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21ST CENTURY GENETICS: RISING TO THE CHALLENGE SOUTHERN STYLE

Genetic Selection for Feed Efficiency

by Troy Smith



Creating an EPD for feed efficiency would be a disservice to the industry, said Colorado State University's Dorian Garrick.

CHOCTAW, MISS. (April 20, 2006) — Many seedstock breeders and commercial producers lament the fact that there are no existing tools to aid genetic selection for feed efficiency. Their cries have been heard by the National Beef Cattle Evaluation Consortium (NBCEC), which seeks out new genetic traits and technologies to enhance breeding programs.

Producers keep asking for a tool to select for feed efficiency, Dorian Garrick, Colorado State University geneticist and NBCEC director, told attendees of the 2006 Beef Improvement Federation annual research symposium. "They think it would be great to have an EPD (expected progeny difference value) for feed efficiency. But we shouldn't. It would be a disservice to the industry."

Garrick explained that efficiency is a function of the relationship between inputs and outputs. Typically, feed efficiency is expressed as a ratio of the amount of feed consumed by an animal (input) relative to its weight gain (output).

"As a tool to improve efficiency by selection, EPDs for measures of input and for measures of output are more effective than a new EPD based on some ratio of inputs and outputs," Garrick stated.

Selection on the basis of efficiency could increase efficiency without changing profit. Furthermore, animals that vary in profit may share the same efficiency.

When selection to enhance profitability is the objective, Garrick said, the

more sensible approach would be to generate EPDs that could be used to predict inputs and outputs, for incorporation into a selection index for ranking animals on the basis of predicted profitability.

Efficiency measures appeal to many producers because of the vagaries of costs and prices, and because of the difficulties in predicting what these might be in the future. Garrick argues that it is not the actual values of beef or feed, but the price-cost relativity that is important. Trends in price-cost relativity may be more consistent than actual prices and costs.

Focusing on biological efficiency does not address the fact that economics determine profit, Garrick said. Producers would make better selection decisions using predictions of output value less input value rather than using prediction of efficiency. Accordingly, the NBCEC has no current plans to develop an EPD specifically for cow-calf or feedlot efficiency.

Garrick said short- and long-term opportunities exist to improve the prediction of outputs and inputs for both scenarios. In the cow-calf system, specifically, improved prediction of reproductive performance is needed. For the long term, modified recording practices are needed to generate phenotypes or inventory information allowing economically relevant traits — including heifer pregnancy, stayability, mature size and maintenance energy — to be evaluated.

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