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## **Recording Gestation Length Information**

Gestation Length EBVs provide an estimate of genetic differences between the period from the date of conception (ie. when the cow gets in calf) to when the subsequent calf is born. This pamphlet outlines the main points to consider when recording information for the calculation of Gestation Length EBVs.

### **1. Why should Gestation Length be recorded?**

Shorter gestation length is generally associated with lighter birth weight, improved calving ease and improved re-breeding performance among dams. In addition, calves born with a shorter gestation length may be heavier at weaning due to more days of growth.

### **2. How do I record Gestation Length Information?**

Gestation Length EBVs are calculated from both the joining date and date of birth records for calves conceived by either AI or Hand Mating.

Consequently, the information that needs to be recorded for the calculation of Gestation Length EBVs includes:

- ❑ the date of birth details for each calf
- ❑ the joining (or AI) date of any AI or Hand Mating joinings.

Importantly, you do not need to calculate the exact gestation length for each calf. BREEDPLAN will calculate that from the information specified above.

### **3. What considerations should be made when recording Gestation Length Information?**

- ❑ No information from natural matings is used in the calculation of Gestation Length EBVs. Although some natural matings may be observed, they are not currently used in the calculation of gestation length as there is no guarantee that the observed mating is the one that successfully results in the conception of the calf.
- ❑ Gestation length information is currently excluded from the BREEDPLAN analysis if (a) the calf is an embryo transfer calf, (b) the calf is a twin, (c) only one animal is represented in a contemporary group, or (d) more than 2/3 of animals in a contemporary group have the same gestation length.

### **4. How do I submit Gestation Length Information?**

Gestation length information can be submitted to your Breed Society/Association when submitting your calf registration details. Please contact your Breed Society/Association should you have any queries about how to submit this information.

*For more information regarding how to record gestation length, please contact staff at BREEDPLAN.*

## Recording Calving Difficulty Scores

Calving Ease EBVs provide an estimate of genetic differences in the ability of calves to be born unassisted from 2 year old heifers and are calculated from three main sources of information - calving difficulty scores, birth weights and gestation length records. By far the most important of these sources are calving difficulty scores.

### 1. Why should Calving Difficulty Scores be recorded?

Calving difficulty has an obvious negative impact on the profitability of a herd through increased calf and heifer mortality, slower re-breeding performance and considerable additional labour and veterinary expense.

Whilst many large studies have consistently shown birth weight to be the most important genetic factor influencing calving difficulty, there are also other aspects that need to be considered. For example, calf shape, pelvic area and calving “will”. Recording calving difficulty scores allows for all these contributing factors to be evaluated and subsequently, the best possible genetic improvement made for ease of calving.

### 2. How do I record Calving Difficulty Scores?

Calving difficulty should be measured at birth by visually scoring females on the following scale of 1 - 5.

Score	Code	Description
1	Unassisted	Cow calved unassisted / No difficulty
2	Easy Pull	One person without mechanical assistance
3	Hard Pull	Two people without mechanical assistance One person with mechanical assistance
4	Surgical Assistance	Veterinary intervention required
5	Mal-presentation	Eg. Breech

\* Note that a blank score will not be interpreted as “unassisted”. Instead, it indicates that calving difficulty was not scored

### 3. What considerations should be made when recording Calving Difficulty Scores?

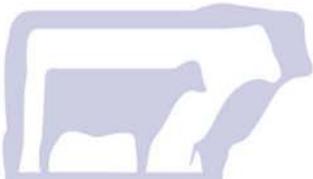
- ❑ If you regularly check your cows (e.g. on a daily basis), it is reasonable to assume that a cow who calves without assistance between visits can be considered as unassisted (no difficulty) even though you did not see her calve.

- ❑ Record a score for all calves rather than just difficult or easy births. Scores should be recorded for dead calves, if possible.
- ❑ If calving difficulty score is either blank or [0], it is interpreted as no score recorded rather than "no difficulty".
- ❑ There needs to be some level of calving difficulty in the herd for the scores to be used effectively by the BREEDPLAN analysis. That is, simply scoring all births in a herd with a calving difficulty score of [1] will not identify any genetic differences in ease of calving.
- ❑ As with birth weight and gestation length, a birth weight management group should be recorded if there are different treatments of the females prior to calving that may affect calving difficulty. For example, where one group of cows have had different feed availability.
- ❑ When calculating the Calving Ease EBVs, calving difficulty scores of [3] and [4] are grouped together. Calving difficulty score [5] is excluded from the BREEDPLAN analysis as the problems are considered non-genetic in origin.

