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Selection for Milk Production in Beef Cattle May Decrease Profitability

A new invited review in Applied Animal Science examines the economics of selection for growth-oriented maternal traits in beef production systems.

Philadelphia, PA, February 10, 2020—Calf body weight at weaning can be an important driver for cow-calf profitability. Over the last 40 years, there has been a steady increase in selection for increased calf body weight at weaning. However, the resulting gains may have plateaued in many regions of the United States. Scientists from the University of Nebraska analyzed the literature, experiment station reports, and PhD dissertations to discuss the economic consequences of selection for milk production in beef production systems. "Increased selection for milk production can result in beef cows undergoing greater nutritional stress during early lactation, which ultimately reduces cowherd reproduction and efficiency," said lead author Dr. J. T. Mulliniks.

As milk production potential increases in beef cows, cow maintenance requirements during gestation and lactation also increase. In addition to increased maintenance requirements, selection for increased milk potential results in greater feed intake. With the seasonal and year-to-year variation in forage quality within forage-based systems, selection for moderation in milk production may be important to optimize reproductive performance in these systems. Matching cow type or genetic potential to the production environment is important to optimize productivity and costs.

Selection for increased milk production can result in beef cows under a greater nutritional stress during critical physiological periods and ultimately reduce reproductive performance. With an increase in nutrient demand during lactation, cows often experience extended periods of negative energy balance after calving, which can decrease reproductive performance. Even in environments where energy intake meets or exceeds requirements, increased milk production can decrease reproductive efficiency of beef cows.

"Influence of milk production on calf weaning weight has been shown to be highly variable. Our meta-analysis showed that milk production had a positive effect on calf growth and weaning weight. However, in nutrient-restricted environments, selection for increased milk potential may not be fully expressed due to limited nutrient supply by the forage system," Mulliniks said. "The effect of increasing milk potential in beef herds is dependent on the cost and availability of high-quality feed resources and the ability to maintain adequate reproductive performance within your management system."

Applied Animal Science Editor-in-Chief David K. Beede said this review “explores the influence of genetic selection for greater milk yield of cows on productivity and profitability in beef systems.” He added, “Greater milk production can influence fertility, culling of cows, and efficiency of resource use, all affecting optimal productivity and costs in commercial pasture-based cow-calf systems.”

It is critical for beef producers to match cow size and milk production to the available forage resources. Although selection for milk production generally does increase calf weaning weight, the result is highly variable across differing environmental conditions. Continual increase in selection for milk production in beef cows in pursuit of increased calf weaning weight
increases the nutritional stress in critical physiological periods of the cow and can ultimately reduce reproductive performance, increase production costs to maintain performance, or both.

The article appears in the February issue of *Applied Animal Science*.

### NOTES FOR EDITORS


Full text of the article is available to credentialed journalists upon request; contact Brittany Morstatter at +1-217-356-3182 ext. 143 or arpas@assochq.org to obtain copies. To schedule an interview with the authors, please contact Dr. Travis Mulliniks at travis.mulliniks@unl.edu.

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