New Tools Address Cow-Calf Profitability

Association develops new $Values to help producers make genetic decisions to add profitability to the cow-calf enterprise.

Story & photo by
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Everybody has a different vision of the ideal cow. Some cattlemen may say she weighs 1,000 pounds (lb.), while others say she needs to weigh 1,300 lb. She may be short; she may be tall. She may milk a lot — or not. She may wean a 350-lb. calf, or she may wean a 600-lb. calf. And, to a large extent, available feed resources and environment will determine an owner's appreciation of a cow's stature and progeny performance.

$W includes both revenue and cost adjustments associated with differences in birth weight, weaning direct (growth), maternal milk and mature cow size.

But all cows meet on a level playing field on the bottom line. How much profit can one cow return after expenses, compared to another, when the calves are sold at weaning? That comparison is included in the newest $Value in the American Angus Association's suite of bioeconomic indexes for commercial cattlemen.

"We are characterizing the Angus cow with this Weaned Calf Value," says Sally Northcutt, Association director of genetic research. The Weaned Calf Value Index, or $W, is the expected average difference, expressed in dollars per head, in future progeny performance for preweaning merit. In other words, it provides a way to compare sires as to their ability to contribute to the cow-calf enterprise of a commercial herd in which heifers are retained, considering the contributions those sires will make from both a maternal standpoint and a calf growth standpoint.

Cattlemen are well aware of the tradeoffs involved with production traits. For example, heavier milking cows in general require more feed, which can be profitable if feed costs are low — or disastrous if feed costs are high and calf prices are low.

From their inception, expected progeny differences (EPDs) have been geared toward outputs, focusing on the end products or weights with the presumption that more is better, says Bill Bowman, Association director of performance programs, in explaining the reason for the index approach. "Indexes give us a chance to look at a more balanced approach to consider not only the outputs, or EPDs, in terms of the revenue they create, but also to consider those inputs that generate expenses in an operation and try to simultaneously use that information to make better decisions."

Whereas EPDs have focused on measuring output of individual traits, indexes offer a simplified approach to multi-trait selection and, with an economic layer, weigh the value of outputs against the expenses incurred to achieve them.

The parts

At the heart of the $W index is an equation Bowman calls elementary to measuring profit in a beef cow-calf enterprise:

> profit = (calf weight, lb. × calf crop, % × price when sold at weaning, $ per lb.) – annual cow cost

"There are four key economic impact areas that drive the index," Northcutt explains. The birth

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Values recapped

Feedlot Value ($F), an index value expressed in dollars per head, is the expected average difference in future progeny performance for postweaning merit compared to progeny of other sires. $F incorporates weaning weight (WW) and yearling weight (YW) expected progeny differences (EPDs), along with trait interrelationships. Typical feedlot gain value, feed consumption and cost differences are accounted for in the final calculations, along with a standard set of industry values for days on feed, ration costs and cash cattle price.

Grid Value ($G), an index value expressed in dollars per head, is the expected average difference in future progeny performance for carcass grid merit compared to progeny of other sires. $G combines quality grade and yield grade attributes, and is calculated for animals with carcass EPDs, ultrasound EPDs or both types of EPDs. A three-year rolling average is used to establish typical industry economic values for quality grade and yield grade schedules. Quality grade premiums are specified for Prime, *Certified Angus Beef*® (CAB®) and Choice carcasses, as well as Select and Standard discounts. Yield grade premiums are incorporated for Yield Grade (YG) 1 and YG 2 (high-yielding carcasses), with discounts for YG 4 and YG 5 (low red meat yields). Grid impact in dollars per hundredweight (cwt.) and dollars per head is calculated from the yield and quality grade components, and then combined to arrive at $G.

Beef Value ($B) facilitates what almost every beef breeder seeks — simultaneous multi-trait genetic selection for feedlot and carcass merit, based on dollars and cents. $B represents the expected average dollar-per-head difference in the progeny postweaning performance and carcass value compared to progeny of other sires. The $B value considers both $F and $G.

