

## Australian Shorthorn Selection Indexes

There are three standard selection indexes calculated for Australian Shorthorn animals. These are:

- ❑ Domestic Maternal Index
- ❑ Export Maternal Index
- ❑ Northern Maternal Index

Each selection index has been developed for a different production/market scenario.

**Domestic Maternal Index (DM)** - Estimates the genetic differences between animals in net profitability per cow joined for an example commercial herd in a temperate environment (e.g. Shorthorn, Angus or Hereford cows) targeting the production of pasture grown and finished steers for the domestic trade (eg. supermarket). Steers are marketed at 480 kg live weight (260 kg HSCW and 10 mm P8 fat depth) at 16 months of age. Daughters are retained for breeding.

**Export Maternal Index (EM)** – Estimates the genetic differences between animals in net profitability per cow joined for an example commercial herd in a temperate environment (e.g. Shorthorn, Angus or Hereford cows) targeting the production of steers for the Japanese B3 market. Steers are pasture grown to feedlot entry then feedlot finished for 150 days. Steers are marketed to the feedlot at 450 kg live weight, and then slaughtered after finishing at 675 kg live weight (370kg HSCW). Daughters are retained for breeding.

**Northern Maternal Index (NM)** – Estimates the genetic differences between animals in net profitability per cow joined for an example commercial herd in Northern Australia (e.g. Brahman, Droughtmaster or Santa Gertrudis cows) targeting the export trade. Steers are finished on grass and marketed at 600 kg live weight (320 kg HSCW and 10 mm P8 fat depth) at 28 months of age. Daughters are retained for breeding.

All selection indexes are reported as an EBV, in units of net profit per cow mated (\$) for a given production/market scenario. They 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 (where applicable).

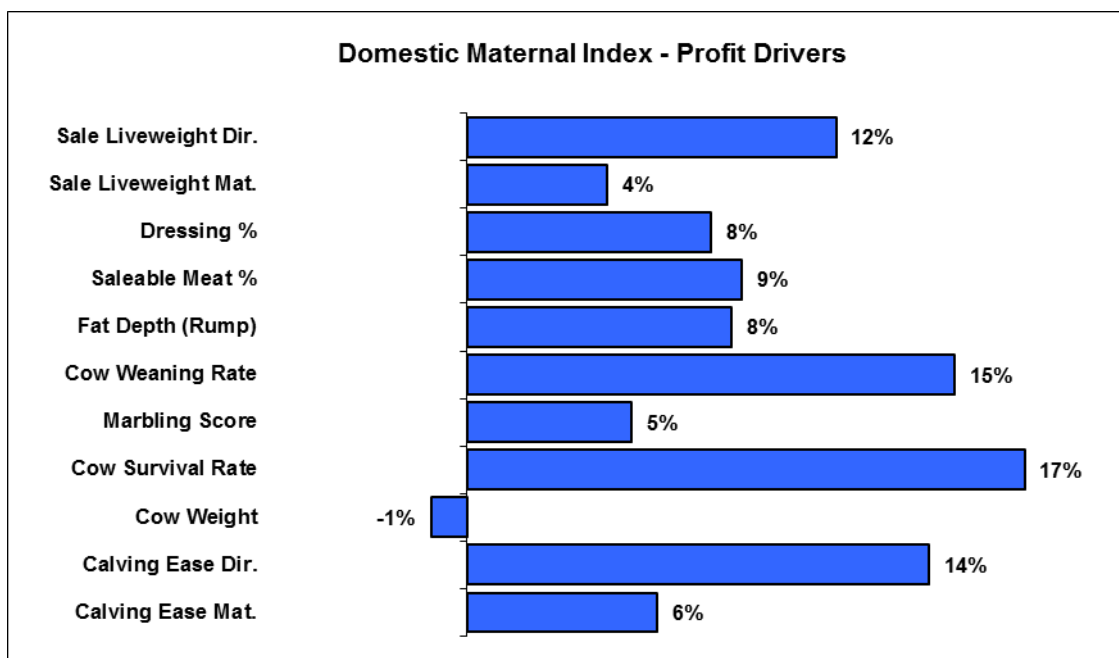
All selection index values have been derived using BreedObject technology. More detailed information regarding each selection index is provided on the following pages. Further information is also available in the Tip Sheet titled “Selection Indexes – A General Introduction”.

