EST. 1985
PASTURES & GRAZING NSW

SPRING NEWSLETTER

Volume 37 - Issue 3, October 2025

FLAMING FIREWEED - CONTROLLING THE BLAZE

What are graziers doing to manage this toxic weed?

A CHECKLIST FOR YOUR PASTURES

14 targets for the next year to improve your pasture management

2026 PASTURES & GRAZING CONFERENCE

Abstract submissions now open and other key dates

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"Pastures & Grazing NSW's vision is to bring together producers, agronomists, agribusiness firms, animal scientists and teachers of agriculture to review and exchange high-quality information of relevance to grassland farming."

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Editor's Note

A cold winter has quickly turned to a warm spring, so the pastures are jumping out of the ground here on the Northern Tablelands. One trial that I harvested last week was already averaging over 100 kg DM/ha/day! But good conditions for pasture growth generally mean good conditions for weeds. It's therefore good practice to regularly check your pastures to ensure your grazing management is appropriate and that you identify any undesirable plants relatively early.

Since the last newsletter, much progress has been made preparing for the delivery of next year's Pastures & Grazing Conference. The revival of our conference promises to be an exciting opportunity for producers, advisors and researchers alike to consider the latest developments in pasture and grazing management. A key component of our conference is the dissemination of relevant information, which includes the contributed papers that often cover a diverse range of topics. The submission of abstracts for these contributed papers is now open and will close at the end of the year (see Page 4 for more information). I'm looking forward to seeing what work is being done that can improve our understanding and management of grazing systems.

In this issue of the newsletter, there is an article about how graziers perceive and manage fireweed (Page 5) and a checklist of targets that will help improve your pasture management skills (Page 10). As in previous issues of the newsletter, there are the 'From the Conference Proceedings Archive' and 'Research Updates' sections. These include some interesting articles about the role and management of native grasses that are worthwhile reading.

The next issue of the newsletter will be distributed in December. If you have something you would like to contribute, feel free to reach out to editor@pgnsw.com.au and I can provide some guidance. As always, I'm interested to hear what information you would like to see in the newsletter, so feel free to reach out with suggestions for topics.

Jonathan McLachlan
Director/Editor

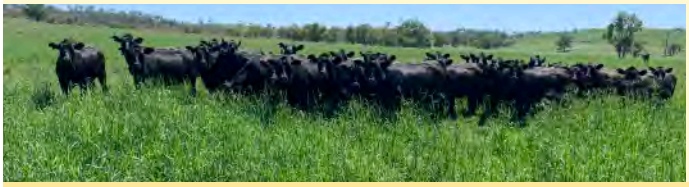
Previous editor recognised for services to the Grassland Society of NSW

On behalf of Pastures & Grazing NSW (formerly the Grassland Society of NSW), Lester McCormick and Mick Duncan recently hosted a luncheon in Glen Innes to formally thank Carol Harris for her contributions as the newsletter editor from 2009 to 2021. During this time, Carol ensured that members were kept up-to-date with the latest information about all things pastures and grazing.

Mick Duncan presents Carol with flowers on behalf of P&G NSW

Pasture Field Day

NSW GOVERNMENT



Wednesday 22 October 2025 | 9am-1pm

Tamworth Agricultural Institute, Training Centre
4 Marsden Park Road, Calala NSW

TOPICS

- The current season in perspective
- Pasture dieback
- Farm performance considerations for stocking rate and animal performance in pasture-based systems
- In-paddock animal health and nutrition

IN THE PADDOCK

- Pastures research - what are they up to next?

For more info, visit
pgnsw.com.au/events

PASTURES & GRAZING NSW

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Tuesday 28 - Thursday 30 July 2026 | Tamworth, NSW

Conference Program

- **28 July 2026:** Welcome Reception
- **29-30 July 2026:** Conference Days 1 & 2
- **Half-day field tours (29 July):** Includes site visits that will focus on managing pastures and forages for key animal targets and acid soil management

Expression of Interest

ABSTRACT SUBMISSION FOR CONTRIBUTED PAPERS

Do you have research that you would like to showcase at the conference? We are now accepting abstracts for contributed papers. Abstracts should include the proposed title, author names and affiliations, paper/research summary, and be no more than 200 words. Abstracts should be submitted to *editor@pgnsw.com.au*. Selected abstracts will be invited for full paper submission and will be included in the poster session at the conference.

KEY DATES

30 September 2025 | Abstract submissions open
31 December 2025 | Abstract submissions close
31 January 2026 | Accepted abstracts notified
30 April 2026 | Paper submissions close

For more information, visit our website or email the Editor, Jonathan McLachlan, at *editor@pgnsw.com.au*.

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Flaming fireweed and what graziers are doing to bring the blaze under control

Professor Brian Sindel | Department of Agronomy & Soil Science | University of New England, NSW | bsindel@une.edu.au

If you are a grazier in coastal or tableland areas of NSW, then it is more than likely that you are familiar with the spread of fireweed (*Senecio madagascariensis*) in pastures and the difficulties faced in controlling this toxic, invasive weed.

Although first described in Madagascar, the ecotype of fireweed we have in NSW originates from the Kwa Zulu Natal province of South Africa. In Australia, the weed was first introduced into the Hunter Valley around 1918, but for many years it was thought to be a variant of one of our many native Senecio species. It was not until 1980 that we confirmed we were confronted by an introduced species of African origin.

