



# Grassland Society of NSW Inc

## Newsletter

Welcome to the first Grassland Society of NSW newsletter for 2015. The year started well for most, with average or above average rainfall in many areas of the state over January and early February. However, there are still many areas of the state, particularly in the north-west that have not fared so well. Hopefully autumn will bring good pasture conditions for all.

In February the NSW Government announced their 2015 Drought Strategy, a brief outline of this strategy and details on how you can get more information can be found on page 9.

Despite the dry conditions last year many people were able to establish successful pastures by following some tried and

tested principles. An article by Mick Duncan on page 2 walks us through the steps you can take to ensure good establishment in both dry and favourable conditions.

Still on pasture establishment, Trudie Atkinson's article on page 5 outlines some interesting research in the north-west studying the role stubble can plan in tropical grass establishment in a marginal year.

Committee members have been busy planning and preparing for a number of Grassland Society of NSW events in 2015 including the 2015 Annual Grassland Society of NSW conference. The conference will be held at Goulburn from July 15 to 16 - make sure to mark the date in your diary.

The popular Pasture Updates will be back in 2015 with a number to be held around the state over the coming months. These updates provide local and regional forums to hear the latest research and technology on sustainable pasture management.

Keep an eye on the Grassland Society of NSW website ([www.grasslandnsw.com.au](http://www.grasslandnsw.com.au)) for dates and registration details of both the conference and the Pasture Updates.

As always I am keen to hear from you - please send any articles, letters or ideas for articles or activities to me at [carol.harris@dpi.nsw.gov.au](mailto:carol.harris@dpi.nsw.gov.au)

Carol Harris  
Editor 



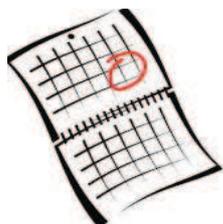
THE GRASSLAND SOCIETY OF NSW INC.

## Annual Conference

**Goulburn Soldiers Club**

15-16 July 2015

**SAVE  
the  
DATE**



More more information contact:

Janelle Witschi  
[secretary@grasslandnsw.com.au](mailto:secretary@grasslandnsw.com.au)

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# Pasture establishment - guidelines for success

Mick Duncan, Agronomist, Armidale

For many northern NSW livestock producers 2014 has been described by those with long memories as one of, if not the hardest year on record. Although some total rainfall registrations for 2014 were not far short of the long term average, the distribution was the real problem. This was especially so on the tablelands and near-by slopes.

Despite the tough year, pasture establishment for a number of producers was very successful, after a nervous winter and spring when minimal or nil rainfall was recorded. Fortunately, registrations of 150–300 mm in December were widespread in the north, dramatically alleviating very poor plant growing conditions.

So, what were the factors that contributed to these good pasture establishments in the face of the long dry spell over winter and spring, remembering that autumn too was very dry?

These factors are proven guidelines for pasture establishment well described in the "Prime Pastures Program" publication, compiled by the late Mike Keys.

The key factors required to achieve a satisfactory result, which lead to last year's success, can be summarised as follows.

- Select the paddock for pasture sowing early enough to undertake thorough weed control over a period of two years using forage crops of oats or annual ryegrass with strategic weed control using an appropriate herbicide. The initial herbicide application would normally take place in October/ November to prevent annual grasses. In so many tableland and slopes locations, Vulpia (also known as rats tail or silver grass) is the main menace and must be prevented from seeding for at least two consecutive springs before sowing. This would usually be expected to exhaust the soil seed bank to a very low level. Other annual and perennial grasses if present may also need attention. Broadleaf weeds, such as thistles, sorrel, cudweed, dandelions, wireweed, fleabane and others are also important, but generally less serious threats to young pasture seedlings.

If Vulpia is not adequately controlled, its seedlings will compete strongly for space, nutrients and moisture against weaker pasture seedlings. Capable of producing enormous quantities of seed, (a dense population is capable of producing 500 000 seeds/m<sup>2</sup>) Vulpia should not be ignored. Fortunately, its seed bank is short lived, little remains after 2 years, so this is its weak link and provides the target to reduce the threat to pasture seedlings.

Vulpia problems are particularly relevant in dry winters, when weed seedlings will compete strongly for limited soil moisture at the expense of the sown species. Very wet winters, while producing other problems, are less troublesome as there is usually enough moisture for introduced species as well as weeds. In these conditions, Vulpia will still compete for space and nutrients, underlining its potential to reduce pasture establishment and the need for control well before sowing new pasture.

- Insects are a potential problem to newly sown pasture seedlings. This may require an insecticide to be included with the spring weed spray, several months before sowing. Correctly timed, this will reduce earth mite potential, as Blue Oat and Redlegged mites are well known for their capacity to significantly damage pasture seedlings. This should not necessarily be an automatic action, as over use of insecticide will knock out beneficial insects as well as contribute to insecticide resistance.
- Graze the paddock (to be sown) over summer and autumn to restrict bulky top growth. A strategic herbicide application will usually be needed, depending on rain and weed germinations. Excess material will create problems at or soon after sowing. In particular, too much litter can, and regularly does, set up conditions that may result in seedling blight ("damping off") as well as allelopathy, a condition where chemicals produced by plant litter also kill seedlings. Well grazed paddocks will promote fewer, but more substantial weed germinations following autumn

rain, while too much litter at the surface often leads to successive weed germinations over an extended period of time.

