

South African Simmentaler Selection Indexes: Technical Specifications



The Simmentaler Cattle Breeders' Society of South Africa currently reports two different selection indexes. These are the:

- Simmentaler Breeders Index
- Simmentaler Profit Index

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 South African Simmentaler 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 South African Simmentaler 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 (Rand) 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:

Simmentaler Breeders Index - Estimates the genetic differences between animals in net profitability per cow joined in an example self-replacing purebred Simmentaler herd. A portion of the heifers are retained for breeding and so maternal traits are of importance. This index assumes steers and surplus heifers will be finished in a feedlot for 160 to 180 days and weigh 480 to 555kg when marketed at 13 to 14 months of age.

Simmentaler Profit Index - Estimates the genetic differences between animals in net profitability per cow joined for an example crossbred self-replacing herd using Simmentaler bulls over Bos indicus content cross females. A portion of the heifers are retained for breeding and so maternal traits are of importance. This index assumes steers and surplus heifers will be finished in a feedlot for 140 to 160 days and weigh 420 to 490kg when marketed at 12 to 13 months of age.

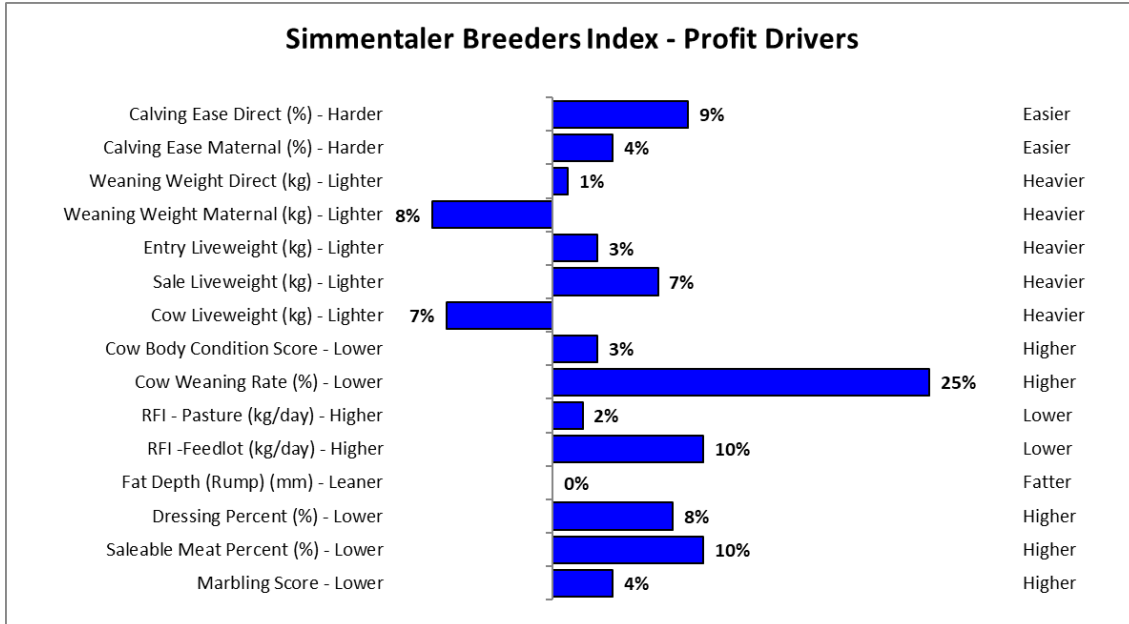
More detailed information regarding each selection index is provided on the following pages.

If you have any further queries regarding the South African Simmentaler Selection Indexes, please do not hesitate to contact staff at the Simmentaler Cattle Breeders' Society of South Africa.

