

American Angus Association \$Value Indexes



Dollar value indexes, or **\$Values**, are a tool used to select for several traits at once based on a specific breeding objective. An economic index approach takes into account genetic and economic values as well as the relationships between traits to select for profit.

ANGUS
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Maternal Weaned Calf Value (\$M), an index expressed in dollars per head, predicts profitability differences in progeny due to genetics from conception to weaning. Increased selection pressure on \$M aims to decrease overall mature cow size and improve foot structure and fertility while maintaining weaning weights consistent with today's production.

Weaned Calf Value (\$W), an index expressed in dollars per head, provides the expected difference in future progeny preweaning performance from birth to weaning. Over time, increased selection pressure on \$W will increase weaning and maternal milk traits while also continuing to increase mature cow size.

Feedlot Value (\$F), an index expressed in dollars per head, is the expected average difference in future progeny performance for post-weaning merit compared to progeny of other sires. The underlying objective assumes commercial producers will retain ownership of cattle through the feedlot phase and sell fed cattle on a carcass weight basis with no considerations of premiums or discounts for quality and yield grade.

Grid Value (\$G), an index expressed in dollars per carcass, is the expected average difference in future progeny performance for carcass grid merit, including quality and yield grade attributes, compared to progeny of other sires.

Beef Value (\$B), an index expressed in dollars per carcass, facilitates simultaneous multi-trait genetic selection for feedlot and carcass merit. \$B represents the expected average differences in the progeny postweaning performance and carcass value compared to progeny of other sires. This index assumes commercial producers wean all male and female progeny, retain ownership of these animals through the feedlot phase and market these animals on a quality-based carcass grid.

Combined Value (\$C), an index expressed in dollars per head, includes all traits that make up both \$M and \$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.

EPDS DIRECTLY INCORPORATED INTO EACH \$VALUE

TRAIT	MATERNAL		TERMINAL			\$C
	\$M	\$W	\$F	\$G	\$B	
CED	✓					✓
BW		✓				
WW	✓	✓				✓
YW			✓		✓	✓
CEM	✓					✓
Milk	✓	✓				✓
MW	✓	✓				✓
DOC	✓					✓
HP	✓					✓
Claw	✓					✓
Angle	✓					✓
DMI			✓		✓	✓
CW			✓	✓	✓	✓
RE				✓	✓	✓
Marb				✓	✓	✓
Fat				✓	✓	✓

American Angus Association Selection Tools

Expected Progeny Difference (EPD), is the prediction of how future progeny of each animal are expected to perform relative to the progeny of other animals listed in the database. EPDs are expressed in units of measure for the trait, plus or minus. Interim EPDs may appear on young animals when their performance has yet to be incorporated into the American Angus Association National Cattle Evaluation (NCE) procedures. This EPD will be preceded by an "I", and may or may not include the animal's own performance record for a particular trait, depending on its availability, appropriate contemporary grouping, or data edits needed for NCE.

Accuracy (ACC), is the reliability that can be placed on the EPD. An accuracy of close to 1.0 indicates higher reliability. Accuracy is impacted by the number of progeny and ancestral records included in the analysis.

Calving Ease Direct (CED), is expressed as a difference in percentage of unassisted births, with a higher value indicating greater calving ease in first-calf heifers. It predicts the average difference in ease with which a sire's calves will be born when he is bred to first-calf heifers.

Birth Weight (BW), expressed in pounds, is a predictor of a sire's ability to transmit birth weight to his progeny compared to that of other sires.

Weaning Weight (WW), expressed in pounds, is a predictor of a sire's ability to transmit weaning growth to his progeny compared to that of other sires.

Residual Average Daily Gain (RADG), feed efficiency expressed in pounds per day, is a predictor of a sire's genetic ability for postweaning gain in future progeny compared to that of other sires, given a constant amount of feed consumed.

Yearling Weight (YW), expressed in pounds, is a predictor of a sire's ability to transmit yearling growth to his progeny compared to that of other sires.

Yearling Height (YH), is a predictor of a sire's ability to transmit yearling height, expressed in inches, compared to the that of other sires.

Scrotal Circumference (SC), expressed in centimeters, is a predictor of the difference in transmitting ability for scrotal size compared to that of other sires.