To align $B with marketplace realities and appropriately value carcass weight in Angus cattle, the following factors are incorporated into the final calculations for $B:

- $B is not simply the sum of $F and $G.
- Projected carcass weight and its value are calculated, along with production cost differences.
- $B takes into consideration adjustments for potential discounts associated with heavyweight carcasses.
- Final adjustments are made to prevent double-counting weight between feedlot and carcass segments.

The resulting $B value is not designed to be driven by one factor, such as quality, red meat yield or weight. Instead, it is a dynamic result of the application of commercial market values to Angus genetics for both feedlot and carcass merit.

The $F, $G and $B values on individual animals and the *Sire Evaluation Report* may be viewed at *www.angus.org*.

—American Angus Association

New Tools *(from page 18)*

component is used in combination with an estimate of the mix of cows and heifers in the herd to estimate weaned calf crop percentage, which creates revenue.

A weaning weight direct component adds to revenue in terms of pounds of calf that can be sold, Northcutt explains. But, it also adds to expenses to support maintenance and growth of the calf.

The third component is a maternal milk component, which ties in milk EPD. "It has revenue in terms of how it equates to pounds of weaned calf from future daughters," she explains, but it also causes expense in terms of lactation energy requirements.

The mature cow size component incorporates expenses associated with maintenance energy requirements.

In the end, $W incorporates EPDs for birth weight, weaning weight, milk, mature weight, yearling weight and mature height. Similar to Feedlot Value ($F), Grid Value ($G) and Beef Value ($B), the formulas used to arrive at $W rest on some core assumptions based on three-year rolling averages. Included are a base calf price of $1.05 per lb., a cow/heifer herd mix of 80/20, a cow weight of 1,300 lb. and a feed-energy cost of $0.055 per megaCalorie (mCal) of net energy for maintenance (NE_m).

These base industry figures were derived from information sources such as Cattle-Fax, the U.S. Meat Animal Research Center (MARC), the National Research Council (NRC), and more than 20 different Standardized Performance Analysis (SPA) and university cow-calf budgets, as well as the Association's own database.

Bonus value

An offshoot to calculating $W was the creation of a new decision tool to predict the savings in cow feed energy requirements, Northcutt says. Cow Energy Value, or $EN, assesses differences in cow energy requirements as an expected dollar savings difference in daughters of sires. $EN is expressed in dollar savings per cow per year, so a larger value is more favorable when comparing two animals (more dollars saved on feed energy expenses).

Rather than describe differences in energy needs in terminology (such as mCal) less familiar to the everyday runnings of the ranch, the American Angus Association opted to put its predictor on an economic basis, Bowman reports. In addition to consideration for mature cow size, a key component to $EN is inclusion of lactation energy requirements.

A commercial cattleman might use $W and $EN to customize his or her decision-making, Bowman says. "If a producer has limited feed resources or very expensive feed resources, we might really put a limit out there on the $EN values that we'd like to consider, and then select for the highest $W that we can find within that set of cows.

"Likewise, if we are in an environment that might have really abundant feed resources or a lot cheaper feed, we might have less concern about the energy savings and the cow maintenance costs associated with it, where we're looking at trying to maximize growth, maximize the outputs just using $W, with less emphasis on $EN," he continues.

When the interactive component of $W becomes available this summer, producers will be able to plug in feed costs, cow weights, market prices and the cow-to-heifer ratio specific to their herd for a customized $W that takes into account their individual scenarios.

$W and $EN will make their debut in the Spring 2005 American Angus Association *Sire Evaluation Report*, along with heifer calving ease direct (CED) and calving ease maternal (CEM) EPDs (see cover story). For more information about these decision-making tools, visit *www.angus.org*, contact your regional manager (see page 97) or call the Association Performance Programs Department at (816) 383-5100.