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NEWSLETTER

VOLUME 24: NUMBER 4, 2009

Well this is my first newsletter as Editor since Haydn Lloyd Davies's retirement at the AGM earlier this year. I think that you will all agree I have big shoes to fill as Haydn has done such a wonderful job bringing us an informative newsletter four times a year for the last 8 years – thank you Haydn for all your hard work as Editor. As I am new to the job I hope that you will all bear with me as I learn the ropes.

For those members that I haven't crossed paths with as yet, my name is Carol Harris and I am a research agronomist with Industry & Investment NSW (formally NSW DPI) based at Glen Innes. My main areas of research are with pasture improvement (tall fescue, tropical grasses, white clover and lotus) as well as pasture management. I have been a member of the Grassland Society of NSW since 1993 and have been actively involved with local branch activities, conferences and more recently a member of the state committee.

So why does someone take on the Editor's job? – I am sure over the next few months I may be wondering that myself! Jokes aside I firmly believe that the newsletter (along with the web site) is the society's most important means of communicating new advances, technologies and philosophies on grassland science to you the members. I encourage you all to contribute to the newsletter, either through an article or a letter to the editor. I would also welcome your feedback on topics you wish to see covered or improvements we can make to the newsletter so it continues to be of relevance to the members. I hope that you enjoy this issue.

Carol Harris
Editor

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LETTERS TO THE EDITOR

What Cost Environmental Water?

I have just read a paper by Dr Bill Slattery titled "Land Sector Accounting and the National Accounting System" published in the 24th Annual NSW Grassland Conference 2009.

It mentions forestry, livestock and crops accounting for about 27% of human induced greenhouse emissions. What's not mentioned are the emissions from naturally occurring wetlands (unless this is in the 27%) and what will be the impact and total cost of increasing environmental flows e.g. Macquarie Marshes. The last figure I saw (some years ago) was that naturally occurring wetlands accounted for about 12% of total emissions (not much less than the GROSS Agricultural figure of 14 to 16%).

Could some rural journalist or farmer organisation check this out as it appears that the Department of Climate Change is not interested in quantifying environmental emissions?

Yours faithfully
Peter Simpson for Broxburn Partnership

Clarification to Phosphorus article in Volume 24, N°3, 2009

With reference to an article I wrote titled 'Cycling of phosphorous in grazing systems' appearing in the last Grassland Society of NSW Inc Newsletter Volume 24, Number 3, 2009, I wish to clarify information presented in Table 1. I have had a query regarding the numbers presented for phosphorous removed by various livestock enterprises. Table 1 details the phosphorous removed by various livestock enterprises per year at a stocking rate of 10 dse/ha. I wish to clarify that these figures for phosphorous removal rates only relate to phosphorous associated with livestock product removal ie. meat and wool.

Please refer to Table 2 - An example on an annual phosphorous budget, to obtain a guide for the total amount of phosphorous removed (ie. all animal and soil loss factors) per hectare per year by the grazing system.

Kind regards,
Fiona Leech
District Agronomist, Industry & Investment NSW, Yass.

Good results for hay and silage awards

Neil Griffiths, District Agronomist, Tocal

The first annual NSW Hay and Silage Feed Quality awards were presented at the NSW Grassland Society annual conference held in Taree in August.

The awards which were sponsored by Integrated Packaging, New Holland and Pioneer covered all types of hay and silage. Fifty two samples were considered with entries coming from the Manning, Hunter, Riverina, Central West and North Coast. It was very pleasing to see some farmers took the opportunity to have a discounted feed analysis from the NSW Feed Quality Service to check on their feed quality for the first time. Hopefully this will be the start of future monitoring and improvement in the quality of hay and silage being made and used.

Awards were presented to

- Brian Berry and Kelly Garland "Wirralee Partnership" Dungog for an oat and vetch hay which took the winter crop award with an M.E. of 9.4 and crude protein of 14.1%.
- The top quality lucerne was awarded to a spring silage produced by Johnston brothers from Taree with an M.E. of 10.4 and protein 26.8%.

- The Bake family of Crossmaglen near Coffs Harbour were represented by Darren Cheers in taking the maize silage award with an excellent 10.9 M.E. and crude protein of 7.0%.
- The Williams family from 'Creebank', Vacy north of Maitland produced the highest testing winter pasture hay or silage with a ryegrass silage testing 10.8 M.E. and 24.6% crude protein.

In a very close contest with the maize silage, this ryegrass silage was given the major award presented by Integrated Packaging due to its higher protein and higher overall potential animal production as a stand alone feed.

There were no awards presented for summer pasture or other summer crop or other crop (canola) presumably due to flooding and difficult conditions in the main growing areas.

