

# Producer-identified constraints to widespread adoption of sown tropical grass pastures on the north-west slopes of New South Wales

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## Abstract

Although sown tropical pastures have great potential on the north-west slopes of New South Wales, producers have been reluctant to trial them. Workshops were conducted to determine producer thoughts and perceptions of tropical grasses and these were used to develop research and extension programs to overcome these barriers.

## Introduction

Tropical grasses were first evaluated in northern New South Wales (NSW) in the 1950s and research on their production in the region has been conducted since that time. Although their potential is recognised and some producers have been successfully using tropical grasses in their grazing systems for many years, the overall level of adoption has been low. This appears to be a result of poor seed availability and the focus by producers on grain farming.

It is only within the last decade, when conditions have been dry and seasons variable, that producer interest in tropical grasses has become more widespread, but rates of adoption and area sown remain low. To obtain a better understanding of producers' opinions and attitudes, a series of focus group workshops were held in the mixed farming Gowrie and Manilla districts and for members of the New Mexico Landcare Group

in northern NSW. Those who attended from the Gowrie district (25 km south-west of Tamworth) tended to have more experience with, or exposure to, tropical grasses through the activities of private commercial agronomists and 2 local landholders, who provided a contract sowing service, while those in the Manilla area (50 km north-west of Tamworth) and the New Mexico Landcare Group (located 25 km west of Manilla) had less prior exposure/experience. Producers attending represented a range of property sizes and enterprises.

A further objective of the focus groups was to inform those attending of the research and extension activities within a project funded by the Future Farming Industries Cooperative Research Centre to ensure that it met the needs of local producers. The groups were asked 4 questions about tropical grasses (Table 1): their advantages and disadvantages; the type of information that was not available; and how it should be provided. This paper details the responses of the 3 groups and how the information was used when devising research and extension programs to improve the adoption and use of tropical perennial grass-based pastures.

## Producer barriers to adoption

Opinions on tropical grasses were varied and included both positive and negative comments, although producers who attended the Manilla workshop tended to have the most concerns. High cost and a loss of production associated with the time taken to prepare a paddock for sowing, when establishing a pasture, were common concerns (Table 1). Interestingly, producers who had previously successfully sown tropical grasses were more positive about their potential role in northern NSW pasture systems, but wanted to know more about production issues such as feed quality and management. All 3 groups mentioned the need to compare the performance of trop-

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ical grasses with that of existing native perennial grass-based pastures.

*Question 1 – What, if any, disadvantages are there with tropical grasses?*

Establishment cost, in particular the high cost of seed, was raised as a major issue at all 3 workshops (Table 1), as was the perceived high risk of

failure when establishing tropical grass pastures. The time required for pre-sowing weed control of annual summer-growing grasses and the total time that a paddock could be out of production were also mentioned as drawbacks. Additional major shortcomings mentioned by producers included a lack of information on, or concerns about, persistence, feed quality, the need for additional fertiliser inputs, winter dormancy of frost-susceptible tropical grasses and the probable

**Table 1.** Producer comments to questions asked at workshops held for focus groups in the Manilla and Gowrie districts, and the New Mexico Landcare Group.

Comment	Manilla	Gowrie	New Mexico
<i>Question 1 – What are the disadvantages of tropical grasses?</i>			
High establishment costs (including seed) and risk (failure and erosion owing to poor ground cover during establishment)	✓	✓	✓
Lost production time/slow return to production	✓		✓
Difficulty managing the bulk of feed	✓		
Winter-dormant/reliant on summer rainfall	✓	✓	✓
Lack of information (sowing time, suitable species, feed quality, fertiliser requirement, persistence, companion legume options, new management skills required, potential wool contaminant)	✓	✓	✓
Difficult to remove to return to cropping		✓	
<i>Question 2 – What are the advantages of these pastures in your farming system?</i>			
Highly persistent/permanent pasture/self-thickening	✓	✓	✓
Good NRM <sup>1</sup> (deep-rooted pasture, high ground cover, good litter, less chemicals required, low erosion, high water quality into dams, amelioration of soil physical properties)	✓	✓	✓
High production potential (feed, hay, livestock carrying capacity)	✓	✓	
Uses summer rainfall/fills the summer feed gap	✓	✓	✓
Non-bloating		✓	
Forgiving of poor grazing management		✓	
Longer growing season than native pastures and seed more readily available			✓
<i>Question 3 – What are the barriers to adoption/use of tropical grasses in your farming system?</i>			
Establishment costs (seed, stress to producer) and difficulties (risk of failure)	✓	✓	✓
Risk of failure (poor season, summer storms, seen too many failures)	✓		✓
Time and cost of lost production preparing and establishing a pasture	✓	✓	
Too many unknowns (carrying capacity, equipment required, ability to sequester carbon compared with native pastures)	✓		✓
Feed quality		✓	
Insufficient number of field demonstrations			✓
‘Need a shift in our thinking’			✓
<i>Question 4 – What extension information is missing and how should it be supplied?</i>			
Establishment details (sowing rates, time of sowing, establishment methods, role of uncoated seed, herbicide options)	✓	✓	
Management (best management practices, herbicide options, fertiliser requirements)	✓	✓	
Suitable companion legumes	✓		
Feed quality (between species, at different growth stages, temperates vs tropicals)	✓	✓	
Suitable species for different soil types		✓	
Matching species with livestock/enterprise type		✓	
Water use efficiency		✓	
More demonstrations (Will they persist in our dry hot summers? Are we asking tropicals to grow where they don’t want to?)	✓	✓	
Trial packages for own areas (involving seed companies or agribusiness)		✓	
Home trials (e.g. 10 ha sown as part of the Healthy Soils for Sustainable Farms program)			✓
Case studies (successes and failures)		✓	
Newsletters		✓	
The message must be consistent (agency, agribusiness, seed companies)			✓

