A comparison between leucaena Leucocephala cv. Peru and Acacia Angustissima CPI 51651 in South-East Queensland

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The value of the browse shrub *Leucaena* leucocephala cv. Peru (leucaena) as a supplement for beef cattle grazing native spear grass pastures is being examined (1, 2) at "Brian Pastures". *Acacia angustissima* CPI 51651 (acacia) is another shrub that provides valuable browse in Southern Arizona and Northern and Central Mexico (R.L. Reid pers. comm.). The aim of this experiment was to compare the productivity of leucaena and acacia on two soil types.

Methods

Five replications of 2 x 5 m plots were sown in February 1977 as a 2 x 2 randomized block on each of two soil types. Treatments were (i) two species: leucaena and acacia and (ii) two levels of superphosphate broadcast before sowing: nil and 125 kg/ha. Soil types were a sandy clay loam derived from basalt (Ug 5.12) (3) and a coarse granitic sand (Uc 2.12) (3), with bicarbonate extractable phosphorus 63 and 53 ppm respectively. Plants of both species grew at a 30 cm spacing along rows 3 m apart. Leaf and pod yields of leucaena and acacia were measured in May and December by stripping these components from plants in 3 m of row per plot. Subsamples were bulked over replications from each soil type and analysed for N and P. Yields were analysed by an analysis of variance with replicates nested within soils.

Results and Discussion

Table 1. Leaf and pod D.M. yields (kg/ha) from leucaena (L) and acacia (A)

Soil type	May						December					
	Leaf		Pod		Total		Leaf		Pod		Total	
	L	A	L	A	L	A	L	A	L	A	L	A
Basaltic	1853a	177b	1020c	44d	2874e	221f	2332g	480h	21791	000k	4511r	480s
Granitic	400b	103b	94d	29d	495f	132f	1724g	403h	1296j	000k	3020r	403s

In a column or row, values of a component (i.e. leaf, pod or total) at each sampling followed by the same subscript are similar. ($P < 0.05$).

In May, leaf and pod yields of leucaena grown on basaltic soil were greater ($P<0.05$) than those from the granitic soil and greater ($P< 0.05$) than acacia leaf and pod on both soil types (Table 1). In December, there were no differences between leucaena leaf yield on either soil type although leucaena pod yield on the basaltic soil was superior ($P< 0.05$) to that on the granitic soil. Yield of leucaena leaf was greater ($P <0.01$) than that of acacia. No yield response to applied P was measured at either harvest. Leaf P varied from 0.12 to 0.18% and pod P from 0.24 to 0.27% for leucaena and acacia respectively with no effect of soil type. N concentration of components was 15% lower when grown on granitic soil than on basaltic soil. The minimum recorded N concentration was 2.00%. Acacia cannot be recommended as an alternative browse shrub to leucaena on either soil type.

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