BREEDPLAN Tips

Australian Angus Selection Indexes

There are four standard selection indexes calculated for Australian Angus animals. These are:

- ❑ Angus Breeding Index (ABI)
- ❑ Domestic Index (DOM)
- ❑ Heavy Grain Index (GRN)
- ❑ Heavy Grass Index (GRS)

The Angus Breeding Index is a general purpose selection index that is suitable for use in the majority of commercial beef operations, whereas the Domestic, Heavy Grain and Heavy Grass selection indexes are specific to beef operations targeting a defined production system and market endpoint.

Angus Breeding Index - estimates the genetic differences between animals in net profitability per cow joined in a typical commercial self replacing herd using Angus bulls. This selection index is not specific to a particular production system or market end-point, but identifies animals that will improve overall profitability in the majority of commercial grass and grain finishing beef production systems. This selection index is particularly suited to commercial producers who sell progeny into different markets, or to seedstock producers supplying bulls to commercial clients who produce for a range of different production systems and market end points.

Domestic Index - estimates the genetic differences between animals in net profitability per cow joined in a commercial self replacing herd targeting the domestic supermarket trade. Steers are assumed to be finished using either grass, grass supplemented by grain or grain (e.g. 50 – 70 days) with steers slaughtered at 490 kg live weight (270 kg carcase weight with 12 mm P8 fat depth) at 16 months of age. Daughters are retained for breeding and therefore maternal traits are of importance. Emphasis has been placed on eating quality and tenderness to favour animals that are suited to MSA requirements.

Heavy Grain Index - estimates the genetic differences between animals in net profitability per cow joined in a commercial self replacing herd targeting pasture grown steers with a 200 day feedlot finishing period for the grain fed high quality, highly marbled markets. Steers are assumed to be slaughtered at 760 kg live weight (420 kg carcase weight with 30 mm P8 fat depth) at 24 months of age. Daughters are retained for breeding and therefore maternal traits are of importance. There is a significant premium for steers that exhibit superior marbling.

Heavy Grass Index - estimates the genetic differences between animals in net profitability per cow joined in a commercial self replacing herd targeting pasture finished steers. Steers are assumed to be slaughtered at 620 kg live weight (340 kg carcase weight with 12 mm P8 fat depth) at 22 months of age. Daughters are retained for breeding and therefore maternal traits are of importance. Emphasis has been placed on eating quality and tenderness to favour animals that are suited to MSA requirements.

All selection index values have been derived using BreedObject technology. More detailed information regarding each selection index is provided on the following pages.

If you have any further queries regarding Angus Selection Indexes, please do not hesitate to contact staff at Angus Australia.
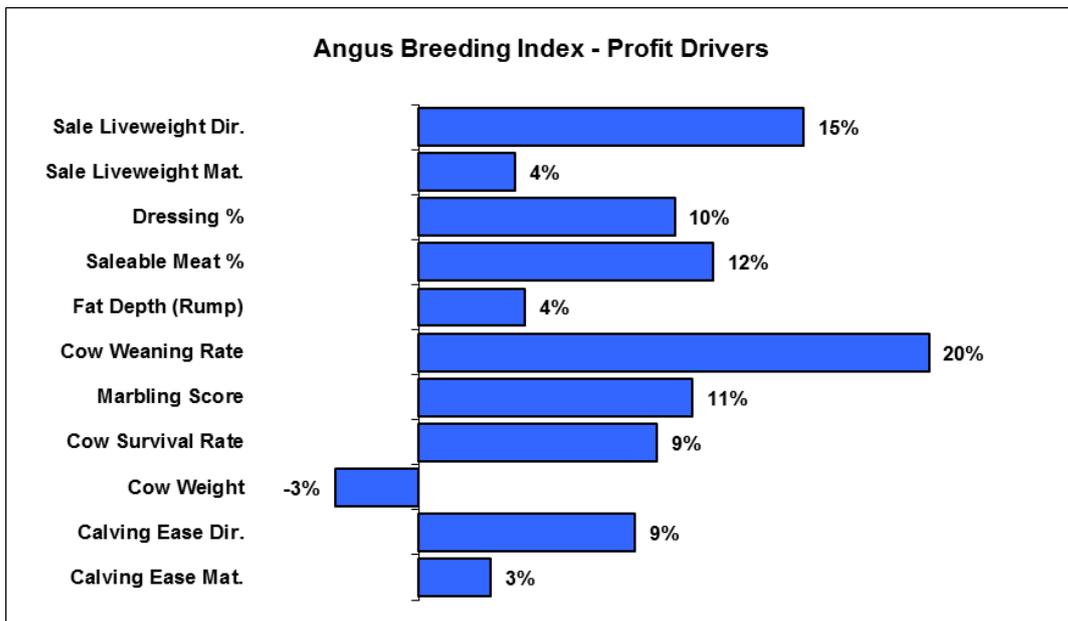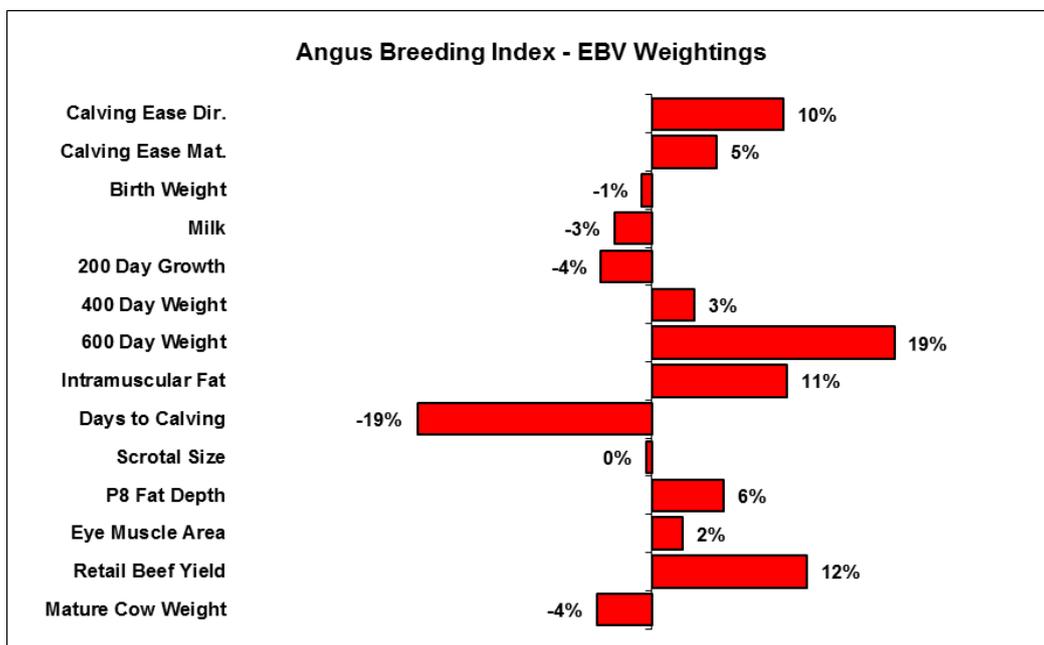
Angus Breeding Index

