COLLECTING GENOMIC INFORMATION

Genomic information, obtained from a DNA sample of an animal, is combined with the pedigree and performance information that has been collected to calculate TACE Estimated Breeding Values (EBVs) for the animal of higher accuracy.

Which genomic product?
The TransTasman Angus Cattle Evaluation (TACE) incorporates genomic information from several different genomic products.

When making a decision as to what genomic product will be used, it is important to consider:

• The price of the genomic product, including the price of any add-on tests
• Testing turnaround times for the genomic product
• The density of the genomic product

Information regarding the different genomic products for which animals can be tested is available in the TACE section of the Angus Australia website.

It is important that DNA samples are submitted through Angus Australia. Results from genomic tests not conducted through Angus Australia will not be included in the TACE analysis.

Steps for collecting genomic information
The process for testing an Angus animal with any of the genomic products is the same:

1. Obtain equipment required for the collection of DNA samples. Hair collector kits are available for purchase from Angus Australia.
2. Obtain a DNA sample from the animal. Hair, tissue sampling units (TSU) or semen samples can be submitted to Angus Australia. If a hair sample is being provided and additional DNA testing is also required (such as testing for genetic condition status), it is advisable to collect two hair samples to ensure that adequate DNA is available.
3. Complete the DNA Test Request form that is available from the Angus Australia website, or upon request from staff at Angus Australia.
4. Return the completed DNA Test Request form and DNA sample to the address listed on the DNA Test Request form.

Cost of genomic testing
The cost of testing differs depending on the genomic test that is being conducted. Costs for the different genomic tests are available from the Angus Australia website.
Availability of results
Upon receipt of the DNA sample, the sample will be processed and forwarded to the relevant laboratory for testing.

Once the testing is completed, the genomic results are returned to Angus Australia and automatically stored on the Angus Australia database for inclusion in the next TACE analysis.

Results are usually available within 6-8 weeks, with very similar turnaround times for each of the different genomic products.

When should DNA samples be collected?
DNA samples for genomic testing can be collected on animals of any age, and so should be undertaken at a time that best fits in with other normal, routine management practices.

A good strategy is to collect samples on all calves at a young age (e.g. weaning) and store the samples for genomic testing at a later date. To best preserve the DNA sample, hair samples should be placed in either a plastic sealable sandwich bag or an envelope, and stored in a dry, dark environment.

Alternatively, non-lab specific hair collectors are available for purchase from Angus Australia

If collecting hair samples, collection should not be done on very young calves (e.g. at birth). Hair samples must have clearly visible follicles before they are suitable for testing.

What animals should be tested?
In contrast to performance information, there is no requirement to collect DNA samples for all animals in a contemporary group.

Testing can consequently be conducted on as many or few animals as desired. Common testing strategies include:

• testing an individual animal
• strategically testing a group of animals of specific interest, for example candidate bulls for use in a breeding program
• testing an entire calf drop

When making a decision as to what animals will be tested, it is important to consider:

• Genomic information provides more value for animals whose EBVs are of low accuracy. Genomic testing is therefore more suited to calves, than sires or dams, or calves for which it is difficult to collect effective performance information (e.g. calves that may have been removed from their contemporary group, calves in smaller herds).

• Genomic information is of limited value if the animals being tested are not related to the animals within the genomic reference population. For this reason, it is recommended that members contact staff at Angus Australia for advice prior to testing animals recorded on the RAR or MBR registers.