*If you have any further queries regarding Shorthorn Selection Indexes, please do not hesitate to contact staff at your BREEDPLAN processing centre.*

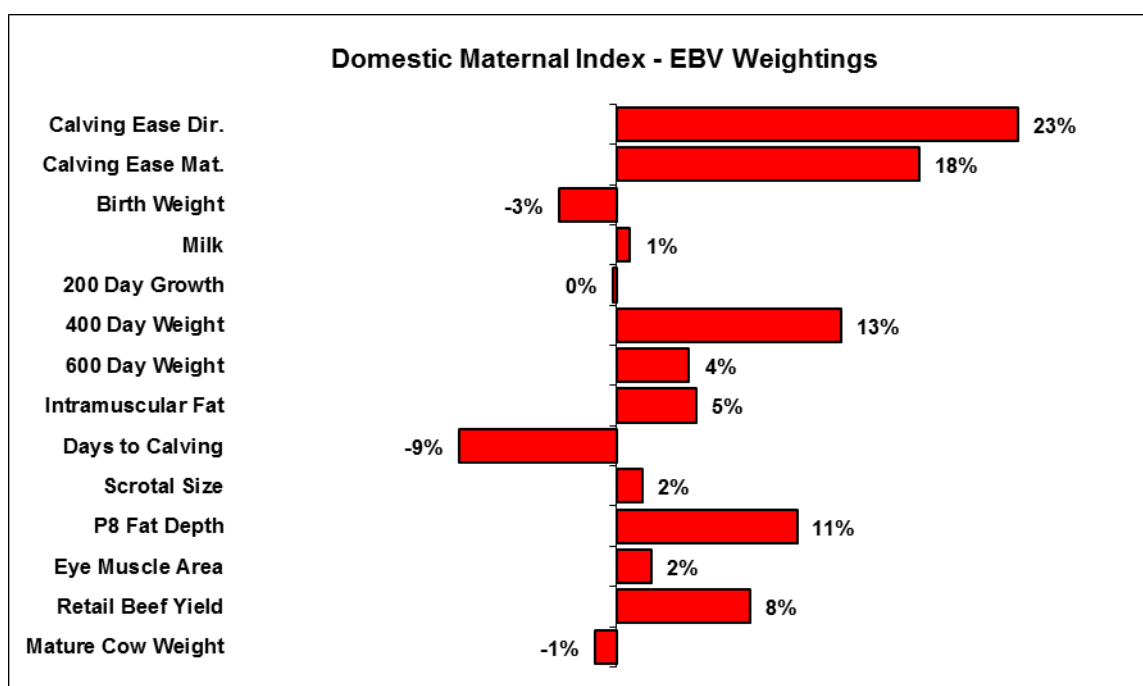
## ***Shorthorn Domestic Maternal Index***

The Shorthorn Domestic Maternal Index estimates the genetic differences between animals in net profitability per cow joined for an example commercial herd in a temperate environment (e.g. Shorthorn, Angus or Hereford cows) targeting the production of pasture grown and finished steers for the domestic trade (e.g. supermarket). Steers are marketed at 480 kg live weight (260 kg HSCW and 10 mm P8 fat depth) at 16 months of age. Daughters are retained for breeding.

The following bar graph shows the key economic traits that are important in this selection index. The different trait emphases reflect the underlying profit drivers in a commercial operation targeting this production system and market.

