

RESPONSE OF CREOLE BULLS REARED UNDER RESTRICTED GRAZING ON A MOLASSES BASED DIET

J P Teeluck, B Hulman & T R Preston¹

Ministry of Agriculture, Natural Resources and the Environment, Reduit, Mauritius

8 Creole cross Friesian bulls of approximately 110 kg were allowed restricted grazing for 6 hr daily on setaria pasture and fed a basal diet of molasses urea mixture supplemented with 500 g of maize and 200 g fishmeal. An area of 3.4 ha was divided into 5 paddocks of 0.68 ha each, which were rotationally grazed every 10 - 12 weeks. Animal performance was 0.61 and 0.48 kg/d for the wet (February - July) and dry (July - December) months respectively. The fodder intakes over the two periods were estimated to be 4.3% and 3.7% of body weight respectively and respective feed conversions were 8.2 and 14.4 for wet and dry months respectively. The fodder grazed had an average dry matter (DM) content of 23.12 and a crude protein (CP) of 7% of the DM.

Key words: Restricted grazing, setaria pasture, molasses, fattening, performance, cattle

On molasses based diets both the amount (Losada and Preston 1973) and the quality (Salads et al 1977) of the roughage are known to affect animal performance.

Most experience in Mauritius with molasses feeding systems has been under feedlot conditions (Hulman B, unpublished data). The use of grazing to provide the roughage component was very successful in Cuba (Morciego et al 1970) but this system has not yet been investigated in Mauritius, since in the humid central area, where grass grows well, is also infested with the biting fly *Stomoxys calcitrans*. This pest is now considered to be less of a problem since the introduction of biological control measures (Marty R, personal communication). It was therefore decided to investigate the possibilities of using grazing in combination with molasses/urea and restricted amounts of a protein supplement.

Materials and Methods

Animals and diet. Eight Creole cross Friesian bulls aged 12-13 months and approximately 110 kg liveweight were used. The basal diet consisted of molasses containing 2.5% urea fed at a slightly restricted level of 2 % of body weight, and a daily supplement mixture of 500 g maize, 200 g fishmeal and 60 g mineral mixture. A transition period of 21 days was allowed for adaptation to molasses. Feed composition is given in Table 1.

Procedure: The experiment was carried out at Curepipe Livestock Breeding Station situated at an altitude of 558 m above sea level. The area used in this study comprised of a total of 3.4 ha divided into 5 paddocks, each 0.68ha. The unfertilized pasture, consisting mainly of *Setaria* sp was rotationally grazed so as to provide 10-12 weeks for regrowth of herbage. Animals were allowed restricted grazing for a period of

¹ FAO Consultant to the project MAR/75/004

Table 1:
Composition of feed used during the trial (DM basis)

	Dry matter %	Crude protein %	Crude fibre %	Ether extract %	Brix°
Maize meal	86	10.7	3.0	3.3	
Fishmeal	87	64.0	1.1	5.3	
Fodder	23	7.0	30.9	2.3	
Molasses	73	4.7		—	85

6 hr daily (7.30 to 13.30 hr). The rest of the day they remained in dry lot where they received their daily basal ration in the afternoon. Water was provided at all times.

Measurements: Intake of grazed fodder was estimated by the method outlined by Brown (1954). Samples of 1 - 2% of total field area were taken by quadrat. Grazed herbage was estimated by sampling before and after grazing, harvesting the grass at an estimated grazing height of 10 cm.

All animals were weighed every fortnight and the molasses supply adjusted accordingly. The data were analysed in two distinct periods for the wet and dry months. Growth of each animal was taken to be the slope of the linear regression of liveweight against time.

Results and Discussion

The mean performance of the cattle during the wet and dry months is shown in Figure 1. Estimates of feed intake and conversion are presented in Table 2. Feed composition is given in Table 1 and climatic data are shown in Figure 2.

Liveweight gain was higher in the wet than in the dry months. The fall in performance appeared to be due to a reduced intake of forage, caused apparently by poorer herbage regrowth because of lower temperatures. The paddocks had to be rotated at a faster rate during this period, and it was apparent that the stocking rate (11.8 heads/ha) was too high.

