

## Making Money out of \$Indexes

Over the last 20 years most cattle breeders have taken a “leap of faith”. From disbelieving and distrusting EBVs most cattle breeders now trust EBVs enough that they use them in their breeding decisions. Sometimes EBVs are used simply as a “safety first policy” to avoid high birth weights or low milk. More often they are used to make genetic gains for traits like growth, carcass yield and marbling.

Now breeders are being challenged to take another “leap of faith”. That is to accept that a single \$Index can be used to select animals instead of trying to balance 17 individual EBVs intuitively. Some breeders have already made the next leap of faith. Many do not yet have the confidence to do what pig, poultry and lat sheep and dairy cattle breeders have been doing for many years.

A \$Index correctly weights all traits according to their economic importance for a particular production/marketing system.

The \$Indexes also account for the heritability of each trait and therefore the ease of genetic progress for that trait. For example, it is much easier to make genetic progress for a highly heritable trait such as scrotal size compared to lowly heritable trait such as female fertility. \$Indexes also account for the favourable or antagonistic relationships between traits.

For example, selection for 400 day weight has a strong correlation with 600 day weight but is antagonistic to calving ease because of the increase in birth weights. Selection for marbling is positively correlated with fat cover but antagonistic to retail beef yield percentage.

Breeding indexes also provide a check and balance against “single trait selection” for traits such as growth or marbling.

### Making Money

As indicated by the name, \$Indexes show the overall genetic differences between animals expressed in dollars. They enable two bulls to be compared in terms of the difference in their progeny expressed as dollars.

The difference in profitability of any two sires is determined by how different their \$Indexes are and how many calves they sire. The following table demonstrates that.

\$Index Difference	Number of Calves Sired				
	50	100	150	200	250
\$10	250	500	750	1000	1250
\$20	500	1000	1500	2000	2500
\$30	750	1500	2250	3000	3750
\$40	1000	2000	3000	4000	5000
\$50	1250	2500	3750	5000	6250
\$60	1500	3000	4500	6000	7500

For example, if a breeder has a choice of two Murray Grey bulls with long fed export indexes of +\$38 (top 5%) and +\$16 (breed average) the difference is \$22.00.

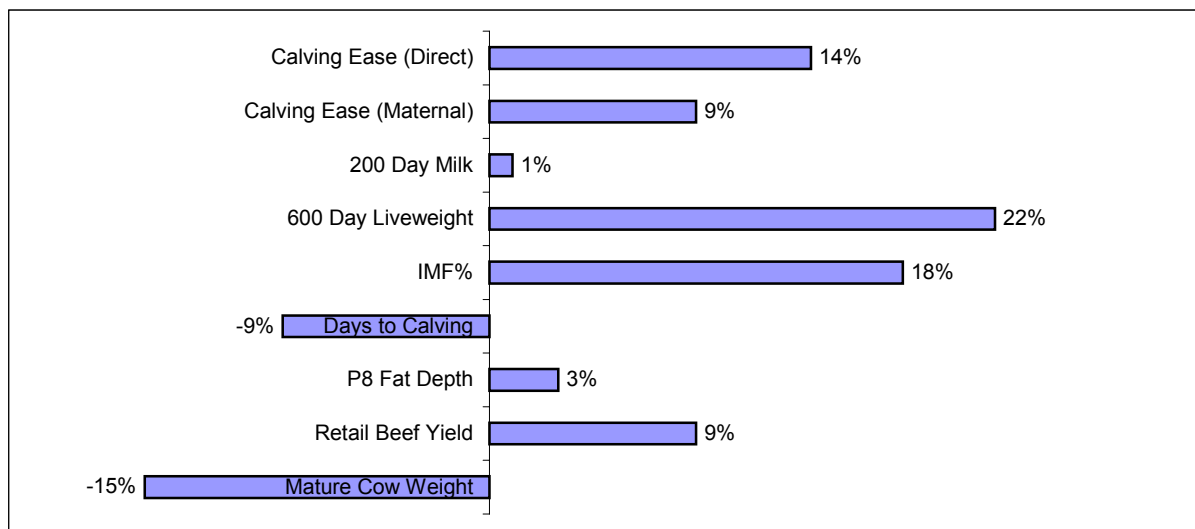
If these two sires are joined to females with the same average \$Index the value of the higher index sire will be \$11 per calf produced.

If the two bulls each sired 100 calves over four years the higher index bull will increase profit in steers sold and heifers retained by \$1100.

The Murray Grey breed has two \$Indexes.

