GRASSLAND SOCIETY OF NSW INC.

Newsletter

Welcome to the first Grassland Society of NSW newsletter for 2016. We hope you enjoy the articles in this issue.

Fun fact about 2016 - the 68th United Nations General Assembly has declared 2016 the International Year of Pulses (IYP). The goal of IYP 2016 is to heighten public awareness of the nutritional benefits of pulses as part of sustainable food production aimed towards food security and nutrition. The Australian IYP Committee, will focus on raising Australia's profile as a producer of quality pulses while increasing the domestic consumption of pulses to meet the Grains & Legumes Nutrition Council's recommendation for all Australians to 'eat legumes at least 2–3 times a week'. For more information on IYP 2016 in Australia go to Pulse Australia www.pulseaus.com.au

For those of you that are social media savvy don't forget to checkout and Like our Facebook page - just search for GrasslandNSW - the Facebook page and our website (www.grasslandnsw.com.au) are great ways of keeping up to date with Society activities and news.

Don't forget the Grassland Society of NSW will not be holding an annual conference this year, but we will be back in 2017. If you are keen to attend a conference this year - check out page 6 and page 10 for information on the New Zealand Grassland Association annual conference and the Australian Grassland Association symposium in 2016.

As always I am keen to hear from our members - the deadline for articles, letters etc for the next newsletter is May 13 2016.

Carol Harris

Editor

In this newsletter

Planning a conference trip?

Don't forget to check out the Grassland Society of NSW Travel Grants.

Travel Grants are open to financial members of the Society with at least two years of continuous membership prior to the date of application - funding is available to attend conferences or other activities and events associated with grassland science.

The committee are particularly interested in applications from our producer members.

More details can be found on the website (www.grasslandnsw.com.au) - click on the membership tab - or by contacting the Secretary (secretary@grasslandnsw.com.au)

Is it time to revisit management of acid soils?

Helen Burns and Dr Mark Norton
NSW Dept of Primary Industries, Wagga Wagga, NSW

Key messages:

- Surface applied lime that is not incorporated may result in pH stratification.
- Bulked soil samples from 0-10 cm may deliver misleading soil pH results.
- An acid throttle at 5-15 cm is a hostile environment for establishing seedlings.
- Rhizobia survival and nodulation is compromised at pH_{Ca} below 5.0.

Findings from a NSW Department of Primary Industries (NSW DPI) project supported by GRDC indicate that it is time to revisit current management practices on acidic soils and assess the impact of soil acidity on the production and persistence of some pasture species.

The project is investigating constraints to the performance of legume crops and pastures in the high rainfall zone of south-eastern Australia and soil acidity appears to be a standout culprit.

Commercial legume crops and pastures are being monitored in New South Wales, South Australia, Victoria and Tasmania as part of this project. The impact of soil acidity was highlighted when pH of the 0–10 cm surface soil was linked to poor nodulation of faba bean crops in 2015. Analysis of nodulation scores and soil pH of the monitored paddocks showed a strong correlation (r^2=0.89) and indicated that nodulation of faba bean is sensitive to soil pH (Figure 1).

Faba bean is reportedly sensitive to aluminium and pH_{Ca} below 5.0 and the survival of Group F rhizobia (specific to faba bean) is compromised at pH below 5.0. Group F rhizobia are more sensitive to low pH than Group C (clover) rhizobia and more tolerant than Group AL (lucerne) rhizobia (Drew *et al*. 2012).

Some growers had specifically tested 0–10 cm topsoil samples, to ensure pH levels were suitable to support faba bean. For example the pH_{Ca} of 0–10 cm sample from the Holbrook site tested 5.2. Further investigation of the Holbrook, Kybybolite and Lismore sites and other poorly nodulated crops reported by consultants revealed that root development was concentrated near the soil surface.

The fact that most of these crops were sown into paddocks with a recent lime history, surface-applied but not incorporated, prompted the project team (Dr Mark Norton and Helen Burns of NSW DPI, Wagga Wagga Agricultural Research Institute) to collect soil samples at intervals to a depth of 15 cm. At the Holbrook site the average pH_{Ca} of the surface 0–2 cm is 6.5, but ranges from 5.2 to 7.5, and is only 4.2 at a depth of 8–10 cm. The combination of soil acidity and aluminium toxicity (35% exchangeable aluminium below 10 cm) is an 'acid throttle', which severely restricted root growth and nodulation of faba bean plants (Figure 2).

