

I had hoped to not mention drought in this newsletter. Sadly we seem to be in the throes of a very serious drought in New South Wales. Coming so soon after the drought of 2003 makes things particularly difficult for all our members. Unlike 50 years ago (I am thinking of the 1957 drought) I am disappointed at the very low coverage of the present drought in the media and how little city dwellers seem to be aware of the situation. Another issue in relation to the present is that the economics pundits stating that this drought will have little effect on the national economy namely barely 1%. I just cannot believe them.

I was delighted to receive two responses to my request for responses to the Kyoto protocol. Their well reasoned comments are on pages 3 and 11 of Issue No. 1.

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Editorial cont.

Your committee was given an account of the progress being made for the planning of this year's conference. We return to our "home" this year – Orange. Dates to record in your diary are 19 to 21 July. The theme for the conference is "Grassroots and all" and will be held at the Orange Ex-services Club. I have recently edited and refereed the papers to be presented at this conference. I guarantee another high quality conference. In particular there has been considerable interest lately in "perennial ryegrass staggers and fescue staggers". There are three very good papers on this topic.

For some time there have been several articles in the media about the "Native Vegetation Act". I have been reliably informed that there is concern in the government about the criticisms and that changes in the Act are likely.

Recently I went to a one-day conference in Melbourne on "Perennial Ryegrass Toxicity". I had not realized how general the problem was, particularly in Victoria and southern coastal New South Wales. Proceedings of this excellent conference will be available in June from the Victorian Department of Agriculture.

There is a good deal of valuable information in the Northern Tablelands Branch Newsletter on subjects as diverse as "Soil Organic Matter", "Baserula- a legume to consider", "Succession Planning" and "Endophytes". Any member who would like a copy please write to Carol Harris at the DPI Research Station., PMB, Glen Innes NSW 2370.

Annually one very important decision that a producer has to make is fertilizer policy. Recently, over 90 experts in plant nutrition from Departments of Agriculture, Universities and commercial firms from all parts of Australia have got together to produce an education package "Making Better Fertilizer Decisions for Grazed Pastures". For further information contact Dr. Cameron Gourley at the Department of Primary Industry, Ellinbank, Victoria on (03) 56242222 or e-mail at [cameron.gourley@dpi.vic.gov.au](mailto:cameron.gourley@dpi.vic.gov.au).

I look forward to seeing many of you in Orange in July.

Haydn Lloyd-Davies  
Editor



## **Pasture Growth Rates for NSW - Now Available**

***Warren McDonald***

*Formerly Technical Specialist (Pastures), Tamworth*

Estimates for pasture growth rates for the most commonly grown dryland pastures types are now available for all regions of NSW where introduced pastures are sown.

This project has progressively provided estimates for various regions since 1996. Recent estimates added cover the far South Coast, South Coast and the North West, Central West and South West (Riverine) Plains. These additions finalise the project. An example of the growth rate of pasture species in the North West Slopes and Upper Hunter is shown in Table 1 at end of article.

The estimates are packaged as agnotes covering specific regions. These agnotes can be found readily on the DPI website under the pasture management section. The only area of the State not covered is the arid western sector, where use of introduced species is not a significant issue.

Leading livestock producers and agronomists have requested guidelines on growth rates for decades. Agronomists in dairy districts in particular, developed pasture growth

rate curves over many years as they fine-tuned feed supply/feed demand to reducing the cost and increasing the efficiency of providing feed. This project has built on this approach but targeted dryland production where it is much more challenging to establish estimates given the huge variability.

### **Prograze pushes development**

With the development of Prograze, the urgency for estimates increased. Livestock officers could readily tell us humble pasture agronomists what quantity and what quality of feed was needed to reach market targets. In all but a few districts, we could not provide good feed supply information. This package satisfies that need, and allows producers to budget likely feed supply against their anticipated livestock demand.

In developing the package, all pasture research that produced growth rate information was reviewed.

### **Models –great benefit**

Growth rate models such as GrassGro and Growest were used to provide basic estimates. Growest was used in the initial regions covered (Northern regions) and as the more versatile

GrassGro model became available it was used as a major tool. This was a great advance as it covered factors affecting pasture growth other than climate. The great benefit of these models was their capacity to handle the climatic variability, overcoming the main obstacle to providing such information.

The most important input however was field experience. Agronomists, livestock officers, researchers, producers, agribusiness people, academics and anyone identified with experience in growth rate or matching feed supply to demand were asked to contribute. Assistance was readily provided.

Interestingly, I had hoped to use results of the many cutting trials that research and district agronomists had conducted over the decades as a basis. It was surprising how often trials were conducted in years that were not seen to be normal or average. Many trials tended to be conducted over short periods, such as 3 years, and often on pasture types that did not align closely with the types of mixtures that agronomists nominated for their regions in the project. Trial results were however, extremely useful in validating estimates.