The Angus Breeding Index (ABI) estimates the genetic differences between animals in net profitability per cow joined in a typical commercial self replacing herd using Angus bulls. This selection index is not specific to a particular production system or market end-point, but identifies animals that will improve overall profitability in the majority of commercial grass and grain finishing beef production systems.

The Angus Breeding Index is particularly suited to commercial producers who sell progeny into different markets, or to seedstock producers supplying bulls to commercial clients who produce for a range of different production systems and market end points.

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 typical commercial operation self replacing herd using Angus bulls.

Angus Breeding Index - Profit Drivers

| Trait	Value
Sale Liveweight Dir.	15%
Sale Liveweight Mat.	4%
Dressing %	10%
Saleable Meat %	12%
Fat Depth (Rump)	4%
Cow Weaning Rate	20%
Marbling Score	11%
Cow Survival Rate	9%
Cow Weight	-3%
Calving Ease Dir.	9%
Calving Ease Mat.	3%

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. For example, greater 600 Day Weight EBVs and shorter Days to Calving EBVs are favoured.

Angus Breeding Index - EBV Weightings

Trait	Value
Calving Ease Dir.	10%
Calving Ease Mat.	5%
Birth Weight	-1%
Milk	-3%
200 Day Growth	-4%
400 Day Weight	3%
600 Day Weight	19%
Intramuscular Fat	11%
Days to Calving	-19%
Scrotal Size	0%
P8 Fat Depth	6%
Eye Muscle Area	2%
Retail Beef Yield	12%
Mature Cow Weight	-4%

