

Australian Red Angus Selection Indexes: Technical Specifications



The Red Angus Society of Australia currently reports three different selection indexes. These are the:

- Sustainable Breeder Index (SB)
- Supermarket Index (S)
- Northern Steer Index (NS)

All of the selection indexes described above have been derived using [BreedObject](#) software. The BreedObject selection index development process involves four major steps. These steps are:

1. A detailed description of the input costs and value generation of the commercial herd and target production system.
2. Once the target production system is described, the BreedObject software evaluates how each trait influences profitability and the economic value of improving each trait.
3. The BreedObject software then assesses what emphasis needs to be applied to each Estimated Breeding Value (EBV) trait to achieve the maximum profitability in the production system and for the market end point for which that index was designed. This step includes evaluating the selection response expected from direct selection on the individual EBVs and the correlated responses expected from selection on related EBVs.
4. The importance placed on each EBV results in the selection index value that is calculated for each animal.

Each selection index describes a different production system/market scenario and relates to a typical commercial herd using Red Angus bulls. As is the case for EBVs, each selection index can be used to rank and compare animals on their genetic merit. Producers are advised to use the selection index that most closely aligns to their production system. See the [Using Australian Red Angus Selection Indexes](#) tip sheet, available in the [Help Centre](#) on the BREEDPLAN website, for further information on the identification and utilisation of the most applicable selection index for your herd.

All selection indexes are reported in units of net profitability per cow mated (\$) for the production system/market scenario they describe. Selection indexes account for both sides of the profit equation (costs as well as income), and also reflect the relative short and long term profit associated with possible selection decisions. For example, short term profit can be generated by a bull through the sale of his progeny, and the longer term profit generated by his daughters in a self-replacing cow herd.

Each of the selection indexes are focused on efficient beef production while also targeting the following specifications:

Sustainable Breeder Index (SB) - Estimates the genetic differences between animals in net profitability per cow joined for a typical British breed commercial herd using Red Angus bulls and targeting production of weaners. This index aims to reduce mature cow size in the breed. Selected heifers are retained for breeding and thus maternal traits are of importance. Steers are marketed as store weaners or yearlings, though carcase quality is rewarded for those who want to finish at later ages. This combination of traits (reduction in mature cow weight, early sale etc.) makes this index suitable for those herds with sustainability breeding objectives.

Supermarket Index (S) - Estimates the genetic differences between animals in net profitability per cow joined for a typical British breed commercial herd using Red Angus bulls and targeting production of steers for the domestic supermarket trade. Selected heifers are retained for breeding and thus maternal traits are of importance. Steers are either finished on grass or grain, and target 550 kg live weight (305 kg HSCW and 11 mm P8 fat) at 21 months of age. In response to industry feedback a premium has been placed on fat cover and marbling.