- Despite the temptation to sow in late summer if good moisture is available, in most instances, delaying sowing until after autumn rain provides a further opportunity to control weeds, and is a better course of action. Sowing temperate species too early, in January and February, depending on location, can be risky if high temperatures are experienced directly after sowing. In this case, sub-tropical conditions are imposed on temperate species, sometimes leading to seedling death. In recent years, because of dry autumns, many pastures were not sown until June or July. By November, however, good results were commonly achieved.
- Depth of sowing is important. Aim to place seed to a depth of around 5 mm or 25 mm in self-mulching soils. Sowing with Baker boots or similar implements is a very common practice. Using these boots, sowing to 25 mm in most soils into an open furrow will produce good results. If harrows need to be used, reduce the sowing depth to 5–10 mm.
- Seed treatments are very common, with more coated than bare seed used. There is room to debate the need to treat all seed on every occasion, however, a registered fungicide is recommended where "damping off" is likely to occur. Other seed treatments may or may not be needed, including an insecticide, according to local conditions. Inoculation (specific to the legume being sown) and lime pelleting legume seed is of course a must, even where there has been a good history of legume growth.
- An appropriate fertiliser at sowing is a must. Compound fertilisers (N, P K types) are the most suitable to supply a small amount of N and P. Even in relatively high P soils, a small quantity of plant available P is important for early root development.

- Keep an eye on tiny seedlings for earth mites. They are bad news for newly emerged seedlings and will require spraying if present in damaging numbers. Avoid "insurance" sprays which are an unnecessary expense as well as a factor in the development of insecticide resistant populations.
- Newly sown pastures can be safely grazed once the secondary root system has developed and plants resist pulling out of the ground. There is no definite requirement for grasses to set seed in the establishment year. In most cases, given adequate moisture, grasses will benefit from a lenient grazing and produce new tillers. Allowing a pasture to seed from time to time, in spring is

a good practice for thickening up an established pasture, but this is a topic for another article.

- Monitor pasture during the seedling stage for weeds. If the guidelines for weed control prior to sowing were followed this should not be a serious problem. Despite careful attention to weed control before sowing, broadleafed weed such as wireweed, cudweed, fleabane and sorrel may appear and often look ugly. Selective post emergent herbicides to remove or suppress weeds are available. However, provided pasture seedlings are visible and in sufficient numbers, within 12–18 months, the perennial

pasture plants have usually taken over from the annual broadleafed weeds. In these circumstances, spraying would probably have been more for cosmetic than production reasons.



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## Pasture Updates

MLA pasture updates run in collaboration with the Grassland Society of NSW are an opportunity for livestock producers to hear from researchers, agronomists and other local producers on regional pasture topics, the latest research outcomes and management practices that can be implemented on-farm.

Each pasture update is developed with regional groups and covers topics relevant to the local region.

Planning for 2015 Grassland Society of NSW Pasture Update events is underway including events at;

- Nimmitabel (April)
- Berry (May)
- Glen Innes (May)
- Trangie (July-August)
- Orange



 [www.grasslandnsw.com.au](http://www.grasslandnsw.com.au)

## 2015 - The International Year of Soils

The 2015 International Year of Soils (IYS 2015) broadly aims to increase awareness and understanding of the importance of soil for food security and essential ecosystem functions.

IYS 2015 will be implemented by the Food and Agriculture Organization of the United Nations (FAO), within the broader framework of the Global Soil Partnership, as well as in cooperation with Member States and the Secretariat of the United Nations Convention to Combat Desertification.

Specific objectives of IYS 2015 are to:

- Raise awareness among civil society and key decision makers of the importance of soil for human life;
- Educate the public about the crucial role soil plays in food security, climate change adaptation and mitigation, essential ecosystem services, poverty alleviation and sustainable development;
- Support effective policies and actions for the sustainable management and protection of soil resources;
- Promote investment in sustainable soil management activities to develop and maintain healthy soils for different land users and population groups; and
- Advocate for rapid capacity enhancement for soil information collection and monitoring at all levels (global, regional and national).



2015  
International  
Year of Soils

 [www.soilsforlife.org.au/international-year-of-soils-2015](http://www.soilsforlife.org.au/international-year-of-soils-2015) or  
[www.fao.org/soils-2015/en/](http://www.fao.org/soils-2015/en/)

# Does stubble help tropical grass establishment in marginal years?

Trudie Atkinson, Development Officer, NSW Department of Primary Industries Trangie.

For tropical grasses to germinate and establish they are best sown into paddocks with good subsoil moisture followed by one to two rainfall events of 20–25 mm. They are sown in spring and summer when evaporation rates are high and rainfall tends to be unpredictable, highly variable and commonly falls in high intensity storms. In these conditions, the soil surface can wet then dry again within 1–2 days unless follow up rainfall is received.

Anecdotally, cereal stubble can increase the effectiveness of small and infrequent falls of rain for tropical species germination and establishment in marginal years, although this has not been properly quantified. Cover improves soil moisture capture, the length of time the soil surface stays moist and therefore may improve microclimate conditions for germination. Research on the North-West Slopes has started to determine the effect of stubble in marginal years.

A study on the emergence of Premier digit grass in oat stubble started in November 2014. Emergence was tested in stubble of different weights (heavy and light that simulated an ungrazed and grazed stubble) and incorporation levels (tilled or untilled). These were compared to Premier digit grass emergence from a bare soil surface, both tilled and untilled.

Eurabbie oats growing on a brown Chromosol soil was sprayed out in early September 2014. The heavy (ungrazed) stubble was 3900 kg DM/ha with stems about 45 cm long, mostly lying on the ground providing 95% ground cover. The light (grazed) stubble was 1300 kg DM/ha and 73% ground cover, after mowing the oat stubble to 7 cm and removing the cut material from the plot. In the bare plots, the stubble was removed to ground level reducing ground cover to less than 10%. A rotary hoe was used to simulate cultivation, in the tilled plots.