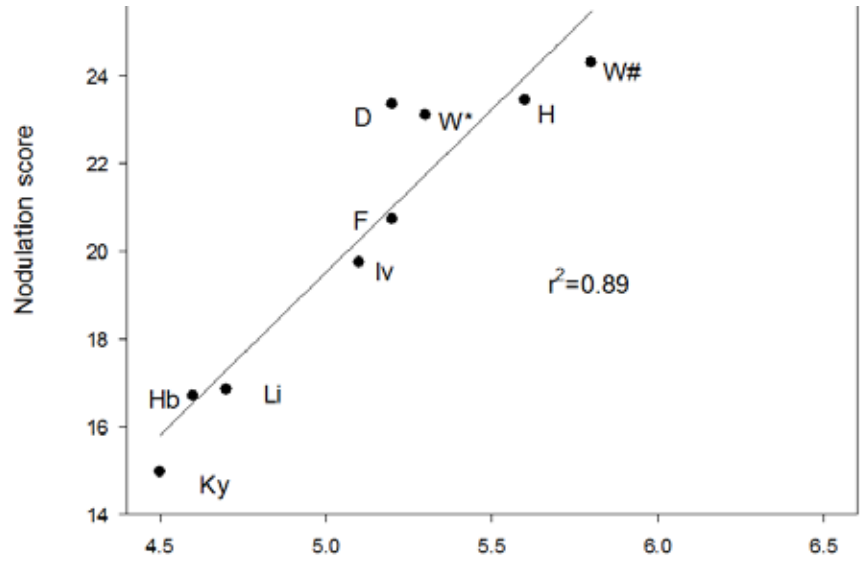

Figure 1. The effect of surface soil pH (0-10 cm) on nodulation of faba bean across the south eastern Australian high rainfall zone in 2015. Nodulation scored according to Colombia protocol (Anon 1991). Score of 20–25 – effective nodulation; 15–19 – less effective nodulation, N fixation compromised; 0–14 – unsatisfactory nodulation and N fixation. Sites of sampling include Kybybolite, SA (Ky), Holbrook, NSW (Hb), Lismore, Vic (Li), Inverleigh, Vic (Iv), Frances, SA (F), Darlington, Vic (D), Willaura, Vic (W) and Henty, NSW (H). W* = after wheat, W# = after canola.

The soil pH results from commercial paddocks show that surface-applied lime, which is not incorporated, has very little effect below the surface layers (Table 1). The faba bean experience suggests that the common practice of lime application with minimal incorporation may not adequately increase soil pH in the rooting zone to ensure establishment and persistence of key pasture species, including lucerne, clover, phalaris, ryegrass and tall fescue.

The issue of pH stratification in the topsoil and an acid throttle in the upper layers of the rooting zone was reported in the 1980s before lime application was widely adopted (Bromfield *et al*., 1983, 1987; Conyers and Scott 1989), and later in mixed farming areas with a history of lime application (Gummer *et al*. 2006). The recommendations for managing topsoil acidity advise that lime should be incorporated to a depth of 10 cm in order to achieve a rapid lime response. In addition, based on research results from the long-term lime experiment near Wagga Wagga in southern NSW (Conyers and Li, 2006), subsoil pH can be increased slowly over time by liming sufficiently to maintain a pH_{Ca} of 5.5 in the top 10 cm.

The link between soil pH and poor nodulation of faba bean crops highlights a need to review the current approach to acid soil management. We need to assess the impact of pH stratification on nodulation of legume species and the establishment, root growth and, therefore, persistence of those pasture species sensitive to acid soils.

The widespread adoption of no-till systems means that lime incorporation is often inadequate. The benefits of a strategic cultivation need to be weighed against potential cost. Conyers (2015) reports that a single cultivation will cause minimal damage to soil physical properties and that the bulk of recovery will occur in one to two years.

Table 1. The pH_{Ca} readings from soil collected from commercial paddocks show that surface-applied lime with limited incorporation has had limited effect on increasing subsurface pH, compared with incorporation to 10 cm.

Depth (cm)	Wickliffe Victoria			Holbrook NSW
	Lime not incorporated[1]		Lime incorporated to 10 cm[2]	pH_{Ca} - representative of paddock[3]
	Area of poor crop growth	Area of good crop growth		
0–2	5.3	7.3	6.8	6.5
5–7	3.8	4.8	5.3	4.9
12–14	3.8	4.3	4.8	4.3

[1] Lime surface applied at 2.5 t/ha in 2006 and 2013, not incorporated
[2] Lime surface applied at 2.5 t/ha in 2006, not incorporated. Limed again in 2012 and incorporated to 10 cm
[3] Lime surface applied at 2 t/ha in 2010, not incorporated and in 2015 at 2 t/ha, shallow incorporation with a speed tiller

References

Anon (1991) Field Guide to Nodulation and Nitrogen Fixation Assessment Land Management Handbook. British Colombia Ministry of Forestry. ISBN 0-7726-7279-2

Bromfield SM, Cumming RW, David DJ and Williams CH (1983) Changes in soil pH, manganese and aluminium under subterranean clover pasture. *Australian Journal of Experimental Agriculture and Animal Husbandry* **23**, 181-191.

Bromfield SM, Cumming RW, David DJ and Williams CH (1987) Long-term effects of lime incorporation on the pH in the surface and subsurface of pasture soils. *Australian Journal of Experimental Agriculture* **27**, 533-538.

Conyers (2015) The use of strategic tillage in conservation farming. Grains Research and Development Corporation Research Updates, Wagga Wagga, NSW 2015. https://www.grdc.com.au/Research-and-Development/GRDC-Update-Papers (accessed February 2016)

Conyers MK and Li G (2006) MASTER – Soil acidity and lime response. Primefact 32. New South Wales Department of Primary Industries. http://www.dpi.nsw.gov.au/agriculture/resources/soils/acidity (accessed February 2016)

Conyers MK and Scott BJ (1989) The influence of surface incorporated lime on subsurface acidity. *Australian Journal of Experimental Agriculture* **29**, 201-207.

