Mooneys Gap PPS/EverGraze Supporting Site

Final Report August 2013

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PPS Mooneys Gap

EverGraze Supporting Site

2009 -2012

Final Report

Abstract

The Perennial Pasture Systems (PPS) group's Mooneys Gap EverGraze Supporting Site consists of two separate trial paddocks. The Lucerne paddock was established to test the viability of establishing lucerne pastures in areas where they have not been traditionally grown.

The site has shown that lucerne pastures can be extended away from the more typical river and creek flats into more undulating country and add to the overall production of the region's farms.

The phalaris trial paddock has shown the large productivity gains possible with a productive phalaris based pasture. The site has also demonstrated best practice management techniques to enhance the production and persistence of the pasture.

The benefits to farmers in the region are to offer them proven productive perennial grass pasture options that will persist using the right establishment and management techniques. The use of perennials in a grazing system aids resilience in managing climate and more efficient water use, enhancing overall productivity and profitability to the regions grazing enterprises.

PPS Mooneys Gap EverGraze Supporting Site Summary

The Perennial Pasture Systems (PPS) group was formed in mid 2007 after a meeting was conducted at Hall's Gap reacting to concerns about the lack of research and extension into productive pastures in the Upper Wimmera and Central Highlands region of Victoria. PPS now has a membership of eighty three farm businesses covering over seventy five thousand hectares, as well as having several agribusiness members.

The aim of the group is to push the boundaries of perennial pasture research in our region and to provide information on productive pasture management.

PPS conducts research trials, seminars and an annual conference to provide the pasture management information to members. The PPS EverGraze Supporting Sites at Mooneys Gap and Tottington have formed a vital part of PPS activities since their commencement in 2009 and 2010.

PPS identified the problems with establishment & persistence of perennial based pastures as a major barrier to improving profitability. There are paddocks within the region which are producing two to three times the district average and the PPS group believes that with appropriate research, paddock trials and extension that these improvements to productivity can be more widely adopted. The PPS EverGraze Supporting Site at Mooneys Gap implemented two paddock scale trials to demonstrate and test the above statement. A lucerne trial was established to test its viability in Ordovician foothill country where it has not traditionally been grown.

A second paddock was established as a best practice phalaris management site. Phalaris has long been considered very suited to long term perennial pasture in the region but it can be difficult to establish and needs an advanced level of grazing management to ensure its persistence.

The trials were highly successful and the following major conclusions were reached.

1. Under the current conditions in the region, following several drier winters, it is viable to establish lucerne in non traditional areas where agronomic conditions are suitable.
2. Phalaris established and managed under best practice conditions will produce perennial pastures are capable of achieving double the production of what is achievable with annual grass based pastures. This can be achieved while also having environmental benefits such as increased ground cover and improved water use.
3. The combination of phalaris and lucerne pastures on a property can lead to changes to the farm's enterprises adding value to the producer's profitability.

The Evergraze trials have complemented other PPS trials including the PPS MLA Producer Demonstration Scheme sites which trialled recently available perennial grass varieties against phalaris.

The results and information from the PPS projects are being conveyed to members and other producers; and are increasing their perennial pasture knowledge and their confidence in managing productive perennial pastures. The Mooneys Gap trials have been an essential part of this and the results will assist producers in their perennial pasture variety selection and pasture management longer term, enhancing their overall productivity and profitability.

PPS Mooneys Gap EverGraze Supporting Site Key Findings

Phalaris

The Mooneys Gap phalaris site has shown that productive perennial grass and sub clover pastures can double the carrying capacity of a paddock when compared to a rundown annual pasture. The Mooneys Gap phalaris pasture has had an average increase in carrying capacity of 157% compared to the control annual pasture over the three years of the trial.

The introduction of deep rooted perennial pastures has environmental as well as production benefits. Perennial pastures are more efficient users of water as they are able to access available moisture at deeper levels and for longer periods than annuals and therefore assist in lowering water recharge reducing the risk of salinity. Perennials slow the soil acidification rate by the increasing nitrogen uptake thereby reducing nitrate leaching. Well managed phalaris pastures maintain a level of ground cover well in excess of annual grass based pastures reducing the risk of wind and surface water erosion. The Mooneys Gap phalaris site clearly demonstrates the enhanced environmental outcomes that come with well managed perennial pastures.

Soil testing is important to test for nutrient deficiencies and pH prior to phalaris establishment. Adequate lime and fertiliser should be applied to address deficiencies prior to establishment. Particular attention must be paid to ensuring that aluminium levels are suitable for phalaris production prior to sowing.

Weed control is of critical importance before and during the establishment phase of phalaris pastures. Periodic annual weed control measures enhance the production of phalaris based pastures after establishment.

A suitable fertiliser regime needs to be implemented to replace nutrients removed by the enhanced production of the phalaris based pasture.

Rotational grazing increases the persistence of the phalaris pasture.

The addition of phalaris pastures extends the period of available green feed when compared to an annual grass system.

The recent availability of the Holdfast GT Phalaris variety is an important addition to the perennial grasses that can be established in the region.
The claims that Holdfast GT will persist as well as Australian phalaris have not been tested due to the time required to obtain results from a new variety.
PPS will continue to test the persistence of Holdfast GT in the PDS trials as well as other pastures in the project.

PPS Mooneys Gap EverGraze Supporting Site Key Findings

Lucerne

The use of Lucerne in the Upper Wimmera catchment and similar areas can be extended away from traditional areas such as river and creek flats.

Introduction of lucerne into grazing systems lengthens the period of available green feed and can allow for enterprise change such as adding a lamb finishing operation to the farm business.

The lucerne pasture combined with the phalaris pasture created the opportunity for windfall profits during the wet summer of 2010-2011. This showed the capability of perennial species to produce feed at any time of the year if the right conditions occur.

The windfall profits produced in the summer-autumn period of 2011 vastly reduced the payback period for both the lucerne and phalaris pastures. PPS estimates that the gross income over this period from the combined paddocks was $1020 per ha higher than what would have been achieved by the paddocks prior to perennial pasture establishment.

Sowing time of lucerne is best suited to late winter.

Soil testing is important to test for nutrient deficiencies and pH prior to lucerne establishment. Adequate lime and fertiliser should be applied to address deficiencies prior to establishment. Attention must be paid to ensuring that aluminium levels are suitable for lucerne production prior to sowing.

A sub soil pH test should be taken to ensure that there are no acidity or aluminium toxicity issues at depth which could affect the lucerne plants as their roots penetrate the sub soil.

Weed control is of critical importance before and during the establishment phase of lucerne pastures.

Sowing depth of lucerne is important to allow an even germination. Care should be taken not to sow seed too deeply. The seed should be covered by 1 – 2 cm of soil, ensuring good soil contact.

Control of annual grass and broadleaf weeds is of critical importance during the life of the lucerne stand if maximum production is to be achieved.

A suitable fertiliser regime including the use of potash needs to be applied to replace nutrients removed by the lucerne system.

Lucerne pastures can produce high quality hay which can enhance the farm's production system if kept on farm.

History of PPS

The Perennial Pasture Systems (PPS) group was formed in mid 2007 after a meeting convened by Julie Andrew and Ewan Letts from the Victorian Dept of Primary Industries was conducted at Hall's Gap reacting to concerns about the lack of research and extension into productive pastures in the Upper Wimmera and Central Highlands region of Victoria
An executive committee was convened at the meeting which initiated the PPS group. Simon Brady from Jallukar became the groups first President and PPS undertook to commence three paddock scale projects to trial new pasture varieties which had recently become available. Planning of the project and paddock walks were the main activities through 2008.

PPS was able to gain funding to progress the group through Project Platypus and in March 2009 it hired a part time project manager who oversaw the establishment of the three PPS/PDS trial sites as well the EverGraze phalaris and lucerne trial site at Mooneys Gap. Also during 2009 the group's newsletter was commenced and PPS held their first annual conference and dinner.
During 2010 PPS continued their extension work with the newsletter, field days and the annual conference. A second EverGraze trial site at Tottington was also commenced.

PPS continued to gain new farmer members as well as attracting several members from industry such as agronomists and seed suppliers who are regular attendees at PPS events. In 2011 a soil amelioration project was commenced with funding from the A W Howard Trust. At the Annual conference dinner Ben Greene from Elmhurst was elected as the group's second president, also in 2011 PPS became an affiliated member of the regional Landcare umbrella group Project Platypus, which was a natural progression of the close cooperation between Perennial Pasture Systems and Project Platypus since PPS was formed.

In 2012 PPS started another major project with the establishment of four replicated plant variety trials set up to test pasture species under the different soil and climatic conditions in the region. 2013 saw the commencement of the Variable Lime Trial and the Stawell Cocksfoot Comparison Project.

PPS currently has a membership of 83 farm businesses across the Southern Wimmera and Central Victoria. PPS members are heavily involved in prime lamb, mutton, wool and beef production. PPS also has 30 members involved in agribusiness and agronomic services and one associate group member; the Yarram Landcare Pasture Group which has 16 farms involved. The total area farmed by group members is 78,878 Ha. PPS members manage approx 529,315 DSE, made up of 307,540 sheep, 8,219 cattle and 1502 goats. Cropping and export hay operations are also conducted on many of the farms. The smallest farm in the group is 20 ha and the largest is 5000 ha. The average farm size is 952 ha and an average of 6375 dse is managed by group member enterprises.

The aim of the group is to push the boundaries of perennial pasture research in the Upper Wimmera and Central Highlands region of Victoria, and to provide information on productive pasture management to PPS members.

Perennial Pasture Systems Executive Committee 2012-13

President	Ben Greene	Elmhurst
Vice President	Paul Harrington	Mt Cole Creek
Secretary	Matt Kindred	Stawell
Treasurer	Michael Greene	Elmhurst
Committee	Simon Brady	Jallukar
	Wayne Burton	Mt Dryden
	Rob Gee	Greens Creek
	Ken Hall	Joel Joel
	Tony Roberts	Glenlofty
	Tom Small	Tottington
Project Manager	Rob Shea	Ararat

Standing L-R Michael Greene, Matt Kindred, Simon Brady, Ben Greene
Seated L-R Ken Hall, Paul Harrington, Tom Small, Tony Roberts, Rob Gee
Inset - Wayne Burton

PPS Research Projects

PPS MLA/PDS Pasture Trials

Three paddock scale pasture trials were conducted at Jallukar, Elmhurst and Joel and results have been recorded in the final trial report produced for MLA. The sites are now being monitored long term for persistence by PPS.

EverGraze Supporting Site – Mooneys Gap

Established in 2009 it is a two paddock trial site, one trialling lucerne in the Ordovician foothill country of the Great Dividing Range, where lucerne pastures have not been traditionally established. The other paddock is a best practice phalaris management site.

Both trials have been successful and reported through EverGraze. The trial is now officially completed but PPS will continue to monitor the site for plant persistence and productivity.

EverGraze Supporting Site – Tottington

Established in 2010, the site is researching a three year system of pasture establishment in the tough conditions of North Central Victoria. The trial is ongoing.

Sub Soil amelioration project – funded by the A W Howard Trust.

Established in 2011, the site is trialling the sub soil treatment of ripping and adding a soil ameliorant in a lucerne pasture. It is based on work in cropping soils by Dr Peter Sale of Latrobe University. The first year results have shown positive gains in dry matter production in the treated replicates.

Pasture Variety Trials

Four trial sites were established in 2012 trialling different varieties of grasses and legumes that PPS believes will be of value in improved pastures. They are being compared to control varieties already proven in the region. The trial sites represent the different soil and climatic conditions that occur in the region.

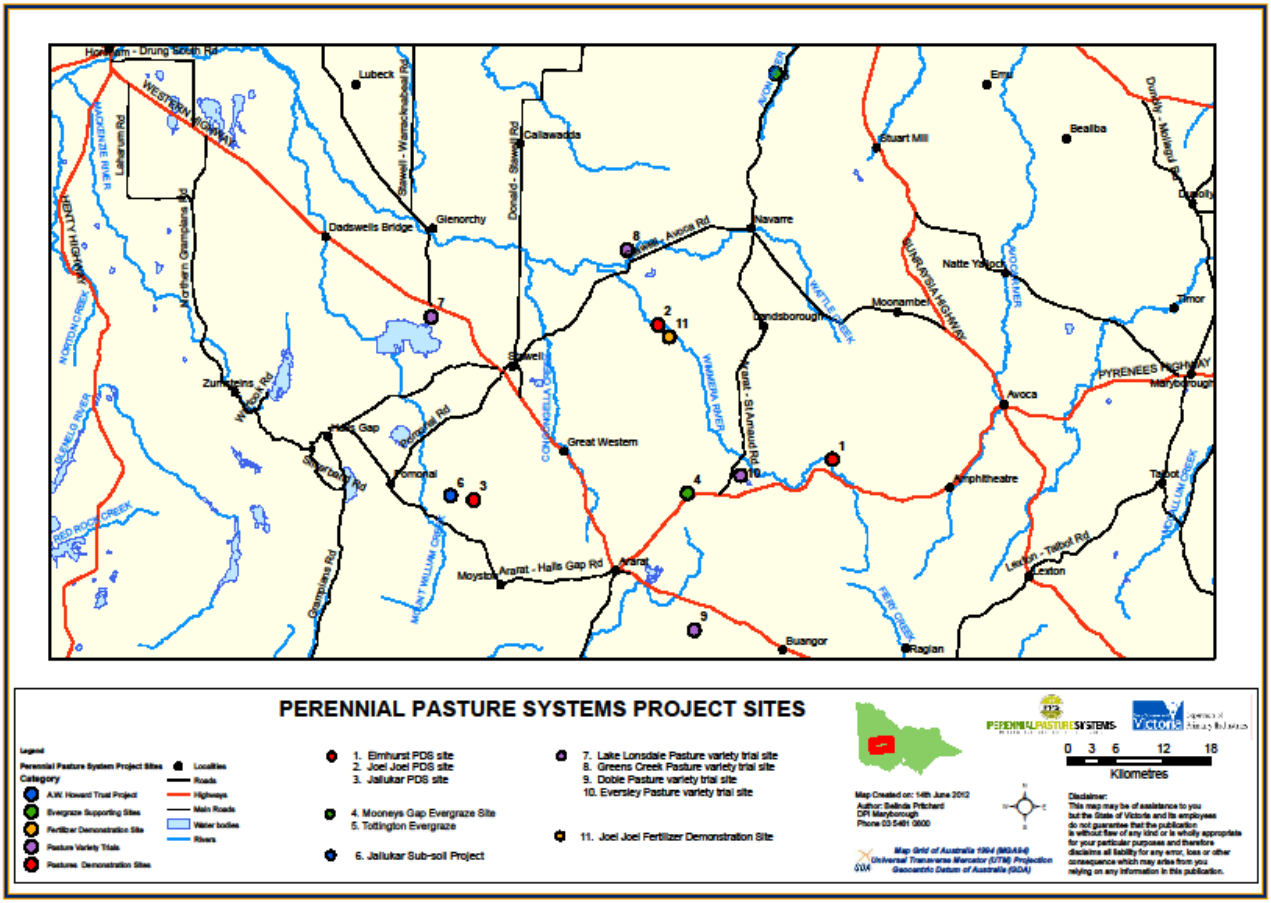
Joel Fertiliser Demonstration Site

A fertiliser demonstration site was included in the Joel PDS site to demonstrate the effectiveness of establishing test strips on member's farms. It was commenced in 2011 but dry conditions did not allow any comparisons to be made. It was continued in 2012 and has demonstration strips of conventional and alternative fertilisers.

Variable Lime Trial

A series of sites are testing the variable lime technique which consists of testing and mapping paddocks for soil pH and applying lime at variable rates in line with the recommendations formulated from the soil maps. The Mooneys Gap phalaris paddock is included in the variable lime trial.

Figure 1 Map of current PPS Projects



PROPOSED FUTURE PROJECTS

Stawell Cocksfoot Comparison

PPS plans to carry out persistence and production measurements on three adjacent Cocksfoot pasture established in recent years. Each pasture has been sown to a different variety and PPS will evaluate the Uplands, Porto and Yarck varieties in the comparison which commenced in autumn 2013.

Greenfields

A project to take a newly purchased area of rundown annual pasture to a fully rotational phalaris/legume based grazing system. A full economic analysis to be applied; among other research questions, PPS proposes to gain a more accurate estimate of pasture improvement payback times. PPS considers that the current methods overestimate payback times and act as a disincentive to producers who are considering undertaking pasture improvement. The project has received funding through the Community Landcare Grants program and it will commence it in 2014.

Feedback from members on the PPS group 2011

During 2011, long term members were surveyed about their experience with PPS and their pasture management practices.
There were 26 responses from the 48 surveys sent out and the results are collated below.

Pasture Establishment Questions
Have you established new perennial pastures in the past three years? Yes 92% No 8%
Do you plan to establish new perennial pastures on your farm in the future? Yes 100% No 0%

The total area farmed by survey by PPS members who responded to the survey 22,915 ha
Area sown to perennial pasture in the past three years (2008-2010) by PPS members who responded to the survey 2,389 ha (10.42% of area)
Area sown to forage crops in the past three years (2008-2010) by PPS members who responded to the survey 711 ha (3.10% of area)
Total area of improved pasture in the past three years (2008-2010) by PPS members who responded to the survey 3,200 ha (13.52 % of area)

Have you implemented pasture improvement practices on established perennial pastures in the past three years? –
% of positive responses
Increased fertiliser application – 77%
Implemented Weed control measures (e.g. spray topping, winter cleaning, spray grazing) – 81%
Applied lime applied to existing or new pastures – 81%
Increased use of soil tests – 85%
Altered grazing management of pastures – 88%

Agronomy advice
Do you use the services of an agronomist for your pasture management and establishment decisions? - Yes 96% No 4%
Have you increased your use of agronomists due to your involvement with PPS – Yes 62% No 38%

Perennial Pasture Systems membership
Has your membership of PPS increased your knowledge of perennial pasture management?
Yes 100% No 0%
Has your membership of PPS increased your confidence in establishing and managing perennial pastures? Yes 100% No 0%

Members were asked to rate the following PPS activities from 5 (good) to 1 (poor) as a means of obtaining pasture information from PPS.
The averages of the responses are listed below –

Study tours to leading producers in other areas	4.48	Seminars	4.40
Workshops with guest speakers	4.38	PPS/PDS and Evergraze trial sites	4.56
Paddock inspections	4.60	Newsletters	4.42

Summary
The survey responses were from long term PPS members, in fact most were inaugural members from the foundation of PPS in 2007. Their responses to the survey may indicate higher levels of pasture establishment than newer members,
Nevertheless it shows improved pasture establishment at a rate approx 2 times higher than the average for similar areas in Australia (*figure from MLA personal communication*).
The pasture management responses show a high level of best practice management implemented by these members.

