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NEWSLETTER

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W
e wish all members a Happy New Year. All of us fervently hope that 2009 will be a better year than the past few years .Sadly, the year has seen a dreadful start for our southern and south western colleagues and Southern Grasslands members in Victoria and South Australia with many days having temperature above 40 degrees. Apart from improvement in climate let us hope there will be no further increases in production costs. At least there has been a reduction in fertiliser costs from the 2008 highs.

A topic that seems to be continually mentioned in the media is the mulesing issue. Recently the AWI has after much consideration decided to cease supporting research on the "silver bullet" – injections of some chemicals and some forms of stapling. In my personal opinion the long term solution to mulesing is genetics. Decades ago the late Dr. Fred Morley at Trangie showed that body wrinkle is highly heritable." Breeding them plainer is probably the way to go but this will take some years.

I was surprised to learn that some researchers were seriously contemplating importing the foot and mouth disease virus to carry out research on the virus. Fortunately industry leaders and several very senior researchers are rightly and publicly completely opposed to any suggestions of importing the foot and mouth disease virus.

Pasture Australia (a collaboration between AWI, GRDC, MLA, RIRDC and Dairy Australia) is suggesting a "Proposed Pasture Improvement Strategy" to

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improve the knowledge base of all participating sectors of the pastoral industries and creating a common understanding of the opportunities and benefits that can be generated. The first meeting will be in February in Melbourne. Our society will be represented by Mick Duncan and Lester McCormick at the inaugural workshop. President Mick envisages that there will be a small sub-committee of our Society who will be required to continue to liaise with Pastures Australia.

The British Grassland Society is holding a conference on "Future Scenarios for Grassland Management" on September 7th- 9th at Harper Adams University College, Shropshire, UK. There will be papers across all grassland and forage topics including climate change and grazing systems.

Haydn Lloyd Davies
Editor

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NSW DEPARTMENT OF
PRIMARY INDUSTRIES

Travel grant report - 2008 International Grassland Congress, China

In July 2008, Michael Keys, then Agronomist (special projects) with NSW Dept of Primary Industries at Queanbeyan attended the 21st International Grassland Congress (held jointly with the 8th International Rangeland Congress) at Hohhot, Inner Mongolia Autonomous Region, China. Michael's trip was self-funded and he received a $1000 travel grant from the Grassland Society of NSW to cover his registration and supplement some of the other costs.

Summary

The title of the conference, "Multifunctional Grasslands in a Changing World" focused on the diverse roles grasslands (and rangelands) fulfil, from forage production for livestock, protection of natural resources and bio-diversity to sustaining rural populations. Three conference themes:- Resources & Ecology; Production Systems; People & Policies, examined these roles and the challenges posed by an ever increasing world population (and demand for food), population

concentration, dwindling energy and fertiliser resources and a warmer, more erratic climate.
The conference was held at Hohhot, the capital city of the Inner Mongolia Autonomous Region in a semi-arid zone. More than 1200 delegates from 70 countries attended the 7 day conference at which over 100 oral papers and 1900 poster papers were presented – plenty of scope to obtain useful information.

The day before the conference I was able to participate in a bus trip to visit one of the farms in a joint Australian Centre for International Agricultural Research (ACIAR)/ Chinese government project in Siziwang Banner (similar to a local shire). Below is a brief comment about Hohhot and my impressions of the countryside, followed by an outline of the ACIAR project. A review of selected papers within each of the three conference themes is also being prepared. These will be available on the Grasslands website.

At the conference I presented two poster papers "Effect of Four Fertiliser Regimes on the Persistence of Perennial Native Grasses" and "LANDSCAN™ – graziers using soil tests and natural indicators to make better decisions" and both were viewed by many delegates attending the sessions on Soil-Plant-Animal Inter-relationships and Innovation Systems in Grasslands through Education & Practice respectively and generated useful discussions.

I wish to thank the Grassland Society of NSW for financial support to attend the congress.