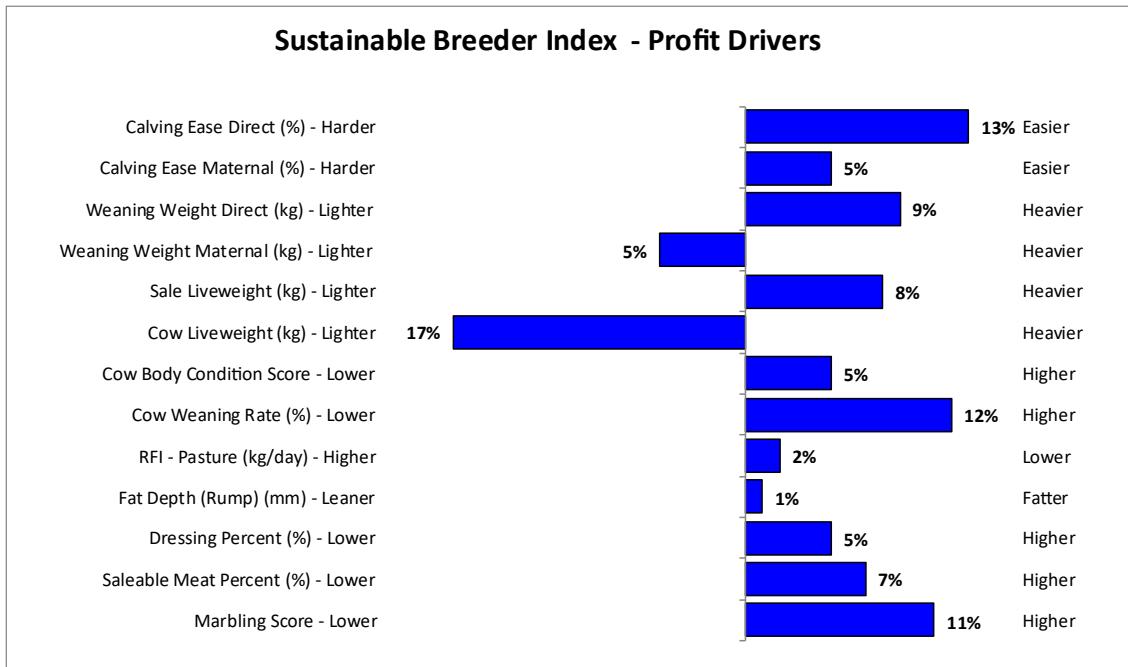
Northern Steer Index (NS) - Estimates the genetic differences between animals in net profitability per cow joined for a typical commercial herd using Red Angus bulls over cows with some *Bos indicus* content. Progeny are typically finished on grass and steers target 640 kg live weight (350 kg HSCW and 11 mm P8 fat depth) at 27 months of age. In response to industry feedback a premium has been placed on fat cover and marbling.

More detailed information regarding each selection index is provided on the following pages.

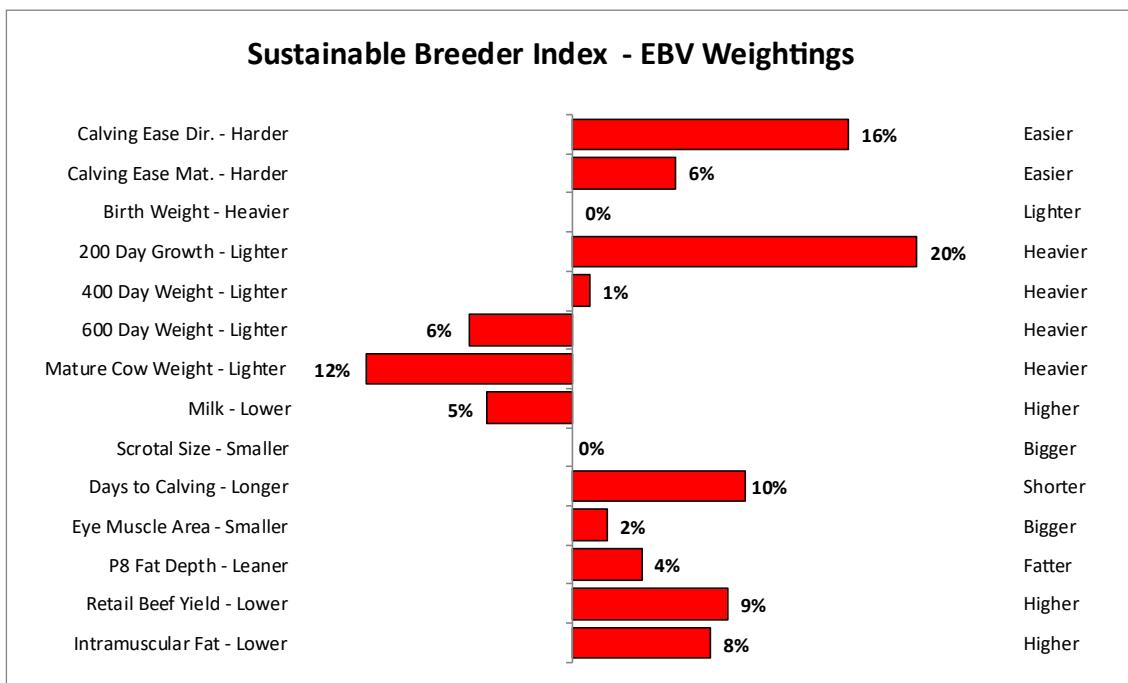
If you have any further queries regarding the Australian Red Angus Selection Indexes, please do not hesitate to contact staff at your BREEDPLAN processing centre.