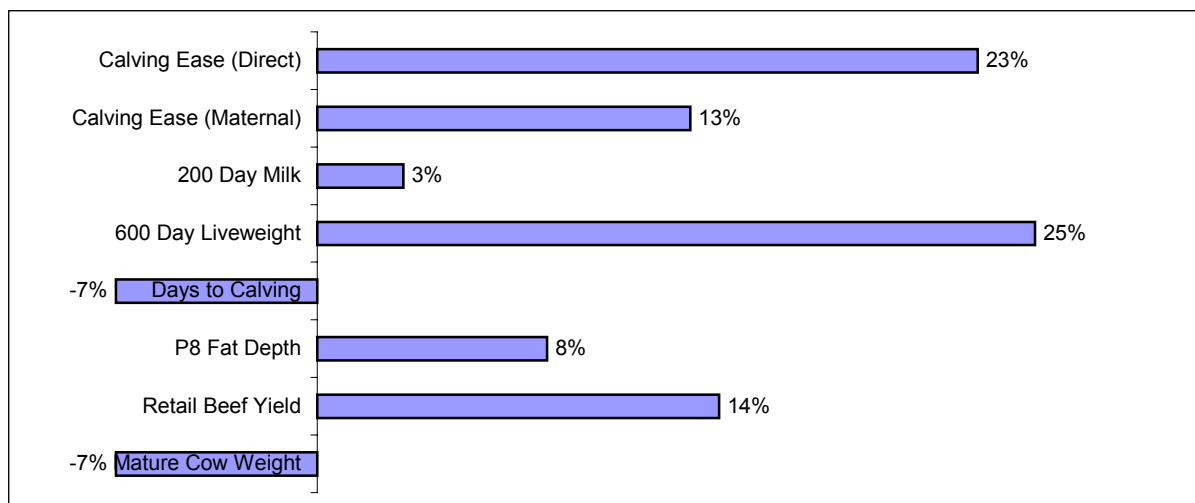
### Long Fed Export

This index is for self replacing commercial herds targeting the production of steers for the long fed export markets such as the Japanese B3 market. It was assumed that 80% of steers in the herd achieve an AUS-MEAT marble score of 2 or higher when slaughtered at 25 months of age after 220 days on feed (average 650 kg liveweight, 20mm P8 fat depth). The emphasis on each EBV for the Japanese B3 market is shown below.



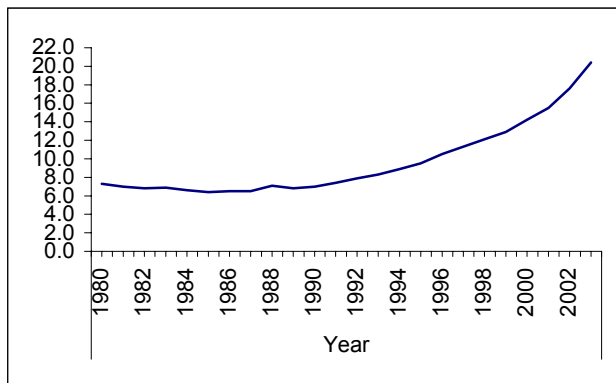
### Domestic Supermarket

This index is for self replacing commercial herds targeting grass finished production for the domestic supermarket trade with no marbling requirement. It was assumed that 80% of the steers from the herd achieve market specifications at the target slaughter age of 17 months (average 400 kg liveweight, 8mm P8 fat depth). The emphasis on each EBV for the domestic market is shown below.



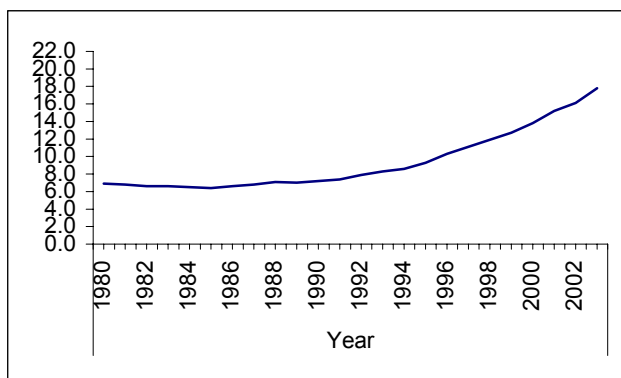
These indexes can also be used to measure the overall genetic change measured in dollar for the breed.

### **\$Index for the Japanese B3 Market**



This graph shows that the average \$Index for 2003 born calves of \$20.40 is \$17.40 higher than the average \$Index of \$7.00 for 1990 born calves. It also shows that genetic progress measured in dollar terms for the Japanese B3 market is much faster now than it was ten years ago.

### **\$Index for the Domestic Market**



This genetic change is for the domestic market \$Index for 2003 born calves of \$17.80 is \$10.60 higher than the average \$Index of 1990 born calves of \$7.20.

The Murray Grey breed is making good genetic progress for both of these markets.

Individual herds using \$Indexes to target one of these markets would be making even greater genetic progress.