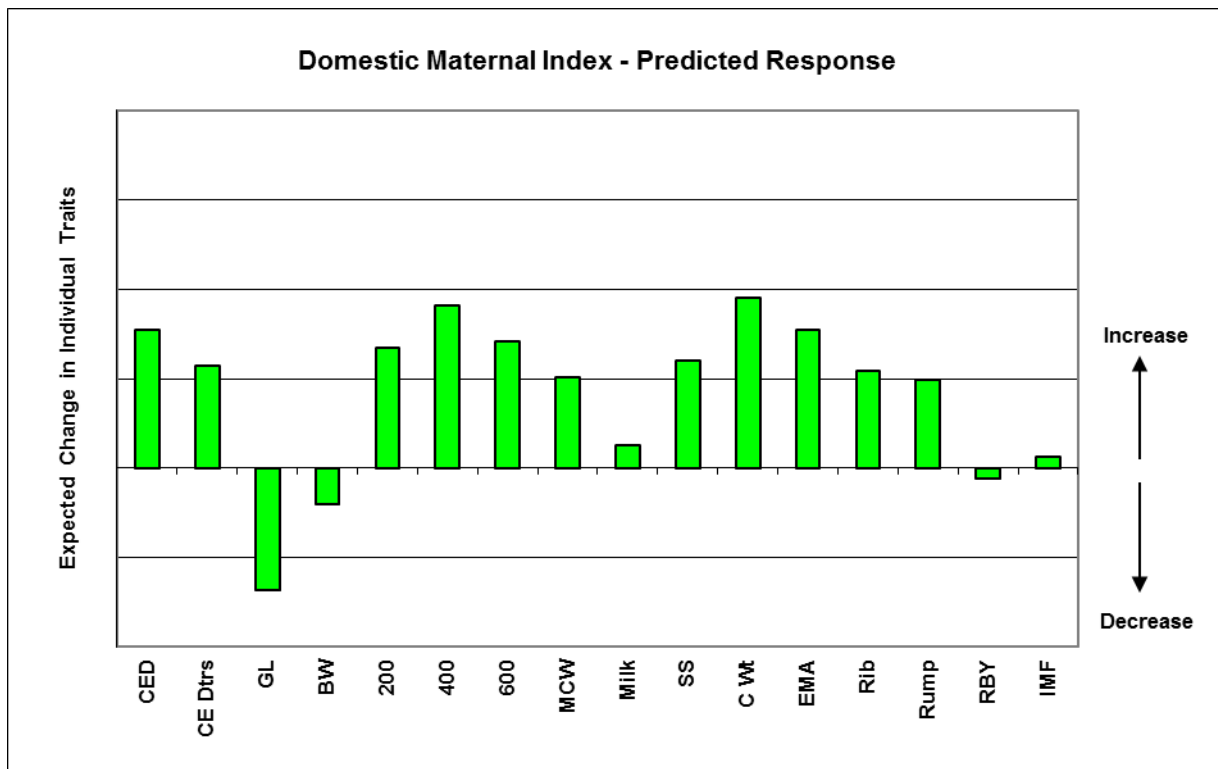


Considering the genetic relationship between the key profit drivers and the EBVs that are available, this transposes to the following EBV emphases. The sign indicates the direction of the emphasis.



While the graphs on the previous page show the different profit drivers and emphases that have been placed on each EBV within the Domestic Maternal Selection Index, they do not illustrate the likely change that will occur to each individual trait if producers select animals using this selection index. The response to selection will also be influenced by such factors as the genetic relationship between traits and the animals that are available for selection. For example, while there is no direct weighting on 200 Day Weight in this selection index, it would be expected that growth to 200 days would increase as there is a large weighting on 400 Day Weight.

