# What's Your Beef?

## Let's base EPDs on a fat-constant end point

The October 1999 issue of the *Angus Journal* contained an article by Ron Bolze titled "Beyond Genetics" (see page 129) in which he correctly states, "Perhaps the answer to the antagonistic nature of quality grade vs. yield grade vs. maternal function lies in the identification and propagation of those lines that can routinely:

**1.** Marble sufficiently … at minimal fat cover …

**2.** Produce above-breed-average muscling per unit of carcass weight …; and

**3.** Produce easy-fleshing, functionally adapted daughters for a given environment."

To achieve the goals listed by Bolze, Angus breeders need carcass expected progeny differences (EPDs) that accurately describe the carcass at 0.4 inches (in.) of backfat — the industry standard for maximizing the antagonistic traits of quality vs. cutability — with regard



to carcass weight, ribeye area and marbling (and hopefully tenderness and red meat yield in the near future). Breeders could then readily determine such important factors as ribeye area in relation to carcass weight, marbling at industry target levels of fat thickness, and whether carcass weights fall within minimum and maximum industry target levels.

Do the current carcass EPDs allow breeders to identify and propagate the cattle Bolze describes? Carcass EPDs are currently adjusted to an age-constant basis, which does not specifically measure carcass parameters at 0.4 in. of backfat.

Dan Moser of Kansas State University wrote an article titled "Yield!" in the same issue (see page 127). In that article, he observes, "Since data used to calculate carcass EPDs are adjusted to constant age, sires with a superior EPD for ribeye area could potentially sire cattle that are faster gaining and heavier at processing, but no more muscular relative to their weight." In fact, ribeye area is being *lost* relative to carcass weight.

For steers between 360 and 480 days of age, the *Fall 1994 Sire Evaluation Report* shows 8,782 steers in the database with an average carcass weight of 706 pounds (lb.) and an average ribeye area (REA) of 11.96 square inches (sq. in.). If the yield grade formula for REA relative to carcass weight is used as the industry standard, then these steers are approximately 0.3 sq. in. below "average."

Similarly, the *Fall 1999 Sire Evaluation Report* for the same class of steers shows more than 30,000 steers in the database with an average carcass weight of 762 lb. and an average REA of 12.43 sq. in., which is 0.5 sq. in. below the yield grade formula average. Ribeye area per unit of carcass weight has *decreased by*

more than 0.25 sq. in. in the last five years, the very period of time where selection emphasis for carcass traits has been unprecedented.

In a carcass data summary of cattle evaluated from Oct. 1, 1998, to Sept. 30, 1999, by the Certified Angus Beef (CAB) Program, sire-identified cattle posted an average carcass weight of 774 lb. with 12.4 sq. in. of ribeye area. According to the yield grade formula, 774-lb. carcasses need 13.1 sq. in. of ribeye area to be average. These sire-identified cattle are now *0.7 sq. in. below average* for their carcass weight.

In the same October issue of the *Angus Journal*, Bob Long's "Beef Logic" (see page 132) criticizes breeders for not using EPDs to select for leaner cattle. While most agree that, on the average, Angus cattle need to be leaner at harvest, leanness at harvest is a management issue, not a *genetic* issue. Virtually any and all cattle can be Yield Grade (YG) 1s or YG 5s, depending on when they are harvested.

Maturity patterns affect the rate of backfat deposition (late-maturing cattle deposit fat much more slowly than early-maturing cattle). That presents both a possible bias favoring late-maturing cattle and problems in adjusting to a constant age.

For example, there is no way that 4-frame cattle and 8-frame cattle deposit fat at the same chronological rate, so why are they adjusted as if they are the same? Selecting for negative fat thickness (FT) EPDs will indirectly select for big-framed, late-maturing cattle — the exact opposite of the genetics needed to produce females that are functionally adapted to forage programs.

A sort of the *Fall 1999 Sire Evaluation Report* for sires with yearling height EPDs of 1.3 in. or higher with FT accuracies of 0.5 and higher yields 24 sires — 19 of the 24 are negative for FT, two are zero for FT, and three are positive for FT, showing an apparently positive correlation between FT and frame size. These problems are only magnified when late-maturing cattle are slow growth, and early-maturing cattle are high growth.

Angus breeders already have excellent growth EPDs to describe performance and do not need performance confusing the description of carcass traits. Breeders almost universally praise the decision to offer carcass EPDs based on ultrasound data. Since most cattle can be measured for frame size when scanned, more-accurate formulas can be written to adjust to constant fat thickness based on maturity patterns.