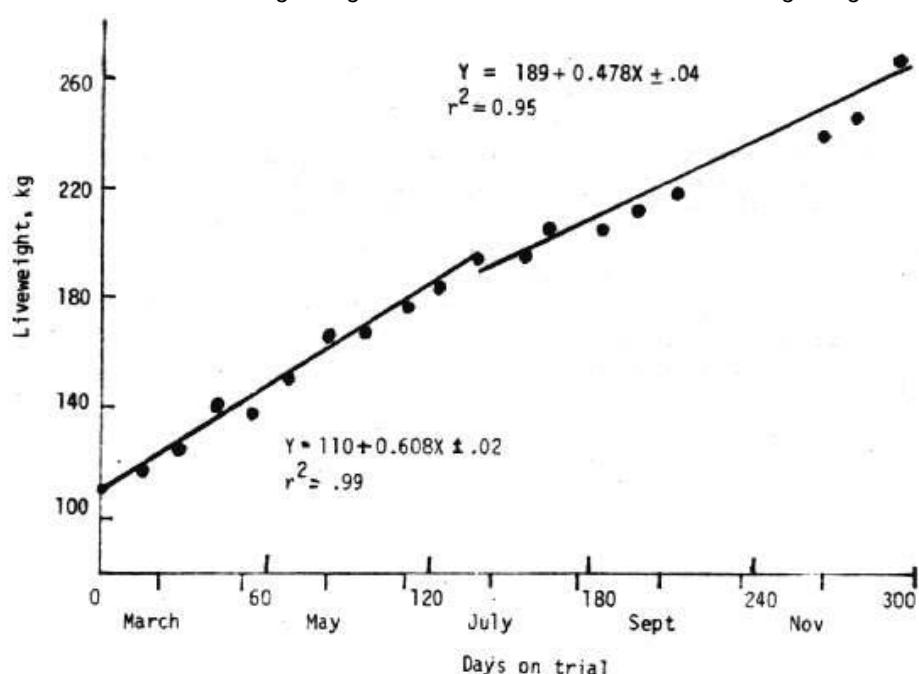
It is probable that both the quantity and the quality of the forage consumed were affected adversely during the drier (and colder) months. The effect of the *stomoxys* fly can be discounted since this pest is more prevalent in the wet than in the dry season.

The setaria grass apparently consumed in this trial was of only moderate nutritive value, judged by its content of crude protein and crude fibre (Table 1), however it seemed to function as an acceptable source of roughage. There were no digestive upsets and no cases of molasses toxicity, and during the wet season growth rates were comparable with those reported for similar levels of supplementation under conditions of dry lot in Mauritius (eg 0.56 kg/d for animals of similar genetic potential consuming 0.4 kg/d fishmeal and forage averaging 7.2% crude protein and 36% crude fibre (Yee Tong Wah et al 1981)).

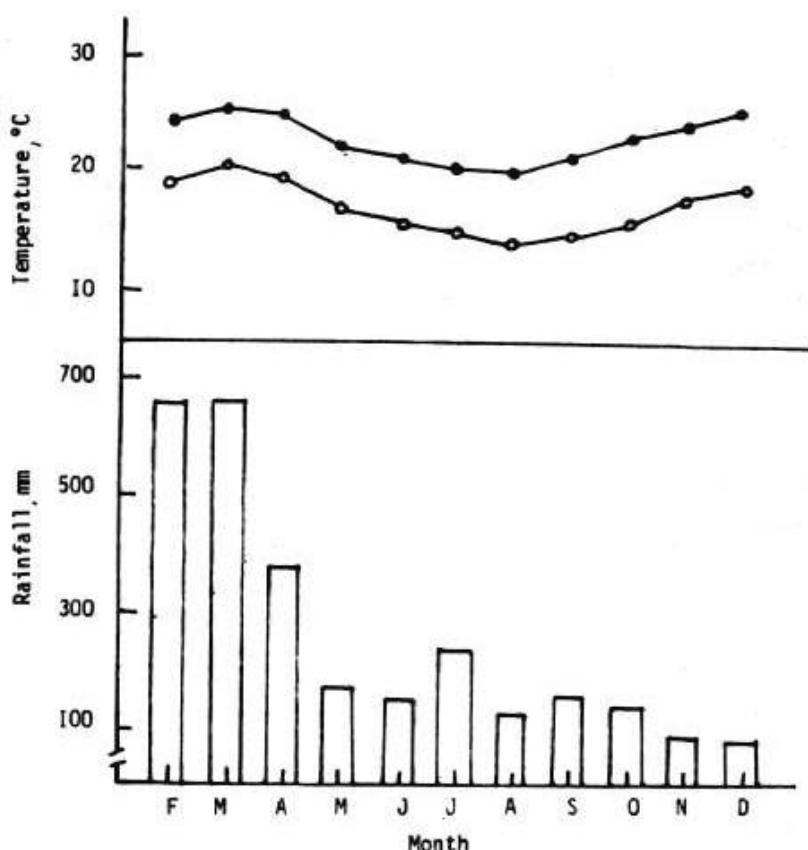
Table 2:

Performance of grazing animals on a molasses/urea diet and restricted grazing

	Wet season summer 23/2/80 - 12/7/80	Dry season winter 12/7/80 - 15/12/80
No of animals	8	8
No of days under observation	140	155
Liveweight, kg	110.3	194.8
Average regressed LWG, kg/d	0.6	0.48
Daily feed intake, kg		
Maize meal	0.5	0.5
Fishmeal	0.2	0.2
Molasses	3.8	5.8
Fodder	6.6 (4.3% LW)	8.6 (3.7% LW)
Mineral mix	0.06	0.06
Dry matter intake	5.0	6.9
Consumption index ¹	3.3	3.0
Conversion ²	8.2	14.4

¹ Kg DM/100 kg LW/d² DM intake/gain in LWFigure 1:
Performance of growing bulls fed molasses:urea and restricted grazing

*Figure 2:
Rainfall and temperature variation throughout the year*



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