EPDs and Carcass Value

Do growth and carcass expected progeny differences truly improve carcass value?

by ***Eric Grant***

Ever wonder how the expected progeny differences (EPDs) you use for breeding decisions affect overall carcass quality and profitability? Recently concluded research conducted by Sally Dolezal, Dolezal Enterprises, may help answer that question and enable Angus producers to continue building quality and profitability into their cattle.

Funded by the American Angus Association, the research project's objective was to further establish the value of using EPDs as a predictive or comparative tool across all levels of the beef production chain. The project analyzed the Association's fall 2001 carcass evaluation data using the Oklahoma State University (OSU) Boxed Beef Calculator. OSU conducted a similar study in 1999, but the Association recognized the need to fine-tune the research by using more-current economic figures.

"It's important to note that current quality-oriented grids include *Certified Angus Beef* ® (CAB®) and USDA Prime carcass premiums superior to those used in the previous analysis," Dolezal says. "Equally important, there is currently greater emphasis simultaneously being placed on Yield Grade (YG) 1 and 2 carcasses. Prices were supplied by Certified Angus Beef LLC (CAB) as a 12-month average of price-sheet quotes compiled from three major packers."

All told, researchers analyzed 1,416 Angus sires with a total of 47,515 steer progeny records. The steers were harvested from 1980 to 2001. Each sire had to have 10 or more steer progeny in the sample to be included in the analysis.

The sires were ranked into groups (top 10% all the way to the bottom 10%) based on carcass value (in dollars) per head.

The *Angus Journal* recently talked with Dolezal about the research project, its conclusions and what it means to Angus breeders. Here's what she had to say:

AJ: *Why did the American Angus Association feel it was necessary to do this research again?*

Dolezal: "Initial boxed-beef-value research tied to Angus sire performance was conducted in 1999 by Oklahoma State University and was funded by the American Angus Association. Since that time, branded beef programs have grown dramatically. More price information is available on premium-Choice product. Recently, CAB and the Association had interest in re-evaluating boxed beef value in Angus cattle with more-current premiums (with updated quality and yield grade figures) to be reflected in a second analysis. Also, the Association hoped to relate these results to EPD profiles for Angus sires."

AJ: *What did you find?*

Dolezal: "The top 10% and the bottom 10% of the sires were established based on ranking their progeny performance on carcass value ($/head). The top 10% had $208 more carcass value, as well as 36% more premium-Choice or better carcasses, 1.6 square inches (sq. in.) more of ribeye area (REA) and 129 pounds (lb.) more carcass weight. As far as EPD differences between the top and bottom 10%, there was a significant advantage in growth trait EPDs and carcass trait EPDs favoring sires in the top 10% (see Table 1).

"It's also important to mention that fat thickness EPD did not differ; therefore, increased quality was achievable without necessarily increasing external fat.

"In addition, approximately 96% of the sires in the top 10% were born since 1986 (versus 52% of the sires in the bottom 10%). This demonstrates the progress and continued potential of Angus cattle and carcass merit.

"As an additional part of this research, data were applied to a quality-based-grid scenario and the top 10% and bottom 10% of sires were evaluated again on carcass value. Similar results were evident, with EPD differences again being significant for many of the carcass-trait EPDs. Since producers using a grid today like that would be paid accordingly, it is great to see the EPDs follow in synch with a real-life grid situation."

Sally Dolezal

AJ: *What surprised you the most?*

Dolezal: "I wasn't surprised. I was impressed. We have an excellent example of differences within the Angus breed for carcass merit that is also reflected in the sires' EPDs. We know — based on previous research nationally — that EPDs work, but

Table 1: Mean difference in expected progeny differences (EPDs) for the top 10% and bottom 10% of sires

	Top 10%	Bottom 10%	Difference
Yearling wt. EPD, lb.	71	40	31
Weaning wt. EPD, lb.	38	21	17
Birth wt. EPD, lb.	3.7	2.3	1.4
Carcass wt. EPD, lb.	16	-2	18
Marbling EPD	0.10	-0.04	0.14
Ribeye area EPD, sq. in.	0.27	0.01	0.26
Retail product EPD, %	0.27	0.04	0.23

never before to this great extent have we had sire EPD profiles tied to carcass merit."

AJ: *How do producers use conclusions of this research to improve the profitability or quality of their cattle?*

Dolezal: "EPDs can be used to impact carcass value. First, as a producer, you must know what your cattle will do — you have to know where the calf crop performance benchmark is in order to tailor EPD choices to the particular herd. Seeing the impact of EPDs in this research, as well as at the carcass value and grid level, helps to better target Angus-influence cattle to feedlot and packing segments. Known genetic potential of cattle adds value and predictability; this is assuming that best management suitable to those cattle is in place from the ranch forward into the production segments."

AJ: *Where should a producer place EPD selection pressure to achieve higher carcass value?*

Dolezal: "Even when we hear so much discussion and emphasis on carcass merit, the producer first must target a profitable ranch system, which starts with efficient reproduction and a live calf. These are areas where Angus cattle excel easily anyway. Still, efforts should include use of birth weight EPDs, milk EPDs, use of body condition score (BCS) information, cow size targeted to nutritional resources and best management practices (BMPs). Then the targets may be outlined at the ranch level for growth and carcass."

AJ: *To what specific traits quantified by EPDs should a producer pay particular attention?*

Dolezal: "Important growth traits include targets for yearling weight EPD, as well as weaning weight EPDs. Also, carcass traits work and add predictability. Use the marbling, percent retail product and ribeye area EPDs available in the Angus database. These values are tools for the progressive producer quantifying value in his or her cattle."

AJ: *What caution flags do you raise when it comes to explaining your findings?*

Dolezal: "Each cow herd requires specific EPDs in the bulls they use. It is important not to just choose the 'numbers' in the top 10% of the sire EPD profiles in your cattle selections. Instead, use them as a guide to better assess the levels of EPDs that work for your program."

AJ: *What's the next step in research from here?*

Dolezal: "Expansion of this research will allow additional work in the value of additional carcass weight — how does weight impact carcass value both within and across quality grades? Also, it would be interesting to examine the relationships to future breakthroughs in other performance arenas, such as cow herd efficiency, feedlot performance and beef tenderness."

AJ: *What's the take-home message of this research?*

Dolezal: "EPDs for growth traits and carcass merit significantly impact Angus carcass value. With good management targeted for the cattle genetics, EPDs can be used to influence end-product value." AJ