TACE analyses are conducted by the Agricultural Business Research Institute (ABRI), using software developed by the Animal Genetics and Breeding Unit (AGBU), a joint institute of NSW Agriculture and the University of New England. Ongoing BREEDPLAN research and development is supported by Meat and Livestock Australia.

TACE includes pedigree, performance and genomic information from the Angus Australia and New Zealand Angus Association databases to evaluate the genetics of animals across Australia and New Zealand.

What is an EBV?

An animal's breeding value can be defined as its genetic merit for each trait. While it is not possible to determine an animal's true breeding value, it is possible to estimate it. These estimates of an animal's true breeding value are called EBVs (Estimated Breeding Values).

TACE EBVs are expressed as the difference between an individual animal's genetics and a historical genetic level (i.e. group of animals) within the TACE genetic evaluation, and are reported in the units in which the measurements are taken.

EBVs are calculated for a range of traits within TACE, covering calving ease, growth, fertility, maternal performance, carcase merit, feed efficiency, temperament and structural soundness.

Using EBVs to Benchmark an Animal's Genetics with the Breed

TACE EBVs can be used to benchmark an animal's genetics relative to the genetics of other Angus or Angus influenced animals in Australia and New Zealand.

To benchmark an animal's genetics relative to other Angus animals, an animal's EBV can be compared to:

- the breed average EBV
- the percentile table

The current breed average and percentile table for each EBV can be found on the Angus Australia website, or they are normally listed in most TACE reports, sale and semen catalogues.

Using EBVs to Compare the Genetics of Two Animals

TACE EBVs can be used to estimate the expected difference in the genetics of two animals, with the expected difference equating to half the difference in the EBVs of the animals, all other things being equal (e.g. they are joined to the same animal/s).

For example, a bull with an IMF EBV of +3.0 would be expected to produce progeny with on average, 1% more intramuscular fat in a 400 kg carcase than a bull with a IMF EBV of +1.0 (i.e. 2% difference between the sire's EBVs, then halved as the sire only contributes half the genetics).

Importantly, TACE EBVs can only be used to estimate the difference in the genetics of two animals who both have TACE EBVs. TACE EBVs are not directly comparable with BREEDPLAN EBVs calculated in other genetic evaluations.

Considering Accuracy

An accuracy value is published in association with each EBV, which is usually displayed as a percentage value immediately below the EBV.

The accuracy value provides an indication of the reliability of the EBV in estimating the animal's genetics (or true breeding value), and is an indication of the amount of information that has been used in the calculation of the EBV.

TACE EBVs with accuracy values below 50% should be considered as preliminary or of low accuracy, 50-74% as of medium accuracy, 75-90% of medium to high accuracy, and 90% or greater as high accuracy.

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- A brief guide to -

TACE

TransTasman Angus Cattle Evaluation

TACE is the genetic evaluation program adopted by Angus Australia for Angus and Angus influenced beef cattle.

TACE uses Best Linear Unbiased Prediction (BLUP) technology to produce Estimated Breeding Values (EBVs) of recorded cattle for a range of important production traits.

Angus AUSTRALIA

BIRTH			
Calving Ease Direct	%	Genetic differences in the ability of a sire's calves to be born unassisted from 2 year old heifers.	Higher EBVs indicate fewer calving difficulties in 2 year old heifers.
Calving Ease Daughters	%	Genetic differences in the ability of a sire's daughters to calve unassisted at 2 years of age.	Higher EBVs indicate fewer calving difficulties in 2 year old heifers.
Gestation Length	days	Genetic differences between animals in the length of time from the date of conception to the birth of the calf.	Lower EBVs indicate shorter gestation length.
Birth Weight	kg	Genetic differences between animals in calf weight at birth.	Lower EBVs indicate lighter birth weight.
GROWTH			
200 Day Growth	kg	Genetic differences between animals in live weight at 200 days of age due to genetics for growth.	Higher EBVs indicate heavier live weight.
400 Day Weight	kg	Genetic differences between animals in live weight at 400 days of age.	Higher EBVs indicate heavier live weight.
600 Day Weight	kg	Genetic differences between animals in live weight at 600 days of age.	Higher EBVs indicate heavier live weight.
Mature Cow Weight	kg	Genetic differences between animals in live weight of cows at 5 years of age.	Higher EBVs indicate heavier mature weight.
Milk	kg	Genetic differences between animals in live weight at 200 days of age due to the maternal contribution of its dam.	Higher EBVs indicate heavier live weight.
FERTILITY			
Days to Calving	days	Genetic differences between animals in the time from the start of the joining period (i.e. when the female is introduced to a bull) until subsequent calving.	Lower EBVs indicate shorter time to calving.
Scrotal Size	cm	Genetic differences between animals in scrotal circumference at 400 days of age.	Higher EBVs indicate larger scrotal circumference.

