



CROSSBRED WAGYU TEST

DETERMINING THE WAGYU CONTENT FOR NON-PEDIGREE CROSSBRED ANIMALS

In Australia, an animal can only be registered as a Fullblood (Japanese Black or Red) Wagyu if all forebears originate from Japan. Registered Fullbloods require DNA parent verification to both the sire and dam to ensure complete pedigree accuracy.

The Australian Wagyu Association (AWA) has developed a genomic test to measure Japanese Black Wagyu genetics in non-pedigreed crossbred animals. This development, known as the Crossbred Wagyu Test (CWT) is intended to help the supply chain determine the potential of individual cattle to produce a 'genuine Wagyu' eating experience, prior to induction onto feed.

The CWT measures the genomic "distance" between the genotype of a particular animal being tested and the "clouds" or reference sets of genotypes available in Australia for Wagyu and other breeds. This delivers the estimated breed content level of each breed within the individual being tested. For Wagyu, caution is required because genetic diversity studies in Japan has identified significant genetic variation between different prefectural herds.

In establishing 'what is Wagyu' locally at a genomic level, researchers studied a sample of the Australian national herd, and the resulting genotype reference set reflects the mainstream composition of 'Australian Wagyu'. However, as a result of the prefectural population imbalance in foundation import groups, the 'Australian Wagyu' mainstream genotype is believed to be substantially influenced by Hyogo (Tajima) prefectural genetics.

An outcome of the Australian population genetic bias towards Hyogo is that the CWT (which produces a score from 0 to 100) measures high Tajima (Hyogo) animals within the Australian Black Wagyu population as about 100 CWT score. This 'high Tajima' measurement is very useful in unpedigreed crossbred feeder evaluation. However, other Fullbloods from important prefectural herds such as Tottori (Kedaka), or animals with high Itozakura influence, are sufficiently genomically different as to record CWT scores in the 60-80 range.

In this overall context, it is essential for breeders to realise that a registered Fullblood Wagyu animal, which is obviously 100% Fullblood Wagyu, can have a CWT score of say 65. This is due to this animal being genetically different to other Fullblood animals and is therefore, an important resource of genetic variation that is available within the Australian Wagyu population. So, registered Fullblood Wagyu animals with lower CWT scores are uniquely valuable in Australia as they provide the only current opportunities available to retain genetic diversity and deliver enhanced selection options for traits such as superior conformation, growth and maternal capability, with retained marbling.

In summary, CWT scores highlight the genetic diversity available in the registered black Australian Fullblood Wagyu population, whilst providing a cost-efficient and effective tool for crossbred production.

The following is a list of registered black Fullblood Wagyu animals that were used in the reference dataset to create the CWT test. Their individual CWT scores are shown.