PPS Pasture Survey 2012

A survey on pasture sowing was distributed to PPS members late in 2012 to assess the level of pasture improvement within the group. 28 responses were received. 20 of the farms had sown perennial pastures in 2012; of the 8 who didn't there were a couple of main reasons why pastures were not sown. These included the dry season in the northern areas which meant that some members had planned pasture improvement but it was now delayed until 2013 and a couple of farms were in a preparation phase for new pastures this year.

The area farmed by the respondents is 24,926 hectares and a total of 1229 ha of that area was sown to new perennial pastures, this represents 4.03% of the area surveyed. This figure is over double the estimate for pasture improvement in the high rainfall zone of Australia.

As shown in the graph below phalaris and lucerne were the dominant varieties sown. An interesting point to come out of the survey was the uptake of the Holdfast GT phalaris variety with it making up 69% of the phalaris area sown.

A further 140 ha was sown to forage crops, some of which was in preparation for pasture sowing in 2013.

PPS plans to collect results annually to assess trends in pasture improvement within the group.

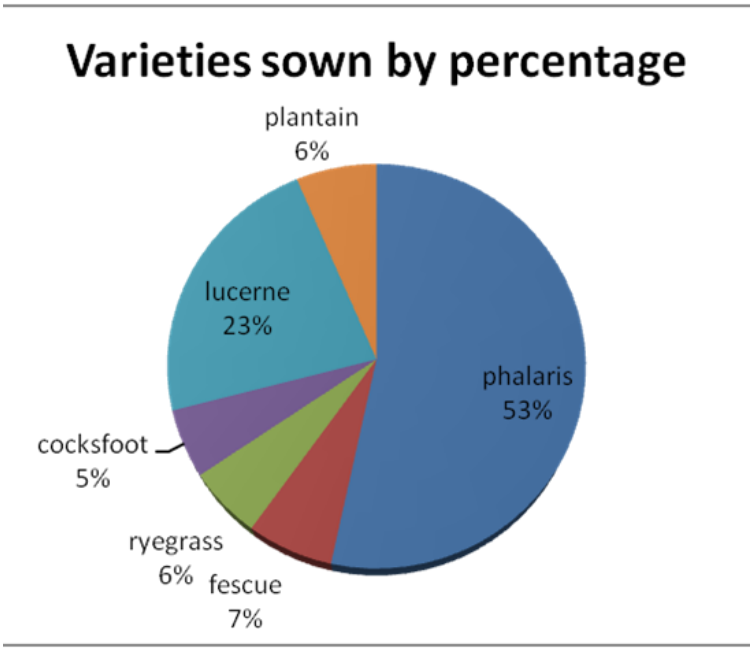


Figure 2 – Varieties shown by percentage

PPS Mooneys Gap EverGraze Supporting Site

Site Location

The PPS Mooneys Gap EverGraze Supporting Site is situated on the 1000 ha property “Mooneys Gap” which forms the major part of the Vearing family’s farming operation near Ararat in Western Victoria.

Mooneys Gap is named after the gap in the Great Dividing Range just to the west of the property. The section of the Great Dividing Range north east of Ararat is known as the Dunneworthy Hills and their Northern boundary is at Mt Boswell (493 metres above sea level) and the Dunneworthy State Forest, both of which adjoin the Mooneys Gap property.

The property is situated 10 km North East of Ararat and has extensive road frontage to the Pyrenees Highway. Both supporting site paddocks are situated next to the Pyrenees highway and are highly visible to passing traffic.

The Vearings purchased the farm in 2000; it had a history of low fertiliser inputs and no significant pasture improvement for several years. The ensuing drought years stopped plans for improvement programs until the start of the PPS/Evergraze supporting site on the property in 2009.

The property has a large merino wool enterprise and a 1000 strong 1st cross ewe enterprise.

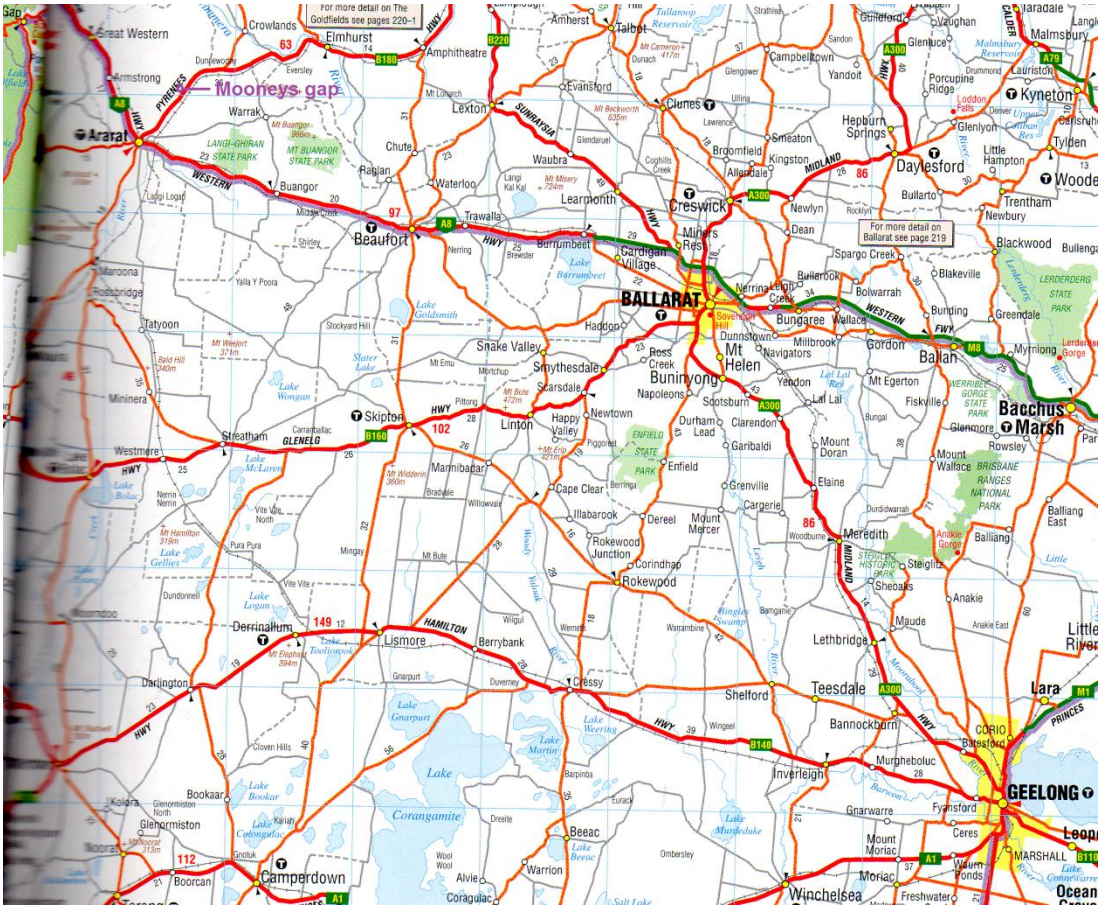


Figure 3 - Map of region showing location of Mooneys Gap at top left

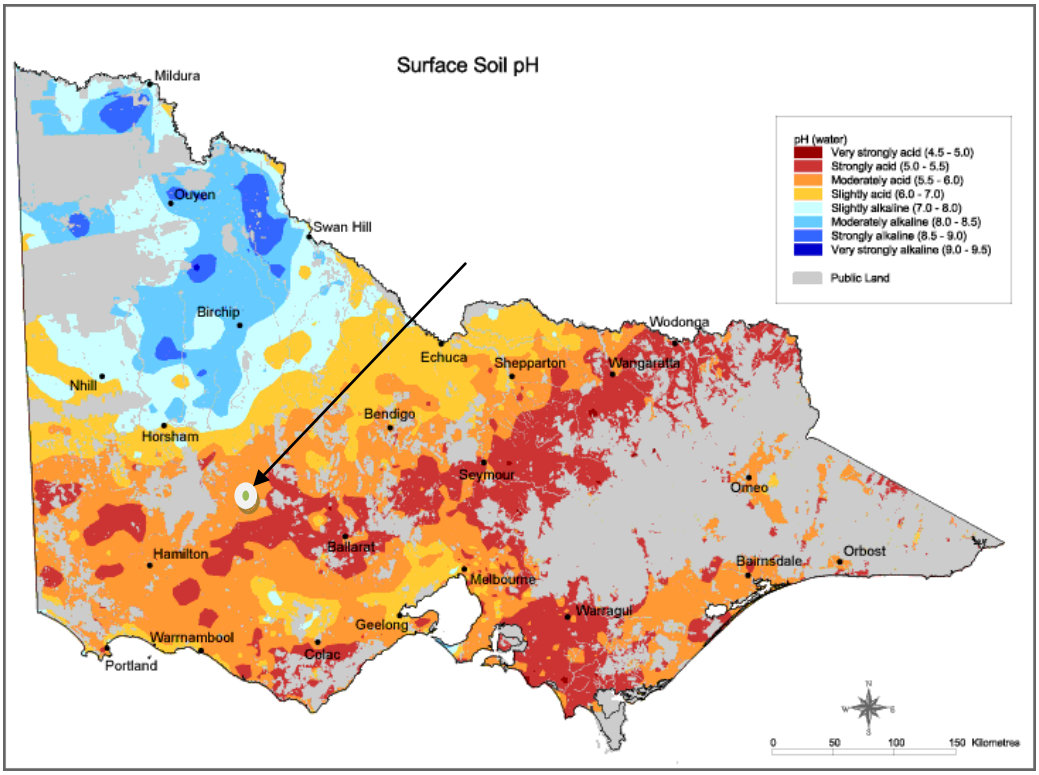


Figure 4 Soil pH Map of Victoria with approxamate site of Mooneys Gap circled

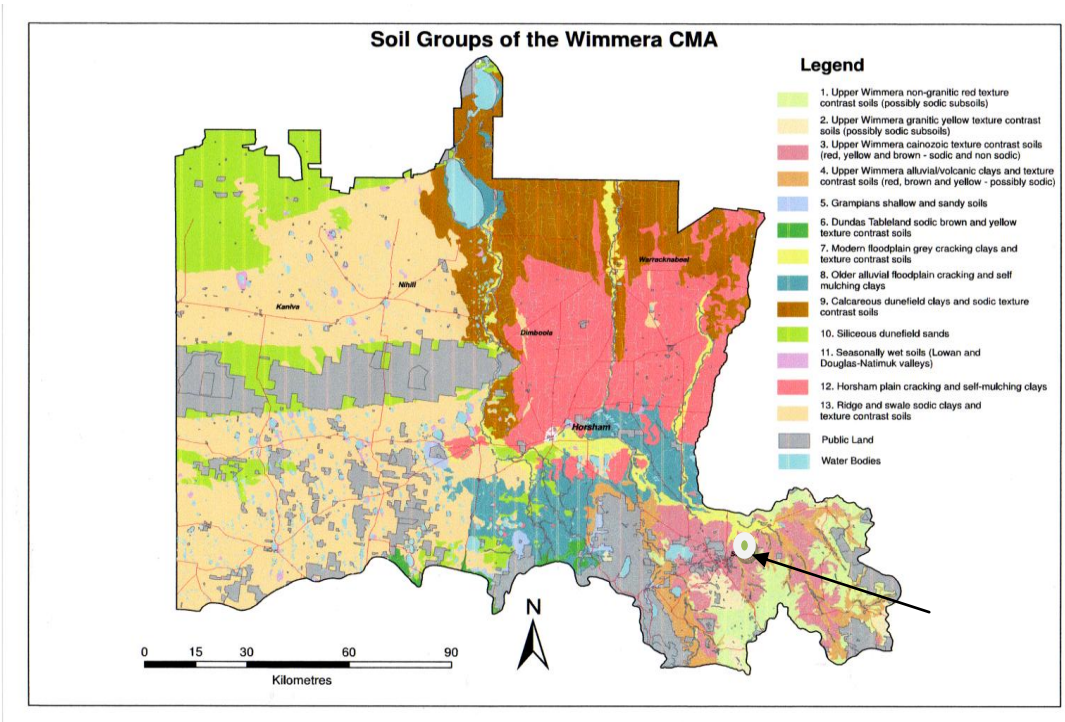


Figure 5 Wimmera River catchment soil map with approxamate site of Mooneys Gap circled

PPS Mooneys Gap EverGraze Supporting Site

Rainfall map

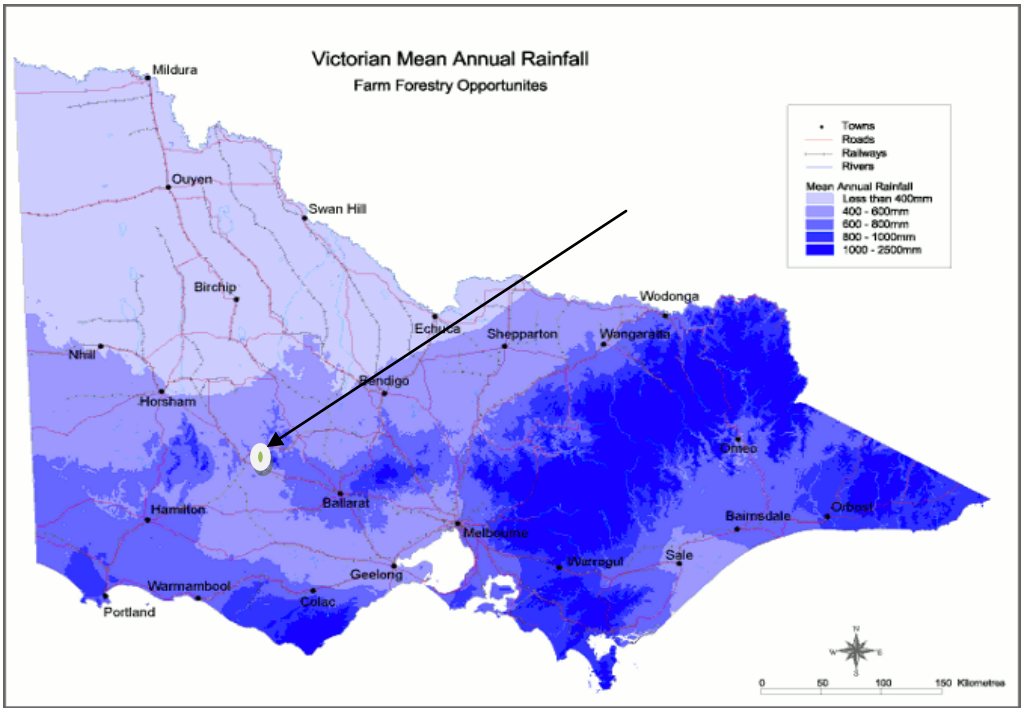


Figure 6 Mean Annual Rainfall map of Victoria with approxamate site of Mooneys Gap circled

Project Summary

The main production issues being addressed by the Supporting Site are summarised below

Phalaris - Lack of persistence and poor grazing management is resulting in a lack of confidence in establishing new phalaris pastures by many of the region's producers. PPS proposed to address this issue by imposing a best management practice regime on a new phalaris pasture. Site area 12 hectares.

Lucerne – Lack of adoption of lucerne in the region. Lucerne has been limited to relatively freely draining river and creek flats, and rarely been extended to areas which are considered to have poor soil structure and drainage such as the foothills of the Dunneworthy Range. PPS considers that the drier winters of recent years have lowered the water table and will now allow the establishment of successful lucerne pastures in these non traditional areas. The Mooneys Gap lucerne site is testing this theory. Site area 14.5 hectares.

Project consultant

Cam Conboy Gorst Rural (formerly Seedmark) was appointed by PPS as the consultant agronomist for the project.

Seasonal conditions 2009-2012

2009

All months except October had good rains which made for an above average growing season (figure 7). Late spring rains created conditions that allowed for perennial pasture growth through until mid December.

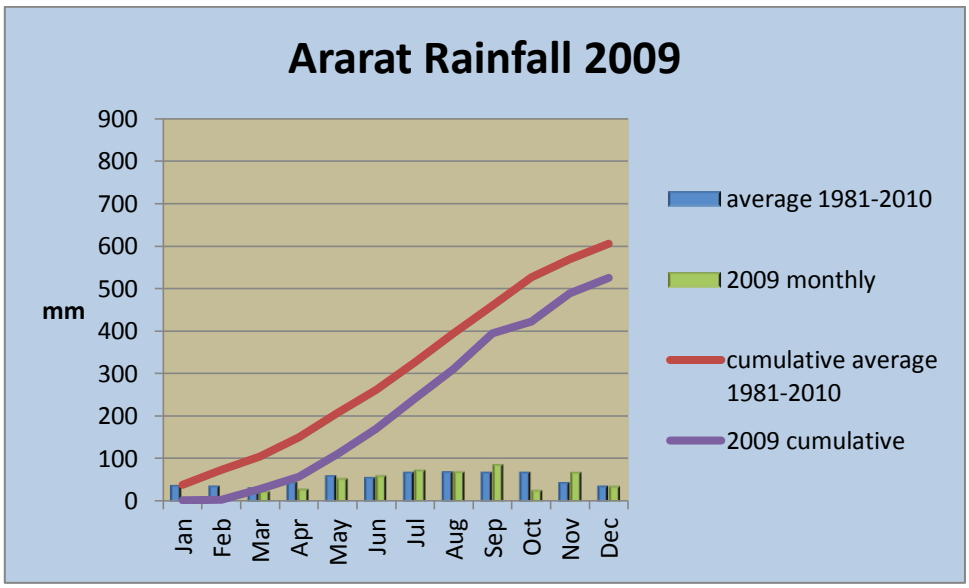


Figure 7 Ararat rainfall 2009

2010

2010 was an average year until above average late winter and spring rains occurred (figure 8). This late rain helped to produce exceptional growth in the late spring and early summer.

