Associations Between Expected Progeny Differences and Measured Feed Efficiency in Post-Weaned Red Angus Calves

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Feed efficiency is a critical economic and biological trait in beef production, yet its genetic predictors remain difficult to quantify. The objective of this study was to evaluate the relation between individual animal expected progeny differences (EPDs) and directly measured feed efficiency traits during a 48-55 day post-weaning period. Heifers (n=47) and bulls (n=96) were monitored using the SmartFeed and SmartScale systems (C-Lock Inc, Rapid City, SD) to collect dry matter intake (DMI), average daily gain (ADG), feed conversion ratio (FCR) and body weight data. These phenotypes were paired with each animal's corresponding growth and efficiency EPDs to determine which genetic indicators best predicted actual post-weaning performance. Regression analyses were used to evaluate the strength of associations between 15 EPD predictors (DMI, Milk, CED, BW, WW, YW, ADG, CW, HPG, CEM, Stayability, Marbling, YG, RE, and BF) and sex and measured feed efficiency outcomes. Models were used to determine which EPD traits, along with sex, best predicted variation in DMI, ADG and FCR. The DMI model accounted for 54.2% of total variation in DMI ($P<0.01$). Sex ($P<0.01$), DMI EPD ($P<0.01$) and Milk EPD ($P<0.01$) were significant predictors. The ADG model accounted for 66.7% of total variation in ADG ($P<0.01$). Sex ($P<0.01$), DMI EPD ($P<0.01$) and CEM EPD ($P=0.03$) were significant predictors. The FCR model accounted for 36.6% of total variation in FCR ($P<0.01$). Sex ($P<0.01$), CED EPD ($P<0.01$), and CEM EPD ($P=0.01$) were significant predictors. These findings indicate that sex and individual animal EPDs, particularly DMI, Milk, CED and CEM, can provide insight into post-weaning feed efficiency. This suggests that ranches may be able to use specific EPD profiles to effectively identify replacement animals with favorable intake and performance characteristics. Future work will expand the dataset to a larger population to further improve model accuracy and predictive value.

Milk production and composition of Sindi cows under grazing conditions in the Cerrado biome

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Sindi is a dual-purpose breed known for its hardiness, heat tolerance, and high feed efficiency, serving as a genetic resource for adapting livestock production to climate change in tropical grazing systems. Milk production and quality are key factors for dairy farmers, representing higher yield and profitability. The aim of this study was to evaluate milk production and composition through monthly milk recording in 30 purebred Sindi cows raised in the Cerrado biome between September 2023 and October 2025. The study was conducted at the Centro de Tecnologia para Raças Zebuínas Leiteiras (CTZL) of Embrapa Cerrados, Brasília, DF. The cows grazed on Urochloa sp. or Megathyrsus sp. pastures and were fed a concentrated supplement based on corn, soybean grain, wheat bran, and a lactation mineral premix, adjusted to individual production at a 3:1 ratio. Milking was performed twice daily, with the calf present to stimulate milk letdown. Individual milk production was measured using a weighing device attached to the mechanical milking machine, and milk samples were analyzed by infrared spectroscopy to determine their constituents. In this longitudinal observational study, a descriptive analysis of the variables was performed. The average milk yield corrected to 4% fat was 7.6±3.6 kg/day, and the average lactation length was 231±60 days. Average and peak milk production were 11.1±4.4 kg/day and 18.6 kg/day, respectively. The mean percentages obtained were: fat = 4.4±1.0; protein = 3.7±0.3; lactose = 4.6±0.4; and total solids = 13.6±1.3. These results demonstrate the quality of Sindi cow milk, indicating higher yield in dairy products and increased profitability for producers. The variations observed can be attributed to non-selective milk recording, an essential tool for genetic selection and improvement. Therefore, this breed proves to be an effective option for milk production in tropical climates, well-suited to current climatic and production challenges, requiring animals that are adapted to the system and capable of performing under demanding conditions. Acknowledgments: FAP-DF, CNPq, and the AgroIntegra Innovation Program.