With very positive feedback from the NSW Grassland Society and the sponsors it is planned to run the awards again in 2010. So now is a good time to identify good paddocks and get ready to submit a sample when the competition opens again next autumn. The 2010 presentation will be at the Grassland conference to be held in Dubbo.

Mineral nutrition of sheep and cattle grazing dual-purpose wheats

Hugh Dove[1], Walter Kelman[1] and Guy McMullen[2]
[1]CSIRO Plant Industry, Canberra, ACT
[2]NSW Department of Primary Industries, Tamworth, NSW
Email: hugh.dove@csiro.au

General background

Southern Australia has a long history of grazing cereal crops in winter, to help fill the 'winter feed gap'. Over the last decade there has been increasing use of winter (or at least long-season) wheats as a dual-purpose resource (grazing plus grain production), following the development of suitable cultivars. Such grazing can result in substantial liveweight gains. For example, CSIRO work near Canberra recorded gains of 320-360 g/day in crossbred lambs grazing winter wheats, and weight gains of 1.0-1.2 kg/day have been recorded in young cattle. However, a disappointing feature of winter wheat grazing trials is the variability in livestock weight gains. This was reported for American wheat grazing trials with cattle and in southern Australia, similar variability in liveweight gain (140-360 g/day) has been noted in young sheep grazing seemingly similar crops. Since 2003 Australian farmers, through grants from the Grains Research and Development Corporation and the National Grain and Graze Initiative have supported research investigating possible causes of this variability.

What causes variability in liveweight gain when grazing dual-purpose wheats?

Both animal genotype and grazing pressure can affect the liveweight gain of young stock grazing winter cereals, but are not in themselves sufficient to explain the variability observed with winter wheats (Dove 2006). Leaving these two factors aside, the response of grazing animals to crops such as dual-purpose wheats might be affected by their preference for the chosen cultivar relative to other wheat cultivars, other cereals or to pasture, by how much forage they actually consume or by the nutritive value of the cereal forage.

Studies conducted as part of the Murrumbidgee Regional Project in the National Grain and Graze Initiative (Dove and McMullen 2009) have shown that differences in preference by sheep for the forage of different wheat cultivars are small and cannot explain the observed variability in liveweight gain. Similarly, daily intakes of wheat forage are certainly adequate for rapid liveweight gains. Liveweight gain is also not constrained by the DM digestibilities (80-90+%) or crude protein contents (20-30%) of winter cereals (Kelman and Dove 2007; Dove and McMullen 2009).

Consequently, recent work has shifted focus to whether wheat herbage is deficient in specific nutrients, for example, minerals. Of particular interest was magnesium (Mg), since research and farmer experience in the USA supported

the case for possible subclinical Mg deficiency (i.e., no symptoms other than reduced growth) in livestock grazing winter wheat. In southern Australia, there are also several lines of evidence supporting the case that such deficiencies could occur.

- South-eastern Australia has a history of transient Mg deficiency in wheat, occurring as a result of reduced Mg absorption by the plant when the roots are in the acid topsoil, in which the low pH reduces Mg absorption (Coventry *et al.* 1987). Wheat forage grazed during this period may well be Mg-deficient for livestock. Once the wheat roots are in the subsoil, its usually higher pH results in increased Mg absorption and the deficiency resolves itself.
- Problems with Mg nutrition in grazing livestock in southern Australia are usually associated with winter grazing of all-grass or grass-dominant pastures of high protein and K content, relatively low soluble-carbohydrate content, but low Mg content. This closely describes a winter-wheat pasture! High protein and K contents reduce Mg absorption from the rumen. The lower levels of soluble sugars result in a lower rate of short-chain fatty acid production in the rumen which, indirectly, can reduce Mg absorption.

Investigation of the possible impact of mineral nutrition on liveweight gain commenced with a survey of the content of major minerals in the forage of Australian cereals during winter (Dove 2007).

The survey included wheat (spring and winter), oats, barley and triticale and included samples from a range of sites across southern Australia; results for 4 major minerals of interest are shown in Table 1, from which several conclusions can be drawn.

- The forage of all crops contained sufficient Ca to meet the daily requirement of young growing sheep.
- Oats, barley and, with one exception, triticale had Mg contents which met daily requirements. The Mg content of wheat forage was at worst borderline or just above daily requirements.
- All cereal forage, and particularly the wheat, had K contents which were 5-10 times daily requirements for K.
- Oats and barley had more than enough Na to meet daily requirements, but triticale occasionally was deficient in Na relative to animal requirements. However, wheat forage was almost always notably deficient in Na relative to animal requirements.