Hohhot
As we flew into Hohhot I was struck by the contrasts – the city in a broad flat valley with lots of new building construction and tree plantings everywhere, steep hills with verdant green foliage in places beside brown (bare) terraced slopes and deep erosion gullies and most streams devoid of water. Apparently there had been a lot of rain in the last 2 weeks – and high intensity summer storms were predicted for the next week. Situated five hundred kilometres inland at an altitude of 900m, Hohhot has a cold dry continental climate with annual rainfall about 350 mm, declining to the north (higher elevation desert steppe) and west (sandy desert).

Siziwang Project
This ACIAR project is led by Prof. David Kemp dkemp@csu.edu.au from Charles Sturt University, has a highly collaborative, farming systems approach and aims to both improve the incomes of millions of very poor herders and to

reverse grassland degradation caused by a more sedentary lifestyle and a huge increase in both human and livestock numbers.

The project is located on part of the Mongolian plateau, north of Hohhot, an area of over 88m ha (two thirds of the Inner Mongolia Autonomous Region) of temperate, continental grassland averaging 1200m in altitude, where temperature ranges from maximums of 40□C in summer to minimums of -20□C in winter. Pasture species are a mix of C3 and C4 grasses (including *Agropyron, Bromus, Elymus, Poa, Stipa* we are familiar with and some such as *Leymus* that are unknown in Australia) and leguminous shrubs.

The Inner Mongolia Autonomous Region has a population of 24 million of which nearly 19 million are Han Chinese and 4.3m are ethnic Mongolian, who 50 years ago were principally semi-nomadic herders. Degradation of these extensive grasslands north-west of Beijing over the last 50 years is the major cause of the infamous dust storms affecting non-rural populations in China and neighbouring countries and this helps to ensure the Chinese governments are prepared to invest in rural sustainability – both economic and natural resource (ecological) sustainability.

To provide an indication of the level of grassland degradation that has occurred, older local herders have commented that "forty years ago we had trouble seeing the cattle, now we can easily see the mice." Not only has there been a huge increase in human population in Inner Mongolia but an increased area planted to crops has reduced the available grassland area. To put stocking rates in perspective, they are 3-4 times those on similar pastures in Australia. Adding to this problem is the climate where pasture growth is restricted to 3-4 months in summer so that for most of the year the available pasture (tall C4 species provide the major bulk) is heavily frosted with minimal feed value.

Traditional practice is that adult livestock are herded out from the night-time enclosure every day of the year. These practices mean that during the autumn to spring period, ewes lose 25-30% of their bodyweight while cattle take 4-5 years to reach a weight that Australian cattle achieve in 18mths.
Four separate villages are involved in demonstrating and validating the project recommendations. Two villages are using the traditional practices and two the new practices. The latter are:

1. Reducing herd size by 50%
2. Grazing pastures only in summer – shedding both ewes and lambs (dropped in March) during autumn, winter and spring

3. Introducing Dorper meat sheep genetics to improve lamb weight gains and product quality – this is being done using embryo transplants into the native Mongolian, fat tail sheep.

These new practices will have significant environmental benefits, halving both grazing pressure and methane gas production, reducing wind & water erosion and siltation of rivers and dams. They should also increase the quantity and quality of saleable product/ha and thus improve farm income.

The project farm we visited (one of the two implementing the new practices) was run by the village leader (an excellent choice of co-operator!), was 1000ha in size and ewe numbers had been reduced from 1000 to 600. Half the ewes had been inseminated with Dorper embryos and these ewes were kept in the sheds over winter and fed a low quality hay plus a grain supplement. Unfortunately, due to the amount required and cost of the hand feeding, the other ewes were still being herded out every day of the year to graze the tall, frosted C4 grasses in winter – and to lose weight!

While the farmer had not implemented all of the recommended practices, he did tell us that in spite of drastically reducing his stock numbers, he had made a lot more money using the new practices and would continue to use them. However, there are still some on-going problems. All of the Dorper cross lambs were sent to the abattoir (to make more money) so there was no breed improvement occurring. Traditionally, wealth is measured by the number of stock a person has, not production per animal and communal use of grazing lands in most cases means that the better pasture achieved due to reducing stock numbers and/or resting pastures is often then used by others.

