

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

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

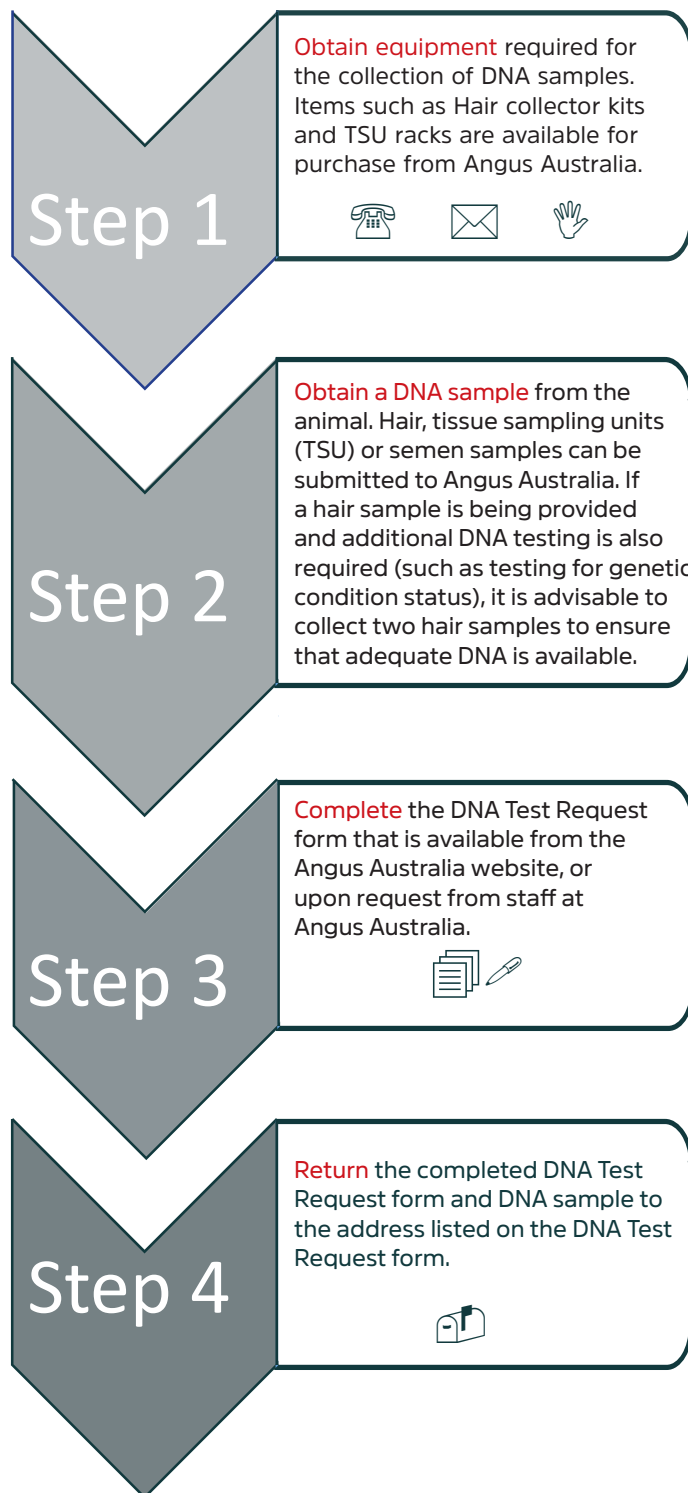


It is important that DNA samples are submitted through Angus Australia. Results from genomic tests not conducted through Angus Australia will not be included in the TACE analysis.



Steps for collecting genomic information

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



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

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.

Ideally, having genomic information incorporated into the generation of EBVs, the verification of parentage and establishing genetic condition status is incredibly valuable at a young age. By utilising genomic information earlier, when an animal has very little other information collected on it, EBV accuracy can be bolstered and selection decisions can be made with confidence, earlier.

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, store them in a dry, dark environment.

TSUs can be purchased from Allflex suppliers and racks for postage can be obtained from Angus Australia. Non-lab specific hair collectors are also 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 however, tissue samples collected using a Tissue Sampling Unit (TSU) can be collected from as early as birth.



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.



- ◇ When collecting TSU samples ensure that the cap of the tissue is sealed tightly, with no hair obscuring the seal, that liquid is present within the TSU, with the float ball present and that the sample can be seen in the liquid.
- ◇ When collecting hair samples, check the identification of the animal and record the full Angus Australia ident on the front of the collection card.
- ◇ When collecting hair samples, pull a minimum of 40 hair follicles from the thick brush of the animal's tail making sure the roots are still attached.
- ◇ Ensure the DNA sample collected is dry and free from any foreign matter (dirt, faeces and plant material). Dirty samples often fail testing and will require recollection.
- ◇ When collecting hair samples, place the hair sample in the collection card, align hair follicles and place the animal ident sticker over the hair shafts. Trim off excess hair that falls below the card.
- ◇ It is essential that semen straws are protected prior to sending to Angus Australia. Semen straws are damaged easily and to avoid this take two pieces of cardboard and make a groove for the straw to sit in. Label and tape the cardboard together. Alternatively remove the ink from a pen and place the straw within the barrel of the pen, before returning the cap. Attach a label to the pen.
- ◇ When posting semen straws write "do not bend" on postage bag.
- ◇ Place samples and completed paperwork in a sturdy postage bag.