Sustainable Breeder Index

The following bar graph shows the **key economic traits**, as determined by the BreedObject software, that are important in this selection index. The different trait emphases reflect the **underlying profit drivers in a commercial operation** targeting the described production system/market.

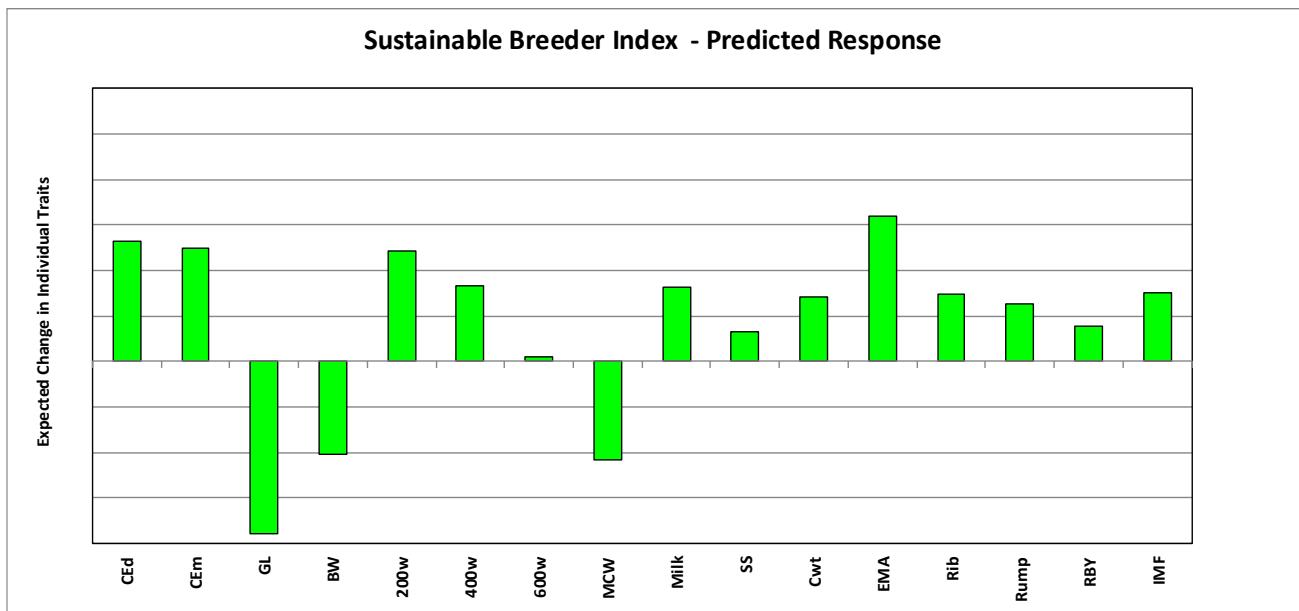


The bar graph below illustrates the magnitude and direction of emphasis that has been placed on each **BREEDPLAN EBV** within this selection index. These weightings represent the **most profitable combination of EBVs**, as determined by the BreedObject software, for the described production system/market.