Drew E, Herridge D, Ballard R, O'Hara G, Deaker R, Denton M, Yates R, Gemell G, Hartley E, Phillips L, Seymour N, Howieson J and Ballard N ((2012) Inoculating Legumes: A Practical Guide. Grains Research and Development Corporation, Kingston, ACT. ISBN 978-1-921779-45-9

Gummer F (2006) Investigating soil acidity at depth project - Winchendon Vale Landcare Group. Final report to Murrumbidgee CMA, FarmLink Research, Junee, NSW

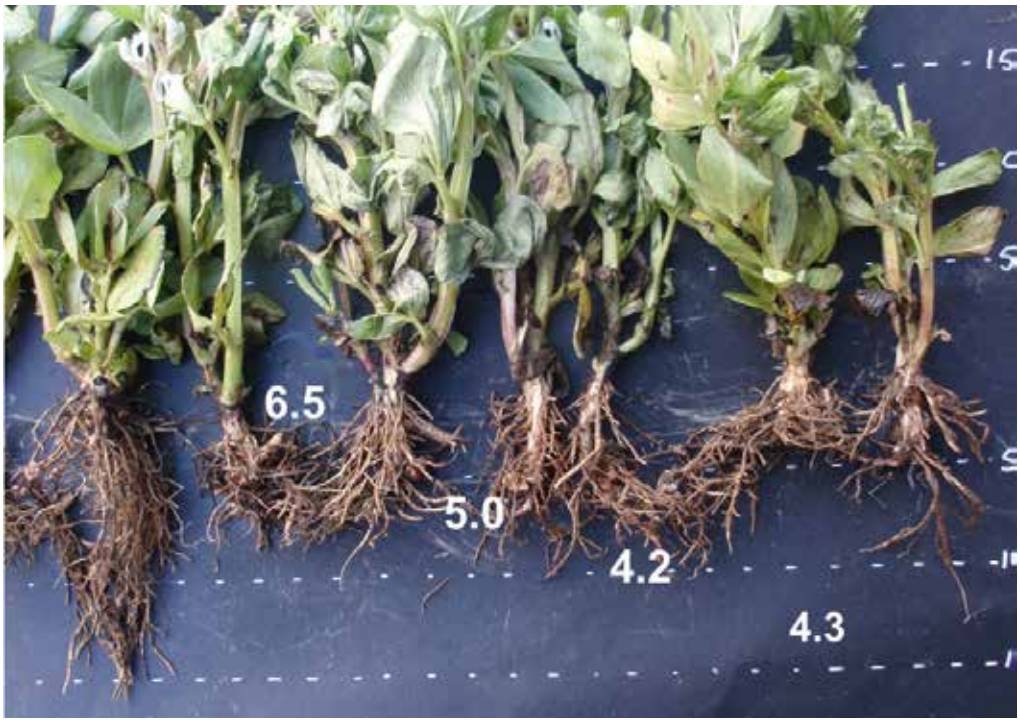

Figure 2. Faba bean plants collected at early flowering stage from the Holbrook (NSW) crop were poorly nodulated with root growth restricted by acidic layers at about 6 cm. Despite a history of 4 t/ha of lime since 2009, the pH_{Ca} of the surface 0–2 cm averaged 6.5 (range of 5.2 to 7.5), 5.0 at 4–6 cm, 4.2 at 8–10 cm (range of 4.1 to 5.0), and 4.3 at 12–14 cm.

The end of summer - assessing the outlook for 2016 in northern NSW

Sean Murphy[1] and Lester McCormick[2]

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[2] Lester McCormick Agronomy, Manilla NSW

In a previous issue of the Grassland Society of NSW newsletter (Volume 29 No 4 December 2014), we looked at how the amount of summer rainfall and stored soil water can help indicate how the pending season will turn out. Combining this information with an assessment of current pasture condition and seasonal outlook, allows us to make key decisions early.

NSW Department of Primary Industries (DPI) is investigating useful seasonal indicators to guide on-farm decisions in the Tamworth district. The indicators are derived from long-term rainfall records, soil moisture levels and pasture data collected at the Tamworth Agricultural Institute. This article describes two indicators and their current practical application.

Indicator 1: Summer rainfall total

Tamworth's average annual rainfall is 667 mm (1889-2010). Rainfall is summer dominant, with 227 mm (34% of the annual total) on average falling in summer. Total rainfall received in summer is important, as it is strongly related to total rainfall for the 12 months beginning December. Historically, if summer rainfall was above average (>227 mm), then the 12 month total for December to November was above average in 72% of years. If, however, summer rainfall was below average (<227 mm), then the 12 month total for December to November was also below average in 82% of the years.

In recent years, the relationship between summer rainfall and the 12 month total has been self-evident (Table 1). During summer 2012-13, rainfall was 292 mm, which was above the summer indicator (227 mm), suggesting a higher probability (>72%) of total rainfall (for December to November) exceeding the annual average; total rainfall was 691 mm, which was above average. During summer 2013-14, rainfall was 92 mm, which was below the summer indicator (227 mm). The indicator suggested a high probability (>82%) of falling short of average annual rainfall; total rainfall was 406 mm, well short of the long-term average. During summer 2014-15, rainfall was 309 mm and the resulting 12 month total was 826 mm.

