Your Link to

by **MARK MCCULLY,** *vice president, production, Certified Angus Beef LLC*

CAB Link: The cow and the carcass

I fondly remember the first beef production classes I took in college and the fundamental ideas that were impressed upon me as an ambitious but incredibly naïve student. One that I recall most vividly is the concept of matching the cow to the environment and the bull to the market. It always made sense to me and is rooted in truth — but at some level came the idea that a conflict must exist between the cow and the carcass.

While those lectures were more than 20 years ago, I suspect they haven't changed much in today's classrooms. Of course, we are now far more aware of the drivers of consumer beef demand and the impact that our cattle management decisions can have on beef and the consumer, notions that we barely explored in my time in the classroom.

Astute cattlemen are aware of both gradual and rapidly changing market signals, and how animal value is far more connected to consumer preference than ever before. The value of a USDA Prime carcass is often at least $300 more than its Select counterpart of the same weight. While costs are always important, the most profitable commercial cow in today's market may not be the lowest-input cow on your place. With hundreds of dollars of difference in animal value, you have to look carefully at both the income and expense line to find the best cows in your herd today.

Not an either/or

So, with all the emphasis on carcass merit, have the cow traits become less important? Absolutely not: The cow has to get bred and raise a healthy calf. These fundamentals don't change.

Yet I hear skeptics worry about the downfall of their cow herd should they select for marbling. It's a logical misconception. If I select for a carcass trait, surely maternal traits will suffer. While logical thinking, it's simply not true.

Because we were taught that many cow traits are negatively associated with carcass traits, many people have fallen into the trap of believing it's *either* the cow *or* the carcass.

True, there are some genetic correlations of which we need to be aware. We know that muscle and fertility are negatively correlated. In other words, select for ribeye without regard for other traits and conception rates could slide over time.

Selecting for both

However, cattlemen have learned to breed around genetic antagonisms for years using expected progeny differences (EPDs). Calving ease and yearling weight are also negatively associated. Without tools, select for more growth and you get bigger calves at birth. Those who were breeding cattle in the 1970s and 1980s, during the "frame race," remember these correlations all too well. However, looking at the genetic trend for yearling weight and birth weight shows how EPDs can be used effectively to "bend the curve" and make progress on both at the same time (see Fig. 1).

When it comes to great-tasting beef, decades of research and consumer demand have demonstrated how critical marbling is. The great enduring fact — not really news — for cattlemen to remember is there are no negative genetic correlations or unintended consequences that come with selecting for marbling.

Likely, the most important association to be aware of in your cow herd is milk. There is a moderate correlation between the two traits, so selection for marbling will pull milk along with it. Depending on the amount of milk your environment can support, that could be negative. Use both EPDs to make sure you are designing the female that best works for you and your customer.

Scientists at Virginia Tech did an extensive review of published research and concluded, "... selection for improvements in marbling should not negatively impact scrotal circumference, age at puberty, heifer pregnancy, calving interval or mature weight." Interestingly, they also found a favorable relationship between marbling and birth weight, calving ease and the weaned calf value ($W) dollar value index. These conclusions fit with the genetic trend for $W and marbling within the Angus breed (see Fig. 2).

Regardless of what region we visit in this country, we find herds that turn in remarkably high *Certified Angus Beef*® (CAB®) brand acceptance rates. There are examples of 60% to 75% or higher CAB-acceptance-rate calf crops coming out of the high-desert country, Gulf Coast, Midwest and everywhere else cows graze pastures and ranges. Time and again, it has been proven that cows can match the requirements of their environment while still producing calves with superior marbling.

So what does a commercial herd strategy look like that simultaneously improves both the cow and the carcass? Here are a few things to keep in mind.

1. Sire selection. Obviously the bull side of the equation contributes half of the genetics to the calf crop, and selection pressure on sires is the fastest way to make genetic change. With the diversity of the Angus breed and the power of the American Angus Association database, sires exist that can produce functional females for your environment and calves that ultimately produce a highly valuable carcass. As an example, when sorting the Angus Main Sire Summary, there were more than 50 bulls in the top 35th percentile for the combination of weaning weight, scrotal circumference, calving ease maternal, heifer pregnancy, $W and marbling EPD.

2. Heifer selection. While just picking the "pretty ones" may have been a reasonable practice 50 years ago, a more comprehensive strategy is advised today. A good cowman still does some initial sorting on conformation and structure, size (too big, too small), age (too young), health record and disposition. Additional sorting on sire group, dam's record, pelvic score and reproductive tract score are also proven to make a more valuable cow herd. Then if you add genomic testing to gain the best insight into the genetic merits of your replacement candidates, you truly stack the deck and allow for the most precise keeper decisions.

3. Cow herd culling. If you're in a position to cull deeper than the open and problem cows, remove those females that have the least genetic merit or chance of producing high-value, high-marbling calves. Keeping the most progressive and profitable genetics in your cow herd builds the value of your calf crop for years to come.

At the end of the day, it's all about balanced selection, but don't read that as "equal." Strategies that maximize marbling while also making improvements in all the other economically relevant traits, regardless of environment, are not only plausible but a smart approach for cattlemen with their eye on the cow, the carcass — and profit.

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Fig. 1: Angus genetic trend for birth weight and yearling weight

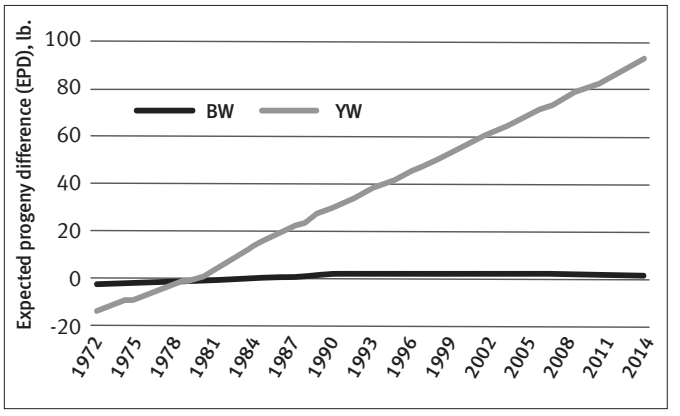

Fig. 2: Angus genetic trend for $W and marbling