

THE NUTRITIVE VALUE OF *LEUCAENA LEUCOCEPHALA* FOR INDONESIAN RUMINANTS

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There is little information on the nutritive value of *Leucaena leucocephala* for small ruminants though it is considered to be a promising forage for the tropics. Dry matter digestibilities of 71.4% in goats (Upadhyay et al. 1974) and 59.7% in sheep (Yerena et al. 1976) and a dry matter intake of 2.2% of live weight for goats (Upadhyay et al. 1974) have been reported.

As part of studies to determine the response of Indonesian sheep and goats offered a sole diet of *leucaena*, dry matter intake (DMI) and digestibility (DMD) and liveweight gains (LWG) were measured for both pelleted and fresh *leucaena*. Four does (Kambing Bogor), four Javanese thin-tail (JTT) and four British breed x JTT ewes were initially offered pelleted *leucaena ad libitum* for 12 (goats) and 13 (sheep) weeks. The diet was changed to fresh *leucaena* offered *ad libitum* for the same periods of time. Seven day balance trials were conducted during the last week of each feeding period. The concentrations of mimosine and DHP in the feed were determined weekly and plasma thyroxine concentrations were determined at the end of each feeding period.

TABLE 1 Dry matter intakes and digestibilities and liveweight gains

	Goats		Crossbred sheep		JTT sheep	
	pelleted	fresh	pelleted	fresh	pelleted	fresh
DMI (g/kg ^{0.75} /day)	106 ^a	80 ^c	102 ^a	75 ^c	97 ^{ab}	85 ^{bc}
LWG (g/day)	36 ^c	60 ^{ab}	37 ^c	62 ^a	21 ^d	45 ^{bc}
FCR	30.3	15.2 ^d	32.4	15.4	39.4	18.1
DMD (%)	22.2 ^b	68.0 ^d	29.1 ^a	63.2 ^c	32.7 ^a	63.5 ^c
Mean LW (kg)	22.4	25.6	26.8	30.7	17.6	20.4
+ SE of LW	1.7	1.0	3.4	3.3	3.2	3.0

Values with the same superscript are not significantly different.

The intakes of pelleted *leucaena* were greater than, or equal to, those for fresh *leucaena*. However liveweight gains and digestibilities were significantly higher, within breeds, for fresh *leucaena* than for pelleted *leucaena*. FCR's for fresh *leucaena* were approximately half those for pelleted *leucaena*. The mean intakes of mimosine plus DHP were 7 and 11 g per day for pelleted and fresh *leucaena* respectively. The corresponding plasma thyroxine concentrations were 100 and 78 ng/ml. No clinical signs of mimosine or DHP toxicity were observed.

The use of pelleted *leucaena* is not recommended because of its poor utilization. The intake and digestibility of fresh *leucaena* by JTT ewes was similar to that recorded for diets containing concentrate (Obst et al. 1980). However, the liveweight gains, though sustained, were less than half and the FCR's approximately double for fresh *leucaena* compared with those diets. Some factor(s) other than altered thyroid activity appeared to limit the performance of animals consuming *leucaena* as a sole diet.

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