Table 1. Magnesium (Mg), calcium (Ca), potassium (K) and sodium (Na) content of cereal forages grown in southern Australia in 2005/06, and comparison with daily requirements for growing sheep (CSIRO 2007). Values shown in italics are either at or below requirement level (Mg, Na) or greatly exceed it (K).

	Mg	Ca	K	Na
Daily requirement (%DM)	0.12	0.15-0.26	0.50	0.07-0.09
Crop forage				
Tasmania (2005)				
Oats (Bass)	0.24	0.36	*2.30*	0.49
Triticale (Crackerjack)	0.27	0.58	*2.90*	*0.04*
Wheat (mean of 6 varieties)	0.16	0.31	*3.37*	*0.03*
Tasmania (2006)				
Oats (Bass)	0.14	0.42	*3.70*	0.29
Barley (Yambla, Yerong)	0.15	0.67	*3.34*	0.29
Triticale (Breakwell)	*0.11*	0.39	*3.49*	*0.04*
Wheat (mean of 10 varieties)	*0.12*	0.54	*3.32*	*0.06*
SE NSW 2005				
Wheat (Wedgetail)	0.13	0.30	*3.21*	*0.05*
ACT 2006)				
Wheat (Mackellar)	*0.12*	0.28	*2.96*	*0.009*
SE Victoria 2006				
Oats (Targa,Bass,Lordship)	0.21	0.27	*2.44*	1.06
Triticale(Crackerjack,Jackie)	0.20	0.28	*2.51*	0.37
Wheat (mean of 10 varieties)	0.26	0.29	*2.73*	*0.08*
WA wheat belt 2006				
Spring wheat (mean 5 var.)	0.19	0.40	*4.53*	*0.04*
Winter wheat (Wylah)	0.20	0.41	*4.84*	*0.05*

The very high K and very low Na contents in the wheat forage in Table 1 result in K:Na ratios in that forage of 100-300. This compares with an implied required ratio of 5-7, which is similar to the ratios of 2-12 for oat forage and about 11-12 for barley forage. Subsequent to this survey, wheat samples with extreme K:Na ratios of 1500-2000 have been reported (see Dove and McMullen 2009). The very high K and very low Na content of wheat forage are normal and can be attributed to a gene which allows wheat to tolerate saline conditions by excluding Na from and accumulating K in its forage. Unfortunately, the very high K:Na ratios in wheat forage will greatly reduce Mg absorption from the gut (see CSIRO 2007; Dove and McMullen 2009). Responses to Mg supplements, with or without Na supplements, were therefore studied in a series of experiments with sheep grazing dual-purpose wheat (either cv. Wedgetail or cv. Mackellar) during the 2005-2007 seasons (Table 2). In all seven of the studies shown in Table 2, marked liveweight gain responses were observed and these were also

economically worthwhile; the extra daily liveweight gain was valued at 15-20 cents/sheep and the supplement cost was less than 1 cent/sheep per day.

Table 2. Increases in liveweight gain in young sheep grazing dual-purpose wheat in south-east NSW/ACT, in response to receiving supplements of Mg (as Causmag, grade AL4) and/or Na (as granular salt). Values shown are percentage increases relative to unsupplemented sheep grazing the same crops at the same stocking rate.

	Year		
Supplement	2005	2006	2007
Mg (Causmag)	-	24, 25%	-
Na (salt)	-	25, 37%	18%
Mg+Na	54%	-	31%

Since wheat forage has such low Na content, it is possible that the responses to Na are direct responses to the provision of Na. However, it is known that the absorption of Mg from the gut of animals is markedly reduced if there is a high K:Na ratio in rumen contents, arising from a high K:Na ratio in forage. It is therefore also possible that the effect of the Na supplement, at least in part, is to lower this ratio and thus improve the absorption of Mg. In support of this, none of the wheat forages in the above trials was markedly deficient in Mg, yet marked responses to Mg supplementation were observed. Similar responses to these mineral supplements have since been observed in young cattle grazing dual-purpose wheat forage.

Supplement the animals, or fertilise the crop?

In all of the studies shown in Table 2, growing lambs grazing dual-purpose wheat were directly supplemented with either Mg (in the form of MgO), Na (in the form of NaCl) or a combination of both. Direct supplementation of animals in feed troughs is cheap, but still involves a labour cost in feeding out the supplement once or twice a week. In GRDC-funded work near Canberra we have also investigated whether the indirect 'supplementation' of animals with Mg, either by fertilizing the crop with magnesium sulphate ($MgSO_4$) or by 'dusting' it with CausMag (MgO) could be a cost-effective, labour-saving way of supplying Mg. If effective, this approach could also overcome the issue of low supplement intakes sometimes found with Mg supplementation based on MgO, especially with young cattle.

