$B predictor of value in feeding trial

A sorting stick in the hands of an experienced cattle person can do wonders when feeder calves need to be grouped by frame size, weight and flesh condition. But what about the less visible traits, like feedlot growth rate and eventual carcass quality? What tool works to assist in identifying cattle that create the most value upon entering a feedlot for finishing?

Predicting terminal value

Even the best eye quickly finds its limitations when attempting to make such predictions based on visual evaluation alone. That job is better left to $B, the American Angus Association's bio-economic dollar value index ($Value) for Beef Value.

Simply put, $B is an index value — expressed in dollars per head — representing the expected average difference in future progeny performance for postweaning growth and carcass value compared to the progeny of other sires.

What you get with $B is a projected economic difference in progeny feedlot and carcass performance from one sire group vs. another. If one Angus sire's $B is $60 and another sire's is $20, we would expect, on the average, a $40-per-head difference ($60 - $20 = $40) in the economic performance of their progeny groups. That means when revenues and costs are accounted for, the higher-$B sire's progeny would be expected to outdo the other sire group by about $40 per head — thereby creating a sizable economic advantage during the feedlot and packing segments of the beef supply chain.

Specific results will vary from one setting to another and one market situation to another, but higher-$B sires will, as a rule, create more value when put to the test.

Case in point, compare $B and final carcass values among cattle harvested in the fall of 2008 at the University of Illinois. Citing the University of Illinois, Urbana, and research conducted by Dan Faulkner, Dan Shike and Doug Parrett, data were collected on 222 steers with known Angus sires that were part of the Association's ongoing feed efficiency research conducted at the University of Illinois' feeding facility located near Champaign-Urbana. As shown in Table 1, when these steers are grouped according to their sire's $B, sizable differences in final carcass value become apparent.

The top $B sires produced progeny with an average value $128 per head above the lowest $B sires ($1,244 vs. $1,116 per head). The middle two $B sire groups, as expected, produced intermediate levels of carcass value.

With adequate progeny numbers available in each of the four groups, this comparison is a meaningful test of $B. Furthermore, the $B values used in this analysis are from the Association's Summer 2008 National Cattle Evaluation (NCE), which was before the University of Illinois steers were harvested and their data added to the Association's database.

This illustrates the predictive power of $B as a selection tool and should give breeders and commercial producers greater confidence that higher-$B sires do in fact produce progeny with more combined feedlot and carcass value.

More marbling, more marketable pounds

When the high- and low-$B sire groups are studied more closely, we discover marbling and carcass weight are the two key value-differentiating factors. More marbling and more carcass weight

helped the high-$B-sired steers "dollar up" in a big way.

Let's evaluate marbling differences first. Both groups did well by industry standards. Average marbling scores between 600 and 700 fall in the mid-Choice category. In the high-$B group, however, 79% qualified for upper two-thirds Choice or Prime, which compares to 49% in low-$B-sired steers. More of the high-$B group qualified for *Certified Angus Beef*® (CAB®) and other premium beef categories, which bring in more dollars when cattle are sold on grids.

Avoiding discounts from Select-grade carcasses is also important. The high-$B-sired group had only one Select animal out of 70 head (1.4%), while the low-$B-sired steers got hit a little harder with 7.9% (5 of 63 head). Both groups had plenty of external finish (0.7 in. of back fat) and could have been marketed with fewer days on feed.

Simply put, $B is an index value — expressed in dollars per head — representing the expected average difference in future progeny performance for postweaning growth and carcass value compared to the progeny of other sires.

All cattle in the study had plenty of opportunity to reach their genetic potential for marbling and quality grade, so the observed differences are mainly due to the genetic differences of their sires. Marbling EPDs averaged 0.68 among the high-$B sires compared to 0.44 for low-$B sires. Even the low-$B sires had fairly high marbling EPDs and this is evident in the phenotypes of their progeny, which performed very acceptably for marbling and quality grade. But they did not have as much marbling as the high-$B sire group, which had higher quality grades and earned larger grid premiums.

Now let's discuss carcass weight differences between the two groups. The high-$B-sired steers weighed 78 lb. more than the low-$B group. That weight advantage added more than $100 per head in final carcass value at the time these cattle were marketed in fall 2008. Fed-cattle prices in 2009 will average near $85 per cwt. live, which is equivalent to $134 per cwt. on a carcass weight basis (assuming a 63.5% dressing percent). The value of 78 lb. of additional carcass weight is near $105 per head at this year's market level, and most market analysts believe fed-cattle

(Continued on page 105)

Table 1: Higher-$B sires produce higher-valued progeny

Sire $B range	Average sire $B	Avg. value per head	Head count
>$60	$67.75	$1,244	70
$50-$60	$54.85	$1,194	51
$40-$49	$43.51	$1,164	38
<$40	$26.74	$1,116	63

$B predictor of value in feeding trial *(from page 103)*

prices will move higher in 2010 and years beyond.

An extra $105 per head is big money for any producer or cattle feeder, but those extra pounds don't come free. Extra feed is required. The good news is that higher-performing cattle — those that gain weight faster and finish at heavier weights — also tend to convert feed into gain more efficiently than slower-gaining, lighter-finishing animals. While heavier-finishing cattle do eat more total pounds of feed, their feed efficiency is almost always better than slower-growing cattle.

Specific results will vary from one setting to another and one market situation to another, but higher-$B sires will, as a rule, create more value when put to the test.

Now let's work though a little math to see what that extra feed might have cost. The more valuable steers weighed 78 lb. more on a carcass basis, which translates to a 123-lb. live weight difference (carcass weight assumed here to be 63.5% of live weight, so 78 lb. of carcass divided by 0.635 = 123 lb. of live weight). If those extra live pounds cost $0.70 per pound to put on, the additional feed cost associated with the higher $B steers would be $86 per head. Their extra weight added $105 per head in value, but required $86 more in feed expenses, leaving a net economic advantage of almost $19 per head over the low-$B-sired steers.

Here is where it gets interesting. The high-$B-sired steers had a grid premium advantage of $21.42 (Table 2) as well as another $19 per head in net economic benefit from their heavier carcass weights. That amounts to a total advantage of $40.42 per head over the low-$B-sired steers — an amount which matches closely with the $41 difference between the average $B of the high- vs. low-$B sires ($67.75 - $26.74 = $41.01). $B did its job well.

Variation in market levels and production costs will always cause variation in specific results from one set of cattle to the next. Yet $B can be counted on to do just what it is designed to do — predict differences in postweaning and carcass performance in the easily understood language of dollars per head.

— by ***Association Staff***

Table 2: Progeny comparison of high- and low-$B sires

Overall group avg.	Sire $B >$60	Sire $B <$40	Difference
Marbling score	666	610	56
Ribeye area, sq. in.	13.1	12.4	0.7
Back fat, in.	0.7	0.7	0.0
Carcass wt., lb.	882	804	78
Grid premium, per head	$35.34	$13.92	$21.42