

Understanding Carcass EBVs



TIP SHEET

Selection for increased carcass yield and carcass value has become an increasingly important objective for breeders of cattle. So how do cattle producers evaluate and identify animals for use within their breeding program that have desirable genetics for the important carcass attributes? Visual appraisal is challenging as it is difficult to “see” many of the carcass traits and selection on raw scans alone is limited as no account is made for non-genetic factors such as age and nutrition. Thankfully, there are a range of BREEDPLAN Carcass EBVs available which provide producers with a useful tool when trying to answer this question.

INTERPRETING CARCASS EBVs

BREEDPLAN currently produces seven Carcass EBVs; these are Carcass Weight, Rib Fat Depth, Rump Fat Depth, Eye Muscle Area, Intramuscular Fat (Marbling), Retail Beef Yield and Shear Force.

(i) CARCASS WEIGHT

Carcass Weight EBVs are estimates of the genetic differences between animals in hot standard carcass weight (as defined by AUSMEAT) at 650 days of age. Carcass Weight EBVs are expressed in kilograms (kg).

Larger, more positive, Carcass Weight EBVs are generally more favourable. For example, an animal with a Carcass Weight EBV of +40 kg would be expected to produce progeny with heavier carcasses at 650 days of age than an animal with a Carcass Weight EBV of +30 kg.

Carcass Weight should not be confused with yield. The Carcass Weight EBV is an indication of the animal’s carcass weight and not an indication of the animal’s yield percentage.

(ii) EYE MUSCLE AREA (EMA)

Eye Muscle Area (EMA) EBVs are estimates of the genetic differences between animals in eye muscle area at 12/13th rib site in a standard weight steer carcass. EMA EBVs are expressed in square centimetres (cm²).

Larger, more positive, EMA EBVs are generally more favourable. For example, a bull with an EMA EBV of +4 cm² would be expected to produce steer progeny with a larger eye muscle area than a bull with an EMA EBV of +1 cm², relative to carcass weight.

(iii) RIB FAT

Rib Fat EBVs are estimates of the genetic differences between animals in fat depth at the 12/13th rib site in a standard weight steer carcass. Rib Fat EBVs are expressed in millimetres (mm).

More positive or more negative Rib Fat EBVs may be more favourable, depending on your breeding goals relating to the finishing ability of your animals. A bull with a Rib Fat EBV of -0.4 mm would be expected to produce leaner calves than a bull with a Rib Fat EBV of +0.4 mm, relative to carcass weight.

(iv) RUMP FAT

Rump Fat EBVs are estimates of the genetic differences between animals in fat depth at the P8 rump site in a standard weight steer carcass. Rump Fat EBVs are expressed in millimetres (mm).

More positive or more negative Rump Fat EBVs may be more favourable, depending on your breeding goals relating to the finishing ability of your animals. A bull with a Rump Fat EBV of -0.6 mm would be expected to produce leaner calves than a bull with a Rump Fat EBV of +0.6 mm, relative to carcass weight.



Stock with positive Fat EBVs are likely to produce progeny that are fatter, or earlier maturing, on average than stock with lower or negative Fat EBVs. Increasing fat depth leads to a decrease in retail beef yield, but most market specifications require a minimum fat depth. Breeders aiming to breed leaner, higher yielding cattle may select for lower Fat EBVs. Breeders wishing to finish their animals earlier may tend to select animals with moderate Fat EBVs.

Caution should be placed on selecting for extremely low Fat EBVs for replacement females as this may produce females that are more difficult to get in calf.

Differences between Rib Fat EBVs and Rump Fat EBVs can indicate differences in fat distribution among animals.

(v) RETAIL BEEF YIELD (RBY)

Retail Beef Yield (RBY) EBVs are estimates of genetic differences between animals in boned out retail beef yield in a standard weight steer carcass. RBY EBVs are reported as differences in percentage (%) yield.

Larger, more positive, RBY EBVs are generally more favourable. For example, an animal with a RBY EBV of +0.9% would be expected to produce progeny that would yield higher percentages of saleable beef in a standard weight steer carcass than an animal with a RBY EBV of +0.1%.

(vi) INTRAMUSCULAR FAT (IMF)

Intramuscular Fat (IMF) EBVs are estimates of genetic differences between animals in intramuscular fat (marbling) at the 12/13 rib site in a standard weight steer carcass. IMF EBVs are reported as differences in percentage (%) IMF.

Larger, more positive, IMF EBVs are generally more favourable. For example, an animal with an IMF EBV of +0.8% would be expected to produce progeny that would express more marbling in a standard weight steer carcass than an animal with an IMF EBV of +0.1%. For markets where marbling is important (e.g. Meat Standards Australia (MSA), Japanese B2/B3 market, restaurant trade), higher IMF EBVs can increase carcass value.

(vii) SHEAR FORCE

Shear Force EBVs are estimates of genetic differences between animals in meat tenderness. Shear Force EBVs are expressed as differences in the kilograms of shear force that are required to pull a mechanical blade through a piece of cooked meat.

Lower, more negative, Shear Force EBVs are more favourable. That is, lower Shear Force EBVs indicate that less shear force is required and hence the meat is more tender. For example, a bull with a Shear Force EBV of -0.90 would be expected to on average produce progeny with meat that required a shear force of 1 kg less than a bull with a Shear Force EBV of +1.10.



For more information regarding Carcass EBVs, please contact staff at your BREEDPLAN processing centre.