The project also collated information and experience on the

likely quality of common growing pastures in terms of ability to put on liveweight gain for sheep or cattle. This is presented as a feed year guide. Producers will find this very useful as an aid to selecting pastures and forage crops selection for their enterprise.

Feedback on the accuracy and usefulness of regional estimates has been via Prograze deliverers. While minor modifications to estimates have been necessary, acceptance has been excellent. The estimates have shown to be very useful in giving producers a good idea of the likely relative performance of their pastures, and giving them a basis for feed budgeting.

In the future, I expect that models (especially GrassGro) will play a greater role in providing regional estimates.

My thanks to the many people and especially Grassland Society members who contributed to the project over the years. The support of the Pastures and Rangeland Program of the then NSW Agriculture is gratefully acknowledged.

You can find the package at [www.agric.nsw.gov.au/reader/past-management](http://www.agric.nsw.gov.au/reader/past-management). Some estimates from the package are also included in the Prograze manual.

**Table 1. Estimated pasture growth rate (mid month) of specific pasture types (kg DM/ha/day)**

	J	F	M	A	M	J	J	A	S	O	N	D
Lucerne-winter active	12	8	7	10	11	8	8	19	32	24	18	15
Medic based dominant	1	2	2	5	10	17	25	37	31	14	2	1
Native grass/and legume	18	14	11	13	12	6	5	5	7	16	22	22
Forage oats	0	0	0	8	28	31	32	42	27	2	0	0
Forage sorghum	33	57	54	34	0	0	0	0	0	0	45	24
Tropical grass /annual legume /lucerne	30	22	17	17	15	6	6	6	12	24	35	35



This item was in the May 20<sup>th</sup> issue of the newsletter of the European Commission's Delegations to Australia and New Zealand

**WATER IN AUSTRALIA, EU, US: INTERNATIONAL CONFERENCE**

With Eastern Australia experiencing one of the worst droughts in its history, and Europeans mindful of 2003's devastating heat wave as they head into another summer, the National Europe Centre is set to host a timely conference on water. 'Sustainable Water Management: Comparative Perspectives from Australia, Europe and the United States' will run from 15-16 September at the National Museum in Canberra and is convened by Karen Hussey of the Australian National University (ANU) and Professor William Andreen of the University of Alabama. The international symposium will examine the political, social, economic and legal dimensions of sustainable water management in a comparative perspective and will feature speakers from a variety of institutions including the CSIRO, the University of Hull in the UK and Australia's National Water Commission, as well as Joachim D'Eugenio, of the European Commission's Directorate-General (DG) for Environment, and David Grant Lawrence also from DG Environment.



## **Producers are Still Dealing with Drought in the Mudgee District**

*Jenene Kidston,*

*District Agronomist, Mudgee*

The Mudgee area has an average monthly rainfall of around 50mm every month of the year. Farming enterprises are based on fat lambs, finishing steers for domestic and export markets, fine wool, wine, mixed cropping and other pastoral enterprises.

While there have been short breaks in drought conditions, it appears that the drought that began at the end of 2001 is not over yet. Over 60% of farm dams ran dry in 2002. Feed grain and fodder stores were depleted. 2003 and 2004 have not provided the opportunity for farmers to replenish fodder stores.

The 2004/2005 summer began in November with storms providing runoff for dams and good growth of native pastures on the tablelands. Storms continued to provide intermittent moisture through February and early March. People were planning for a change in the seasons and sowed early forage oats in February.

The rain stopped in the middle of March. There has been no follow up

rain for over nine weeks. Summer pastures have hayed off, no longer providing maintenance quality feed for most classes of livestock. Temperate pastures are still dormant due to lack of moisture.

Forge crops sown in February and March are quickly deteriorating. Producers are facing a decision to graze severely stressed crops and risk pulling out many of the plants that remain, or to delay grazing and perhaps lose what little feed is available. The dilemma is exacerbated by weather forecasts predicting no rain in the short term and a poor outlook for the mid term.

Winter on the tablelands has arrived. Producers are hand feeding, some for the fifth year. There is little potential for good pasture growth until spring even if there is good rain.

Producers have been offloading stock for the last four to six weeks. Prices and quality of stock are reducing. The demand for stock feed and feeding advice is rising.

The Central slopes did not fare so well over summer. Patchy summer storms provided the opportunity in some areas for producers to sow early dual purpose crops; however other parts of the slopes were hand feeding stock in summer. Stock water in these areas is also critically low.

The sowing window for crops and autumn pastures is quickly closing in. The sowing window for pastures in the Mudgee district is a bit more flexible. Due to the summer rainfall, improved

pastures can be successfully established in early spring when they are sown into good moisture.

Being a mixed farming area, central slopes properties are predominantly livestock fattening enterprises with the feed base focused on forage crops, lucerne and improved pastures. The tablelands feed base is more focused on native and improved pastures supplemented by small areas of forage crops.



