



## SELF-REPLACING \$INDEX

The Self-replacing Index can be used to select Fullblood bulls that will produce more profitable females when these are retained in Fullblood or Purebred herds, in addition to high marbling slaughter progeny.

The Self-replacing Index (SRI) is one of four Wagyu selection indexes, which are calculated for animals within the Wagyu BREEDPLAN analysis:

- Wagyu Breeder \$Index
- Self-replacing \$Index
- Fullblood Terminal \$Index
- F1 Terminal \$Index



## WHAT IS A BREEDOBJECT \$INDEX?

A BreedObject \$Index is designed to give a comparison between animals within the Index based on profitability of their progeny within the commercial supply chain for the defined production system.

## CALCULATION OF INDEX VALUES

Self-replacing Index values are derived using BreedObject technology, as developed by the Animal Genetics & Breeding Unit (AGBU) in Armidale, NSW. Self-replacing Index values are reported as Estimated Breeding Values (EBVs), in units of net profit per cow joined (\$) for this defined production system and market scenario.

## THE PRODUCTION SYSTEM

The Self-replacing Index estimates the genetic differences between animals in net profitability per cow joined in a commercial Fullblood or Purebred self-replacing herd. Heifers are retained for breeding and steers and surplus females are sold as feeders for feedlot finishing.

Steers are assumed to be slaughtered at 32 months after 550 days of feedlot finishing targeting 435kg carcasses.

Heifers are retained for breeding and therefore maternal traits are of importance. Steers and surplus females that exhibit superior marbling will attract a significant premium for the carcasses. Table 1 describes the targeted production system in more detail.

Table 1 Production System for Self-replacing Index

Criteria	Value
Weaning Rate	85%
Feedlot entry weight - Steers	330 kg
- Heifers	270 kg
Days on feed - Steers	550 days
- Heifers	450 days
Slaughter age - Steers	32 months
- Heifers	29 months
Carcase weight - Steers	435 kg
- Heifers	385 kg
Carcase price @MS5 - Steers	\$8.25/kg
- Heifers	\$8.25/kg
Marbling premium	~\$1.00/MS

### BREEDING OBJECTIVE

The key production traits for the Self-replacing Index include marbling, sale weight, yield and feed efficiency as shown in Figure 1, reflecting the underlying profit drivers in a commercial operation targeting this production system.

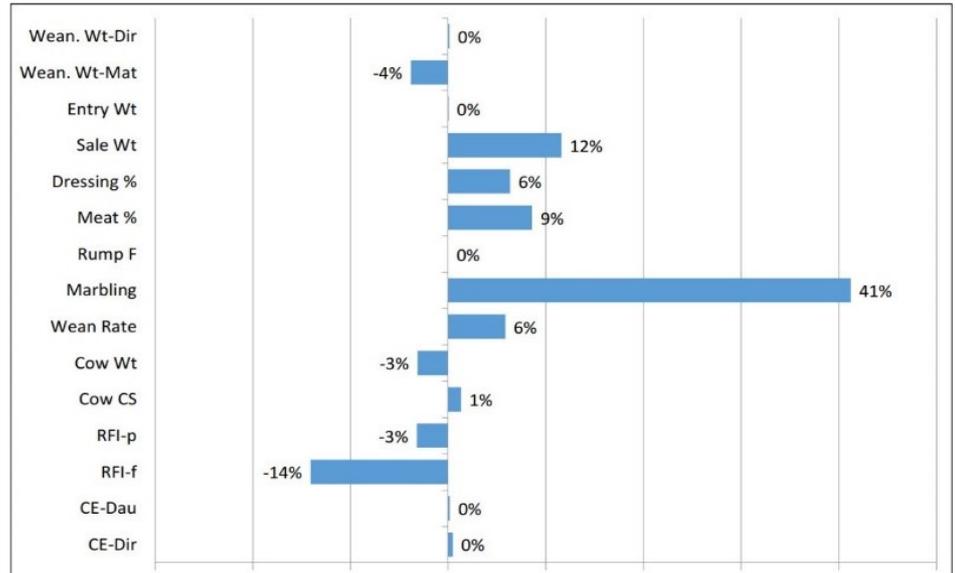


Figure 1 Emphasis placed on key production traits

### HOW EBV'S CONTRIBUTE TO THE INDEX

The genetic relationship between the breeding objective and selection traits highlights the emphasis that is placed on EBVs in calculating the SRI as illustrated in Figure 2. EBVs with a positive bias are favoured – for example 200 and 600 Day Weight EBVs, lower Birth Weight EBVs and higher Marble Score EBVs.