December 2014

While the graphs on the previous page show the different profit drivers and emphases that have been placed on each EBV within the Angus Breeding 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 a negative weighting on 200 Day Growth in this selection index, it would be expected that growth to 200 days would increase as there is a large weighting on 600 Day Weight.
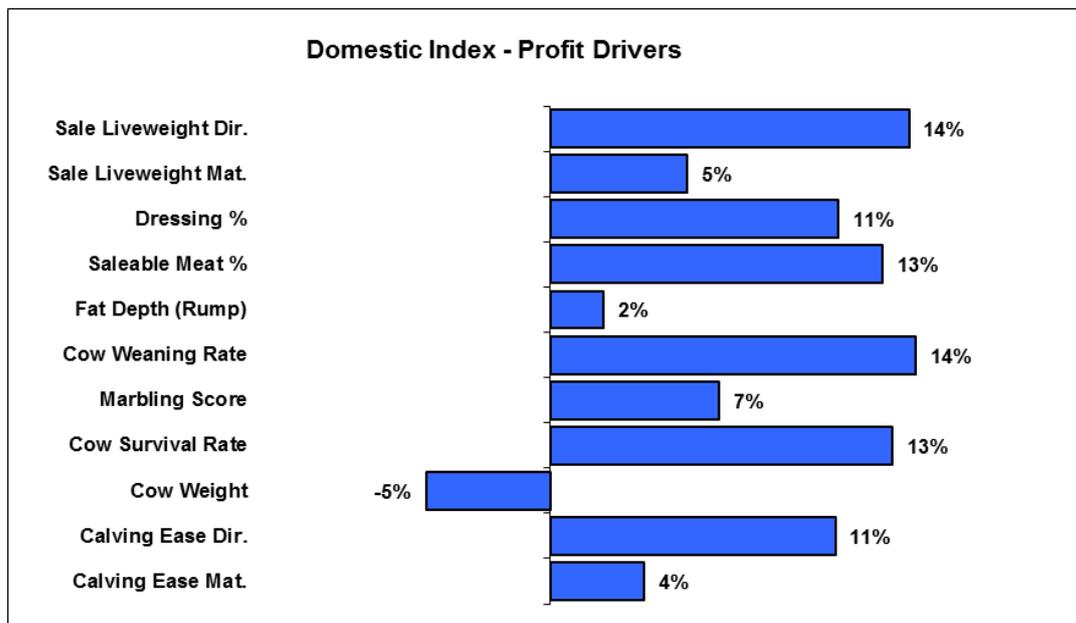
The following bar graph provides an indication of the relative change that would be expected in each individual trait if producers select animals using the Angus Breeding Index. The graph reflects the relative change if the Angus Published Sires (at the November 2014 Angus GROUP BREEDPLAN analysis) were 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.
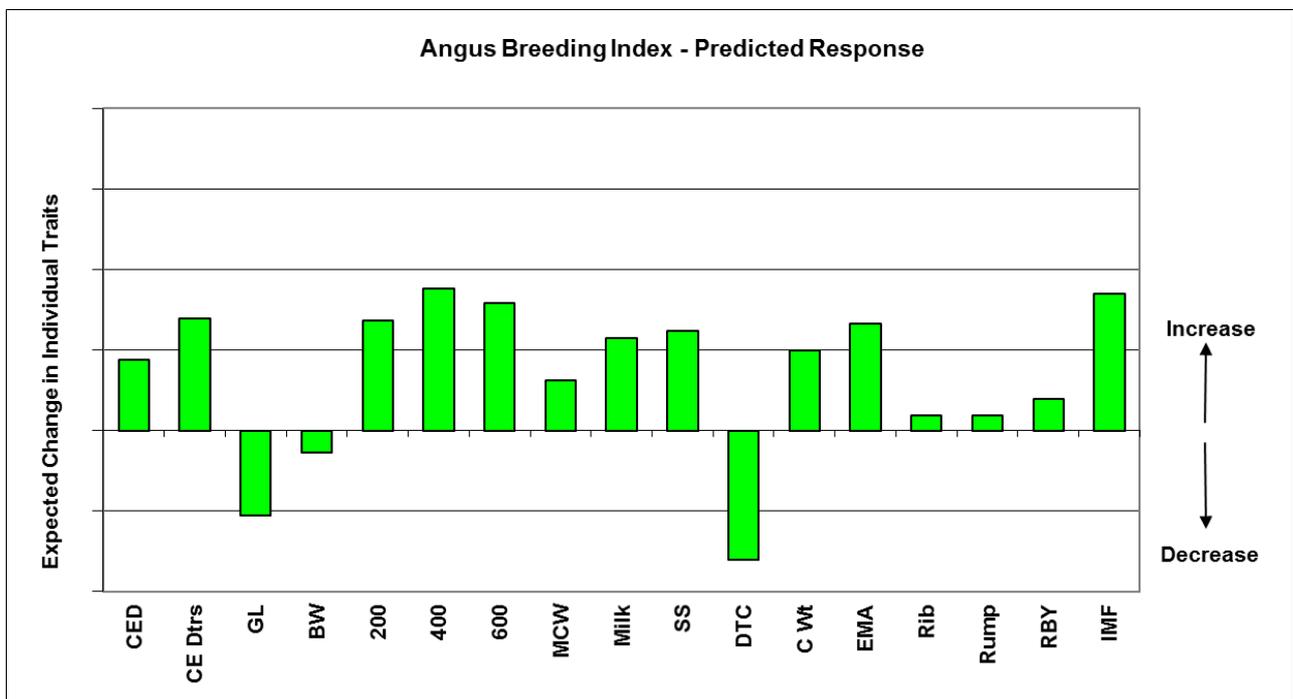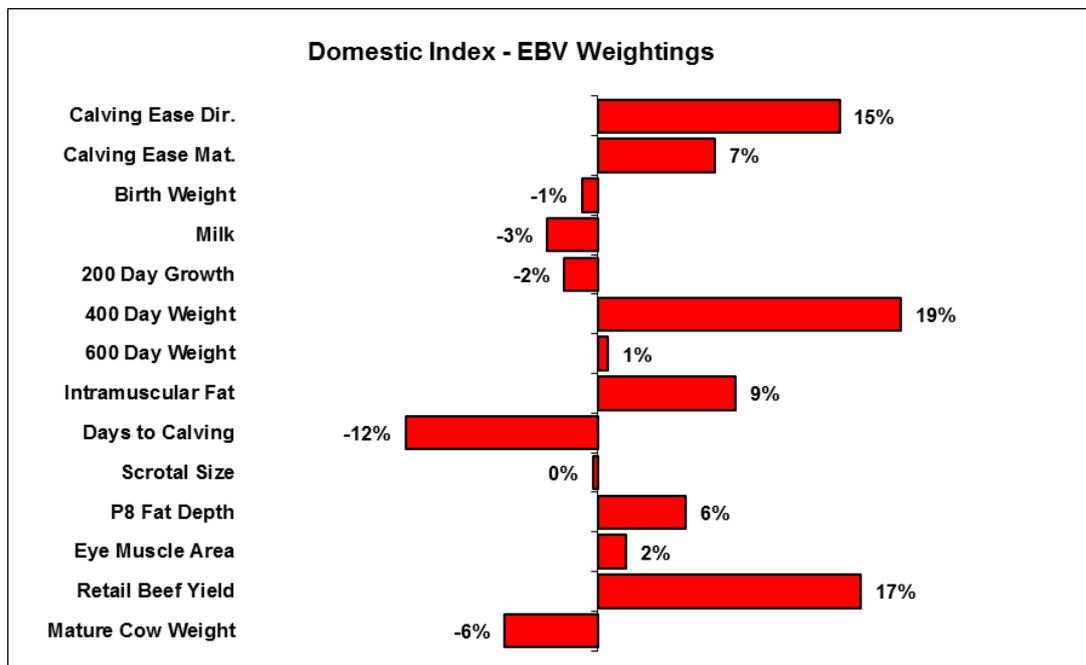
Angus Domestic Index