Given that farmers and graziers along the south east coast of Australia had been dealing with fireweed for many years, in 1985, as part of a PhD at the University of Sydney under the supervision of Dr Peter Michael, we decided to survey these land managers to discover what they had already learned about the behaviour of fireweed in pastures and how best to control it. That work was published in 1986.

> *"In Australia, fireweed was first introduced into the Hunter Valley around 1918, but for many years it was thought to be a variant of one of our native Senecio species"*

In 2011 here at the University of New England, Michael

BELOW: Fireweed is toxic and livestock will usually avoid it, thereby allowing the plant to set seed and multiply which reduces the available area for grazing

> *"Of four regions that were not previously surveyed, fireweed was well entrenched by 2011 in South East Qld and the Mid-North Coast region of NSW"*

Coleman, Ian Reeve and I had the unique opportunity to conduct another questionnaire amongst farmers and graziers from the same regions as previously surveyed to determine whether fireweed had continued to spread during the 26 year intervening period and how farmer attitudes to fireweed and methods used for control may have changed over that time. The two surveys posed identical questions and both had over 500 respondents. That research was recently published in the journal Biological Invasions (Volume 27) under the title 'Adaptive changes of farmers to the continued invasion of *Senecio madagascariensis* Poir. (fireweed) in pasture-based systems'. Here I report on some of the key findings of that study.

Occurrence and spread

Perhaps unsurprisingly, fireweed was found to have spread considerably between 1985 and 2011. In areas that were previously lightly infested, fireweed had become well established. For example, in the Bega and Shoalhaven regions on the South Coast of NSW as well as around Muswellbrook in the Hunter Valley and Lismore in Northern NSW. Of four regions that were not previously surveyed, fireweed was well entrenched by 2011 in South East Qld and the Mid-North Coast region

BELOW: Originally observed at Hexham in 1918, fireweed has become well entrenched in NSW coastal pastures, as seen here in the lower Hunter Valley. It continues to spread north and south from its current range, as well as westwards onto the Tablelands of NSW

of NSW. The weed was also found to have spread onto the Northern and Southern Tablelands in areas previously thought to be somewhat unsuitable for fireweed and where there had only been a few records of outlying plants in the 1985 survey. The intensity of infestations on the Southern Tablelands in 2011 was like that in its neighbouring Bega region in 1985.

In 2011, of all respondents who reported fireweed on their farms, 18% had observed its arrival in the preceding 5 years. Likewise, many farmers in the newer regions along the edges of the main fireweed front (i.e. South East Qld, and the Northern and Southland Tablelands) had fireweed for less than 5 years. Together, these results are a clear indication of the weed's continuing spread in south eastern Australia and the fact that it has not yet reached the full extent of its potential distribution. By contrast, around the 'core' regions of Gloucester and Hexham, the weed had been present on every farm for at least 5 years or more, demonstrating its entrenched occurrence in the region.

Perceptions of fireweed

A total of 35% of respondents from the 12 regions surveyed in 2011 believed that fireweed was their worst weed, but the perceptions varied considerably between regions. In previously lightly infested regions such as Bega, the percentage had increased dramatically from 6 to 56%, whereas in many of the older established areas, the percentage of respondents who thought fireweed was their worst weed had declined between the two surveys, e.g. Taree from 77 to 28% and Gloucester from 54 to 14%.

These results pointed to a statistically significant relationship between the duration of presence of fireweed on farm and its perceived problem status. Farmers considered fireweed less problematic if it had only recently arrived on their farm or if it had been present for several decades. The decline in perceived impact after about 20 years may be because farmers learn to live with the weed or they develop management strategies to cope with it. It may also be that the importance of fireweed declines over time relative to more difficult-to-control weeds gaining a stronger foothold, such as giant Parramatta grass (*Sporobolus fertilis*) and African lovegrass (*Eragrostis curvula*).

The increase in perceived importance of fireweed in the first 10 to 20 years after introduction emphasises the need for early detection and control of problematic weeds like fireweed in pastures. The fact that 76% of graziers were attempting to control fireweed in 2011 (only slightly down from 80% in 1985) also indicates that fireweed remains an important weed to graziers within its Australian distribution.

> *"Fireweed can be pulled from the ground relatively easily to then be bagged for burning or burial"*

Management of fireweed

The most common method used by graziers to control fireweed, which had not changed between the two surveys (75% of respondents who attempted control), was hand weeding, and its success rate was regarded as relatively high. While time consuming and somewhat impractical on larger properties with heavy infestations, hand weeding can be effective on small land areas and for new or lighter infestations. The weed can be pulled from the ground relatively easily to then be bagged for burning or burial.