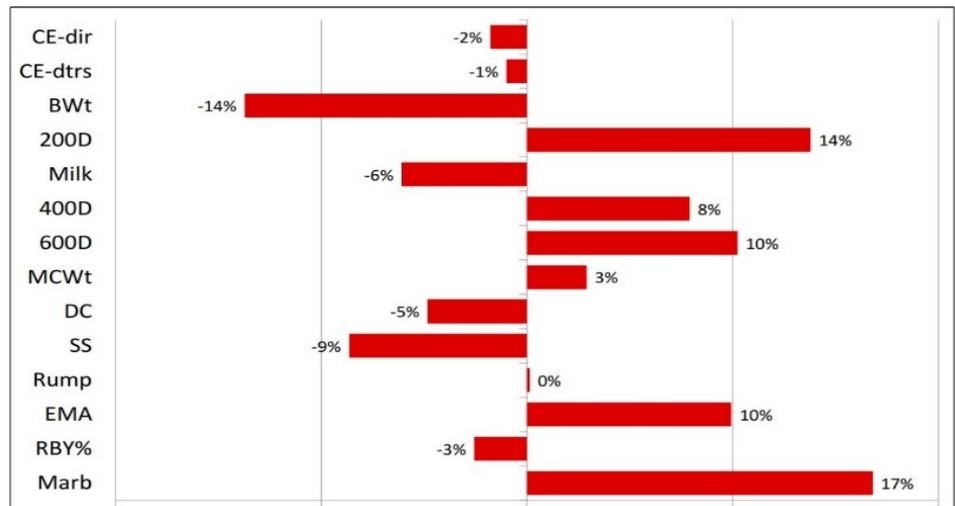


Figure 2 Emphasis placed on EBVs in calculating the SRI

### INDICATIVE RESPONSE TO SELECTION

While the graphs of Figure 2 and 3 show the emphasis that have been placed on the production traits and each EBV within the Wagyu Self-replacing Index, they do not illustrate the likely change that will occur to each individual EBV if producers select high ranking animals (average of the top 10%) using this \$Index.

Table 2 and Figure 3 provide an indication of the relative change that would be expected in each individual trait by selecting animals in the top 10% of the Self Replacing Index.

The indicative response reflects the change if the Wagyu Published Sires (at the June 2020 Wagyu GROUP BREEDPLAN analysis) which were ranked on this selection index and the average of the Top 10% were selected for use within a breeding program.

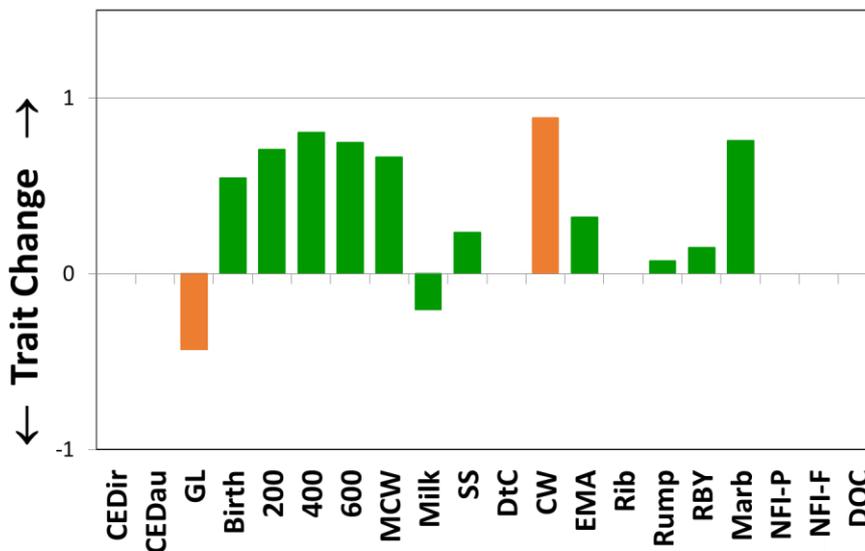


Figure 3 Indicative response to genetic std deviations selection

The response will differ if a different group of animals was available for selection and/or a different selection intensity was applied.

### POINTS TO CONSIDER WHEN USING THE SELF-REPLACING BREEDING INDEX

Due to genetic relationships between traits, when selecting high ranking animals for the Self-replacing Index, on average, there is a minor negative response in the Milk EBV. However, this will vary greatly between sires in the top 10% for this \$Index.

Members using this \$Index can achieve balanced genetic gain in growth and marbling. Members may consider a minimum threshold for the Milk EBV to select bulls that meet the members Milk and SRI breeding targets.

Table 2 Indicative EBV response to selection

Trait	Change
Gestation Length	-0.6 days
Birth Weight	+1.2 kg
200 Day Weight	+6 kg
400 Day Weight	+12 kg
600 Day Weight	+18 kg
Mature Cow Weight	+15 kg
Milk	-0.99 kg
Scrotal Size	+0.3 cm
Carcase Weight	+17 kg
Eye Muscle Area	+0.8 cm <sup>2</sup>
Rump Fat	+0.2 mm
Retail Beef Yield	+0.14 %
Marble Score	+0.56 MS