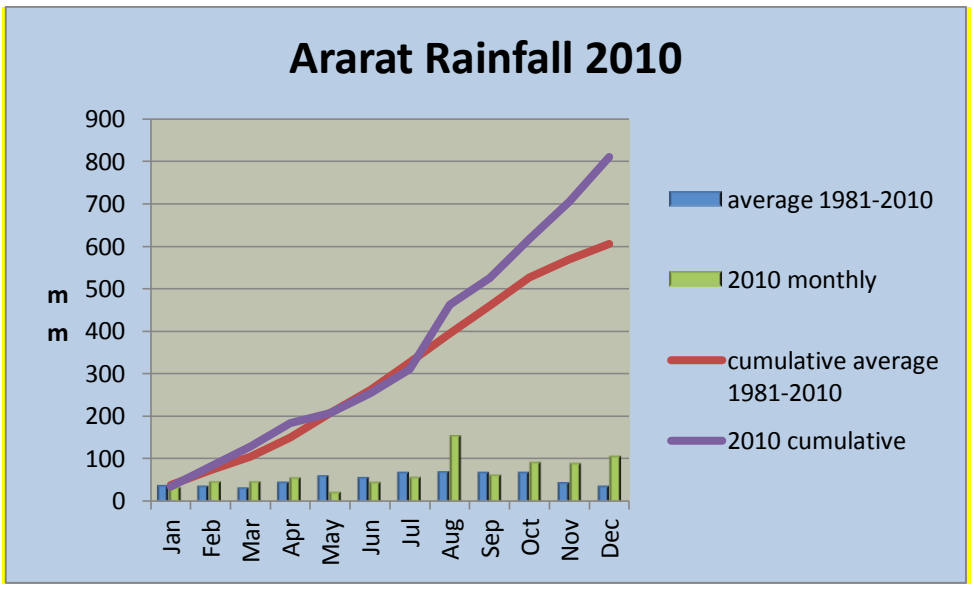


Figure 8 Ararat rainfall 2010

2011

The summer of 2010/11 was one of the wettest on record with 242 mm of rain (average 106 mm) (figure 9). This allowed the perennial grasses to continue to grow right through the summer and autumn.

Rainfall was then slightly below average for the rest of the year (figure 9).

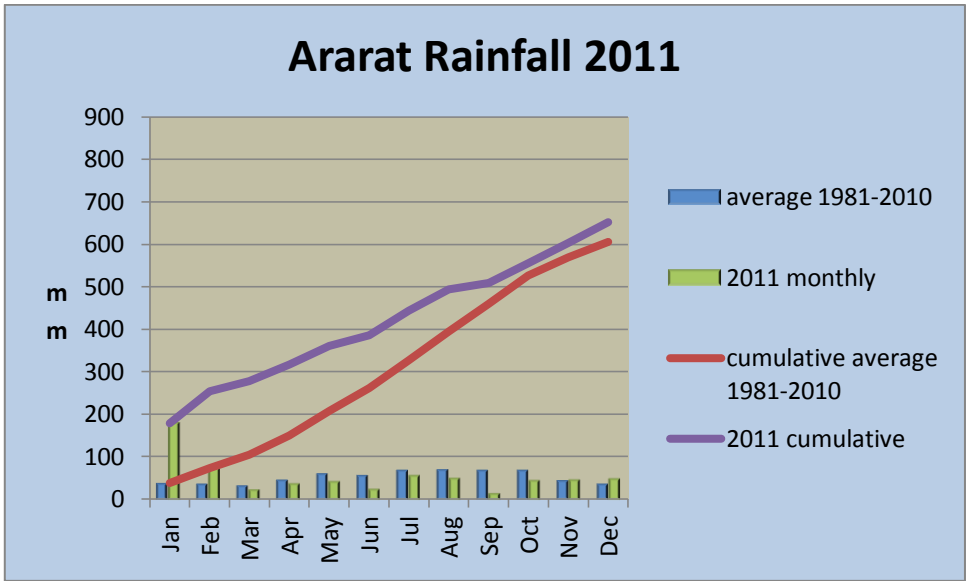


Figure 9 Ararat rainfall 2011

2012

The region experienced a very patchy autumn break with some areas receiving insufficient rain to call an autumn break until mid June. Ararat was one of the more fortunate areas with rainfall only slightly below average during the winter and early spring. Reasonable pasture growth occurred. Rainfall in October and November was well below average which reduced the amount of feed grown (figure 10).

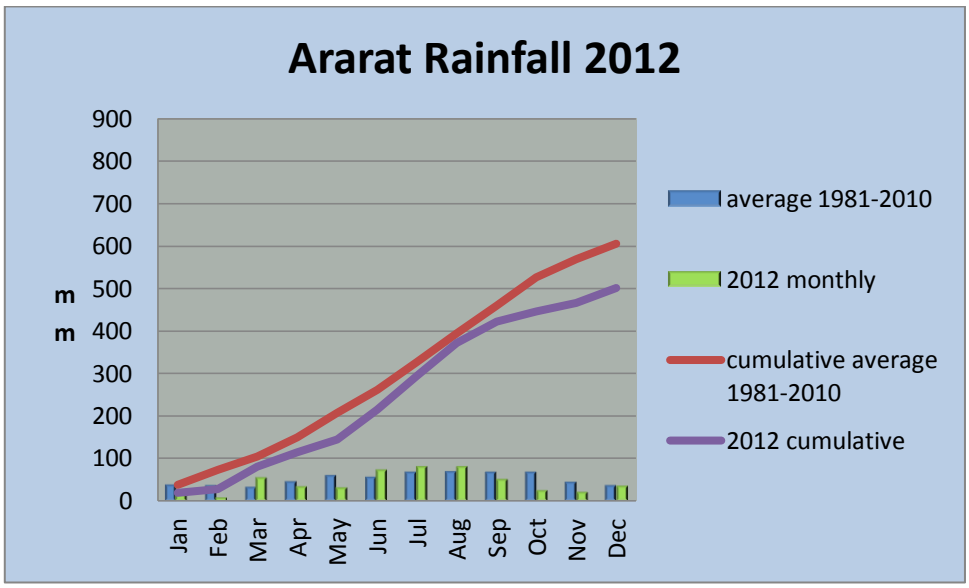


Figure 10 Ararat rainfall 2012

Phalaris Site

Figure 11 Phalaris site spring 2012

Figure 12 Consultant agronomist Cam Conboy, site host Rod Vearing & PPS committee member Paul Harrington at the phalaris site in April 2009

PPS Mooneys Gap EverGraze Supporting Site
Phalaris Site

Background

Issues with perennial pasture establishment and persistence restrict their adoption in the Upper Wimmera Catchment and adjoining regions of Victoria. The soils are typically duplex with shallow topsoil overlaying poorly drained clays. They are usually low in phosphorus and sulphur and can also be deficient in molybdenum and other trace elements. The soils are also highly acidic and may contain sodic subsoils and they are also often high in aluminium.

Rainfall in the region can be unreliable creating difficulties in pasture establishment and persistence. Easily established species such as Ryegrass have proven to only have short term persistence and while other species are more suited for long term pasture, several issues restrict their use by producers in the region.

Phalaris is slow to establish and the success of any sowing can be severely affected by weed invasion or low rainfall. High aluminium levels can reduce phalaris root development which reduces its persistence. Poor grazing practices can lead to poor persistence of phalaris based pastures and PPS believes that this can be largely overcome with improved grazing management.

PPS is demonstrating best practice phalaris establishment and management at the PPS/EverGraze site at Mooneys Gap which should provide information to producers to give them confidence to increase phalaris use.

PPS identified the problems with establishment and persistence of perennial based pastures as a major barrier to improving profitability. There are paddocks within the region which are carrying stocking rates two to three times the district average and the PPS group believes that with appropriate research, paddock trials and extension that these improvements to productivity can be more widely adopted.

Establishment

The phalaris pasture was established in May 2009 into a degraded annual grass paddock dominated by silver grass (vulpia spp) with small amounts of soft brome (Bromus mollis), barley grass (Hordeum eporinum) and low sub clover content.

Establishment details are listed below.

2008

Degraded annual pasture

October 2008 – spraytopped 800 ml/ha glyphosate + timerite RLEM control.

2009

PRE SOWING – 2.5 t/ha lime, 0.5 t/ha gypsum

PRE SOWING WEED CONTROL –

1.2 l/ha roundup powermax™ + 50 ml/ha Hammer™

SOWN – 18/5/2009 –

Phalaris – 2kg/ha Holdfast GT 2 kg/ha Advanced AT phalaris

Sub clovers – 2kg/ha Gosse, 2kg/ha Campeda, 2 kg/ha Antas (Gaucho treated)

Fertiliser - 100 kg/ha MAP

RLEM CONTROL – 16/6/09 -320 ml/ha Alphasip™

PPS Mooneys Gap EverGraze Supporting Site
Phalaris Site

Establishment continued

The paddock was direct drilled with a Semeato disc seeder by Rinaldi Contracting Carisbrook Vic. The machine had only recently been imported from Brazil and did an excellent job sowing into the degraded pasture paddock.

Figure 13 Semeato seed drill at the phalaris sowing 17th May 2009

Figure 14 Calibrating the seed drill at the phalaris sowing 17th May 2009

Table 1 **Establishment cost for the Mooneys Gap phalaris establishment. Calculated with the EverGraze pasture cost calculator**

Pasture Establishment/Paddock Development Costs					
Paddock Name: Phalaris					
Paddock Development (incl. fencing, levelling, water supply etc)			**Price**		**Cost $/Ha**
Fencing		kilometres		per Km	$0
Pipes		metres		per metre	$0
Levelling		hectares		per Ha	$0
Troughs		troughs		per trough	$0
Other infrastructure				per Ha	$0
Type	**Rate**				
Cultivation					
Contract direct drill seeder	1	passes	$68	per Ha	$68
		passes		per Ha	$0
Lime/Gypsum Application					
Lime(Incl spreading)	2.5	T/ha @	$48.00	per tonne	$120
Gypsum (not incl spreading)	0.5	T/ha @	$25.00	per tonne	$13
Cartage and Spreading (if not already included)			$5.00	per Ha	$5
Seed					
Phalaris & clovers	10.0	kg/ha @	$8.50	per kg	$85
		kg/ha @		per kg	$0
Contract sowing cost				per Ha	$0
Fertiliser (incl. cartage)					
MAP	100	kg/ha @	$0.85	per kg	$85
Spreading (if not already incl.)				per Ha	$0
Spring spraying (year before establishment)					
Spraytop	1.0	L/ha @	$8.00	per L	$8
		L/ha @		per L	$0
Application costs			$13	per Ha	$13
Pre-sow spraying					
Knockdown spray	1.0	L/ha @	$9.85	per L	$10
Application costs			$13	per Ha	$58
Post-sow spraying					
RLEM spray	1.0	L/ha @	$15.00	per L	$15
Application costs			$13	per Ha	$0
					$28
TOTAL ESTABLISHMENT COST PER HA					$447

Table 2 ***Soil test***

Soil test results were taken prior to the pasture sowing and again in 2012.

Paddock:	**phalaris**		
Test	**Unit**	**2009**	**2012**
Soil Texture		med clay	med clay
pH (CaCl)		4.6	4.9
Organic Carbon	%	0.68	2.8
Phosphorus Buffering Index		29.3	55.7
Olsen Phosphorus	mg/kg	7.5	13.1
Nitrate Nitrogen	mg/kg	3	24
Sulphate Sulphur	mg/kg	4.4	18.2
Potassium	mg/kg	128	178
Electrical Conductivity (Sat. Extract)	ds/m	0.029	0.6
Cation Exchange Capacity	meq/100g		
Calcium	meq/100g	1.03	4.75
Magnesium	meq/100g	8.38	0.61
Potassium	meq/100g	0.38	0.46
Sodium	meq/100g		
Aluminium	meq/100g	0.28	0.04

Soil deficiencies were addressed on the basis of the 2009 tests, and the 2012 results show changes in soil pH, Olsen P, sulphate sulphur, potassium and aluminium levels.

Figure 15 New phalaris pasture on 23/7/2009
with 51 phalaris plants per sq m (av of 6 counts)
Range 46 – 58

Table 3

Phalaris Pasture Maintenance Operations 2010 – 2013

2010	**Date**	**11/03/2010**	**18/5/2010**	**12/07/2010**
	Action	**Fertiliser**	**Capeweed & RLEM control**	**Winter clean**
	Application	100 kg/ha Hi Fert pasture gold extra bulk16%p,11% s	500 ml/ha MCPA 750™ 100ml/ha Fastac ™ 100 ml/ha Dimetholate™	500ml/ha Gramoxone ™+ 300 ml/ha Simazine
	Cost	$400/tonne	$20/litre+$15/ha spraying	$40/litre+ $15/ha spraying
	Cost/ha	$40	$29	$47
	Total cost	$480	$348	$564

2011	**Date**	**20/02/2011**	**28/03/2011**	
	Action	**Slashed to remove dry matter**	**Fertiliser**	
	Application		100 kg/ha Hi Fert pasture gold extra bulk16%p,11% s	
	Cost/unit	$5/ha	$400/tonne	
	Cost/ha	$5	$40	
	Total cost	$60	$480	
2012	**Date**	**28/04/2012**		
	Action	**Fertiliser**		
	Application	100 kg/ha Hi Fert pasture gold extra bulk16%p,11% s		
	Cost/unit	$400/tonne		
	Cost/ha	$40		
	Total cost	$480		
2013	**Date**	**11/4/2013**		
	Action	**Fertiliser**		
	Application	100 kg/ha PasturePhos		
	Cost/unit	$400/tonne		
	Cost/ha	$40		
	Total cost	$480		

Pasture Management

The phalaris pasture has been managed on a strict rotational grazing basis usually utilising the flock of approximately 1000 1st cross ewes which make up part of the Mooneys Gap lamb operation.
The paddock is not grazed until there is sufficient feed available after the autumn break, and the grazing rotation ceases when the summer dry feed is eaten down to approximately 1000 kg/dm/ha.
The rotation from 2009 until 2011 was a one week on three week off as recommended by consultant agronomist Cam Conboy. This was modified in 2012 to a five day in - 14, day out rotation, in line with ideas presented at a PPS/Grasslands seminar by Lisa Warn (Melbourne University) and after discussions with agronomist Kelly Johnson. This rotation allows a quicker recovery by the phalaris plants by leaving more leaf area at the end of the grazing.

Weed management

Annual weed management has been shown to be vital to the success of phalaris establishment and persistence; this has been illustrated at the Mooneys Gap site in an area where sub optimal weed control occurred.
A small section of the paddock had an infestation of barley grass in a strip along the Southern Eastern boundary in the establishment year. The cause of this is not known but there may have been an issue with either the spray topping or knockdown spraying. This allowed for a comparison of the barley grass affected area and the rest of the paddock. Two plant counts were done to compare the areas and the graph below shows the difference in phalaris plants present between the barley grass affected area and the area with very little barley grass.

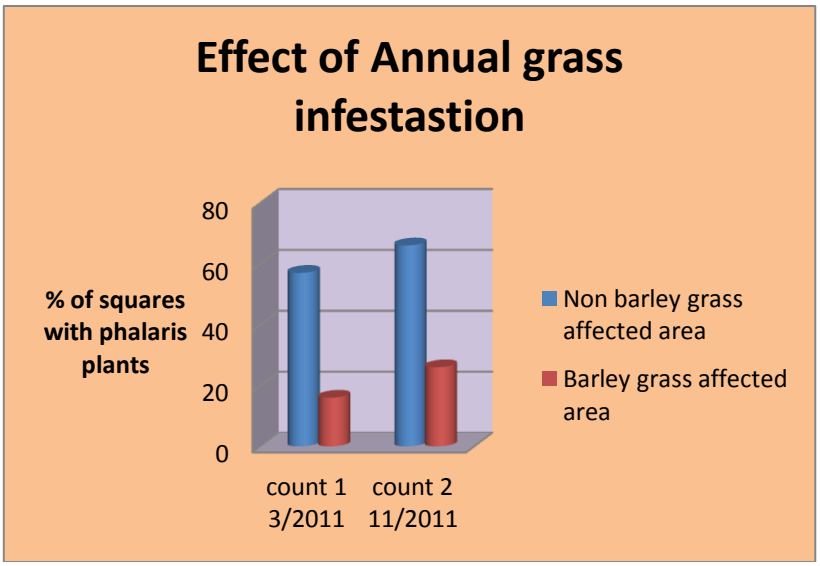


Figure 16 effect of annual weed infestation

Weed management continued

The affected area was sprayed to control the barley grass after germination in early autumn 2012 following summer rain which promoted annual weed growth.

Figure 17 Barley grass affected area after spraying March 2012

Prior to this in 2010 the entire phalaris paddock was spray grazed for capeweed control and winter cleaned for annual grass control.

Excessive growth management

The period from October 2010 to February 2011 was an unusually wet period with 537 mm of rain recorded, this provided ideal growing conditions for perennial varieties and despite continuing the grazing rotation the phalaris paddock produced an excess of vegetation. It was decided to prevent the excess growth causing problems by mechanically topping the paddock with a mower in late February 2011. This proved to be a worthwhile exercise as it removed the phalaris stalks and seed heads increasing both the productivity and palatability of the pasture by reducing shading which allowed more sunlight into the phalaris crowns and increased the clover germination following the autumn break. This meant that the Mooneys Gap phalaris pasture was more productive and palatable than what it would have been without the mowing treatment.

Figure 18 Mechanical topping the phalaris 22nd February 2011

Production

Production of the phalaris paddock was measured by recording the stocking rate against a control paddock which contained an annual pasture typical of run down pastures in the region.

These annual pastures are dominated by silver grass (vulpia spp) with small amounts of soft brome (Bromus mollis) and barley grass (Hordeum eporinum) together with a low sub clover content.

The phalaris paddock has carried an average of 157% more dse/ha compared to the annual pasture paddock over the three years of measurement.

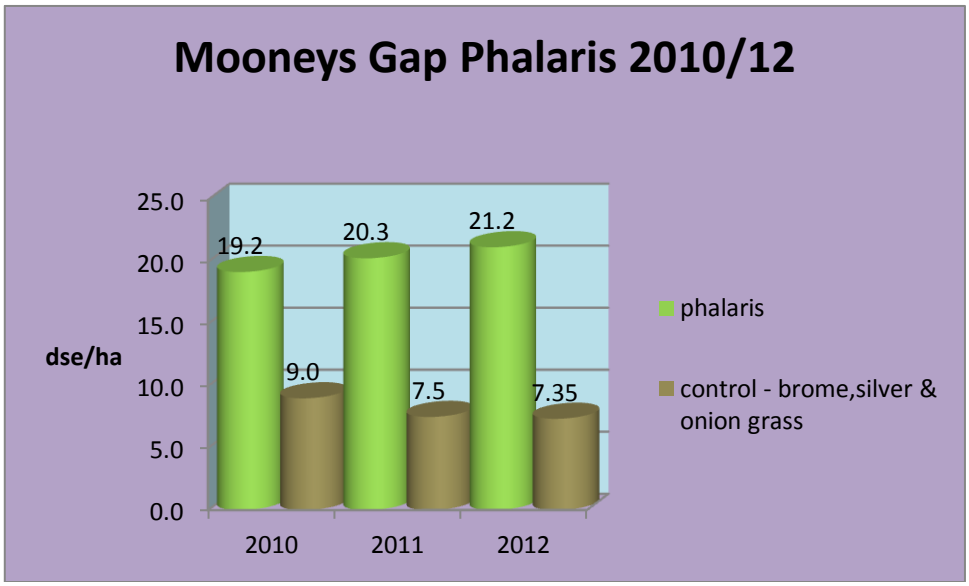


Figure 19 annual stocking rates

Figure 20 Lambs grazing the phalaris pasture in May 2011

Pasture measurements

Measurements of the pasture were made in line with the requirements of the EverGraze Supporting Site protocols. The measurement protocols extracted from the "EverGraze Supporting Sites Monitoring Protocol" are noted below.