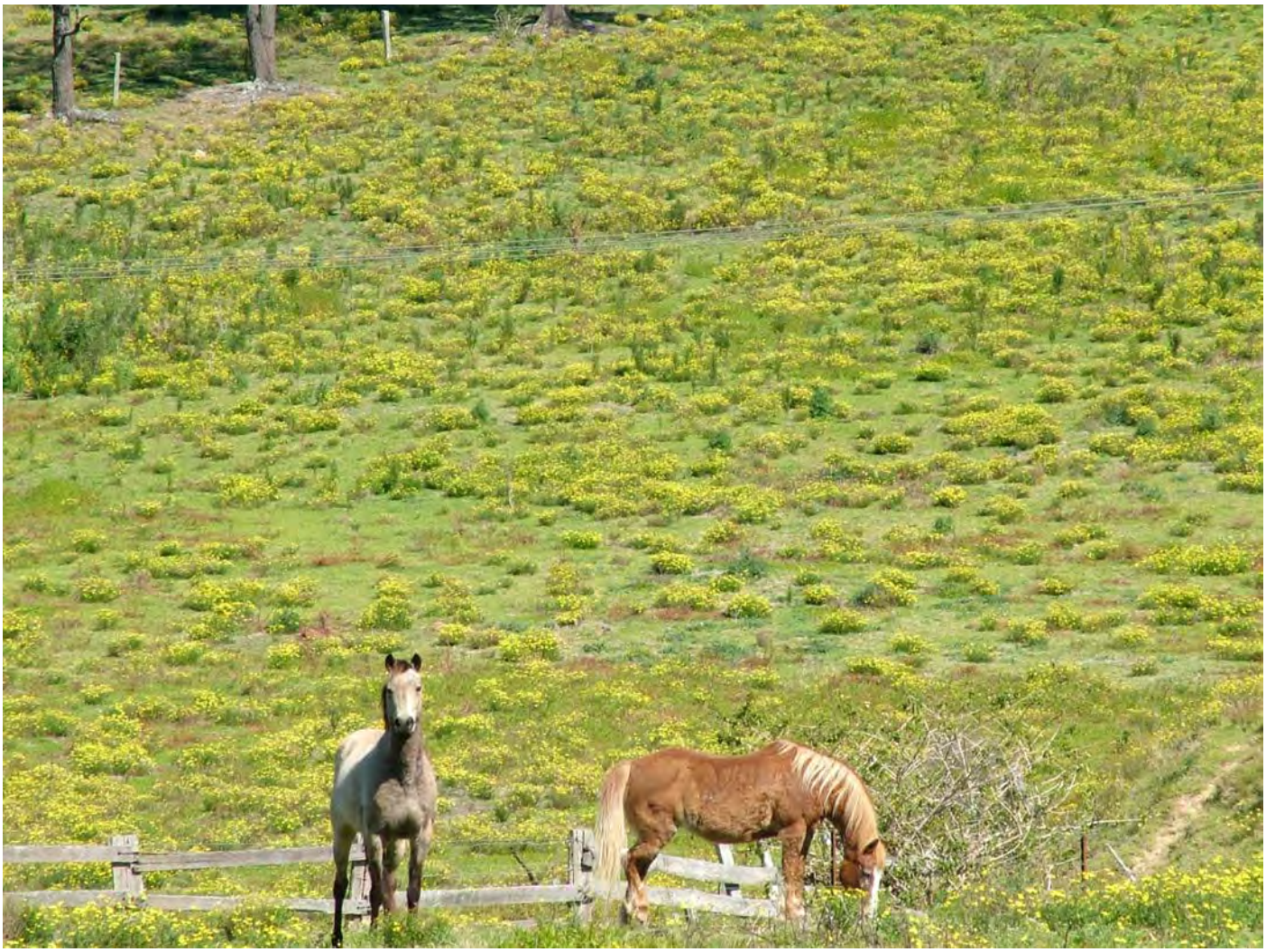
Two methods found to have declined in use between the two surveys were slashing (68 to 36%) and cultivation (19 to 5%). In the case of slashing, unless this is timed prior to flowering then it runs the risk of further spreading seed within paddocks and will often not kill plants if only used once during the life of a plant. Fireweed germination has also been shown to respond positively to cultivation, which may account for the decline in use of this technique. Both methods were regarded to have only a low to moderate success rate by landholders in the 1985 survey, suggesting that farmers have adapted their management based on this experience with the weed.

Nearly half of all respondents with fireweed used herbicides to control fireweed in the 2011 survey, up from just 12% in 1985. While originally rated as reasonably effective in 1985, the level of success with herbicides had dropped by 2011. This may be due to the need for several applications in a single season resulting from multiple emergence events. Herbicides are also usually less effective as fireweed matures, so again, timing of control is critical to success.

The promotion of competitive pastures was regarded by more respondents, than for any other method, to have good overall success in the control of fireweed in the 2011 survey (Figure 3). However, the level of use of this method to manage fireweed had not increased appreciably over the 26 years between surveys, indicating that it is not just the effectiveness of a method that determines its use. Likewise, the implementation of reduced stocking rates, considered to be an important component in making pastures more competitive, was also low. Reasons why some farmers do not promote competitive pastures to control fireweed may include the expense associated with pasture improvement, a lack of technical knowledge about the process, or that the method may not show immediate results compared with methods such as herbicides.

Sheep and goats have the potential to control fireweed due to their increased tolerance to the toxic pyrrolizidine alkaloids in fireweed, and were regarded by users

BELOW: Overgrazing of paddocks is likely to result in heavy fireweed infestations. In contrast, the promotion of competitive pastures is essential to long-term fireweed suppression



as highly effective, but they are not widely grazed in coastal pastures due probably to their more intensive management requirements and suitability to drier western areas.

Although many graziers express a desire for the introduction of biological control for fireweed, the chances of such introductions happening are slim due to the occurrence of many other closely related native *Senecio* species on which biocontrol agents are likely to have an impact.

Conclusion

Repeat surveys like that described here are rare. As fireweed continues to spread in Australia and in other parts of the world, it is critical that we learn from those who have had to adapt to and deal with this weed in the past. As graziers have also told us, the key to success with weeds in pastures is to utilise a variety of management methods, develop a plan how you will integrate those methods, and then stick at it for the long haul.