If these problems can be overcome it appears likely that these new farming system demonstrations have great potential to help reduce the degradation of these grasslands and improve the livelihoods of the local herders. Extensive computer modelling developed in this project by NSW DPI Economist, Randall Jones randall.jones@dpi.nsw.gov.au is also being adapted for Australian conditions and should help us achieve more sustainable economic and environmental outcomes.

21st International Grasslands & 8th International Rangelands Congress: Multifunctional Grasslands in a Changing World

Several introductory papers set the scene for the conference. Points made included the following:

- Environmental changes affecting grasslands over the last 100 years have been rapid and exponential – world population growth, global food production & demand, water consumption, soil degradation, species extinction rates, atmospheric CO_2 levels & combustion of fossil fuels.
- Public demands on grasslands in the 21st century are concerned with food supply, food safety, soil protection, provision of clean water, animal welfare, biodiversity conservation, landscape quality & recreational opportunities.
- Various stakeholders include farmers/graziers, agribusiness, scientists, environmentalists & consumers and their demands are often different and sometimes contradictory. However there are many similarities and the challenge is to find them and work co-operatively.

One of the main points made in a number of papers was that despite these public demands, policy makers and many governments do not appear to see any link between graziers and achieving these demands/goals. Thus, especially in the developed countries, government support and funding for research and long-term monitoring of grassland & rangeland condition has all but dried up. Turning this around appears desirable but a tall order.

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The LAND
Your Rural Press

Alternative fertiliser options

Lisa Warn, The Mackinnon Project, The University of Melbourne, Werribee, Vic

Reprinted with permission from the Mackinnon Project Newsletter, May 2008. For more information, contact Lisa Warn on 03 9731 2375 or l.warn@unimelb.edu.au. The Mackinnon Project produces a monthly newsletter which is available by subscription; for more information, contact Pam Leslie on 03 9731 2225.

Part 1

Key points

- High fertiliser prices have increased interest in manures and alternative products.
- Organic materials like manures contain a range of nutrients and can also improve soil condition.
- Carefully evaluate and compare alternative products on a $/kg nutrient basis.

With significant increases in fertiliser prices over recent months, producers have been looking at cutting back on fertiliser inputs and/or considering using alternative products including animal manures.

In the short-term, while there are problems with the manufacturing capacity and supply of fertilisers globally, it makes sense to substitute your usual fertiliser product(s) with a cheaper one if you can find one. Modern agriculture has moved away from using long-established fertilisers such as manures due to problems with their cost and availability and the scale of farming operations. However, with current fertiliser prices, the cost of using poultry manure, for example, is now very cost competitive. The problem of accessing such product still, however, remains.

The question everyone is asking is: "*what will fertiliser prices do in the in the longer term?*" You would have to assume that the ever-increasing demand for a finite mineral resource will keep the pressure on prices. Hence producers will continue to look for cost-effective alternatives.

There are many alternative fertiliser products or soil amendments on the market; some are not good value on a $/kg nutrient basis, some provide a bit of everything including nutrients you probably don't need, and some are snake-oil. In this article I will outline how to select an appropriate fertiliser product for your soil, ensure you get value for money, and address some of the nutrient issues pertinent to the soil-plant-animal system.

Soil and plant analyses

The first step in making sensible fertiliser decisions is to have objective information about what your soil really does need. Soil test reports will tell you which of the major nutrients (phosphorus (P), potassium (K) and sulphur (S) are deficient, and also whether lime (for acidic soil and aluminium problems) and/or gypsum (for sodicity and soil dispersion problems) are needed. Nitrogen (N) can also be measured in soil tests but the results have to be carefully interpreted as the soil's N status is very dynamic and varies over the year.

A soil test will also give you information about the cation exchange capacity (CEC) of the soil, which I discuss in more detail later in this article.

A leaf analysis should be done (in spring) to ascertain if trace elements such as molybdenum, copper, zinc, iron and/or boron are deficient and limiting plant growth. Soil testing for molybdenum, zinc and iron are not accurate options.

Alternative fertiliser products

When investigating alternatives to conventional inorganic fertilisers, you need the following information on the product to decide if it will be appropriate and economic.