Measurements taken were perennial plant persistence, autumn and spring ground cover, % of green at the autumn break and food on offer at the end of spring.

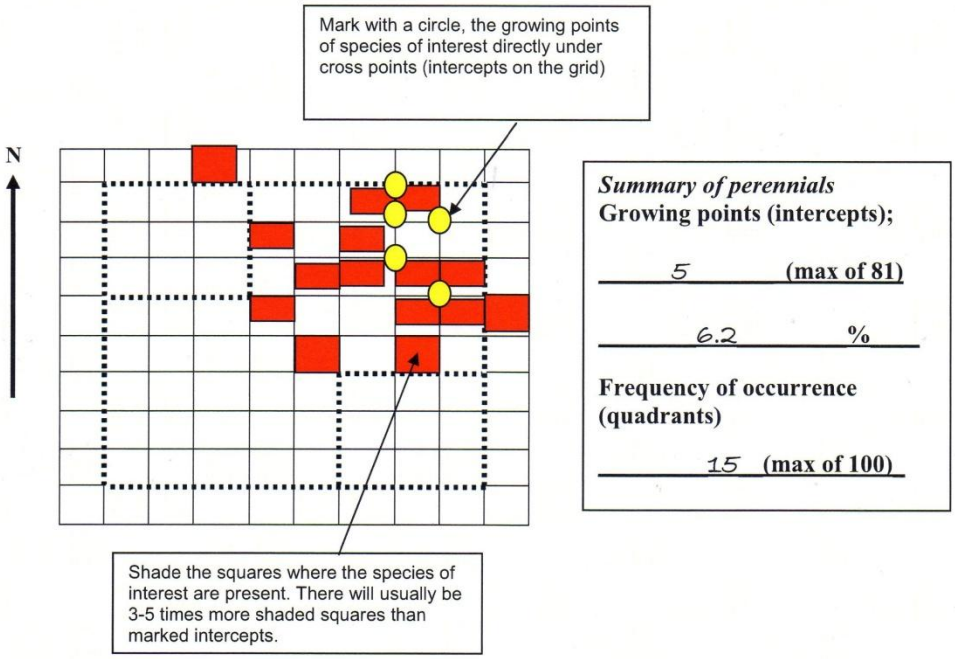
It should be noted that no animal exclusion cages were used, so the measurements may be affected by grazing.

Actual Measurements for the phalaris pasture are included on pages 30-34.

2. Monitoring frequency of occurrence of perennial species

Monitoring frequency of occurrence of perennial species is a quick method to assess the presence or absence of perennial species of interest. This monitoring system works better with grasses like kikuyu where there are no obvious plant crowns.

- Assess each square in the Fixed Point grid (ie 100 squares) to determine if a live piece of the perennial species of interest is attached to soil in the square. If a leaf is attached in one square but is pushed into a second square by the frame, the species is only counted in the square where the plant is growing from. For this measurement technique, expect high values with good perennial pastures getting scores of 70% or greater.
- On the Perennial Species Recording Sheet, colour in the squares where the species of interest occur. Again, different colours can be used for different species.



An example of how to record growing points and frequency of occurrence of perennial species

EverGraze
More livestock from perennials

10

Pasture condition

Why monitor pasture condition?

Pasture condition gives important information about the sustainability of the grazing system. It is determined by measuring four characteristics of the pasture.

1. % ground cover

High levels of ground cover are important to protect the soil from erosion and add carbon to the soil. Decaying material provides nutrients for soil organisms and so improves the health of the soil.

2. % green pasture

The amount of green herbage present over summer relates to how much soil water is used by the pasture. Green herbage is also the most important component of the pasture for animal production.

3. % legume

Legume content is important to fix nitrogen for use by perennial grasses. High legume content also increases animal production.

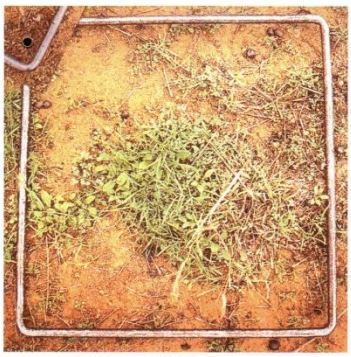
4. Feed on offer

Feed on offer (FOO) provides an indication of the grazing pressure being applied in the paddocks, ie if paddocks are over or under grazed, and it will help explain changes in the persistence of perennial species.

What you will need

- Fixed Point grid (pages 4 & 5)
- Good quality digital camera
- Ruler or pasture stick to provide a scale in photos
- Cards to write on and place in the quadrant, providing a title for photo's
- Pasture Condition Recording Sheets (page 17)
- Photo's of examples of pasture FOO and % ground cover

Two photo galleries are included with this manual and provide examples of different FOO values for common pasture types. A second set of photos gives examples of % ground cover. It is not possible to provide examples of the wide diversity of pastures that occur at Supporting Sites. Local agriculture department or private agronomists can help finetune pasture estimates of % ground cover, % green, % legume and FOO.



40% ground cover

70% ground cover

EverGraze
More livestock from perennials

How to monitor pasture condition

- Place the Fixed Point grid down at the Fixed Point locations so that the same area of pasture is assessed each time.
- Use the two 30 x 30 cm quadrants marked on the Fixed Point grid (as shown on page 4).
- For each quadrant, record the level of the following four pasture characteristics, using the Pasture Condition Recording Sheet.

1. % ground cover

Record the amount of ground covered by plant or other organic material, ie green pasture, dead pasture, litter or dung. For consistency, ground cover is reported as, eg 75% or 85% ground cover, not 25% or 15% bare ground. Ground cover includes anything protecting the soil surface of the soil. The soil surface needs to be carefully observed to ensure that bare ground is really bare and not covered by plant material.

The nature of non-attached ground cover also needs to be recorded, ie dead material or dung. This material can be blown or washed away more easily than attached material and so while it provides some protection to the soil, it does not provide that same quality ground cover as attached material.

2. % green pasture

Assess the proportion of green and dead herbage in the pasture *on a dry matter basis,* ie if the pasture present was all cut and dried. Record the proportion of green herbage as 20%, 40%, etc.

When the pasture contains a mixture of green and dead herbage it is important to look into the bottom of the pasture as the green pasture may be "hidden" by taller dead material. However, remember that green pasture if cut and dried will "shrink" and so will be a smaller proportion of the pasture than first appearance.

3. % legume

Assess the proportion of green legume in the pasture *on a dry matter basis,* ie if the pasture present was all cut and dried. Record the proportion of legume as 10%, 20%, 30%, etc.

Clover is very "showy" in the pasture, ie there looks to be more there than their really is. The leaves are often raised above the rest of the pasture and are horizontal so very obvious. A pasture that looks to be virtually pure clover often contains 30–40% grass under the clover! A rule of thumb is that there may be only half the amount of clover on a dry matter basis as what appears visually.

4. Feed on offer (FOO)

Estimate the total amount of pasture present – include all herbage present: green and dead, weeds, desirable species, annuals etc. Also, include all herbage right to ground level not just that which sheep or cattle might select.

Feed on offer is expressed in kilograms of dry matter per hectare (kg DM/ha), ie the weight of herbage from 1 ha, if it was cut and dried.

Consistent estimates across both paddocks at a Supporting Site are more important than the absolute value at each Fixed Point.

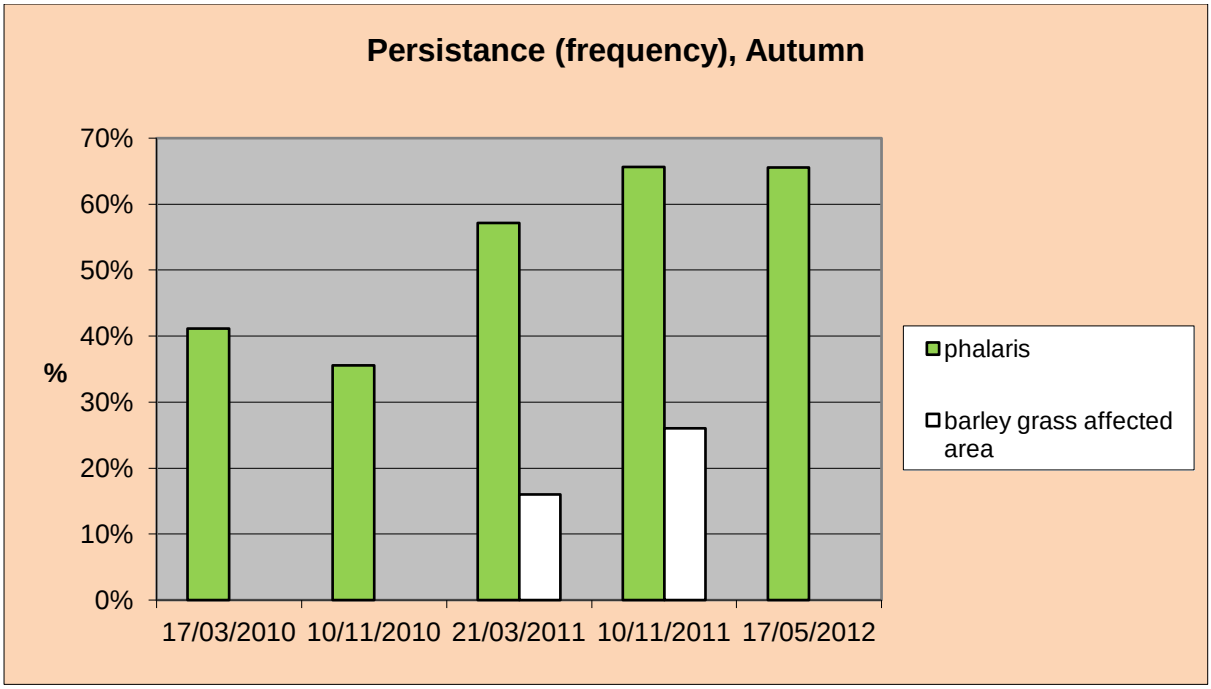


Figure 21 frequencies of phalaris plants

Increase of phalaris frequency was due to crowning of the plants (figure 21).