Acknowledgements

The Australian Government Department of Agriculture, Fisheries and Forestry funded this work. We thank all farmers and graziers who completed the survey. We also appreciate the assistance of the SEQ Catchments, Queensland Dairyfarmers' Organisation and NSW Farmers' Association with survey distribution.

A checklist for your pastures – 14 targets for the next year

Emeritus Professor EC (Ted) Wolfe | Charles Sturt University | twolfe@csu.edu.au and
Dr Jonathan McLachlan | University of New England | jmclach7@une.edu.au

All farmers/graziers, wherever you are, are busy people. Below is a list of targets that are designed to help stimulate your inquiry about what to do and how you might do it better.

> *"The list is specifically focused on temperate pastures in the mixed-farming zone of central and southern NSW, although some of the targets will apply to other areas as well"*

The list is specifically focused on temperate pastures in the mixed-farming zone of central and southern NSW, although some of the targets will apply to other areas as well. There is no need for you to undertake all 14 pasture/livestock targets. Rather, save the article to your computer, print it and read it often, and keep it for reference from now until December 2026. Tackle a few targets and refine the list as you go along, to set up your new (shorter) list for 2026/27. Improving your skills in monitoring and management is the key to improving pasture and livestock production.

1. **Attend a field day or pasture walk in your district and print a copy of the PROGRAZE manual**

   On-farm events are a great way to learn more about pasture and livestock management. You are able to engage with the latest research while seeing strategies that have been tried and tested. But it's not just the presentations from and discussions with experts, it's the one-on-one conversations with other producers that are really valuable. Someone else has likely tried something different that you are considering or they may be facing the same issues.

   Also, download and print a copy of the PROGRAZE manual which can be found at https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/grazing-management2/prograze-profitable,-sustainable-grazing. As outlined in the foreword of the manual, *"PROGRAZE aims to develop beef cattle and sheep producers', and those who service these industries, skills in pasture and animal assessment and assist them identify ways to use these skills to improve their grazing management decisions"*. PROGRAZE training courses are also available. For more information, have a look at the following link: https://www.lls.nsw.gov.au/help-and-advice/growing,-grazing-and-land/pastures/prograze-sustainable-grazing-management.

   [**Note:** When reading the PROGRAZE manual, it is helpful to know the **feed requirements** (in megajoules [MJ] of metabolisable energy [ME] per day) of different classes of livestock (cattle or sheep of various sizes that are either dry, pregnant or lactating). These are commonly expressed as **dry sheep equivalents** (1 DSE = the daily feed energy intake needed to maintain one merino wether of 45 kg liveweight). Daily feed intakes per hectare are calculated from the numbers and classes of livestock (DSE/ha) in conjunction with the digestibility of the pasture (or supplementary feed) that is available to the grazing livestock. For example, to maintain weight, one dry sheep (1 DSE) needs to consume 7 MJ of ME per day (equivalent to 9.3 kg of green dry matter per day of high-quality pasture or feed that is 75% digestible). A merino ewe with a single lamb at foot = 2.0 DSE (or 14 MJ ME/day) and a mature dry cow (450 kg liveweight) = 6.5 DSE (the cow will need to consume 45.5 MJ ME/day or 60.5 kg green feed per day to maintain weight). If the digestibility of the feed source(s) is lower than 75%, the daily consumption of feed by individual livestock will need to be proportionally higher, or they will lose weight].

2. **Make a simple pasture monitoring kit comprising one or two 50 cm x 50 cm quadrats made from either PVC pipe or steel rod for pasture cuts (one side can be used for establishment counts along a 50 cm or 100 cm row) and one or two 10 cm x 10 cm quadrats for counting the number of clover plants (after the autumn break).**

ABOVE: Steel rod quadrat (left) and PVC pipe quadrat (right)

3. **Quantify the important pasture parameters of a paddock that you intend to cut for hay or silage this spring**

   On short pastures (in late winter or early spring), you can estimate pasture cover (target 100%) and botanical composition (targets: 30–65% grass, 25–35% legume, unwanted weeds <5%, bare ground 0%). There are two ways you could do this:

   - Throw around a four-pointed 'wing-dinger' made from two pieces of sharpened fibreglass 30 cm rods fixed (taped) at right-angles, and record what each of the four points are touching (grass, legume, weeds or dead material) from 25 throws (100 points in total).
   - Walk a transect across the paddock and record the main species at the tip of your boot every five to ten paces for a total of 100 points.

   AND/OR in mid- to late-spring, cut the pasture to ground level at several representative locations within a quadrat (50 cm x 50 cm), mix the samples together and weigh the material from all quadrats. Following this, weigh a green subsample to sort, then sun-dry and weigh the sorted components, to calculate the total herbage (target 2500–5000 kg DM per ha) and its botanical composition (% by weight). When you can, repeat for other paddocks. After doing this a few times, you get pretty good at estimating the quantities of pasture dry matter per hectare of paddocks of short, dense herbage. Note – the eye is fooled by sparser, taller pasture components such as lucerne.

   Regional pasture growth rates [kg/ha of DM per day] are available for a range of NSW locations and pasture types on the web – see examples at https://www.evergraze.com.au/library-content/regional-pasture-growth-rates/index.html.