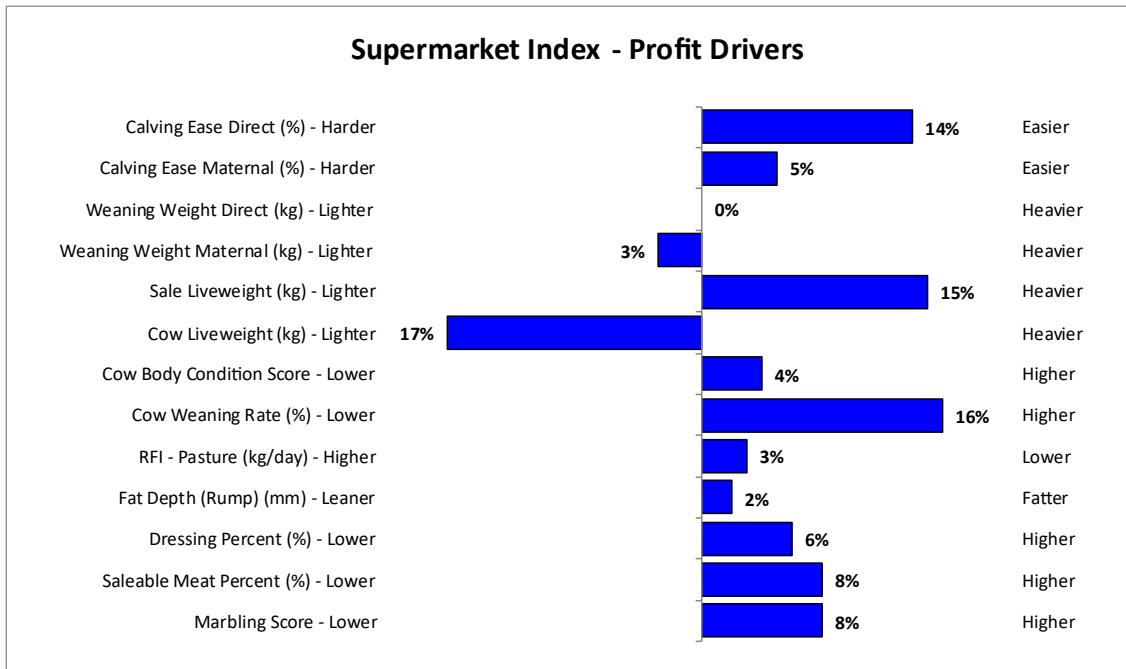
While the graphs on the previous page show the emphasis that has been placed on the production traits and each EBV within the Sustainable Breeder Index, they do not reflect the expected change that will occur to each individual EBV if producers select animals using this selection index. The selection response will also be influenced by factors such as the genetic relationship between traits and the animals that are available for selection. For example, while there is a negative weighting on 600 Day Weight EBV in this selection index, it would be expected that growth to 600 days would typically increase due to the large positive weighting on 400 Day Weight, and the strong genetic correlation between the traits.

The following bar graph provides an indication of the **relative change** that would be expected in each individual BREEDPLAN EBV if producers select animals using the Sustainable Breeder Index. The graph reflects the relative change if the Australian Red Angus published sires in 2023 were ranked on this selection index and the **Top 10% selected for use within a breeding program**. The response to selection may differ if a different group of animals were available for selection.

