

# Breeding for Improved Temperament



Temperament (also known as docility) is described as the way that cattle behave when being confined in yards or put in an unusual situation such as being separated from the herd. What we define as poor temperament is a survival trait in the wild – fear of anything unusual and the desire to escape. In domesticated cattle it can be exhibited as flight, or at its extreme fight.

Temperament is an important trait in beef herds with superior temperament being of considerable benefit to the profitability of a beef enterprise.

In general, superior temperament in cattle will:

- Lower production costs
- Make cattle easier to muster and handle
- Reduce damage to infrastructure e.g. yards and fences
- Decrease risk of injury and stress to cattle
- Decrease risk of injury and stress to stock handlers
- Decrease weight loss during transit
- Improve feedlot performance
- Decrease the risk of dark cutters in the chiller. It's estimated that dark cutting beef costs the Australian beef industry in excess of \$35 million annually
- Improve eating quality (more tender beef)

While different management techniques can be used



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to improve the overall temperament of a herd (e.g. yard weaning of calves), temperament is a highly heritable trait which can be improved in both the short and long term through genetic selection.

Importantly, there is no known antagonistic genetic relationship with other traits of importance. That is, temperament can be improved genetically without impacting negatively on other traits.

Improvement of the genetics for temperament through genetic selection is of particular importance to seedstock producers. Talk to any savvy bull buyer and a trait up the top of their bull buying checklist is good temperament or good docility. This relates to not only their prospective bull purchase having acceptable temperament themselves, but also the ability of the bull to sire progeny within their herd with acceptable temperament.

## Assessing Animal Temperament

While it is common practice in most beef enterprises to observe animals and assess their temperament when they are being handled, there are several methods of more formally measuring the temperament of animals.

### Collection of Docility Scores

Docility scores are recorded on animals at weaning or shortly afterwards. The advantage of scoring at weaning is that all calves should have had minimal handling and so will express variation in temperament. Variation in handling between animals prior to scoring should also be minimised.

Docility scores are collected on animals using either a yard or crush test:

- Yard Test - Calves are individually put into a small square yard and the handler attempts to hold the animal in one corner for about 30 seconds.
- Crush Test - Calves are put up a race and held in a crush or weigh scales for about 30 seconds (but not necessarily head bailed).

### Measurement of Flight Time

Flight time measurements are recorded on animals using specialised flight time equipment. Animals are held individually in the crush for a short period and then the head bail opened. Two light beams are used to objectively measure the time taken for the animal to travel approximately 2.0 metres at the exit of the crush. Similar to docility scores, flight time measurements are normally recorded early in an animal's life, usually at or around weaning.

While both methods have proven to be useful measures of an animal's temperament, it is currently common practice for Angus animals to be assessed via docility scoring. Docility scores do not require specialised equipment but still provide a reliable indication of an animal's temperament.

### Calculation of Docility EBVs

Based on the docility scores that are collected on seedstock animals, Angus BREEDPLAN publishes Docility EBVs.

Docility EBVs provide an estimate of the differences in the percentage of progeny that will have acceptable temperament due to genetics, with higher Docility EBVs indicating an animal is expected to produce relatively more progeny with acceptable temperament.

Calculation of EBVs for temperament has several major advantages over simply considering an animal's own temperament:

- Like all production traits of economic importance, the observed temperament of an animal is a combination of the genetics inherited from the sire and dam, and the environment and management from which the animal has been run under.

EBVs for temperament related traits (as with other traits) focus on the genetic differences between animals for temperament by accounting for any environment and management influences.

- EBVs for temperament take into consideration not only the temperament of the individual animal, but also the temperament of all the animal's relatives. In this manner, the EBVs provide a better indication of an animal's genetics for temperament than an assessment of the animal's temperament alone.
- EBVs allow for genetic differences in temperament to be identified between animals who themselves may have acceptable temperament. Animals who

**Table 1 : Description of Docility Scores for Angus BREEDPLAN**

Score	Code	Description
1	Docile	Mild disposition, gentle and easily handled, stands and moves slowly during handling, undisturbed, settled, somewhat dull, does not pull on headgate when in crush, exits crush calmly.
2	Restless	Quiet but slightly restless, may be stubborn during handling, may try to back out of crush, pulls back on headgate, some flicking of tail, exits crush promptly.
3	Nervous	Manageable but nervous and impatient, a moderate amount of struggling, movement and tail flicking, repeated pushing and pulling on headgate, exits crush briskly.
4	Flighty	Jumpy and out of control, quivers and struggles violently, may bellow and froth at mouth, continuous tail flicking, defecates and urinates during handling, frantically runs fenceline and may jump when penned individually, exhibits long flight distance and exits crush wildly.
5	Aggressive	May be similar to score 4 but with added aggressive behaviour, fearful, extreme agitation, continuous movement which may include jumping and bellowing while in crush, exits crush frantically and may exhibit attack behaviour when handled alone.

may have acceptable temperament but are likely to produce a high percentage of progeny with poor temperament can be removed from the breeding herd, or conversely, if two animals of similar genetic merit for other traits are being considered for use within a breeding program, the animal that is likely to produce a higher percentage of progeny with superior temperament can be selected.

### Breeding for Improved Temperament

Beef producers aiming to improve the genetics of their herd for temperament can achieve this through the implementation of two main selection strategies;

culling for poor temperament and selection of sires with superior temperament genetics.

#### Culling for Poor Temperament

It is common practice for beef breeding enterprises to cull animals from the breeding herd that show unacceptable temperament. This can be done in an “ad-hoc” fashion or through the use of a more structured process involving the collection of docility scores.

#### Selecting Animals with Superior Temperament

In association with culling, selecting animals that have superior genetics for temperament is paramount to genetically improving this trait in a beef breeding enterprise.

Like other production traits, it is important to select

animals for breeding this year that are genetically superior to those used last year. This is particularly important when selecting sires due to their overall influence of the genetics in a herd both short term and long term through daughters if retained.

The most effective information for selecting animals with superior genetics for temperament are Docility EBVs. Selecting sires with higher Docility EBVs to those used in the previous joining will result in long term genetic improvement being achieved within a beef herd for temperament.

#### **Further Information**

To further discuss the genetic improvement of temperament in a beef breeding herd, please contact staff at Angus Australia.

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