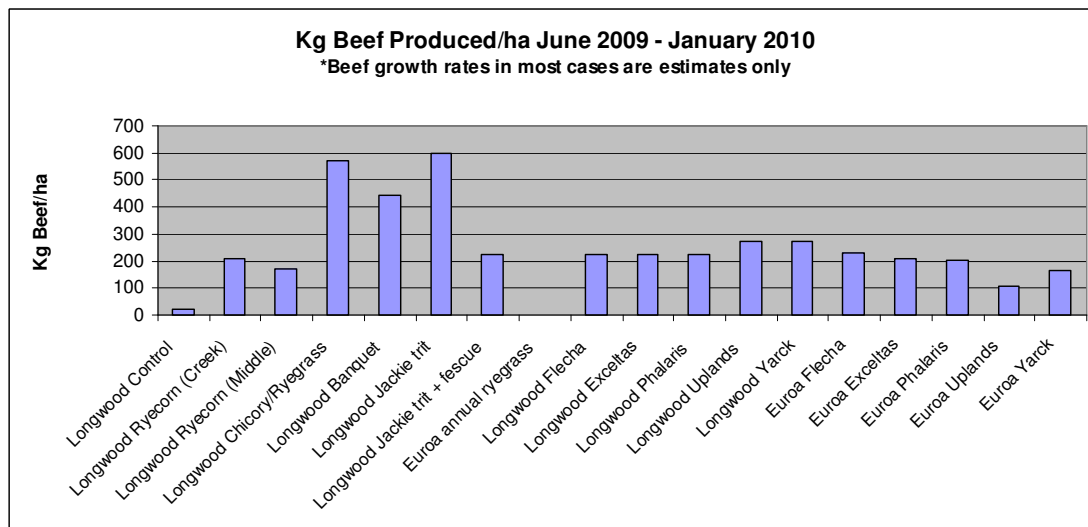
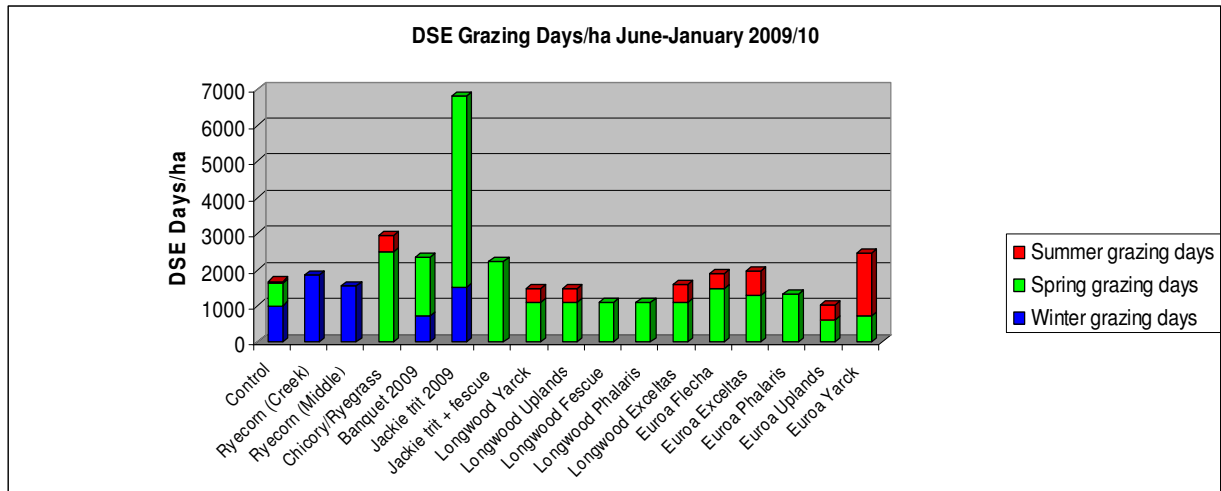
Two grazings on the Southern Green Ryecorn resulted in 1850 DSE grazing days/ha by the middle of August. This compared to 1506 DSE grazing days on the Jackie triticale by the end of August (note that the Jackie triticale was in a 2 ha plot compared to the ryecorn which was in 6.5 ha allowing for greater utilisation in the triticale). The ryecorn had its first grazing on the 21st of July compared to the triticale which was first grazed on the 3rd of August. The early winter productivity of the ryecorn sparked considerable interest for the group in helping to fill the winter feed gap. However, by grazing the triticale right through to spring instead of harvesting the grain, it resulted in the most profitable treatment.

