Red Angus Selection Indexes Finalised

Over the past three months the Red Angus Technical Committee has developed a suite of three Selection Indexes relevant to the Red Angus breed. Following is information that explains the concept of Selection Indexes, a definition of each of the Red Angus Selection Indexes and details on how to interpret and use them. Also explained is how and when the Selection Indexes will be made available on animals recorded with the Red Angus Society of Australia.

What are Selection Indexes?

Red Angus BREEDPLAN is now calculating Estimated Breeding Values (EBVs) for up to 14 different traits. While this provides cattle producers with a comprehensive range of information regarding the genetic merit of an animal, it can result in a dilemma when trying to select animals for use in a particular breeding program. In an ideal situation, it would be desirable to select animals that excel in all traits, but rarely will an animal be superior in all 14 traits. So which traits should producers put most emphasis on? How much emphasis should be placed on each trait?

BreedObject is a tool that can help solve this dilemma. BreedObject combines the BREEDPLAN EBVs for an animal with an economic weighting (based on costs of production and returns on outputs), to produce a single Selection Index. A separate Selection Index can be produced for any particular production scenario and market.

Selection Indexes enable cattle producers to make “balanced” selection decisions, taking into account the relevant growth, carcase & fertility attributes of each animal to identify the animal with the genetic package that is most profitable for their particular commercial enterprise. The Red Angus Selection Indexes reflect both the short term profit generated by a sire through the sale of his progeny, and the longer term profit generated by his daughters in a self replacing cow herd.

What Selection Indexes are available?

A suite of three standard Selection Indexes will shortly be available to Red Angus breeders via the Red Angus Society of Australia. These Red Angus specific Selection Indexes have been developed by the Red Angus Technical Committee to cater for commercial production systems of relevance to the Red Angus breed. These Selection Indexes are intended for use by both seedstock & commercial producers.

The three Red Angus Selection Indexes and their definitions follow:

1) **Supermarket (SUP)** - Estimates the genetic differences between animals in net profitability per cow joined for an example commercial herd targeting the domestic supermarket trade. Steers are either finished on grass or grain (e.g. 70 days). Steers are marketed at 450 kg live weight (250 kg HSCW and 12 mm P8 fat depth) at 15 months of age. Daughters are retained for breeding. In response to industry feedback regarding eating quality and tenderness, a small premium has been placed on marbling.

2) **Northern Steer (NTH)** - Estimates the genetic differences between animals in net profitability per cow joined for an example commercial herd in Northern Australia with Bos indicus cows targeting grass finished steers for export. Steers are marketed at 600 kg live weight (330 kg HSCW and 10 mm P8 fat depth) at 27 months of age. Daughters are retained for breeding. In response to industry feedback regarding eating quality and tenderness, a small premium has been placed on marbling.
3) **Vealer (VLR)** - Estimates the genetic differences between animals in net profitability per cow joined for an example commercial herd targeting vealer production. Vealers are finished on grass and are marketed at 320 kg live weight (180 kg HSCW and 4 mm P8 fat depth) at 9 months of age. Daughters are retained for breeding. No marbling is required.

As well as standard Selection Indexes, it is also possible to develop customised indexes for individual producers using herd-specific production information and marketing goals. Further information regarding the development of customised indexes can be found on the BreedObject website (www.breedobject.com).

**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:

\[ = \frac{1}{2} \times \text{difference in Index} \]
\[ = \frac{1}{2} \times (60-30) \]
\[ = $15 \text{ per cow mated} \]

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

If the two bulls were joined to 200 cows during their breeding life, this would equate to a difference of \((200 \times 15) = $3000\).

It is important to note that this difference includes profit across the entire production chain from joining to slaughter and also considers the long term profit generated by a sire’s daughters.

**Using Selection Indexes**

As a guide to using Selection Indexes, it is recommended that producers complete the following steps:

(i) Identify the Selection Index of most relevance to you or your clients (in the case of bull breeders)
(ii) Rank animals on the Selection Index
(iii) Consider the individual EBVs of importance
(iv) Consider other traits of importance

More detailed information regarding each of these steps is included in the Tip Sheet titled “Selecting Animals with Selection Indexes” which can be accessed from the SBTS website (http://sbts.une.edu.au)
How and When Will Red Angus Selection Indexes be Available?

The systematic generation of the Red Angus Selection Indexes will occur from the August 2008 Red Angus GROUP BREEDPLAN analysis. The Selection Index values for each eligible animal will initially be published on the Red Angus Society of Australia animal/EBV enquiry database. They will also be included in the GROUP EBV files that can be downloaded and imported into compatible herd recording programs (e.g. HerdMaster). At some stage they will also be included in the BREEDPLAN herd reports.

Note that not all animals will be eligible to receive a Selection Index value. They will only be reported on animals that have “reasonable” accuracy for a range of EBVs (e.g. birth, growth, carcase, fertility).

Further details on the Red Angus Selection Indexes will be sent to each Red Angus Society of Australia member prior to the August GROUP BREEDPLAN analysis. You can also access further information from the Red Angus SBTS Technical Officer, Christian Duff (ph: 02 6773 2472 or email: christian@sbts.une.edu.au).