

POST-PUBERTAL GROWTH OF GOATS IN THE BRAZILIAN SEMI-ARID REGION¹

G.S. RIERA², A.A. SIMPLÍCIO³ and K.P. PANT⁴

ABSTRACT - Thirty SRD female goats, of 16 to 24 months of age, were maintained on native "Caatinga" pastures in the hot tropical semi-arid Northeast Brazil. Their weights were recorded every 28 days for one year, beginning in July. The pattern of growth was non-linear and depended upon the seasonal rainfall and subsequent availability of fodder. The total gain in one year was, more or less, same for heavier and lighter goats and hence the gain per unit of initial body weight was markedly higher for smaller goats.

Index terms: SRD breed, dry and rainy seasons, native "caatinga" pastures.

CRESCIMENTO PÓS-PUBERDADE DE CABRAS NA REGIÃO SEMI-ÁRIDA DO BRASIL

RESUMO - Trinta cabras SRD, de 16 a 24 meses de idade, foram mantidas em pastagem nativa (caatinga) do Trópico Semi-Árido, no Nordeste do Brasil. Os animais foram pesados a cada 28 dias, durante um ano, iniciando-se em julho de 1979. O padrão de desenvolvimento corporal não foi linear e dependeu das chuvas e, subsequentemente, da disponibilidade de alimentos. O ganho de peso total em um ano foi aparentemente semelhante, para as cabras pesadas e leves, ao início do experimento. Contudo, o ganho por unidade de peso corporal inicial foi marcadamente maior em cabras leves.

Termos para indexação: raça SRD, época seca e chuvosa, pastagem nativa caatinga.

INTRODUCTION

Most of Brazil's goat population (8.07 million) exists in the Northeast region (7.43 million), and an overwhelming majority of these animals is classified as non-descript (Sem Raça Definida or SRD). Very little information is available on their growth in the hot tropical semi-arid agroclimatic zone where they normally abound. In the present experiment, a group of SRD does was maintained on the native caatinga pastures and pattern of their growth was recorded during late second and third years of life.

MATERIALS AND METHODS

This experiment was undertaken with thirty SRD does born in the experimental flocks of the Centre. These were between 16 and 24 months of age at the commencement of the experiment and represented an unselected sample. During the entire period, all these animals were maintained

on native caatinga pastures at the stocking rate of 2.0 ha/animal/year and had free access to water and a mixture of equal parts of sterilised bone meal and common salt in the corrals. Green elephant grass was made available to some of the animals during November-February period when the nutritional stress was maximum. Periodic deworming and vaccination against Foot and Mouth disease were carried out. The weights were recorded every 28 days, beginning 11th July, 1979. The records on the rainfall for corresponding 28-day periods were also available.

RESULTS

The primary aim of this experiment was to present pattern of change in body weights of local goats during the later stages of growth in the dry tropical semi-arid region. It was also tried to study the relative potential of female goats that were small or large in the beginning. Subsequently, the growth of the lightest and the heaviest goat of the experiment was compared. All these results are presented in Table 1. The mean net gain was similar for lighter and heavier groups. This trend was further supported by looking at the growth of lightest and heaviest animal of the experiment. Both of these gained almost identical weight. The trend of growth during the year, in each 28-day periods, is shown in Fig. 1. There was no in-

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² Eng^o Agr^o, Ph.D., IICA/EMBRAPA-Centro Nacional de Pesquisa de Caprinos, Caixa Postal 10, CEP 62100 Sobral, CE.

³ Méd. Vet., M.Sc., EMBRAPA-CNPC, Sobral.

⁴ Méd. Vet., Ph.D., IICA/EMBRAPA, CNPC, Sobral.

TABLE 1. Growth of SRD goats in the semi-arid tropical Northeast Brazil.

Classification on the basis of initial body weight	Body weight (kg)		Net gain (kg)	Gain as % of	
	on 11 July, 1979	on 09 July, 1980		initial weight	final weight
Group I (upto 22 kg, n = 14)	19.94	29.46	9.52	47.74	32.32
Group II (over 22 kg, n = 16)	26.29	36.17	9.88	37.58	27.32
Smallest one goat	16.0	26.8	10.8	67.50	40.30
Largest one goat	32.9	43.6	10.7	32.52	24.54

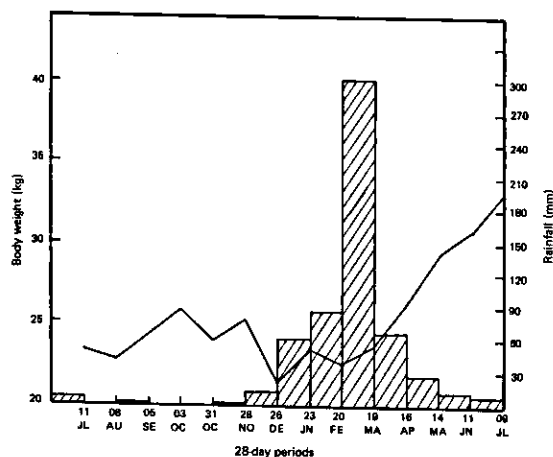


FIG. 1. Growth (graph) of SRD goats in relation to rainfall (histogram).

crease in the weight till middle of February, although it appeared that the does grew a little in the beginning during August, September and October and then decreased rapidly till December. The rains started soon thereafter and the decline stopped, and it was not until another month that the real growth recommenced.

DISCUSSION

The body weights of adult goats are known to

vary according to seasons in the dry regions of the tropical Brazil (Figueiredo et al. 1980b). The environmental temperature in this region continues to be high, varying from 22° to 37° C in different months. Thus, the predominant cause affecting growth may be a marked nutritional depletion caused by a long dry season which is also known to cause deterioration in the quality of pastures (Robinson & Sageman 1967). The rainfall occurs for a limited period, concentrated around February-March. Such a marked seasonality is likely to affect the growth and overall productivity (Bellaver et al. 1979, Figueiredo et al. 1980a) as well as mortality (Riera et al. 1980) of goats, and it may be necessary to control breeding of these animals in such a way that the overall productivity is maximised. The local animals may sustain this type of stress better (Robinson & Stewart 1968) than exotics (Kaushish & Sahni 1976).

In this experiment, SRD goats were maintained under local conditions to study the pattern of change in their body weights through the year. As the animals were around 16 to 24 months in age, this was the late phase of their growth. The results showed that the growth of these goats during this period was not dependent on the initial weight and the heavier and lighter groups, on the whole, gained similar weights. This gave a higher figure of gain per unit body weight for smaller animals. It seems, there was a negative correlation between initial

body weight and the gain per unit of body weight. This trend may represent 'compensatory growth' of the goats.

The first couple of months of the dry period were probably not particularly bad as all animals continued to gain, though relatively gradually. It was sometimes in October that the animals seem to have experienced real stress and decline of body weights is noticeable. Similar trend has been reported by Figueiredo et al. (1980b) in adult does of SRD breed.

The results show that the body weights of goats at 16 to 24 months have no positive relation with subsequent rate of growth. In a breeding programme, selection should be carried out much earlier in life or when the skeletal growth is almost complete. Environmental effects seem to be so predominant that selection on body weights around puberty may be ineffective. These results are based on small number of observations and it may be necessary to accumulate more data.

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