1. Their levels of macronutrients (N, P, K and S, and perhaps calcium (Ca) and magnesium (Mg)) and of the micronutrients (often referred to as trace elements) molybdenum (Mo), copper (Cu), boron (B) and zinc (Zn). The key question is: "*will the product supply the nutrients you need?*"
2. Cost per unit of nutrient? "*Will the product supply the nutrients at the lowest price?*" This cost needs to include the cost of transporting and spreading the product. For animal manures and composted materials, particularly if they have to be transported long distances, this can make the product more expensive than granular fertilisers. Manures contain water so the cost ($/kg nutrient) has to be adjusted to a dry matter basis. For liquid fertilisers, you must also include the cost of spraying the product onto the pasture; using contract rates for boom-spray is recommended.
3. For other products which claim to reduce the need for conventional fertiliser (e.g. stimulate soil biological activity) or improve the soil holistically, "*is there scientific evidence to support the claims?*"

If the answer to the above three questions is NO, don't buy the product.

If you are still curious about a product that lacks independent research evidence about how it works and what the yield benefits might be on your pastures, you could conduct your own small-scale trial (paddock test strips) to evaluate it's response. Mackinnon Project consultants can give you advice on how to set up such a trial.

In Table 1, I have compared a range of products on a cost per nutrient basis. To calculate the prices in $/kg of nutrient spread, I used the following formula:

Cost $/tonne product (ex-works plus delivery and spreading costs) <u>divided</u> by the nutrient concentration <u>divided</u> by 10. For example, for a product that costs $400/t and contains 8.8 % P, the price per kg of phosphorus is calculated as follows: = ($400/8.8)/10 = $4.50/kg P

Table 1. Nutrient contents and prices (on a dry matter basis, including spreading) for a range of fertiliser products.

Product	Price[A] $/t DM	N $/kg	P $/kg	K $/kg	S $/kg
Single superphosphate	*$250[B]*	-	*$2.84[B]*	-	*$2.27[B]*
(8.8%P, 11%S)	**$400**	**-**	**$4.55**	**-**	**$3.64**
Double superphosphate	*$400[B]*	-	*$2.38[B]*	-	*$10.00[B]*
(16.8% P, 4% S)	**$760**	**-**	**$4.52**	**-**	**$19.00**
Reactive phosphorus rock (RPR)					
(12.5 %P, 1.7%S)	**$480**	**-**	**$3.84**	**-**	**$28.24**
DAP	*$700[B]*	*$3.89[B]*	*$3.50[B]*	-	*$43.75[B]*
(18%N,20%P, 1.6% S)	**$1200**	**$6.67**	**$6.00**	**-**	**$75.00**
Super-Potash 4:1					
(7% P, 10%K, 8.8%S)	**$480**	**-**	**$6.86**	**$4.80**	**$5.45**
Muriate of potash					
(50% K)	**$705**	**-**	**-**	**$1.41**	**-**
Guano - bat/bird droppings					
(0.1%N, 13%P, 0.1%K, 0.34%S)	**$650**	**$6.50**	**$5.00**	**$6.50**	**$191.18**
Poultry litter -broiler[0]					
(2.6%N, 1.5%P, 1.5%K, 0.6%S; 15% H_2O)	**$70**	**$2.69**	**$4.67**	**$4.67**	**$11.67**
Poultry manure - caged layer[C]					
(5% N, 3% P, 3% K; 30% H_2O)	**$90**	**$1.80**	**$3.00**	**$3.00**	**-**

[A] **Autumn 2008 prices**.

[B] *Autunm 2007 prices.*

[C] The composition of animal manures is highly variable, as are cartage and spreading costs.

If your soil test report highlights that your soil only needs P, then with the current prices (and assumptions for cartage and spreading), the cheapest source of P from the examples in Table 1 is poultry manure from layer sheds, followed by reactive phosphate rock (RPR), double super, and then single super. However, the pre-price hike prices show that double super ($400/t) and single super ($250/t) were then clearly the cheapest sources of P.