The Angus Domestic Index (DOM) estimates the genetic differences between animals in net profitability per cow joined in a commercial self replacing herd targeting the domestic supermarket trade. Steers are assumed to be finished using either grass, grass supplemented by grain or grain (eg. 50 – 70 days) with steers slaughtered at 490 kg live weight (270 kg carcase weight with 12 mm P8 fat depth) at 16 months of age. Daughters are retained for breeding and therefore maternal traits are of importance. Emphasis has been placed on eating quality and tenderness to favour animals that are suited to MSA requirements

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 typical commercial operation targeting this production system and market.

Domestic Index - Profit Drivers

| Trait	Value
Sale Liveweight Dir.	14%
Sale Liveweight Mat.	5%
Dressing %	11%
Saleable Meat %	13%
Fat Depth (Rump)	2%
Cow Weaning Rate	14%
Marbling Score	7%
Cow Survival Rate	13%
Cow Weight	-5%
Calving Ease Dir.	11%
Calving Ease Mat.	4%

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. For example, greater 400 Day Weight EBVs and shorter Days to Calving EBVs are favoured.

Domestic Index - EBV Weightings

Trait	Value
Calving Ease Dir.	15%
Calving Ease Mat.	7%
Birth Weight	-1%
Milk	-3%
200 Day Growth	-2%
400 Day Weight	19%
600 Day Weight	1%
Intramuscular Fat	9%
Days to Calving	-12%
Scrotal Size	0%
P8 Fat Depth	6%
Eye Muscle Area	2%
Retail Beef Yield	17%
Mature Cow Weight	-6%

