

**Combined \$Value**

Combined Value (\$C), expressed in dollars per head, is an index which includes all traits that make up both Maternal Weaned Calf Value (\$M) and Beef Value (\$B) with the objective that commercial producers will replace 20% of their breeding females per year with replacement heifers retained within their own herd. The remaining cull heifer and steer progeny are then assumed to be sent to the feedlot where the producers retain ownership of those cattle and eventually sell them on a quality-based carcass merit grid. Expected progeny differences (EPDs) directly influencing a combined index: calving ease direct (CED) and maternal (CEM), weaning weight (WW), yearling weight (YW), maternal milk (Milk), heifer pregnancy (HP), docility (DOC), mature cow weight (MW), foot angle (Angle), claw set (Claw), dry matter intake (DMI), marbling (Marb), carcass weight (CW), ribeye area (RE) and fat thickness (Fat).

Combining maternal and terminal traits into a single multi-trait genetic selection tool allows producers to make genetic progress in several different traits at once while accounting for the interrelationships among these traits which may pull costs and revenues in different directions. For example, efforts to increase WW, YW and CW results in more saleable product and ultimately increases revenue. However, it also increases input costs across other segments of the operation, because increased mature cow size often results in cows that eat more. This index recognizes these antagonisms and finds the optimum level of genetic change a commercial producer should target to receive maximum profitability for the breeding objective. \$C is a linear combination of \$M and \$B. The formula to calculate \$C on any given animal is simple:

$$\$C = \$M + (1.297*\$B).$$

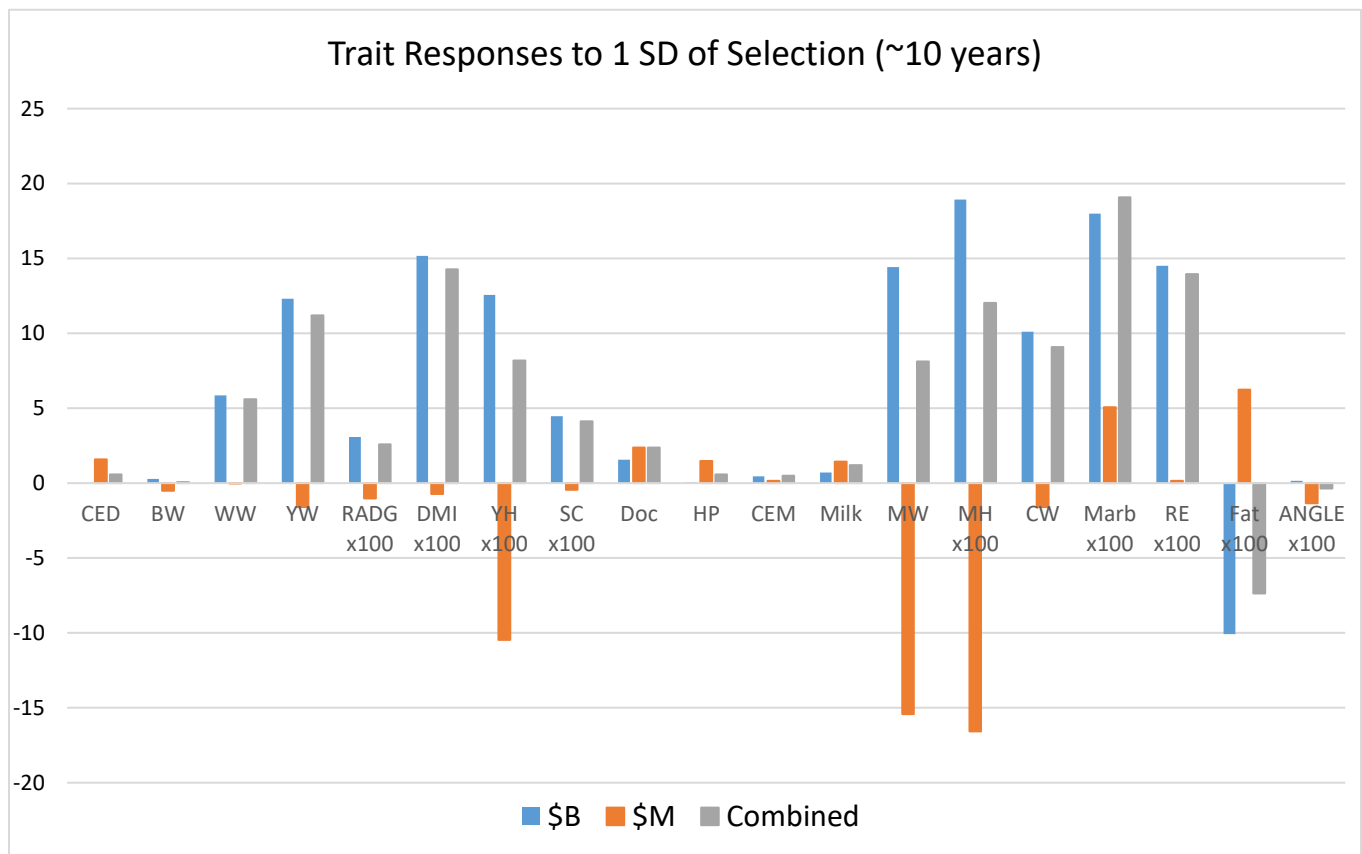
\$C is slated to be released in June 2020. In the meantime, Angus members can download \$C figures and percent rankings through their AAA Login on owned and active animals. **Figure 1** lists the breed averages and percent ranks for non-parent animals as well as current sires and dams. Below are examples of how individuals would calculate \$C on non-owned animals in the database.

	\$M	\$B	$\$M + (1.297*\$B)$	\$C
Bull A	+64	+127	$64 + (1.297*127)$	+229
Bull B	+56	+160	$56 + (1.297*160)$	+264
Bull C	+90	+120	$90 + (1.297*120)$	+246

An effective way to understand how cattle would change if producers solely selected on \$C is to look at the response to selection of individual EPDs inside of the \$Value. **Figure 2** illustrates the response to selection of traits when \$C is solely selected on for the next 10 years in units of trait. 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 WW, YW, CW, Marb and RE as they would solely selecting on \$B, but with only about half as much increase in MW. 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 HP may be warranted. With any index, it is important to understand the underlying breeding objective of the index to ensure it suits the operation.

<b>Top Pct</b>	<b>Current Sires</b>	<b>Current Dams</b>	<b>Non-parent Bulls</b>	<b>Non-parent Cows</b>
1%	312	292	306	306
2%	300	282	296	296
3%	293	276	290	290
4%	287	271	285	285
5%	283	267	281	281
10%	269	253	267	267
15%	259	245	258	258
20%	252	238	252	252
25%	245	232	246	246
30%	239	227	241	241
35%	233	222	236	236
40%	228	217	231	232
45%	223	213	227	228
50%	218	209	223	223
55%	212	205	219	219
60%	207	200	214	215
65%	202	196	210	211
70%	196	191	205	206
75%	190	186	200	201
80%	182	180	194	196
85%	173	173	187	189
90%	160	164	178	180
95%	138	150	164	165
<b>Averages</b>	<b>215</b>	<b>208</b>	<b>222</b>	<b>223</b>

Figure 1 lists the breed averages and percent ranks for non-parent animals as well as current sires and dams.



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