In 2006, Mackellar wheat was top-dressed with 40 kg/ha Mg as magnesium sulphate, 19 days before young sheep began to graze the crop. The effect on forage Mg content (% DM) compared with unfertilized wheat is shown in Figure 1.

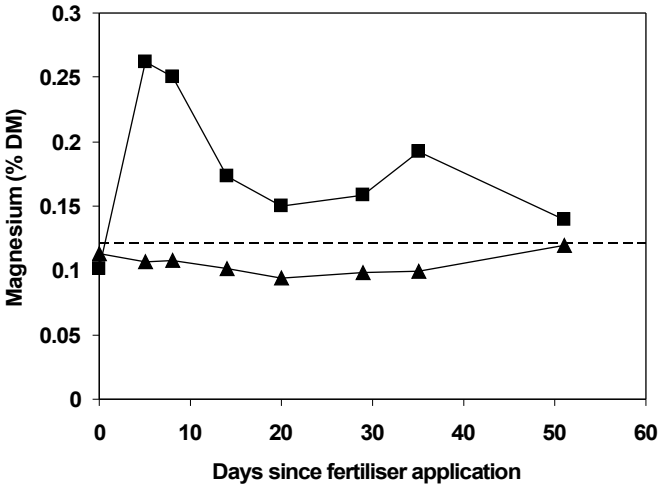

Figure 1. Effect of top-dressing with magnesium sulphate fertilizer on the forage Mg content ■, % DM) of Mackellar wheat, compared with the forage Mg content of unfertilized wheat (▲). Grazing by young sheep occurred between days 19 and 51. The dotted line indicates the forage Mg requirement of young sheep (CSIRO 2007).

There was a marked effect of Mg fertilizer on forage Mg, which peaked at day 7, almost 2 weeks before grazing commenced. Nevertheless, the single application of fertiliser resulted in an average forage Mg content during the grazing period which was >50% above animal requirements. In sheep grazing at 18 hoggets/ha, this resulted in an increase in liveweight gain of 25%.

In a similar study in 2008, Mackellar wheat was either top-dressed with magnesium sulphate (70 kg Mg/ha) 7 days before grazing commenced, or dusted with Causmag at the same rate of Mg, 1 day before grazing commenced. Responses in forage Mg 'content' are shown in Figure 2.

Prior to grazing, the wheat forage had a very high K content (2.9% DM), a very low Na content (0.015% DM) and thus a mean K:Na ratio of 315. This compared with oat forage in an adjacent plot, which had a K:Na ratio of 3-10. Mean initial Mg content was 0.16% DM (Fig. 2), which is slightly above the requirement of growing sheep (0.12% DM). The application of $MgSO_4$ (7d before grazing) or MgO (1d before grazing) dramatically increased forage Mg 'content' to 0.27 and 0.51% DM, respectively (Fig. 2). By 7d into grazing, the Mg 'content' of MgO-dusted forage fell to a level similar to $MgSO_4$-fertilised wheat; thereafter, both treatments contained 0.17-0.24% Mg, well above requirement level.

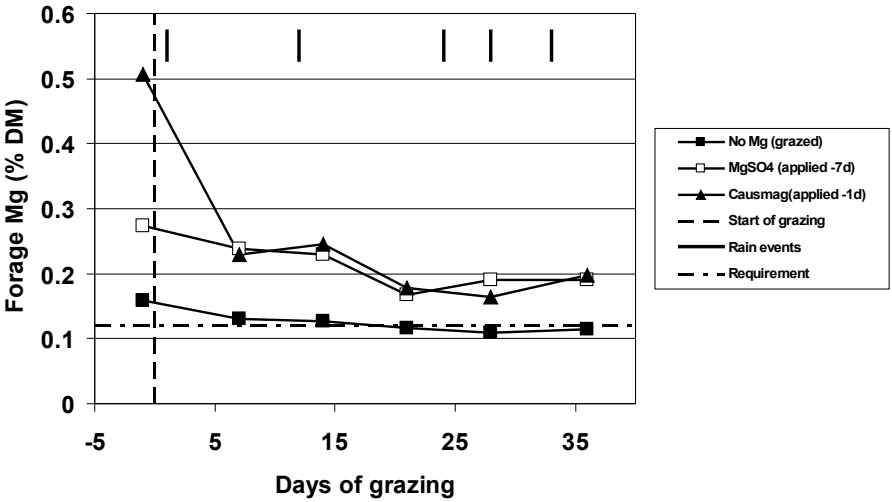

Figure 2. Effect of $MgSO_4$ fertiliser application (□) or MgO dusting (▲) on Mg content of Mackellar wheat forage, compared with wheat forage to which Mg was not applied (■). Grazing (Merino hoggets; 35/ha) commenced on day 0 and rainfall events during the grazing period are depicted by the short vertical bars.