In mid November, coated seed of Premier digit grass was sown at 2 kg/ha (adjusted for germination) using a single disc seeder with press wheels. From sowing to early January, the site received 211 mm rainfall over 11 events (total 17 rain days). This allowed emergence of the digit pasture. Seedling counts, conducted in early

Table 1. Premier digit grass seedling counts in the different stubble amounts and incorporation levels.

Treatment	Average number of seedlings/ m <sup>2</sup>
Light (grazed) stubble	27.8 <sup>a</sup>
Bare soil	26.0 <sup>a</sup>
Heavy (ungrazed) stubble + tilled	18.1 <sup>ab</sup>
Bare soil + tilled	14.9 <sup>b</sup>
Heavy (ungrazed) stubble	12.9 <sup>b</sup>
Average	19.9

Means with different superscripts are significantly different at P=0.05



Stubble cover treatments in November 2014 after sowing.



Emerging Premier digit grass in January 2015 following 211 mm rainfall.

January (Table 1), reflect the emergence in the different stubble amounts and incorporation levels.

Seedling emergence was highest in the light (grazed) stubble (28 seedlings/m<sup>2</sup>) and the untilled bare (26 seedlings/m<sup>2</sup>) plots, the difference between the two was not significant. The heavy (ungrazed) stubble had the lowest seedling

emergence (12.9 seedlings/m<sup>2</sup>). This result might have been different, if the heavy (ungrazed) stubble had been upright rather than mostly lying on the ground.

The untilled bare soil had higher seedling establishment than the tilled bare soil. Tilling the ungrazed stubble provided no significant benefit to seedling establishment compared with no tilling (18 compared to 13 seedlings/m<sup>2</sup>). Emergence of weeds was not significantly different in any of the plots.

Sowing Premier digit grass into a light (grazed) cereal stubble (1300 kg DM/ha) improved seedling establishment compared with heavy stubble (ungrazed) (3900 kg DM/ha) lying on the soil surface, however, there was no added benefit compared to a bare fallow. Also of note is that this summer (2014–15) was not marginal for tropical pasture establishment; rainfall during December and January provided good conditions, despite the dry start to the season. This study will be repeated over a number of years and summer rainfall sequences, to better understand the role of stubble and the optimum amount for tropical grass establishment.

Acknowledgements: Peter Sanson for assisting with sowing and Sean Murphy for soil water information.

**For more information contact:**

**Mark Brennan**  
NSW Department of Primary Industries  
Tamworth  
0437 770 472

# The influence of grazing intensity on soil organic carbon, ground cover and biodiversity.

Cathy Waters, Senior Research Scientist, NSW Department of Primary Industries, Trangie

Over the past two years research has been undertaken in western NSW to determine the role of grazing management in influencing soil organic carbon, ground cover and biodiversity in the semi-arid rangelands. This project aims to identify when there are dual benefits or trade-offs between primary agricultural production and the natural resource and has been funded as part of the Australian Government Department of Agriculture Carbon Farming Futures Filling the Research Gap program in collaboration with NSW Department of Primary Industries (Agriculture NSW and Western Local Land Services).

soil organic carbon in relation to ground cover components (perennial and annual species, bare ground, litter etc) and the amount of woody cover (trees and shrubs). In a pilot study undertaken early in the project near Cobar, we found that in close proximity to trees (<1m), total organic carbon levels (TOC) were almost 30% higher than elsewhere but these effects were local, disappearing between 1-5 m from the tree (Figure 1a). What was surprising was that there was a clear relationship between the type of ground cover and TOC, with higher soil carbon associated with increasing perennial or littler ground cover being site dependant

roots and shoots) and losses (organic matter decomposition and soil erosion). Soil erosion (wind and water) has been a major ongoing issue in rangelands globally and the maintenance of ground cover is seen to act as a proxy for the provision of ecosystem services such as soil conservation but little information exists to prove this in rangeland environments. The management of total grazing pressure (TGP), combined domestic, native and feral animal populations is seen as central in maintaining ground cover and restoring rangeland grasslands by 'conditioning' the landscape to respond to

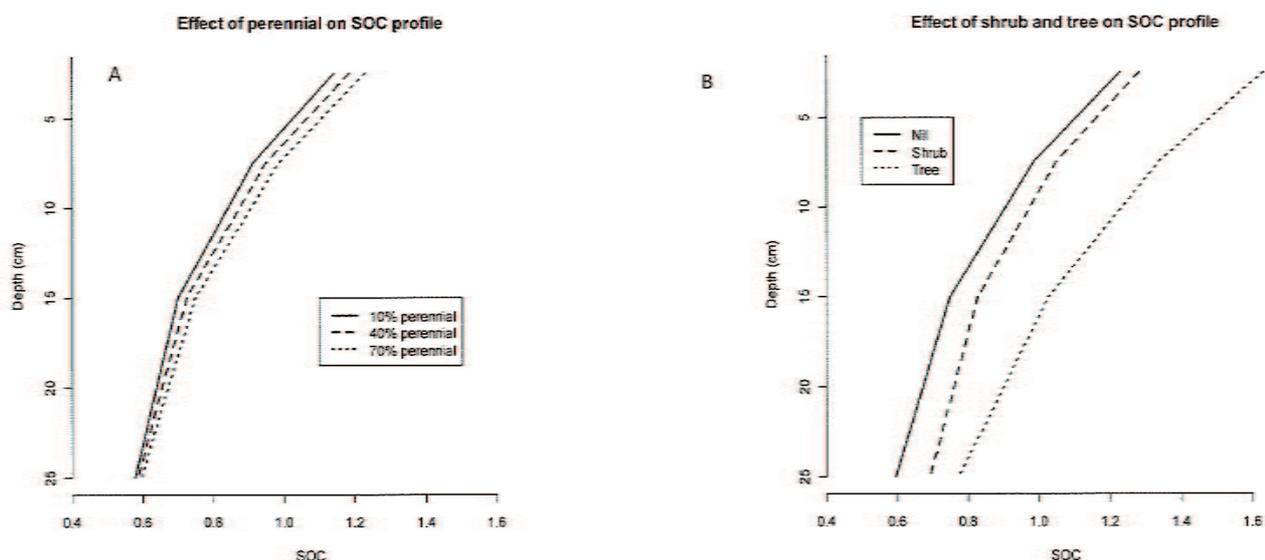


Figure 1. The effect of proximity of A. woody vegetation (trees and shrubs) and B. perennial ground cover on soil carbon (SOC).

