

# ESTIMATED BREEDING VALUES (EBVS) EXPLAINED

An animal's breeding value is its genetic merit, half of which will be passed on to its progeny. While we will never know the exact breeding value, for performance traits it is possible to make good estimates. These estimates are called **Estimated Breeding Values (EBVs)**.

EBVs are expressed in the units of measurement for each particular trait. They are shown as + ive or – ive differences between an individual animal's genetics difference and the genetic base to which the animal is compared. For example, a bull with an EBV of +50kg for 600-day weight is estimated to have genetic merit 50kg above the breed base of 0kg. Since the breed base is set to an historical benchmark, the average EBVs of animals in each year drop has changed over time as a result of genetic progress within the breed.

The absolute value of any EBV is not critical, but rather the differences in EBVs between animals. Particular animals should be viewed as being “above or below breed average” for a particular trait.

While EBVs provide the best basis for comparing the genetic merit of animals reared in different environments and management conditions, they can only be used to compare animals analysed within the same analysis.

Simmental NZ animals EBVs can be compared to any other animals within the IGS evaluation, this includes other breeds.

## MATERNAL EBVs

### CALVING EASE DIRECT (CE-D)

- Reported as the percentage of extra unassisted births in first calving heifers, relative to the average.
- CE-D is relative to the direct Calving Ease of the animal. Higher values are more favourable.

### CALVING EASE MATERNAL (CE-M)

- Reported as the percentage of extra unassisted births in first calving heifers, relative to the average.
- CE-M is relative to the Calving Ease of the daughters of the animal. Higher values are more favourable.

### MILK

- Reported as kilograms of weaning weight of progeny from the animals daughters, relative to the average.
- Predicts the difference in maternal production of daughters relative to milk production and mothering.
- Values are relative to the environment of the production system.
- Low input environments should be very conscious of introducing too much milk due to the increased nutrient requirements that it can place on cows.

### MATERNAL WEANING WEIGHT (MWW)

- Reported as kilograms of weaning weight of progeny from the animals daughters, relative to the average.
- This is a measure of weaning weight differences relative to the combined effects of growth and milk.
- Higher values are more favourable.

### STAYABILITY (STAY)

- Reported as the differences in percentage of a sire's offspring that are predicted to still be in the herd at 6 years of age, given that they calved at 2, relative to the average.
- Stayability is a measure of reproductive longevity.
- Higher values are more favourable.

### DOCILITY (DOC)

- Reported as the percentage of progeny, relative to the average, that will record a score of docile.
- Higher values are more favourable.

## GROWTH EBVs

### BIRTH WEIGHT (BW)

- Reported in kilograms of birth weight of direct progeny, relative to the average.
- Lower values are usually more favourable.
- When selecting heifer bulls, breeders should also focus on the Calving Ease EBV as Birth Weight is also used in the Calving Ease EBV calculation..

### WEANING WEIGHT (WW) ADJUSTED TO 205 DAYS

- Reported in kilograms of weaning weight of direct progeny, relative to the average.
- Higher values are usually more favourable dependant on its relationship with birthweight.

### YEARLING WEIGHT (YW) ADJUSTED TO 365 DAYS

- Reported in kilograms of yearling weight of direct progeny, relative to the average.
- Higher values are usually more favourable dependant on its relationship with birthweight.

### POST WEANING GAIN (PWG)

- Reported in kilograms of weight.
- This is a measure of the average daily gain over 160 days from weaning weight (WW) to yearling weight (YW).

### 600 DAY WEIGHT (600)

- Reported in kilograms of 600 day weight of direct progeny (relative to the average).
- Higher values are usually more favourable dependant on its relationship with birthweight.

## CARCASS EBVs

### ADJUSTED TO 475 DAYS OF AGE

#### CARCASS WEIGHT (CWT)

- Reported as kilograms of carcass weight relative to the average.
- Higher values are usually more favourable, however this is relevant to each producers target market.

#### RIB EYE AREA (REA)

- Reported as square centimetres relative to the average.
- Higher values are usually more favourable.

#### BACK FAT

- Reported as millimetres of back fat relative to the average.
- Higher values are usually more favourable, however this is requires a balance between adequate doing ability in daughters and carcass fat thresholds for target markets.

#### MARBLE SCORE (MARB)

- Reported as the differences in actual carcass marble scores relative to the average.
- This is different to IMF% which is used as an indicator trait in Marble Score.
- Higher values are more favourable.