Additionally and more importantly,
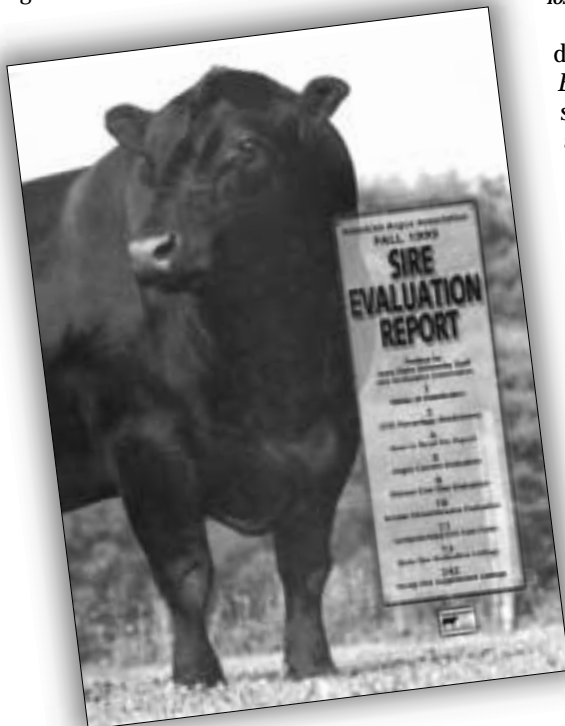
breeders need carcass EPDs adjusted to a fat-constant basis, which would provide a more powerful tool to more accurately describe and select for carcass traits.

Sincerely,
**Bobby Grove**
**White Ridge Angus**
**Somerville, Va.**

## Doyle Wilson's Response:

**1.** At one time we adjusted carcasses to a 0.4 in. of backfat and provided Angus breeders with those EPDs (marbling, ribeye area and carcass weight). When you adjust to a fat end point, you no longer have the fat thickness EPD. There was tremendous concern from Angus breeders who felt they needed the fat EPD also, so we went back to adjusting carcasses to an age end point.

**2.** I agree with the fat end point for carcass EPDs. However, you need to convince Angus breeders of this.

An added note: As I continue to learn more about the development of lean, external fat and marbling in young Angus cattle, I am becoming more of an advocate of selecting for increased muscling (with the ribeye EPD) within an acceptable frame size and quality (with the marbling EPD), then managing fat with nutrition. This is because of what we are learning more from serial scanning with ultrasound than from a review of the Angus carcass database.

Another comment, at one time I scanned a lot of Angus cattle, prior to more recent times of having others do this. My observation: The fattest Angus bulls were also those that were doing great from a gain standpoint and ribeye area size. Based upon these observations, selecting for leaner Angus bulls would be a tragic mistake.

**3.** Relative to ribeye area EPD. I do not believe that breeders in general are selecting for increased ribeye area. The genetic trend indicates that they are not. So, it could be drifting downward. They are selecting for increased marbling.

**4.** I agree with your thoughts on the "Beef Logic" column. It goes back to managing fat.

**5.** If we were going to adjust to a fat-constant end point, I believe 0.3 would be a better target than 0.4. The average carcass fat thickness is much higher than 0.3 (around 0.55 or more for some of the younger sires with carcasses in the database). However, to adjust a carcass from 0.55 to 0.4 or to 0.3 is asking a lot of the mathematics. I do not believe that it can be done accurately.

**6.** I also believe ultrasound will offer the Angus breeder unprecedented opportunities to modify the carcass.

You have raised some very thoughtful and interesting comments.

Regards,
**Doyle E. Wilson**
**Professor of Animal Science**
**Iowa State University, Ames**

## Bigger is not necessarily better

We Americans tend to believe bigger is better, but this is not a truism. When it comes to having an overdraft on your bank account, bigger is definitely not better. When we are overweight, bigger is obviously not better.

Quality and quantity are too often equated, or misunderstood. One example is stature or frame size in cattle. Most all of us admire a large bull more than a small one of equal quality. We never give thought to the fact the smaller bull can breed just as many cows — perhaps even more because he is quicker on his feet than his oversized brother. The larger bull requires more groceries to keep him going, and the smaller bull's progeny may have higher quality if he has superior expected progeny differences (EPDs) for the traits desired.

It is well-known that larger-frame animals mature sexually at an older age. Cows that calve at 2 years of age are more profitable than cows that bear their first calf at 3 years. I have never seen any research showing larger-framed beef animals produce more profit for their owners.

Why my customers want taller cattle is a mystery to me. I can find no reason for this preference. If they want to sell a bigger calf to make more money per cow at weaning time, why not have a few more smaller, more-efficient cows. Or they could purchase bulls with higher weaning EPDs.

The demand for high-milk EPDs is another example of buying bulls for the numbers, even though high-milk-producing cows are less efficient.

I had a much-honored cattleman tell me recently that an AI (artificial insemination) sire with a single-digit milk EPD was not salable. As a result, I, myself, have moved towards double-digit milk EPDs, knowing full well that any Angus cow with a zero milk EPD has plenty of milk to raise a calf and will, as proven by animal scientists, be a more-efficient animal.

Perhaps this is an example of *fancy* overruling *fact*, and *bigger* winning over *better* by people who are unwilling to believe principles proven by scientific experiment.

The unwillingness of outstanding beef breeders to work toward more-efficient production is one of those mysteries I would very much like to understand. For the present I can only believe it is another example of an industry bent on self-destruction. I don't see any chicken breeders out there trying to breed a 20-lb. turkey with legs like an ostrich, and they are doing a whole lot better than the beef industry.

When really knowledgeable cattle people yield to this kind of thinking, we don't have to wonder any more why beef has been losing market share for 20 years. When the "seeing" start following the "blind," it's really crisis time. I guess it's like being caught in a traffic jam. You just have to follow the idiot in front of you because you have no choice. Perhaps it just takes too much guts to buck the trends toward the myth that "bigger is better."

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