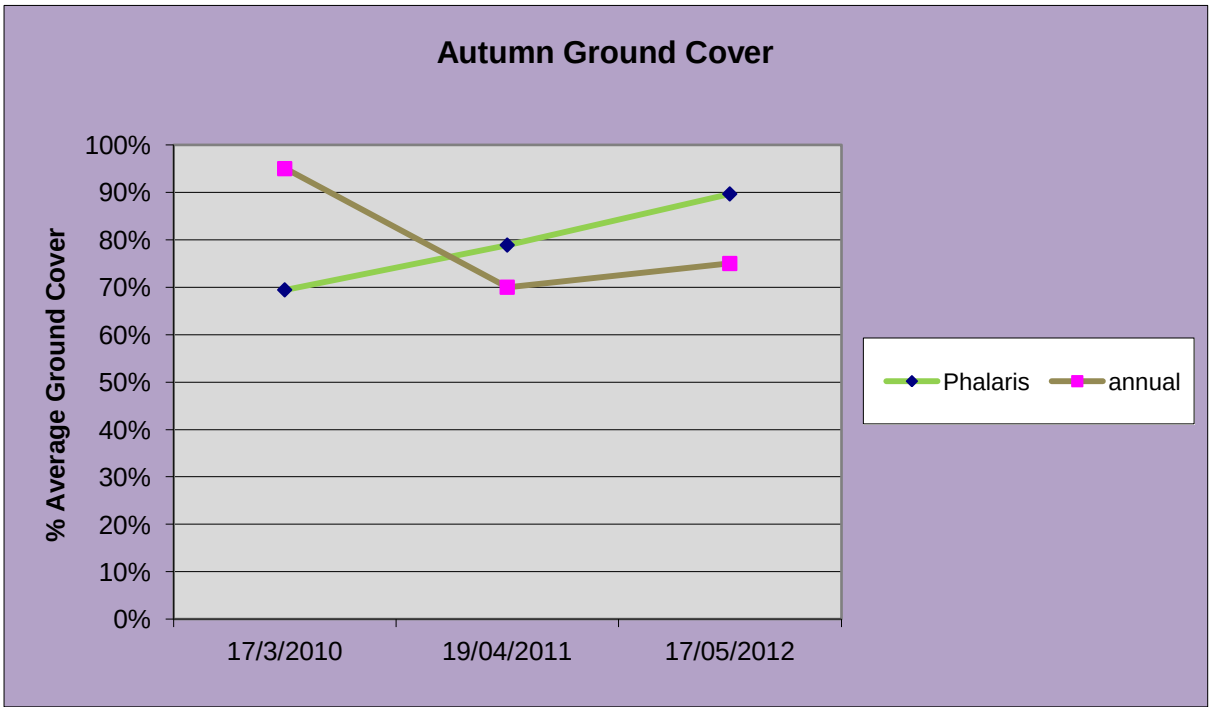


Figure 22 autumn ground cover

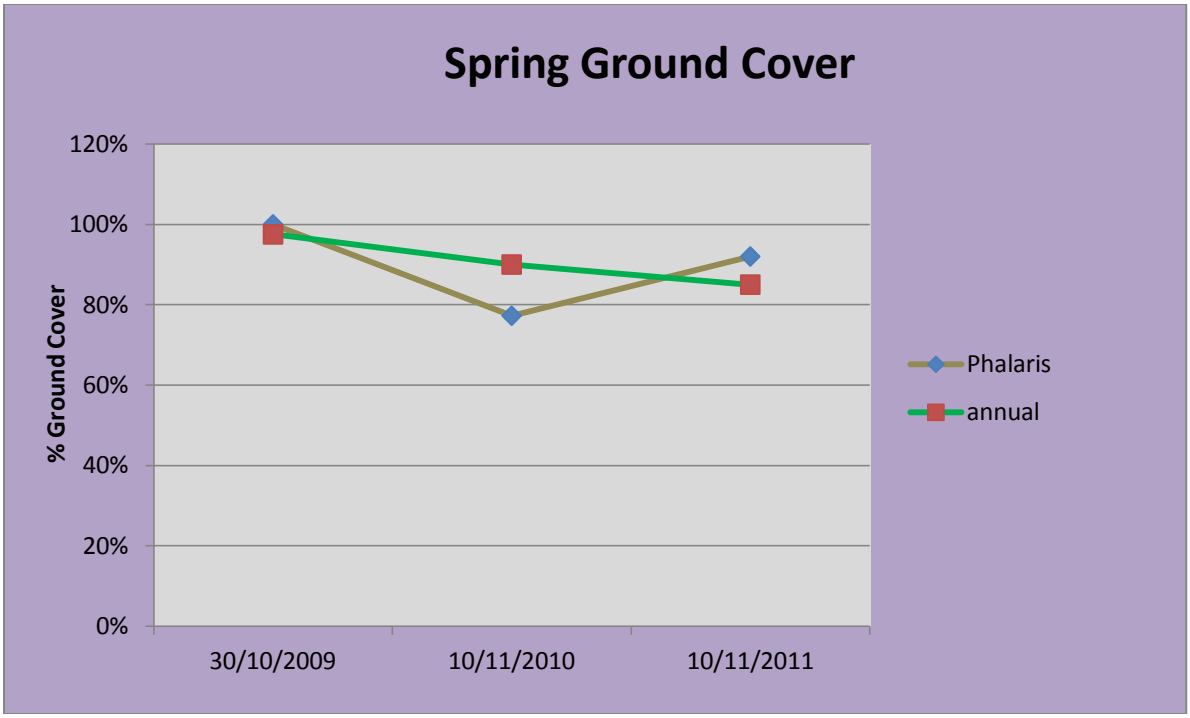


Figure 23 spring ground cover

Figure 24 Mooneys Gap phalaris June 2012

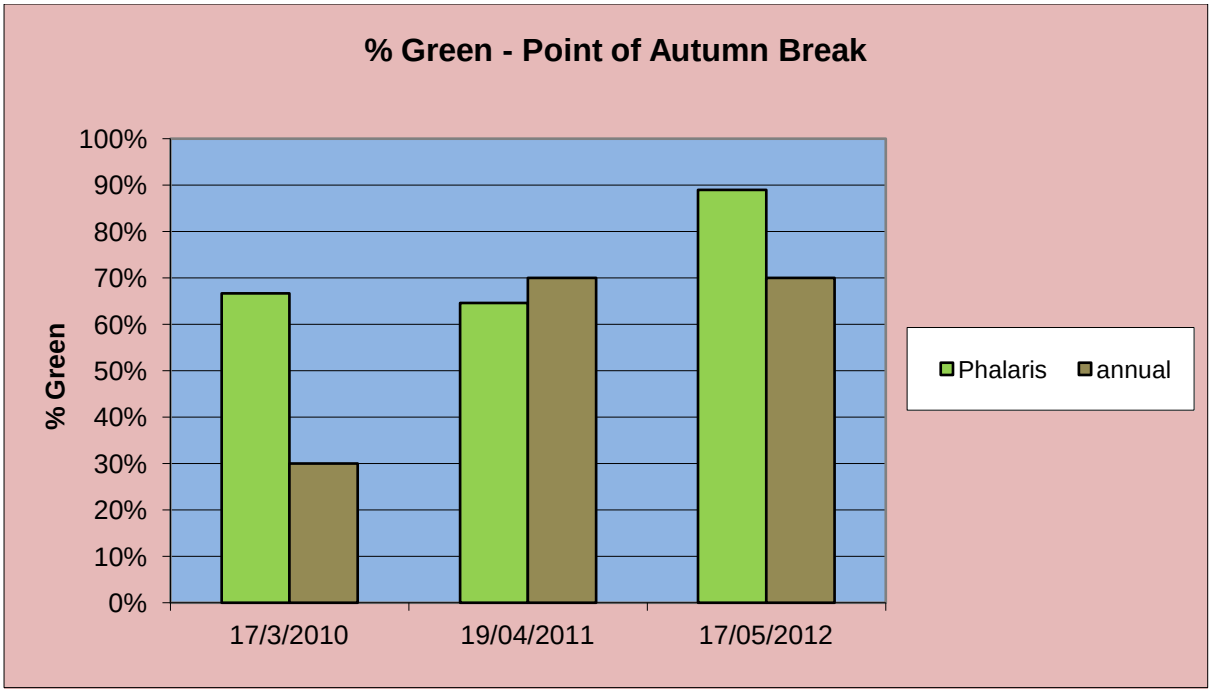


Figure 25 - % of green at autumn break

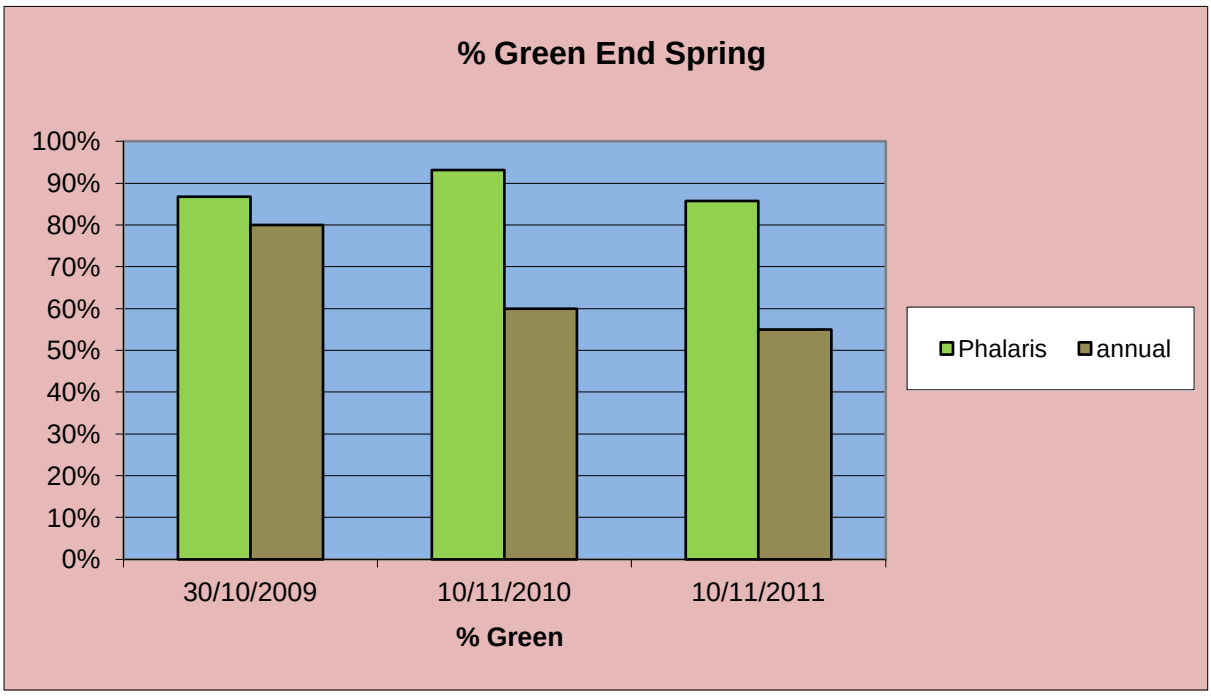


Figure 26 - % of green at end of spring

Legume content

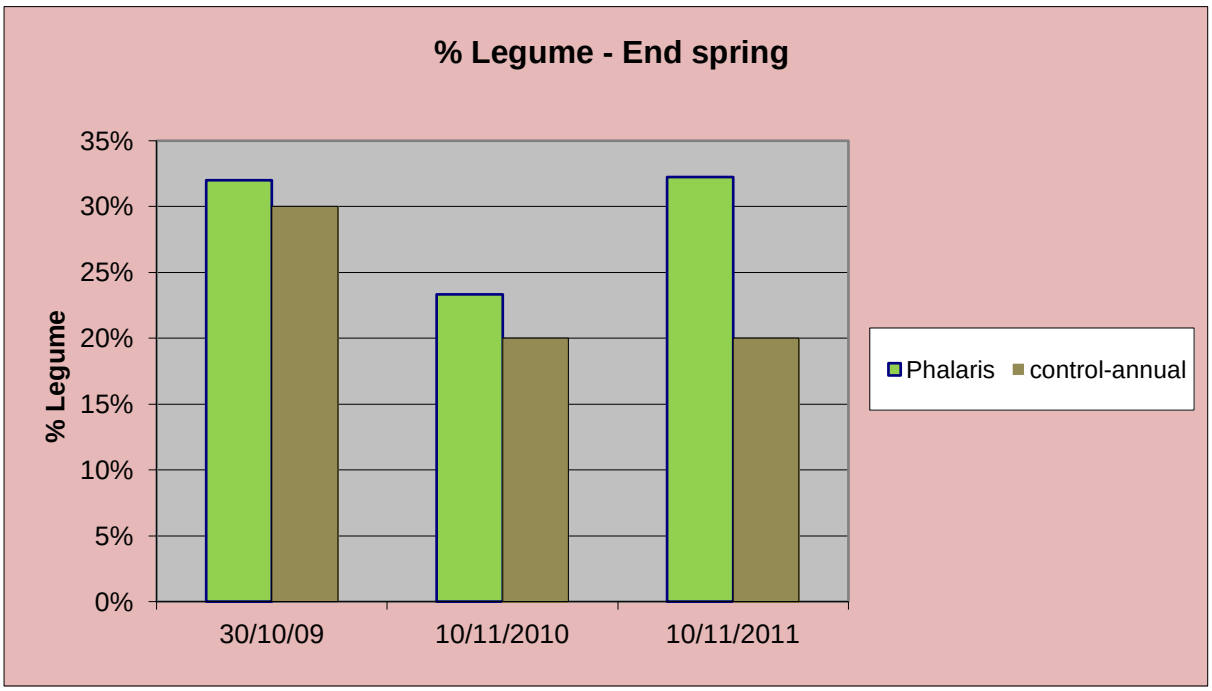


Figure 27 - % legume at end of spring

The legume content at the end of spring is adequate for a well balanced pasture. Legumes are an essential part of productive pastures in the Upper Wimmera region, providing high protein feed during the growing season as well as dry feed from the clover burr after seeding. Where there is a good clover base, its role in nitrogen fixation provides adequate nitrogen for the phalaris plants to achieve maximum production provided that other essential nutrients are available to the plants.

The Mooneys Gap phalaris planting was accompanied by two sub clovers; Gosse and Campeda, along with the brachy clover variety Antas.

Gosse (an alternative for Trikkala) is a white seeded, mid to late maturing variety with high levels of hard seed.

Campeda (an alternative for Seaton Park) is a black seeded Sub-Clover and demonstrates a prostrate to semi erect growth habit and persists well on various soil types. It has mid season maturity which makes it adaptable to medium and high rainfall environments

Antas is a Brachycalcinum (brachy) species which has an upright growth habit and is a semi aerial seeder. Antas performed well at a trial site near Mooneys Gap and it was decided to add it to the legume mix at establishment. It has performed well in the early years of the trial but PPS will continue to monitor its ability to regenerate from seed and contribute to the legume content of the pasture.

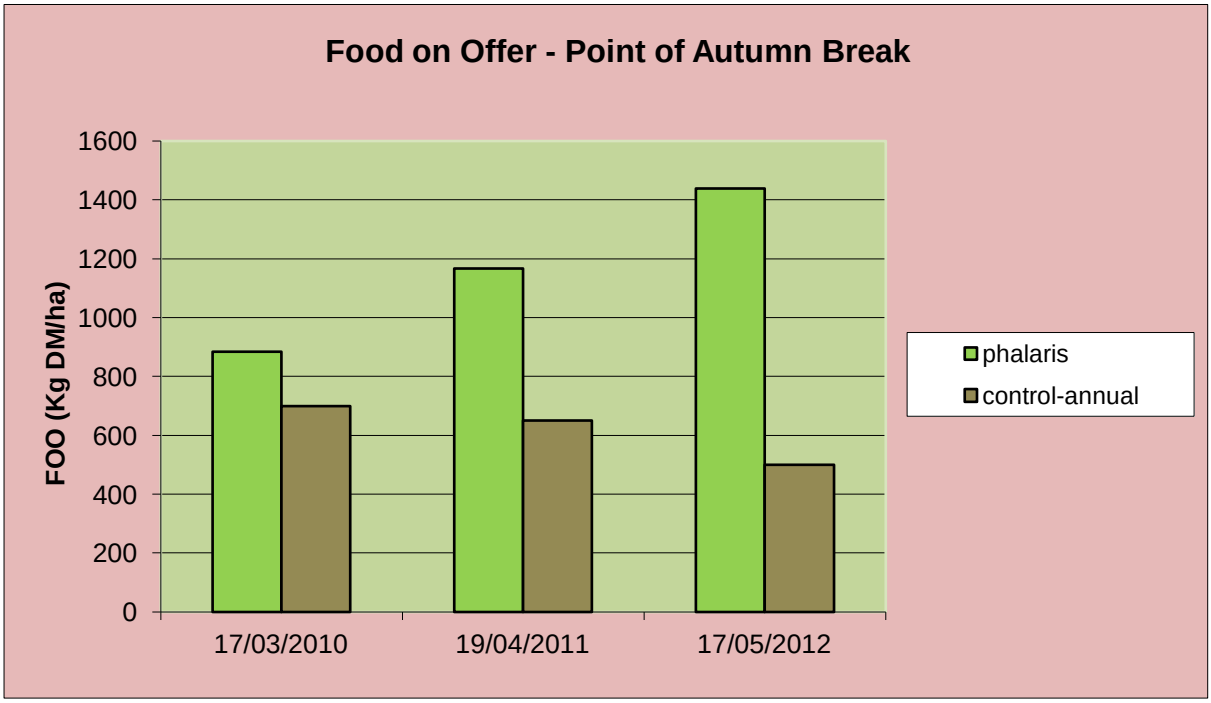


Figure 28 - Food on offer at autumn break

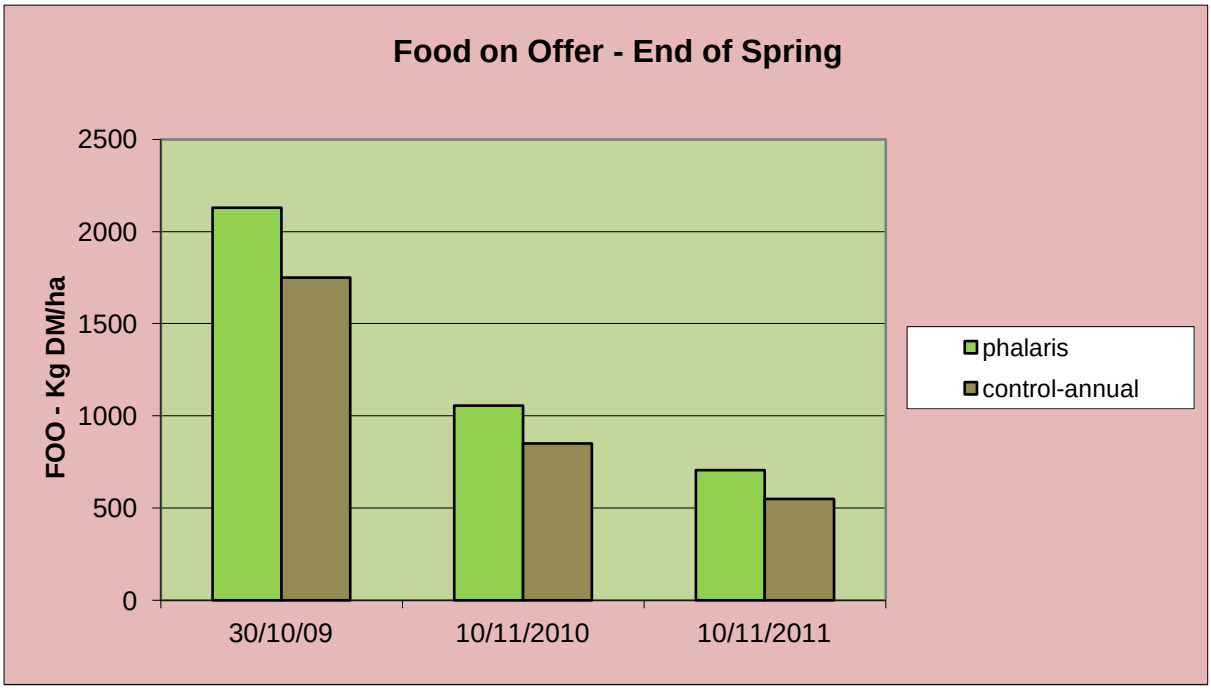


Figure 29 - Food on offer at end of spring

Discussion

The Mooneys Gap phalaris site has achieved the aims set out by PPS at the start of the project. The phalaris pasture was successfully established using best current practice in 2009 and a strict rotational grazing regime was imposed. The site has demonstrated the huge gains possible in both productivity and environmental outcomes.

Productivity outcomes

The phalaris paddock has carried an average of 157% more dse/ha then the control annual paddock over the three years of measurement (figure 19). As well as the increase in carrying capacity , the phalaris has produced higher quality feed and extended the length of green feed available when compared to the annual based pasture.

When combined with the lucerne pasture the trial area has allowed for a change in enterprise management on Mooneys Gap with lambs that were previously sold as stores now being able to be finished on farm and sold as prime lambs.

Environmental outcomes

The environmental benefits of deep rooted perennial pastures are well documented.

Perennial pastures are more efficient users of water as they are able to access available moisture at deeper levels and for longer periods than annuals and therefore assist in lowering water recharge reducing the risk of salinity. Perennials slow the soil acidification rate through their increase in nitrogen uptake, thereby reducing nitrate leaching.

Well managed phalaris pastures maintain a level of ground cover well in excess of annual grass based pastures reducing the risk of wind and surface water erosion.

The Mooneys Gap phalaris site clearly demonstrates the enhanced environmental outcomes that come with well managed perennial pastures.

Figure 30 Pictures showing good ground cover in the phalaris pasture on 20/3/2013

Payback period

The payback period was calculated using the EverGraze Pasture Improvement Calculator and gave a payback period of four years at 2010 prices. Use of longer term average prices showed a payback period of seven years. More details are included in the case study number one included on pages 66 and 67.

PPS believes that the actual payback period was shorter due t the opportunity profits returned over the wet summer of 2010-2011. This is discussed in detail in case study two on pages 68 and 69. PPS plans to further research perennial pasture payback periods in the Greenfields project due to commence in 2014.

Further research at the phalaris site

Although the Supporting Site program has finished PPS plan to continue to monitor the long term results from the site and continue to communicate them to members. Stocking rate results will continue to be collected from the phalaris site and it will be monitored for plant persistence. Plant measurements may recommence in years to come if deemed necessary by PPS.

DPI Soil Carbon Project
PPS participated in the Victorian soil carbon project in 2010; fifty paddocks were sampled as part of the state wide project measuring base line soil carbon levels in different soil types. The Mooneys Gap phalaris paddock was tested as part of the project. The testing was done to coincide with an EverGraze field day at the site and the processes were explained to the PPS group by DPI soil scientist Doug Crawford as part of the field day. The Mooneys Gap results are listed on page 37.

Figure 31 DPI soil carbon project testing at Mooneys Gap

Liquid Molybdenum trial
A small area of the pasture was treated with liquid Mb in spring 2010 by agronomist Kelly Johnson to test for Mb deficiency. No response was visible.

PPS Variable Lime Project
The phalaris paddock has been tested and mapped as part of the PPS variable lime application project which is commenced in 2013. The testing has shown that the paddock has enough variation in pH to be used in the second phase of the trial, in which it receive a variable lime application.

Gibberillic Acid Trial
A Gibberillic acid trial in conjunction with Evergraze is planned for winter 2013.

Rod Vearing Ararat Y

Victorian Soil Carbon Project

Individual soil carbon results

These are the carbon results for:
Site: *331*
Paddock name: *Evergraze Phalaris*
Sample date: *05-Oct-2010*

Region: *Northern & Southern Slopes*
Soil Type: *Chromosol*
Management: *Pasture - Sheep/Beef*

Depth (cm)	TOC (Mg/ha)	POC (Mg/ha)	HOC (Mg/ha)	ROC (Mg/ha)	TOC (%)	IC (Mg/ha)	TN (Mg/ha)
0-10	28.4	7.2	11.1	5.1	2.8	0.0	2.0
10-20	2.6	0.6	3.8	1.8	0.2	0.0	0.4
20-30	4.6	0.1	5.6	1.0	0.4	0.0	0.3
0-30	35.6	7.9	20.4	7.9	1.1	0.0	2.6

TOC = Total organic carbon (expressed as t/ha and as %)
POC = Particulate organic carbon
HOC = Humic organic carbon
ROC = Resistant organic carbon
IC = Inorganic carbon
TN = Total nitrogen

Notes: Carbon in the soil may be organic (part of the soil organic matter) or inorganic (carbonates, mostly in dry climates). Soil organic carbon is a mixture of material of varying stabilities; represented here as three fractions: particulate organic carbon that decomposes relatively quickly, humic organic carbon with an intermediate decomposition time and resistant organic carbon that decomposes extremely slowly. Total nitrogen levels are closely related to organic carbon levels, with most of the nitrogen also being part of the soil organic matter.

Thank you for contributing to the Victorian Soil Carbon Project. For further information please contact Dr Fiona Robertson at DPI Hamilton on (03) 5573 0900 or email: fiona.robertson@dpi.vic.gov.au.

State Government Victoria | Australian Government Department of Agriculture, Fisheries and Forestry | GRDC Grains Research & Development Corporation | DEPARTMENT OF PRIMARY INDUSTRIES | future farming systems research

Figure 32 Soil carbon project results for Mooneys Gap Phalaris paddock

PPS Variable Lime Project

PPS commenced the variable lime application technique trial during June 2013. The technique involves testing for soil pH in one hectare sections of a paddock and producing a map showing the pH variations, which assist in formulating recommendations for the rate of lime required for each section of the paddock to raise the pH to the desired level for the crop or pasture to be established or maintained.

The benefits of a more targeted application of lime are potential savings in the total amount of lime required by reducing the rate spread on parts of the paddock. Although in some cases the results show that larger amounts of lime may be needed for some areas but this means that the investment in lime achieves the desired outcome rather than spreading insufficient amounts to raise the pH to the level required.