Soil organic carbon levels are known to be low in the rangelands but the extensive areas which they occupy in Australia (more than 80% of the continent) means that the potential for rangelands to sequester soil organic carbon is high. However, considerable uncertainty in achieving this potential is due to the inherent patchy spatial and temporal distribution of rangeland vegetation, resources and soil organic carbon. One of the ways we addressed this issue was to compare only sites with the same soil and vegetation (structure and composition) and to examine the levels of

(Figure 1b). This has implications for understanding the role grazing management in influencing rangeland ground cover.

We know that the amount of soil organic carbon is a balance between inputs (plant

both deteriorating or improving seasonal conditions. To-date, anecdotal evidence suggests that managing TGP in combination with rotational grazing is currently best management practise in western NSW. The issue of TGP in western NSW cannot be understated, as

Table 1. Predicted means (se) of total organic carbon in the top 0-10 cm of the soil profile and number of plants in a 0.25m<sup>2</sup> quadrat on a property in the Cobar Peneplain Bioregion. Means are given within rotationally grazed + TGP fenced paddocks (shaded) and no-TGP fenced paddocks with no domestic livestock.

	Box	Box	Yarran	Yarran	Ridges	Ridges
TOC (%)						
0-5 cm	1.12 (0.056)	0.91 (0.043)	1.12 (0.039)	1.02 (0.048)	1.01 (0.048)	0.79 (0.047)
5-10 cm	0.92 (0.049)	0.75 (0.037)	0.94 (0.034)	0.86 (0.041)	0.85 (0.042)	0.68 (0.041)
Plant diversity	3.44 (0.374)	1.25 (0.187)	1.67 (0.175)	0.45 (0.237)	1.22 (0.237)	0.56 (0.265)

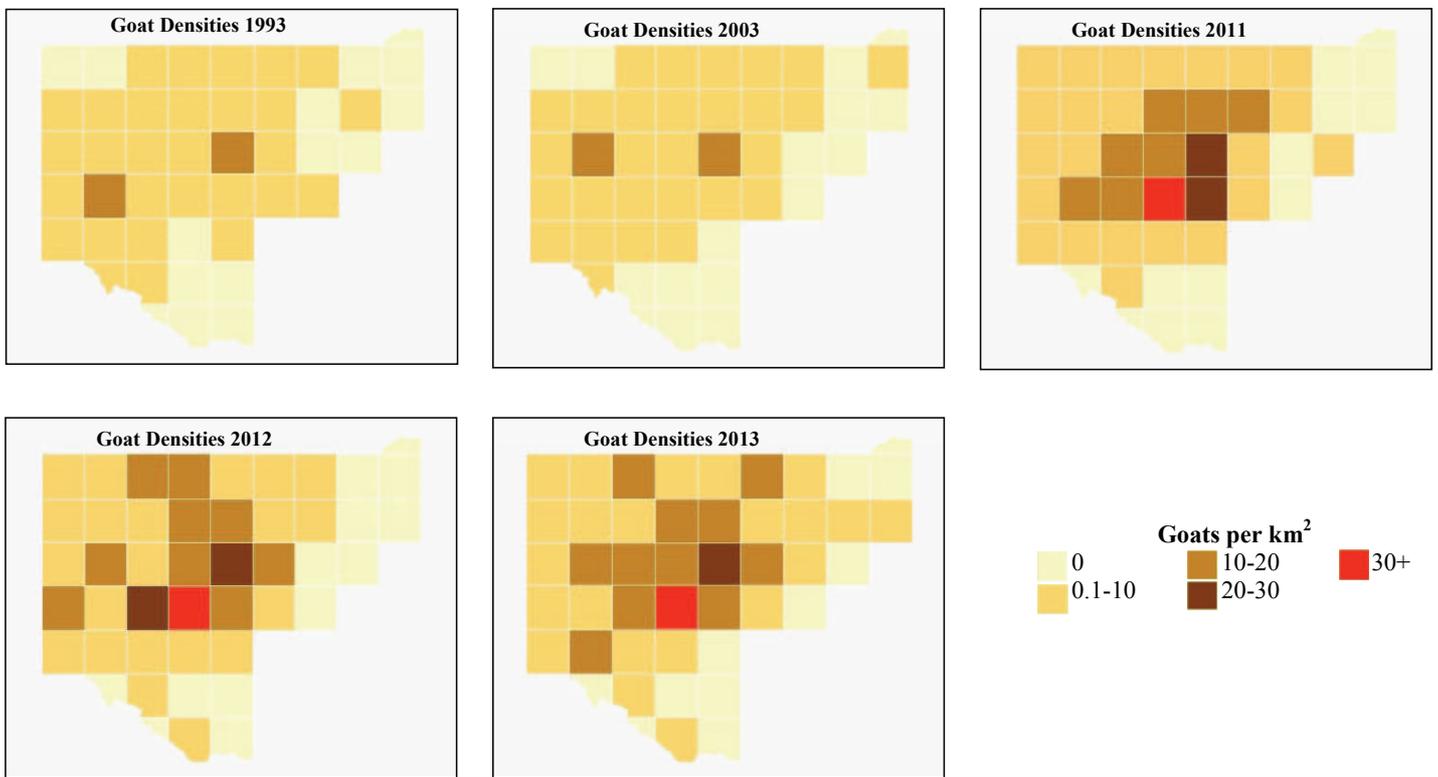


Figure 2. Changes in goat densities in western NSW between 1993 and 2013. Goat numbers have been measured for the past 20 years using annual aerial surveys as part of the Kangaroo Management Plan conducted by NSW Office of Environment and Heritage. Recent years have shown a marked increase in goat densities.