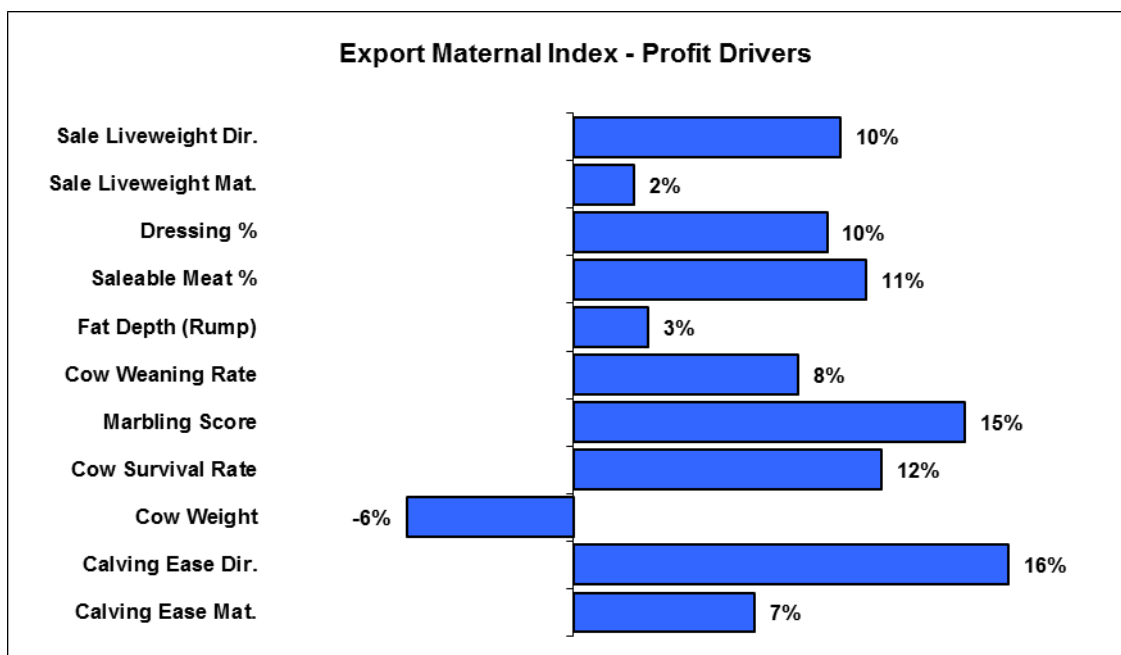
The following bar graph provides an indication of the relative change that would be expected in each individual trait if producers select animals using the Domestic Maternal Selection Index. The graph reflects the relative change if the Shorthorn Published Sires (at the Autumn 2012 Shorthorn GROUP BREEDPLAN analysis) were ranked on this selection index and the Top 10% selected for use within a breeding program. The response to selection may differ if a different group of animals were available for selection.



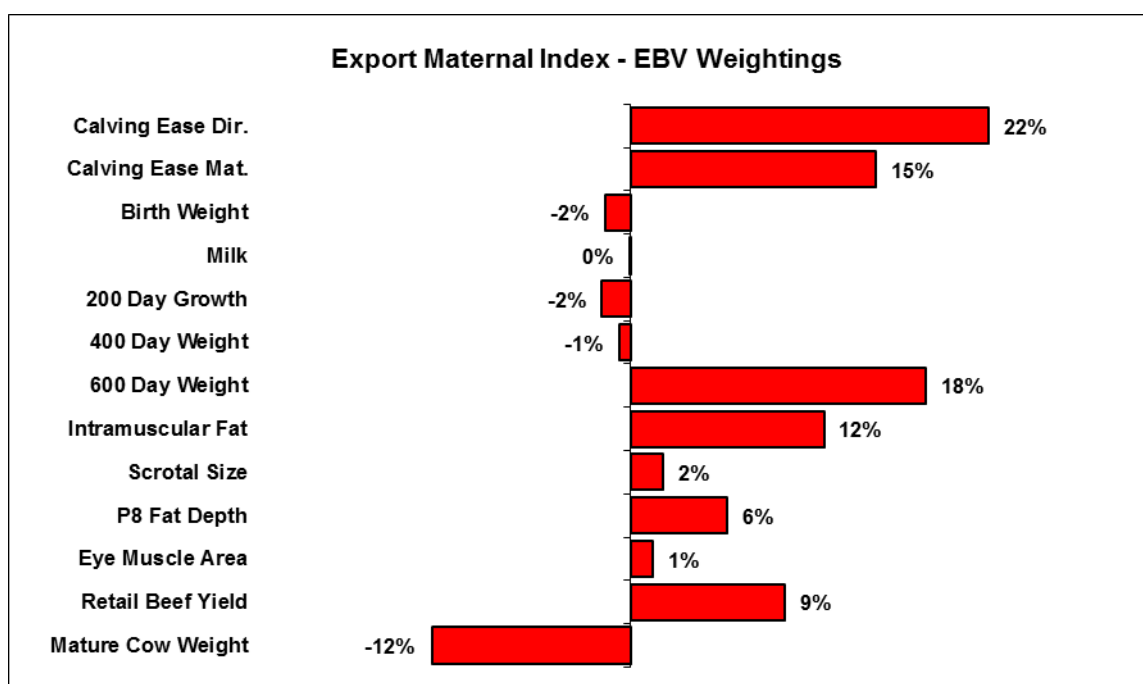
## ***Shorthorn Export Maternal Index***