PPS with the assistance of Precision Agriculture tested seven paddocks who then produced soil pH maps to outlining the approximate pH of different areas of the paddock. .

PPS are now implementing the next phase of the trial with soil samples being tested to check the calibration of the pH maps against the physical soil measurements before lime application recommendations for each area are calculated.

Variable lime applications will be applied on the low pH area of two selected paddocks during 2013 which will be measured again in 2015 to ascertain the pH changes, the aim is to bring the entire paddock area to a pH of 5.5 (water) or greater.

PPS plans to compare pasture production at Mooneys Gap in the different pH areas during 2013 before carrying out a variable lime application in 2014 and continuing pasture measurements during 2014 and 2015.

The PPS variable Lime application Project has been funded by the Glenelg Hopkins CMA through the Federal government Caring For Our Country project and the Wimmera CMA.

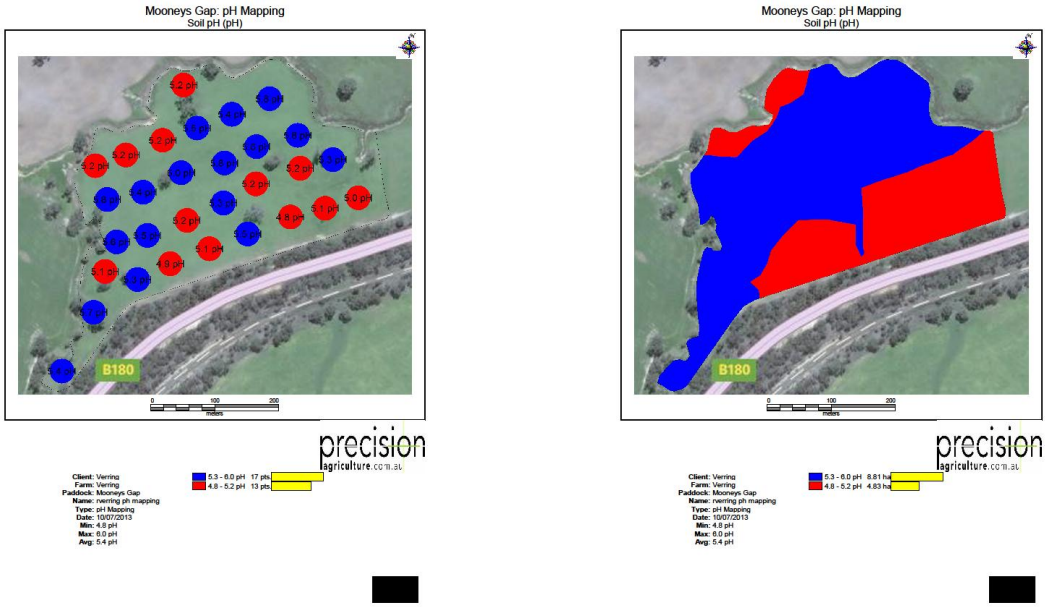


Figure 33 pH maps of Mooneys Gap Phalaris paddock produced for the PPS variable Lime Project

Lucerne Site

Figure 34 Mooneys Gap Lucerne October 2010

Figure 35 Site owner Rod Vearing addressing participants at the PPS/EverGraze field day on 5th October 2010

PPS Mooneys Gap EverGraze Supporting Site
Lucerne Site

Background

There has historically been a lack of adoption of lucerne establishment in the region. Lucerne has been limited to relatively free draining river and creek flats, and has rarely been extended to areas which are considered to have poor soil structure and drainage, such as the foothills of the Dunneworthy Range. PPS considers that the drier winters of recent years have lowered the water table and will now allow the establishment of successful lucerne pastures in these non traditional areas. The Mooneys Gap lucerne site is testing this theory.

Figure 35 shows bore measurements at a similar site to Mooneys Gap situated in the Dunneworthy Hills which indicates the lowering of the water table in the lower two measurement series.

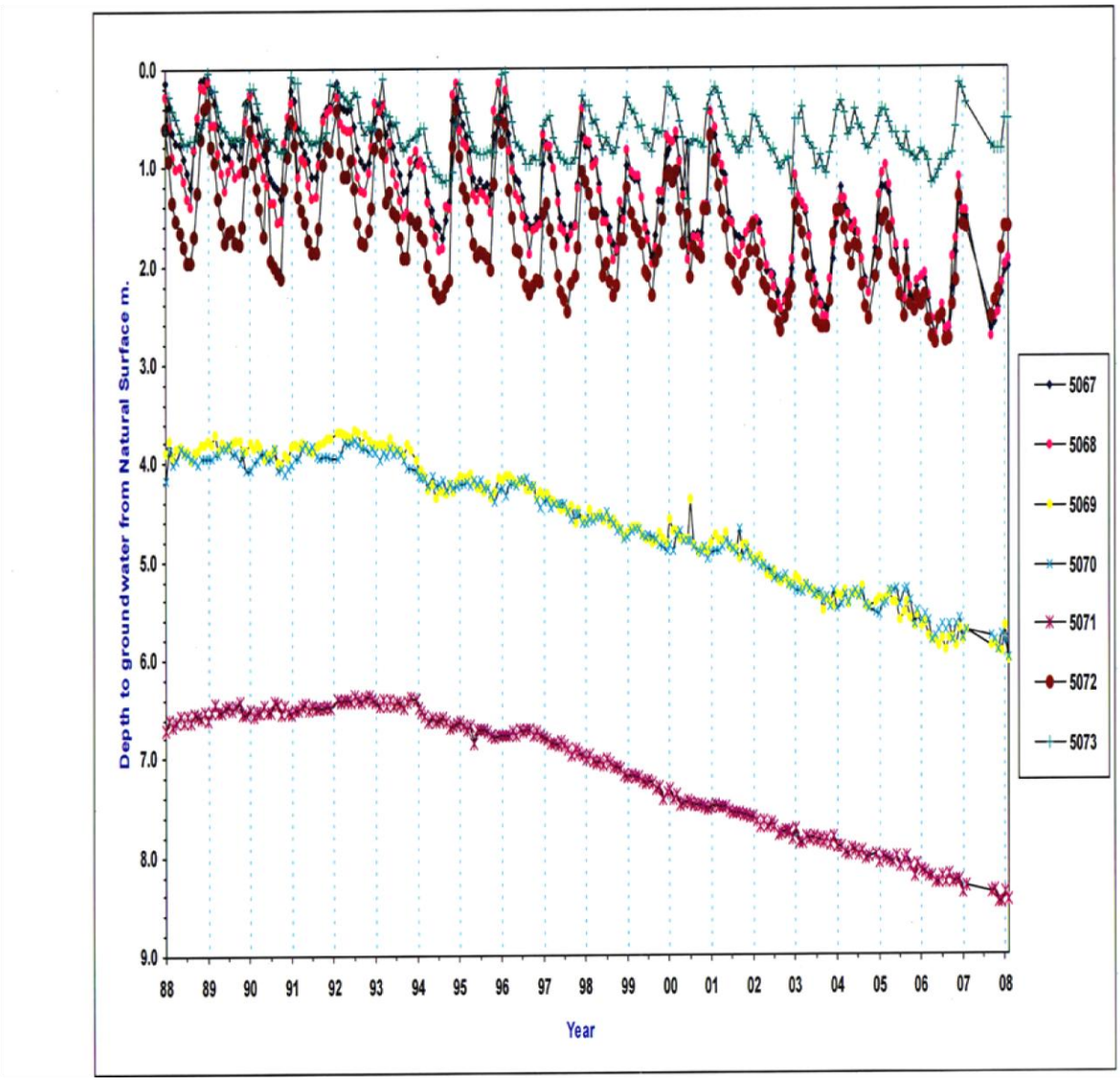


Figure 36 groundwater depth Dunneworthy Hills near Mooneys Gap 1988 - 2008

Establishment

The Lucerne pasture was direct drilled into a barley stubble with a Seamoto disc seeder by Rinaldi Contracting Carisbrook Vic on the 18th of May 2009.

The paddock had received a knockdown spray for weed control and Treflan™ was sprayed just prior to the lucerne sowing.

Establishment details are listed below.

Figure 37 Semeato seed drill at the lucerne sowing 18th May 2009

2008

Barley crop

2009

PRE SOWING - 2.5 t/ha lime, 0.5 t/ha gypsum

PRE SOWING WEED CONTROL – 1 l/ha roundup powermax™ + 75 ml/ha goal

WEED CONTROL AT SOWING – 1 l/ha treflan™+250 ml/ha dual gold.

SOWN – 19/5/09 – 8kg/ha Gaucho™ coated Genesis Lucerne + 100 kg/ha MAP

RLEM CONTROL – 16/6/09 -320 ml/ha Alphasip™

ANNUAL WEED CONTROL – 23/7/09 – 500 ML/HA Select™, 50 ml/ha Verdict™ 520 with 1l/100l Liase™ & 500 ml/100l Uptake™

CAPEWEED CONTROL – 15/9/09 – 90g/ha Spinnaker™, 2.5 l/ha Butress™ with 200 ml/100l LI700™.

PLANT COUNT – 23/9/09 – 33 lucerne plants per sq m (av of 8 counts)
Range 19 – 53

From 2010 onwards a rotational grazing regime imposed on lucerne, hay was produced in 2010, 2011 and 2012. Fertiliser and weed control programs were carried out as recommended by agronomist Cam Conboy.

Table 4 **Establishment cost for the Mooneys Gap lucerne establishment. Calculated with the EverGraze pasture cost calculator**

Pasture Establishment/Paddock Development Costs					
Paddock Name: Lucerne					
Paddock Development (incl. fencing, levelling, water supply etc)			**Price**		**Cost $/Ha**
Fencing		kilometres		per Km	$0
Troughs		troughs		per trough	$0
Other infrastructure				per Ha	$0
					$0
Type	**Rate**				
Sowing					
Contract direct drill seeder	1	passes	$68	per Ha	$68
					$68
Lime/Gypsum Application					
Lime(Incl spreading)	2.5	T/ha @	$48.00	per tonne	$120
Gypsum (not incl spreading)	0.5	T/ha @	$25.00	per tonne	$13
Cartage and Spreading (if not already included)			$5.00	per Ha	$5
					$138
Seed					
Lucerne	8.0	kg/ha @	$7.50	per kg	$60
					$60
Fertiliser (incl. cartage)					
MAP	100	kg/ha @	$0.85	per kg	$85
Spreading (if not already incl.)				per Ha	$0
					$85
Spring spraying (year before establishment)					
Spraytop	1.0	L/ha @	$8.00	per L	$8
Application costs			$13	per Ha	$13
Knockdown spray	1.0	L/ha @	$14.83	per L	15
RLEM spray	1.0	L/ha @	$15.00	per L	$15
Application costs			$26	per Ha	$88
Post-sow spraying					
Grass control	1.0	L/ha @	$15.00	per L	$15
Capeweed control	1.0	L/ha @	$25.00	per L	$25
Application costs			$26	per Ha	$26
					$66
TOTAL ESTABLISHMENT COST PER HA					**$493**

Soil tests

Table 5 0 -10 cm soil tests were taken prior to the pasture sowing and again in 2012

Paddock:	**lucerne**	**0 -10 cm**	
Test	**Unit**	**2009**	**2012**
Soil Texture		med clay	med clay
pH (CaCl)		4.6	4.8
Organic Carbon	%	0.68	2.11
Phosphorus Buffering Index		29.3	46.4
Olsen Phosphorus	mg/kg	7.5	14.1
Nitrate Nitrogen	mg/kg	3	29
Sulphur (KCL 40)	mg/kg	4.4	31
Potassium (Colwell)	mg/kg	128	229
Electrical Conductivity (Sat. Extract)	dS/m	0.029	0.7
Cation Exchange Capacity	meq/100g		
Calcium	meq/100g	1.03	4.56
Magnesium	meq/100g	8.38	0.57
Potassium	meq/100g	0.38	30
Aluminium	meq/100g	0.28	0.03

Table 6 A deep soil test was taken prior to sowing lucerne to check sub soil pH

Paddock:	**lucerne**	**10-40cm**
Test	**Unit**	**2009**
Soil Texture		heavy clay
pH (CaCl)		5.6
Organic Carbon	%	0.31
Phosphorus Buffering Index		120.7
Olsen Phosphorus	mg/kg	0.3
Nitrate Nitrogen	mg/kg	7
Sulphate Sulphur	mg/kg	15.8
Potassium	mg/kg	76
Electrical Conductivity (Sat. Extract)	dS/m	0.064
Cation Exchange Capacity	meq/100g	
Calcium	meq/100g	2.05
Magnesium	meq/100g	1.78
Potassium	meq/100g	0.14
Aluminium	meq/100g	0

Establishment Issues

Variety Stamina is a winter active lucerne classed as a 7 on the lucerne winter activity scale. It was selected from long-term Australian lucerne grazing trials and maintains stand density over many years. It has good resistance to most lucerne diseases and pests and is suitable for all stock classes. It appears to be a variety that is suited to the trial site.

Timing The preferred timing for lucerne establishment in this region is late winter and early spring when soil temperatures allow for rapid growth of the new lucerne plants. The Mooneys Gap site was sown in May to meet the funding requirement that it had to be established by June 30th 2009. Sowing early resulted in slow establishment and contributed to the weed issues to be discussed later in the report but this has not had any long term effect on the lucerne pasture as good agronomic practices were applied during the establishment phase.

Depth The lucerne pasture was slow to establish due to the timing of sowing and issues with the sowing depth of some of the seed. The seed bed was a stubble left from a previous barley crop and was very friable across some of the undulations in the paddock. This situation caused uneven sowing depth of the lucerne seed.
This was reflected in the uneven germination of the seed with only a portion of it germinating prior to the cold winter conditions. Experienced lucerne growers within PPS such as committee member Ken Hall from Joel Joel suggested that this may not be a problem and the rest of the seed would germinate in the spring. This proved to be correct and by early spring there had been a full germination of the seed with adequate plant numbers obtained. This may not always be the case if the seed is sown too deeply, its reserves may be exhausted before the seedling reaches the surface.

Weed control
There were some serious weed issues in the year of the lucerne establishment and two treatments were required during the winter spring period to control annual weeds. The problems were caused by a couple of different factors, firstly the timing of the sowing accompanied by a late autumn break meant that the knockdown spray was done before a full germination of annual grasses. This was to be alleviated by the use of a residual herbicide Treflan™ but its effectiveness was reduced by the method of sowing. Treflan™ requires it to be incorporated into the soil after application and while the disc seeder did a very smooth job in seed sowing, it did not disperse very much dirt during the sowing thus failing to incorporate the Treflan™.
This situation reduced the weed control effectiveness and by late winter there was a significant annual grass infestation, it was controlled with a selective herbicide spray on August 1st 2009. A further issue arose with a capeweed problem in early spring, it was initially hoped that the lucerne would be able to outcompete it. This was not the case and it required a selective spray which was done on September 15th 2009. Both weed treatments were successful and the lucerne pasture started rapid growth in a weed free environment.

Figure 38 Paul Harrington and Cam Conboy inspecting the capeweed prior to spraying

Grazing Management

The lucerne pasture grew well throughout the spring to make for an excellent stand by early summer, and despite the temptation to graze it, it was allowed to flower before any sheep were put into the paddock to commence the grazing rotation.

The grazing management followed Cam Conboy's recommendation and consists of starting grazing when there is sufficient leaf area and using a one week in and three weeks out rotation.

It is important to allow the lucerne to have 50% flowering before the final grazing of the season to promote an accumulation of energy reserves in the roots. This practice has been followed at Mooneys Gap.

Weed control in the years after establishment

Weeds in lucerne reduce both fodder quality and persistence, therefore grass and broadleaf control is essential for a long lasting stand. The Mooneys Gap lucerne has received annual weed control treatments in the years since it was established.

Animal health issues

The most important animal health issues associated with lucerne are bloat and red gut. Caution has been taken when introducing sheep to the lucerne, making sure that they are not hungry when entering the pasture as well as providing roughage through hay during the introduction period. No health issues have arisen at the site so far.

Table 7

Lucerne Pasture Maintenance Actions 2009 – 2013

2009	**Date**	**16/06/2009**	**1/08/2009**	**15/09/2009**	
	Action	**RLEM spray**	**Annual grass spray**	**Capeweed spray**	
	Application rate	Alphasip™ 320 ml/ha	1 l/100l Liase™ 50ml/ha verdict™ 500 ml/ha select™	90 ml/ha Spinnaker™ 2.5 l/ha Butress™ 200ml/100l LI700™	
	Cost	$6/litre +$15/ha spraying	$18.50/ha +$15/ha spraying	$40+$15/ha spraying	
	Cost/ha	$27.84	$33.50	$65	
	Total cost	$403.68	$485.75	$942.50	
2010	**Date**	**11/03/2010**	**22/07/2010**	**12/07/2010**	**15/10/2010**
	Action	**Fertiliser**	**Fertiliser**	**Annual grass spray**	**Timerite RLEM spray**
	Application	100 kg/ha Hi Fert pasture gold extra bulk16%p,11% s	120 kg/ha Super potash 1:1	2l/ha Sprayseed™ 1 kg/ha Diuron™	
	Cost	$400/tonne	$825/tonne	$19+$15/ha spraying	$12+$15/ha spraying
	Cost/ha	$40	$98	$34	$27
	Total cost	$480	$1435	$493	$391.50
2011	**Date**	**20/02/2011**	**1/08/2011**	**15/7/2011**	
	Action	**Fertiliser**	**Fertiliser**	**Annual grass spray**	
	Application	100 kg/ha Hi Fert goldphos 15%p,	120 kg/ha Super potash 1:1	2l/ha Sprayseed™ 1 kg/ha Diuron™	
	Cost	$400/tonne	$830/tonne	$19+$15/ha spraying	
	Cost/ha	$40	$99	$34	
	Total cost	$480	$1444	$493	
2012	**Date**	**30/3/2012**	**25/7/2012**	**28/8/2012**	**8/9/2012**
	Action	**Fertiliser**	**Fertiliser**	**Annual grass spray**	**Annual grass spray**
	Application	100 kg/ha Hi Fert Goldphos 15%p,	120 kg/ha Super potash 1:1	2l/ha Sprayseed™ 1 kg/ha Diuron™	100ml/ha Verdict520™
	Cost	$400/tonne	$810/tonne	$19+$15/ha spraying	$5+$15/ha spraying
	Cost/ha	$40	$97	$34	$20
	Total cost	$480	$1409	$493	$290
2013	**Date**	**4/4/2013**	**20/8/2013**	**10/8/2013**	**10/8/2013**
	Action	**Fertiliser**	**Fertiliser**	**Annual grass spray**	**Cockchafer & RLEM control**
	Application rate	100 kg/ha Hi Fert Goldphos 15%p,	120 kg/ha Super potash 1:1	2.5l/ha Sprayseed™ 1 kg/ha Diuron™	100ml/ha Alphaduo™ + 100 ml/ha Fastac™
	Cost	$400/tonne	$810/tonne	$19+$15/ha spraying	$15
	Cost/ha	$40	$97	$34	$15
	Total cost	$480	$1409	$493	$217

Hay Production

In 2010 the site owner expressed a desire to make hay from the lucerne pasture to replenish hay stocks which had been used up during the run of dry years experienced in the region. After discussion with the site management team it was decided that hay production from the site would be a good use of the EverGraze sites as hay could be made to conserve the lucerne while the phalaris paddock was grazed to 1000 kg/dm/ha before destocking for the summer.
The first cut of lucerne for hay did not turn out well as a period of persistent rain set in during December 2010 with three times the average rainfall occurring just after the lucerne was cut. As a consequence the potential hay was ruined and had to be baled to remove the residue from the paddock. Despite this loss the rains had a very productive effect on the lucerne with one grazing being possible before a second hay cut in February 2011 yielded 3.17 tonnes/ha of high quality hay. The lucerne pasture has produced quality hay in each of the subsequent years.