Over the first 14d of grazing, hoggets grazing untreated wheat grew at only 141 g/d; those grazing on $MgSO_4$-fertilised wheat grew 49% faster and those on Causmag-dusted wheat 18% faster. Both increases were statistically significant ($P<0.05$), as was the difference between the two Mg treatments. However, as grazing progressed, treatment differences in weight gains progressively declined. Over the entire 37d period, lambs grazing $MgSO_4$-fertilised wheat grew only 6% faster than those grazing untreated wheat; those grazing MgO-dusted wheat grew no faster than the control animals.

These responses are clearly much less than those observed with direct supplementation (Table 2). They were also much more expensive to obtain. For example, $MgSO_4$ fertiliser is sold as the heptahydrate ($MgSO_4.7H_2O$) and thus contains <10% Mg by weight. To achieve an application rate of 70 kg Mg/ha required an application of 720 kg fertilizer/ha, @ A$0.82/kg. Provision of Mg by fertilising the wheat thus cost about 50-60 cents/sheep grazing day, compared with 1-2 cents/sheep grazing day for direct supplementation.

Conclusions

To ensure rapid rates of liveweight gain in young stock grazing dual-purpose wheats, it is necessary to supplement with Mg/Na. A cheap and convenient way to do this is to offer animals a supplement consisting of 1:1 salt:CausMag. For

young sheep, this should be offered at a rate which permits a supplement intake of 20 g/day per sheep, and about 6-8 times this amount for young cattle. Occasional problems have been encountered with young cattle finding this supplement unpalatable and this can be addressed by incorporating some cracked grain into the supplement. As well as making the supplement more palatable, this mixture is also likely to somewhat reduce rumen pH, which itself will increase Mg absorption from the gut. The mineral profiles of oats and barley forage suggest that there is no need to supplement animals grazing these cereals. In a grazing trial still in progress, preliminary results indicate no response to CausMag:salt supplements in hoggets grazing oats or barley.

Acknowledgement
We thank the Grains Research and Development Corporation and the National Grain and Graze Initiative for their financial support, Vince van der Rijt, Rod Fisher, David Leah and Mark Smith for technical support, and CSIRO Plant Industry, Ken Jacobs and John Pattison for the provision of land and animals.

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New Members

The Society welcomed the following new members at the Management Committee meetings of July and September 2009:

Cathy Waters (Trangie); Mark Trotter (Armidale); Andrew Farr (Denman); Stephon & Alison Germon (Coopernook); Charles Pearson (Spit Junction); Jane Scott (Coneac); Craig Lamond (Billimari); Tony Preen (Rollonds Plains); Harrison Pastoral Co Limited (Dubbo); Rod & Penny Kater (Allynbrook); Ken Archer (Eleebana); R Bartholomew (Hornsby); T Davies (Thuddungra); Dan Whiteley (Cudal); Renae Hill (Maitland); Gavin Holmes (Redhead); Tanya Ritchie (Sydney South); John Crossman (via Cundletown); Peter Halpin (Randwick); Michael Evans (Cambewarra); Nigel Johnston (Christchurch); Josh Polley (Burrell Creek); Ryley Mitchell (Dungog); Keith Watkins (Dungog); Peter Neal (Oxley Island); Greg Rogers (via Gloucester); Norm Crittenden (Upper Lansdowne); David Marks (Elands); Peter and Jann Jacobs (via Coopernook); Lawrie Dickson (Dyers Crossing); Bruce Robertson (Burrell Creek); Col Cowan (Hannan Vale); Ken Atkins (Johns River); Craig Emerton (Jones Island); Tim Brown (Old Bar); F G Handebo (Comboyne); Grahame Meir and Susan Bell (HRMC); Allan Croker (Nabiac); Bob Doyle (Vacy); Kellie Garland and Brian Berry (Dungog); Darrell Woods (Cundletown); Planttech (Altona); Charlie Miller (Wallarobba); John Lean (Thora); Nicholas Wright (Dorrigo); and John & Sandra Sippe (Merewether)

Speakers at the 2009 conference

Boosting live weights on winter forages

Rebecca van Es, Agronomist / Livestock Nutritionist,
Landmark Townsend, Scone, NSW

The grazing of dual-purpose winter cereals is a practice that is becoming more common as farmers strive to fill the winter feed gap. Many factors contribute to high production from winter cereal crops, understanding animal requirements and matching / balancing plant nutrient's goes a long way to increasing animal live weight gains.