With good growth over winter and early spring, the group decided that the plots could handle a graze, and this was also a good strategy to knock down allot of the silver grass and capeweed that had emerged on the Longwood site. 223 weaners were grazed for 0.5 days through the Longwood plots. This did cause some problems with pugging but helped to knock the silver grass. 32 animals were grazed for a varying amount of days in the Euroa plots.

A heat wave during early November caused some concern for clover which appeared to burn off before producing seed. Several of the perennials appeared to be heat-stressed so no further grazing occurred during that period. However, good rains during December have kept the cocksfoots green allowing for good grazing of green feed over those plots during December and January.

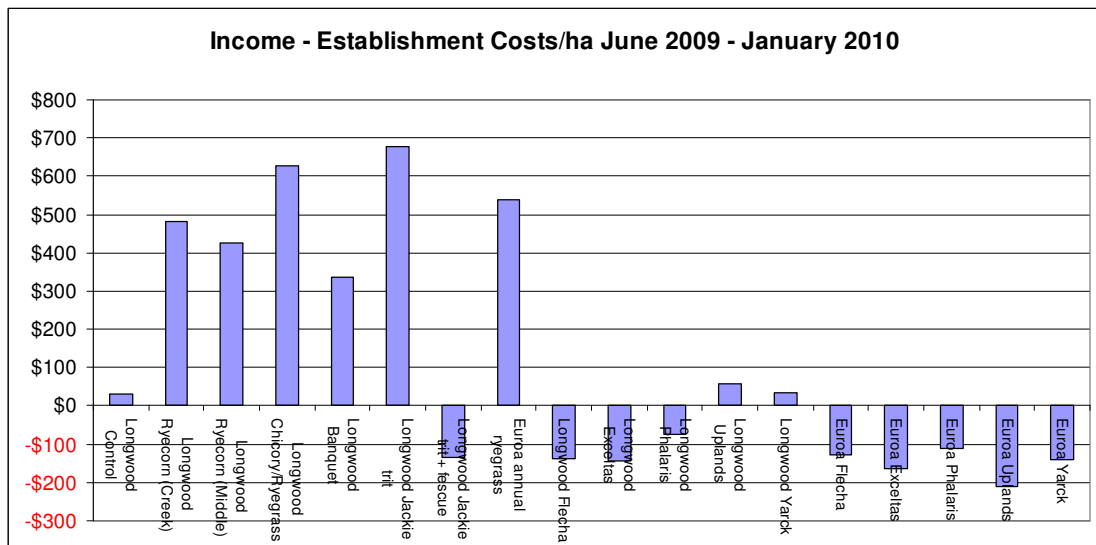
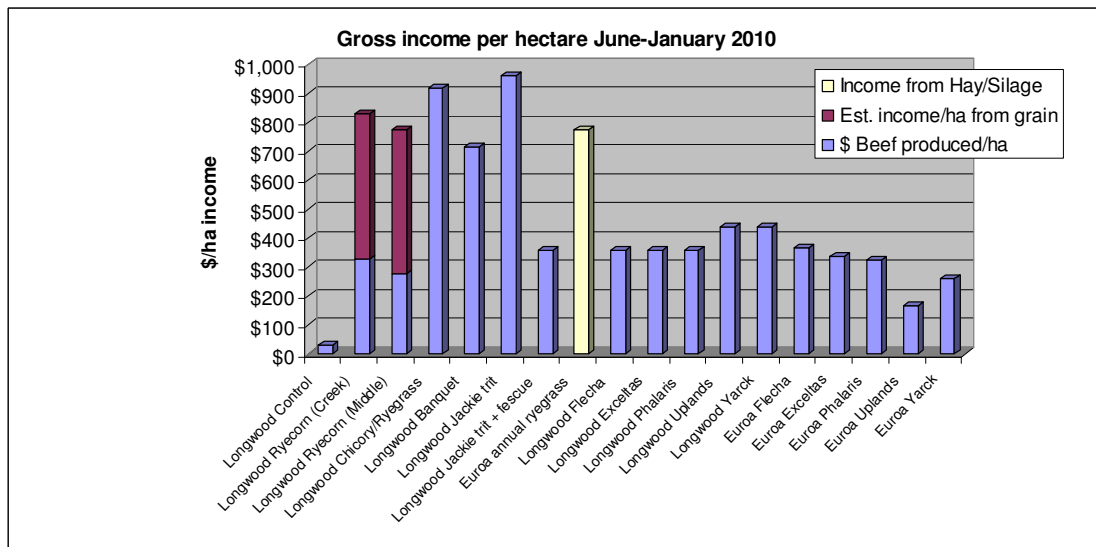
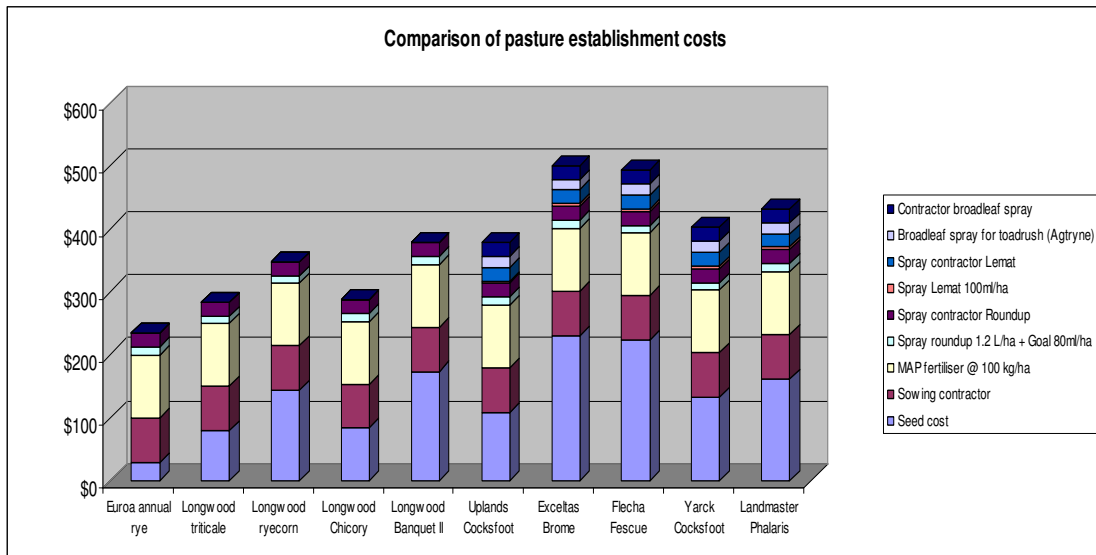
A liveweight gain of 2 kg/hd/day was recorded after grazing the Euroa trial plots during October. Liveweight gain was not recorded for the Longwood site due to the small amount of time the animals were grazing the plots. It is intended that liveweight gain on the plots will be recorded from now on.