4. **Plan a soil test program that you will undertake in at least one of your paddocks by December-January (before the soil dries out completely).**

   Soil fertility revolves around ensuring that your soil pH ideally does not fall below pH_{Ca}5.5 (or pH_{H20}6.5) AND maintaining the supply of the nutrients, primarily phosphorus (P), sulfur (S) and molybdenum (Mo) that may be limiting the growth of the nitrogen (N)-fixing legumes in your pastures. Productive legume growth produces high quality feed (but watch out for cattle bloat) which, when returned by grazing animals to the pasture as dung and urine, stimulates the growth of non-legumes (grasses, herbs and weeds). In most fertilised soils in NSW, the upper soil layers acidify over time, a consequence of the N cycling processes that occur in the root zone and to carbon (C) cycling (the buildup of organic matter in the soil), plus the export of livestock products (meat, wool) and plant products (hay, grain) off-farm. So, it is important to monitor the acidity of the upper soil layers (0–10 cm and 10–20 cm) that comprise the root zone and to supply sufficient lime to offset the build-up of soil acidity (H^+ ions) and the toxic ions of aluminium (Al^{3+}) and manganese (Mn^{3+}) that occur in acid soil layers.

Single superphosphate at 125 kg/ha/year and lime at 2500 kg/ha per application are the common product application rates, although application rates should be informed by soil testing plus expected nutrient removal and soil acidification.

The details for soil testing in paddocks (the paddock sampling procedure, the equipment used for soil sampling and the cost of the basic, grazing and cropping test packages) can be found on the NSW DPI website at https://www.dpi.nsw.gov.au/agriculture/soils/soil-testing-and-analysis.

Most commercial or departmental agronomists can guide you through the necessary steps in taking soil samples for analysis and in interpreting the results.

ABOVE: A 30 cm soil corer

5. **In January 2026 or earlier, review/discuss your soil test results with an agronomist or a knowledgeable neighbour, to determine a fertiliser program for the paddock in autumn to correct your pH and any nutrient deficiencies, taking into account your intended use of this paddock in 2026 (crop or pasture).**

6. **By late January 2026, order and top-dress lime @ 2500 kg/ha particularly if in the next two years you intend to sow phalaris, lucerne or canola (all are very sensitive to low pH/aluminium toxicity – see Target 4. above).**

   Also, order sufficient superphosphate, compound fertiliser or gypsum to top-dress the paddock or drill in with the 2026 crop.

7. **If sowing a new lucerne or phalaris pasture in autumn 2026, check out seed availability and order the seed by mid-February to be sown by March-April.**

   These deep-rooted perennial species (lucerne and phalaris) are so important in agricultural landscapes, because they use every drop of rainfall effectively and avoid the build-up of potentially salty groundwater. However, don't sow them together – they will fight to the death.

   The older varieties of **phalaris** (*Phalaris aquatic*a) that are based on a high content of the old Australian commercial cultivar are very persistent, unlike some of the newer varieties that were bred from crosses between *P. aquatica* (tuberous crown) and *P. arundinacea* (segmented crown) and have been selected for increased seedling vigour, lower alkaloids etc. The latter parent weakened the phalaris tuber and, over time, sheep in particular pick and/or kick the segments to death, especially during droughts. Sow phalaris with subterranean clover (+ white clover in localities where tableland rainfall averages >750 mm). A final phalaris density of as few as 7 plants/m^2 is sufficient in a permanent pasture, thus sowing phalaris (500,000 seeds per kg) at double or treble a safe minimum rate of 1 kg/ha (50 seeds/m^2) seems extravagant.

   Only sow **perennial ryegrass** (*Lolium perenne*) on country that receives >750 mm average annual rainfall. Note however that median annual rainfall (which is the middle value in an array of rainfall values for annual or monthly rainfall) is a better statistic for the expected normal rainfall at a particular location. Monthly median rainfall values

are available on the BOM website. **Annual ryegrass** (*Lolium multiflorum*) is a useful component of pastures for livestock but beware of sourcing it from the cropping zone – it may be resistant to many herbicides.

There is a belief that cultivars of **lucerne** (*Medicago sativa*) (also 500,000 seeds per kg) with a high autumn-winter dormancy rating are more persistent than cultivars with a low dormancy rating, but there are many exceptions to this unreliable rule because plants of certain cultivars can succumb to phytophthora and other fungal/bacterial diseases rather than to grazing. Ask around for advice on cultivars/varieties and their tolerance of grazing and diseases. A final density of 10–20 lucerne plants/m^2 is sufficient for pasture-phase mixtures of lucerne with subterranean clover (150,000 seed per kg), or 30–50 plants/m^2 (3–5 kg seed per ha) in dense lucerne swards for hay production on river flats.

8. **In February, plan for an enjoyable holiday for your family in May.**

   All work and no play made Jack (and Jill) tired and unhappy, and the kids need a break from school – enjoy!

9. **Assess the density of subterranean clover in your paddocks after the autumn break.**

   Estimate the **density of established subterranean clover seedings** (or white clover % cover) in your best and worst clover paddocks. Ideally, there should be 500 (good) to 1000 (excellent) seedlings per m^2 for maximum production of **subterranean clover** (*Trifolium subterraneum*). A population of 300 seedlings per m^2 is satisfactory, but in future aim higher. The population is determined by the amount of seed set, which is a function when the clover flowers and sets seed in spring (clover maturity is primarily controlled by daylength) and the rate of breakdown of hardseededness during summer (a rate controlled by the seedcoat). Consult the list of sub clover varieties on the DPI website, pick a variety that not only matures by the time moisture normally runs out in spring but also has at least a moderate level of residual hardseededness (determined by a laboratory test based on diurnal temperature fluctuations at the soil surface during a normal summer). Alternatively, on a paddock containing **white clover** (*Trifolium repens*) or grass/white clover, estimate the clover cover (see Target 3. above).

