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A genetic analysis of post-weaning feedlot performance and profitability in Bonsmara cattle

R.R. van der Westhuizen[1], J. van der Westhuizen[1] and S.J. Schoeman[2]

[1]ARC-Animal Production Institute, Irene, South Africa
[2]Department of Animal Sciences, University of Stellenbosch, Matieland, South Africa

Corresponding author: R.R. van der Westhuizen
E-mail: bobbie@arc.agric.za

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ABSTRACT. The aim of this study was to identify factors influencing profitability in a feedlot environment and to estimate genetic parameters for and between a feedlot profit function and productive traits measured in growth tests. The heritability estimate of 0.36 for feedlot profitability shows that this trait is genetically inherited and that it can be selected for. The genetic correlations between feedlot profitability and production and efficiency varied from negligible to high. The genetic correlation estimate of -0.92 between feed conversion ratio and feedlot profitability is largely due to the part-whole relationship between these two traits. Consequently, a multiple regression equation was developed to estimate a feed intake value for all performance-tested Bonsmara bulls, which were group fed and whose feed intakes were unknown. These predicted feed intake values enabled the calculation of a post-weaning growth or feedlot profitability value for all tested bulls, even where individual feed intakes were unknown. Subsequently, a feedlot profitability value for each bull was calculated in a favorable economic environment, an average economic environment and in an unfavorable economic environment. The high Pearson and Spearman correlations between the estimate breeding values based on the average economic environment and the other two environments suggested that the aver-

age economic environment could be used to calculate estimate breeding values for feedlot profitability. It is therefore not necessary to change the carcass, weaned calf or feed price on a regular basis to allow for possible re-rankings based on estimate breeding values.

Key words: Beef cattle; Post-weaning growth; Growth efficiency; Feedlot profitability

