



By the Numbers

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Mature cow weight: An important component of beef production efficiency

In any part of the country, cow feed costs represent a significant portion of beef production expenditures. Some regions use a higher proportion of hay and other stored forages, some may use grains or byproduct feeds to help meet cow nutritional requirements, and some producers can provide most of the cow's feed requirements on nearly year-round grazing. Regardless of how cows' nutritional needs are met, the most efficient producers manage both input costs and output value to achieve greater profits. A significant component of that profitability is identifying genetics to reduce costs relative to revenue.

Historically, the beef industry has focused selection pressure on outputs. Compared to previous decades, today's cattle are heavier at weaning and at harvest, producing more pounds of beef with a smaller number of cattle nationally than in years past. However, selection for increased growth rate has resulted in larger mature cow size and higher feed costs per cow.

Selecting for cow efficiency

To improve the efficiency of beef production, Angus breeders and their commercial bull customers have a number of selection tools at their disposal. One useful tool is the mature weight (MW) expected progeny difference (EPD), which defines the difference in mature weight among sires' daughters. Higher MW EPDs indicate a sire's daughters will be heavier at maturity and would be expected to have higher feed costs.

However, mature weight is not the only useful predictor of cow cost. Research has proven heavier-milking cows have higher feed requirements both during lactation and while dry. The cow energy value (\$EN) selection index predicts differences in cow cost due to mature size and milk, where higher values represent greater savings. Thus, smaller, lighter-milking mature cows would have lower feed costs and, accordingly, higher \$EN values.

Still, low-cost cows are not inherently efficient if they wean significantly lighter calves. To balance inputs and outputs for a commercial cow-calf operation, the weaned calf value (\$W) index can be a useful tool. This selection index combines revenue from pounds of calf weaned from weaning weight and milk EPDs, along with costs due to labor at calving from birth weight EPD, and cow cost predicted by \$EN. The difference in \$W values between bulls is a useful indicator of genetic efficiency for commercial cow-calf production. Higher \$W values represent

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greater profit potential due to higher outputs relative to input costs.

Importance of mature weight data

However, the accuracy of an animal's \$W, and components like \$EN, depend on the accuracy of the individual trait EPDs used to calculate each value. While growth traits like weaning weight are routinely reported by nearly all Angus breeders, other important traits are less frequently measured. Mature weight, in particular, is highly underreported, lowering not only the accuracy of the mature weight EPD, but also \$EN and \$W values. To better define efficiency differences among Angus genetics, more mature weight records need to be submitted as part of Angus Herd Improvement Records (AHIR®).

Capturing and submitting mature weight data is straightforward. Cows must be weighed within 45 days before or after her calf's weaning weight measurement date. Producers can often conveniently weigh cows at pregnancy diagnosis, or right at the

time of weaning. In addition to the weight, a body condition score must be taken and submitted, to adjust cow weights to a common body condition. Cow weights can be recorded and submitted annually with each record adjusting for age of the cow to best predict her mature weight. If available, mature height can also be submitted, but unlike body condition score, height is not mandatory for mature weights to be used in genetic evaluation. Mature weight and body condition score records can be submitted to the Association through AAA Login or Angus Information Management Software (AIMS).

Genetic trends for mature weight

While Angus cows are heavier than they were a decade ago, the increase in MW EPD per year is less than increases in weaning and yearling weight EPDs. Many Angus breeders include reduced MW EPD as a target in sire selection. By selecting for \$W, some breeders have placed selection pressure on reducing cow size while emphasizing early growth. Some geneticists believe selection for a combination of lower birth weight and higher weight at weaning and yearling creates a more favorable growth curve on both ends, keeping mature weight in check. Still, greater potential to moderate or reduce mature cow size, while maintaining or increasing weaning and yearling weight is possible through multi-trait selection.

However, to maximize selection for a favorable combination of rapid early growth and moderate mature size, cow weights need to be submitted and selection on MW EPD, as well as WW and YW EPDs, should be practiced to improve both traits simultaneously. A simpler, and likely more effective, approach is to use an index like \$W, which includes both growth and mature size. Either approach depends on accurate genetic predictions for mature cow weight only made possible by collecting more cow weight data.

Please contact any member of the Performance Programs staff if you have questions about the process of collecting and submitting mature cow weights. We are glad to help you improve the efficiency of your herd and your customers' herds.

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