#### **4. How do I submit Calving Difficulty Scores?**

Calving difficulty scores should be submitted to your Breed Society/Association when submitting your calf registration details. Please contact your Breed Society/Association should you have any queries about how to submit this information.

*For more information regarding how to record calving difficulty scores, or calving ease EBVs in general, please contact staff at BREEDPLAN.*



## **Recording Birth Weights**

Birth Weight EBVs are estimates of genetic differences between animals in calf birth weight. Birth Weight EBVs are expressed in kilograms (kgs) and are calculated from the weights of calves taken at birth.

### **1. Why should Birth Weights be recorded?**

Calving difficulty has an obvious negative impact on the profitability of a herd through increased calf and heifer mortality, slower re-breeding performance and considerable additional labour and veterinary expense.

Many large studies have shown that the level of calving difficulty in a herd is influenced by many environmental factors and several genetic factors. These genetic factors include such things as calf weight, calf shape, pelvic size and calving “will”. Of these, calf weight is by far the most important factor.

### **2. How do I record Birth Weights?**

Many different methods are currently used to record calf birth weight. These range from using bathroom scales through to the use of commercially available calf weighing cradles that can be attached to the tray of a utility or the front of a four wheel motorbike. A few examples of birth weighing devices are provided below.



For further advice about how to record birth weight, please contact staff at BREEDPLAN.

### 3. What considerations should be made when recording Birth Weights?

- ❑ Birth weight should be recorded for the whole calf crop. Without comparisons to the other calves, "occasional" measurements are of no value and can actually be misleading. Recording birth weight for dead calves is particularly important.
- ❑ There are significant fluctuations in the weight of a calf over its first week of life. Therefore, it is important to weigh calves as close to birth as possible. Ideally, measure birth weight within 24 hours of birth.
- ❑ Do not guess birth weight or use girth/chest size to estimate birth weight. Either weigh the calves or don't record birth weight.
- ❑ A birth management group should be recorded if there are different treatments of the females prior to calving that may affect birth weight. For example, where one group of cows have had different feed availability. A separate birth management group should also be assigned if the weight of the calf has been affected by special circumstances (eg. premature calves, the dam was sick etc.)
- ❑ Some breeders have reportedly been injured by protective cows while weighing calves. It is important to take due care when collecting this information.

### 4. How do I submit Birth Weights?

Birth weight information can either be submitted to your Breed Society/Association when submitting your calf registration details or directly to the BREEDPLAN office. Please contact either your Breed Society/Association or BREEDPLAN should you have any queries about how to submit this information.

*For more information regarding how to record birth weight information, or Birth Weight EBVs in general, please contact staff at BREEDPLAN.*



## **Recording Weight Information**

BREEDPLAN currently calculates three growth EBVs – 200 Day Growth, 400 Day Weight & 600 Day Weight. These EBVs are the best prediction of the animal's ability to grow to weaning (200-day), yearling (400 day) and later ages (600 day). The Growth EBVs are expressed in kilograms (kg) and are calculated from the live weight performance of animals when they are between 80 and 900 days of age.

### **1. Why should weight information be recorded?**

Within the Australian commercial beef industry, the major determinant of the price received for an animal is live weight. Consequently, in most economic analyses, positive emphasis on increasing live weight is warranted, with higher live weights leading to higher profitability.

### **2. What weight information do I record?**

The Growth EBVs are calculated from the live weight performance of animals when they are between 80 and 900 days of age.

Within this age range, BREEDPLAN will use the age of the animal at weighing to determine whether the particular weight is used in the calculation of the 200 Day Growth, 400 Day Weight or 600 Day Weight EBV.

Trait	Age Range
200 Day Growth	80 – 300 days
400 Day Weight	301 – 500 days
600 Day Weight	501 – 900 days

The live weights of animals need to be recorded to generate Growth EBVs. Ideally, 2 – 3 weights should be recorded for each animal.

