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The Missing Piece: Fitting Lactation Curves of Beef Cows in Extensive Systems

Lactation curve data of grazing beef cows enables calculation of maintenance energy requirements according to a study in *Applied Animal Science*

Philadelphia, PA, August 31, 2020—In extensive beef production systems, which are affected by weather and the seasons, the availability of forage and energy is highly variable. Consequently, selection of animals with low energy requirements for maintenance is valuable. The calculation of energy requirements, however, requires several pieces of information, including mature body weight and milk production, and some of this information has not been available until now. In a recent [article](#) in *Applied Animal Science*, scientists were able to characterize the lactation curves of grazing beef cows, which supplied the last piece needed for these calculations.

“The lactation curve estimates provide critical information needed in breeding selection programs for development of an expected progeny difference for maintenance requirements,” said David K. Beede, PhD, editor in chief of *Applied Animal Science*. “This new information will help producers select and breed with lower energy requirements,” added Beede.

Because energy requirements are dependent on milk production, the researchers set out to estimate the lactation curve using data from machine-milkings and six samplings per lactation. They compared lactation curves estimated with the Wood and Wilmink models and cubic spline functions with five equally spaced knots. The curves estimated milk production for the lactation period and day of peak milk production and kilograms produced on that day. The curves produced were similarly accurate, but the cubic splines showed the best adjustment. “Splines have the advantage of providing extra flexibility in the shape of fitted lactation curves and improved accuracy when few samples are available,” said lead author Maria Iewdiukow, MSc, Instituto Nacional de Investigación Agropecuaria (INIA), Programa Producción de Carne y Lana, Estación Experimental INIA Treinta y Tres, Treinta y Tres, Uruguay.

The authors were able to estimate the lactation curves accurately using a milking machine and six samples per lactation. This information will allow the calculation of the energy requirements of beef cows in a grazing system. Iewdiukow said, “considering the significant proportion of the energy consumed is used for maintenance, objective information that identifies animals with lower maintenance energy requirements and high productive performance is critical, especially when forage availability is highly variable.”

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

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Notes for Editors

“Is it possible to accurately estimate lactation curve parameters in extensive beef production systems?” by M. lewdiukow, O. M. Lema, J. I. Velazco, and G. Quintans (DOI: <https://doi.org/10.15232/aas.2019-01965>), *Applied Animal Science*, Volume 36, Issue 4 (August 2020), published by FASS Inc. and Elsevier Inc.

Full text of the article is available to credentialed journalists upon request; contact Brittany Morstatter at +1-217-356-3182 ext. 143 or arpas@assoqh.org to obtain copies. To schedule an interview with the authors, please contact Maria lewdiukow at mariaiewg@gmail.com.

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