Table 1. Summer (December-January) and 12 month rainfall totals for Tamworth Airport AWS; average annual rainfall 667 mm (1889-2010).

Summer	Summer rainfall (mm)	Rainfall for 12 months beginning December (mm)
2011–12	435	752
2012–13	292	691
2013–14	92	406
2014–15	309	826
2015–16	200	?

Given that during summer 2015-16, rainfall was 200 mm, which was below the average, this indicates that there is >82% chance that total rainfall until November 2016 will be below average.

Indicator 2: Soil moisture at the beginning of autumn

Soil moisture levels at the start of autumn are low (Figure 1), indicating that pasture growth is likely to be poor during autumn. While this situation is not unusual, with soils under tropical and native grass pastures typically being their driest in April, the dry conditions this year have set in earlier than normal. This will likely mean below average growth of these grasses for the balance of the season and have an adverse impact on germination and growth of winter clovers.

What it means?

This rainfall indicator's predictive ability in our region is related to both the contribution of summer rainfall to total annual rainfall, and its ability to predict rainfall for the rest of the year. Moreover, this prediction is available now, at the start of autumn. This analysis on its own, or when combined with current soil moisture levels and seasonal outlook provides an early indication of the year's production conditions, which can help guide on-farm decision making. We await the outcome of the current autumn and look for replenishment of soil water reserves during winter, which will be essential for growth next spring.

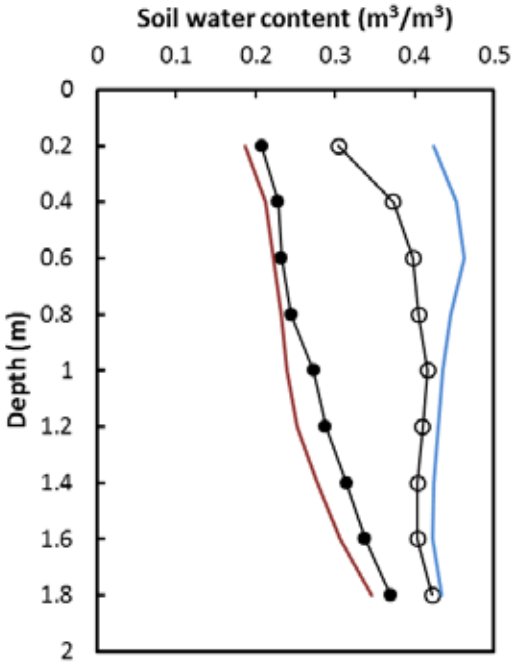


Figure 1: Soil moisture levels for digit grass growing on a brown Vertosol. The blue line (right hand side) is the drained upper limit for the soil and the red line (left hand side) is the crop lower limit. At the start of the growing season 12 October 2015 (○-open circle) the soil profile had almost refilled over winter. However, 17 February 2016 (●-closed circle) shows very little remaining water. The pasture has stopped growing.

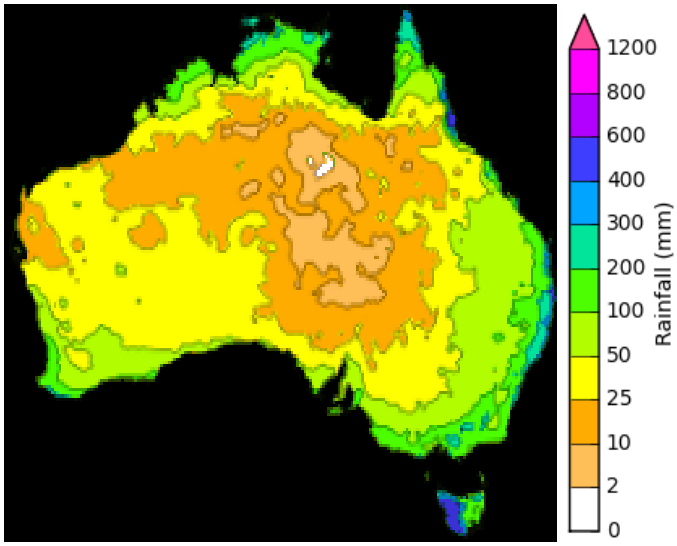
For more information on seasonal indicators for the Tamworth district please contact
Sean Murphy on 02 6763 1244
or Lester McCormick on 0427 401 542

Bureau of Meteorology Climate Outlook for March to May 2016

- March is likely to be drier than average across northern Australia, and parts of southeast mainland Australia.
- For autumn (March to May), rainfall is more likely to be above average across the southeast, except eastern NSW and eastern Victoria. The tropical north is more likely to have a drier than average three months.
- Historical outlook accuracy for March to May is moderate to high over eastern and northern Australia as well as parts of western WA, with mostly low accuracy elsewhere.
- Summer-like temperatures are likely to continue into March, with both daytime and night-time temperatures very likely to be warmer than average.
- For the three-month period (March to May), daytime temperatures are more likely to be above average across the country, except for northern and central SA, western NSW and western WA where the chances of a warmer or cooler season are roughly equal.
- Nights are favoured to be warmer than average nation-wide, except near Carnarvon, with a greater than 80% (or an eight in ten) chance of warmer nights for much of the country.
- Maximum temperature accuracy is moderate to high over most of Australia, except over the southern mainland where accuracy is low to very low. Minimum temperature accuracy is moderate to high over the northern half of Australia and Tasmania, and low to very low over the southern half of the mainland.