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YOUR 2005/2006 SUBSCRIPTION  
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## **Fertilising native pastures - is it detrimental, worthwhile or a waste of time?**

*Michael Keys*

*Agronomist (special projects), Queanbeyan*

Autumn is a common time to fertilise pastures and if done then, coincides with sub-clover germination and provides a boost to winter production. But does this apply to native pastures?

***“Spread a bag of super.....(per acre).....once every 3 or 4 years.”***

We commonly hear it said that native pastures shouldn't be fertilised regularly or at high rates. But where is the scientific data for this assertion? There is anecdotal data to suggest natives can die out following regular or heavy rates of fertiliser but do we know why? Was it the fertiliser, the legume growth or something else.

Over the last 10 years Bruce Clements, District Agronomist at Bathurst, property owner Howard Sinclair and I have run a 45ha, 5 paddock comparison to try to resolve some of the issues raised when native pastures are fertilised. Howard produces 2<sup>nd</sup> cross prime lambs. Lambing commences at the start of August, shearing is in November and weaning occurs in mid December. The traditional stocking rate has been 5 crossbred ewes/ha.

We believe we can now provide some reasonable guidelines about the management, pasture production, pasture stability and profitability of three contrasting fertiliser regimes applied to a danthonia dominated, modified native pasture containing sub clover at Newbridge, east of Blayney. Soils on the property are acidic throughout the profile (pH<sub>Ca</sub> 4.2 and 22% aluminium), shale based and the paddocks in 1994 had low phosphorus (12mg/kg Colwell P) and sulphur (2mg/kg S) levels. The property receives an average 795mm rainfall and the altitude at 900m ensures a long spring but little pasture growth during winter. During the last 10 years, 4 years had above average rainfall, 2 were average and 4 had from 527 to 612mm.

**Treatments:** we compared the normal practice in the district (125kg/ha of single superphosphate applied once every 3 years and referred to as the “control”) with regular annual applications and a “high input” system. We also compared two fertiliser types - reactive phosphate rock (RPR) and single superphosphate (SSP) using the “high input” and “annual” fertiliser



strategies. Initial treatments applied in November 1994 were 420kg/ha SSP or 300kg/ha RPR for the “high input” strategy and 140kg/ha SSP or 100kg/ha RPR for the “annual” strategy. All paddocks received molybdenum the first year, then in years 4, 7 & 10. RPR paddocks received gypsum or elemental sulphur to provide the same sulphur amounts as the SPP treatments. In years 2 & 3 the “high input” rates were reduced to 280 SSP or 200 RPR kg/ha while, having raised soil P&S levels by 1998, rates were further reduced to maintenance, namely 180 SSP or 130 RPR (based on the number of stock then run - 8 ewes/ha).

**Stocking rates:** the “high input” paddocks were immediately stocked at 6 ewes/ha and by 1997 this was increased to 7.5 ewes/ha and in 1999 to 8 ewes/ha. Stocking rate was not lifted in the “annual” paddocks until 1997 (to 6 ewes/ha) and by 1999 it was increased again to 7 ewes/ha. All paddocks are set stocked to permit livestock and economic data to be obtained. This grazing system leaves a lot to be desired, in terms of managing pasture mass and composition and could adversely affect the persistence of some native perennial grasses, especially if a different enterprise was run - more about this later.

**Pasture production:** two grazing exclusion cages were placed in each paddock in 1997. These are regularly

cut and moved. The data from them shows on average in each year and over all years combined, 25% more pasture is grown in the two “annual” fertilised paddocks and 33% more pasture in the two “high input” paddocks compared to the “control” paddock. However, with current stocking rates of 7 & 8 ewes/ha respectively for the “annual” and “high input” paddocks, they are carrying 40% & 60% more stock than the “control” paddock.

What about lamb weights? Well despite the higher stocking rates on the four paddocks that are fertilised each year, it is these paddocks that are able to turn off the greatest number of lambs ready for sale at weaning. The target weight for immediate sale at weaning was 38 kg /head liveweight. How can this be? We believe it is pasture quality. Only in very dry years was the “control” paddock able to produce more saleable lambs/ha than the other paddocks.

**Economics:** fertilising pasture is costly so there is no point unless the pasture response provides a return well above the extra cost. Remember, there is no point fertilising a native pasture unless it contains a legume – it is the legume that needs the P & S and that in turn supplies the nitrogen to fuel the improvements in grass quantity and quality.

**Table 1** shows average net returns over the 10 years on a \$/ha/annum basis. The rainfall and acid soils at this property make it well suited to RPR use - both fertiliser types produced similar results. Returning an average \$132.10/ha/annum, the profit from the “control” paddock isn’t much more than the \$104/ha overhead cost

for this property. Returns are far better and show a good return on the extra capital invested from the “annual” and “high input” strategy paddocks - \$97.80 and \$128.77 respectively. Notice too that the fertiliser cost/head isn’t all that high, even from the “high input” strategy.

