Short Communication

Performance of Nguni, Afrikander and Bonsmara cattle under drought conditions in the North West Province of Southern Africa

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Abstract

The performance of Nguni, Afrikander and Bonsmara cattle during the 1989-92 drought period in the North West Province of South Africa was compared. Results for the Nguni, Afrikander and Bonsmara respectively were as follows: birth mass - 30.3, 30.2, 31.1kg; 200-day mass - 135.6, 173.6, 150.6 kg; first calving interval - 474, 441, 685 d; second calving interval - 454, 382, 445 d; calving percentage - 87, 69, 70 %. Birth mass and 200-day mass within breed was affected by sire ($p < 0.01$). It was concluded that the breeds performed well under drought conditions but performance could be improved by genetic means.

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Introduction

The indigenous cattle breeds of Southern Africa are adapted to prevailing conditions and play a most important role in animal agriculture in developing areas of this region. The aim of this study was to characterize the performance of the Nguni, Afrikaner and Bonsmara breeds in two of the developing areas of the North West Province of South Africa during the extended drought that prevailed in this region from 1989 to 1992.

Materials and methods

Data was collected from 125 Nguni, 63 Afrikander and 92 Bonsmara cattle between 1989 and 1992 on ranches in the Ganyesa and Madikwe districts of the North West Province of South Africa. Animals grazed natural pastures and protein-energy supplements were offered at both locations. Pasture was supplemented with hay during winter at Ganyesa but not at Madikwe. Birth mass, 200-day mass, calving percentage and calving intervals were recorded. Analysis of variance was carried out according to the model shown in Equation 1 to estimate breed, sire (within breed), sex and month (October, November, December or January) effects on birth mass using the computer program of Harvey (1987). Location was excluded from the analysis, as breed and location effects were confounded.

$$X_{ijklm} = M + A_i + B_{ij} + C_k + D_1 + e_{ijklm} \quad \text{Equation 1}$$

(m = population mean; A_i = discrete breed effect; B_{ij} = random sire effect nested within breed; C_k = discrete sex effect; D_1 = discrete effects of month of birth; e_{ijklm} = random error)

Results and discussion

Birth masses (kg) of Nguni, Afrikaner and Bonsmara cattle were 30.3, 30.2 and 31.3 respectively, and 200-day masses (kg) were 135.6, 173.6 and 150.6 respectively. The first and second calving intervals (d) were 474 and 454 for the Nguni, 441 and 382 for the Afrikander and 685 and 445 for the Bonsmara. Calving percentages for the Nguni, Afrikaner and Bonsmara were 87, 69 and 70 %. Birth mass was affected by sire-within-breed, sex and month of birth ($p < 0.01$). Sire-within-breed also influenced ($p < 0.01$) 200-day mass. These findings suggest that genetic improvement programs could lead to higher birth and 200-day masses. Considering the drought conditions prevailing during the study, it was concluded that these breeds performed well.

Reference

Harvey, W.R., 1987. Users guide for LSMLMW least squares and maximum likelihood Computer program. Ohio State University, Ohio USA