### **3. What considerations should be made when recording weight information?**

- ❑ Weights should be recorded to the nearest kilogram.
- ❑ Weights should be recorded using appropriate (and accurate) scales. Do not guess/estimate weight or use measuring tapes to calculate weight. Either weigh the calves using appropriate scales or don't record weights.
- ❑ Breeders should choose weighing dates that fit in with their management and are also reasonably close to when the average age of the group of calves is approximately 200, 400 or 600 days old (depending on the respective weight being taken). BREEDPLAN provides suggested weigh dates to assist you when making this decision.



- ❑ Do not submit weights for heifers that are more than 3 to 4 months pregnant at weighing, unless they are at a similar stage of pregnancy and have been pregnancy tested.
- ❑ BREEDPLAN can analyse up to two weights in each age range (ie. 2 x 200 day weights, 2 x 400 day weights & 2 x 600 day weights). Generally speaking, it is only necessary to record one weight in each age range, however in some circumstances, recording more than one weight in each age range will improve the accuracy of the Growth EBVs.
- ❑ A management group should be entered for any calf or group of calves that have either been treated differently or exposed to significant non-genetic influences since the previous weighing. For example, calves given a supplement should be recorded in a different group to those without a supplement. Consideration should also be given to variations in pasture quality, stocking rates, water quality, etc. Note that blank is a unique management group.
- ❑ To ensure the maximum number of calves are analysed in the same management group, you should try to weigh all the animals from one management group on the same day. BREEDPLAN will automatically split your management groups if you weigh on different days.
- ❑ Ideally, calves should be weighed when they are in as large a group as possible. Consequently, try to weigh calves before any of the calves in the management group are treated differently. For example, weigh before you castrate some of your bull calves or before the show team is separated out from the rest of the group.

#### 4. How do I submit weight information?

Live weight information should be submitted directly to the BREEDPLAN office at ABRI.

The main method of submitting live weight information is by completing the BREEDPLAN “performance recording forms”. Performance recording forms will be sent to you shortly after you record your calves with your Breed Society/Association or can be requested by contacting staff at BREEDPLAN.

Alternatively, live weight 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

*For more information regarding how to record live weight information, or Growth EBVs in general, please contact staff at BREEDPLAN.*

## **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 12/13<sup>th</sup> rib site. The 12/13<sup>th</sup> rib site is located on the longissimus dorsi muscle (eye muscle) between the 12<sup>th</sup> & 13<sup>th</sup> 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 12<sup>th</sup> & 13<sup>th</sup> rib. EMA is reported to the nearest cm<sup>2</sup> (eg.110 cm<sup>2</sup>). 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 12<sup>th</sup> & 13<sup>th</sup> ribs. Ultrasound scanning for IMF uses a longitudinal image of the longissimus dorsi muscle between the 12<sup>th</sup> & 13<sup>th</sup> 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 found on the BREEDPLAN website at [http://breedplan.une.edu.au/accredited\\_scannersausnz.htm](http://breedplan.une.edu.au/accredited_scannersausnz.htm) 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 carcase 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.*



## **Recording Scrotal Circumference Measurements**

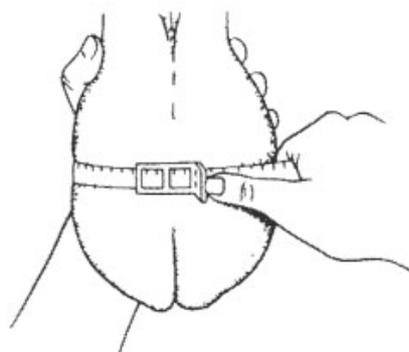
Scrotal Size EBVs are estimates of the genetic differences between animals in scrotal circumference at 400 days of age. Scrotal Size EBVs are expressed in centimetres (cm) and are calculated from scrotal circumference measurements taken on bulls between 300 and 700 days of age.

### **1. Why should scrotal circumference be recorded?**

The scrotal circumference of a bull provides an important indication of his genetic merit for several important fertility traits. Increased scrotal circumference is associated with earlier age at puberty, increased semen production and improved semen quality. Increased scrotal circumference also has a favourable relationship with female fertility, both in terms of earlier age at puberty, earlier return to oestrous and shorter days to calving.