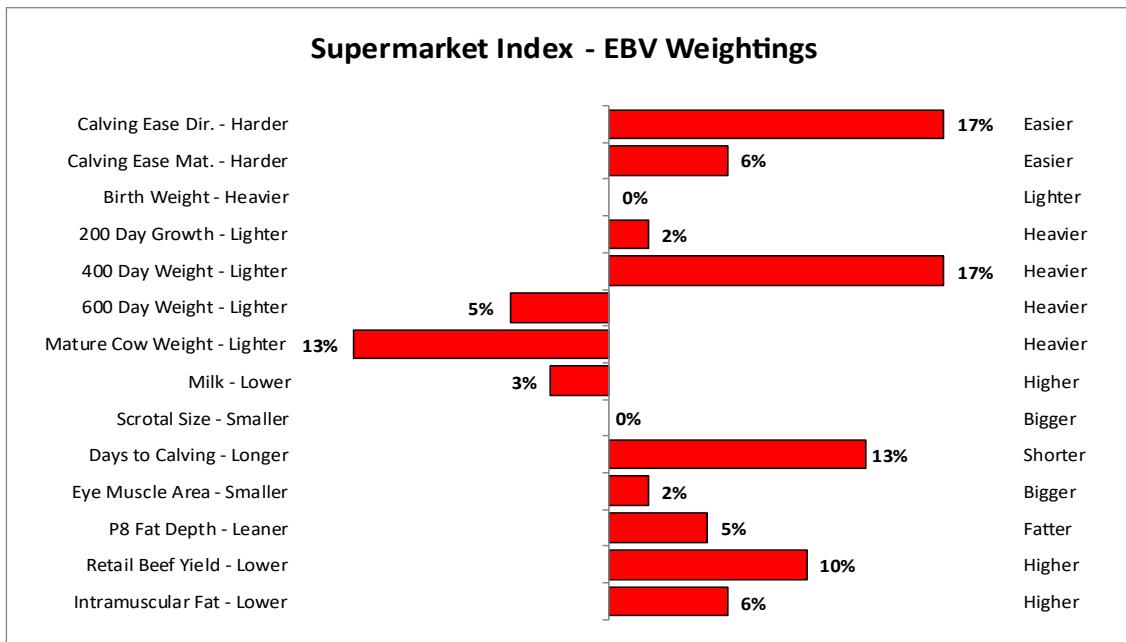


Supermarket Index

The following bar graph shows the **key economic traits**, as determined by the BreedObject software, that are important in this selection index. The different trait emphases reflect the **underlying profit drivers in a commercial operation** targeting the described production system/market.

