

# BY THE NUMBERS

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## Another Milestone Reached for Angus

*Combined Value index released.*

May 29, 2020, marks a milestone for the Angus breed with the release of the Combined Value (\$C) dollar value (\$Value) index. Unlike Maternal Weaned Calf Value (\$M) or Beef Value (\$B) which target specific segments of the industry, \$C aims to characterize profitability differences across the entire chain by combining the two underlying breeding objectives that drive Angus's maternal and terminal economic indexes.

Expressed in dollars per head, \$C includes all 15 traits involved in \$M and \$B (see Fig. 1). The breeding objective, which drives the \$C

model, is built around a 500-head commercial cow herd that replaces 20% of their breeding females per year with replacement heifers retained within their own herd. In addition, this same herd then retains ownership on these cull heifers and their steer mates through the feedyard and markets those cattle on a quality-based carcass merit grid. Therefore, it combines the two underlying objectives behind \$M and \$B.

\$C is a linear combination of \$M and \$B. The simple formula to calculate \$C on any animal is  $\$C = \$M + (1.297 * \$B)$ . In the example in Fig. 2, Bull A and Bull B are compared head-to-head. As a result, Bull A and Bull B should produce progeny with similar profitability if heifers are being retained as replacements and remaining calves are fed and marketed on a carcass merit grid.

The idea of combining maternal and terminal traits into one economic selection index allows a producer to make genetic progress

in several different traits at once, while still accounting for the interrelationships among these traits which may pull costs and revenues in different directions.

For example, continuing to increase weaning weight, yearling weight and carcass weight results in more saleable product, increasing revenue. However, it also drives up input costs across other segments of the operation. Mature cow size, for instance, is positively correlated to these three growth traits. As increased selection pressure on weaning, yearling and carcass weight continues, mature cow size will increase resulting in higher maintenance energy requirements increasing costs. \$C recognizes these types of relationships and targets optimal level of genetic change in each of these traits that results in maximum profitability.

An effective way to understand how the underlying genetic merit of cattle would change if producers

**Fig. 1: Traits included in \$M, \$B and \$C**

| Trait | \$M | \$B | \$C |
|-------|-----|-----|-----|
| CED   | ✓   |     | ✓   |
| WW    | ✓   |     | ✓   |
| YW    |     | ✓   | ✓   |
| CEM   | ✓   |     | ✓   |
| MILK  | ✓   |     | ✓   |
| MW    | ✓   |     | ✓   |
| DOC   | ✓   |     | ✓   |
| HP    | ✓   |     | ✓   |
| Claw  | ✓   |     | ✓   |
| Angle | ✓   |     | ✓   |
| DMI   |     | ✓   | ✓   |
| CWT   |     | ✓   | ✓   |
| REA   |     | ✓   | ✓   |
| MARB  |     | ✓   | ✓   |
| FAT   |     | ✓   | ✓   |

**Fig. 2: Expected response in the EPD traits up to approximately 10 years of selection, if animals were selected strictly on \$C versus \$M or \$B.**

|        | \$M | \$B  | $\$M + (1.297 * \$B)$ | \$C  |
|--------|-----|------|-----------------------|------|
| Bull A | +70 | +127 | $70 + (1.297 * 127)$  | +235 |
| Bull B | +51 | +140 | $51 + (1.297 * 140)$  | +233 |
|        |     |      | Difference            | +2   |

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solely selected on \$C for the next 10 years is to look at the response to selection of individual traits inside of the \$Value. Fig. 3 depicts the response to selection of traits when \$C is solely selected on for the next 10 years in units of Expected Progeny Difference (EPD). Selection on \$C results in a more favorable combination of traits across the entire production system. Producers selecting on \$C will gain nearly as much increase in Weaning Weight (WW), Yearling Weight (YW), Carcass Weight (CW), Marbling (MARB) and Ribeye Area (RE) EPDs as if they were selecting on \$B, but with only about half as much increase in mature cow weight.

As with any breeding program, producers utilizing \$C to make decisions should continue to understand the strengths and

weaknesses of their herds as well as their production environment to make the best decisions possible. For instance, if a producer is having issues getting replacement females bred, selection on \$C with additional emphasis on Heifer Pregnancy (HP) EPD may be warranted. With any index, it is important to understand the underlying breeding objective of the index to ensure it suits the breeder's operation.

All in all, \$C aims to give commercial producers a more balanced index option to make their selection decisions that keep both cost associated with the cow-calf sector in mind while continuing to reach greater revenues on the growth and carcass side. Essentially what \$C accomplishes is giving commercial cattlemen a way to select cattle that

give them nearly all the horsepower that \$B affords them, but puts the bumpers up around cow traits such as mature cow weight, docility and fertility, which affect costs in an individual operation.

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**Fig. 3: Trait responses to 1 SD of selection (~10 years)\***