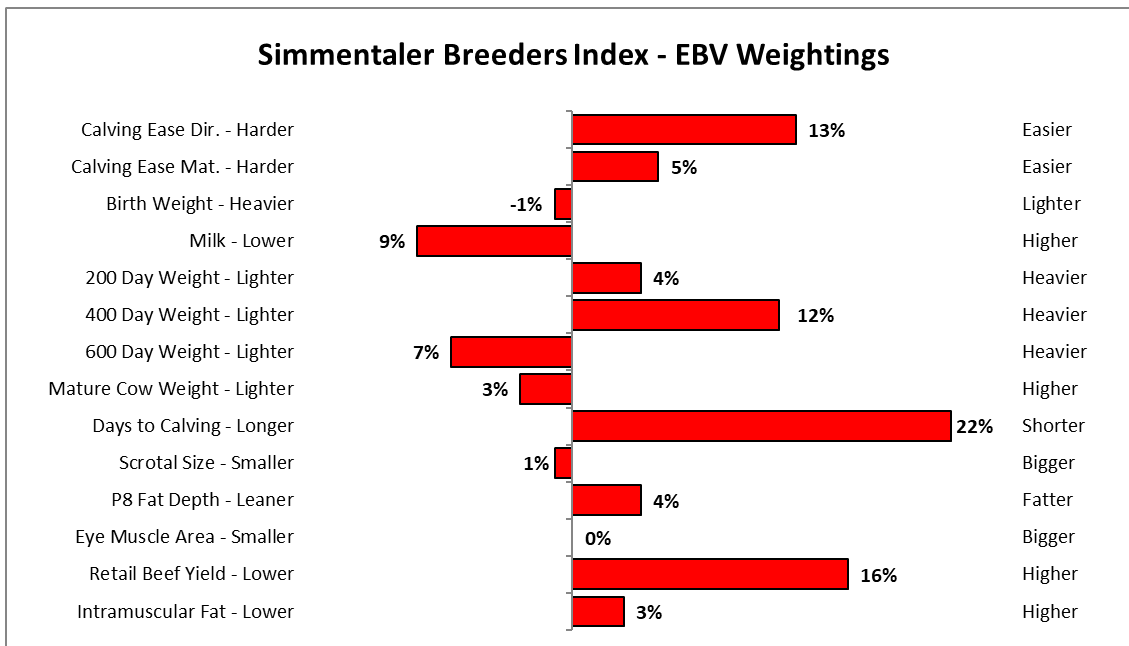


Simmentaler Breeders Index

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.

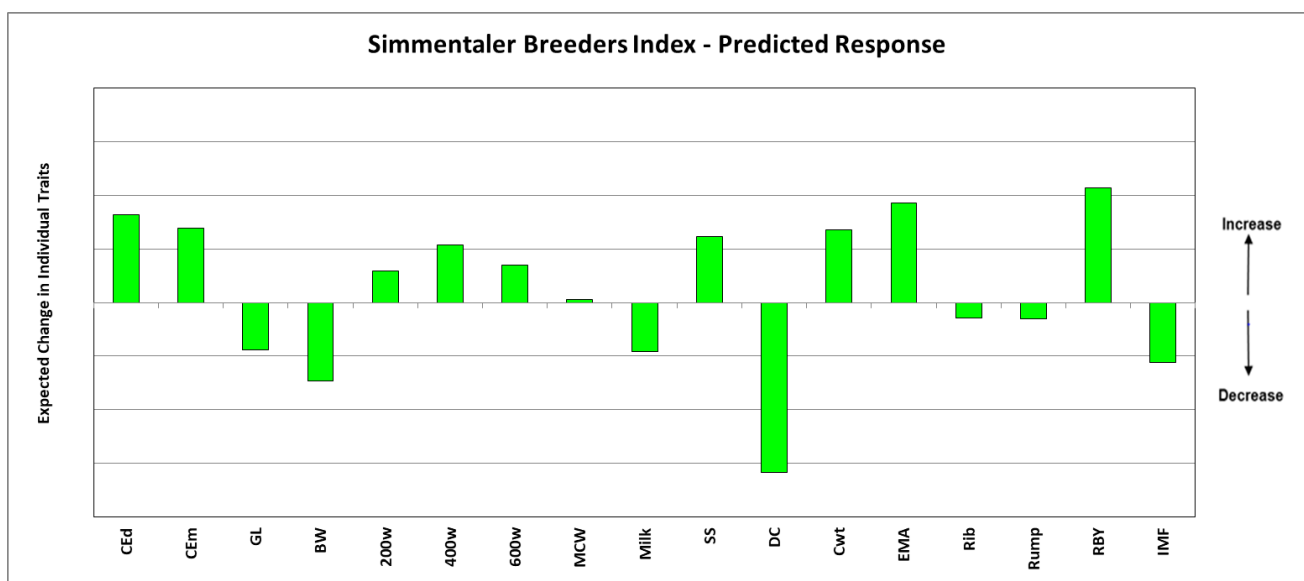


The bar graph below illustrates the magnitude and direction of emphasis that has been placed on each **BREEDPLAN EBV** within this selection index. These weightings represent the **most profitable combination of EBVs**, as determined by the BreedObject software, for the described production system/market.



