

EPD Definitions

Listed below is a partial list of the definitions of American Gelbvieh Association EPDs and the units in which they are published..

MATERNAL TRAITS

Calving ease direct (CED): Percent of unassisted births of a bull's calves when he is used on heifers. A higher number is favorable, meaning better calving ease. This EPD can be vital to a rancher looking to decrease the amount of calves pulled in his herd.

Milk (Milk): The genetic ability of a sire's daughters to produce milk expressed in pounds of weaning weight.

Calving ease maternal (CEM): Represented as percent of unassisted births in a sire's first-calving daughters. A higher number represents more favorable calving ease. This EPD is important to a rancher's bottom line because it predicts which animals produce daughters with a genetic pre-disposition to calve unassisted as heifers.

Stayability (ST): Predicts the genetic difference, in terms of percent probability, that a bull's daughters will stay productive within a herd to at least six year of age. The stayability EPD is one of the best measures currently available to compare a bull's ability to produce females with reproductive longevity.

GROWTH TRAITS

Birth weight (BW): Predicts the difference, in pounds, for birth weight of the calf.

Weaning weight (WW): Predicts the difference, in pounds, for weaning weight (adjusted to age of dam and a standard 205 days of age). This is an indicator of growth from birth to weaning.

Yearling weight (YW): Predicts the expected difference, in pounds, for yearling weight (adjusted to a standard 365 days of age). This is an indicator of growth from birth to yearling.

CARCASS TRAITS

Yield grade (YG): Differences in yield grade score, which is a predictor of percent retail product. Smaller values suggest that progeny will have a better lean to fat ratio.

Carcass weight (CW): Differences in pounds of hot carcass weight, adjusted to an industry standard age endpoint.

Ribeye area (REA): Differences in ribeye area in inches between the 12th and 13th rib. Greater ribeye areas are preferable.

Marbling (MB): Predicts the differences in the degree of marbling within the ribeye as expressed in marbling score units. Greater marbling numbers are preferable and are an indicator of higher carcass quality grades.

INDEXES

Indexes are tools that allow producers to select for several EPDs at once, making selections more efficient than selecting on one trait at a time. Indexes weigh traits based on their importance to a producer's bottom line by using a trait's economic and genetic value. Indexes are a good way to put selection emphasis on traits that are economically relevant.

Total maternal (TM): An index that combines growth and milk information as a prediction of the weaning weight performance of calves from a sire's daughters. As an index, this value is not reported with an accompanying accuracy. A greater TM value means a mother that returns comparatively higher weaning weights on her calves. $TM\ Index = MK\ EPD + \frac{1}{2} WW\ EPD$.

\$Cow: Represents the genetic value in dollars of profit of an animal when retained as a replacement female relative to other animals in the herd. A higher number represents more profitable genetics for maternal productivity. \$Cow will serve producers in selecting bulls that will sire daughters with stayability and reproductive efficiency as well as other traits that lead to profitability in a production system, such as milk, calving ease, moderate mature weight and the ability of calves to gain. A female's genetics also influence the performance of her calves in the feedlot and at slaughter, so traits such as feed efficiency and carcass value are also included in \$Cow.

Efficiency profit index (EPI): An economic selection index developed to aid producers in selecting for more feed efficient cattle that still have acceptable amounts of gain. The EPI provides slight negative pressure on intake, while keeping gain at a constant value. By selecting on this index, producers will be able to find those animals that gain the same amount as their contemporaries while eating less.

Feeder Profit Index (FPI): An economic selection index designed to aid producers in selecting sires whose progeny will perform in the feedlot and are sold on a grade and yield standpoint. Well ranking sires for FPI have higher marbling and carcass weight than their contemporaries. As a terminal index, little emphasis is put on maternal traits such as stayability and calving ease.

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BOLT - HOW THE NEW GENETIC EVALUATION IMPACTS GENETIC SELECTION

In August 2018, the American Gelbvieh Association (AGA) transitioned to a new system for the national cattle evaluation. The AGA is a part of International Genetic Solutions (IGS), which is a collaboration between other North American beef breed associations. IGS invested in the new BOLT software, which brings with it the single-step genetic evaluation, a new, more streamlined method for incorporating genomic results into expected progeny differences (EPDs). *Note: Weekly evaluations are run for the AGA data base, thus EPDs can change on a weekly basis.*

More Informed Genetic Selection Decisions: Purchasing bulls with genomic-enhanced expected progeny differences (GE-EPDs) allows commercial producers to make selection decisions with less risk due to an increase in the accuracy of a non-parent animal's EPDs. The addition of genomic data to an EPD is comparable to adding another source of information, like progeny or pedigree records. Specifically on lowly heritable traits, such as reproductive traits, genomic data has the potential to greatly increase the accuracy of an EPD prediction and can be demonstrated. While the accuracy value associated with an EPD can be a bit difficult to understand in practical terms, the progeny equivalent table provides information that's easy to comprehend in the most practical of terms – **how many calves worth of data was added?**

Progeny equivalent values in the table below describe the number of progeny with reported data for each trait that would be needed to match the amount of accuracy provided by a genomic test. For example, the progeny equivalent for calving ease direct (CED) for Gelbvieh & Balancer® registered animals is 15, which means that the inclusion of a genomic test is the equivalent to having calved 15 heifers bred to a particular bull.

Progeny Equivalents IGS-SS Powered by BOLT

TRAIT	PROGENY EQUIVALENTS
CE	15
CEM	3
BW	21
WW	22
YW	24
MILK	18
STAY	25

Carcass EPDs: In addition to migration to the BOLT software, several important improvements and upgrades to the carcass EPDs were deployed. Now a true multi-trait evaluation with all carcass and ultrasound traits plus weaning weight and post-weaning gain is used. This compared to the old evaluation where carcass EPDs were simply an index of the carcass trait and its corresponding ultrasound trait. These carcass model improvements lead to a slight increase in accuracy for carcass EPDs. More information at www.gelbvieh.org.

HOW TO FOLLOW THE DNA “TRAIL”

HOW DO I KNOW IF A BULL HAS GENOMIC ENHANCED EPDS?

On the left side of the bull box, just under the lot number it says: **EPDs**

GEN Y or GEN N

GEN Y = GENOMIC ENHANCED YES (YES TESTED FOR THE ENHANCED EPDs)

GEN N = GENOMIC ENHANCED NO (NOT TESTED FOR THE ENHANCED EPDs)

FOR HOMOZYGOUS BLACK DNA RESULTS:

Black (Homo - D) = DNA tested homozygous black

Black (not Homo - D) = DNA tested but not homozygous black

FOR HOMOZYGOUS POLLED DNA RESULTS:

Polled (Homo - D) = DNA tested homozygous polled

Polled (not Homo - D) = DNA tested but not homozygous polled



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