For the purposes of calculating the cost of pasture establishment and the productivity off the annual crops, an estimate of liveweight gain based on pasture availability and quality has been used to do the calculations provided in the production summary spreadsheet.



Economics

The total cost of sowing of the different treatments including the controls is presented in the graph below. Plots were compared to the controls for kg beef produced/ha at \$1.60 per kg liveweight produced. Dollar values of hay or grain produced off the control paddocks was added to the grazing value. The average gross margin of the trial plots was -\$101 up until January 2010. The average gross margin of the annual crops including annual ryegrass, triticale and ryecorn was \$531. When the annual crop gross margin is added in as an opportunity cost of sowing the perennials, the average cost of establishing the perennials is \$632. This figure will need to be revised at June 30 2010 to give a full year gross margin. The kg beef produced on the control plots equated to \$32 although this plot was mostly maintaining pregnant cows and calves so is difficult to compare in this situation.



Appendices

Appendix 1: Communication Completed and Planning

Euroa Grazing Group Activities:

The Euroa Grazing Group has a monthly newsletter. The latest findings from the trial and a review of the previous month's session are provided in the newsletter. These are placed on the BWBL website. A link is provided here to these newsletters:

http://bestwoolbestlamb.com/news/category/euroa_grazing/

In future, the trial results will be provided separately to the newsletters now that we have the website up and running.

Date	Activity	Number of participants	Outcomes
4-5/6/2009	Persistent Perennial Pastures Excursion to South West Victoria	30	
16/7/09	EGG monthly meeting. Confirmed research questions and methodology with group.	20	See newsletter – August http://bestwoolbestlamb.com/Files/Group_files/euroa_grazing/Euroa_Grazing_Group_Letter_August_2009.pdf
21/8/09	Cost of production session 1	10	See newsletter – September http://bestwoolbestlamb.com/Files/Group_files/euroa_grazing/Euroa_Grazing_Group_Letter_September_2009.pdf
25/9/09	Session at John Kelly's covering success of establishment, feed budgeting for first grazing, cost/benefit of establishment, kg beef produced on control and plans for fertiliser applications based on soil test results..	14	See newsletter – October http://bestwoolbestlamb.com/Files/Group_files/euroa_grazing/Euroa_Grazing_Group_Letter_October_2009.pdf Stocking rate calculator was used on the day to determine stocking rates for trial plots.
22/10/2009	Cost of production session 2. Visit to Andrew Walta's site. Discussion of silver grass control, DSE grazing days, spring pasture growth rates and management of pastures over summer. An analysis of costs/benefit of pasture establishment from the Ballarat PDS was also presented on the day.	18	See newsletter – November
19/11/2009	Group meeting. Skills audit completed, group activities plan for 2010 completed.	18	See newsletter – December