Figure 39 February 2011 mowing lucerne

Figure 40 March 2011 rapid regrowth after hay baling

Figure 41 March 2013 full shed of lucerne hay at Mooneys Gap

Production

The lucerne paddock was cut for hay in both 2010 and 2011, yielding 3.1T/ha, on average, each year. Converting this to grazing equivalents, the lucerne carried 13.4 DSE/ha and 17.3 DSE/ha for 2010 and 2011 respectively, through grazings and hay cuts. The dry spring of 2012 lowered the production from the pasture compared to previous years (figures 41 & 42).

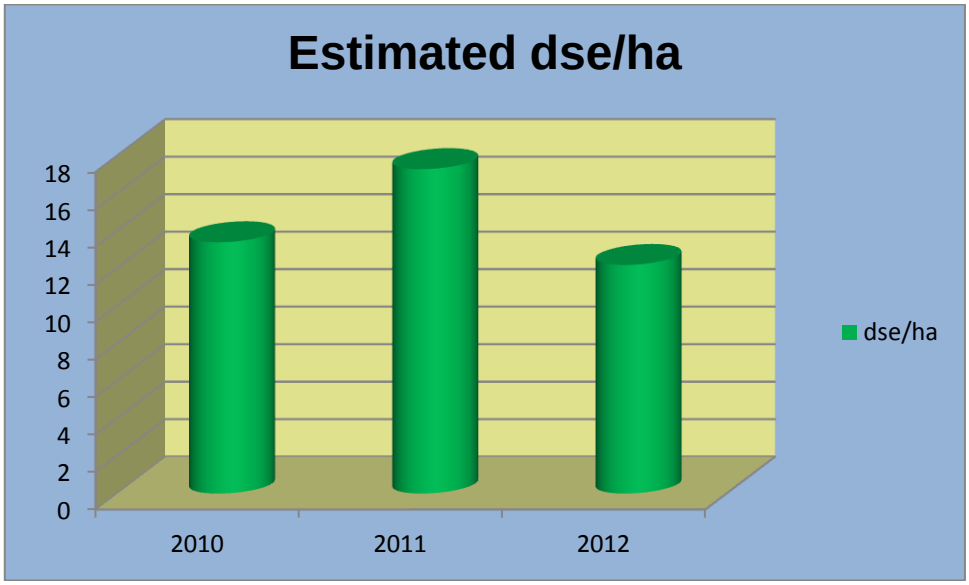


Figure 42 Estimated dse/ha equivalent combining stocking rate and hay production (estimates Jane Court DEPI Seymour)

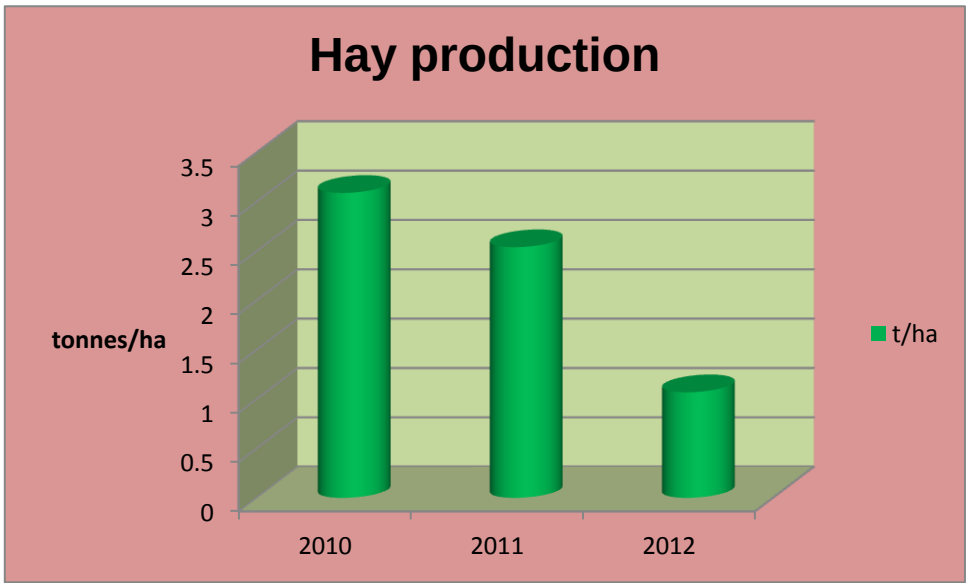


Figure 43 hay production from the lucerne site

Pasture Measurements

The lucerne pasture does not have a comparison paddock due to it being the only special use pasture on the farm at the time of the trial commencement. Therefore although pasture measurements similar to the phalaris pasture were taken in line with Evergraze requirements, only the two most important graphs are shown in this report.

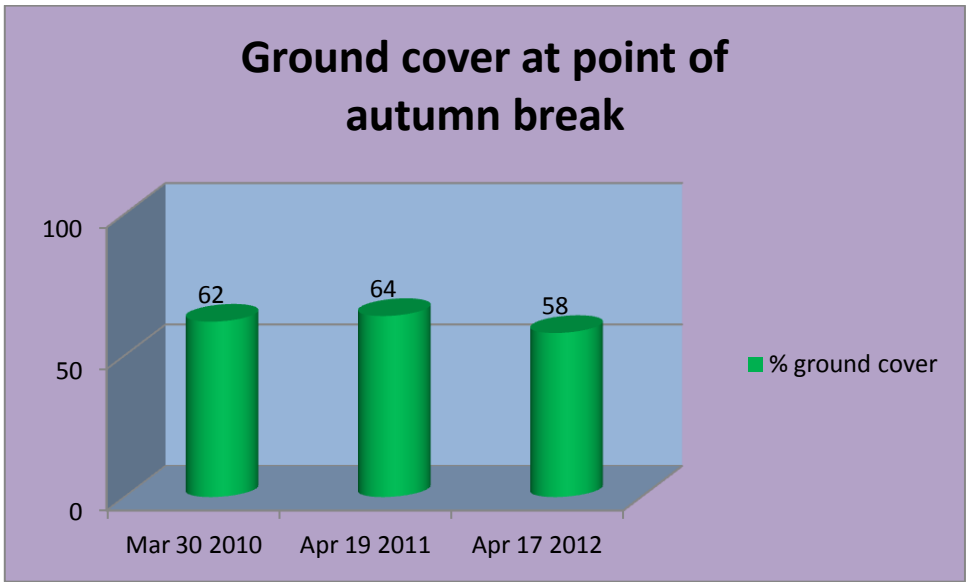


Figure 44 Ground cover at point of autumn break

The ground cover of the lucerne paddock at the autumn break does fall below the recommended level of 70% for desired soil cover. PPS considers that the rapid regrowth of lucerne after grazing does give the required ground cover for the majority of the year.

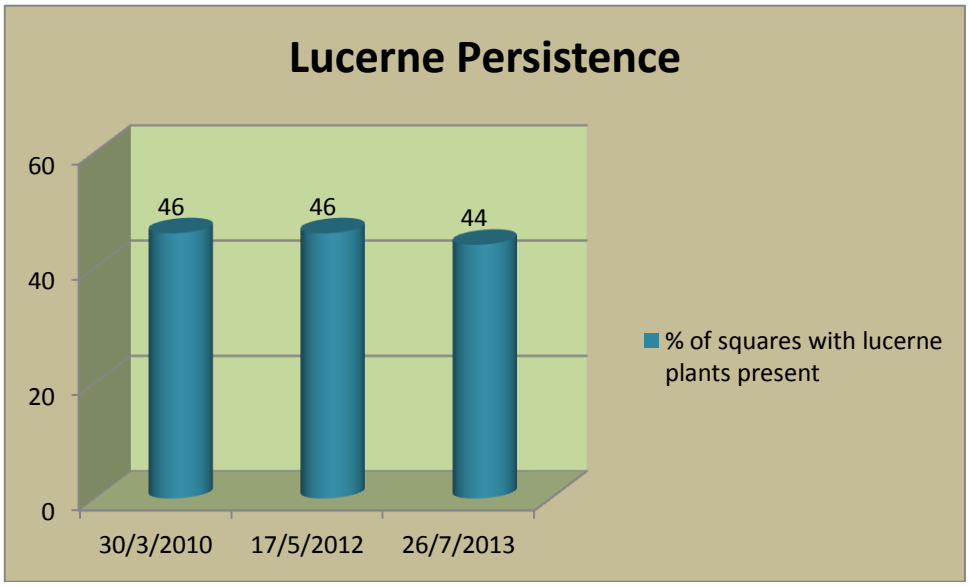


Figure 45 Lucerne persistence

Persistence measured by the grid method listed on page 27.
PPS will continue to monitor the long term persistence of the lucerne; current local estimates give the pasture a 7 – 10 year effective lifespan.

Discussion on the lucerne site

The decision to trial lucerne in the foothills of the Dunneworthy Range has shown that it is possible to establish it in non traditional areas in the region. The decade of dry winters has changed the parameters that were previously associated with lucerne production and has resulted in producers planting it in paddocks that were previously considered to be too poorly drained for lucerne. A run of wet winters may again change the parameters but the current conditions are allowing for productive lucerne pastures to be established away from river and creek flats.
Introduction of lucerne into the grazing system at Mooneys Gap has allowed an expansion of the lamb enterprise by allowing the finishing of lambs in suitable seasons as opposed to the previous practice of selling lambs at the end of spring. This system is now operating on several of the region's farms and is expected to continue despite the reduction in lamb prices over the past couple of years. The lucerne has provided high quality feed for the lamb enterprise on the property as well as providing hay to replenish depleted reserves from the drought years. The pasture has proved that it is viable to establish it in land classes where it had previously been thought to be unsuited to lucerne.

Payback period
Various calculations have been made on the payback period of the lucerne pasture at Mooneys Gap. The opportunity profits made during the wet summer of 2010-2011 have made payback calculations difficult and can give a misleading result for pasture improvement programs. The estimates have been two, four and seven years depending on the input methods used. More information is included in case studies included on pages 66 to 79 of this report.

Figure 46 PPS/EverGraze field day 5th October 2010 at the Mooneys Gap lucerne site.

Site advisor Cam Conboy and owner Rod Vearing ***Field day participants***

Discussion on the EverGraze Supporting Site and its effect on the host farm

The current owner of the farm purchased it in 2000; the farm had a history of low fertiliser inputs and no significant pasture improvement for several years. The ensuing drought years stopped plans for improvement programs until the start of the PPS/Evergraze supporting site on the property in 2009.

The property has a large merino wool enterprise and a 1000 1st cross ewe enterprise. Prior to the Establishment of the Evergraze paddocks lambs from the 1st cross ewes were sold in spring as they reached required processing weights and those that didn't were sold as stores as the property did not have the capacity to carry lambs into summer. The Evergraze paddocks have superior production in spring and allow a greater proportion of lambs to reach processing weights and be sold as trade lambs. The extended growing season provided by the lucerne and phalaris also allow the lambs previously sold as stores to be retained on the farm and finished as trade lambs adding significant income to the business.

An example of this is recorded in case study 2 on pages 68 and 69 of this report.
The environmental benefits of deep rooted perennials are well achieved by the new pastures with the possible exception of the lucerne pasture in its first year when ground cover was below desired levels.

The success of the Evergraze pastures has encouraged the owners to replicate the phalaris and lucerne system in adjoining paddocks as well as giving them the confidence to embark on a long term plan of continued introduction of perennial pastures across their farm.

Discussion on the EverGraze Supporting Site and its effect on the host group

The PPS group is larger than most of the groups who are involved in the EverGraze Supporting Site program and the Mooneys Gap site has been incorporated into the wider PPS project and compliments the aim of the group which is to push the boundaries of perennial pasture research in our area and provide information on productive pasture management to members.

As the site is part of the wider PPS project it is difficult to isolate the effect of this site on producers but there is a summary of a survey of long term PPS members which gives an indication of practice change since the commencement of the PPS project. The summary is on page 11 of this report.

The host farmer Rod Vearing has been an important part of the success of the project and his enthusiasm in communicating the results of the site to other producers has given them the confidence to implement changes in their own pasture management practices.

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Host farmer comments

Rod Vearing May 2013

We purchased Mooneys Gap in 2000, which allowed me to achieve my ambition of becoming a full time farmer after spending 25 years in building industry and operating smaller farms on a part time basis. Mooneys Gap was part of a deceased estate and had been managed on a maintenance basis for several years. As a consequence it had low fertiliser inputs and a limited pasture improvement program.

Although we had plans to commence pasture improvement, the reduced cash flow from the extended borrowing in purchasing such a large property combined with the large expenses with drought feeding through the early to mid 2000's meant that we were not able to implement any of those plans. Even when we were in a position to start a pasture improvement program I realised that I didn't have the skills necessary to properly implement it and there were very few opportunities in our region to attend pasture field days at that time to increase my knowledge. Looking back there were several other farmers in a similar position, which was the catalyst behind the formation of the Perennial Pasture Systems group.

When I was approached by Simon Brady, the inaugural President of PPS, who invited me to host the PPS EverGraze site I realised what a great opportunity it was to trial things on our farm to assess their viability as well as increasing my pasture knowledge. At the same time I felt a bit overwhelmed and unsure of how I would be able to handle the challenge of being the site host. I need not have worried as there was great planning right from the start, PPS put their Project Manager Rob Shea in to manage the site and asked committee member Paul Harrington to oversee the project. Cam Conboy then came on board as the honorary agronomist and we started planning both the lucerne and phalaris trials. During the establishment year we had several meetings in the paddock and Cam's advice was crucial to getting the pastures into a productive state; we all learnt something every time Cam visited the site. I would also like to acknowledge the assistance from Paul Harrington, who will drop everything he is doing to come down to advise me about his thoughts on the site before I make important management decisions.

Despite a slow start due to the late autumn break and some weed issues in the lucerne, the pastures really started to take off and I couldn't stop thinking how a targeted pasture improvement program could transform our farm. My enthusiasm was a bit tempered during the first spring when Cam advised against grazing the lucerne until it had flowered for the first time but my patience paid off with a healthy stand going into its first summer. The lucerne looked so good, that sometimes I would just grabbed a stubby after work and came down to have a look at it. The phalaris also looked great during its first spring but I don't think any of us realised what a productive pasture it was going to turn out to be.

During 2010 I started preparing other paddocks for future phalaris and lucerne pastures as well as implementing the full grazing rotations recommended by Cam. It was also during 2010 that I heard Lisa Warn from the Melbourne University McKinnon group speak on rotational grazing management of phalaris at a PPS/Grasslands MLA pasture update.

Host farmer comments continued
Rod Vearing May 2013

Lisa's phalaris management was similar to techniques discussed by agronomist Kelly Johnson and I implemented their recommendations on a small phalaris paddock. The results of this convinced me to slightly modify the rotations on the EverGraze phalaris paddock in 2012.

The wet summer of 2010-2011 caused me plenty of headaches but also created a great windfall profit from the EverGraze paddocks as I knew that I would have enough feed to finish lambs that normally would have been sold to restockers. I was able to lock in a great price of 640 c/kg to deliver them in June 2011. The paddocks certainly did their job, maybe a bit too well as we were penalised for several of the lambs going overweight.

The paddocks have created a lot of interest from other farmers as they are very visible from the Pyrenees Highway and I was regularly asked what was going on there. I also started to talk to other farmers when they visited the site on field days, I was pretty nervous at first but I really wanted to tell the story of what was happening and have now got over that, I was even asked to do a presentation on the site at the PPS Annual Conference in 2011. Prior to PPS and the Evergraze site I didn't have the confidence to talk to leading farmers about pastures but now I am confident to discuss pasture issues and learn from them.

The EverGraze paddocks gave us the opportunity to change our lamb enterprise from selling them at the end of spring regardless of their weight to one where we can finish lambs to increase our returns from that part of our farm business. We have now replicated the EverGraze paddocks and as soon as we get the autumn break this year I will be ready to get the rotations fired up and get the full benefit out of the pasture improvement program we have done so far. I wish the whole farm had pastures like the EverGraze paddocks.

Figure 47 Site host Rod Vearing and EverGraze National Advisory Committee chair Debbie Shea discussing results from the Mooneys Gap Supporting Site.

Adoption of results

There would be very few pasture research sites where the trial results were so rapidly adopted by the host farmer. The two pastures have been replicated in adjacent paddocks and further lucerne and phalaris pastures are planned.
The host farmer Rod Vearing was very keen to immediately establish new pastures after the initial trial establishment in 2009.

Phalaris
The first planned phalaris pasture was delayed on agronomic advice until 2011 to allow for better weed control prior to sowing. The pasture was established following a barley crop in autumn 2011 and while good phalaris germination occurred the pasture suffered from a severe Wimmera Ryegrass (Lolium rigidium) infestation in mid winter. The ryegrass problem followed the very wet summer of 2010/2011 which caused weed issues throughout the region. The new phalaris pasture has been affected by the weed issue but is still much more productive than the annual pasture it replaced.
Further phalaris pastures are planned in coming years on Mooneys Gap with the next one to be established in 2014.

Figure 48 Late winter 2011 showing Wimmera ryegrass infestation in the new phalaris pasture.

Figure 49 Pasture in March 2012 after Gramoxone spray to reduce Wimmera Ryegrass.