### **2. How do I record scrotal circumference information?**

Scrotal circumference measurements should be recorded by holding the testicles at the bottom of the scrotum and placing a measuring tape around the widest point (as per diagram).



Measurements should be recorded in centimetres (to one decimal place).

While measuring techniques vary slightly, it is important to use a consistent technique for a whole group of cattle.

### **3. What considerations should be made when recording scrotal circumference information?**

- ❑ BREEDPLAN can analyse scrotal circumference information from bulls that are between 300 – 700 days of age when measured. Subsequently, it is essential that scrotal circumference information is recorded when bulls are within this age range.
- ❑ It is recommended that you measure scrotal circumference when the bulls are reaching puberty, which will vary according to seasonal conditions and the maturity

pattern of your cattle. In the majority of cases, scrotal circumference should be recorded when bulls are being weighed at 400 days.

- ❑ While more than one scrotal circumference measurement can be recorded for an individual animal, BREEDPLAN is only analysing the first measurement for each bull at this stage. Subsequently, it is only necessary to record one scrotal circumference measurement on each bull.

#### 4. How do I submit scrotal circumference information?

Scrotal circumference information should be submitted directly to the BREEDPLAN office at ABRI.

The main method of submitting scrotal circumference information is in association with weight performance on BREEDPLAN “performance recording forms”. Performance recording forms will be sent to you automatically or can be requested by contacting staff at BREEDPLAN.

Alternatively, scrotal circumference 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

*For more information regarding how to record scrotal circumference information, or Scrotal Size EBVs in general, please contact staff at BREEDPLAN.*

## **Recording Mature Cow Weights**

Mature Cow Weight EBVs are an estimate of the genetic difference in cow weight at 5 years of age and are based on the weights recorded for cows at the same time as the 200 day weights are recorded for their calves.

### **1. Why should mature cow weight information be recorded?**

The weight of mature cows in a commercial beef enterprise has a considerable influence on profitability. In particular, mature cow weight will have a major effect on:

- ❑ Cow Feed Requirements – in general, lighter cows will tend to eat less and consequently have lower feed requirements and be less expensive to maintain.
- ❑ Cull Cow Values – the major determinant in the value of cull cows in a commercial herd will be live weight. Consequently, heavier cows may provide higher returns from the sale of cull cows.

Achieving an appropriate balance is an important consideration for commercial cattle producers.

### **2. How do I record mature cow weights?**

Mature Cow Weight EBVs are calculated from the live weight performance of mature cows.

Importantly, BREEDPLAN will only analyse the weight of a mature cow if the cow has a calf with a weight recorded within 2 weeks of when the mature weight was taken and further, the calf was between 80 – 330 days of age when it was weighed.

Therefore, in layman's terms, the mature weight for a cow needs to be recorded at the same time as the 200 day weight is taken for its calf.

### **3. What considerations should be made when recording mature cow weight information?**

- ❑ Weights should be recorded to the nearest kilogram.
- ❑ As with all weights, mature cow weight should be recorded using appropriate (and accurate) scales. Do not guess/estimate weight or use measuring tapes to calculate weight. Either weigh the cows using appropriate scales or don't record weights.
- ❑ BREEDPLAN can analyse up to 4 mature weights for each cow. Therefore, all cows with a calf at 200 days should be weighed each year. Do not try to "guess" whether a cow has had 4 weights taken previously – the BREEDPLAN analysis will sort it out for you.

- ❑ For temperate breeds, BREEDPLAN will only analyse a mature cow weight if the cow is older than 2.4 years of age (870 days) at weighing. For tropical breeds, this age is 3.0 years (1090 days).
- ❑ BREEDPLAN will only analyse the mature cow weight performance of a cow if her first valid mature cow weight has been taken before she is 6 years of age (2200 days). If not, then none of her mature weights will be analysed.
- ❑ It is essential that correct management group information is recorded with mature cow weight performance.

Management groups work slightly differently for mature cow weights. If no management group information is defined for a set of mature cow weights, the BREEDPLAN analysis will use the management groups submitted with the 200 day weights of their calves to sub-group the weights of the cows. Therefore, if you have correctly recorded the management group information with the 200 day weight performance for your calves, then you only need to assign a different management group to a cow that has experienced an effect on her weight that is different to that experienced by her calf. For example, if the cow was injured/sick or has been supplementary fed.