December 2014

While the graphs on the previous page show the different profit drivers and emphases that have been placed on each EBV within the Domestic 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 a negative weighting on 200 Day Growth 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.
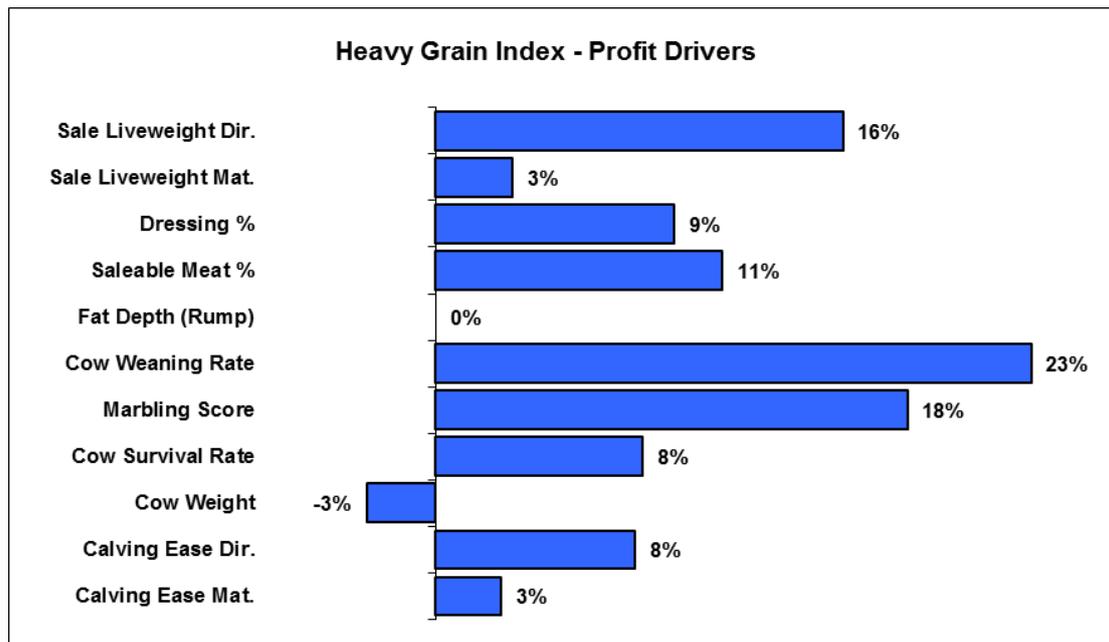
The following bar graph provides an indication of the relative