**Table 1: Average returns & costs (\$/ha/annum) over 10 years**

	<b>Control</b>	<b>Annual Strategy</b>	<b>High Input Strategy</b>
Gross Return - Lambs	\$143.27	\$239.40	\$288.23
Gross Return - Wool	\$61.23	\$73.00	\$92.05
Variable Costs /ha incl. supp. feed	\$58.76	\$74.80	\$91.44
Fertiliser Costs /ha	\$13.65	\$35.80	\$56.08
Total Variable Costs/ha/annum	\$72.41	\$110.60	\$147.52
Av. Net Return / ha /annum	\$132.10	\$201.80	\$232.77
<b>Profit (net return less overheads )</b>	<b>\$28.10</b>	<b>\$97.80</b>	<b>\$128.77</b>
Fertiliser Cost /head	\$2.83	\$5.30	\$7.81

**But what about the survival of the native grasses?**

After fertilising native grasses, shading often occurs in spring from winter growing annuals such as sub clover and annual grasses unless stocking rates are increased to control the extra pasture growth. In this demonstration, the spring lambing prime lamb enterprise provided this essential increase in grazing pressure. While there were considerable fluctuations in pasture composition, changes were generally similar in all paddocks and basically reflected the seasonal conditions.

Native grasses originally made up 50-60% of every paddock and after the 2002 drought (July ’03) were between 40-50%. There was a 15% reduction in native grasses in the “control” paddock compared to spring 1994 but reductions in the “high input” paddocks were similar (17%). The most noticeable differences occur in good seasons. For instance in spring/summer 2000/1, the “control” paddock had >20% litter, < 10% annuals (clover & annual grasses) and < 5% perennial ryegrass. By contrast there was a significant and productive

response in the paddocks by the perennial ryegrass (15%) and the clover (20%) at the expense of the litter. Legumes were only 5% in all paddocks in 1994 and in spring 2004, the “control” paddock had 18% and the “high input” paddocks 27%.

**Conclusions:** fertiliser can be used regularly and even at relatively high rates to increase productivity, provided stocking rates are increased to use the extra feed grown. This is particularly important for those native grasses that are sensitive to shading in spring such as danthonia and red grass. Resting (or even lenient grazing) of fertilised, native pastures containing danthonia or red grass in early to mid spring should be avoided as these species react

adversely to shading and competition at this time. *Microlaena* however, being very tolerant of shade will be unaffected.

The changed fertility and legume content of the various paddocks coupled with the livestock performance and economic data show that fertilising native pastures containing a responsive legume can be both profitable and sustainable. Appropriate pasture and grazing management is essential to get best value from your fertiliser dollar, to utilise the extra feed from winter growing annuals and to ensure the persistence of the native perennial grasses.



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**2005 GRASSLAND SOCIETY OF NSW  
ANNUAL CONFERENCE  
“GRASS ROOTS & ALL”  
ORANGE EX SERVICES CLUB  
19-21 JULY 2005**

**FOR FURTHER INFORMATION CONTACT  
KEITH GARLICK ON 02 6362 1899**

## Pastures at the Bookham Fertiliser Demonstration

### *Michael Keys reporting on Phil Graham's work.*

For the last twelve years, Phil Graham, Sheep & Wool Officer at Yass has been running a two paddock demonstration to compare the profitability from fertilised versus unfertilised native pasture at Bookham. In short, the annually fertilised paddock has carried more than twice the number of wethers and been twice as profitable. But what has happened to the native pasture at the site?

The unfertilised paddock has run an average of 6.5 wethers/ha and the fertilised paddock 13.8 wethers /ha. On 31st March this year I took the opportunity to collect some pasture composition data from the two paddocks following December '04 to March '05 monthly rainfall totals of 64mm, 39.5mm, 75mm and 19mm respectively. The 75 mm in February

produced a good flush of growth from the native grasses. However, with the current stocking rates run and the low rainfall in March, both paddocks only have a well grazed, very short green pick of 250-300 kg green DM /ha.

The table below, while not comparing composition at the same time of year, shows how the level of both microlaena and danthonia (wallaby grass) has changed since first recorded in 1995. Note that when the work started neither paddock had been supered for about 20 years. By Sept '95 the supered paddock had received 250kg/ha single super in winter 1993 and 125kg/ha in autumn 1995. Both paddocks have been continuously set stocked with wethers since November 1993 and the supered paddock has received an average 100kg/ha of single super each autumn since 1995.

Pasture Component	Nil Fertiliser		Supered	
	Sept 1995	April 2005	Sept 1995	April 2005
Microlaena	15	15	17	34
Danthonia	12	20	10	12
Legume	27	4	55	5
Annual grass	19	-	8	-
Litter*	-	37	-	36
Bare	7	20	-	11
Weed	20	4	10	2

\* Litter in March 2005 was the dry residue of annual grasses.

