



## Canadian Angus Association

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### Genetic Evaluation Definitions

**Accuracy (ACC)** — 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.

**Active Sires/Dams** — animals that have at least one progeny with a weaning weight recorded in the past two years.

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

**Black/Red Carrier** — an animal whose coat colour is black, but carries the recessive gene for red coat colour.

**Calving Ease Maternal (CEM) EPD** — is expressed as a difference in percentage of unassisted births with a higher value indicating greater probability of unassisted births 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.

**Calving Ease Direct (CED) EPD** — the average difference in ease with which a sire's calves will be born when he is bred to first calf heifers. The higher the number the more probability that his calves will be born unassisted.

**Carcass Weight EPD** — expressed in lbs, this EPD predicts differences in the average hot carcass weight in progeny. This EPD is calculated using birth weight, weaning weight and yearling weight EPDs as well as any carcass data available.

**EPD** — Expected Progeny Differences are expressions of the relative genetic merit of beef cattle for various traits. EPDs are used to compare the predicted progeny performance between two bulls (or females) within a breed, regardless of age or herd location. EPDs are expressed in the actual units of measure for a given trait.

**Fat/Back Fat EPD** — expressed in inches, is a predictor of the differences in back 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. The higher the EPD the more back fat expected on a sire's calves.

**Heifer Pregnancy (HPG) EPD** — the percent probability in a bull's daughters' ability to conceive and calve as two year olds. Just like the stayability EPD, heifer pregnancy EPDs are expressed in terms of a percentage difference. For example, two heifer pregnancy EPDs, 5 and 10, differ by 5%. Daughters of the bull with the EPD of 10 are 5% more likely to conceive than daughters of the other bull.

**Interim EPDs** — indicated as PE+, are calculated using a calf's sire's and dam's National EPDs plus the calf's own performance data.

**Marbling EPD** — a prediction of future progeny's performance for carcass marbling scores. This EPD incorporates both ultrasound and carcass data. The higher the EPD the more intramuscular fat expected in the rib eye of a sire's calves.

**Vision** - *The Canadian Angus Association exists to preserve and expand the Angus breed to provide the best opportunities for profitability for future generations.*

**Mission** - *To maintain breed registry, breed purity and provide services that enhance the growth and position of the Angus breed.*

Milk EPD — is an indicator of milking ability in daughters. It represents the differences in weaning weights of calves due to the amount of milk produced by their mothers. It is expressed in pounds of calf weaned. The higher the EPD the more weaning pounds a sire's daughters will add to her calves via milk.

Parental Average EPD — indicated as PE, is an average of a calf's sire's and dam's National EPDs. These have minimal accuracy as they do not incorporate the calf's own performance.

Percentile Table — used to quickly rank a sire or dam within the breed for a given trait.

Possible Change Table — EPDs are predictions of an animal's breeding value for a given trait. As with any prediction, there is a margin of error, or possible change, associated with an EPD. When the accuracy is low, this margin for error is high. As more information (i.e. progeny data) becomes available, the margin of error becomes smaller.

Ribeye Area (REA) EPD — expressed in square inches, is a predictor of the difference in ribeye area of a sire's progeny compared to progeny of other sires. The larger the EPD the larger the expected rib eye area.

Scrotal Circumference EPD — expressed in centimetres, is a predictor of the difference in transmitting ability for scrotal size compared to that of other sires. Scrotal Circumference is an indicator of both growth and male fertility. Larger scrotal size is related to increased sperm production and semen quality, and in daughters' younger age to puberty, younger age to calving and higher pregnancy rate.

Stayability (STAY) EPD — the percent probability of daughters staying in production to at least 6 years of age. Stayability EPDs for bulls are the prediction of the genetic differences between their daughters probability of staying in production in a herd to at least the age of 6 years. Given the primary emphasis on pregnancy in most herds, stayability is a measure of sustained fertility. The higher the EPD the more likely a sire's daughter will remain in production in a herd past 6 years.

Total Maternal EPD — is a combination of the weaning weight and milk EPDs. It is calculated as:

$1/2 \text{ Weaning Weight EPD} + \text{Milk EPD} = \text{Total Maternal}$ . This EPD represents the differences in weaning weights between calves due to mothering and milking ability of their dams.

Weaning Weight EPD — expressed in pounds, is a predictor of a sire's ability to transmit weaning growth to his progeny compared to that of other sires. Weaning weight is an indicator of growth from birth to weaning (205 days of age). The calf's growth during this period is influenced by its own ability to grow plus its mother's maternal abilities. The higher the EPD, the heavier, on average, the calves of a sire will be at weaning.

Yearling Weight EPD — expressed in pounds, is a predictor of a sire's ability to transmit yearling growth to his progeny compared to that of other sires. The higher the EPD, the heavier, on average, the calves of a sire will be at yearling.

Yield Grade EPD — expressed in USDA yield grade score, this EPD predicts differences in carcass yield grade score to be expected from progeny. This EPD is a ratio or summary of the rib eye area and fat EPDs. The lower the EPD, the closer to USDA grade 1 the sire's calves will grade (grade 1, having the biggest rib eye area to lowest fat ratio, is the preferred grade).