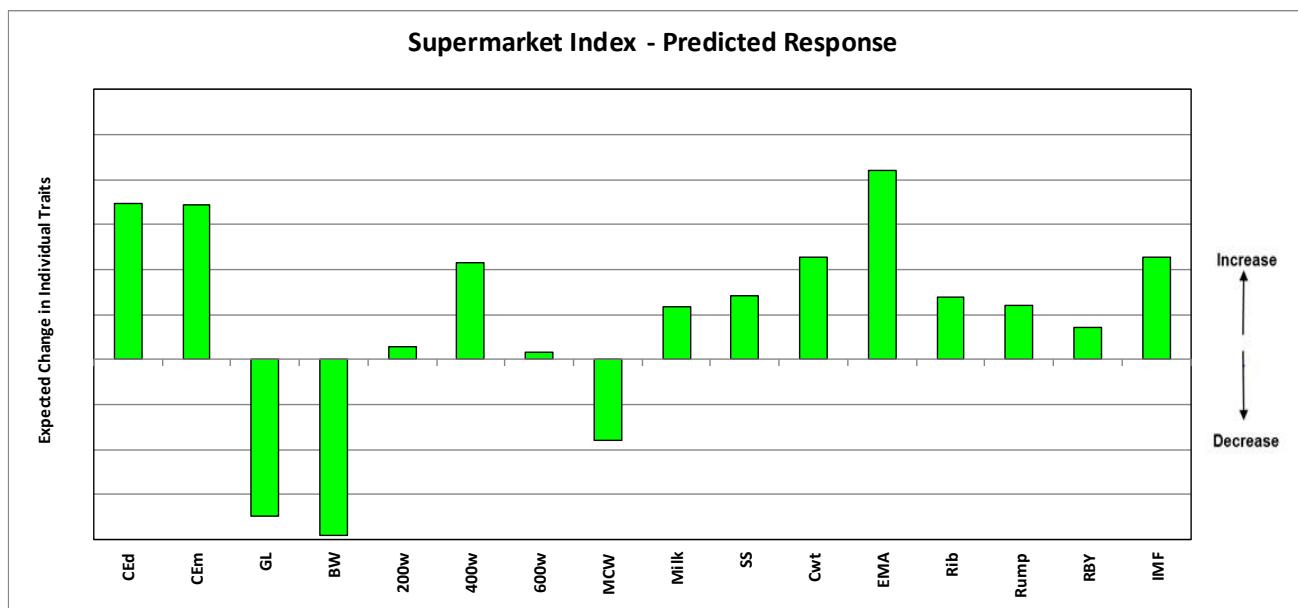


The bar graph below illustrates the magnitude and direction of emphasis that has been placed on each **BREEDPLAN EBV** within this selection index. These weightings represent the **most profitable combination of EBVs**, as determined by the BreedObject software, for the described production system/market.



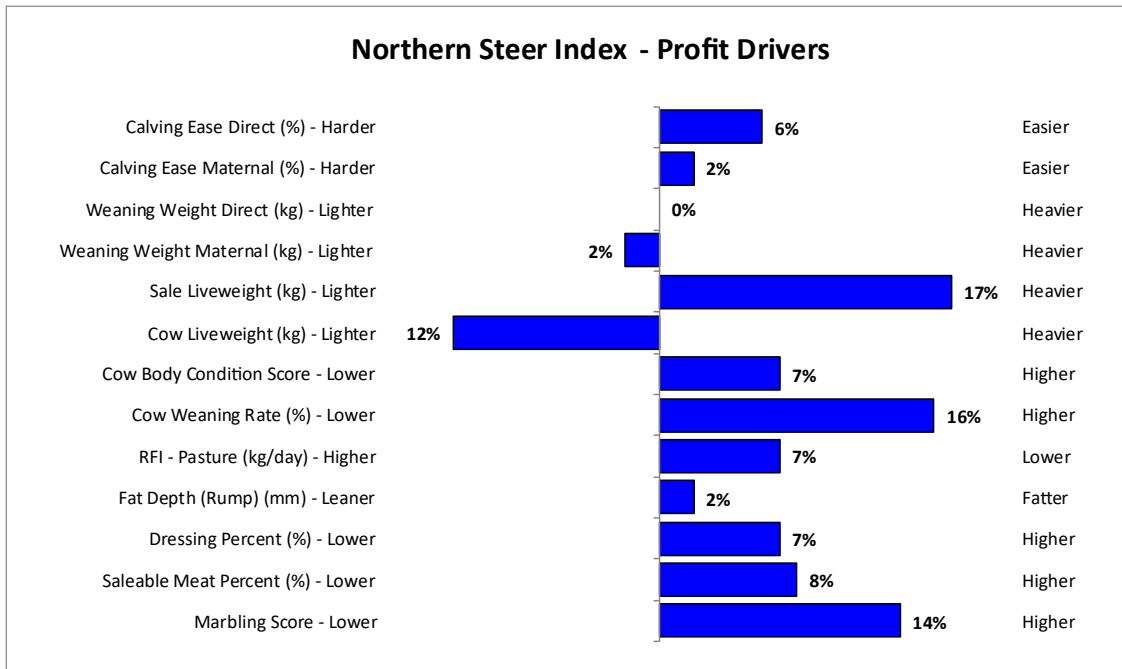
While the graphs on the previous page show the emphasis that has been placed on the production traits and each EBV within the Supermarket Index, they do not reflect the expected change that will occur to each individual EBV if producers select animals using this selection index. The selection response will also be influenced by factors such as the genetic relationship between traits and the animals that are available for selection. For example, while there are only small weightings on the 200 Day growth EBV in this selection index, it would be expected that growth to 200 days would typically increase due to the large positive weighting on 400 Day Weight, and the strong genetic correlation between the traits.

The following bar graph provides an indication of the **relative change** that would be expected in each individual BREEDPLAN EBV if producers select animals using the Supermarket Index. The graph reflects the relative change if the Australian Red Angus published sires in 2023 were ranked on this selection index and the Top 10% **selected for use within a breeding program**. The response to selection may differ if a different group of animals were available for selection.

