A survey of graziers' perceptions of long-term productivity of leucaena pastures in Queensland

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Introduction

Leucaena leucocephala ssp. *glabrata* (leucaena) planted in hedgerows with companion grass (leucaena pasture) is a valuable forage option for large-scale beef production in Queensland, with more than 100 000 ha planted (Mullen *et al.* 2005). The longevity of grazed leucaena pastures is well known (Jones and Bunch 2000), but less is known about the productive lifespan of these pastures in different soil types and environments. The aim of this study was to quantify the performance of young (1 to 10-year-old) and aging (11 to 30-year-old) leucaena pastures in Queensland. A survey was conducted to determine graziers' perceptions of leucaena, grass and livestock productivity over time.

Materials and methods

A questionnaire posted to 250 putative leucaena growers in October 2005 asked them to choose a typical paddock that best represented the average performance of leucaena pastures on their property, with preference given to aging pastures. Graziers were first asked to describe their pasture (age, soil type, grazing pressure, grass species, planting strategy, row spacing and fertiliser application). A second set of questions sought their perceptions of leucaena growth, grass growth and cover, undesirable grasses and weeds, and livestock productivity 2–3 years after leucaena planting and in the last 2 years, *i.e.*, current condition. Data were tested by Chi-square analyses against the hypothesis that forage and livestock productivity in aging pastures was lower than in younger ones. Factors affecting changes in productivity over time were also examined.

Results

Of the 102 graziers (41%) who responded, 89 (36%) had leucaena pastures. These graziers reported the forage and animal performance of 124 paddocks, covering a total area of 11 750 ha (about 10% of the total leucaena pasture area in Queensland in 2005).

The main findings were:

- current leucaena growth was significantly lower (P<0.001) in the aging pastures than in the young ones (Figure 1);
- current grass growth and cover were rated excellent and good in most of the leucaena pastures (Figure 2);
- current livestock productivity was significantly lower (P<0.001) in the aging leucaena pastures than in the younger ones, following the same pattern as leucaena growth;
- the decline in leucaena growth was significantly greater (P=0.024) in pastures growing on brigalow clay and softwood scrub soils than on alluvial soils; and

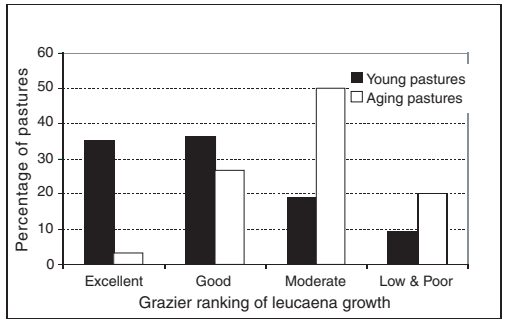

Figure 1. Effect of age (young *vs* aging) on current leucaena growth in 104 pastures. Age effects were significant (P<0.001).

- most pastures (87%) had never been fertilised, while >90% of pastures sustained moderate-high grazing pressures.

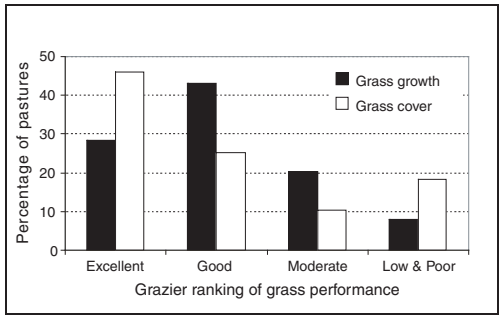

Figure 2. Current grass growth and cover in 88 young and aging leucaena pastures. Age effects were not significant (P>0.1).

Conclusions

Graziers reported that the long-term productivity of leucaena pastures might not be sustainable under current management practices on most soil types. Lower productivity was reported to be a result of a decline in leucaena growth, while grass remained vigorous. Possible causes of leucaena run-down are currently under investigation.

References

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