recent increases in goat numbers suggest that some areas may reach a TGP beyond safe carrying capacities (Figure 2). For example, predictions for goat numbers may increase four-fold by 2023 from the current goat numbers (Figure 3).

Being able to identify management practises that can either increase soil organic carbon levels or prevent further soil erosion through maintaining higher levels of ground cover is the focus of an on-going study in western NSW. Here, we have used a series of paired paddock

contrasts e.g. inside TGP + rotationally grazed paddocks and outside where no TGP management is undertaken and no domestic livestock are being run.

This has enabled an assessment of the influence of managing the grazing intensity on TOC, ground cover and biodiversity. What we are finding to-date is that increases of approximately 5-30% in perennial cover alone are associated with being able to manage the grazing pressure of feral goats and kangaroos but dependent on vegetation type (Figure 4). These increases in ground cover are also followed with significant increases TOC in the top 10cm of soil as well as increases in plant species diversity. (Table 1)

Understanding the linkages between the natural resource improvements (ground cover, TOC, biodiversity) and farm profitability will form the focus of the remainder of this study. This project has provided the first direct evidence for the influence of grazing management on TOC in Australian semi-arid rangelands.

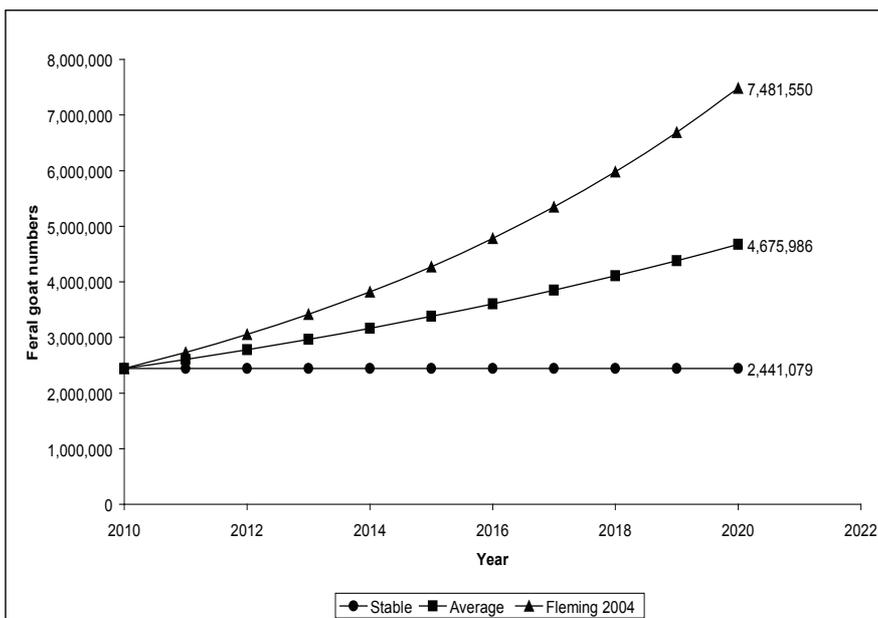


Figure 3. Three predictions for future trend in feral goat populations assuming a stable population (no reproduction or mortalities), estimates based on goat numbers averaged over 1993-2013 or 1999-2013.

