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21ST CENTURY GENETICS: RISING TO THE CHALLENGE SOUTHERN STYLE

Residual Feed Intake Explained

by **Shauna Rose Hermel**



Denny Crews, research scientist with Agriculture and Agri-Food Canada, explained the limitations of traditional measures of feed efficiency and offered RFI as a potential better predictor of overall efficiency.

CHOCTAW, MISS. (April 20, 2006) — Many measures of efficiency have been described in the past 50 years, feed conversion being the most popular, said Denny Crews, research scientist at the Agriculture and Agri-Food Canada Research Centre in Lethbridge, Alberta. Crews made his comments during Thursday's general session of the 2006 Beef Improvement Federation (BIF) Annual Meeting and Research Symposium.

Crews pointed out that using feed conversion — the units of feed it requires to put on a unit of gain — has given producers a trait to select for, and the genetic trend has been positive. But some of the indirect consequences have not been good, as seen in the corresponding increase in mature weights.

Very little genetic improvement has occurred in improving efficiency of the entire beef production system as measured by reducing inputs per unit of output, he noted.

In fact, Crews said, selection for improved feed conversion ratio would result in increased correlated genetic re-

sponses for growth rate, mature size and, presumably, mature maintenance requirements.

Crews said a measure of efficiency not related to other traits is needed.

RFI offers potential

Residual feed intake (RFI) is the difference between actual feed intake and that predicted by regression accounting for requirements of production and body weight maintenance. A more functional definition of RFI, Crews said, is “that portion of feed intake that is not accounted for by measurable factors.”

There are several advantages to using RFI as a measure of efficiency, Crews said. Most agree that RFI is moderately heritable, and it can be measured independent of other traits. Preliminary research shows it is uncorrelated to mature size and highly correlated with mature cow efficiency.

Research has shown that selection for improved (decreased) RFI would result in cattle that eat less, but gain the same and produce similar carcasses. 