In 2007 I conducted a trial looking at "The effect of supplementation on the live weight gain of steers grazing winter cereal crops". The project focused on magnesium (Mg) and salt (Na) supplementation in cattle grazing Breakwell Triticale and Cooba Oats. The objective was to determine if Mg or Mg plus Na can substantially increase the live weight gain of cattle grazing dual-purpose winter cereals.

Winter cereal crops such as oats, wheat, barley and triticale are often slightly different in mineral composition, but generally do have one thing in common, high potassium concentrations.

Table 1. Mineral comparison of winter cereal crops to that of the daily requirements of the animal in percentage of dry matter (%DM)

	Magnesium	**Calcium**	**Sodium**	**Potassium**
Daily Requirements (%DM)	0.10	0.27	0.07	0.65
Breakwell Triticale	0.18	0.36	0.04	4.25
Cooba Oats	0.22	0.29	0.84	4.43

* Daily requirements recommended by the NRC (2000) for beef cattle.

Potassium (K) at high levels has a tendency to bind with Magnesium and prevents Mg from being absorbed in the rumen. In many cases soil and plant magnesium levels may be adequate; however animals may still exhibit Mg deficiencies (Grass Tetany), solely due to high plant K levels.

The trial contained four treatment groups which consisted of a control, receiving no supplementation, treatment group 1, which received a combination of Causmag and hay, treatment group 2, which received salt and hay, treatment group 3, containing Causmag, salt and hay.

During the initial grazing period live weight decreased due to scouring and gastrointestinal upset, followed by compensatory gains (see figure 5) in the third week.

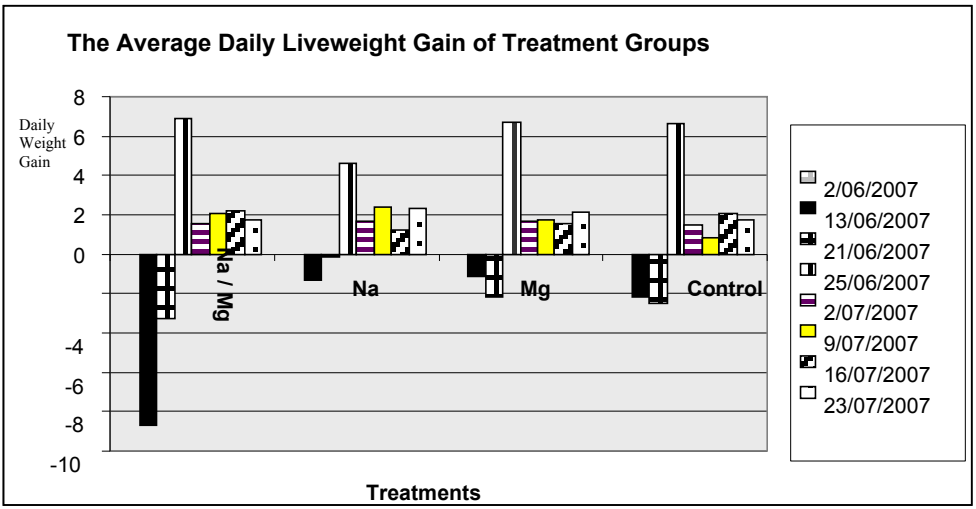


Figure 1. Average daily live-weight gains of treatment groups

As the crop matured, the fibre content increased, preventing scouring and allowing weight gains between 1.5 and 1.9kg per head per day. The results from the last four weeks of the trial showed that daily live weight gains can be substantially increased when supplementing steers with Mg and Na while grazing winter cereal crops.

In conclusion the extra weight gain that can be achieved over the total grazing period on winter cereal crops through relatively cheap supplementation is proving to be extremely economically beneficial for farmers. Furthermore the following recommendations may assist in maximising profits when fattening and finishing stock grazing winter cereal crops

1. **Introductory** period, allow animal adjustment to green feed.
2. Put animals **on full** (gut) to minimise gorging.
3. Provide **roughage** in the form of straw or long hay (not Lucerne).
4. Provide **hi-magnesium & salt** supplementation.

It is also important to take precautions to prevent animal health issues such as pulpy kidney through the use of 5in1 vaccination.

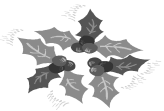
Table 2: The effect of supplementation on steer live-weight gain in the last four weeks of the trial

Treatment	Av. Daily Gain (over last 4 weeks)
Control *(No Supplement)*	1.545
Treatment 1 *(Causmag)*	1.769
Treatment 2 *(Salt)*	1.902
Treatment 3 *(Causmag + Salt)*	1.875

For further information contact Rebecca van Es at Landmark Townsend - Scone

The Grassland Society gratefully acknowledges the following major sponsor for 2009/2010

Greater Taree CITY COUNCIL



The Management Committee of the Grassland Society of NSW wishes all members and their families a happy Christmas and best wishes for good seasons in 2010.