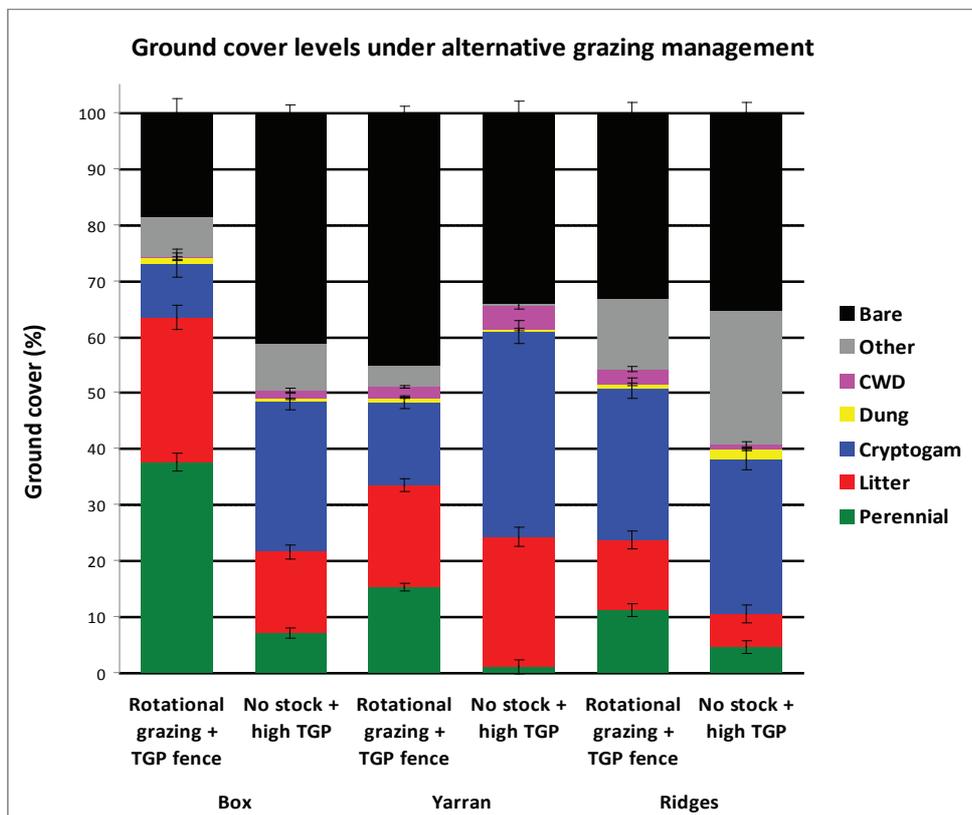


Figure 4 . Differences in ground cover when managing the total grazing pressure through exclusion fencing (TGP fence). Responses in different vegetation communities (Box = broad drainage lines dominated by *Eucalyptus populnea*; Yarran = drainage flats with dense yarran (*Acacia homalophyla*) and clumps of turpentine shrubs (*Eremophila sturtii*); Ridges = dense clumps of mulga (*Acacia aneura*) with scattered red box (*Eucalyptus intertexta*)).

## Agricultural Apps to try

### NSW WeedWise App

The NSW WeedWise app provides key information to help users reduce the impact of noxious and environmental weeds in New South Wales (NSW). The app profiles over 300 weeds, describing their legal requirements under the Noxious Weeds Act 1993, control information and registered herbicide options.

Users can search or browse weed names (common or scientific); recognise a weed by its physical description and image gallery; and find out about its impacts, where it occurs, how it spreads and its preferred habitat. Control options are described for each weed and the herbicides registered for its control by the Australian Pesticide and Veterinary Medicines Authority are listed, including application rates and techniques, and any minor-use permits that must be complied with.

Landholders/residents can enter the contact details of their local council weeds officer, and then directly report sightings of high priority weeds via email or SMS.

Weeds professionals can share information about a weed with clients via email or SMS, including a weed's profile, legal requirements, control advice and herbicide options.

NSW WeedWise incorporates the content contained in the Noxious & Environmental Weed Control Handbook, a free, biennial publication from NSW Department of Primary Industries. NSW WeedWise was developed with the assistance of the NSW Weeds Action Program.

### APVMA

The APVMA app by the Australian Pesticides and Veterinary Medicines Authority puts the databases of Australian registered agricultural and veterinary chemical (agvet) products including minor-use and off-label permits in your hand with this free resource.

Search, browse and find details for registered, suspended, stopped or cancelled agvet chemical products in Australia. Search for and retrieve current permit documents and database details of expired permits.

### Key Features:

- Easily search for products based on the product name, product ID, active constituent, pest or host
- Search for products that are registered, suspended, cancelled, stopped or archived
- Browse products by category or alphabetical
- Search and browse for minor-use and off-label permits
- Access recent searches
- Switch between products and permits to gain a complete picture of the legal use of chemicals of interest
- View product and permit details such as withholding periods, pack sizes, registered pests and hosts, plus more
- View available product labels and permit documents
- Save the products and permit documents you use frequently for fast retrieval
- Share search results or product details via email

Both apps are available at iTunes

## Research Update

Keeping you up-to-date with pasture and grassland research in Australia. Abstracts of recently published research papers will be reprinted as well as the citation and author details in you wish to follow up the full paper.

### Landscape scale survey of indicators of soil health in grazing systems

K. M. Damsma<sup>A</sup>, M. T. Rose<sup>B</sup> and T. R. Cavagnaro<sup>AC</sup>

<sup>A</sup> School of Biological Sciences, Monash University, Clayton, Vic. 3800, Australia.

<sup>B</sup> School of Chemistry, Monash University, Clayton, Vic. 3800, Australia.

<sup>C</sup> School of Agriculture, Food and Wine, University of Adelaide, Waite Campus, PMB1 Glen Osmond, SA 5064, Australia.

**Abstract:** In a broad-scale survey across pasture-based grazing systems in south-eastern Victoria, soil biological and chemical properties were measured

in an effort to establish baseline levels for commonly used indicators of soil health. Although soil properties were highly variable among sites and biological properties were difficult to predict, total soil C was found to be closely associated with soil cation exchange capacity (CEC). Importantly, the strength and nature of relationships between soil properties differed among soil textural classes.

We also measured a range of soil and vegetation properties in a small number of patches of remnant vegetation and their adjacent grazed pastures. This was done in an effort to assess the sensitivity of these measures when used on samples collected from strongly contrasting land-use types. Although some factors, such

as mycorrhizal colonisation of roots and soil C, did differ between the two land-use types, other factors measured in this study did not. Together, the findings of this survey provide baseline information on the landscape scale for commonly used indicators of soil health. The study explores relationships between these soil properties and assesses how they differ between two strongly contrasting land-use types. The results are discussed in the context of monitoring soil and vegetation attributes relevant to soil health.

[www.publish.csiro.au/nid/84/paper/SR14147.htm](http://www.publish.csiro.au/nid/84/paper/SR14147.htm)

## 2015 NSW Drought Strategy - resilient, productive, prepared

The NSW Government has announced a comprehensive suite of innovative drought preparedness measures to drive continued growth of the agriculture sector into the future.