The Shorthorn Export Maternal Index estimates the genetic differences between animals in net profitability per cow joined for an example commercial herd in a temperate environment (e.g. Shorthorn, Angus or Hereford cows) targeting the production of steers for the Japanese B3 market. Steers are pasture grown to feedlot entry then feedlot finished for 150 days. Steers are marketed to the feedlot at 450 kg live weight, and then slaughtered after finishing at 675 kg live weight (370kg HSCW). Daughters are retained for breeding.

The following bar graph shows the key economic traits that are important in this selection index. The different trait emphases reflect the underlying profit drivers in a commercial operation targeting this production system and market.

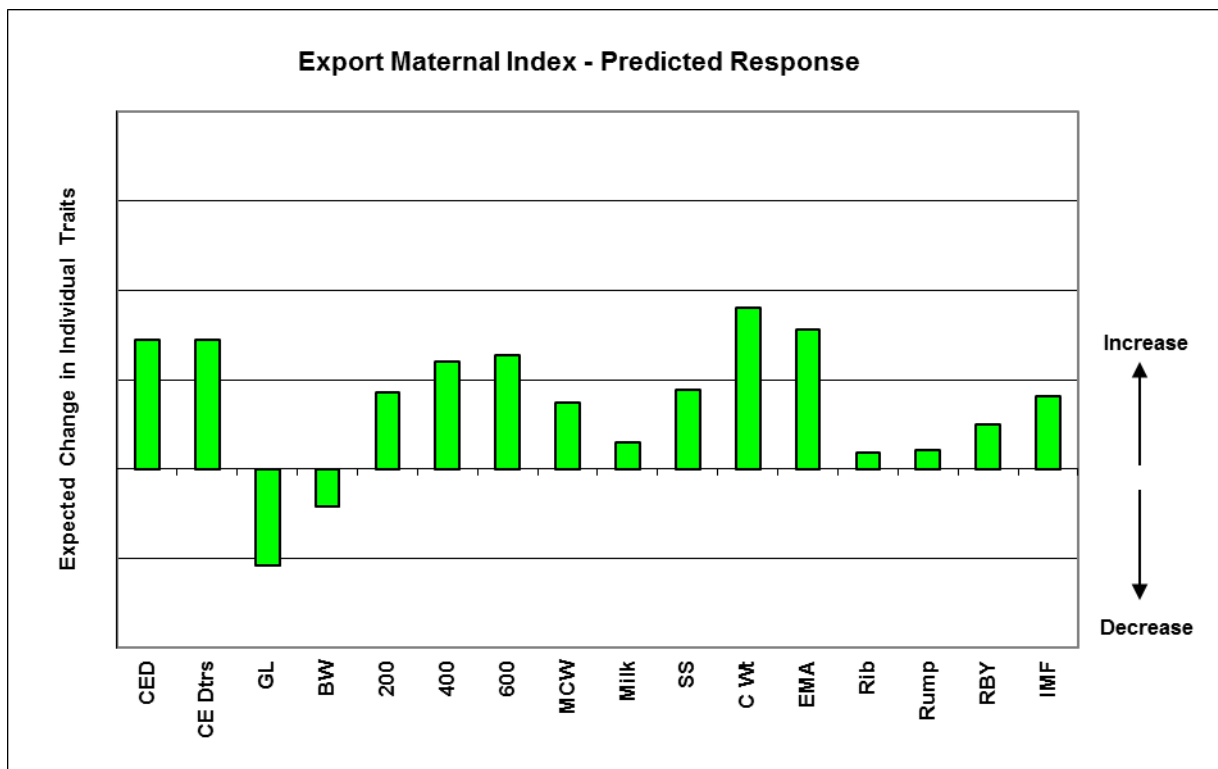


Considering the genetic relationship between the key profit drivers and the EBVs that are available, this transposes to the following EBV emphases. The sign indicates the direction of the emphasis.