change that would be expected in each individual trait if producers select animals using the Domestic Selection Index. The graph reflects the relative change if the Angus Published Sires (at the November 2014 Angus GROUP BREEDPLAN analysis) 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.
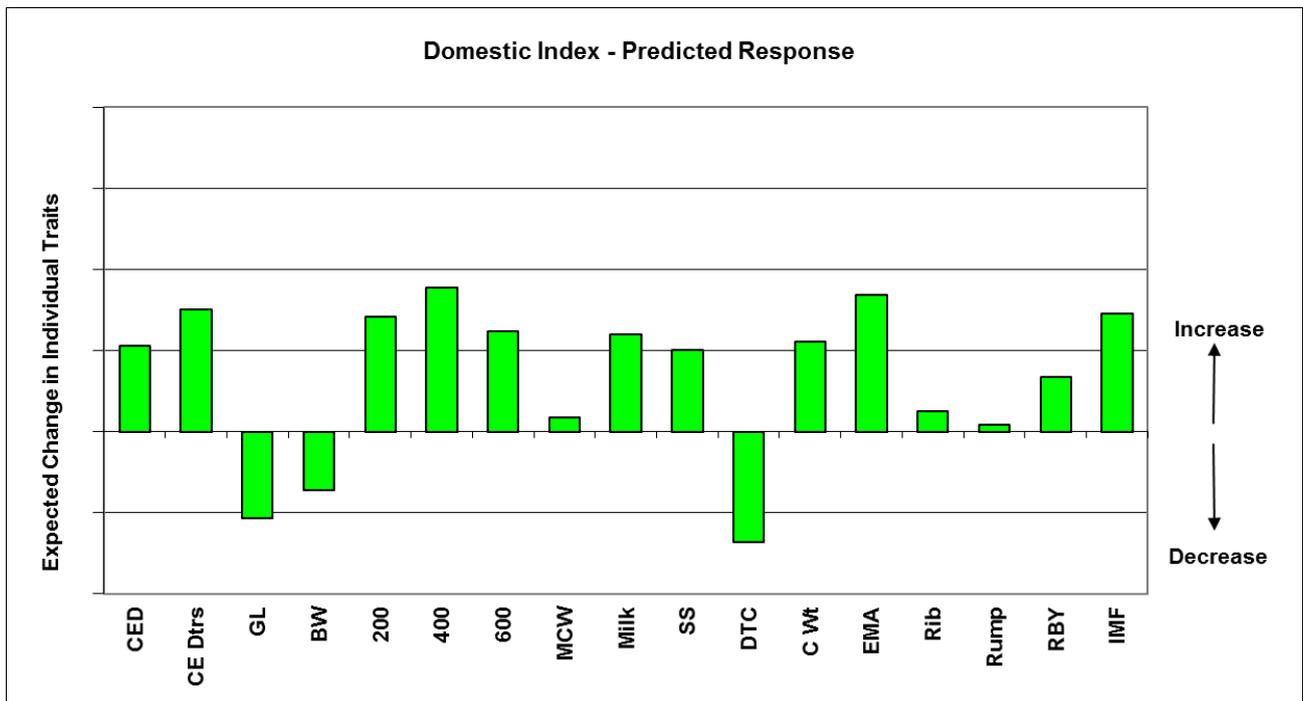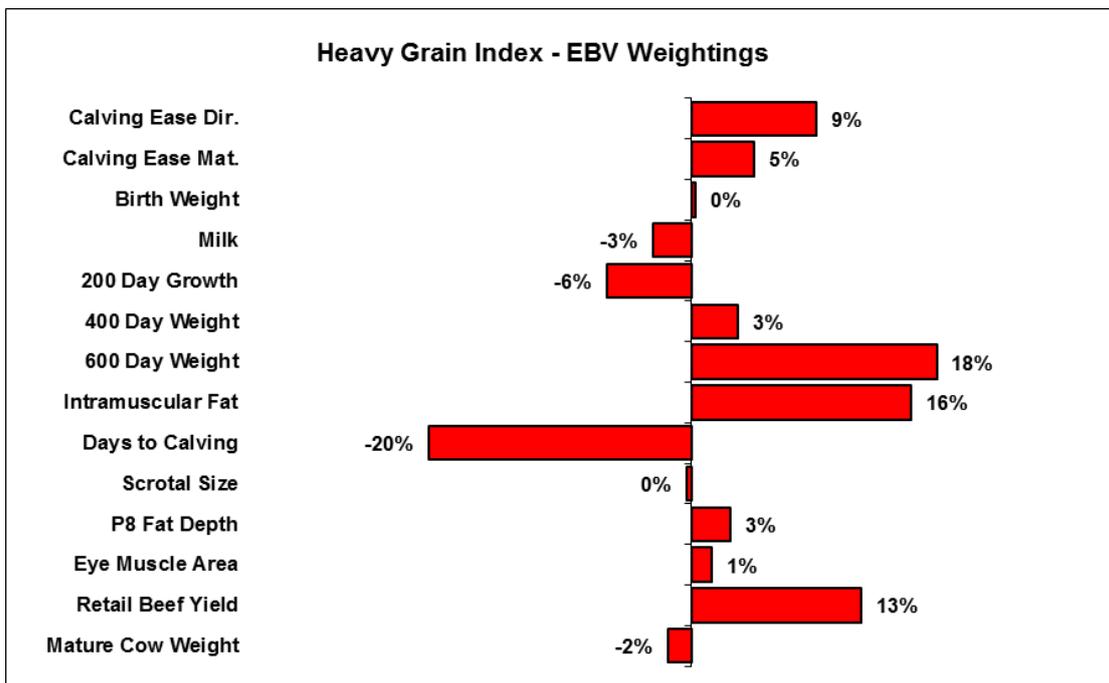
Angus Heavy Grain Index

