



Your Link to

by **LARRY CORAH**, *Certified Angus Beef LLC*



Getting what you select for

Cow-calf producers control the genetics for the entire beef industry, and seedstock breeders are the engineers that keep it focused. Today's ranch-level decisions on bull use, cow culling and replacement heifers reflect the seedstock supplier's vision five, 10 and 15 years ago.

Those decisions dictate live-cattle

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performance and the ultimate eating experience from this great beef industry. They are made with the help of basic tools — expected progeny differences, or EPDs. Those tools are used and actually bent to the will of Angus breeders to overcome genetic antagonisms.

We all know that the No. 1 bull-buying consideration is calving ease, but if that's as far as you take it in breeding or selection, all you get are single-trait "heifer" bulls. Without concern for other traits, weaning weights would tend to decline.

Of course, commercial producers want growth. We know that if we select for growth and do not pay attention to birth weight, the two correlated traits both show linear increases.

That's exactly what happened many years ago in this country until pretty soon commercial cattle producers were using Longhorn or Jersey bulls on first-calf heifers.

Fortunately, Angus breeders paid attention. They used the world's most predictable birth weight (BW) EPDs in a balanced way to recapture both the market for heifers and calving-ease bulls. They did it so effectively that a once-serious and costly inefficiency (calving difficulty) is generally not a problem today.

I would argue this is one key reason among many that Angus bulls dominate in all the bull-turnout surveys inquiring what breed is being turned out today.

Similar scenario

We all know, too, that the No. 1 trait lacking in Angus-type cattle that fall short of *Certified Angus Beef*® (CAB®) brand specifications is marbling. Just as in the case of birth weight or calving ease, breeders can go backward if they look only at the marbling EPD. Ribeye and muscling would tend to fall back without simultaneous, balanced selection.

Let's look at some data that really illustrate how effectively Angus breeders have used genetic information to breed cattle the past 10-12 years.

In 2000, the average BW EPD was 2.4 and the average yearling weight (YW) EPD was 56. Today, they are 1.7 and 87, respectively. In a dozen years we reduced birth weight by 0.7 pounds (lb.) while increasing yearling weight by 31 lb. Folks, that is genetic progress.

At the 2013 Cattle Industry Annual Convention, we had a brainstorming session with animal breeders, geneticists and other animal scientists to discuss marbling and maternal function, which a few had suggested might be antagonistic traits. Our general

conclusion was that they are not, and research bears that out.

But after the meeting, our group wondered what the data would have to say on the subject. Without getting into correlations at all, if we just took the top 25% of Angus bulls for marbling, what would the other economically important traits look like? What would the other traits look like in the bulls at the bottom for marbling?

Table 1 shows the average EPDs for 4,427 current sires that rank in the top and bottom 25% for marbling. I have to admit the results both pleased and surprised me.

If you look at the top 25% of the bulls for marbling EPD (compared to all bulls and the bottom 25%), breeders are selecting some other very important traits. These high-marbling bulls are remarkably good for calving ease, with an average calving-ease direct (CED) EPD at 7.09 vs. 5.96 for all bulls and 4.62 for the bottom 25%. Calving-ease maternal (CEM) EPDs followed the same pattern.

Breeders are also selecting for growth, as the top marbling bulls had an average YW EPD of 95 vs. the breed average of 91.5 and a whopping 10-lb. advantage over low-marbling bulls. Carcass weight and dollar beef value (\$B) followed the same trend.

Keeping with the carcass focus, Angus breeders are not overlooking ribeye area as the table shows.

On the cow side, milk EPDs are higher for top-marbling bulls, which likely

contributed to the negative trend for cow energy needs (\$EN), which was not positive for top marbling bulls.

Certainly, the history Angus breeders have created by using these tools makes a powerful case that any antagonism can be overcome through focused, yet balanced and simultaneous selection.

James Henderson, B3R Angus, Childress, Texas, was part of that brainstorming session last February. He sums it up well: "Selecting bulls for marbling does not mean that you have to give up progress on other traits. The tools that are available to Angus breeders and purchasers of Angus bulls allow for selection that can move you forward in all relevant economic traits.

"Genomic-enhanced EPDs give us the opportunity to select for those traits that move us toward where we want our herd to go, and against those traits that do not make us money," he says.

For a bottom line, look at the 16th line in the table. The top 25% of Angus bulls have a marbling EPD of 0.77 compared to 0.10 for the bottom 25%. That is two-thirds of a quality grade difference and, with today's Choice-Select spread, along with CAB and Prime premiums, that represents real dollars.

You know, the commercial bull buyer really can have it all by paying attention to genetics and using EPDs to keep improving those herds.

Editor's Note: *Larry Corah is vice president, supply development, for Certified Angus Beef LLC.*

Table 1: Mean values for EPDs of Angus bulls in top 25% and bottom 25% for Marbling EPD

| EPD | Top 25% | Bottom 25% | All bulls |
|-----------------------|----------------------|----------------------|----------------------|
| No. bulls | 1,108 | 1,086 | 4,427 |
| Calving ease direct | 7.09 ^a | 4.62 ^b | 5.96 ^c |
| Birth wt. | 1.25 ^a | 1.82 ^b | 1.53 ^c |
| Weaning wt. | 51.09 ^a | 46.92 ^b | 49.92 ^d |
| Yearling wt. | 94.92 ^a | 84.81 ^b | 91.53 ^d |
| Residual ADG | 0.162 ^a | 0.144 ^{b,c} | 0.156 ^a |
| Yearling ht. | 0.42 ^{a,d} | 0.30 ^b | 0.39 ^d |
| Scrotal circ. | 0.64 ^a | 0.53 ^b | 0.64 ^a |
| Docility | 10.37 | 9.87 | 9.97 |
| Heifer pregnancy | 8.06 ^{a,b} | 7.82 ^{a,b} | 8.03 ^b |
| Calving ease maternal | 9.02 ^a | 6.36 ^b | 8.02 ^d |
| Milk | 25.93 ^a | 21.95 ^b | 24.36 ^d |
| Mature wt. | 33.63 ^{a,d} | 24.68 ^b | 31.27 ^d |
| Mature ht. | 0.41 ^a | 0.22 ^b | 0.35 ^d |
| Carcass wt. | 26.52 ^{a,d} | 23.52 ^b | 26.78 ^d |
| Marbling | 0.77 ^b | 0.10 ^c | 0.42 ^e |
| Ribeye area | 0.46 ^b | 0.28 ^c | 0.36 ^d |
| Fat | 0.013 ^{a,c} | 0.007 ^b | 0.011 ^c |
| Cow energy value | -10.06 ^a | -1.45 ^b | -7.38 ^d |
| Weaning value | 30.75 ^a | 27.93 ^b | 29.28 ^{c,d} |
| Feedlot value | 38.67 ^a | 28.99 ^b | 35.28 ^d |
| Grid value | 38.63 ^b | 13.46 ^c | 25.78 ^e |
| Beef value | 77.07 ^b | 47.46 ^c | 63.99 ^e |
| Quality grade value | 34.09 ^b | 9.96 ^c | 22.43 ^e |
| Yield grade value | 4.54 ^a | 3.50 ^b | 3.35 ^b |

^{a,b,c,d,e}Values within the same EPD without a common superscript differ (P<0.05).