The Grassland Society gratefully acknowledges the following corporate sponsor for 2009/2010

Native Pasture Systems: Forage Value in the Manilla-Bundarra Region

Lachlan Rowling[1] and Clare Edwards[2]
[1] Advisory Officer, NSW DPI Tamworth
[2] Agronomist, NSW DPI Armidale

Many pastures of the North West Slopes are based on native and naturalised perennial grasses. These pastures can be quite complex in their diversity and structure, often consisting of grasses, herbs, lilies, forbs, rushes and legumes. Some of these components are important from a production perspective, while others have attributes that contribute to landscape functions, conservation and biodiversity values. A majority of native pastures are based on warm season perennials such as redgrass *(Bothriochloa spp.)*, wiregrass *(Aristida ramosa)*,

parramatta or slender rat's tail grass *(Sporobolus creber/elongatus)* and paddock lovegrass *(Eragrostis leptostachya)*. These species grow during the warmer months and tend to 'frost-off' or 'die back' over winter. For this reason native pastures dominated by summer active species may offer limited winter forage value.

At a recent Evergraze Supporting Site field day, results for several pasture quality samples were presented to aid group discussion. Forage values of common species in the Bundarra – Manilla area were also sampled during November 2008. These results are a quality 'snapshot' of the species at that time. They would vary if taken at different times through the season as plants change their stage of growth and as management (e.g. fertiliser) and environmental influences (such as rainfall and temperature) vary. Pasture quality 'snapshots' are presented below:

The Bundarra (B) site is an undulating grassy white box woodland, with little legume component (<5%) and low fertility. The soil is a duplex medium to coarse granite. Good seasonal conditions had led to higher than usual naturalised legume growth.

The Manilla (M) site is a steeply undulating native grass paddock with no fertiliser history and with limited legume component (<5%). The soil is a shallow, leached topsoil of sedimentary origin. Favourable seasonal conditions had lead to higher than usual ground cover and relatively productive pasture growth.

The grass results are mostly within the ranges previously reported by authors including: Lodge, Whalley, Archer, and Robinson. The exception was wallaby grass, which in this case was collected from a low-fertility rocky outcrop. Types growing in low fertility soils often have lower crude protein values than those on good soils. Of interest is the Hairy panic sample which was high in both crude protein and digestibility. Hairy Panic samples were collected from the Manilla site and consisted almost entirely of leaf and some stem material. Considering this paddock has relatively shallow, infertile soils this may indicate the impressive forage value that Hairy panic offers through the warm growing season. Particularly, considering the species has a niche in dry and relatively infertile sloping paddocks in the region.

As expected, wiregrass was very low in both crude protein and metabolisable energy. For some of the species (such as Barbed wiregrass), there is little published information on quality and value in this environment, so this initial data is important for developing an understanding of the role of this species.

Table 1. Forage values of common pasture species in the Bundarra (B) – Manilla (M) area Nov/2008

	Dry Matter %	Crude Protein %	Digestibility DMD %	Metabolisable Energy (ME)	Stage of growth
Wallaby grass (M)	45.4	6.2	54	7.5	Early reproductive
Hairy panic (M)	34.3	9.2	60	8.4	Mid vegetative
Silky browntop (M)	39.7	5.8	54	7.3	Mid vegetative (later than redgrass)
Redgrass (M)	43.6	6.9	55	7.4	Mid vegetative
Qld bluegrass (M)	40	6	57	7.7	Mid-vegetative, to Flowering; seedheads in sample
Barbed wiregrass (B)	40	6	57	7.7	Early – mid vegetative
Wiregrass (M)	63.5	2.3	<39	4.9	Late vegetative
Native Wheat grass (B)	33.4	7.5	50	7.1	Flowering; seedhead in sample
Rough speargrass (B)	48.2	12.9	59	8.0	Early reproductive
Ball clover (B)	30.1	14.4	66	9.6	Flowering
Yellow suckling clover (B)	31.1	12.8	64	9.3	Flowering
Haresfoot clover (B)	34	15.2	62	8.9	Flowering

Many producers have expressed interest in the value of native and naturalised legumes in this environment. In some years, like spring 2008, these species make a valuable contribution to the pastures in the Bundarra area, especially when sub clover fails. These results reveal that the legumes (despite flowering) were all higher in crude protein when compared to the grasses, and therefore offer a valuable contribution to livestock production. In addition, these legumes can also fix small amounts of nitrogen - adding value to the native pasture system.