Reactive phosphate rocks

RPR's can be an alternative to superphosphate when applied to acidic soils in high rainfall areas. They are naturally-occurring, slow-release forms of P fertiliser, and the P in RPR's does not become available to plants until the RPR

dissolves in the soil to release water-soluble forms of phosphate that plant roots can take up. RPR's receive no chemical treatment, and are most effective in acidic soil (pH_{CaCl} less than 5.2) in areas that receive more than 700 mm average annual rainfall because the RPR's dissolve readily and perform similarly to superphosphate. RPR's contain very little sulphur and currently there is no RPR available.

Manures and composts

Manures and composts contain a wide range of nutrients. Some nutrients are in organic forms and only become as they are broken down by soil microbes into soluble form that plants can use. The nutrients are released over time, reducing the risk of nutrient leaching, particularly on sandy soils. Most of the K and N in poultry manure are available to plants soon after spreading.

Although manures contain a range of nutrients, your soil may not need all of them; continual heavy applications of manures can build nutrients up to excessive levels which increases the risk of their loss from the root zone into the environment.

These materials also contain organic matter and organic carbon. For manures, the organic matter will be higher if it contains animal bedding. Increasing soil carbon levels improves the structure of soils by better binding together the soil particles into stable aggregates. This improves the soil's water holding capacity as well as water infiltration and root growth. Building soil organic matter levels also builds the organic pools of nutrients stored in the soil.

Even if you are using manufactured inorganic fertilisers, you can still build up soil organic matter levels. Practices that increase pasture/crop growth and root biomass, and that maintain ground cover and litter, will build organic matter levels and increase soil microbial activity.

If more carbon is stored in the soil, it will reduce the amount released to the atmosphere. This process of storing carbon is called carbon sequestration, something which is becoming of increasing importance with global warming and climate change.

To be continued ……

(Part 2 to be in the next Newsletter (No. 2, 2009))

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Dealing with high fertiliser prices

Bob Freebairn (Agricultural Consultant, (0428 752 149); robert.freebairn@bigpond.com)

While fertiliser prices have recently dropped significantly, many landholders remain hesitant about using fertiliser on pastures because of cost.

Typical reactions to such prices are to drop fertiliser programs. But the reality is that well run properties where soil nutrient deficiencies are addressed, even in a modified manner will be profitable with large benefits over many years occurring from the correction of deficiencies like sulphur and phosphorus.

In contrast properties that do not correct soil deficiencies mostly have far less feed, far poorer quality and commonly overgrazed pastures with poorer groundcover and poorer quality soil.

The challenge facing landholders is not do we apply fertiliser or not, but how do we address soil deficiency issues in the most cost effective manner. In other words how to minimise costs in such difficult times but not to compromise the pastures.
Fortunately a lot of NSW DPI pasture fertiliser research conducted since the 1980s in areas such as the central west, north west and upper Hunter focused on how to correct soil deficiencies at minimal fertiliser rates. Several long running trials strongly showed that it was generally better to use lower and less frequent rates of appropriate fertiliser than not to use any at all.

For example normally Pasture SF (or equivalent fertilisers) has generally been shown to require application at around 100 kg/ha every four years where soils are sulphur deficient but only marginally phosphorus deficient in a moderate rainfall environment. If this strategy has been followed for several cycles the frequency of application can be further stretched out.

If Pasture SF or equivalent was to be spread every five or even six years rather than every four years our research (my DPI days) showed there would continue to be a response, even though gradually receding. Some trials showed responses continued for 10 years but again at gradually receding levels.

In soils highly deficient in both phosphorus and sulphur products like single superphosphate have been advocated at around 120 kg/ha per annum. However

our research showed that while responses receded, applying single only every four years retained some responsiveness even in the fourth non-fertilised year.

There are many cases where long histories of topdressing have led to a considerable build up of nutrients once highly deficient. A good policy is to carefully soil test via accredited laboratories (combined with interpretation by those that understand the results for given areas) and commonly fertiliser savings are found to be feasible.

Soil test interpretation depends on aspects such as district (eg rainfall and temperature) and soil type, as well as pasture type, paddock history and financial circumstances (example other investment options as well as financial limitations). Aiming for maximum production is commonly not as important as achieving a good response at a minimal cost.