What can we learn from this table?

- The continuous stocking and grazing pressure has had no detrimental effect on the two main native perennial grasses over the last 12 years. In fact because the paddocks were grazed short when recorded recently, it was hard to strike and thus record the native grasses. My observation is that the microlaena in particular has increased over the years in both paddocks.
- Microlaena has increased significantly in the higher fertility conditions of the supered paddock. In the lower

parts of the supered paddock where the level of litter was highest, microleana was present and vigorous and completely unaffected by the shading of the litter from the annuals.

- Wallaby grass has become a greater proportion of the native grass component in the unfertilised paddock possibly due to less competition from annuals in combination with the constant grazing pressure.



## **2004 Annual Conference - Grassland Society of South Australia**

In June 2004 my wife and I attended a thought-provoking Annual Conference of the Grassland Society of South Australia, in Launceston, Tasmania.

### **Tours**

Delegates to the conference had a choice of 1 or 2 day tours prior to the final day of conference at the Tramshed (an excellent venue). Tour choices included:

1. Northwest Tour - beef, lamb and dairy (2 days);
2. Midlands/East Coast - wool, beef, lamb (2 days);
3. 1 day beef tour;
4. 1 day lamb tour.

We chose the 2 day Midlands East Coast tour, due to its relevance to our enterprises.

Key background facts were highlighted at the outset:

- Hobart is the second driest capital city in Australia;
- Tasmania produces more 500+ bales wool clips than any other state in Australia;
- Almost all Tasmanian beef herds are Black Angus due to the presence of a large Japanese feedlot which buys

exclusively Tasmanian bred Black Angus cattle.

Our tour began in the Midlands area. Rainfall averages around 500mm +/- 100mm depending on altitude and terrain. Soils vary from sands-sandy loams-duplex-heavy black flats. The country varies from general undulating to hilly. Traditionally most of the farm businesses were focussed on dryland grazing or merino sheep and cattle. The properties we visited varied in scale from 9,000-100,000+ DSEs. Most had a fine-medium to superfine merino flock as the largest component of their DSEs and were joining excess ewes to terminal sires, producing first cross lambs. Most of the properties also ran a Black Angus beef herd supplying steers to the Japanese feedlot.

However, over the last 30 years there has been significant development of irrigation. One property now has 12 centre pivots operating (with plans for 2 more) fed by a 12,000 ML and a 2,000 ML catchment dams. These irrigators travel up and down hills irrigating cereal crops, lucerne, rygrass seed crops, lupini beans, pastures and poppies. Usually a crop of poppies is grown soon after construction of the Pivot. With returns ranging between

\$3,000 and \$8,000/HA, one crop of poppies usually pays for the irrigation infrastructure. Irrigation water in Tasmania is very cheap (not much more than pumping costs) and has allowed these producers to diversify their businesses.

All properties practised some form of rotational grazing, some with intense cell grazing set ups. Another feature of many of these farms was the need to have procedures in place to be able to move livestock from flood prone areas extremely quickly, as flash flooding can occur over a wide flood plain. The East Coast featured some spectacular scenery with livestock grazing highly productive pastures almost onto the shoreline.

### **Presentations**

The theme for the third day of the conference was "Profit from Grass" and began with Dr Danny Donaghy outlining the common features of leading farmers. These farmers focus on the utilization of home-grown fodder and know their costs. They never chase "Silver Bullets", plan and set goals and know the importance of having fun and being able to relax.

Richard Eckard then explained how some feed gaps can be filled by applying N to pasture at rates between 25 and 50 kg/N/H in Autumn, Spring and some of Winter to provide an extra 5-12kg Dm for every kgN. The extra pasture would cost just under \$100/tonne.

The final speaker of the first session was an Agricultural Science Graduate, Natascha Hryckow, who made all the farmer delegates sit up and have a good look at themselves. She told of her experience of building a business from an asset base of one 10 year old Subaru ute to a grazing enterprise that grew from 400 DSE to in excess of 18,500 DSE in a 4 year period.

The second conference session began with the 2004 Stapledon Memorial lecture, titled "Future Development of Grazing Systems" presented by Dr Dave Roberts of Scotland (with a very strong accent). This was followed by Dr Deric Charlton of Greenfields Communications, New Zealand, who gave an overview of how the Tecnograzing (high performance grazing) System was founded and developed, some of their results to date under NZ conditions.

Session three - Converting Grass to Dollars began with Rick Jordan, a consultant from Mt Gambier, South Australia, who gave an overview of the characteristics of leading edge farmers that he has dealt with. He believed that his top end dairy clients were more in control of their systems and profitability than the majority of beef/sheep clients.