While the graphs on the previous page show the different profit drivers and emphases that have been placed on each EBV within the Export Maternal Selection Index, they do not illustrate the likely change that will occur to each individual trait if producers select animals using this selection index. The response to selection will also be influenced by such factors as the genetic relationship between traits and the animals that are available for selection. For example, while there is slight negative weighting on 400 Day Weight in this selection index, it would be expected that growth to 400 days would increase as there is a large weighting on 600 Day Weight.

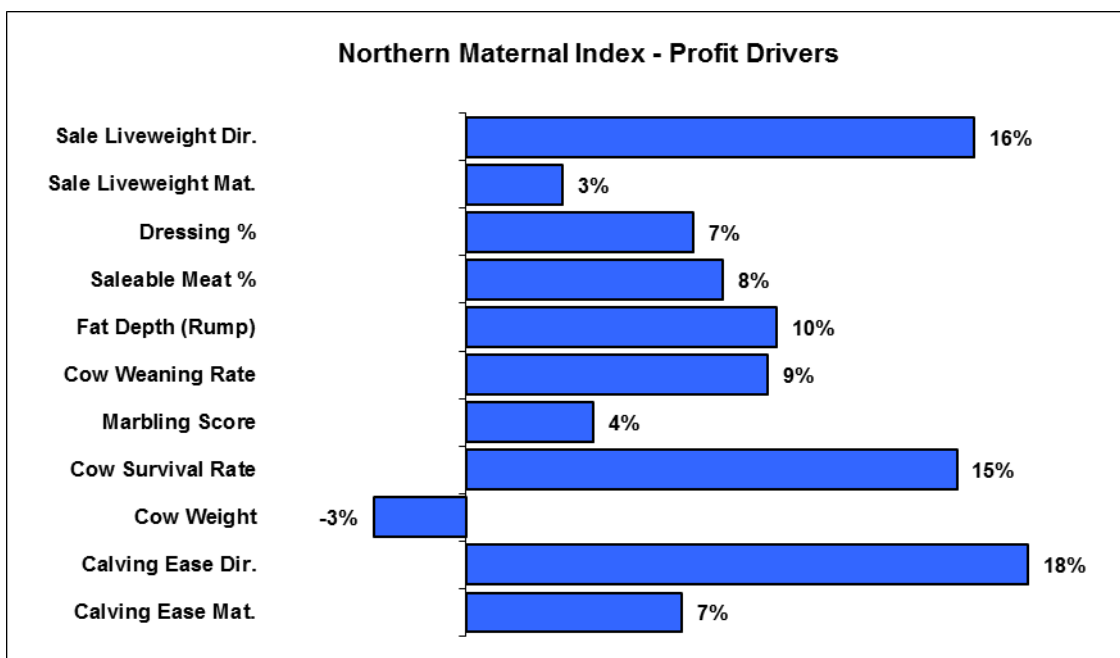
The following bar graph provides an indication of the relative change that would be expected in each individual trait if producers select animals using the Export Maternal Selection Index. The graph reflects the relative change if the Shorthorn Published Sires (at the Autumn 2012 Shorthorn GROUP BREEDPLAN analysis) were ranked on this selection index and the Top 10% selected for use within a breeding program. The response to selection may differ if a different group of animals were available for selection.



