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A NOTE ON THE PERFORMANCE OF CALVES FED CUT OR GRAZED LEUCAENA LEUCOCEPHALA (LAM.) DE WIT

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Two similar groups of 8 calves each, initial weights 66.8 ± 3.2 and 62.4 ± 3.0, were given fresh-cut, chopped leucaena forage at 3% of liveweight together with molasses/urea (2.5% w/w)ad libitum, residual milk left after hand milking (approx 1.5 litres) and 2 hours grazing of a mixture of *Brachiaria mutica* and Pangola (*Digitaria decumbens*) for an initial period of 56 days. Liveweight gains were 373.1 and 355.3 g/d (SE ± 52.7) for the 2 groups. One group then remained on the diet described above, whilst the second group did not receive the supplementary grass. Liveweight gains for this second period (71 days) were 452.0 and 531.3 g/d respectively (SE ± 47.8). In the third experimental period the second group remained on the same diet, while the first group, in place of cut, chopped leucaena, grazed a 100% leucaena paddock between 0800 - 1000 and 1600 - 0500 h. Liveweight gains for this period (35 days) were 535.0 for cut and 430.5 g/d for grazed leucaena treatments respectively (SE ± 73.3).

Key words: *Leucaena leucocephala*, calves, grazing, molasses/urea, liveweight gain

Following successful trials using leucaena for fattening cattle (Wahyuni et al 1982; Meyreles et al 1982; Paterson et al 1982; Jones1979; Hill 1971) and for calves (Boodoo and Phillippo 1979; Saucedo et al 1980) a trial was carried out to assess cut or grazed leucaena as a protein and roughage source for suckling calves.

Materials and Methods

The trial was carried out on a dual-purpose (milk and meat) unit situated 10 km from Santo Domingo, with a humid tropical climate. The animals used were crossbred (Holstein or Brown Swiss x Zebu) calves with an average initial liveweight of 64.6 kg.

The cut leucaena was harvested from a plot established 2 years previously of 2 forage varieties (Peru and Cunningham). It was then chopped and fed fresh at 3% liveweight (fresh basis). Crude protein and dry matter of the forage were 19.5% and 26% respectively. The plot used for grazing was established the year previously and had been cut to 50 cm height 8 weeks before the animals were introduced. Stocking rate of the grazed plot was 30 animals/ha, and the grazing periods were 0800 - 1000 and 1600 - 0500 h.

All calves received residual mothers milk after hand milking (1/2 to 1 1/2 hours of suckling) and the average amount of milk received was calculated by weighing before and after suckling, as 1.5 litres/animal/d.

All animals received molasses/urea (2.5%w/w) ad libitum and 30 g/d complete mineral mix.

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The diets were as follows:

Period One (56d)	Period Two (71d)	Period Three (35d)
Groups 1 and 2: Cut leucaena 3% LW Molasses/urea ad lib Minerals 30g/an/d Restricted grass-grazing (2 h/d)	Group 1: as for Period 1 Group 2: as for Period 1 but without grass grazing	Group 1: grazing of leucaena + molasses/urea ad lib. Group 2: as for period 2

Results

Liveweight gains for the three periods and the two groups are shown in Table 1. Gains in the first period were similar which is to be expected as the diets were identical. In Period 2 there was a tendency for

Table 1:

Liveweight gains of calves fed cut or grazed leucaena (g/d)

	Group one	Group two	SE of difference between means
Period one	373.1 (+ grass grazing)	355.3 (+ grass grazing)	± 52.7
Period two	452.0 (+ grass grazing)	531.3 (- grass grazing)	± 47.8
Period three	430.5 (leucaena grazing)	535.0 (Cut leucaena)	± 73.3

the animals corraled all the time (i.e. those that did not have supplementary grass grazing) to have a better liveweight gain. Difference between liveweight gains in Period 3 was not statistically significant, although there was a tendency for cut leucaena to be superior to grazed leucaena.

Molasses intake averaged over treatments increased in successive 56d periods from 0.57 kg/d to 1.53 kg/d. There was little difference in molasses intakes between groups. Chopped leucaena refusals (woody stem only) averaged 9% (fresh basis) of forage offered. Final weights for the two groups were 138.6 and 148.2 kg for Groups 1 and 2 respectively.

Discussion

Considering no concentrate supplementation was used, gains were satisfactory. It would appear from the results obtained without supplementary grass grazing that leucaena at 3% liveweight (LW) provides sufficient roughage for the animal, and that the grass grazing had no beneficial effect. Indeed this may be deleterious, as risk of parasite infection and losses through increased walking may adversely affect gains.

Cutting, carting and chopping leucaena represents a high input of labour and machinery, which it appears, can be substituted by direct grazing of the leucaena, The lower gain on the leucaena grazing treatment can probably be explained by the very high stocking rate (30 animals/ha) which meant that consumption/animal was restricted below the 3% LW level of the cut leucaena treatments. No mimosine toxicity symptoms were observed and

all animals appeared to be in good health throughout the 162 day duration of the experiment.

Gains were below those obtained by Saucedo et al (1980) of 680 g/d on a diet of leucaena at 2.5% LW + 0.5 kg molasses/urea (2.5%),residual milk, salt and minerals and grazing from 0800 - 1500 h. In this trial no difference was observed between the above diet and one in which the leucaena was substituted for 600 g/animal/day of rice polishings.

In a trial comparing leucaena ad libitum and balanced concentrate (300 g/100 kg LW) as supplements for suckling calves consuming a basic diet of whole chopped sugarcane ad libitum and molasses/urea (5%) ad libitum, Boodoo and Phillipo (1979) found that the liveweight gains for the leucaena treatment (425 g/d) were significantly better than those for the balanced concentrate (386 g/d).

It is concluded that for suckling calves, receiving sufficient energy and fermentable nitrogen, leucaena (cut or grazed) is a suitable source of protein/roughage and can totally replace conventional protein concentrates. Although no toxicity symptoms were observed, efficient use of leucaena dictates its use as a supplement restricted to 2 - 3% LW.

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