

Ten tips for better establishment of sown tropical perennial grasses in northern New South Wales

G.M. Lodge and L.H. McCormick

Industry & Investment NSW, Primary Industries,
Tamworth Agricultural Institute, 4 Marsden Park Road, Calala NSW 2340
greg.lodge@industry.nsw.gov.au

Abstract: *Successfully sowing tropical perennial grasses requires planning for paddock and species selection, the use of high quality seed, sowing at the correct time and depth and pre- and post-sowing weed control.*

Introduction

Evaluation studies (McCormick *et al.* 1998; Boschma *et al.* 2009) have clearly shown the superior production and persistence of tropical perennial grasses in the predominantly summer rainfall environment of inland northern New South Wales (NSW). However, producer focus groups (McCormick *et al.* 2009a) have identified risk of establishment failure as one of the major constraints to increased sowings of tropical perennial grasses in northern NSW.

To fill the ‘information gap’ and provide producers with better knowledge about successful establishment, a series of studies was undertaken on sowing time and depth of sowing (Lodge & Harden 2009; Lodge *et al.* 2010), pre-sowing weed control (Lodge *et al.* 2010) and seed dormancy and seedling regeneration from natural seedfall (Lodge *et al.* 2009). Also, as part of these studies it became apparent that the variable quality of commercially available seed was a major issue that needs to be addressed (McCormick *et al.* 2009b).

The information from these studies highlighted ten ‘tips’ for markedly improving the likelihood of producers being able to successfully establish tropical perennial grasses in northern NSW.

Ten tips for successful establishment of tropical perennial grasses

Things to do before you sow

1. Select the right species for the soil type and paddock conditions and sow at a rate sufficient to establish a minimum of 10 plants per square

metre. Have you considered the advantages/disadvantages of using species mixtures?

2. Know and understand why you are growing the pasture and what you expect in terms of seasonal pasture growth and quality, livestock liveweight gain and animal performance – use the right type of livestock and grazing tactics for improving pasture quality and animal production.

3. Only buy and sow high quality seed (i.e. high purity, high germination, low amounts of inert material and other seeds). Insist on inspecting a recent certificate of analysis for the seed you are going to buy. Adjust sowing rates to allow for seed coatings.

4. Undertake pre-sowing weed control in the selected paddock for up to 2 years prior to sowing. This will ensure the control of summer-growing annual grass weeds such as liverseed grass (*Urochloa panicoides*) and awnless barnyard grass (*Echinochloa colona*). The weed seed bank can be assessed by grabbing a few handfuls of surface soil from the paddock you intend to sow and spreading them out on a piece of paper. If you can see more than one summer-growing annual grass seed in each handful of soil, do not sow. One weed seed per handful of soil equates to 400 weed seeds per square metre.

Things to do at sowing and during establishment

5. Sow in late November–December when soil temperatures are 18°C and rising as indicated by average day temperatures being higher

than 20°C and night temperatures above 10°C for 7–10 days. Sowing at this time of the year maximises the chances of receiving summer rainfall while temperatures are high. Do not sow after mid February (end of January in cooler areas) since small plants can be severely affected by frosts in the following autumn, winter and early spring.

6. Sow at a depth of 10–12.5 mm and cover seed with soil. If sowing in rows in light and medium textured soils, use press wheels to ensure good soil-seed contact. At this sowing depth the seed bed will be dry and follow up rainfall of 20–25 mm, preferably in two falls is required for germination and establishment.

7. Use a simple push-probe to measure subsoil moisture and preferably sow when there is 1 metre of subsoil moisture to ensure pasture growth.

8. Post-sowing weed control of broadleaf weeds is essential at an early stage, as tropical perennial grass seedlings are susceptible to competition. Use pre-sowing management to control annual summer-growing grass weeds.

9. Apply fertiliser at an early growth stage, as phosphorous, sulfur and nitrogen levels should be adequate for newly sown pastures. Specialised sowing machinery allows the fertiliser to be placed below the seed depth where it can be better utilised. Note that in weedy situations, fertiliser will also encourage weed growth.

10. In the first year, plants must be well anchored before grazing, and it is desirable to let newly sown pastures flower and 'run to head' towards the end of the growing season. Consider sowing a legume in the following autumn to supply nitrogen. Tropical perennial grasses are very responsive to nitrogen and it is essential to maximise feed quality.

For each of these tips more detailed information is available in Primefacts published by NSW Industry & Investment and available at: www.dpi.nsw.gov.au/primefacts.

Acknowledgments

Studies that provided the data on which this information is based were partially funded by the Future Farming Industries Cooperative Research Centre and Industry & Investment NSW (formerly the NSW Department of Primary Industries).

References

- Boschma, SP, Lodge, GM & Harden, S (2009) Establishment and persistence of perennial grass and herb cultivars and lines in a recharge area, North-West Slopes, New South Wales. *Crop & Pasture Science* 60, 753–767.
- Lodge, GM & Harden, S (2009) Effects of depth and time of sowing and over-wintering on tropical perennial grass seedling emergence in northern New South Wales. *Crop & Pasture Science* 60, 954–962.
- Lodge, GM, McCormick, LH & Roworth, BR (2009) Seed yield, dormancy and seedling survival of some perennial tropical grasses in northern New South Wales. In 'Proceedings of the 24th annual conference of The Grassland Society of NSW'. (Eds D Brouwer, N Griffiths, I Blackwood). pp. 90–93. (NSW Grassland Society Inc.: Orange).
- Lodge, GM, Brennan, MA & Harden, S (2010) Field studies of the effects of pre-sowing weed control and time of sowing on tropical perennial grass establishment, North-West Slopes, New South Wales. *Crop & Pasture Science* 61, 182–191.
- McCormick, LH, McGufficke, BR, Harden, S & Ross, BA (1998) Subtropical grass evaluation for pastures in northern NSW. In 'Proceedings of the 9th Australian Agronomy Conference, Wagga Wagga'. Available at: <http://www.regional.org.au/au/asa/1998/1/028mccormick.htm>
- McCormick, LH, Boschma, SP, Lodge, GM & Scott, JF (2009a) Producer-identified constraints to widespread adoption of sown tropical grass pastures on the north-west slopes of New South Wales. *Tropical Grasslands* 43, 263–266.
- McCormick, LH, Lodge, GM, Boschma, SP & Murray, S (2009b) Simple rules to use when buying seed of tropical perennial grasses. In 'Proceedings of the 24th annual conference of The Grassland Society of NSW'. (Eds D Brouwer, N Griffiths, I Blackwood). pp. 97–100. (NSW Grassland Society Inc.: Orange).