<sup>1</sup> NRM, Natural resource management.

requirement for them to have to learn new management skills (Table 1).

*Question 2 – What are the advantages of these pastures in your farming system?*

Major benefits of tropical grasses included their perenniality, high productivity and ability to use summer rainfall, together with their roles in filling the summer feed gap and in complementing the growth of native perennial grasses in summer (Table 1). All groups highlighted the natural resource management (NRM) benefits including higher levels of ground cover and litter as being positive aspects of sowing tropical perennial pastures.

*Question 3 – What do you think are the barriers to the adoption/use of tropical perennial grasses in your farming system?*

Major barriers to adoption mentioned by all groups were costs of establishment and seed costs (Table 1). Other impediments to adoption and/or use included the loss of income for the time between paddock selection and establishment/production, the length of the paddock preparation time required for pre-sowing weed control, their past experiences with establishment failures, the difficulty of establishing pastures in summer when rainfall effectiveness is low and temperatures and evaporation rates are high, and a general lack of knowledge of potential productivity.

*Question 4 – What extension information is missing and how should it be supplied/presented?*

Producers identified a wide range of topics on which they thought there were information ‘gaps’ (Table 1), including establishment, management, feed quality compared with alternative pastures, potential carrying capacity, and how to match different species to livestock classes and enterprise types. They also expressed the view that more information specific to the local area would be of benefit and that these issues could be best addressed by local on-farm demonstrations, case studies and newsletters.

## Outcomes from the focus groups

Producers’ responses to the focus group questions were used to formulate research studies (e.g. Lodge and Harden 2009; Lodge *et al.* 2009a, 2009b) based on the key topics that they identified as needing further information, e.g. establishment, pre- and post-sowing weed control, sowing time and depth, seasonal growth, effects of nitrogen on forage production and quality and the comparative water use efficiency of different tropical perennial grasses (Murphy *et al.* 2008a; 2008b).

Extension activities were planned around field days and bus tours that promoted and supported the research being conducted by Industry & Investment NSW (formerly NSW Department of Primary Industries, DPI), the establishment of ~10 ha on-farm demonstration paddocks (funded by the Healthy Soils for Sustainable Farms program) and the use of case studies to promote the positive experiences of producers who had successfully sown and were using tropical grasses in their grazing systems. Low seed quality was an important problem highlighted by producers and a major extension activity has been put in place to promote awareness of the adverse effects of poor seed quality on successful establishment and its cost to producers (e.g. McCormick *et al.* 2009).

Producers in the Gowrie group were also used to help define the characteristics of a typical property in their district and this information was used as a ‘reference farm’ for modelling and economic analyses. This farm had a total area of 400 ha and its main enterprise was first-cross spring lamb production from 1500 Merino ewes (i.e., a stocking rate of 3.75 ewes/ha). To support this enterprise, the property had a mixture of unfertilised native perennial grass pastures, native pastures fertilised and oversown with subterranean clover (*Trifolium subterraneum*), sown pastures of lucerne (*Medicago sativa*) and tropical perennial grasses, winter (oats) and summer (sorghum) forage crops and areas of winter cereal crop stubble.

## Acknowledgements

The authors thank the cooperating producers for their valuable input and time.

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