

Recording Scanning Information

BREEDPLAN currently calculates EBVs for carcass traits based on two main sources of information – live animal ultrasound scanning & abattoir carcass data. Of these two sources, stud breeders are most likely to collect live animal ultrasound scanning information. The abattoir carcass data is generally only of value to the BREEDPLAN analysis if it is collected through structured research or progeny test trials.

1. Why should Scanning Information be recorded?

During the 1990's, the beef industry experienced a shift in emphasis from selection purely on growth and adaptation to concentrate more on the genetics of carcass and beef quality. Selection for increased carcass yield and carcass value has become an increasingly important objective for breeders of cattle. Carcass EBVs provide the best tools currently available to evaluate and select animals that will produce progeny with improved carcass quality attributes.

2. What is Live Animal Ultrasound Scanning?

Live animal ultrasound scanning is a non-invasive technology that allows the seedstock or commercial beef producer to assess the carcass merit of an individual animal whilst still alive as opposed to the collection of carcass data in the chiller. The carcass attributes most commonly measured by ultrasound scanning include:

□ Rump Fat Depth

Rump Fat Depth is measured at the P8 rump site. The P8 rump site is located at the intersection of the line from the high bone (third sacral vertebrae) with a line from the inside of the pin bone. Rump Fat Depth will be reported to the nearest mm (eg 10 mm).

□ Rib Fat Depth

Rib Fat Depth is measured at the 12/13th rib site. The 12/13th rib site is located on the longissimus dorsi muscle (eye muscle) between the 12th & 13th rib. Rib Fat Depth will also be reported to the nearest mm (eg 7 mm).

□ Eye Muscle Area

Eye Muscle Area is measured as the cross sectional area of the longissimus dorsi muscle between the 12th & 13th rib. EMA is reported to the nearest cm² (eg.110 cm²). Eye Muscle Area is also referred to as Rib Eye Area.

□ Intramuscular Fat (IMF)

The carcass benchmark for intra-muscular fat is the chemical extraction of all fat from a meat sample taken as a slice off the longissimus dorsi between the 12th & 13th ribs. Ultrasound scanning for IMF uses a longitudinal image of the longissimus dorsi muscle between the 12th & 13th ribs. IMF is reported as a percentage (eg 3.5%)

3. Who do I get to scan my animals?

BREEDPLAN can only accept scan information that has been recorded by an accredited scanner. A list of accredited scanners can be accessed from the “Accredited Technicians” page within the Technical area of the BREEDPLAN website (<http://breedplan.une.edu.au>) or by contacting staff at BREEDPLAN.

4. What animals do I scan?

BREEDPLAN can analyse the scanning performance from animals that are between 300 – 800 days of age when measured. Subsequently, it is important to scan your animals when they are within this age range. The majority of animals are scanned as rising 2 year olds (ie. around 600 days of age).

While bulls are most commonly scanned, it is recommended that breeders also scan their heifers and steers if possible. Heifers provide valuable data for marbling as they mature earlier than do the males. Scanning steers will provide useful information for their sires and dams.

It is important to try and scan as many of your animals within each management group as possible. Submission of scan data for only a selection of your calves (eg. only submitting the scanning performance of your sale bulls rather than the entire bull drop) may result in data biases and the subsequent calculation of carcass EBVs that do not reflect the true genetic merit of your animals.

5. When do I scan my animals?

Condition of stock should be the most important consideration when making a decision about when to scan your animals. To obtain effective results from scanning, it is recommended to scan your animals when they are in as good a condition as possible. This ensures that there will be sufficient variation between animals to allow genetic differences to show up.

For example, if all animals were in very poor condition it would be expected that they would all have very similar rib & rump fat depths (ie. 1-2 mm) and negligible marbling. In this scenario, scanning would be of little benefit as a means of identifying animals that are genetically different for fat depth & genetically superior for IMF%. Effective results may still be achieved for EMA as sufficient variation is likely to exist between animals irrespective of condition.

As a rough guide, if you are particularly interested in fat depth and IMF, animals require a minimum average rump fat depth of 4–5 mm (or a minimum average rib fat measurement of 3 mm) for it to be worthwhile scanning. Results for IMF will be further optimised if the majority of animals have between approximately 2 – 8% IMF when scanned. The effectiveness of the current scanning machines decreases when measuring IMF levels outside this range.

It is important to note the above recommendations are only a rough guide. For example, if animals have been in poor condition and have put on the required 4 - 5 mm

of fat in a relatively short period, then there may still not be sufficient variation between animals to allow genetic differences to show up, particularly for IMF.

Other factors that may also influence the time of scanning (but should not be a major determinant) include:

- ❑ The availability of scanners
- ❑ The cut off date for submission of data for inclusion in GROUP BREEDPLAN analyses. Although carcass trait EBVs can be recalculated in an Interim analysis, it is preferable to submit data so it is included in the GROUP analysis. This will enable the updating of EBVs and accuracy values for the sires and dams.

If you are in any doubt as to when to scan your animals, please discuss your situation with an accredited scanner or contact staff at BREEDPLAN.

6. How do I submit my scanning information to BREEDPLAN?

Submission of scanning information to BREEDPLAN is the breeder's responsibility. The main method of submitting scanning information is by completing the BREEDPLAN "scanning forms". These forms are similar to the normal "performance recording forms" that you will be familiar with and can be requested by contacting staff at BREEDPLAN. Alternatively, the recording sheet completed by the scanner at the time of scanning can be submitted to BREEDPLAN, however it must be presented in an acceptable format. The full Breed Society/Association ident of each animal must be provided (not just tattoo) and sheets must be submitted in a clear and clean manner. It is also critical to ensure that management group information is included on the scanning sheets. Data submitted in the incorrect format will be returned to the breeder for re-submission.

Alternatively, scanning information can be submitted electronically via either:

- ❑ a BREEDPLAN compatible herd recording computer program
- ❑ the performance submission facility offered on some Breed Society/Association websites
- ❑ the BREEDPLAN compatible Microsoft Excel template

7. Will I obtain carcass EBVs after scanning my animals?

Similar criteria apply to the reporting of carcass EBVs as to the reporting of weight EBVs. In general, Interim carcass EBVs will be available for an animal following the submission of scanning information (providing either the animal or both of its parents were included in the last GROUP analysis). An exception to this would be herds with a short scanning history where carcass EBVs may not be available until the next GROUP analysis due to low accuracy of the EBVs. If you are in any doubt as to whether an animal will receive carcass EBVs, please do not hesitate to contact BREEDPLAN staff.

8. Can I submit more than one scan on each animal?

BREEDPLAN is currently analysing only one EMA, one rib fat, one rump fat & one IMF measurement on each animal. While these measurements are typically measured on the same day, BREEDPLAN can analyse the scanning performance for an animal when the individual traits have been recorded at different times.

For more information regarding how to record scanning information, or Carcase EBVs in general, please contact staff at BREEDPLAN.