The Angus Heavy Grain Index estimates the genetic differences between animals in net profitability per cow joined in a commercial self replacing herd targeting pasture grown steers with a 200 day feedlot finishing period for the grain fed high quality, highly marbled markets. Steers are assumed to be slaughtered at 760 kg live weight (420 kg carcase weight with 30 mm P8 fat depth) at 24 months of age. Daughters are retained for breeding and therefore maternal traits are of importance. There is a significant premium for steers that exhibit superior marbling.

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 typical commercial operation targeting this production system and market.

Heavy Grain Index - Profit Drivers

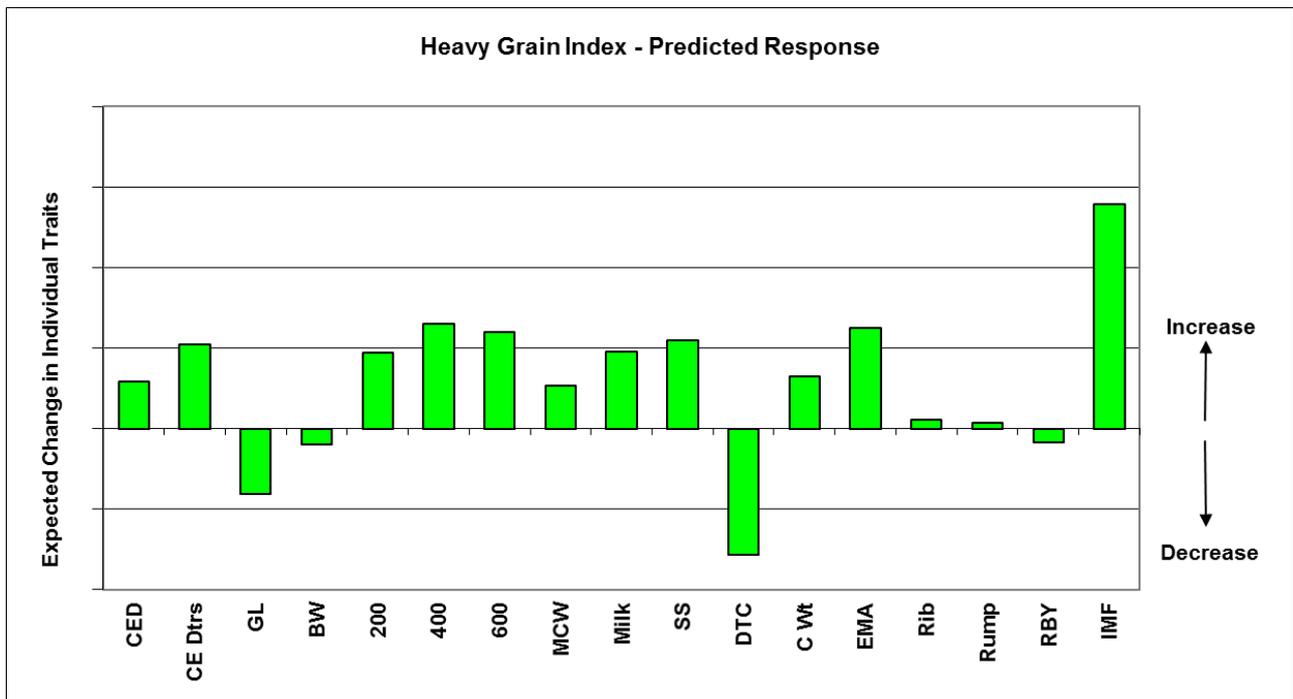| Trait	Value
Sale Liveweight Dir.	16%
Sale Liveweight Mat.	3%
Dressing %	9%
Saleable Meat %	11%
Fat Depth (Rump)	0%
Cow Weaning Rate	23%
Marbling Score	18%
Cow Survival Rate	8%
Cow Weight	-3%
Calving Ease Dir.	8%
Calving Ease Mat.	3%