Dr Rod Manning, who with his family, runs a 900 cow breeding herd on 1,200

ha, went on to describe the drivers of profitable beef production. Stocking rate is key and has contributed to a cost of production of 52c/kg liveweight.

An interesting speaker in John Cannon, a consultant from New Zealand, gave us a round down on a large scale lamb-finishing business with which he is involved. The business finishes 300,000 lambs annually as well as growing squash, maize, beef finishing and Wagyu breeding. He stressed the importance of getting the “fit right” with environment, other enterprises and markets.

During the final session, Libby Salmon described how the computer software package of GrassGro can be used as a decision support tool for grazing businesses.

Dr Sharman Stone, Secretary to the Minister for Environment, told us

how the Government was well aware of the problems faced by producers trying to become sustainable economically and environmentally and was taking farmers concerns into account during policy formation.

Finally, Greg Bradfield reported on a lamb scale cell grazing trial being conducted with 70,000 sheep, in harsh conditions on the Falkland Islands. So far the system has lead to vast improvements in labour efficiency; one of their major constraints to profitability.

Thank you to the GSSA for hosting an excellent conference, and for their hospitality.

*Richard McIntosh*  
*“Gundawanna”*  
*Molong NSW 2866*





## Getting the best from irrigated lucerne

Many farmers plant lucerne at some time, however they don't always succeed. There are a number of issues to consider to guarantee success with irrigated lucerne. These will be covered in a hands-on short course for farmers to be conducted by NSW department of primary Industries at Murrumbidgee College of Agriculture, Yanco on 29-30 June.

Lucerne is versatile pasture species and fodder crop that benefits most farming enterprises in some way. It provides high quality forage and hay, improves soil fertility and structure, provides useful disease and weed breaks in crop rotations, provides fire breaks and helps reduce environmental problems such as erosion, salinity and waterlogging.

Establishment is the key. The number of lucerne plants established directly affects the productivity and life of the stand. This course will cover the issues growers need to get right to ensure that they establish the best stand possible.

Once established the stand must be managed well if it is to be productive and survive. Lucerne is sensitive to diseases, insects, weeds, waterlogging,

and poor cutting and grazing management. It is important to know how to look after your investment to ensure your profits. All these topics will be dealt with in the course.

Knowledge of irrigation management is also vital. The course will give hands-on instruction on how to assess your soil type, improve irrigation layout and schedule irrigations for maximum profit.

It also includes sessions on variety selection, haymaking, quality assurance, and a visit to successful local lucerne businesses.

The 2 day course has been developed and will be presented by NSW Agriculture personnel with many years experience in lucerne and irrigation, including Agronomist, Mary-Anne Lattimore and Irrigation Officer, Robert Hoogers. It is limited to 20 people to allow plenty of discussion and exchange of practical grower experience.

B&B Accommodation is available at Murrumbidgee College of Agriculture's very comfortable motel. For more information, contact MCA on 1800 628 422.

**Contact:** Mary-Anne Lattimore, Yanco Agricultural Institute, ph 02 69512695

## 2005 Orange Conference

Organisation of the 2005 Conference is proceeding under Convenor Michael Uttley.

The conference this year returns to the 'city of colours', Orange, on the Central Tablelands. Orange last hosted the Conference in 1988.

In recent years there have been some dramatic changes in land development, especially the rapid expansion of the viticultural industry.

The pre-conference tour will move away from traditional agriculture and agricultural research to offer a unique opportunity to visit Newcrest Mining's Cadia Valley Gold and Copper Mine. Located to the south of Orange, the mine contributes significantly to the wealth of the city and surrounding areas. The mine encompasses "Tunbridge Wells", land that was owned by Graham Brown, a former President of the Grassland Society of NSW. An incentive to arrive early for the first mine tour is a visit to a leading local cool climate vineyard.

Although suffering the effects of drought during the past three years, the regions producers have been more fortunate than most. The continuing influx of capital into the region has also insulated many rural businesses

from the devastation being experienced in many areas as the drought continues

The Grassland Conference tradition of bus tours continues. Three tours have been organised to cover both mainstream grazing and cropping enterprises associated with the tablelands and slopes, and also a look at enterprise diversification. Diversification includes Boer goats, olives and deer farming. Producers who have made their properties available for these tours, despite continuing drought and economic hardship, are to be commended.

A diverse range of speakers have been organised to address the theme of "Grass Roots & All". Session 1, Life under the soil, will have Bruce Clements discussing landscape indicators and what they are trying to tell us. Bruce Gordon, a tablelands grazier will share his experiences and what has influenced some of the management changes that have been implemented in recent years. A highlight of this session is Dr Gupta Vadakattu from CSIRO looking at the diversity and activities of soil biota and micro-organism management for sustainable pasture systems.

Session 2 will concentrate on soil assessment and management with a combination of science, its interpretation and application in the commercial world highlighted on one of the properties visited on the Central Slopes tour.