The NSW Drought Strategy totalling more than \$300 million, focusses on preparedness, improved decision making and targeted support for rural communities. It provides a long-term fully funded strategy which aligns with national policy and supports farmers to improve their business and manage risks.

This strategy involves a number of key assistance measures for primary producers over the next five years supporting the farming sector to be better equipped to deal with future drought, as well as providing short term emergency support for drought stricken farmers.

The NSW Drought Strategy delivers a range of new measures under three key areas:

### Supporting farmers to prepare for and manage drought

- \$250 million in low interest loans over five years to continue the popular Farm Innovation Fund.
- \$45 million over five years for vocational training and farm business planning. This will support farmers in the development of farm risk management plans and/or drought preparedness plans and appropriate training.

- \$2.5 million to work with the Bureau of Meteorology to develop an enhanced network of weather stations across the State – giving NSW the best weather technology anywhere in Australia.
- State-wide seasonal and regional seasonal conditions reporting through Local Land Services and the Department of Primary Industries as a management tool for primary producers.
- \$5 million over five years to provide transport assistance for animal welfare and donated fodder within NSW. Under this initiative transport subsidies for animal welfare will be continue to be provided. In addition the package will introduce transport subsidies for donated fodder from within NSW, supporting community based fodder campaigns.
- Ongoing investment in research and development programs through the Department of Primary Industries – building on breakthroughs in drought resistant crops and water efficiency.

- \$20 million for the temporary Emergency Water Infrastructure Rebate to assist producers currently experiencing a one-in-fifty year drought event to install on-farm infrastructure to provide access to water for livestock.
- Continue administration, through the Rural Assistance Authority.

### Committing to a transparent and accountable system of drought assistance

- Develop a structured framework of triggers and guiding principles to coordinate whole-of-government drought response measures, which will be developed in consultation with industry and published to ensure transparency.
- NSW drought assistance measures will be reviewed by the Independent Pricing and Regulatory Tribunal.

### Helping our primary producers and regional communities build resilience

- \$5 million over five years has been allocated to reinstate the Rural Support Worker Program on an as-needed basis, and continue the permanent Rural Resilience Program.

### Review of the NSW Response to Drought Policy Reforms

- Guided by the recent Review of the NSW Response to Drought Policy Reforms by the Australian Farm Institute, commissioned by the Regional Assistance Advisory Committee, the new Strategy ensures the new measures are appropriate, effective and in line with the Intergovernmental Agreement on National Drought Program Reform.



[www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)  
[www.raa.nsw.gov.au](http://www.raa.nsw.gov.au)

# How to feed nine billion people

Dr Peter Barnard

General Manager – Trade, Market Access and Industry Strategy Meat & Livestock Australia

Global meat consumption is forecast to almost double by 2050, when there will be a projected 9.1 billion people to feed.

Populations are rising and so are incomes in developing countries, Industrialisation in India, China and in developing South-East Asian nations is mirroring the earlier paths of Japan, South Korea and Taiwan.

However, the biggest difference is that the already developed countries represent 4% of the world's population, while the currently industrialising countries represent almost 50%.

This has significant implications for the way the world's resources are used to sustainably meet the growing demand for food. On a global level, there are signs that the supply of agricultural products is constrained.

Both developed and developing countries are running out of land to devote to agricultural production. Water for agricultural production is becoming increasingly limited and agricultural productivity growth rates are falling across most geographical regions and countries.

The growth rate of average crop yields has been slowing since 1990.

Declining productivity growth rates, combined with increased demand, have driven global food prices higher since the turn of the century.

Sustainably feeding nine billion people will require action at global, national, regional and local levels. It will involve shifting perceptions, separating fact from fallacy and encouraging countries with the right resources and environments to focus on what they're good at – sustainably producing food.

## What is not the answer?

Government and consumer preferences towards self-sufficiency, buying local produce and using food for non-food purposes all place constraints on the ability to feed nine billion people.

## Self-sufficiency policies

A common government policy response to the looming food shortage and higher

prices is the pursuit of self-sufficiency; however, self-sufficiency can result in reduced food security and higher prices.

An example of this was the Indonesian Government's pursuit of a self-sufficiency policy by introducing beef quotas. While the country's beef self-sufficiency rose from 50% to 85%, beef prices skyrocketed – doubling and almost tripling for some cuts – reducing food security for a significant part of the population. Producers also began to cash in by selling cattle, ultimately leading to a fall in the national herd. Economic modelling indicates that the cattle herd in Indonesia would have almost vanished if the self-sufficiency policy had been maintained.

## Buying local

In attempting to support local production, the consumer-led 'buy local' movement aligns with the self-sufficiency objectives of many governments.

The costs of agricultural production depend of natural resources such as temperature, rainfall, sunlight and soil quality. Different agricultural products demand different conditions. It makes economic and environmental sense to focus production in the most suitable areas.

That is why California, with mild winters, warm summers and fertile soil, produces all US-grown almonds and 80% of US strawberries and grapes. It is also why Australia produces surplus beef and lamb and exports it to the world. Forsaking comparative advantage in agriculture by localising means it will take more inputs to grow a given quantity of food, which is detrimental for global sustainability.

Similar to this is the 'food miles' fallacy, where the cost or emissions of buying local can actually be higher than buying from a supplier with a comparative advantage. For example, research has shown that carbon dioxide footprints are lowered by producing dairy and meat products in New Zealand and then shipping them to the United Kingdom, rather than those products being produced and consumed in the UK.

## Food for fuel

The use of food for non-food purposes through artificial policy incentives such as mandated ethanol production in the US has resulted in higher corn prices. Corn prices were around 30% higher between 2006 and 2011 than they would have been without the mandated increase in corn-based ethanol production.