Climate influences

- El Niño is steadily declining, with models forecasting a return to a neutral pattern in late autumn to early winter. During the latter breakdown part of the El Niño cycle, warmer days tend to persist over northern and eastern Australia, with warmer nights across much of Australia.
- In addition to El Niño, there are widespread warmer than average sea surface temperatures across much of the Indian Ocean, as well as waters surrounding Australia. The warmer waters are likely to reinforce local above average air temperatures.
- Soil moisture has been relatively low across northern and eastern parts of Australia, particularly in the drought-affected regions. This means there is less evaporative cooling, contributing towards warmer conditions inland.
- March is likely to be dominated by higher air pressure across much of Australia, reducing frontal activity across the south. By April, air pressure is likely to be closer to normal. This also explains why the southeast is likely to be drier during March, but wetter than average in the three month outlook.
- While the above average autumn rainfall forecast for the southeast of the country is likely to be welcome particularly in areas suffering from mid- to long-term rainfall deficiencies, recovery is likely to require a significant period of above average rainfall.



Rainfall totals that have a 75 per cent chance of occuring for March to May 2016 (www.bom.gov.au/climate/outlooks/#/rainfall/total/75/seasonal/0)

Bureau climatologists continually monitor the climate for any significant developments, with information on El Niño/La Niña and IOD events available fortnightly via the ENSO Wrap-Up (www.bom.gov.au/climate/enso/). For a summary of Pacific and Indian Ocean outlooks, please see the Climate Model Summary (www.bom.gov.au/climate/model-summary/)

For more information or watch the video visit www.bom.gov.au/climate/outlooks/#/overview/video

The influence of herbicides on soil fungi in grazing systems

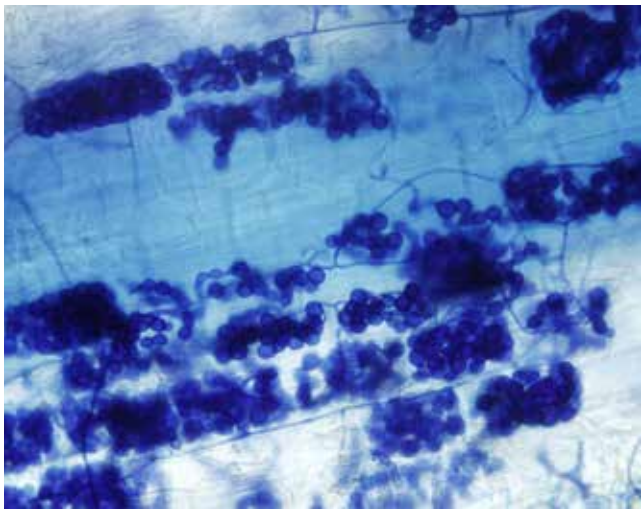
There has been an increasing interest in the impact of agricultural chemical inputs on soil biota and more broadly, soil function. Systematic assessment of impacts can be difficult to undertake due to the diversity of chemical compounds that are used (often many in combination) and the variance in soil properties. In the study of soil fungi, most effort has focused on arbuscular mycorrhizal fungi and fungal pathogens, but we have little knowledge about the ecosystem services provided by other symbiotic fungi and how their functioning may be influenced by agrochemicals.

In a Master of Science project supervised by Professor Ajit Sarmah at the University of Auckland, Associate Professor Terry Rose at Southern Cross University and Dr. Lukas Van Zwieten at NSW Department of Primary Industries, Anders Claassens will investigate the role of symbiotic fungi in pasture systems and examine the effects of herbicide inputs on fungal development.

Anders Claassens in the lab investigating the role of symbiotic fungi in pasture systems

Anders has previously undertaken a project on the impact of soil-applied herbicides on root-inhabiting fungal endophyte colonisation in wheat, and this Masters project will build on this existing knowledge.

Fungal endophytes may enhance plant resistance to environmental stress through changes in host water relations, modulate plant growth through production of phytohormones/ nutrient mineralisation and deter predators through synthesis of antagonistic metabolites.



Symbiotic fungi in pastures under the microscope

Certain wild-type fungal endophytes of ryegrass may be problematic to grazing livestock due to production of toxic metabolites. To address this issue, a range of novel endophyte strains such as AR1 and AR37 have now been incorporated into perennial ryegrass varieties for New Zealand and Australia to maximise benefits and minimise risk, ensuring pasture persistence and high productivity. Groups like Dairy Futures CRC and Ag Research NZ have worked together pairing pasture grasses with compatible endophytes.

By improving our understanding of fungal sensitivity to herbicides, we're better quipped to optimise the performance characteristics of novel fungal strains for high value systems.

Anders's Master's project will track developmental changes in fungal endophytes when exposed to a variety of herbicides relevant to high value ryegrass pasture. In systems where fungi make a significant contribution to pasture health, these data may help identify high-risk compounds and suggest critical application rate thresholds.