Friday 19 March 2010	Trial planning session		<p>The day will be held at one of the trial sites. Summer survival of perennials and strategies for autumn management will be discussed on the day.</p> <p>Planning for alternative fertiliser trials and “filling the autumn feedgap” trials will be completed on the day (See appendix 1 for more details).</p>
Thursday 15 April 2010	Matching annual pasture production with seasonal requirements – session 1		<p>This topic will be covered in the form of the new EverGraze pasture establishment course over a series of four sessions.</p> <p>The first session will cover developing a farm map, identifying landclasses and soil types and determining which plants are suitable for which areas of the farm.</p>
Friday 28 May 2010	Matching annual pasture production with seasonal requirements – session 2		Using the feed demand calculator to develop current feed supply/demand profile, identify major feed gaps and determine which species would be most suitable for filling the feed gaps.
Thursday 24 th June 2010	Cattle weaner management		<ul style="list-style-type: none"> • Creep feeder • Yard weaning • Nutrition for ideal growth.
Friday 6 th August 2010	Matching annual pasture production with seasonal requirements – session 3		Developing a pasture establishment and management plan including a weed control and fertiliser/lime calendar.
Friday September 3 rd 2010	Soil Health – presentation from Julian Hill		<ul style="list-style-type: none"> • Selection of natural fertilisers – trials with products such as RUM and Nutrisoil • Matching micro-nutrient requirements with maximum growth – mineral supplements and tissue testing • Topping grass to improve organic matter to protect soil • Use of legumes such as lupins to return nitrogen to the soil.
Thursday October 7 th 2010	Possible excursion to Tasmania (pending successful funding application).		<ul style="list-style-type: none"> • Visiting the perennial grass and legume trials in the midlands • Establishing pasture on hill country.
Friday 12 th November 2010	Tour of farms:		Presentation from each participant on what trials or strategies they have completed for their farm and how it went.
Thursday 2 nd December 2010	Planning session 2011		
Thursday 16 th December 2010	Christmas party		

Activities for wider community

Date	Group	Number of participants	Activity	Outcomes and materials
9/6/2009	Nulla Vale Landcare Group	20	Presentation on drought tolerant perennial pastures. Discussion of PDS methodology.	

13/8/2009	Open	80	Opening field day held at Longwood PDS site organised by Stephens Pasture Seeds covering pasture establishment methods, costs and use of forage ryecorn. Senior pasture agronomist from Wrightson Seeds in New Zealand, Allistair Moorhead attended and spoke at the day.	
9/10/09	Upper Murray Agribusiness Forum	40	Bus trip visited John Kelly's site. Tour of site, discussion of establishment success and costs, grazing preferences and pasture growth/composition.	
27-29/10/2009	Midlands, Tasmania	40	Bus trip focussing on drought tolerant perennials visiting pasture research sites in Tasmania. Kate Sargeant provided overview of PDS for trip participants.	
16/11/2009	DPI North East Regional Staff Team Meeting – visit to site	10		
Total		190		
26 th February 2010	Perennial Pasture Information Day		Presentation of results at the Perennial Pasture Information Day in Whorouly.	Present new EverGraze pasture cost calculator
Autumn/Winter 2010	Open field day		Field Day – presenting first year summer survival data, autumn composition and early autumn growth and beef productivity from perennials and annual crops.	
Spring 2010	Open field day		Presenting first year production data from sites and update on cost/benefit.	
Winter 2011	Open field day			
Spring 2011	Open field day			

Publications/media

Date	Topic	Publication	Link
20/7/2009	Persistent Perennials Bus Trip	Country News	http://www.countrynews.com.au/story.asp?TakeNo=200907201235954
August 2009	Persistent Perennials Bus Trip and PDS introduction	BESTWOOL-BESTLAMB Newsletter	http://bestwoolbestlamb.com/Files/Documents/Newsletters/Bestwool_FINAL_low-res.pdf
August 2009	Persistent Perennials Bus Trip and PDS introduction	DPI Meat and Wool Team Newsletter	
26/8/2009	PDS Field Day Article	Stock and Land	http://sl.farmonline.com.au/news/state/livestock/sheep/persistent-perennials-key-to-feeding-livestock/1606527.aspx