There is the appeal to seek cheaper products. Our research showed (and more recent research confirms) that to correct a deficiency nothing substitutes for products that actually corrected these with appropriate rates of missing elements. Some products contain a given element (eg phosphorus) but not in a readily available form for that soil and environment. Some products, like manure from feedlots, can be a good substitute if added at equivalent required available nutrient rates (generally applicable to farms relatively nearby).

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How do changes in fertiliser price influence optimal fertiliser application rates?

Karel Mokany, CSIRO Plant Industry

Research Summary

Although phosphorus fertilisers are recognised for their positive effects on pasture production, recent increases in fertiliser price have generated considerable debate as to whether applying phosphorus fertilisers remains financially beneficial.

We used the decision support tool *GrassGro* to assess how changes in fertiliser price affect optimum levels of maintenance fertiliser application for sheep grazing systems. GrassGro was used to model 3 enterprise types (Merino wethers, self-replacing Merino ewes, cross-bred ewes) at two locations (Bookham NSW and Hamilton VIC). Data from fertiliser trials at both Bookham and Hamilton were used to validate the simulations in GrassGro.

Superphosphate prices examined were historic ($250/t), 2008 ($540/t), and two higher levels ($750/t & $1000/t).

Optimum fertiliser application rates did not change markedly as fertiliser price increased, even up to very high fertiliser costs. For example, at Bookham the highest gross margins were consistently achieved at a fertiliser rate of 90 kg superphosphate/ha/yr, even up to a fertiliser price of $1000/t (Figure 1). The consistency of optimal fertiliser application rate, regardless of fertiliser price, was found for all three enterprise types examined at both Bookham and Hamilton.

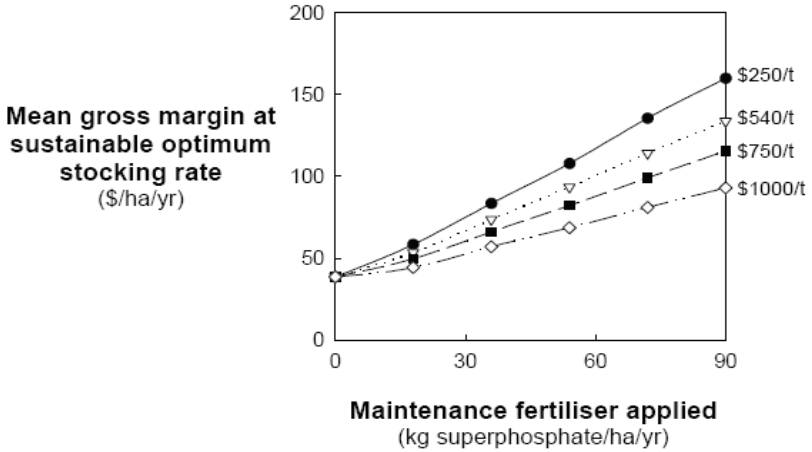

Figure 1. Mean gross margins at the sustainable optimum stocking rate at different levels of maintenance fertiliser, for Merino ewes at Bookham. Lines shown are for different fertiliser prices. Note that the mean gross margins presented incorporate fixed operating costs of $115/ha/yr.

In our analysis, financially optimum stocking rates were determined by applying a simple cash flow analysis to the annual gross margin data for each year simulated in GrassGro (1966-2007). In addition, we determined the maximum sustainable stocking rate by applying a sustainability criterion, to limit stocking rates below levels that are likely to cause serious erosion events (i.e. total pasture mass must be more than 800 kg/ha for 8/10 years). Finally, we used our cash flow analysis to determine the probability of making a financial loss over the long term at each combination of fertiliser rate and stocking rate.

Increases in fertiliser price decreased the combination of fertiliser application rates and stocking rates that were financially viable in the long term (Figure 2). None of the enterprise types assessed at Bookham or Hamilton were financially viable without some fertiliser input. In addition, conservative stocking rates became less financially viable as fertiliser price increased, because greater income was required to cover the higher input costs. Applying fertiliser at the rate which maximised gross margins (Figure 1) also provided the greatest range of stocking rates which were both financially viable and environmentally sustainable (Figure 2).