Lucerne

A second lucerne pasture was established on Mooneys Gap in 2012. The paddock adjoins the EverGraze lucerne pasture and has similar topography. The pasture established well despite the dry spring and summer. The dry conditions did not allow a grazing until after the autumn break in 2013.

Further establishment of lucerne pastures are planned in 2013 and 2015.

Figure 50 New lucerne pasture established in 2012
Photo taken on 18th July 2013

Future research at the lucerne site

Although the Supporting Site program has finished PPS plan to continue to monitor the long term results from the site and continue to communicate them to members.

Production results will continue to be collected from the lucerne site and the site will be monitored for plant persistence. Plant measurements may recommence in years to come if deemed necessary by PPS.

Communication of results

The project has been continuously reported to PPS members, EverGraze, CHAF and other interested people throughout the trial in conjunction with the wider PPS project. This communication has taken various forms which are summarised below.

PPS newsletters

The four page PPS newsletter is produced quarterly and one hundred and fourteen copies are posted to PPS members and sponsors. The newsletter is also sent by email to another one hundred and fifty seven people who have shown interest in the PPS project. These include Dept of Primary Industry and Catchment Management Authority staff, CSIRO pasture scientists and pasture industry contacts. Copies are also sent to others groups who have links with PPS including Evergreen in Western Australia, Victorian No Till Farmers Association, Yarram Landcare Pasture Group, and the Holbrook Landcare Group.

Email copies are sent to several EverGraze contacts.

Progressive results and observations from the three PPS/PDS sites have been regularly reported in the newsletter and this will continue as PPS continues to monitor the progress of the pastures at the sites.

Field Days

PPS has used the site for field day activity throughout the duration of the EverGraze project and plans to continue to do so into the future.

Field days were conducted at Mooneys Gap in October 2009 and 2010 see fliers on pages 57 and 58. Approximately fifty people attended both field days.

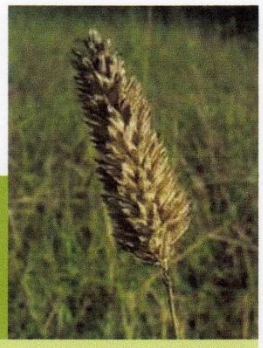
The site was visited as part of the PPS annual conference bus tours in September 2009 and 2010.

Figure 51 Laurie Norman CEO CHAF and Geoff Saul EverGraze National Coordinator at the Mooneys Gap field day on 13th October 2009.

Field Day Flyer 2009

EverGraze

More livestock from perennials



Spring into EverGraze

Right Plant, Right Place, Right Purpose

"Phalaris & lucerne establishment in the upper catchment"

When	**Tuesday 13th October 2009**
Where	**Rod and Bernadette Vearing's** Mooneys Gap, Ararat Approx 10km NW of Ararat on the Pyrenees Hwy
Time	**7:30am to 9.30am (breakfast provided)** **9:30 –11.00am PlantTech and DPI perennial pastures trial inspection**
What	• EverGraze Lucerne trial – Establishment and weed control **Cam Conboy** ***(PlantTech technical development for southern Australia)*** • EverGraze Phalaris trial - Establishment **Cam Conboy** • Phalaris first year management - **George Holden** (***Producer from "Overdale" Stawell. George's property is well known for it's landcare & pasture establishment)*** **OPTIONAL VISITS TO SPECIES TRIAL SITES** • PlantTech ryegrass, phalaris & clover species trial plots **Cam Conboy** • DPI perennial grass species trial including new Cocksfoot Phalaris and Fescue varieties **Steve Clark** ***(DPI Pasture Agronomist)***
Contact	**Please RSVP for catering purposes by Monday 12th October to;** **Name:** Rob Shea **Phone:** 5352 1357 **Mobile:** 0438 521357 **Email:** yadin@netconnect.com.au

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www.evergraze.com.au

Field Day Flyer 2010

EverGraze

More livestock from perennials

Perennial Pasture Field Day

Second year management of lucerne and phalaris

When	**Tuesday 5th October 2010**
Where	**Mooneys Gap, Rod Vearing's woolshed** **10km NE of Ararat on Pyrenees Hwy**
Time	**7.30am – 12 noon (complimentary breakfast provided)**
What	• **Second year management and inspection of lucerne & phalaris.** Rod Vearing, 'Mooneys Gap' and Cam Conboy, Seedmark • **Inspection of plant variety trials – legumes and perennial grasses.** Cam Conboy, Seedmark and Zhongnan Nie, DPI. • **Onion grass control and pasture management.** Mark Mckew, Warrak EverGraze Supporting Site and Julie Andrew, DPI
Contact	**Please RSVP for catering purposes by Friday 1 October to;** Name: Rob Shea Phone: 03 5352 1357 Mobile: 0438 521 357 Email: yadin@netconnect.com.au

Proudly supported by PPS PERENNIALPASTURESYSTEMS seedmark better seeds, better choices State Government Victoria Department of Primary Industries

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PPS Annual Conferences

A progress report on the sites was included in the PPS Project Manager's report at the 2011 and 2012 PPS Annual Conferences.

Site host farmer Rod Vearing gave a presentation on his experience with the sites at the 2011 annual conference.

Several photos of the site were included in slide show presentations. Both conferences were attended by approximately sixty people.

Figure 52 Participants at the 2009 PPS Annual conference

Personal communication

The host farmer is an enthusiastic member of PPS and has communicated the progress of their sites to other district farmers.

The Mooneys Gap site is highly visible from the Pyrenees Highway this has helped to maintain interest in its progress by other district farmers.

PPS membership includes several agronomists and Dept of Primary Industry people and they have been active in utilising the results from the Mooneys Gap Evergraze site in their own advice to the region's farmers.

Figure 53 Supporting Site sign visible from the Pyrenees Highway

EverGraze visits

The Mooneys Gap Supporting Site has been visited as part of several EverGraze activities.
The EverGraze National Advisory Committee visited the site in June 2010; the visiting group also had representatives from AWI, MLA and the Future Farm industries CRC.

Figure 54 EverGraze National Advisory Committee visit to Mooneys Gap June 2010.

The South West EverGraze coordinators' meeting was held in Ararat in February 2011 and Mooneys gap was inspected as part of the sessions.

Figure 55 Current EverGraze National Coordinator Kate Sargeant and site owner Rod Vearing with Victorian and South Australian EverGraze supporting site coordinators at Mooney Gap February 2011.

The Mooneys Gap phalaris site was used for the practical sessions of the EverGraze "nuts & bolts" pasture course conducted by Lisa Warn from Melbourne University and facilitated by PPS.

Figure 56 Participants in the EverGraze "nuts and bolts" pasture course at Mooneys Gap June 2012

Other Group Visits

The Mooneys Gap sites have been inspected by groups other than PPS and Evergraze.

The site was inspected by the Yarram Landcare Network Pasture Group as part of a two day tour of the PPS sites in October 2011. 21 members of the Yarram group participated in the tour.

Mooneys Gap was visited by Wimmera CMA staff as part of a tour of PPS sites in February 2012.

Mooneys Gap has been used as part of pasture sessions by the Ararat, Maryborough and Stawell Best Wool Best Lamb groups in 2012 and 2013.

Figure 57 Members of the Yarram Landcare Network Pasture Group with PPS members October 2011

Media articles

Articles on the PPS project including information on the Mooneys Gap sites appear regularly in the Ararat Advertiser and the Stawell Times-News. PPS Articles have also been included in the Weekly Times, Stock & Land, Ballarat Courier, Yarram Standard, Hamilton Spectator and the Wimmera Mail Times.
Articles below appeared in the Ararat Advertiser And Stawell Times News on 16/9/2009 and1/3/2011.

A group of farmers who attended the Perenial Pasture day at Vearing's property.

Perennial Pasture day

REGION - The Perennial Pasture Systems held a successful field day at the Vearing's Mooneys Gap property.

Forty five people attended, starting the day with breakfast before braving the cold and wet day to inspect the PPS Evergraze supporting site.

The EverGraze program is developing and testing new farming systems in different environments across the high rainfall zone of southern Australia.

The target is to increase profits of sheep and cattle enterprises by up to 50 percent and at the same time improve water management, use of perennials, biodiversity and soil health.

Six research teams at Proof Sites in three states are testing these new farming systems, measuring soil, water, pasture and livestock inputs and outputs, enabling accurate modelling of the impact catchment outcomes and farm profits.

A network of Supporting Sites is associated with each Proof Site allowing groups of producers to try new grazing practices and perennial systems.

An Evergraze supporting site has been established at the Vearing's property at Mooney's Gap, Ararat in conjunction with the Perennial Pasture Systems group.

Two trials have been established, a lucerne establishment into a non traditional area and a best practice phalaris establishment and management site.

The lucerne site which was sown with the Genesis variety, and is growing well despite several weed control issues that had to be managed.

The phalaris was sown with Holdfast GT and Advance AT varieties as well as sub clovers and has is growing strongly despite some annual weed competition.

Cam Conboy from PlantTech is the consulting agronomist for the sites and he spoke on the establishment methods, problems and successes.

Following this, George Holden from 'Overdale' at Stawell, who is well known for Landcare and pasture establishment work, outlined his thoughts on the best methods for managing a new phalaris pasture through its first year.

John Bowman, DPI Leongatha, Kate Sargeant National Evergaze extension leader and Rod Vearing at the Mooney's Gap site.

EverGaze supporting site looks promising

REGION - More than twenty EverGraze team members from around Victoria and South Australia converged on Ararat to receive updated information on the EverGraze project and to learn more about the promising phalaris and lucerne trials on the EverGraze Supporting Site at Mooneys Gap.

The EverGraze program is developing and testing new farming systems in different environments across the high rainfall zone of southern Australia.

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Six research teams at Proof Sites in three states are testing these new farming systems, measuring soil, water, pasture and livestock inputs and outputs, enabling accurate modelling of the impact catchment outcomes and farm profits.

A network of Supporting Sites is associated with each Proof Site allowing groups of producers to try new grazing practices and perennial systems.

Central Highlands Agribusiness Forum has been successful in gaining funding from the federal government "Caring for our Country" program to establish and manage Supporting Sites in Victoria.

There are three Supporting Sites in the Ararat region; two are conducted by the Perennial Pasture Systems (PPS) group and are situated at Mooneys Gap and Tottington. These are co-ordinated by the PPS project manager Rob Shea.

The third site is a native grass grazing demonstration at Warrak managed by Julie Andrew of Ararat DPI.

The Mooneys Gap EverGraze Supporting Site near Ararat is conducted by PPS and has phalaris and lucerne paddock trials.

Team members visited Mooneys Gap and heard from the site operator Rod Vearing, PPS Project Manager, Rob Shea and Cam Conboy from Seedmark who is the honorary consulting agronomist for the site.

The group discussed the establishment methods, weed control and grazing management of the site and were impressed by last year's stocking rate of the phalaris of nearly twenty DSE per ha, over twice the district average.

The site is showing the huge productivity gains that are possible using the EverGraze message of putting the right plant in the right place for the right purpose with the right management. This includes using the best available methods of pasture establishment and grazing management.

A case study of the Mooneys Gap Supporting Site and other EverGraze Supporting Sites throughout southern Australia are available on the EverGraze website.

EverGraze is a Future Farm Industries CRC, Meat & Livestock Australia and Australian Wool Innovation research and delivery partnership.

For further information on EverGraze or the local EverGraze projects contact PPS project manager Rob Shea 0438 521857, Julie Andrew DPI Ararat 5355 0520 or visit www.evergraze.com.au

Other Publications

PPS contributes regular articles, which include information on the Mooneys Gap sites, to the quarterly newsletters of Project Platypus and the Upper Hopkins Landcare Network.

Case Studies

Four case studies have been produced on the site and are reproduced as part of this report on pages 66 to 79.

External Presentations

The PPS Project Manager gave a presentation on the PPS project including information on the Mooneys Gap site to the Victorian Lime Producers Annual Meeting in Melbourne in November 2011.

The PPS Project Manager gave a presentation on the PPS project including information on the Mooneys Gap sit to the Upper Barwon Landcare Pasture Group at Winchelsea in August 2012.

The PPS Project Manager gave a presentation on perennial pastures to the Project Platypus “chicks in the sticks” group farm tour in October 2012. The presentation was done at the Elmhurst PPS/PDS site and included information from Mooneys Gap. Thirty one women attended the tour.

The PPS Project Manager gave a presentation on perennial pastures to the Farmplan 21 group at Joel Joel in May 2013 which included information from the Mooneys Gap Supporting Site.

External Displays

PPS has prepared a series of posters for display at events, as part of this series, individual posters for each of the PPS sites were made; the Mooneys Gap poster is reproduced on page 64.

During 2012 they were displayed at
Project Platypus Agrifest
Tatyoon sheep fair seminar in July.
Lake Bolac sheep fair seminar in July.
PPS 4th Annual Conference September

The host farmers also have a copy of their site poster and they are displayed in their woolsheds and offices.

Figure 58 PPS display at Project Platypus Agrifest March 2012

PPS/EverGraze Supporting Sites display poster

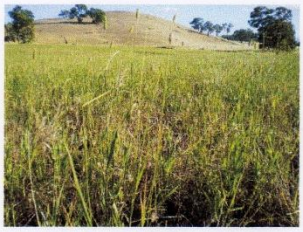
PERENNIALPASTURESYSTEMS
MAKING PASTURE GO THE DISTANCE

PPS
EverGraze Supporting Sites

Mooneys Gap

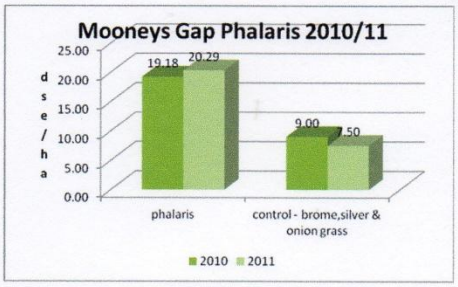
The Mooneys Gap site is 10 km north east of Ararat and was established in 2009. It has a phalaris trial demonstrating best practice management. There has been an increase of over 100% in stocking rate compared to the control pasture of annual grasses.
The lucerne paddock is trialling the viability of introducing lucerne pastures into the Ordovician foothills common in the region. It has proven successful in it's first three years providing quality feed for lamb finishing as well as two hay crops.

Technical assistance for the Mooneys Gap site is provided by Cam Conboy of Gorst Rural.



Mooneys Gap Phalaris

Mooneys Gap Lucerne



Tottington

The Tottington site is 20 km south west of St Arnaud and is trialling methods of pasture establishment in the drier central area of Victoria. The trial has a three year establishment period with a crop year to reduce weeds followed by a legume phase to build soil nitrogen, the perennial grasses are sown in year three. The grasses were sown in 2011 and established well and appear to have survived their tough first spring at Tottington.

Technical assistance for the Tottington site is provided by Michael Grant of Stephen Pasture Seeds.

Tottington legume year 2

Tottington perennial grasses year 3

EverGraze
More livestock from perennials

Funding for the PPS/EverGraze sites is provided by the Ever-Graze project and Caring For Our Country

CARING FOR OUR COUNTRY

Communication to other groups.
PPS has formed links with other farm groups and exchanges newsletters, field day information and research results with them. This includes information on the Mooney Gap sites. These groups are

Evergreen Western Australia
Holbrook Landcare Group NSW
Yarram Landcare Network Pasture Group
Victorian No Till Farmers Association
Birchip Cropping Group

Website
PPS launched its website in November 2012 and it includes information from the Mooneys Gap site. The website address is *www.perennialpasturesystems.com.au*

EverGraze Recognition
Bi annual reports on the Mooneys gap site were provided to CHAF for CFOC reporting.
EverGraze has been acknowledged in PPS newsletters, field days, seminars and media articles as providing support for the Mooneys Gap project.
An EverGraze banner has been displayed at the PPS Annual Conference in 2011 and 2012.

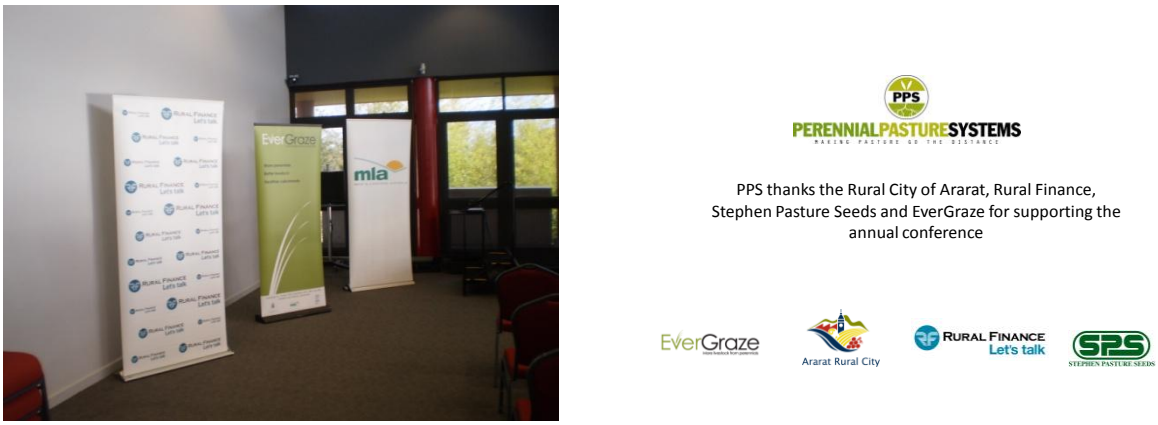


Figure 59 EverGraze acknowledgement at the 3rd & 4th Annual PPS Conferences in the Gum San Chinese Heritage Centre Great Hall Ararat September 2011 & 2012

Final Report
This final report will be distributed to EverGraze and CHAF and copies will be printed for PPS records and be presented to the host farmers in recognition of their contribution to the project.
A link to the final report will be included on the PPS website for members and other interested people to access.

References

EverGraze Mooneys Gap final milestone report June 2012 - Rob Shea PPS Project Manager
EverGraze Supporting Sites Monitoring Protocol – EverGraze 2008 Compiled and edited by Geoffrey Saul
EverGraze Pasture Cost Calculator
Heritage Seeds website – Campeda sub clover
Mooneys Gap case study Number 3 – Jane Court DPI Bendigo 2013
PGG Wrightson website – Genesis 7 lucerne information
Stephen Pasture Seed Lucerne Guide Spring 2010 – Autumn 2011
Stephen Pasture Seed Pasture Seed News Autumn 2011- Gosse and Antas clovers

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Rod & Bernadette Vearing – Mooneys Gap site hosts

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