> *"By monitoring pastures with counts, cuts and cover, you enter a world of describing pastures in terms of quantifiable values and targets"*

   By **monitoring pastures** with counts, cuts (use your quadrats) and cover (%, using the wing-dinger or transect method), you enter a world of describing pastures in terms of quantifiable values and targets, instead of vague references to pasture quantity or quality that are 'poor', 'fair' and 'good'. For feeding livestock, understand terms such as 'digestibility' and 'green dry matter' (green feed, which has a digestibility of 75%) that are applied to pasture and supplementary feeds (grains, meals).

10. **In winter, plan and begin a program to establish 25 new trees per year on your farm.**

    In an excellent book *"Natural Asset Farming: Creating productive and biodiverse farms"* written by Professor David Lindenmayer and his colleagues at ANU, they describe on p. 101 an interesting case study of husband-and-wife landowners John and Liz, who over 29 years planted 1300 paddock trees in strategic locations on their 600 ha property. The book provides guidelines on where to locate trees – in bare paddocks for shade, in copses (clumps), along river banks, around dams, on rocky hills – and what you need to do to maintain them.

    Over three years (2017-2020), the Hovells Creek Landcare Group planted 2000 trees across 23 properties.

ABOVE: Landcare planting at Coolac

Buy or download the book from CSIRO Publishing, read it and then plan/set your target – take it easy at first, work with another family and try for 25 trees on each of your properties in the first year.

11. Before spring arrives, think about your spring-summer-autumn grazing management practices.

Set stocking and rotational grazing are the two main types of grazing management. Both strategies have their strengths and weaknesses and are suited to different circumstances. For example, set stocking is a good strategy to use when ewes are lambing while rotational grazing has advantages when trying to manage for internal parasites. Often, a combination of the two strategies is used, depending on the type of pasture and class of livestock.

While there are benefits associated with rotational grazing rather than set stocking, numerous studies have shown that there is little difference between them in terms of livestock productivity per hectare. However, there are other differences that should be considered. The rotational grazing system is inherently unstable at moderate to high stocking rates – any check to pasture growth (e.g., lack of rain, cold weather etc.) de-stabilises the rotational grazing system (based on high biomass), relatively more so than the low-biomass continuous grazing. This means that you need to be pro-active with pasture monitoring and livestock movements. Furthermore, the 'boom-bust-boom' pattern of

"Set stocking and rotational grazing are the two main types of grazing management... often, a combination of the two strategies is used, depending on the type of pasture and class of livestock"

pasture availability can expose livestock to bloat or grass staggers. Rotational grazing systems also involve more expense on wire and water. In some circumstances, this money can be better spent on other things (e.g., correcting low pH with lime, providing adequate P and S nutrition guided by soil testing, a modest increase in watering points etc.) instead of extensive fencing. Nevertheless, there are many situations where paddock spelling (by rotational grazing) is justifiable to control weeds or preserve valuable pasture components, to make hay or silage, and to avoid pugging during wet periods or to control soil erosion during droughts. What's most important is that you have a grazing plan that suits your production system.

Another recommendation is to create a "confined feeding area" during drought to preserve valuable pasture components in other paddocks and to control soil erosion. NSW Local Land Services staff can offer you good advice and relevant factsheets.

12. **Count the number of established lucerne or phalaris plants in your new pasture.**

13. **In August, plan your soil sampling, along with your liming, fertilising and seeding program, for 2027.**

14. **If you have achieved or partially achieved at least seven (7) targets in 2025/26, take your spouse out to dinner to celebrate.**

Start the process again for 2026/27. Good luck!

From the Conference Proceedings Archive

Below is a selection of papers from past conference proceedings that focus on the role and management of native grasses in grazing systems. The full papers can be found on our website using the links provided below.

Why fertilise native pastures?

D.J. Alcock, L. Pope and D. Garden

Proceedings of the 27th Annual Conference of the Grassland Society of NSW (2012)

Abstract: Fertiliser use in recent decades has been in decline and largely confined to establishing or maintaining production from improved or highly modified pastures. Recent improvements in market conditions and ongoing financial pressures have served to increase both the opportunity and imperative to consider fertiliser use to extract the maximum sustainable economic yield from all pasture types including native pastures. While the addition of fertiliser to native pastures is not new, commodity and input price structures mean the economic return should be assessed case by case. Increased awareness of the biodiversity values of native grasslands and pastures has also served to broaden the focus of research into the fertiliser impacts on species composition and implications for long term sustainability. Research in New South Wales has shown that fertilisers can increase the economic return without compromising the sustainability of the native pasture base, especially where systems include strategic rest from grazing.

https://pgnsw.com.au/conference-proceedings/conference-2012

Long-term effects of fertiliser on the productivity and persistence of perennial native grasses

M.J. Keys and B.W. Clements

Proceedings of the 27th Conference of the Grassland Society of NSW Inc. (2012)