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. For example, greater 600 Day Weight EBVs and shorter Days to Calving EBVs are favoured.

Heavy Grain Index - EBV Weightings

Trait	Value
Calving Ease Dir.	9%
Calving Ease Mat.	5%
Birth Weight	0%
Milk	-3%
200 Day Growth	-6%
400 Day Weight	3%
600 Day Weight	18%
Intramuscular Fat	16%
Days to Calving	-20%
Scrotal Size	0%
P8 Fat Depth	3%
Eye Muscle Area	1%
Retail Beef Yield	13%
Mature Cow Weight	-2%

December 2014

While the graphs on the previous page show the different profit drivers and emphases that have been placed on each EBV within the Heavy Grain 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 a slight negative weighting on 200 Day Growth in this selection index, it would be expected that growth to 200 days would increase quite significantly as there is a large weighting on 600 Day Weight.
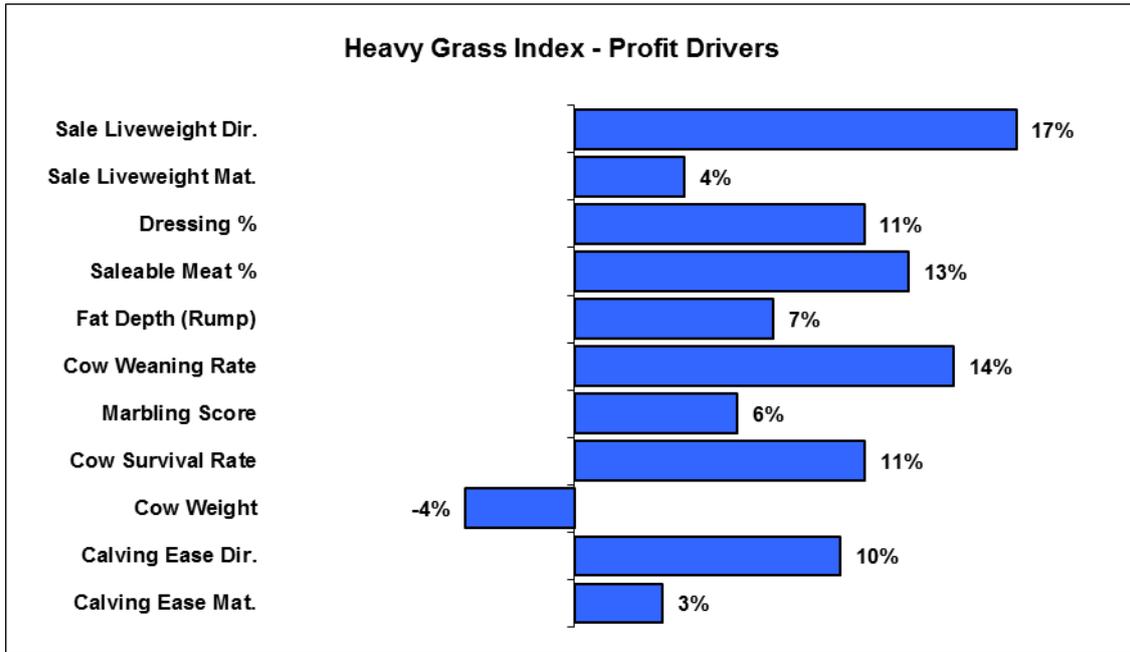
The following bar graph provides an indication of the relative change that would be expected in each individual trait if producers select animals using the Heavy Grain Selection Index. The graph reflects the relative change if the Angus Published Sires (at the November 2014 Angus GROUP BREEDPLAN analysis) 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.
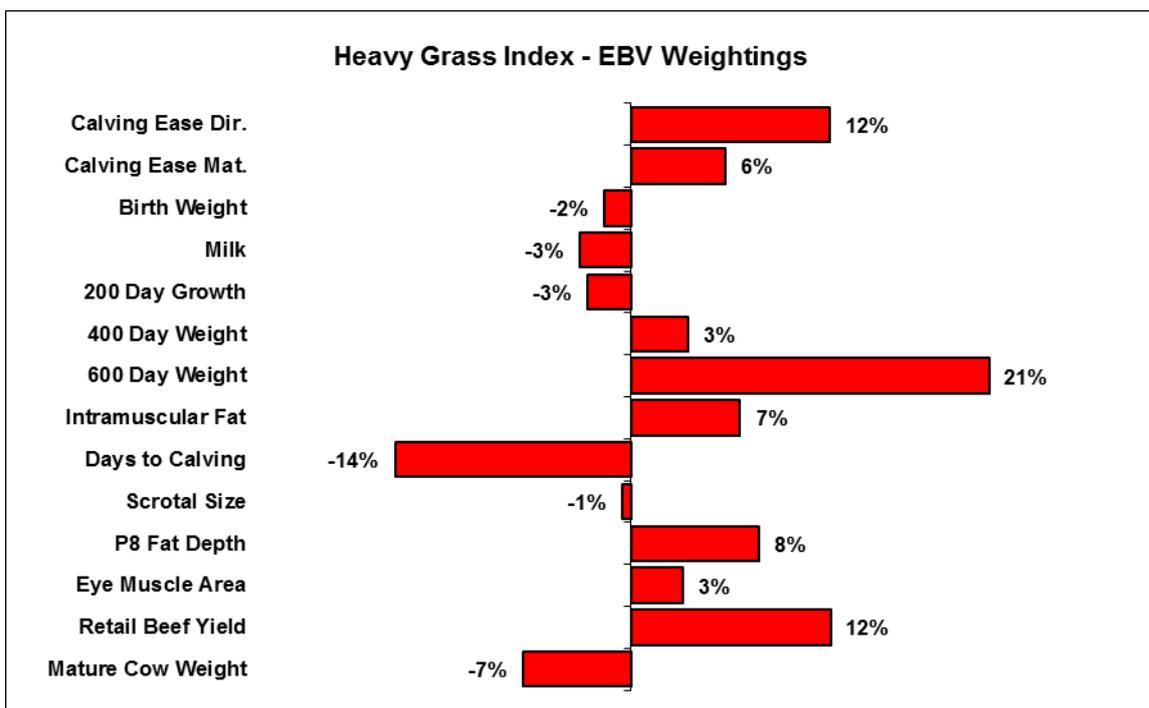
Angus Heavy Grass Index

The Angus Heavy Grass Index estimates the genetic differences between animals in net profitability per cow joined in a commercial self replacing herd targeting pasture finished steers. Steers are assumed to be slaughtered at 620 kg live weight (340 kg carcase weight with 12 mm P8 fat depth) at 22 months of age. Daughters are retained for breeding and therefore maternal traits are of importance. Emphasis has been placed on eating quality and tenderness to favour animals that are suited to MSA requirements.

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 typical commercial operation targeting this production system and market.

Heavy Grass Index - Profit Drivers

Trait	Value
Sale Liveweight Dir.	17%
Sale Liveweight Mat.	4%
Dressing %	11%
Saleable Meat %	13%
Fat Depth (Rump)	7%
Cow Weaning Rate	14%
Marbling Score	6%
Cow Survival Rate	11%
Cow Weight	-4%
Calving Ease Dir.	10%
Calving Ease Mat.	3%

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. For example, greater 600 Day Weight EBVs and shorter Days to Calving EBVs are favoured.

Heavy Grass Index - EBV Weightings

Trait	Value
Calving Ease Dir.	12%
Calving Ease Mat.	6%
Birth Weight	-2%
Milk	-3%
200 Day Growth	-3%
400 Day Weight	3%
600 Day Weight	21%
Intramuscular Fat	7%
Days to Calving	-14%
Scrotal Size	-1%
P8 Fat Depth	8%
Eye Muscle Area	3%
Retail Beef Yield	12%
Mature Cow Weight	-7%

December 2014

While the graphs on the previous page show the different profit drivers and emphases that have been placed on each EBV within the Heavy Grass 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 a slight negative weighting on 200 Day Growth in this selection index, it would be expected that growth to 200 days would increase quite significantly 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 Heavy Grass Selection Index. The graph reflects the relative change if the Angus Published Sires (at the November 2014 Angus 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.