CARCASE			
Carcase Weight	kg	Genetic differences between animals in hot standard carcase weight at 750 days of age.	Higher EBVs indicate heavier carcase weight.
Eye Muscle Area	cm^2	Genetic differences between animals in eye muscle area at the 12/13th rib site in a 400 kg carcase.	Higher EBVs indicate larger eye muscle area.
Rib Fat	mm	Genetic differences between animals in fat depth at the 12/13th rib site in a 400 kg carcase.	Higher EBVs indicate more fat.
Rump Fat	mm	Genetic differences between animals in fat depth at the P8 rump site in a 400 kg carcase.	Higher EBVs indicate more fat.
Retail Beef Yield	%	Genetic differences between animals in boned out saleable meat from a 400 kg carcase.	Higher EBVs indicate higher yield.
Intra-muscular Fat	%	Genetic differences between animals in intramuscular fat (marbling) at the 12/13th rib site in a 400 kg carcase.	Higher EBVs indicate more intramuscular fat.
FEED EFFICIENCY			
Net Feed Intake (Feedlot)	kg/ day	Genetic differences between animals in feed intake at a standard weight and rate of weight gain when animals are in a feedlot finishing phase.	Lower EBVs indicate more feed efficiency.
TEMPERAMENT			
Docility	%	Genetic differences between animals in temperament.	Higher EBVs indicate better temperament.

STRUCTURE			
Front Feet Angle	%	Genetic differences between animals in desirable front feet angle (strength of pastern, depth of heel).	Higher EBVs indicate more desirable structure.
Front Feet Claw Set	%	Genetic differences between animals in desirable front feet claw set structure (shape and evenness of claw).	Higher EBVs indicate more desirable structure.
Rear Feet Angle	%	Genetic differences between animals in desirable rear feet angle (strength of pastern, depth of heel).	Higher EBVs indicate more desirable structure.
Rear Leg Hind View	%	Genetic differences between animals in desirable rear leg structure when viewed from behind.	Higher EBVs indicate more desirable structure.
Rear Leg Side View	%	Genetic differences between animals in desirable rear leg structure when viewed from the side.	Higher EBVs indicate more desirable structure.
SELECTION INDEXES			
Angus Breeding Index	$	Genetic differences between animals in net profitability per cow joined in a typical commercial self replacing herd using Angus bulls. This selection index is not specific to a particular production system or market end-point, but identifies animals that will improve overall profitability in the majority of commercial grass and grain finishing beef production systems.	Higher selection index values indicate greater profitability.
Domestic Index	$	Genetic differences between animals in net profitability per cow joined in a commercial self replacing herd targeting the domestic supermarket trade.	Higher selection index values indicate greater profitability.
Heavy Grain Index	$	Genetic differences between animals in net profitability per cow joined in a commercial self replacing herd targeting pasture grown steers with a 200 day feedlot finishing period for the grain fed high quality, highly marbled markets.	Higher selection index values indicate greater profitability.
Heavy Grass Index	$	Genetic differences between animals in net profitability per cow joined in a commercial self replacing herd targeting pasture finished steers.	Higher selection index values indicate greater profitability.