Abstract: The pasture persistence, productivity and economics of three fertiliser regimes was measured for 13 years in an unreplicated study on a 42 ha wallaby grass (*Austrodanthonia* spp.) dominant, 'modified native pasture' at Newbridge on the central tablelands of New South Wales. The soil at the site was a highly acidic, slate/shale based gravelly loam with >20% aluminium throughout the profile. The paddocks had been cleared, cropped once and sown to a mixed introduced perennial pasture containing subterranean clover (*Trifolium subterraneum*) in the 1960s, but reverted to native species over the years with a low phosphate status as fertiliser use declined. The results showed that the native grasses present [wallaby grass, weeping grass (*Microlaena stipoides*) and common wheat grass (*Elymus scaber*)], were persistent and more productive and profitable when fertiliser was applied to overcome deficiencies. The livestock enterprise we used was late July lambing Border Leicester x Merino ewes joined to Poll Dorset rams with the aim of weaning 38 kg lambs before Christmas for the domestic prime lamb market. Despite some dry years and consequent heavy grazing at times, there appears to be no long-term loss of native grasses, even in paddocks where very high fertiliser applications were made. This was attributed to adjustment of stocking rate to utilise the increased pasture growth, preventing smothering of wallaby grass in particular, by annual species stimulated by the increasing fertility. The normal district practice of applying 125 kg/ ha single superphosphate to these modified native pastures, only once every third year was uneconomic.

https://pgnsw.com.au/conference-proceedings/conference-2012

Impact of climate variability on predicted annual pasture intake of sheep grazing native pastures in northern NSW

G. Lodge and I. Johnson

Proceedings of the 22nd Conference of the Grassland Society of NSW Inc. (2007)

Abstract: The SGS Pasture Model was used to predict daily intake of Merino wethers and ewes and lambs in different grazing systems for perennial native grass-based pastures in northern NSW. These simulations indicated that variations in annual rainfall markedly affected the ability of different pasture types to meet the predicted intake requirements of different livestock systems.

https://pgnsw.com.au/conference-proceedings/conference-2007

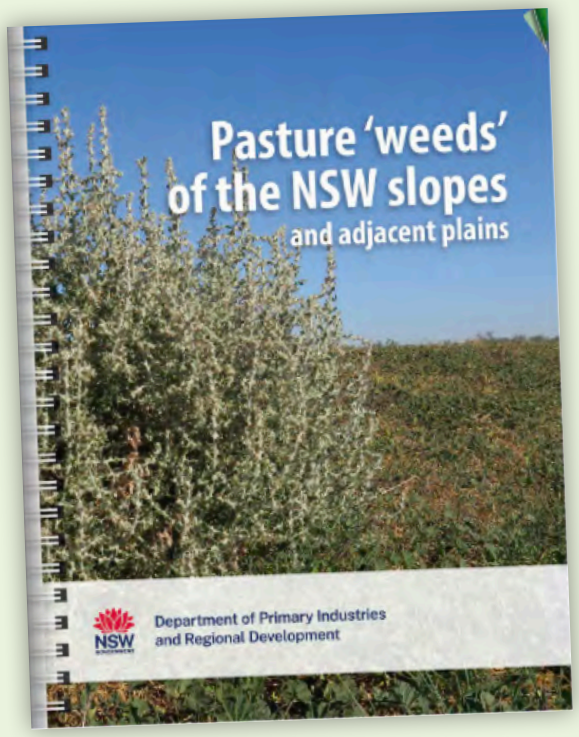
New Publication Released – Pasture 'weeds' of the NSW slopes and adjacent plains

Have you got a property on the NSW slopes and have you got unknown plants you would like to identify?

Then this is the book for you. Released earlier this year, pasture 'weeds' of the NSW slopes and adjacent plains is an easy reference guide to the more common non-grass species that can be present in pastures. This reference guide will help you to recognise those unknown plants so they can be managed appropriately. The book can be purchased at

https://www.tocal.nsw.edu.au/publications/field-crops-and-pastures

There are also reference guides for pasture weeds in coastal NSW and the NSW Tablelands, along with guides for grass identification in each of these locations.



Research Updates

Keeping you up-to-date with the latest pasture and grassland research in Australia. We reprint the abstracts of recently published research articles so you can follow up the full paper if you wish.

Feeding concentrate pellets to early-lactation cows consuming spring ryegrass pasture did not reduce methane emissions

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Abstract

Context

Feed additives containing methane-reducing compounds are effective where dairy cows are fed a total mixed ration. In pasture-based systems, there are challenges incorporating feed additives into the diet, although one potential delivery mechanism is through inclusion into concentrate supplementary feed. However, the use of supplementary feed encounters seasonal complexities, particularly in spring when high-quality pasture supply often equals feed demand. If feed additives were to become a methane mitigation option for pasture-based systems, it is important to determine the impact of concentrates on dairy cow methane emissions (g/day, g/kg DM, and g/kg milk solids), and system profitability.

Aims

This study aimed to evaluate the performance (dry-matter intake (DMI), milk production, and methane emissions) of early lactation dairy cows offered spring perennial ryegrass-based pasture (PAS) or PAS plus 4 kg DM/cow.day of a supplementary concentrate feed (SUP) fed as 2 kg DM/cow during AM and PM milkings.

Methods

Forty lactating (89 ± 2 days in milk (DIM), mean ± s.e.m.) Holstein-Friesian dairy cows were randomly assigned to one of two treatments (PAS or SUP). Following a 3-week dietary adaptation period outdoors, cows were housed indoors for 25 days in a Calan Gate System and continued in their treatment groups (PAS or SUP) with fresh pasture fed twice daily. Milk production was recorded daily, milk composition determined weekly, and gas emissions measured daily by using GreenFeed technology.