After Session 3 agronomists and producers will be enlightened as to what endophytes are, where they fit and the role they play in pasture production/survival and animal health and productivity. This session may well rival a Bledisloe Cup clash between the All Blacks and Wallabies when David Hume and Warwick Wheatley take centre stage.

Session 4 looks at Natural Sequence Farming. This session will provoke debate as is Prof David Goldney explains some of the science and principles behind this management system. Natural Sequence Farming had its origins at "Tarwyn Park" in the Lower Hunter.

Session 5 involves concurrent sessions covering a range of topical issues. The concept of strategic use of nitrogen on pastures and thinking of nitrogen as a feed supplement rather

than as a fertilizer will be addressed by Andrew Harborne. A simple and efficient production system for lamb feeding will be covered by Rick White from the Animal Logic Group. Lamb has certainly been the leading enterprise in recent seasons for many producers despite severe drought. Sustainable grazing on saline lands and Productive and profitable winter wheats will be two sessions appealing to many attendees. Annual legume (sub clover) devotees will be able to discuss the timing of forage cuts on feed yield, quality and seed set with Wagga Wagga Research Scientist Brian Dear.

The final session will concentrate on grazing management and the changes ahead. Karl Behrendt and a number of producers will look at different grazing systems and technology to improve pasture production.

The organising committee extend an invitation to all members to gather in Orange 19-21 July to renew friendships and engage in "Grass, Roots and All" debate.

*Michael Uttley*  
*2005 Conference Convenor*



**Hawkesbury Nepean Catchment Management Board**  
**Wollondilly and Upper Nepean Catchment Inspection**  
**TREES AND PASTURES – FINDING A BALANCE**  
**PART 2**

*Peter Simpson*

*former Regional Director of Agriculture, NSW Agriculture, July 2003*

**PLANTATION PINES**

To make economic comparisons between running livestock and growing softwood or other trees requires the investigation of a number of factors that are generally specific to individual farms and farming businesses. Therefore it should be evaluated taking into account the individual physical status of the land that is being considered and finances of the farm.

To provide a guide to the factors that should be considered and a likely outcome, an analysis of the estimated farm return at various land prices and stocking rates (in DSE/ha) was undertaken. For this analysis a self

replacing merino ewe (40% ewes) enterprise was used and the farmer was assumed to be a full time farmer with 600ha of land, 90% equity, making a small profit and paying minimal tax (less than \$6000/year) and considering sowing 20-100 ha of land to pines. Land prices were assumed to be either \$1250 or \$1400/ha which is an appropriate range for land that is considered for forestry. The results (see Table 2 below) show that to return 4% on total assets (ROA), a stocking rate of 11-12 DSE/ha (3-3.5 ewes/acre) would be required depending upon land value (based on 21 micron wool price of 700c/kg clean).

**Table 2**

***Estimated long term return on capital at various stocking rates medium wool sheep enterprise run on land worth \$1250/ha (\$500/ac), \$1400/ha (\$550/ac) with 90% equity.***

Stocking Rate (DSE/ha)	Land Value \$1250/ha	Land Value \$1400/ha
10	1.8%	-0.3%
11	4.5%	2.2%
12	5.7%	4.3%
15	7.6%	6.2%

## **HARDWOOD FROM NATIVE SPECIES**

Unfortunately, the long term crop rotation of most hardwood species (up to 70 years and beyond) and their slow annual growth rates mean they generally are uneconomic to commercially grow for private plantation purposes. Returns from growing hardwood timber for fuel and/or sawmill logs are likely to be less than 3% or even negative when land values are included in the cost analysis, however good quality hardwood is becoming scarcer and more expensive and there is a niche market for high quality furniture timber.

There is some interesting work being undertaken in Southern NSW and Victoria where high density planting with selected fast growing hardwood species on favoured sites which can be harvested for pulp within 10 to 12 years looks like having a return up to 4-8%.

## **WILDLIFE and TREES**

Dr Nick Klomp from Charles Sturt University presented results from some recent studies on wildlife which is summarised below.

Our recent studies in the Ettamogah pine plantations just north of Albury (Ettamogah Forest) have revealed that pine plantations are capable of supporting some wildlife species.

Coupled with strategic plantings of native vegetation and in the vicinity of large water-bodies, as for Ettamogah Forest and surrounds, a pine forest can provide the habitat requirements for a large array of vertebrates. Indeed, our study revealed 144 birds, 17 species of mammals, 11 reptiles and 10 frog species in the area. In a direct comparison of pine plantations with cleared pasture in the same area, up to 50% more bird species were found in pine plantations.

Dr David Lindenmayer from Australian National University studied the impact of pine plantations for more than 5 years on biodiversity near Tumut. Whilst impacts varied according to species, for bird species richness (diversity) the results were as follows:

Pines – 16 species

Native remnants (1-10ha) 20 species

Large scale native forest 23 species.

