Evaluation of tropical legumes in northern New South Wales

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Tropical legumes are summer growing, drought tolerant plants with rapid growth rate, and production. They fix atmospheric nitrogen in symbiosis with *Rhizobium* bacteria and provide high protein feed for stock while decreasing dependence on N fertiliser when used in cropping rotations. Compared with temperate species, much less is known about tropical legumes, especially about their potential as forage pastures. They are mainly perennial and non-bloating plants.

Methods

Forty-eight accessions were evaluated in 1997-1998 for productivity at Moree, on black earth and red clay loam sites. The sites were in a region receiving about 650 mm of rainfall, with 61% summer dominance. Both sites have an elevation of 240 m, are flat and have a wide average temperature range (20-33°C) in January and (3-20°C) July. Frost would be expected at both sites during winter.

The accessions were sown into full cultivation and without a companion grass. Fertiliser at 200 kg/ha of single super was applied to the plots prior to sowing. Seed was inoculated with appropriate *Rhizobium* inoculum and sowing rates varied with seed size, from 5-20 kg/ha. Seedling establishment, height, days to flowering, ground cover, yield and frost susceptibility were measured. Measurements were taken for early season (90 days) dry matter yields and final season (160 days) dry matter yields.

Results

Field testing established the superiority of *Lablab purpureus*, *Desmanthus virgatus*, *Macroptilium bracteatum*, *Macroptilium erythroloma* and *Macroptilium gracile*. They provide rapid forage growth with *Lablab* producing up to 5000 kg/ha in 90 days at the black earth site. These species showed persistence over 2 seasons and productivity and are potentially suited for use in rotation leys or possibly longer term pastures. Other lines showing less promise include, *Vigna lasiocarpa*, *Vigna decipens*, *Stylosanthes seabrana*, *Clitoria ternatea*, *Glycine latifolia*, *Centrosema schottii* and *Macroptilium atropurpureum* cv. Aztec.

Conclusion

The study has highlighted the potential suitability of five tropical legumes, namely three *Macroptilium* species, *Lablab purpureus* and *Desmanthus virgatus* to northern NSW.

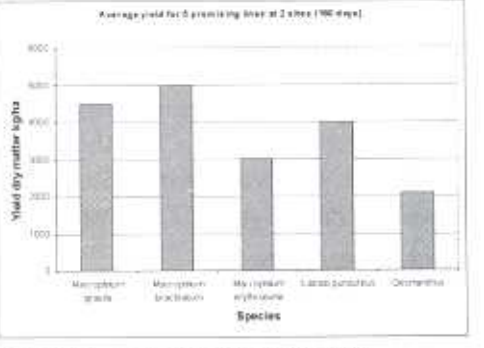

Figure 1. The average yield of 5 promising lines at 2 sites in northern NSW

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