Key results

Cows in the SUP treatment had 7.6% greater total DMI (19.2 vs 17.9 ± 0.3 kg DM/day, $P < 0.01$) and 6.9% greater milk solids (MS) production (2.02 vs 1.89 ± 0.04 kg MS/day, $P = 0.02$) than did PAS cows. Cows in the SUP treatment tended to produce more methane (395 vs 376 ± 7 g CH_4 g/day, $P = 0.08$); however, there was no difference in methane yield (g/kg DMI) or intensity (g/kg MS).

Conclusion

When cows are grazing high-quality spring pastures, there is no reduction in methane emission intensity when a concentrate pellet is fed.

Implications

The trend for an increase in methane production and the economic cost, must be considered when evaluating supplementary feeds/or feed additives as potential mitigation tools in pasture-based systems.

Animal Production Science **65**(13) 1–8
https://doi.org/10.1071/AN25184

The effects of clipping frequency and nitrogen fertilisation on greenhouse gas emissions and net ecosystem exchange in an Australian temperate grassland

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Abstract

Grassland ecosystems store significant amounts of organic carbon (C) and have the potential to function as a source or sink of greenhouse gases (GHGs) under different environmental conditions and management practices. However, the effects of management (clipping frequency and N fertilisation) on the GHGs remain uncertain. In this study, a field-based experiment with automated-lid gas exchange chambers was conducted to simultaneously measure different GHG fluxes (CO_2, N_2O, CH_4), their overall global warming potential (GWP-100) impact, and net ecosystem exchange (NEE) from a grassland. The experiment had two clipping frequencies (simulating moderate and high grazing intensity) and two nitrogen (N) fertiliser treatments (0 and 40 kg N ha^{-1} $year^{-1}$). The measurements were conducted during two periods (each approximately 2 weeks long) of varied temperature and moisture in early autumn. High clipping frequency caused higher daily NEE emissions, higher GWP-100 impact and lower photosynthesis; however, it did not significantly affect these parameters. Nitrogen fertilisation effects were lower than the clipping frequency treatment, but the impact on N_2O fluxes was likely to be dependent on the time of N application. Methane (CH_4) was predominantly controlled by soil moisture, whereas nitrous oxide (N_2O) was more strongly affected by temperature. N_2O emissions increased significantly after the break-point temperature of 20°C. Our results have highlighted the sensitivity of CH_4 uptake and N_2O emissions to environmental conditions, particularly their increase under warmer temperatures. The main contributor of GWP-100 impact in this study was CO_2 emissions and uptake. For the observation period, the grassland was a small C sink. For a comprehensive understanding, longer-term studies spanning over several years are needed to accurately assess the impact of different management practices on GHG emissions.

The Rangeland Journal **47**(1) 1–15
https://doi.org/10.1071/RJ23026

From the Chairperson

As we head into spring, the NSW Combined Drought Indicator is showing that 56% of NSW is in non-drought or recovery categories. The prospect of recovery is mostly high because of potentially good spring rainfall. However, follow-up rainfall will be required to maintain pasture growth as temperatures warm up. Here in north-west NSW, the production potential is positive for both cropping and pastures. For more information, you can look at the latest NSW State Seasonal Update at https://www.dpi.nsw.gov.au/climate_applications/state-seasonal-update/summary

Continuing our push for more exposure and increased membership, one of our Directors, David Harbison, represented Pastures & Grazing NSW at the Central West Local Land Services Grazing Forum which was held on 3 September at Parkes. The grazing forum addressed issues including soil acidity, pasture species selection, reducing emissions, cattle genetics and performance, ewe management and worm control. David Harbison sat on a producer/advisor panel that covered all things 'pastures'. Post lunch, attendees visited a recently planted pasture demonstration site, showcasing a range of species which provides an opportunity to see what species may persist over time. Participation at the forum was better than expected with 60 in attendance.

Our Executive Officer, Anne Baker, continues to be very pro-active on Facebook and other social media platforms. Make sure you keep an eye on these platforms as she is constantly sharing information about other pasture-related events. Our number of followers has also grown substantially within the last year.

Planning for our 2026 Pastures & Grazing Conference is progressing well. The theme we have adopted is'*The Science of Pastures and Grazing*', as this reflects our goal of providing accurate information that is based on science. I am looking forward to bringing you our 2026 conference and spending time with our members and delegates.

To assist the Conference Planning Committee, we have brought in an Event Coordinator, Mel O'Sullivan, who will take on the burden of the leg work associated with conference planning. Mel has worked in logistics in a previous role with the Australian Army and we welcome her to the position. A micro website is also being developed as a one-stop-shop for all information relating to the conference. This will be accessed through our main website and will be the place to register for the event and download the agenda.

The next event on our Pastures & Grazing calendar is the Tamworth Pasture Update which will be held on 22 October 2025 at the Tamworth Agricultural Institute. Look for updates on our website and Facebook as they come to hand.

This year's AGM will again be held on Zoom (7 October 2025). You will shortly be receiving the agenda and registration details to participate, and I encourage your attendance, because we are here for the members.

Regards,

Lester McCormick
Chairperson (on behalf of the Board)
Pastures & Grazing NSW

Next Newsletter

The next edition of the newsletter will be distributed in December 2025. If you wish to submit an article, short item, a letter to the Editor or a photo please email your contribution to:

editor@pgnsw.com.au

The deadline for submissions is
Friday 14 November 2025