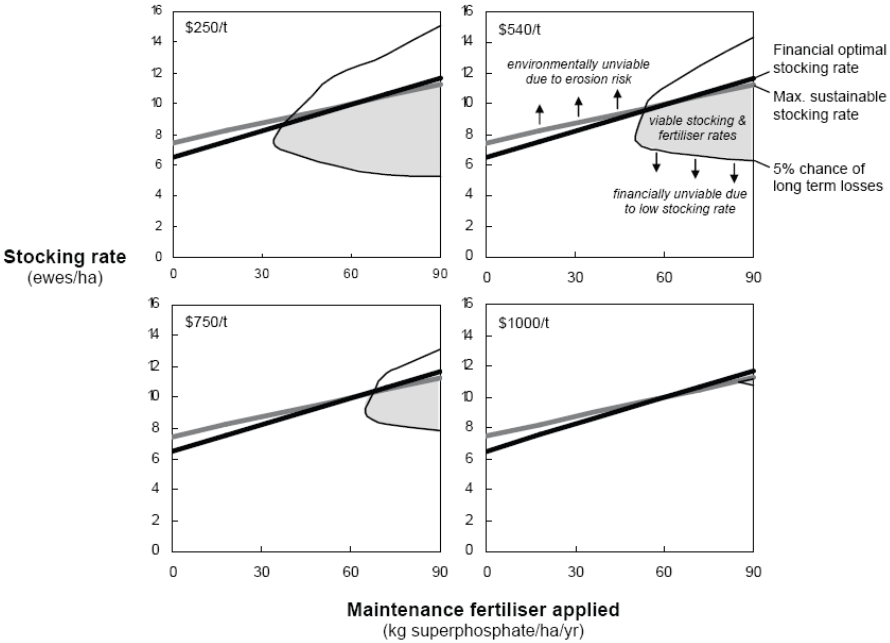

Figure 2. The financially optimum stocking rate (thick black line), the maximum sustainable stocking rate (thick grey line), and the stocking rate below which there is more than 5% chance of long term financial losses (thin black line) as maintenance fertiliser application rate increases, for Merino ewes at Bookham. Each panel shows a different fertiliser price. For example, at $540/t, stocking rates below the 5% chance of loss line (thin black line) are financially unviable in the long term (understocked). Stocking rates above the maximum sustainable stocking rate (thick grey line) are environmentally unviable in the long term, due to erosion risk and/or pasture degradation from over-stocking. The grey area represents the combinations of stocking rate and fertiliser application rate which are both financially viable and environmentally sustainable.

Summary
The results from our GrassGro simulations suggest that despite recent increases in fertiliser price, there are still significant benefits gained over the long term by applying fertiliser.

The maintenance fertiliser application rate which resulted in maximum profitability was relatively consistent, regardless of fertiliser price. This was the case for all three enterprise types examined at both Bookham and Hamilton.

Applying fertiliser at the rate which maximised gross margins also provided the greatest range of financially viable stocking rates. It was often possible for an enterprise to remain viable at lower levels of fertiliser application, however, the stocking rates needed to achieve this would have to be selected with some precision and the resulting financial returns are reduced.

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The way to success is ground cover

Jeff Lowien, District agronomist, NSW DPI, Glen Innes
Bob McGufficke, District Agronomist, NSW DPI, Inverell

There is an old saying that the way to a man's heart is through his stomach. Well how true is this reflected in the environment – the way to the soil's heart (and most would say that the heart of agricultural production is the soil) is through its "stomach" and this is achieved by having and maintaining good ground cover.

Many farmers and graziers only pay lip service to this aspect of their overall farm management – in essence ground cover is a vital spoke in the wheel of overall farm productivity, profitability and sustainability

There are many benefits of ground cover. One that interests most farmers is that it can increase rainfall effectiveness – in other words increasing the availability of what rain falls for the plants to develop and grow. Having adequate ground

cover reduces evaporation from bare ground as well as the fact that runoff and soil erosion are greatly reduced.