So the often heard comment that pine plantations have few conservation values ie. are environmental deserts is misleading to say the least.

There are many ways of increasing the biodiversity of wildlife within pine plantations if desired, as described below.

- Establishing or retaining mixed species enrichment planting around all riparian areas the edges and perimeters of the pine plantings results in significant increased biodiversity.
- The use of cheap, simple nest boxes and perches have been shown to increase the abundance of wildlife within pine plantations, particularly birds, which in turn will help control insect pests.

The message to me is to retain and protect remnant timber and add to it with more native and/or exotic species for multi purpose use including selective harvesting.

### **IMPACT OF PERENNIAL VEGETATION ON THE WATER CYCLE**

Water quality but not quantity (run off) is maintained or enhanced where perennial species are dominant (be they native or introduced-pastures or trees).

Fortunately dryland salinity in the upper Warragamba catchment is primarily small in area and localised and will not have a significant impact

on water quality for Warragamba Dam.

Run off water turbidity, nitrogen and phosphorus levels are mainly associated with active soil erosion – predominantly gully erosion. The ongoing Catchment Protection Scheme focuses on stabilising priority areas and is an excellent co-operative program that I strongly support.

Water quantity (run off) is reduced when comparing pastures to trees (both native or introduced tree species) by between 1 to 2 megalitres per hectare per year. I estimate the area of degraded landscape (land class 5 and 6 that include low fertility shallow skeletal acid soils or heavily infested serrated tussock areas) to be relatively small and below 5% (50,000 ha) of the catchment area.

Even so the loss of run off water needs to be balanced against the other positive environmental outcomes when changing from pastures to trees eg. reduced erosion, better shelter biodiversity, and long term agro-forestry income.

End of Part 2





## From the President's desk

As most members will have received a note from me with the membership renewal account, this letter will be short and simply restate some of the matters raised in my recent letter.

Most importantly, don't forget the annual conference coming up in Orange on 19<sup>th</sup> - 21<sup>st</sup> July. It is shaping up as one of the best yet and that's saying something following the great conference at Gunnedah last year. The organizing committee has been working hard to secure top speakers, farm tours, a comfortable venue and good food. We would love to see a record attendance for what should be a most stimulating conference.

Please have a look at the newly upgraded internet site at [www://grasslandnsw.com.au](http://www://grasslandnsw.com.au) and in particular, the members only area. We would welcome any feed back that may improve the site.

The drought is biting hard over much of the state as all involved in agriculture will fully know. If members have any suggestions as to how the Society may be able to help, apart from the obvious one over which

we have no control, please let us know. The usual supplementary feeding meetings have been well attended along with the associated drought management strategy meetings. Your Society has already assisted with a number of these activities and is willing to help in other areas. Any suggestions would be very welcome.

Finally, a prompt response to the subscription renewal would be much appreciated. There is provision on the renewal form to update your records if changes in address or other details have occurred. In addition, credit card and electronic banking facilities are now available for payments. These will also be at the conference registration desk to speed up that sometimes slow process.

Last year, many will remember that the conference organisers were able to bring on rain just before the farm tours. While that would not be a problem this year, an earlier fall would be equally appreciated!

I look forward to meeting many members at Orange in July.

Best wishes,  
***Mick Duncan, President***

## ***THE GRASSLAND SOCIETY OF NSW INC.***

**A unique blend of people with a common interest in developing  
our most important resource – our Grasslands**

The Grassland Society of NSW was formed in March 1985. The Society now has 563 members and associates, 75% of whom are farmers and graziers. The balance are agricultural scientists, farm advisers, consultants, and executives or representatives of organisations concerned with fertilisers, seeds, chemicals and machinery.

The aims of the Society are to advance the investigation of problems affecting grassland husbandry and to encourage the adoption into practice of results of research and practical experience. The Society holds an annual conference, publishes a quarterly newsletter, holds field days, and is establishing regional branches throughout the State.

Membership is open to any person or company interested in grassland management and the aims of the Society.

### **OFFICE BEARERS OF THE GRASSLAND SOCIETY OF NSW - 2004-2005**

#### **STATE EXECUTIVE**

Mick Duncan (President)  
Rob Eccles (Vice President)  
Dianne Smith (Secretary)  
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John Ive, Frank McRae, Lester McCormick,  
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Mick Duncan

### **APPLICATION FORM**

Name: .....

Address: .....

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..... Postcode.....

Subscription for 2005/2006 (July to June)  
is \$50. This entitles you to copies of the  
Newsletters and a copy of Annual  
Conference Proceedings.

For more information, please contact the  
Society's Secretary, Dianne Smith  
(telephone: 02 6362 6150).

Send membership application to:

*The Secretary*  
*Grassland Society of NSW*  
*PO Box 471*  
*Orange NSW 2800*