Appendix 2: Plant establishment honours thesis

For a copy of this document, please contact Kate Sargeant

Appendix 3: Soil Test Results



Nutrient Report

DPI SEYMOUR KATE SARGEANT
PO BOX 879

SEYMOUR
VIC 3660

Agent/Dealer:
Advisor/Contact: Lab User
Phone:
Report Print Date: 07/05/2009

Sample No	020928041			
Test Code	A32			
Lab Report No.				
Lab Report Date	06/05/2009			
Paddock Name	KELLY			
Sample Name	TRIAL			
Sample Type	Soil			
Sample Depth (cm)	0 - 10			
Sampling Date	29/04/2009			

Assay	Unit	Value			
pH (1:5 Water)		5.20			
pH (1:5 CaCl2)		4.70			
Aluminium Saturation	%	4.6			
Organic Carbon (OC)	%	2.20			
Nitrate Nitrogen (NO3)	mg/kg	28.0			
Phosphorus (Olsen)	mg/kg	27			
Phosphorus (Colwell)	mg/kg	73			
Phosphorus Buffer Index (PBI-Col)		85			
Available Potassium	mg/kg	130			
Sulfate Sulfur (KCl40)	mg/kg	56.0			
Zinc (DTPA)	mg/kg	1.10			
Copper (DTPA)	mg/kg	0.40			
Iron (DTPA)	mg/kg	280.0			
Manganese (DTPA)	mg/kg	32.00			
Chloride	mg/kg	48.0			
Electrical Conductivity	dS/m	0.19			
Electrical Conductivity (Saturated Extract)	dS/m	1.70			
Cation Exchange Capacity	meq/100g	7.23			
Aluminium (KCl)	mg/kg	30.00			
Aluminium (KCl)	meq/100g	0.33			
Calcium (Amm-acet.)	meq/100g	5.50			
Calcium (Amm-acet.)	%	76.00			



Analyses conducted by **Nutrient Advantage Laboratory Services**
Laboratory report is available upon request
Toll-Free: 1800 803 453 Email: lab.feedback@incitecpivot.com.au
NATA Accreditation No: 11958





Nutrient Report

DPI SEYMOUR KATE SARGEANT
PO BOX 879

SEYMOUR
VIC 3660

Agent/Dealer:
Advisor/Contact: Lab User
Phone:
Report Print Date: 07/05/2009

Sample No	020928039			
Test Code	A32			
Lab Report No.				
Lab Report Date	06/05/2009			
Paddock Name	WALTA			
Sample Name	TRIAL 2			
Sample Type	Soil			
Sample Depth (cm)	0 - 10			
Sampling Date	29/04/2009			

Assay	Unit	Value			
pH (1:5 Water)		5.50			
pH (1:5 CaCl2)		4.80			
Aluminium Saturation	%	5.6			
Organic Carbon (OC)	%	2.30			
Nitrate Nitrogen (NO3)	mg/kg	25.0			
Phosphorus (Olsen)	mg/kg	11			
Phosphorus (Colwell)	mg/kg	34			
Phosphorus Buffer Index (PBI-Col)		110			
Available Potassium	mg/kg	160			
Sulfate Sulfur (KCl40)	mg/kg	14.0			
Zinc (DTPA)	mg/kg	1.30			
Copper (DTPA)	mg/kg	0.21			
Iron (DTPA)	mg/kg	300.0			
Manganese (DTPA)	mg/kg	20.00			
Chloride	mg/kg	34.0			
Electrical Conductivity	dS/m	0.13			
Electrical Conductivity (Saturated Extract)	dS/m	1.20			
Cation Exchange Capacity	meq/100g	6.64			
Aluminium (KCl)	mg/kg	33.00			
Aluminium (KCl)	meq/100g	0.37			
Calcium (Amm-acet.)	meq/100g	4.10			
Calcium (Amm-acet.)	%	62.00			



Analyses conducted by **Nutrient Advantage Laboratory Services**
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Toll-Free: 1800 803 453 Email: lab.feedback@incitecpivot.com.au
NATA Accreditation No: 11958



This project is funded jointly by MLA and DPI. Stephens Pasture Seeds assisted with setup by providing some of the seed and AWI contributes via the BESTWOOL-BESTLAMB program for the group activities.