## And the solution.....

At a policy level, governments can assist in the pursuit of sustainably producing food, but individuals also have a role to play.

## Improving diets

A starting point would be to change western diets to diets more in keeping with high nutritional levels, low obesity rates and low environmental impact. The Australian diet, like most western diets is high in non-core 'junk' food groups. These foods are nutrient poor, contribute to obesity and are resource and emissions intensive. Reducing consumption of these types of foods could lead to major savings in greenhouse gas emissions and resources.

## Increased R&D investment

The rate of increase in global agricultural research has been slowing in developed countries. Without a renewed focus on research, increasing on-farm efficiency and productivity to meet the agricultural challenge of sustainably providing more food for the global population will be difficult.

## Reducing trade barriers

A recent MLA-funded study estimated technical barriers cost the Australian industry more than \$1 billion a year. High tariffs and technical barriers to trade remain in place for many meat products – tariff rates in excess of 30% for meat products are not uncommon. Freeing up trade allows countries with the natural resources to produce agricultural products for the world's growing population to do so sustainably.

This paper is reprinted from Feedback Issue Nov/Dec 2014 pages 6-7. Feedback is produced by Meat and Livestock Australia and is available at [www.mla.com.au](http://www.mla.com.au)

## From the President

Welcome to 2015, where much of the state has seen improved conditions compared to the same period last year. That said, however, our thoughts are still with those areas that have been devastated by the extended dry, which sadly, still continues. Much of the recent rain has been “by the paddock”, such is the nature of summer storms.

The season in the north has improved significantly as a result of excellent rain in December and January. In addition, temperatures have not been as high as during the corresponding period last year. Many producers recorded over 150 mm in December and over 100 mm in January. The rain has been “soft” and good for grass and crop, but not to the extent of filling dams. Run-off storm rain is needed to correct this deficiency. However, the general bulk and paddock feed going into winter 2015, is well ahead of last year.

A similar story can be told for central and southern NSW, with good falls being received over much of the tablelands and

slopes, however rainfall events on the plains have been less.

On the flipside to growing pasture, the animals that eat it have taken off in price, with many records being achieved at many selling centres. It is great to see some of those prices holding, with graziers able to take ‘opportunistic’ selling options over 4 – 6 weeks now. Here’s hoping these prices remain for much of the year, as some people are predicting.

Planning for the 2015 Annual Conference, to be held July 15<sup>th</sup> and 16<sup>th</sup>, is well under way, with Goulburn now confirmed as the location. A final conference theme is not far away, with ‘profitable grazing enterprises and management’ to be a key focus. The program is looking very comprehensive, again with farm tour opportunities and current research being presented. Also occurring throughout 2015 will be another round of ‘Pasture Updates’, so please check our website for dates and locations, and try to get to these. The programs are very informative,

based on local needs, and are a great opportunity to grab ‘snippets’ of pasture and animal based research. Venues already planning updates are Nimmitabel on the 14<sup>th</sup> April, and Berry, Glen Innes and Walcha in May. Trangie is likely to be July.

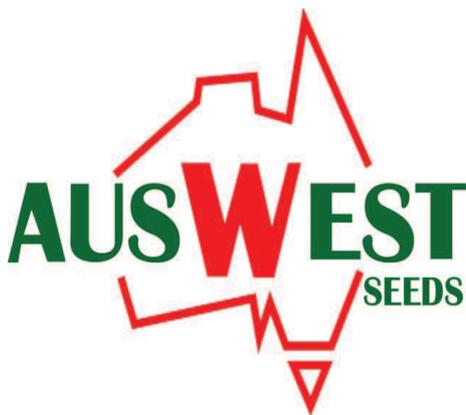
A big front is currently approaching southern Qld, with the coast likely to cop a flogging. Let’s hope some of it makes its way onto and over the range. Run of rain would be invaluable to many, as would 50 or so mm to help with the early cereal plantings.

All the best, and mark the 15<sup>th</sup>/16<sup>th</sup> July in the diary for the annual conference in Goulburn All the best,  
Regards,

David Harbison,  
President.



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### Disclaimer

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***The Grassland Society of NSW Inc is 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 approximately 500 members and associates, 75% of whom are farmers and graziers. The balance of membership is made up of agricultural scientists, farm advisers, consultants, and or 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. For membership details go to [www.grasslandnsw.com.au](http://www.grasslandnsw.com.au) or contact the Secretary at [secretary@grasslandnsw.com.au](mailto:secretary@grasslandnsw.com.au) or at PO Box 471 Orange 2800

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If you are interested in reactivating an old branch or forming a new branch please contact the Secretary at [secretary@grasslandnsw.com.au](mailto:secretary@grasslandnsw.com.au) or by mail at PO Box 471 Orange NSW 2800

***Grassland Society of NSW News***



**Next Newsletter:** The next edition of the newsletter will be circulated in May-June. If you wish to submit an article, short item, a letter to the Editor or a photo please send your contribution to the Editor - Carol Harris at [carol.harris@nsw.dpi.nsw.gov](mailto:carol.harris@nsw.dpi.nsw.gov) or DPI NSW 444 Strathbogie Road Glen Innes 2370. The deadline for submissions for the next newsletter is April 24 2015.



**Electronic newsletter:** Don't forget you can receive the Grassland Society of NSW newsletter electronically. Just email your details to Janelle ([secretary@grasslandnsw.com.au](mailto:secretary@grasslandnsw.com.au)) and you will be added to the list. Next newsletter you will receive an email notification with a link to the newsletter on the website.

***Grassland Society of NSW - PO BOX 471 Orange NSW 2800, [www.grasslandnsw.com.au](http://www.grasslandnsw.com.au)***

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