NEW ZEALAND GRASSLAND ASSOCIATION - 78th ANNUAL CONFERENCE

Timaru - Wednesday 2nd - Friday 4th November 2016

Conference theme: "Land of diversity and opportunity"

Proposed Topics; Forages to optimise water use, techniques to protect water and the environment, smarter nutrient use, building resilient farming systems, Innovative technology, #farminginthecloud, improving feed conversion efficiency, biosecurity: weeds, pests and politicians, underground science: soils to roots and hot topics, cool solutions - the latest grassland science

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.

A universal equation to predict methane production of forage-fed cattle in Australia

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Abstract: The methods for estimating methane emissions from cattle as used in the Australian national inventory are based on older data that have now been superseded by a large amount of more recent data. Recent data suggested that the current inventory emissions estimates can be improved. To address this issue, a total of 1034 individual animal records of daily methane production (MP) was used to reassess the relationship between MP and each of dry matter intake (DMI) and gross energy intake (GEI). Data were restricted to trials conducted in the past 10 years using open-circuit respiration chambers, with cattle fed forage-based diets (forage >70%). Results from diets considered to inhibit methanogenesis were omitted from the dataset. Records were obtained from dairy cattle fed temperate forages (220 records), beef cattle fed temperate forages (680 records) and beef cattle fed tropical forages (133 records). Relationships were very similar for all three production categories and single relationships for MP on a DMI or GEI basis were proposed for national inventory purposes. These relationships were MP (g/day) = 20.7 (±0.28) × DMI (kg/day) (R^2 = 0.92, P < 0.001) and MP (MJ/day) = 0.063 (±0.008) × GEI (MJ/day) (R^2 = 0.93, P < 0.001). If the revised MP (g/day) approach is used to calculate Australia's national inventory, it will reduce estimates of emissions of forage-fed cattle by 24%. Assuming a global warming potential of 25 for methane, this represents a 12.6 Mt CO_2-e reduction in calculated annual emissions from Australian cattle.

Animal Production Science **56**(3) 169-180

http://dx.doi.org/10.1071/AN15365

The economic significance of maintaining pasture production at its peak value

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Abstract: Persistence of pasture is considered an important trait by many farmers using pasture-based systems. Despite this, pasture persistence is generally poorly defined. This study includes an analysis of changes in farm operating profits (OP) when pasture persistence is improved. Persistence was defined as either a 1-year increase in years at peak dry matter (DM) production or a reduction in the rate of decline in annual pasture DM production after the year that peak production occurred (duration of pasture life), both resulting in a 1-year delay in pasture renovation. Changes in OP for these definitions of pasture persistence were modelled for two dairy farms in temperate regions of Australia (Terang in south-western Victoria and Elliott in Tasmania). An increase in duration of peak DM production on the basis of economic theory increased OP more than an increase in duration of pasture life. Increases in OP for a 1-year increase in peak DM production were AU$165 ha–1 for Terang and $202 ha–1 for Elliott. This compared with $21 ha–1 for Terang and $15 ha–1 for Elliott for a 1-year increase in the duration of pasture life. Therefore, farmers and plant breeders could place more emphasis on improving the duration of time that pasture plants achieve peak DM production than improving pasture persistence at the end of the pasture plant's lifetime, to increase annual OP.

Crop and Pasture Science **66**(2) 205-213

http://dx.doi.org/10.1071/CP14162

Doing the numbers on ewes

A research project announced this week is set to break new ground in ewe management in a bid to further lift lamb survival and improve weaning rates.

Recognising the critical importance of reproductive success in the Australian sheep industry, Meat & Livestock Australia (MLA) and Australian Wool Innovation (AWI) are collaborating to examine the effect of mob size and stocking density at lambing on lamb survival and weaning rates.

The research, led by the Victorian Department of Primary Industries, will take place on commercial prime lamb and wool growing properties with 70 individual project sites to be established over two years. The locations will be across Western Australia, Victoria, South Australia and NSW to allow for a natural variation in other animal, management and environmental influences, and opportunities to expand the work into other states are being explored. Each of these sites will also be linked to a network of existing producers.

This project will be managed by AWI reproduction specialist and Associate Professor of Animal Science at Murdoch University Dr Andrew Thompson, who was one of the original developers of Lifetime Ewe Management (LTEM), and who managed the preceding AWI-funded Lifetime Wool Production program. According to Andrew, this initiative aligns well with the national RD&E priorities and investment plan for sheep reproduction developed by MLA, and fills an important knowledge gap.

“We will deliver improved recommendations for sheep producers regarding the allocation of ewes to paddocks, paddock size, stock density and feed on offer during lambing," he said.

"It will assist producers to make more informed decisions about the cost benefit of investing funds in paddock subdivision to improve reproductive performance and farm profitability.

“If we succeed as expected, the pay offs for the industry will potentially be massive - improving the survival of single lambs by just 5% and twin lambs by 10% would improve industry wide farm profit by $250 million per annum’."

This initiative is expected to deliver the basis for the next level of reproductive performance improvement for graduates of the very successful Lifetime Ewe Management course (LTEM), funded by AWI and delivered nationally through Rural Industries Skill Training.

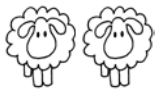
MLA Manager Genetics and Sheep R&D Program Richard Apps said, while many producers recognised that smaller mob size at lambing is desirable, factors such as the number of lambs born each day and their proximity also impact survival, meaning there is further opportunity to refine management to continue to improve weaning rates.

