

The economic viability of finishing Nguni weaners on natural veld and permanent pastures

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Abstract

The objective of this study was to investigate the economic viability of finishing Nguni weaners on natural veld and permanent pastures under dry land conditions. A group of 30 Nguni calves (7-9 months age) were randomly divided into two treatment groups: a group on Eastern Province Thornveld (Veld group) and a group managed on *Panicum maximum* pastures. The average daily gain (ADG) of the weaners in the Pasture group (0.606 kg/day) during this period was significantly higher than weaners on natural veld (0.434 kg/day). The profit per weaner (margin above direct allocated costs) in the Veld group was R246.56 higher than that of calves in the Pasture group but the highest return per ha was obtained from weaners raised on permanent pastures. These findings suggest that it was still more economic viable to finish Nguni weaners on the more costly *Panicum* pastures than on natural Eastern Province Thornveld.

Keywords: Indigenous breed, cattle, finishing, pastures

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Introduction

Nguni cattle are an indigenous breed that are adapted to prevailing conditions and play an important role in animal agriculture in the developing areas of Southern Africa (Collins-Luswet, 2000; Mapiye *et al.*, 2007). The recent recognition of its adaptive traits has increased interest to use Nguni cattle in the commercial sector. Currently one of the biggest constraints in farming with indigenous cattle, such as the Nguni, is the lack of market demand from feedlots for small frame weaned calves (weaners). This often results in farmers obtaining below market value for these calves. The farmer could, in order to overcome this trend, decide to grow out Nguni weaner calves from a mass of about 150 kg at weaning (6 - 8 months of age) to about 280 - 320 kg at approximately 12 - 15 months of age (A2 & A3 grades). A study was subsequently conducted to investigate the economic viability of finishing Nguni weaners on natural veld and permanent pastures under dry land conditions.

Materials and Methods

This study was conducted in 2002 at the Bathurst Research Station in the Eastern Cape Province of South Africa to investigate the economic viability of finishing Nguni weaned calves on natural veld and permanent pastures under dry land conditions. The trial started on the 18th June 2002 when a group of 30 Nguni bull calves (7 - 9 months age) were randomly divided after weaning into two treatment groups: a group on Eastern Province Thornveld (Acocks, 1975) (Veld group) and a group managed on *Panicum maximum* pastures (Pasture group). The cattle in both treatments were weighed fortnightly, after overnight starving. The purchase price of the weaners was R 7.30/kg live mass and the selling price at the end of the trial was R 6.30/kg live mass. Calves were dosed against internal parasites as soon as internal faecal egg counts exceeded 1000 eggs/gm faeces. The stocking rate of the veld and pastures were 5 ha/LSU and 1 ha/LSU, respectively. An area of 45 ha veld and 9 ha pastures was allocated to the respective treatment groups. Winter (protein) and summer (phosphorous) licks were available *ad libitum* to both treatment groups and supplementary feeding was only fed to the cattle in the treatments when climatic conditions necessitated it. Animals in both treatments were vaccinated against the same diseases and the *Panicum* pastures were fertilized with 250 kg LAN/ha during March 2002 and September 2002. The weaners were overwintered and finished on the respective pastures until they reached their target mass of 280 to 320 kg and graded as A2 or A3. Average values for starting weight, ADG, final live weight and all direct allocated costs per treatment (e.g.: feed, medicines and pasture costs) were used to calculate financial data. Product income was defined as the difference between the purchase price of the weaner and selling price of the same animal. The direct allocatable costs (D.A.C.) were defined as the total of all the individual production costs that were incurred.

Margin above D.A.C. was calculated by using the following formula:

$$\text{Margin above D.A.C.} = \text{Product income} - \text{D.A.C.}$$

Financial data was expressed per group, per animal and per ha. Comparisons between the two production systems were made in terms of margin above D.A.C. per group, per animal and per ha. Means separation was achieved by Tukey-Kramer multiple comparison test at the 5% level (NCSS, 2007). No statistical analyses were done on financial data.

Results and Discussion

The initial weights of the calves were on average 184.8 kg and 183.7 kg for the Pasture and Veld group respectively. The Pasture group reached their target mass (324.3 kg) and grading after 230 days whilst the cattle in the Veld group only managed to achieve their target mass (301.6 kg) and grading after 272 days. The average daily gain (ADG) in the Pasture group (0.606 kg/day) differed ($P < 0.01$) from that of the Veld group (0.434 kg/day). The economic evaluation is presented in Table 1. The product income per animal was R 758.91 and R 619.39 and the profit per ha was R 1264.85 and R 206.46 for the Pasture group and Veld group respectively. Although the highest margin above D.A.C. per animal was realised by the Veld group, the Pasture group (R 536.40/ha) were more economical in terms of margin above D.A.C/ha when compared to the Veld group (R 189.47/ha).

Table 1 Economical analysis of finishing weaned Nguni calves on natural veld and permanent pastures

	Pasture group			Veld group		
	Per group (n = 15)	Per animal	Per ha (9 ha)	Per group (n = 15)	Per animal	Per ha (45 ha)
Gross income						
Product income (R)	11383.65	758.91	1264.85	9290.85	619.39	206.46
Direct allocatable costs (D.A.C.)						
Feed cost (R)	492.30	32.82	54.70	439.15	29.28	9.76
Medicinal cost (R)	322.40	21.49	35.82	325.70	21.71	7.24
Pasture cost (R)	5741.36	382.76	637.93	-	-	-
Total cost (R)	6556.06	437.07	728.45	764.85	50.99	17.00
Margin above D.A.C	4827.59	321.84	536.40	8526.00	568.40	189.47

Cattle raised on permanent pasture grew faster than those raised on natural veld. The higher input cost to maintain the *Panicum maximum* pastures was the main contributing factor affecting the total margin above direct allocatable cost of the Pasture treatment. Cattle raised on natural veld realised R 246.56 higher profit margins per weaner than cattle raised on pastures. But when production per hectare is calculated, the highest returns per ha is realised from animals raised on permanent pastures. It is concluded that under the specific climatic conditions it was still more economic viable to finish weaned Nguni calves on *Panicum* pastures than on natural veld.

References

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