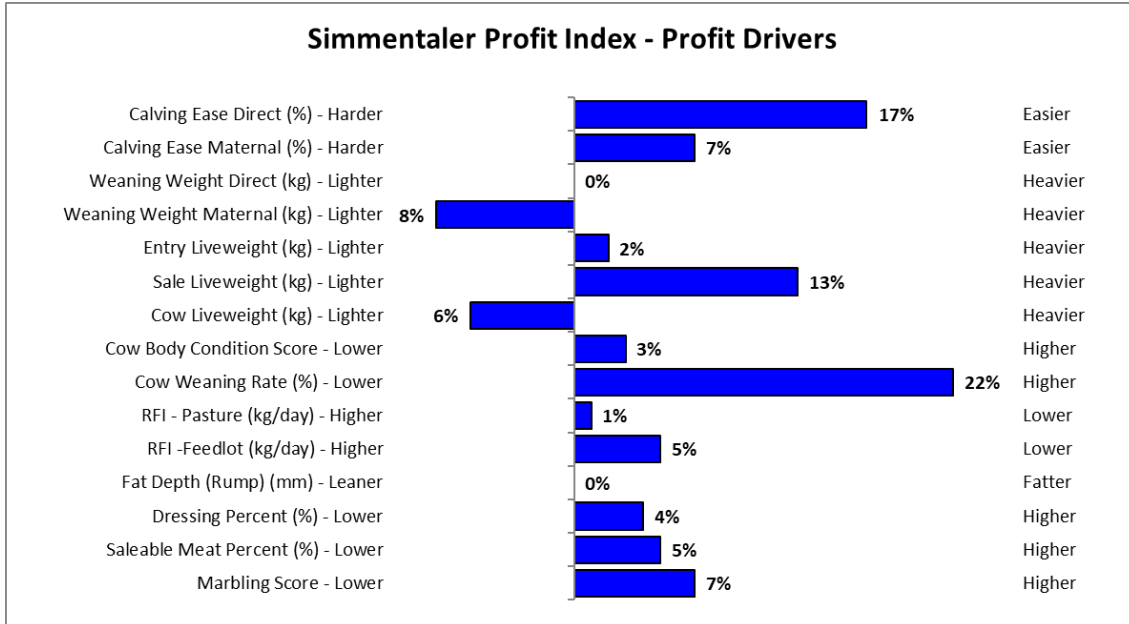
While the graphs on the previous page show the emphasis that has been placed on the production traits and each EBV within the Simmentaler Breeders Index, they do not reflect the expected change that will occur to each individual EBV if producers select animals using this selection index. The selection 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 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 two 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 Simmentaler Breeders Index. The graph reflects the relative change if the South African Simmentaler Published Sires in 2019 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.

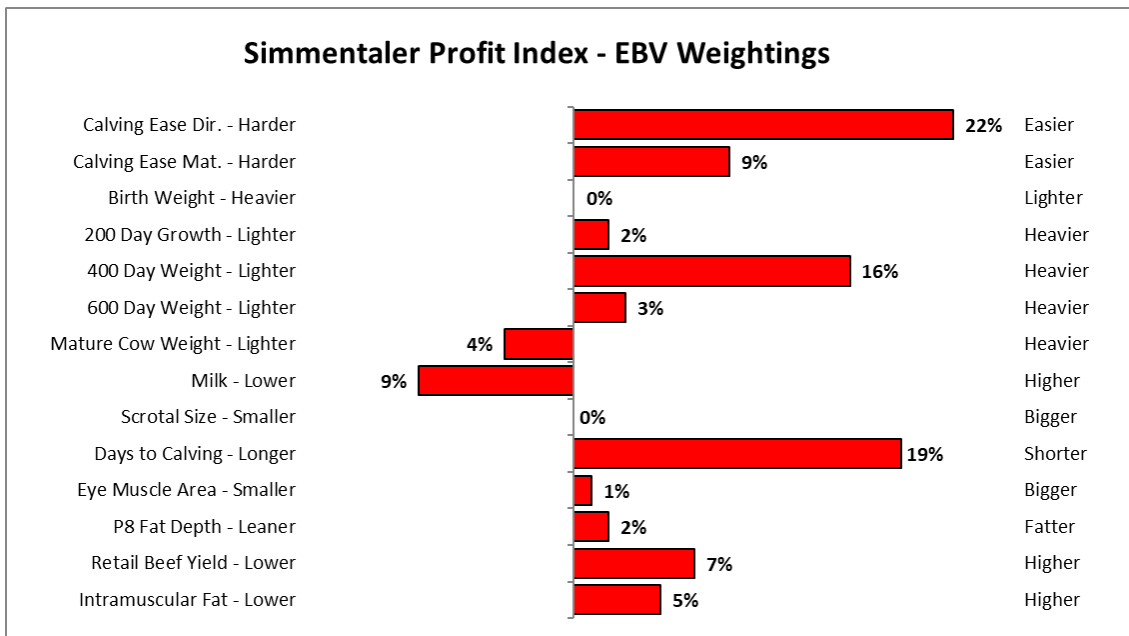


Simmentaler Profit Index

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 Simmentaler Profit 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 only a slight weighting on 600 Day Weight 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 two 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 Simmentaler Profit Index. The graph reflects the relative change if the South African Simmentaler Published Sires in 2019 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.