"The result will be not only improved animal welfare outcomes for both ewes and lambs, but the ability to establish the most effective lambing paddocks to increase weaning rates contributing to improved productivity and profitability for the sheep industry," Richard said.

According to AWI’s General Manager of Research, Dr Paul Swan, “The LTEM Program has typically been transformative for the growers who have graduated. The 2,100 AWI-funded LTEM graduates have on average improved their weaning rates by 7-10%, and simultaneously reduced their ewe mortality rates, by assessing and optimising ewe condition score, and identifying and differentially managing twin bearers.

“Yet while these performance gains are substantial, evidence has been mounting that the density of lambing ewes in the lambing paddock could also be having an influence on lambing outcomes, particularly the risk of mis-mothering.”

With existing best practices widely adopted across these businesses, researchers are confident that by filling this gap in the knowledge of the effects of lambing density, stocking rate and flock size on lamb survival, a new set of tools will be generated to lift lamb survival to the next level.



Reprinted from www.mla.com.au

Operation Mary

The NSW Department of Primary Industries and Local Land Services have commenced the latest state-wide National Livestock Identification System (NLIS) compliance campaign for sheep and goats.

Code named ‘Mary’, the NLIS compliance checking activity will be conducted over the coming months at saleyards and processing plants across NSW.

The goal of Operation Mary is to increase awareness and understanding of how important compliance with the National Livestock Identification System is to ensure a sustainable agricultural industry in Australia.

When livestock are offered for sale, the owner (vendor) is required to declare the location where the sheep were bred on a National Vendor Declaration (NVD) form. Information collected on these declarations is vital if there is a disease outbreak, as it provides the necessary data to trace animals back to their origin and potentially control the spread of disease.

These requirements also apply to any individual or company who trades livestock, including swapping or selling animals at saleyards and other informal means, such as neighbours, friends, markets and websites.

During Operation Mary, saleyards across the state will be visited by NSW Department of Primary Industries (DPI) and Local Land Services (LLS) staff performing checks to ensure that all sheep are tagged and that National Vendor Declarations (NVDs) are completed accurately.

These random compliance checks will be conducted in the coming months as a collaborative effort between DPI, LLS and NSW Police Rural Crime Investigators.

Operational staff will ensure that all sheep are tagged and that National Vendor Declarations (NVD) are completed accurately, especially with the recording of ‘other PICs’ on NVDs for non-vendor bred lots.

Contact your nearest DPI or LLS office for more information.

Grass seed management starts now

Sheep producers need to start planning their grass seed management strategies now, to ensure they are well prepared for next spring's grass seed danger period.

That's the message from Dr John Broster, Senior Technical Officer at Charles Sturt University (CSU) at Wagga Wagga. John specialises in herbicide resistance and is involved in Integrated Weed Management projects with the Graham Centre for Agricultural Innovation at CSU.

"Producers now need to be thinking about what weed control measures they will use over the growing season that will reduce grass seeds next spring and summer," John said.
"While the short-term goal may be ensuring there are no grass seeds to contaminate their sheep next spring, the longer term goal should be reducing the weed seedbank on their property.

"Controlling grasses prior to seed set in late spring and early summer will reduce the number of plants that actually germinate in the next autumn. Proper control of the plants that do germinate will then reduce the number of plants that set seed, and eventually they should be able to run down their problem. "When it comes to controlling grass seeds you have to think well ahead and it may be a one to two year project."

Grass seeds cost producers in multiple ways, including through: processor discounts of up to $1.50/kg for seedy carcases reduced productivity and welfare of sheep affected by seeds in their bodies and eyes reduced pasture productivity due to weed incursions. What constitutes "proper control" depends on location, seasonal conditions, existing seedbank composition, the time of year and farming system. Control measures are also determined by the outcome the producer is trying to achieve which may range from a few clean paddocks for lambs and weaners

to graze, through to whole-farm weed seed control.

There are a number of useful resources to help producers manage specific grass seeds problems including the Winning Against Seeds manual, Tips and tools: Winning against seeds, MLA webpage: Seed contamination of carcases and the GRDC Integrated Weed Management Hub.

Strategies for managing grass seeds

Spray grazing – Producers can spray graze in autumn and winter when establishing new perennial pastures. Spray grazing uses sub-lethal rates of selective herbicide to increase the palatability of broadleaf weeds, including corkscrew, which are later grazed at high stocking rates.

Winter cleaning – Herbicides such as Simazine will control silvergrass and suppress barley grass and brome grass in pastures, while products such as Sprayseed®, Simazine and Diuron can control problem grasses in mature lucerne stands. Conduct winter cleaning when soil moisture conditions are good.

Forage crops – A staggered sowing of fodder crops in winter and early spring enables lambs to be removed from pasture with potential grass seed problems into clean paddocks.

Strategic grazing – Use grazing management to manipulate pasture composition and reduce the total number or height of seed heads to minimise their impact on young sheep.

More information: Dr John Broster, T: 02 6933 4001 jbroster@csu.edu.au

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DroughtHub - what is it?

DroughtHub provides a one-stop online destination for information on a vast range of services and support available to primary producers, their families and communities to prepare for and manage drought conditions.