Docity (DOC), is expressed as a difference in yearling cattle temperament, with a higher value indicating more favorable docility in a sire's offspring compared to another sire.

MATERNAL

Heifer Pregnancy (HP), is a selection tool to increase the probability or chance of a sire's daughters becoming pregnant as first-calf heifers during a normal breeding season. A higher EPD is the more favorable direction, and the EPD is reported in percentage units.

Calving Ease Maternal (CEM), is expressed as a difference in percentage of unassisted births, with a higher value indicating greater calving ease in first-calf daughters. It predicts the average ease with which a sire's daughters will calve as first-calf heifers when compared to daughters of other sires.

Maternal Milk (Milk), is a predictor of a sire's genetic merit for milk and mothering ability in his daughters compared to daughters of other sires. In other words, it is that part of a calf's weaning weight attributed to milk and mothering ability.

Mature Weight (MW), expressed in pounds, is a predictor of the difference in mature weight of daughters of a sire compared to the daughters of other sires.

Mature Height (MH), expressed in inches, is a predictor of the difference in mature height of a sire's daughters compared to daughters of other sires.

FOOT SCORE

Claw Set (Claw), is expressed in units of claw-set score. A lower EPD is more favorable, indicating a sire will produce progeny with more ideal claw set, which is toes that are symmetrical, even and appropriately spaced.

Foot Angle (Angle), is expressed in units of foot-angle score. A lower EPD is more favorable, indicating a sire will produce progeny with more ideal foot angle, which is a 45-degree angle at the pastern joint with appropriate toe length and heel depth.

CARCASS

The genetic evaluation produces a single set of EPDs for carcass traits where the units of measure are in trait format and analyzed on an age-constant basis.

Carcass Weight (CW), expressed in pounds, is a predictor of the differences in hot carcass weight of a sire's progeny compared to progeny of other sires.

Marbling (Marb), is expressed as a fraction of the difference in USDA marbling score of a sire's progeny compared to progeny of other sires.

Ribeye Area (RE), expressed in square inches, is a predictor of the difference in ribeye area of a sire's progeny compared to progeny of other sires.

Fat Thickness (Fat), expressed in inches, is a predictor of the differences in external fat thickness at the 12th rib (as measured between the 12th and 13th ribs) of a sire's progeny compared to progeny of other sires.

\$VALUE INDEXES

\$Value Indexes, reported in dollars per head, are multi-trait selection indexes where a higher value suggests more profit. The \$Value is an estimate of how future progeny of each sire are expected to perform, on average, compared to progeny of other sires if sires were randomly mated to cows and if calves were exposed to the same environment.

Maternal Weaned Calf Value (\$M), expressed in dollars per head, predicts profitability differences in progeny due to genetics from conception to weaning. Increased selection pressure on \$M aims to decrease overall mature cow size and improve foot structure and fertility while maintaining weaning weights consistent with today's production.

Weaned Calf Value (\$W), expressed in dollars per head, provides the expected difference in future progeny preweaning performance from birth to weaning. Increased selection pressure on \$W increases weaning and maternal milk traits while increasing mature cow size.

Cow Energy Value (\$EN), expressed in dollars savings per cow per year, assesses differences in cow energy requirements as an expected dollar savings difference in daughters of sires. A larger value is more favorable when comparing two animals. Components for computing \$EN savings difference include lactation energy requirements and energy costs associated with differences in mature cow size.

Feedlot Value (\$F), expressed in dollars per head, is the expected average difference in future progeny performance for postweaning merit compared to progeny of other sires. The underlying objective assumes commercial producers will retain ownership of cattle through the feedlot phase and sell fed cattle on a carcass weight basis with no considerations of premiums or discounts for quality and yield grade.

Grid Value (\$G), expressed in dollars per carcass, is the expected average difference in future progeny performance for carcass grid merit, including quality and yield grade attributes, compared to progeny of other sires.

Beef Value (\$B), expressed in dollars per carcass, represents the expected average differences in the progeny postweaning performance and carcass value compared to progeny of other sires. This index assumes commercial producers wean all male and female progeny, retain ownership of these animals through the feedlot phase, and market these animals on a quality-based carcass grid.