



Analyzing the Data

(Important note: Metric units of measure are used unless otherwise noted)

Wagyu Genetic (BLUP) Analysis (Australia)

The Wagyu BREEDPLAN analysis provides the most thorough and accurate assessment to the broader population of Wagyu genetics outside of Japan and that is why we here at Lone Mountain choose to participate in the BREEDPLAN program and have since 2007. Their analysis includes tens of thousands of pedigrees as well as post-birth and harvest performance records – and the numbers continue to grow every month.

While this comprehensive dataset provides a good profile of Wagyu genetics (particularly from the Australian population), more data increases the power of the analysis.

Estimated Breeding Values (EBVs)

Estimated Breeding Value is the estimated genetic merit of an animal for each recorded production trait. EBVs reflect the difference that can be expected in an animal's performance relative to the breed baseline for each trait. On average, half of this difference will be passed on to the animal's progeny.

Accuracy

An accuracy value is presented with every EBV and gives an indication of the amount of information that has been used in the calculation of that EBV. The higher the accuracy, the lower the likelihood of change in the animal's EBV as more information is analyzed for that animal or its relatives.

Accuracy Range Interpretation

LESS THAN 50% = Low accuracy and should be considered a preliminary estimate. The EBV could change substantially as more performance information becomes available.

50 - 74% = Medium accuracy, usually based on the animal's own records and pedigree.

75 - 90% = Medium-high accuracy and usually includes some progeny information. It becomes a more reliable indicator of the animal's value as a parent.

90% AND ABOVE = High accuracy. It is unlikely that the EBV will change much with the addition of more progeny data.

Traits

Fertility and Birth EBVs

Scrotal Size EBV (cm) is an indicator of male fertility in regards to semen quality and quantity. Higher (positive) EBVs indicate higher fertility. There is also a small negative correlation with age of puberty in female progeny.

Gestation Length EBV (days) is based on AI records. Lower (negative) GL EBVs indicate shorter gestation lengths, which generally relate to easier calving and increased growth after birth.

Birth Weight EBV (kg) is based on the measured birth weight of animals, adjusted for dam age. The lower the Birth Weight value, the lighter the calf at birth and, the lower the likelihood of a difficult birth. This is particularly important when selecting sires for use over heifers.

Growth EBVs

200-Day Milk EBV (kg) is an estimate of an animal's milking ability. For sires, this EBV is indicative of their daughter's milking ability as it affects the 200-day weight of their calves.

200-Day Growth EBV (kg) is calculated from the weight of animals taken between 80 and 300 days of age. Values are adjusted to 200 days and for dam age. This EBV is the best single estimate of an animal's genetic merit for growth to early ages.

400-Day Weight EBV (kg) is calculated from the weight of progeny taken between 301 and 500 days of age, adjusted to 400 days and for dam age. This EBV is the best single estimate of an animal's genetic merit for yearling weight.

600-Day Weight EBV (kg) is calculated from the weight of progeny taken between 501 and 900 days of age, adjusted to 600 days and for dam age. This EBV is the best single estimate of an animal's genetic merit for growth beyond yearling age.

Carcass EBVs and Index

The following EBVs and Fullblood Terminal Index are provided in this Breeding Guide due to the high priority placed on carcass traits in the Wagyu breed.

Carcass Weight EBV (kg) estimates the genetic difference in a standard AUS-MEAT carcass weight at an age of 750 days. This is an Animal Genetics and Breeding Unit (AGBU) (at the University of New England, New South Wales, Australia) adjusted Days of Age value that allows animals to be compared on a "level playing field." More positive EBVs indicate heavier carcass at a given age.

Eye Muscle Area EBV (cm²) estimates genetic differences in eye muscle area at the 12/13th rib site of a 400kg carcass. Measurements taken at other quartering sites such as the 4th/5th rib or the 10th/11th rib are adjusted to the 12th/13th measurement. AUS-MEAT* assessed and Japanese digital image camera measured

Eye Muscle Areas of carcass contribute to this EBV. More positive EBVs indicate larger eye muscle area and therefore higher retail beef yields.