NSW DPI makes every attempt to ensure the information supplied is current, however, the individual circumstances of DroughtHub users should be taken into account when considering the linked services.

Information packages and links include;

Drought in NSW: Information on the NSW Drought Strategy, the Drought Framework, the NSW Drought Interagency Working Group and historical aspects of drought in NSW.

Finance: Information on low interest loans and other financial support packages available from the NSW and Australian Governments.

Skills and Training: Information on the Farm Business Skills Professional Development Program.

Transport for Animal Welfare: Information on transport assistance for animal welfare and donated fodder within NSW.

Wellbeing: A range of resources and links to support services and groups to strengthen the wellbeing of NSW primary producers.

Commonwealth Services and Support: Information on Drought Concessional Loans, Farm Management Deposits and Drought Recovery Concessional Loans.

Information and Resources: An index of DPI Primefact information sheets available - specifically developed for primary producers preparing for dry seasons and drought conditions. Information and support is also available through your Local Land Services offices. The advice provided in these resources may not address the specific on-farm requirements of each user and individual circumstances should be assessed before adopting advice presented.

Case Studies: A range of case studies demonstrating different aspects of the NSW Government's Drought Strategy. Case studies on the NSW Drought Strategy, Wellbeing, Animal Welfare Assistance and the Farm Innovation Fund are currently available.

http://www.dpi.nsw.gov.au/climate-and-emergencies/droughthub

Australian Grassland Association Inc.
SYMPOSIUM - Livestock Productivity from Pastures
University of New England Armidale

7th–9th June 2016

The Australian Grassland Association Inc. (AGA) was established to facilitate the ongoing improvement and development of the pasture industry in Australia. In order to efficiently and effectively target and use research capability there needs to be regular, structured, wide reaching reviews of the pasture industry. This review process takes the format of a symposium at which the scientific community, leading producers and industry stakeholders come together in order to contribute directly in the development of industry wide investment priorities and the research agenda.

The third AGA symposium "Livestock Productivity from Pastures" will be held on 7th to 9th June 2016 at the University of New England in Armidale NSW.

This symposium will address the "Livestock productivity from pastures" theme under either temperate or tropical systems, in the high rainfall pasture zone and the mixed farming zone (medium to low rainfall environments).

Topics to be covered will include; filling nutritional feed gaps and addressing seasonal variability, increasing the nutritional value of pastures, grazing management and new technology for pasture based animal production incorporating a tour of the University of New England SmartFARM. This tour will include a presentation - How "Smart" is the Smart Farm and how much smarter can it get? The future role of today's farmers and group activities including - monitoring water flow in plants, EM38 soil surveys & spatial nutrient variability, animal bite and grazing behaviour, drones, data and connectivity and estimating biomass using active optical and laser scanning

The AGA organising committee invite you to attend the symposium in Armidale on June 7-9th.

For more information go to **www.australiangrassland.org.au**

To register go to Try Booking **www.trybooking.com/KTZG** **or** **www.trybooking.com/189260**

From the President

Welcome to 2016, where much of the state had better than expected conditions through January, both rainfall and temperature. Now in February, summer has arrived, and drying is occurring quickly. The outlook is not all doom and gloom, with a few models now predicting an average or even slightly wetter 2016. Only time will tell, as usual, as to who's models were the best predictors, in hindsight!

As was flagged in our last newsletter, there will not be an Annual Conference in 2016. The state committee, after much discussion and membership feedback, has not taken this decision lightly. With a very proud history now 30 years strong, our Annual Conference has been key activity of the society. With the introduction of the 'Pasture Updates' in 2013, we are now getting more locally focused pasture research out to more people, in more locations. That has increased our local participant activity, with more than 250 attendees benefitting each year. We will be continuing that format, and making a key focus on a Biennial Conference, beginning 2017, to compliment those Pasture Updates. Please keep an eye on the society web site for the dates and locations of the 2016 Pasture Updates. We will continue to promote our sponsors through our newsletters any other activities we conduct, and we thank them greatly for their ongoing support.

The livestock markets remain strong, some would say even at record levels. Having grass is one thing, being able to buy something to eat it is another! Hopefully for all concerned, we continue to see the beef and sheep markets remain strong for an extended period. Pleasingly, many producers that I speak with are looking to play 'catch up' on some of their soil health requirements. Every truckload of produce that leaves the gate is taking soil nutrients with it. Now is the time to assess where your soil health is up to and act accordingly. If you need assistance on this front, there are many local advisors who can be contacted, and one should take advantage of them.

All the best and I hope you can get to a Pasture Update near you in 2016.

Regards,
David Harbison,
President.

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
or contact the Secretary at secretary@grasslandnsw.com.au or at PO Box 471 Orange 2800

Office Bearers of the Grassland Society of NSW – 2015-2016

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John Coughlan (Central)
John Ive (Southern Tablelands)
Mick Duncan (Northern Tablelands)
David Harbison (Central West Slopes and Plains)
Nathan Ferguson & Helen Burns (South Western Slopes & Riverina)

If you are interested in reactivating an old branch or forming a new branch please contact the Secretary at 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 June 2016. 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@dpi.nsw.gov.au or DPI NSW 444 Strathbogie Road Glen Innes 2370. The deadline for submissions for the next newsletter is May 13 2016.

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) 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

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