



Better Breedplan EBV's

How To Record CARCASS TRAITS

A technical bulletin prepared by Bob Freer for members of Shorthorn Beef

Carcass trait performance is the final judgment of the commercial relevance of your cattle. For the commercial breeder, it is the criteria which drives value-based marketing, and for the seedstock breeder it is the criteria that will increasingly determine your future bull sales.

Carcass traits are of medium heritability – this means that you can significantly alter trait performance by accurate selection. EBVs are available for 6 key carcass traits.

EBVs for carcass traits can be calculated using ultra-sound scan data measured on live animals or measurement from carcasses.

Whilst the Durham Project contributes extremely accurate direct (actual) carcass data to underpin the breed database, scans provide indirect assessment of carcass characteristics for a much greater number of animals than would be possible by carcass measurements from progeny testing programs.

Research shows a good correlation between the ranking of animals for scanning and abattoir carcass measurements.

Ultrasound scans are made on live animals to measure fat depth, (at the 12/13th rib site and the P8 rump site), eye muscle area (EMA) and intramuscular fat % (IMF).

Guidelines for Scanning.

- 1 – Scan data can only be processed for animals that are already recorded in Breedplan, that is, with a birth date and a sire and dam recorded.
- 2 – Record the animal's liveweight on the same day as scan measurements are taken.
- 3 – Use only Breedplan accredited scanners (listed on the Breedplan website <http://breedplan.une.edu.au/> - education & technical). The scan data must have a Breedplan scanner number to be accepted by ABRI..
- 4 – Animals must be between 300 and 800 days of age when scanned
- 5 - Animals in a contemporary group should average at least 5mm external fat at the 12/13th rib site at the time of scanning. If animals are too lean, the scans may not reflect the potential variation between animals. Better to time scanning when animals are carrying the most condition rather than to a set date.
- 6 – Do not selectively scan animals (eg only sale bulls) as you will get biased EBVs. Scan heifer progeny as well as male progeny - they are generally fatter than bulls and reflect a greater fatness variation between animals. Also, they equally contribute pedigree carcass information about sires and dams.
- 7 – Make sure you sub-group animals whose measurements may be biased because of differences in nutrition, management or health factors.

Completing the Scanning Input Form.

The following information is required for each animal;

- date measurement is made
- group code, if some animals have been treated differently prior to being scanned
- name and accreditation number of scanner
- liveweight of animal (optional but highly recommended)
- Fat Depth at 12/13th rib and P8 site (in mm)
- Eye Muscle Area (sq cm)
- predicted Intramuscular Fat % (the scanner is required to take at least 3 measures)
- scrotal circumference of animal (optional but highly recommended)

Interpreting Carcase Trait EBVs.

When selecting animals for carcase attributes, the key EBVs are Carcase Weight and Retail Beef Yield (RBY%), with Intramuscular Fat (IMF%) important where there is a premium for marbled carcasses.

Fat and EMA EBV's should be monitored but their main use is in calculating RBY%.

Rib & Rump Fat EBVs – are expressed in millimeters at the 12/13th rib and P8 rump sites. Like all EBVs, they can be positive or negative. . Fat measurements are adjusted to a standard 300kg carcase.

Stock with positive EBVs are predicted to produce progeny fatter, or earlier maturing, than stock with negative EBVs, which will be leaner at the same weight. Increased fat depth leads to a decrease in retail beef yield, however most markets specify a minimum fat depth requirement and breeders should be aware of these specifications.

Caution should be placed on selecting very low fat EBVs for replacement females as excessive leanness may interfere with the females getting in calf during tough years.

Eye Muscle Area (EMA) EBV's – are reported in square centimeters, again with a positive and negative range. EMA EBVs are estimates of the genetic difference among animals in EMA at the 12/13th rib site in a 300kg carcase. EMA EBVs reflect the muscularity of an animal and have a positive relationship with Retail Beef Yield %. Larger, more positive EMA EBVs are generally more favourable.

Intramuscular Fat Percentage (IMF%) EBV's – are expressed as a percentage of IMF and are estimates of the genetic differences among animals for intramuscular fat or **marbling**. For markets where marbling is important (eg Japanese B2/B3 market and Domestic Restaurant trade etc) higher IMF EBVs can contribute significantly to carcase value.

Retail Beef Yield % (RBY) EBV- is an estimate of genetic differences among animals in percentage beef yield in a 300kg carcase @ 2-3mm fat trim, adjusted to 85% chemical lean. RBY% is influenced by EMA and Fat depth. RBY % has a small negative correlation with weight, therefore selection for RBY while ignoring growth selection may result in smaller cattle and lower total meat yield. There is however ample scope to select concurrently for growth and retail yield.

Carcase Weight (CWt) EBV's– expressed in kgs. CWt EBV's are an estimate of the genetic differences in carcase weight adjusted to 650 days of age. Larger, more positive CWt EBVs are generally more favourable.