

# Selection Indexes



Selection Indexes allow you to make balanced selection decisions. They take the hard work out of knowing how much emphasis to put on each individual trait by ranking animals on their overall genetic value for a particular production system.

Selection Indexes are calculated using the BreedObject software that has been developed by the Animal Genetics and Breeding Unit (AGBU) at the University of New England. BreedObject combines the BREEDPLAN EBVs of an animal with an economic weighting on each individual trait (based on costs of production and returns on output) to produce a single selection index value for each animal.

Selection Indexes enable cattle producers to make “balanced” selection decisions, by taking into account the relevant growth, carcase, birth and fertility attributes of each animal, to identify the animal that is most profitable for a particular production system.

## What Selection Indexes are Available?

Selection Indexes are now calculated for most Breed Societies conducting an across breed genetic evaluation with BREEDPLAN. Selection Indexes are intended for use by both seedstock and commercial producers, being designed to cater for the commercial market production systems of general relevance in each particular breed. A general description of the different Selection Indexes that are available for each breed is available from the BREEDPLAN website.

Individual seedstock producers also have the option of developing their own customised index using herd-specific production



information and marketing goals. Further information about developing customised indexes is available on the BreedObject website ([www.breedobject.com](http://www.breedobject.com)).

## Display of Selection Indexes

An animal's selection index value can effectively be interpreted as its EBV for profitability in a particular commercial production scenario and market. Ranking seedstock animals on their selection index value sorts them based on their progeny's expected profitability for the targeted production system.

Selection index values are expressed as differences in “net profit per cow mated” and reflect differences in profitability across the entire production chain (i.e. from joining to slaughter). In indexes designed for self-replacing production systems (Maternal) the long term profit generated by the sire's daughters is also included.

## What Benefits do Selection Indexes have for Individual Herds?

Selection Indexes enable individual beef breeders to:

- Create a 'yardstick' for an animal's overall genetic merit that can be used in association with the animal's individual EBVs to increase the accuracy of selection and speed up the rate of genetic progress.
- Make simultaneous multi-trait selection for traits that may vary in heritability, genetic variation, level of economic importance and have antagonistic trait correlations.
- Measure and assess the genetic progress being achieved

within their breeding program over time in terms of overall commercial profitability.

## What Benefits do Selection Indexes have for Individual Breed Societies?

Selection Indexes enable each Breed Society to:

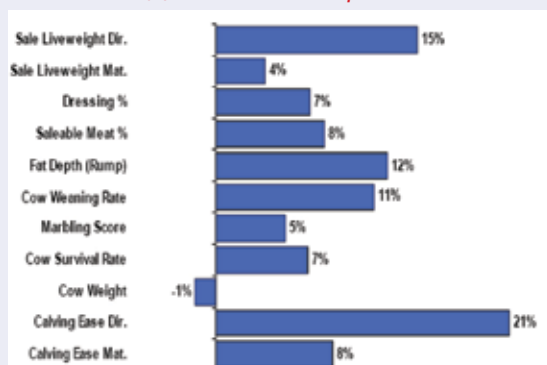
- Identify and disseminate bulls with the highest genetic merit to commercial beef production operations.
- Measure and assess the overall genetic progress of animals within their breed over time in terms of commercial profitability.

## Example Selection Index

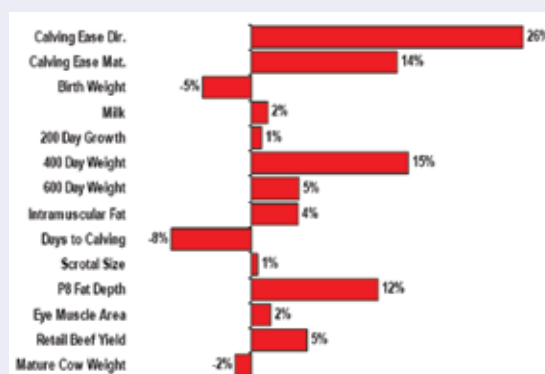
The following is an example of a selection index that has been calculated for a Breed Society in Australia. The selection index reflects differences in profitability per cow mated in a commercial herd with a British cow base using European breed bulls and targeting the production of grass-fed steers for the domestic trade. Steers are pasture grown & finished weighing 430kg at 12 months. Daughters are retained or sold for breeding so maternal traits are important.

The graphs illustrate the influence of (1) the different profit drivers on the profitability of the commercial herd as calculated by BreedObject, (2) the subsequent emphasis that is placed on each individual EBV and (3) the response to selection that would be expected if animals were selected using this selection index.

(1) Profit Driver Graph



(2) EBV Weighting Graph



(3) Predicted Response Graph



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