While these results are for plant feed value, animal intake and consequently production also depends on a variety of factors including pasture quantity, selective grazing and animal preference. Also it is important to note that although some of these species have good feed quality values, they may only be a very low proportion of the total species in a pasture.

Native and naturalised pasture species underpin many production systems in the Bundarra and North-West Slopes regions of NSW. Therefore, further investigations into their value - for both production and conservation - and

differing fertility, seasonal conditions and management inputs would be extremely useful. These species will be examined as part of the EverGraze project in the near future. A recent publication on *'Native Pastures of the Bundarra District'* is already available to help producers identify common species in their area.

EverGraze is a collaboration between NSW DPI, Catchment Management Authorities (including Lachlan, Namoi and Border Rivers Gwydir), the Future Farm Industries CRC, Meat and Livestock Australia and Australian Wool Results from: NSW DPI, Feed Quality Service, Wagga Wagga Agricultural Institute. Innovation. For further information visit EverGraze online: www.evergraze.com.au

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The Grassland Society gratefully acknowledges the following corporate sponsors for 2009/2010

Faces from the conference dinner

2010 GRASSLAND SOCIETY OF NSW CONFERENCE

"Our Future Farming Environment"
Dubbo RSL - July 28- 29

The 2010 conference committee is hard at work organising an interesting program & some high profile speakers.

The annual conference is a great way to meet up with others in the pastoral industries, learn about and discuss new research and developments, participate in field trips and view a great range of trade displays.

If you haven't attended a Grassland Society of NSW Conference before, why not make it a date for 2010.

Check out the web site for more details www.grasslandnsw.com.au

Australian Society of Animal Production

2010 Conference – 11-15 July

University of New England Armidale

"Livestock production in a changing environment"

More details at www.asap.asn.au/asap28/

9th World Sheep and Wool Congress

The 9th World Sheep and Wool Congress will take place in Sydney in April 2010 at the Rosehill Garden Event Centre. The Congress will take place over 4 days with sessions covering topics such as; global food security, sheep meat as a peak food in the global food chain, genetics and genomic technology advancements, the push for natural, ethical and sustainable production, supply chain integrity, global markets and emerging opportunities, and climate change and emissions trading.

The congress sessions will also include trade exhibitions showcasing innovative products and the latest developments in wool, sheep meat, and fashion & textile design.

The program also features a number of interesting sounding social activities such as the Australian Wool Fashion Awards and pre and post conference tour options.

The World Sheep and Wool Congress has been timed to coincide with Sydney's Royal Easter Show. Merino sheep judging will be held on the last day of the Congress allowing delegates to attend the sheep judging and other events at the show.

The Congress will run from Wednesday April 6 to Friday April 9 2010

For updated information on this interesting Congress check out the website **www.worldsheepandwoolcongress.com** or contact the Event Organisers – Quadrant Australia

 02 6772 9066

 sheepandwool@quadrantaustralia.com

Conference Tour – Flood Plains Tour

From the President's desk

Seasonal conditions across NSW vary greatly, with good winter crop prospects in northern NSW, patchy further south, and pasture conditions also varying according to location. Irrespective whether you are a climate change sceptic or not, there is no doubt that variable climate has significantly changed attitudes to plant and animal production in recent years, if not longer. A study of climatic data for the past century makes for interesting reading and suggests that pastoralists way back were concerned with changes in both rainfall pattern and yearly totals. We will attempt to print an article on this subject in a coming newsletter.

Our editor for this newsletter over the past eight years, Professor Haydn Lloyd Davies, has finally and reluctantly decided to retire from this position, but not, I'm pleased to report, from either the Society or his state committee membership. Haydn, one of the few life members of the Society, has contributed enormously to its functioning by serving in many capacities, including that of President from 1997 -1999. On behalf of all our members I thank Haydn for his long service to the Society and his editorship of this highly regarded newsletter, with much assistance from Helen.

Carol Harris, from Glen Innes has kindly offered to take on this very important task. I thank her for this and ask all members to consider letters to her as editor, on topical subjects. I also welcome Cathy Waters to our committee and look forward to her valued contributions.

Our internet site that provides members with linkages to a broad range of seed, fertilizer, chemical companies and weather stations, to name a few, is in the process of review. I am grateful to Cathy Waters from Industry and Investment at Trangie and Carol Harris, Glen Innes for agreeing to review our site in an attempt to make it even more useful. One suggestion is to have the abstract of conference papers available for people who do not wish to wade through all the papers in full. I know that Cathy and Carol would welcome any suggestions that may improve our internet site.

Best wishes to all members.

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.

APPLICATION FORM

Name: ……

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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

Email: secretary@grasslandnsw.com.au