



By the Numbers

by American Angus Association Staff

Tracking progress with the Angus bull

Over time, Angus breeders have improved the genetic merit of Angus bulls through use of EPDs.

No bull has greater genetic impact on the U.S. beef industry than the registered-Angus bull. Whether for steers destined for the feedlot or heifers sorted into the replacement pen, Angus sires have gained more popularity and genetic influence than bulls of all other major breeds combined.

Hundreds of thousands of Angus bulls are turned out annually with the nation's commercial cows, passing on traits proven to make cattle producers from ranch to feedlot more productive and profitable. Economically important traits are the foundation of Angus popularity — and it's the Angus bull that “delivers the goods” to the industry year after year.

So has today's Angus bull become even better than in the past? If we track genetic progress made in the past 15 years, what do we find?

Angus breeders have, in fact, accomplished much in the past decade and a half. They selected for traits that allow recently born Angus bulls to offer much more in a variety of important traits. They have also reshaped the Angus bull, making him heavier and more muscular at one year of age, but not taller. He also brings even more marbling and quality-grade potential today than ever before.

These trends have added to the positive reputation Angus genetics enjoy among U.S. cattle feeders.

Trait by trait

Let's evaluate some specific traits.

Birth weight and calving ease. During the past 15 years, the average Angus bull has been selected for modestly lower birth weight (BW) expected progeny differences (EPDs), which are measured in pounds of birth weight (so lower-BW-EPD bulls would be expected to sire calves that weigh less at birth). Bulls born in 1998 exhibited an average BW EPD of 2.5 pounds (lb). For bulls born in 2013, that EPD average dropped to 1.6 lb., for a reduction of 0.9 lb.

This is not a large change. However, it does suggest that Angus breeders saw fit to continue improving the breed's calving ease through lighter birth weights.

Calving ease direct (CED) EPDs also improved, moving up from an average of 1 for bulls born in 1998 to 5 for bulls born in 2013. CED EPDs are reported as the percent of first-calf heifers expected to calve unassisted, so a higher percentage would mean that, compared to bulls with lower CED EPDs, the bull is expected to sire more unassisted calves when bred to first-calf heifers.

Angus is the “go to” breed for heifers, where calving ease and light birth weights are a must. Angus breeders are now offering more light-birth-weight, high-calving-ease bulls than ever before. As U.S. producers seek to breed more heifers and expand their cow herds, the Angus bull is well-positioned to take on that task.

Growth and frame size. Significantly more growth with a little less frame — that sums up what most would consider a positive accomplishment for the Angus seedstock provider.

As shown in Fig. 1, the average yearling height (YH) EPD, reported in inches (in.), has actually decreased by 0.2 in. since the late 1990s. The average yearling weight (YW) EPD, reported in pounds, has simultaneously gone up 40 lb. The trend toward higher yearling growth has been steady over time and will likely continue for at least a few more years.

In contrast, selection for more-moderate frame sizes has been gradual. Since 2007 the average Angus bull's YH EPD has completely leveled off.

Angus bulls have indeed become heavier at a year of age, but not taller. So where do those extra pounds reside? Weight, also called mass, is the product of volume multiplied by density. The added weight today's Angus bulls

Fig. 1: Average Angus bull for yearling weight and yearling height expected progeny differences

