

GROWTH CHARACTERISTICS OF "CREOLE" ZEBU CATTLE OF GUADELOUPE (F.W.I.)

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SUMMARY

Analysis of weight measurements made on cattle belonging to the local "creole" zebu breed have been conducted in Guadeloupe. The results of pre-weaning growth rate and fattening evolution of weight suggest this breed could be of great interest for meat production, specially on pasture. Such systems could use in a best way the adaptability of the breed to tropical constraints.

INTRODUCTION

Beef meat production in Guadeloupe is mainly based on the use of a local breed, called "Creole" cattle. This population, belonging to the *Bos indicus* genus (Popescu et al., 1987) represents 95 % of the animals raised, a very little number of cows being used for cross-breeding.

The interest of this breed lies in its adaptability to tropical constraints, specially its high resistance to affections transmitted by the tick *Amblyomma variegatum* (E. CAMUS et al., 1987; N. BARRE et al., 1987).

In controlled management systems, even on poor savannah pastures in moderate dry season, cows are able to use their body reserves and sustain their gestation and calf suckling. They can achieve therefore a good level of performance (till 80% of fertility) (M. NAVES et al., 1989).

MATERIAL AND METHODS

About 390 calves (218 males, 173 females) have been registered in Gardel experimental farm between May 1983 and December 1987. Climatic conditions are typical of humid tropics: 1350 mm of rainfall, with a dry season lasting six months between January and June, and an average temperature from 25 to 28 °C.

The calves have been controlled during about two years in fixed management systems, being weighted monthly. They are issued from herds raised on either natural *Dichanthium* spp. pastures or improved irrigated Pangola (*Digitaria decumbens*) grasslands. After weaning, steers have been conducted either in individual pens, fed with concentrate and silage, or on Pangola pastures. Heifers were creep fed in feedlots, differing between weaning season.

Least Square analysis were conducted, using the General Linear Model procedure of SAS Institute (1987) analytical system, in order to evaluate the effect of fixed factors on weight

measurements. Several separate analysis have been made to evaluate the best fitted model. Finally, factors taken into accounts were:

- for sucklers: Sex (2 levels), birth rank (10 levels) and herd (16 levels, assuming inter-annual variations in management);
- for post-weaning weights: because of differences in fattening system between sex, and differences in weaning weights due to pre-weaning management, a nested model were used with fattening system nested intra-sex (5 levels for males; 11 modalities for females) and the weaning weight used as separate-slope covariate.

RESULTS

1. Pre-weaning growth:

Table 1 shows the results of analysis for Birth Weight and Weaning Weight (BW and WW, in kg), Weaning Age (WA, in days) and Growth Rates to Weaning and 150 days of age (GRW and G150, in g/d).

Table 1: Results of Least Square Analysis of Variance for Growth during suckling of creole calves.

	BW	WW	WA	GRW	G150
Number obs.	364	359	359	339	338
Mean	26.6	141	207	560	603
R ²	0.358	0.515	0.418	0.475	0.408
R.S.D.	3.9	22	18	94	109
<u>EFFECT OF SEX OF THE CALF</u>					
MALE	27.9	151	n.s.	586	631
FEMALE	25.4	140		551	594
<u>EFFECT OF TYPE OF PASTURES</u>					
DRY POOR NATIVE	22.7	112	214	415	458
FAVORABLE NATIVE	27.7	166	210	661	701
IMPROVED PANGOLA	29.8	164	217	598	715

As expected, sex is highly significant ($p < 0.01$) for all parameters measured (unless Weaning Age), the male calves weighing more than females.

Growth Rate to 150 days is considered as an indicator of milk production of the dams. Only three types of management, namely of poor, medium and high availability, are presented in order to illustrate typical situations of herd management. In the three of them, Weaning Age is quite closed to the mean. On "poor

dry native pastures", all variables are much lower than the other situations, because of very severe drought without any supplementation. In the other cases, well managed native pastures are as effective as improved irrigated pastures, specially for milk production.

2. Post-weaning growth:

2.1. Effect of sex:

Results are presented in table 2. They are issued from analysis with factors sex and post-weaning management, without covariate.

Table 2: Results of Least Square Analysis of Variance.
Post-weaning growth according to the sex.

	Weight (kg)	Days of fattening	Growth (g/d)
Number obs.	329	321	306
Mean	275	321	473
R ²	0.643	0.417	0.814
R.S.D.	47	84	96
MALE	290		563
		n.s.	
FEMALE	223		324

Low growth rates may be noticed, mainly due to the non-intensive level of fattening in the usual system in our farm, specially for the females.

2.2. Comparison of fattening system for steers:

Table 3 presents the evolution of Weight between 60 days (W60d) and the end of fattening (Wend); Duration of fattening (D) and Growth rate (GR) are also presented. But for growth rate, these results have been adjusted by covariance analysis for the difference in weaning weight between different fattening systems.

Table 3: Results of Least Square Analysis of Variance.
Post-weaning growth of steers in three fattening systems.

	W60d	Wend	D (d)	GR (g/d)
Number obs.	331	329	321	306
Mean	156	275	321	473
R ²	0.909	0.788	0.485	0.814
R.S.D.	9	37	81	96
INTENSIVE (Silage + 4.5 kg)	161	331	243	897
MEDIUM (Silage + 2.5 kg)	161	333	308	708
PASTURE	159	314	383	473

Adjustment for weaning weight, varying according to the lot, permitted that weight at the beginning of fattening (after 60 days) are not different. Later growth shows significant differences, the same weight at the end of fattening being achieved after different durations.

DISCUSSION

These results suggest the interest of the local "creole" cattle for meat production in Guadeloupe.

Mothering qualities of dams are obvious, showed by the ability to suckle their calf with a good level of growth.

Previous study (P. BERBIGIER *et al.*, 1986) showed that cross-breeding with Limousin sire permitted better growth (1110 g/d versus 840 g/d for creole steers), assuming a high level of supplementation is provided. Nevertheless a good potential for growth is expressed in intensive fattening system.

On pasture, with a high grazing pressure (5 to 7 heads/ha), creole steers may also achieve a convenient growth. This ability is the main production character which interest local producers, as this system is widely spread out in tropical regions. Their resistance to ticks related thickness would be very usefull in such management.

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