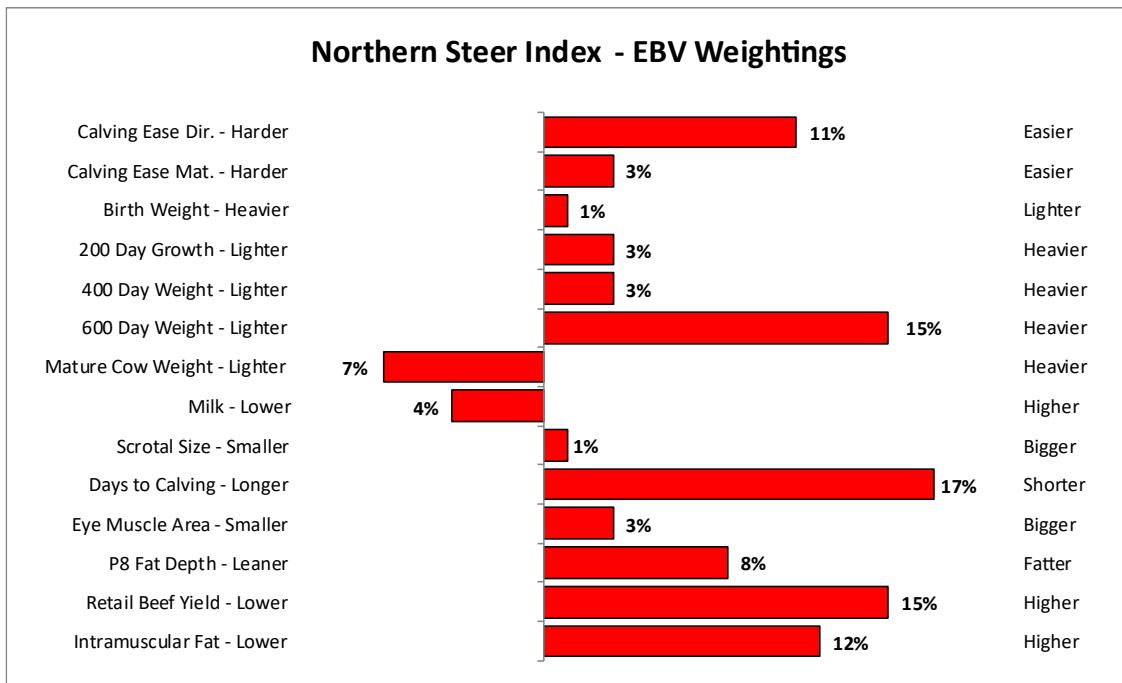


Northern Steer Index

The following bar graph shows the **key economic traits**, as determined by the BreedObject software, that are important in this selection index. The different trait emphases reflect the **underlying profit drivers in a commercial operation** targeting the described production system/market.



The bar graph below illustrates the magnitude and direction of emphasis that has been placed on each **BREEDPLAN EBV** within this selection index. These weightings represent the **most profitable combination of EBVs**, as determined by the BreedObject software, for the described production system/market.



While the graphs on the previous page show the emphasis that has been placed on the production traits and each EBV within the Northern Steer Index, they do not reflect the expected change that will occur to each individual EBV if producers select animals using this selection index. The selection response will also be influenced by factors such as the genetic relationship between traits and the animals that are available for selection. For example, while there are only small weightings on the 200 and 400 Day Weight EBVs in this selection index, it would be expected that growth to 200 and 400 days would typically increase due to the large positive weighting on 600 Day Weight, and the strong genetic correlation between the traits.

The following bar graph provides an indication of the **relative change** that would be expected in each individual BREEDPLAN EBV if producers select animals using the Northern Steer Index. The graph reflects the relative change if the Australian Red Angus published sires in 2023 were ranked on this selection index and the **Top 10% selected for use within a breeding program**. The response to selection may differ if a different group of animals were available for selection.

