

An Introduction to Selection Indexes



TIP SHEET

WHAT ARE SELECTION INDEXES?

BREEDPLAN calculates Estimated Breeding Values (EBVs) for a range of economically important traits. While BREEDPLAN EBVs provide cattle producers with a comprehensive range of information regarding the genetic merit of an animal, it can be difficult to identify the appropriate level of emphasis to be placed on each EBV to achieve maximum profitability. BreedObject Selection Indexes are a tool that help to solve this dilemma.

The BreedObject software combines the BREEDPLAN EBVs for an animal with an economic weighting (based on costs of production and returns on outputs) to produce selection index values. As selection indexes balance the relative growth, carcass and fertility genetic merits of each animal, they can identify the animals that are most profitable for a particular production system. Thus, selection indexes enable cattle producers to make selection decisions that account for both the short term profit generated by a sire through the sale of his progeny, and (where applicable) the longer term profit generated by his daughters in a self-replacing cow herd.

WHAT SELECTION INDEXES ARE AVAILABLE?

A number of Breed Societies/Associations publish selection indexes that are designed to cater for the commercial market production systems of general relevance in each particular breed. These selection indexes are intended for use by both seedstock & commercial producers. A general description of the selection index(es) available for each Breed Society/Association can be found in the [Help Centre](#) on the BREEDPLAN website.

These can be found by searching for “selection index” in the search bar, and are also listed under the “Using Selection Indexes” heading.

In addition to the selection index(es) available for each Breed Society/Association, it is possible for an individual beef producer to develop their own customized selection index(es) using herd-specific production information and marketing goals. Further information regarding the development of customised indexes can be found on the [BreedObject website](#).

INTERPRETING SELECTION INDEXES

The selection index value for an animal is effectively an EBV of the animal’s profitability in that 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 indexes are expressed as “net profit per cow mated”. For example, if we compare a bull with an Index of +\$60 with a bull that has an Index of +\$30, we can estimate that the difference in net profit from the progeny of the bulls would be:

$$\begin{aligned} &= \frac{1}{2} \times \text{difference in Index} \\ &= \frac{1}{2} \times (60-30) \\ &= \$15 \text{ per cow mated} \end{aligned}$$

(Note: We need to multiply by $\frac{1}{2}$ because only half the progeny’s genes come from the sire)

If these two bulls were each joined to 200 cows during their breeding life, the difference in their selection index values would equate to a \$3000 (200 x \$15) difference in profitability between bulls. It is important to note that this difference includes profit across the entire production chain from joining to slaughter and, if a self-replacing selection index, also considers the long term profit generated by a sire’s daughters.



USING SELECTION INDEXES

BREEDPLAN recommends using selection indexes as part of a selection strategy which also includes other selection tools (e.g. EBVs and visual assessment). By initially ranking animals using an appropriate selection index, beef producers ensure balanced selection for traits important to their production system.

The BREEDPLAN best practice guide to animal selection is to:

1. Identify the selection index of most relevance.
2. Rank animals on the selection index.

3. Consider the individual BREEDPLAN EBVs of importance.
4. Consider other traits of importance.

More detailed information can be found in the [A BREEDPLAN Guide to Animal Selection](#) tip sheet, available in the [Help Centre](#) on the BREEDPLAN website.

For more information regarding Selection Indexes, please contact staff at your BREEDPLAN processing centre.

