

An aerial, black and white photograph of a vast herd of cattle grazing in a field. The field is bordered by a fence on the left. In the background, there are rolling hills and a line of trees under a sky filled with large, dramatic clouds. A blue circular graphic is overlaid in the upper center, containing the text 'SECTION 01'.

SECTION

01

SETTING BREEDING OBJECTIVES

Which traits contribute to production and profitability? What emphasis should you place on each trait when selecting breeding stock?

Setting a breeding objective can be as simple as choosing a breed, or more sophisticated such as increasing weaning weight.

It is easier to make more progress in fewer traits than it is in many traits all at once. Likewise, it is easier to make faster progress in traits that are highly heritable. Keeping this in mind, a good breeding objective is simple but achievable, and it can be measured. For example “I put the emphasis on 200-day growth breeding value when buying a bull and my average weaning weights lifted”.

The relative importance of different traits varies from farm to farm. Breeding herds are going to focus on different traits, compared to finishing operations. The importance of traits and their profitability can vary over time, according to changes in the market.

Breeding objectives appropriate to market requirements are discussed below in two sections: one relates to the productivity of the breeding cow (maternal performance); the other to post-weaning performance (terminal performance).

Summary

- When choosing a bull, prioritise and choose traits that will allow you to improve your system's production.
- The maternal influence – as measured by weight of calf weaned per cow joined – is the most important consideration for the cow herd.
- Cow size should be optimal for your environment, while maximising calf growth.
- Growth rate and carcass yield remain the two most important characteristics of the processed animal.
- Carcass quality is rewarded with market premiums and should therefore be considered in bull selection.

Setting your Breeding Objective: Guide



Answer the questions in each trait group and consider your five year goal. Does it need improving? Are you happy with your current performance compared to the industry benchmarks? Answering the questions under each trait group will allow you to establish your Breeding Objective and set you on the track to finding the right breeder and the right bulls to achieve your goals.

The maternal environment

The maternal environment is all about the breeding cow and her effectiveness at weaning a good calf every year.

The most important financial driver for a breeding cow farmer is the number of calves weaned to the number of cows mated. This is at least twice as important as growth and carcass characteristics. The breeding cow needs to be able to do this every year with a low cost of input, while getting in-calf quickly, year after year.

Up to 80% of genetic gain is achieved through the bull. Why? Because a bull is mated to 30-50 cows per year, so bulls can be selected much more intensely (you need fewer of them).

Reproduction

Reproductive performance is complex because it involves the cow getting in-calf at the planned time each year (preferably starting at 15 months of age) and producing a live calf which thrives through to weaning and beyond. Cows that get in-calf early are more fertile and wean heavier calves, giving them a higher value in the herd.

Good reproductive performance is of high economic importance, but its heritability is low, so it is slow to improve genetically. The environment has a large part to play in reproductive performance. Cow management, animal health, seasonality all creates a lot of variation, masking the influence (on reproductive performance) of genetics alone. New Zealand's national calving percentage has not changed for several years and experts believe genetics has a role to play in lifting percentages.

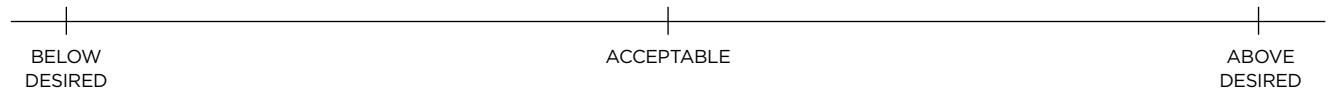
Culling cows which fail to breed or wean calves will improve the cow reproductive efficiency of your herd, but only moderately. Similarly, good management can help to improve reproductive performance. However the best tool available is **good bull selection**.

Mating heifers to calve at two years of age is a valuable way to improve reproductive efficiency, by rearing a calf when that heifer would otherwise be dry. It also reduces the interval between generations which leads to more rapid genetic improvement.

Useful EBVs in bull selection:

- **Calving ease direct (CED)** – is the ability of a sire’s calves to be born unassisted.
- **Calving ease daughters (CEDtrs)** – the ability of a sire’s daughters to calve at two years of age without assistance.
- **Gestation length (GL)** – the length of time from conception to calving. Longer GL’s result in larger calves that may have calving difficulties.
- **Birth weight (BW)** – the weight of calf at birth. Heavy calves have an increased incidence of calving difficulties.

Mark on the line how you would describe your performance in calving ease



Milk production (including mothering ability)

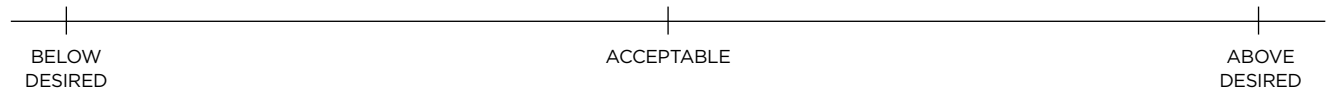
The simplest measure of a cow’s mothering ability is the weight of its calf at weaning. It shows the calf’s ability to grow and the dam’s ability to care for it. But, to a large extent, it reflects the dam’s milk production. Introducing dairy and dual purpose breeds to the breeding herd will progress milking ability.

Useful EBVs in bull selection are:

- **Milk (Milk)** – the amount of calf growth attributed to the cow.

There is evidence to suggest excessive milk production can result in decreased fertility. Cows that put a large amount of their energy into milking can fail to cycle and get in-calf at the time required. Body condition at mating is positively related to conception rate and this energy reserve can be spent when milking. Ultimately, milk/mothering ability should be optimised to accelerate calf growth and allow the cow to retain a fair condition.