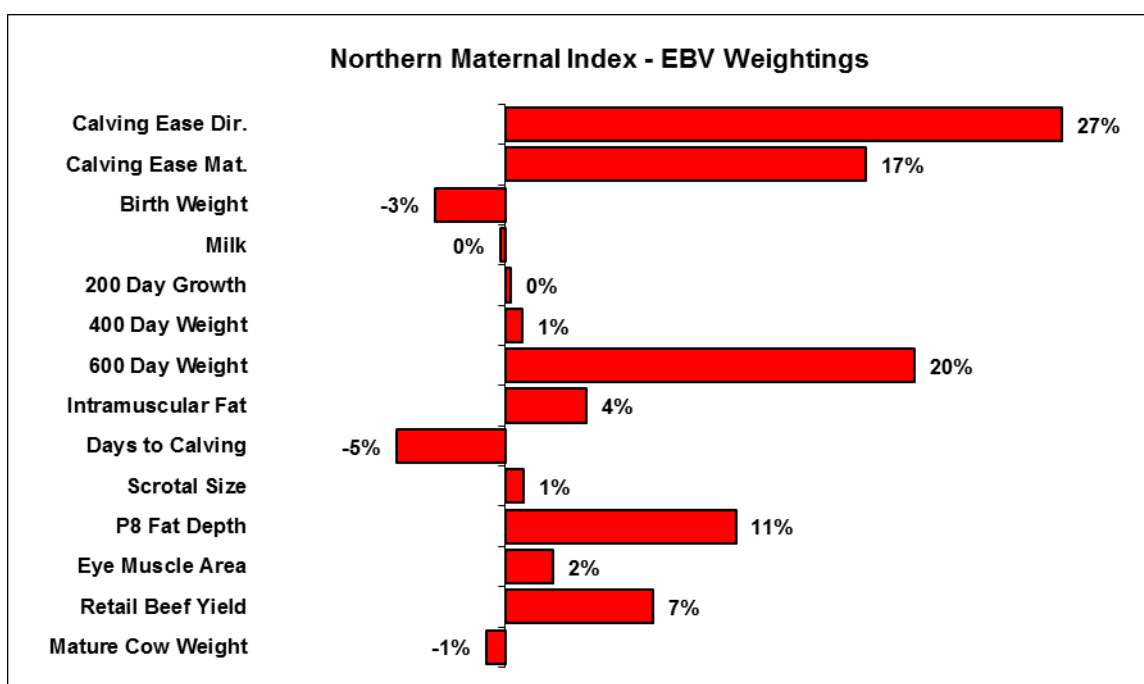
## ***Shorthorn Northern Maternal Index***

The Shorthorn Northern Maternal Index estimates the genetic differences between animals in net profitability per cow joined for an example commercial herd in Northern Australia (e.g. Brahman, Droughtmaster or Santa Gertrudis cows) targeting the export trade. Steers are finished on grass and marketed at 600 kg live weight (320 kg HSCW and 10 mm P8 fat depth) at 28 months of age. Daughters are retained for breeding.

The following bar graph shows the key economic traits that are important in this selection index. The different trait emphases reflect the underlying profit drivers in a commercial operation targeting this production system and market.



Considering the genetic relationship between the key profit drivers and the EBVs that are available, this transposes to the following EBV emphases. The sign indicates the direction of the emphasis.



While the graphs on the previous page show the different profit drivers and emphases that have been placed on each EBV within the Northern Maternal Selection Index, they do not illustrate the likely change that will occur to each individual trait if producers select animals using this selection index. The response to selection will also be influenced by such factors as the genetic relationship between traits and the animals that are available for selection. For example, while there is only slight weighting on 400 Day Weight in this selection index, it would be expected that growth to 400 days would increase as there is a large weighting on 600 Day Weight.

The following bar graph provides an indication of the relative change that would be expected in each individual trait if producers select animals using the Northern Maternal Selection Index. The graph reflects the relative change if the Shorthorn Published Sires (at the Autumn 2012 Shorthorn GROUP BREEDPLAN analysis) were ranked on this selection index and the Top 10% selected for use within a breeding program. The response to selection may differ if a different group of animals were available for selection.

