

## PERFORMANCE OF TWO BREEDS OF CATTLE FED HIGH LEVELS OF MOLASSES/UREA, RESTRICTED FORAGE AND STARCH AND PROTEIN SUPPLEMENTS

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Rice bran and coconut cake gave as good results as maize grain in a trial with local breeds of cattle fattened on high levels of molasses/urea. The average daily gains in live weight were of the order of 570 g. Acacia (*Leuceana leucocephala*) gave better results as a forage source than elephant grass. Local Creole cattle (*Bos taurus*) grew 20% faster than the Zebu. It is suggested that the moderate growth rates obtained reflected limiting genetic potential in the local breeds.

*Key words: Molasses, cattle, breed comparisons*

In Mauritius, forage is in short supply except during the sugar cane harvesting season when cane tops are available. The system of fattening cattle on ad libitum molasses/urea and restricted amounts of forage, as developed in Cuba (Preston 1972), is therefore particularly attractive and is being applied on a wide scale. In this feeding programme the nature of the protein and starch supplements is important both from the economic point of view, since these materials are expensive and usually have to be imported; and from the point of view of performance, for considerable quantities of the supplement must be given if the animal is to display its true genetic potential. The objective of this experiment was to compare the performance of two local breeds of cattle in Mauritius when fed a molasses/urea ration with liberal levels of supplementation.

### Materials and Methods

*Treatments and Design:* The three principal treatments were different sources of forage and supplements as indicated in table 1. The subtreatments were the two breeds the local Zebu (*Bos indicus*) and Creole. The Creole is of European (*Bos Taurus*) origin although the sample used in this trial was a mixed one with varying degrees of Friesian breeding. The animals were in three groups (according to dietary treatments) with approximately equal numbers of Creole and Zebu bulls in each. The bulls had an initial weight in the range of 200 to 300 kg and had been purchased from farms in different parts of the island.

*Procedure:* The trial was carried out at the Mon Tresor Mon Desert Sugar Estate. The two sources of forage (analysis given in table 2) were cut daily from areas established on the Estate. The total amounts of feed given were controlled on the basis of 2.5 forage units (1 forage unit = .7 units of starch equivalent)/100 kg live weight. Housing was in a feedlot with a solid floor of cement and with partial shade. The trial period varied for the main treatments according to the time when animals were ready for

slaughter. For Creole and Zebu animals the trial period was 79 and 75 days for treatment A, 69 and 79 for treatment B and 120 and 128 for treatment C.

*Table 1:*  
*Mean values for live weight and feed intake*

	Group		
	A	B	C
Live weight, kg			
Initial	275.4	286.1	238.7
Final	319.4	329.9	310.8
Daily gain	.567	.588	.576
Feed intake, kg/d			
Elephant grass	5.3	-	8.2
Leucaena leucocephala	-	6.8	-
Molasses	5.8	5.2	5.4
Urea	.115	.105	.180
Rice bran	.55	2.0	-
Coconut cake	1.5	.15	-
Fish meal	.32	-	.58
Maize grain	-	-	3.58
Bone meal	.025	.06	.055
Salt	.025	.06	.055
Total forage units	6.85	7.60	8.10

### Results and Discussion

The amounts of feed consumed and the mean initial and final live weights are given in table 1. Analysis of variance and main treatment effects are in table 3. Despite considerable differences in the amounts of true protein and total supplement given to the different groups, these were not related to rate of live weight gain. There were however, significant differences between the two breeds, the Creole being superior to the Zebu.

In this experiment, supplementation with both cereal grain, and protein was at a relative high level, which indicates that perhaps the moderate rate of live weight gain observed was due to limitations in the genetic potential of the cattle used.

Another interpretation of the experimental findings is that it is not necessary to use very high levels of supplementation for the fattening of the local cattle breeds in Mauritius.

Undoubtedly the most economic treatment was that employing the legume forage *Leucaena leucocephala*. This is in agreement with the results of other experiments in Mauritius (Hulman et al 1976).

Table 2 :  
Proximate composition of the acacia and elephant grass forage

	Dry matter basis				
	Dry matter	N x 6.25	Ether extract	Crude fibre	Nitrogen free extract
	g/kg				
Acacia <sup>1</sup>	350	223	20	200	477
Elephant grass <sup>2</sup>	160	44	19	369	438

<sup>1</sup> *Leucaena leucocephala*

<sup>2</sup> *Pennisetum purpureum*

Table 3 :  
Mean values for live weight gain according to main treatment effects together with analysis of variance

Main effects	Daily gain in LW, g
Breed	
Zebu	522
Creole	634
Supplements	
Rice bran/coconut cake/fish meal	561
Rice bran/coconut cake	582
Maize/fish meal	560

Analysis of variance:

	Degrees freedom	Mean square	F	Significance
Supplements	2	2481	.11	NS
Breed	1	148644	6.64	P<.01
Residual	45	22377		

**References**

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