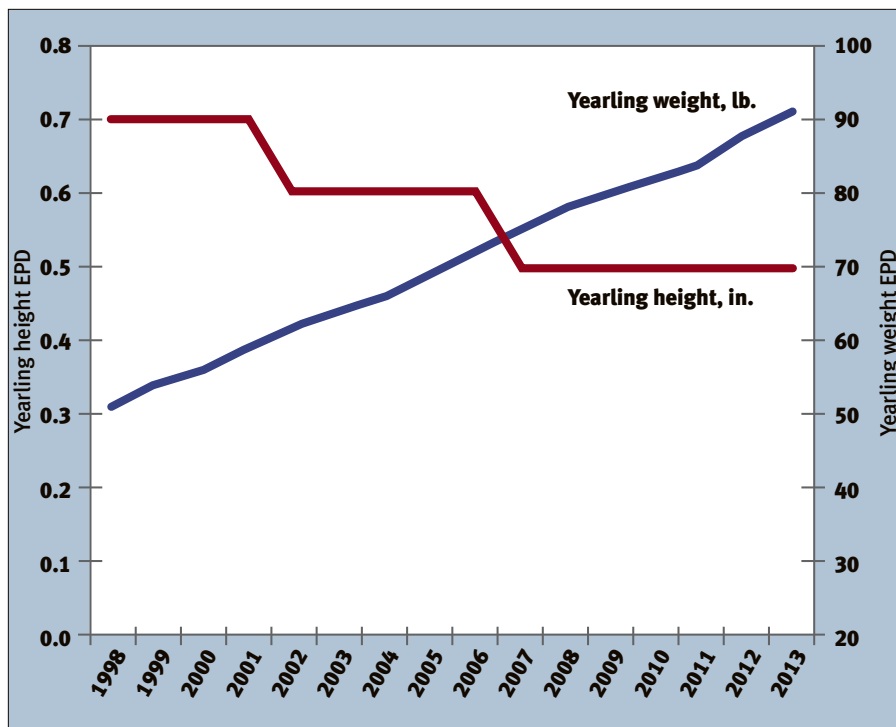


Table 1: Angus bulls, marbling and muscling

Birth year	Avg. ribeye EPD	Avg. marbling EPD
1998	-0.02	0.18
2013	0.5	0.53

are packing must therefore be the result of greater body length, increased base width and greater body depth (linear dimensions other than height).

Phenotypic shape is being altered, and a more linebacker-like type is gradually emerging. Angus breeders as a group believe their cattle are already right-sized for frame. However, breeders seem to have added more body dimension in every direction except height. Over time, they've made their cattle longer, thicker and deeper bodied, which adds up to more total volume.

Muscularity has definitely been on the rise in the Angus breed, and muscle is a relatively dense tissue. It has a higher weight per unit of volume than many other types of tissue, and this may also help explain why Angus bulls are getting heavier without getting taller.

Muscling and marbling. Both muscling and marbling help commercial Angus cattle excel on value-based grids. Breeders have been working in a positive direction on these two traits over time, adding significantly to the carcass value of the typical fed steer or heifer sired by an Angus bull. From 1998 to 2013, average ribeye EPDs, reported in square inches (sq. in.), increased more than 0.5 sq. in. in a steady/linear manner, with each successive year higher than the previous. Marbling EPDs rose from an average of 0.18 to 0.53 over the same time period (see Table 1).

Worth more

These trends have added to the positive reputation Angus genetics enjoy among U.S. cattle feeders. At least two-thirds of all finished cattle sell on some type of a carcass-value grid. Thus, there is a positive payoff for the right genetics at the fed-cattle level of the market, which adds to the price feedlot managers are willing to pay for Angus-influenced feeder calves. Extra value on the grid means extra dollars available to bid on superior Angus feeder animals.

It is also likely that genetic trends in both muscling and marbling will continue tracking higher for some time to come. Industry-leading use of artificial insemination (AI) in the Angus breed supports fairly rapid genetic change (even in a large breed) in whatever direction breeders choose to go. The Angus gene pool clearly has genetics available to keep inching these two traits upward, assuming breeders stay on their current path.

Add increased muscling and marbling to the faster growth rates Angus bulls now deliver, and the smiling approval of cattle feeders and commercial cow-calf producers should get brighter and brighter.

Conclusion

Angus breeders believe that improvements over time are both necessary and possible. They continue to fine-tune the genetic package represented by the average Angus bull.

EPDs have proven very useful in this quest for ever-better genetics. During the past 15 years, BW and CED EPDs on registered-Angus bulls have been shifted toward a more favorable calving experience. Simultaneously, growth rates, muscling and marbling have all increased and have enhanced the inherent value of commercial Angus-sired calves. Breeders chose not to increase frame size, and have actually shaved a little genetic height off of the average Angus bull.

All of this could only have been accomplished through many thousands of thoughtful breeding decisions based on EPDs published by the American Angus Association. These tools enabled breeders to select for faster-growing cattle that uniquely held birth weights and frame size in check. Important carcass traits, like muscling and marbling, have also measurably trended in a higher-value direction.

Most Angus breeders are well aware of these trends. The breed is now creating more pay weight for its commercial bull customers, with even better calving ease than before. Feedlot operators have also benefited, because today's Angus-sired steers offer better daily gain and feed conversion rates, plus enhanced carcass traits.

That's progress worth tracking!



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