Mark on the line how you would describe your performance in mothering ability



Cow size


Moderate cows are more desirable on hill country. Larger cows are most likely to have higher maintenance costs and are more likely to cause soil damage. Keeping cow size moderate, while maximising growth, is the challenge. Increasing calf growth rate in your cow herd is expected to lift cow mature size. This, in turn, allows fewer cows to be run per hectare and therefore fewer calves are born in the herd annually – a key profit driver. This can reduce efficiency of the cow herd.

What is the average weight of cow in your herd?

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What is your five year goal?

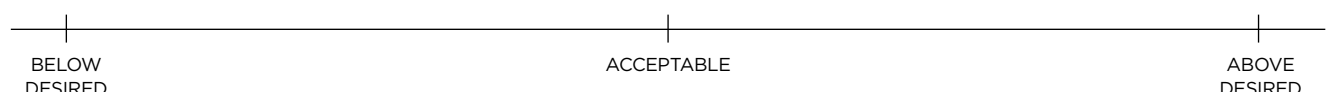
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 Industry benchmark: 530 kg cow
(weaning 240 kg calf)

Useful EBVs in bull selection are:

- **Mature cow weight (MCW)** – weight of cow at three years or older.
- **600-day weight (600D)** – weight at 18 months.

Mark on the line how you would describe your performance in cow size



Carcass quality

Carcass quality has an economic value in some markets and so can reward the breeder in the slaughter animal.

Ossification (maturity at slaughter), eye muscle area, meat colour, fat colour and marbling are common measures in premium quality rewarded beef programmes – on top of standard carcass merit measures.

Are you supplying a beef programme awarding premiums for carcass quality? Yes No

What is your average % hit rate for this programme?

What is your five year goal?

Are you seeing significant percentages of animals failing due to:

Marbling Yes No

Ossification Yes No

Meat colour Yes No

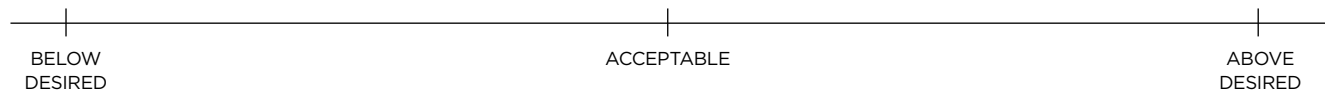
Fat colour Yes No

Eye muscle area Yes No

Useful EBVs in bull selection are:

- **IMF** – to lift marbling score.
- **600 Day Weight (600D)** – to reduce age and or maturity at slaughter.
- **Docility** – quiet cattle at slaughter avoid dark cutting (colour)/low ultimate pH meat.
- **Eye muscle area (EMA)** – loin cuts are the most valuable and result in more high value meat on the animal.

Mark on the line how you would describe your performance in carcass quality



Conformation

‘Conformation’ of an animal has a variety of interpretations. It is used to describe ‘type’ characteristics, conformity and structural soundness.

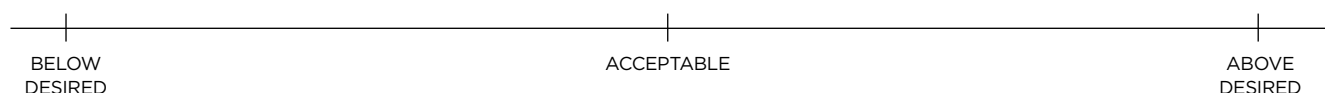
Animals must be structurally and reproductively sound. Selection should be made against defects that reduce the animal’s ability to move freely, graze efficiently or reproduce. Assessment of soundness can be carried out using the Beef Class Structural assessment system (see Section 06).

Selection on conformity has a value – as animals of a similar maturity pattern or ‘type’ is more likely to be ready for slaughter at a similar time. This makes feed budgeting easier and the spread of kill narrower.

Selection on conformation should be directed towards animals showing increased muscularity and against animals showing fat outside the acceptable market level.

In the slaughter animal, coat colour and markings have little importance. Selection for colour can reduce the progress made in other traits of economic value. However, in some branded beef programmes, colour is awarded premiums, providing the correct identification is in place.

Mark on the line how you would describe your performance in Conformation



Establishing your Breeding Objective (into traits)

Dependant on the current performance of your breeding programme, you may choose to 'emphasise' some traits and 'maintain' others.

1. List the trait groups (on farm) in which you are currently performing at a level below acceptable. These will make up the trait groups you need to focus on and 'emphasise'. Aim for four groups and list the traits; in order of economic and productive importance to your system.
2. Beneath each trait group, e.g. Reproductive performance, select the 'useful EBVs for bull selection' that are of most relevance to your current on farm performance.

Traits to Emphasise

Trait Group 1

Focus EBVs

Trait Group 2

Focus EBVs

Trait Group 3

Focus EBVs

Trait Group 4

Focus EBVs

3. In an order of economic and productive importance relative to your system, list the trait groups (on farm) in which you are currently performing at a level above desired.

These will make up the trait groups that aren't necessary to 'emphasise' but instead 'maintain'.

Note: *This doesn't mean these traits should be ignored and left to decline, but rather be maintained at an acceptable level i.e. maintain at breed average (see Section 03).*

4. Beneath each trait group select the 'useful EBVs for bull selection' that is of most relevance to your current on farm performance.

Traits to Maintain

Trait Group 1

Focus EBVs

Trait Group 2

Focus EBVs

Trait Group 3

Focus EBVs

Trait Group 4

Focus EBVs

Congratulations! You now have a Breeding Objective. These are the traits that are of more and less importance to your herd. Effective bull selection will occur from a bull breeder that has a similar breeding objective to your own and is recording these same traits of importance to you.