*AUS-MEAT is owned by the Australian Meat and Livestock Industries, and develops, maintains and reviews accreditation standards in consultation with the meat and livestock industries.

Rib Fat EBV (mm) estimates the genetic differences in fat depth at the 12th/13th rib in a 400kg dressed carcass. More positive EBVs indicate more subcutaneous fat and earlier maturity. AUS-MEAT Rib Fat measurements from slaughter animals contribute to this EBV.

Rump Fat EBV (mm) estimates the genetic differences in fat depth at the P8 site of a 400kg carcass. AUS-MEAT measurements of P8 fat depth on carcass contribute to this EBV. More positive EBVs indicate more subcutaneous fat and earlier maturity. Retail Beef Yield Percent EBV (%) This represents total (boned out) meat yield as a percentage of a 400kg dressed carcass. A more positive EBV indicates higher percentage yield for the 400kg carcass weight.

Marble Score EBV (AUS-MEAT Marble Score*) estimates the genetic differences in Marble Score in a 400kg carcass. AUS-MEAT marble scores and Japanese digital image camera measured marbling percentage in carcass contribute to this EBV. A higher value indicates that the animal has genes, which produce higher marbling scores in the carcass. * <https://www.ausmeat.com.au/custom-content/preview/ham/pdf/MSA.pdf>

Marble Fineness EBV (Marbling Fineness Index) is an estimate of the genetic difference in the Marbling Fineness Index (degree of fineness of marbling fat) as measured by the Japanese digital image camera. Sires with higher EBVs are expected to produce progeny with higher levels of marbling fineness.

\$ Index - Wagyu Fullblood Terminal (FTI)

The Wagyu Fullblood Terminal Index (FTI) utilizes the Carcass Weight EBV and the Marble Score EBV, these being the traits that determine the price of Wagyu carcass. In producing the FTI and EBVs, AGBU has adjusted data to indicate the relative performance of every animal on a 'level playing field'. There are no inequalities or discrepancies resulting from variation in key production parameters such as Days on Feed (DOF) or Days of Age (DOA) at slaughter.

The assumptions are a 420kg carcass, a base price of \$8.50/kg carcass weight (a value of \$8.50/kg carcass weight is used as the current price of a carcass with a marble score of 7) and an increase/decrease in value of the carcass of \$1 per kilogram per marbling score. It is assumed that only half of the difference in EBVs will be passed on to the progeny because only half the genes come from the sire. If a sire has a Carcass Weight EBV of 0 and a Marble Score EBV of +0.0 it will have an Index of zero.

If a sire has a carcass weight EBV of +20 and a Marble Score EBV of +2.0 the value of the additional 10kg of carcass weight is \$85 (10kg @ \$8.50) and the value of one additional marble score is \$430 (430kg @ \$1). The sire will have an Index of +\$515 (\$85 + \$430). The sire will add \$515 to the value of its progeny on average compared to a sire with a zero Index. If a sire has a carcass weight EBV of -20 and a Marble Score EBV of -2.0 the reduction in value due to the reduced carcass weight will be -\$85 (-10kg @ \$8.50) and the reduction in value of the one less marble score will be -\$410 (410kg @ \$1) It will have an Index of -\$495 (-\$85 -\$410) The value of the progeny of this sire will be on average \$495 less than a sire with a zero Index.

Analysis Disclaimer

The Estimated Breeding Values (EBVs) for Carcass Weight and Eye Muscle Area contained in this Sire Summary were compiled by the Agricultural Business Research Institute (ABRI) from data supplied by the breeder. Neither the Society nor the ABRI oversee or audit the collection of this data.

The Estimated Breeding Values for Marble Score and Marbling Fineness were calculated by the Animal Genetics and Breeding Unit (AGBU) from measurements taken on carcass as part of the Wagyu Genetics Collaboration Research Project by staff skilled in the use of the Japanese digital camera.

The carcass data analyzed by AGBU was predominantly from Fullblood feeders but also included crossbred animals ranging from F1 to Purebred. Dams were not identified for some progeny.