There is adequate research out there (D Lang & G Lodge pers. com) that has shown that having greater than 70% ground cover and at least 3 handfuls of litter per square foot (30 x 30 cm square) it is possible to gain up to an extra 300mm of effective rainfall in a typical 700mm/year rainfall area. That is an increase of more than 40% of average rainfall for pasture production. With the experts talking global warming and less rainfall then here is a way for you to partially reverse the trend.

Another aspect that some people are unaware of is that good ground cover can keep soil temperatures more stable and at more conductive levels. Adequate levels of litter will reduce temperatures in the top 5cm of soil by up to 20°C compared with bare soil. This can be very important in maintaining good microbial activity in the topsoil.

In relation to microbial activity, most of the soil micro- organisms are generally found in the top 5cm of the soil where their activity depends on litter as a food source, but they must also have suitable temperatures and moisture conditions to operate effectively

It is important that we keep as many micro and macro organisms (fungus, bacteria, worms etc) in our soils as possible. They play a significant role in improving soil fertility by breaking down dung, decaying pasture and litter which is recycling nitrogen, phosphorus, potassium and trace elements to the soil. They also play a vital role in improving soil structure and water infiltration.

The way to achieve adequate ground cover and litter is through grazing management (some form of tactical grazing), maintaining adequate soil fertility through your fertiliser program and having the appropriate pasture composition.

More detailed information is available in the “Ground Truths Uncovered – ground cover fact sheets and monitoring pads” package that is available for free from the Border Rivers-Gwydir Catchment Management Authority (02 6721 9810) or NSW DPI offices at Glen Innes (02 6730 1900) & Inverell (02 6722 1388)

From the President's desk

At the time of writing this short note, the Victorian bush fires are still a significant threat to large tracts of land in north east Victoria. The appalling loss of life has shocked the nation and highlighted once again how dependant we all are, on the various forces of nature, whether engaged in agricultural pursuits or not.

The effect of livestock losses, both introduced and native, and the many thousands of hectares of degraded land will be felt for some years to come. I am sure that the T.V. and newspaper coverage of distressed people, native and farm animals, forests and torched country have saddened us all. Over much of NSW, at present, we are thankful for our relative safety from flood and fire.

Our Society will soon be communicating with the Grassland Society of Southern Australia to express our condolences and sympathy to those members, their relatives and friends who have been affected. All letters of support will be welcome, and already there are offers of agistment to assist livestock producers with zero paddock feed.

The conference this year will take place at Taree, from the 4th. to the 6th. August. Ray Johnston, the convener, and his large team of helpers have been working hard to develop a great program of speakers and farm tours. This year, topics will include productive pastures, feed utilization, soil carbon developments and green house gas emissions.

This will be a good mix of solid technology and futuristic thinking. More details on the conference will soon appear on the Society internet site, with a more comprehensive program outline in our next newsletter.

Best wishes for a good autumn break to all.

Mick Duncan

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 approx. 500 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 – 2008-2009

STATE EXECUTIVE

Mick Duncan (President)
Lester McCormick (Vice President)
Janelle Witschi (Secretary)
Frank McRae (Treasurer)
David Harbison (Sponsorship)
Committee: Rob Eccles, Linda Ayres, John Ive
John Coughlan, Hugh Dove, Philip Stacy, Carol Harris, Haydn Lloyd Davies, Richard Bloomfield, Keith Garlick, Nigel Phillips, Col Langford, Jeffrey House

BRANCH REPRESENTATIVES

North Western Slopes
Loretta Serafin
Central
John Coughlan
Southern Tablelands
Mike Keys
South Western Slopes & Riverina
Vacant
Western Slopes & Plains
Vacant
Northern Tablelands
Mick Duncan

APPLICATION FORM

Name: ……

Address: ……..
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…… Postcode……..
Telephone:..…….

Subscription for 12 months (July to June) is $50. This entitles you to copies of the Newsletters and a copy of the Annual Conference Proceedings.

For more information, please contact the Society's Secretary, Janelle Witschi (telephone: 02 6369 0011).

Send membership application to:
The Secretary
Grassland Society of NSW
PO Box 471
Orange NSW 2800