By the Numbers

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Keeping profitability predictors current

The American Angus Association was one of the earliest to incorporate bioeconomic selection indexes into national cattle evaluation to predict differences in profitability based on current market trends. Members have access to five different maternal and terminal selection indexes, or $Values, in order to make informed decisions.

$Value review

$Values combine genetic predictions [expected progeny differences (EPDs)] and market trends (economic assumptions) into one number to predict differences in profitability. These indexes are broken into two different categories, maternal and terminal, to allow producers to choose which index is most useful for them. When deciding which $Value to use to make genetic progress, producers should consider their own production setting.

Terminal sire indexes including beef value ($B), feedlot value ($F) and grid value ($G) were first introduced in the spring of 2004. These indexes predict the postweaning profitability of a sire's progeny. Feedlot value uses traits like gain and intake to project the profitability of animals in the feedlot; therefore, if someone is in the business of feeding out cattle and sells on the live market, selecting on $F should increase one's profitability.

Grid value is based on the idea that producers will retain ownership on the animals through the feedlot and then will sell those animals on the grid. Traits included are carcass weight, marbling, ribeye area and fat. While $B is a comprisal of traits included in both $F and $G, it is not a direct summation. Beef value should be used as a tool to predict total postweaning profitability as if a producer fed those cattle in his or her own feedlot and sold those animals on a grid.

First released in December 2004, weaned calf value ($W) and cow energy value ($EN) are both maternal index values reported in the weekly genetic evaluation. The $W value uses EPDs as component traits along with economic assumptions to predict preweaning profitability. It includes weaning weight (WW), calving ease (CE), mature size and milk, both as an income and expense. Producers selling weaned calves should consider using $W to predict a sire's potential to produce profitable calf crops.

$EN is a cost-savings index using mature cow size and milk to predict costs associated with the cow herd. While environmental elements should be considered using any $Value, it is particularly important with $EN. Selecting solely on $EN will result in a more moderate-framed cow producing less milk. It may be more efficient to set a threshold or benchmark value for $EN and continue to select on $W index in order to control both cow costs and reach desired profitability.

Table 1: A comparison of the current sires (sires reporting at least one calf in the past two years) percentile rank breakdowns with old and new economic assumptions

Current Sires				
Percentile breakdown	$Values — July 2015 assumptions		$Values — July 2016 assumptions	
Top %	**$W**	**$B**	**$W**	**$B**
1%	85.14	174.83	79.67	166.61
2%	80.57	168.05	75.12	159.45
3%	77.69	162.86	72.61	154.75
4%	75.31	159.54	70.64	151.62
5%	73.54	156.38	68.95	149.01
10%	67.31	146.07	63.05	139.25
15%	62.96	138.36	59.20	132.65
20%	59.62	132.10	56.16	127.42
25%	56.76	127.08	53.68	122.87
30%	54.32	122.20	51.50	118.56
35%	52.11	117.68	49.42	114.52
40%	50.04	113.14	47.55	110.69
45%	48.07	109.04	45.67	106.76
50%	46.16	105.07	43.84	103.08
55%	44.18	100.88	42.08	99.50
60%	42.18	96.65	40.16	95.49
65%	40.13	92.20	38.23	91.32
70%	37.78	87.28	36.15	86.63
75%	35.23	82.08	33.84	81.66
80%	32.39	75.97	31.21	75.80
85%	29.08	68.18	28.16	67.95
90%	24.54	57.68	23.84	57.81
95%	17.33	37.98	16.83	38.17
Avg.	**45.74**	**102.33**	**43.39**	**99.69**

Annual update to economic assumptions

On July 1, updated economic assumptions were incorporated into the weekly genetic evaluation. These assumptions are based on a three-year rolling average of the beef market and are updated annually every year in July. This allows the most current market trends to be utilized in these dollar-and-cents calculations. The changes seen in the most recent updates are truly a change in the economics. Angus cattle are trending upward for individual traits involved in

the indexes, including gain, carcass weight, marbling and ribeye area. However, because $Values are bioeconomic selection indexes, they also fluctuate due to market trends.

As prices have softened, the base calf price and fed calf price have tracked downward, which has shifted the trend in weaned calf value and beef value. This is the first year since $Value inception that either $B or $W trended downward. To decipher what impact it had on individual animals, pay attention to the percentile ranks associated with each $Value.

Table 1 compares percentile rankings for $W and $B from the *Spring 2016 Sire Evaluation Report,* which included economic assumptions from July 2015 with the percentile rankings published in the *Fall 2016 Sire Evaluation,* which included updated assumptions from July 1.

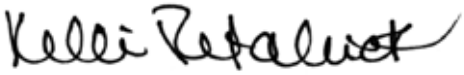
Overall, percentile rankings for $B remained relatively similar to ranks calculated with July 2015 assumptions. In fact, 91% of the current sires previously ranking in the top 1% for $B remained in the top 2% of the breed with the updated assumptions. One hundred percent of this group are still in the top 5%. The re-ranking that has occurred is a result of the market assumptions shifting emphasis away from carcass weight and placing slightly more emphasis on quality traits like marbling.

Even fewer $W percentile re-rankings have occurred. The market assumptions did shift $W values slightly down because of the lower base calf prices. Unlike with $B, updated market assumptions did not as readily shift emphasis away from one component trait compared to another.

Conclusion

Selection indexes remain a powerful tool within the beef industry. $Values combine many different traits into one simple value. This allows for multi-directional changes in several traits at once, which amplifies the rate of genetic progress experienced in herds. It is also an easy way for members and commercial cattlemen to quantify the dollars and cents of the industry.

For more information on $Values, visit *www.angus.org;* or feel free to contact Dan Moser (dmoser@angus.org) or Kelli Retallick (kretallick@angus.org) via email or phone at 816-383-5100.



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