If both the mature cow weights and the 200 day weights for their calves are submitted without management group information, the BREEDPLAN analysis will assume all cows and calves have been run under similar management conditions.

- ❑ Optionally, cow condition score can also be submitted with mature cow weight information. Condition scores are not currently included in the BREEDPLAN analysis however they may be used in the future when determining Mature Cow Weight EBVs. If breeders wish to record condition scores, it is important that the standard AUSMEAT fat scoring system of 1-6 be used (only whole scores) and the same person scores all cows in the herd at a particular weighing.

#### 4. How do I submit mature cow weight information?

Mature cow weight information should be submitted directly to the BREEDPLAN office at ABRI.

The main method of submitting mature cow weight information is by completing the BREEDPLAN “mature cow weight” forms. These forms are similar to the normal BREEDPLAN “performance recording forms”. “Mature cow weight” forms will be sent out as standard when the 200 day weight forms are sent for your calves or can be requested by contacting staff at BREEDPLAN.

Alternatively, mature cow weight 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

*For more information regarding how to record mature cow weight information, or Mature Cow Weight EBVs in general, please contact staff at BREEDPLAN.*



## **Recording Information for Milk EBVs**

Milk EBVs provide an estimate of the maternal contribution of a dam to the 200 day weight of her calf. In the case of sires, this estimates the maternal influence that his daughters will have on the 200 day weight of their progeny. Milk EBVs are expressed in kilograms and indicate the expected difference in the weight of the calf at 200 days due to the maternal effect of the cow.

### **1. Why are Milk EBVs important?**

The weight of a calf at 200 days is influenced by many factors. Research has shown that 70% of the variation between the weight of calves at 200 days can be attributed to non-genetic factors (eg. nutrition, disease), 20% to differences between the calf's genetics for growth and the remaining 10% to differences in the maternal contribution made by the mother.

The maternal contribution of the mother is consequently an important consideration for beef enterprises. Differences in the contribution of the dam to the 200 day weight of the calf are influenced by such things as the amount of milk the calf receives, the quality of the milk received and the mothering ability of the dam.

### **2. What information do I record?**

Milk EBVs are calculated by partitioning the difference in the 200 day weight of calves into growth and milk components. Consequently, the live weight of calves at 200 days need to be recorded for the calculation of Milk EBVs.

To a lesser extent, BREEDPLAN will also use the 400 day weights recorded for calves in the calculation of Milk EBVs (as a repeat measure). Therefore, breeders should also consider recording live weight at 400 days to enhance the accuracy of their Milk EBVs.

### **3. What considerations should be made when recording this information?**

- ❑ Weights should be recorded when animals are between 80 and 300 days of age.
- ❑ Weights should be recorded to the nearest kilogram.
- ❑ Weights should be recorded using appropriate (and accurate) scales. Do not guess/estimate weight or use measuring tapes to calculate weight. Either weigh the calves using appropriate scales or don't record weights.
- ❑ A management group should be entered for any calf or group of calves that have either been treated differently or exposed to significant non-genetic influences since the previous weighing. For example, calves given a supplement should be recorded in a different group to those without a supplement. Consideration should also be given to variations in pasture quality, stocking rates, water quality, etc. Note that blank is a unique management group.

- ❑ To ensure the maximum number of calves are analysed in the same management group, you should try to weigh all the animals from one management group on the same day. BREEDPLAN will automatically split your management groups if you weigh on different days.
- ❑ Ideally, calves should be weighed when they are in as large a group as possible. Consequently, try to weigh calves before any of the calves in the management group are treated differently. For example, weigh before you castrate some of your bull calves or before the show team is separated out from the rest of the group.
- ❑ BREEDPLAN can analyse up to two 200 day weights on each animal. Generally speaking, it is only necessary to record one weight, however in some circumstances, recording more than one 200 day weight may improve the accuracy of the EBVs.

In addition, breeders particularly looking to optimise the quality of the Milk EBVs that are generated for their calves should also consider:

- ❑ The weights of calves should be recorded at or before weaning.
- ❑ If you are concerned that a significant number of cows are weaning calves naturally before the calves are “physically” weaned, then it may be beneficial to consider taking an early weight on all calves. That is, if you aren’t weaning calves until they are 200 days of age but some cows start to “dry off” at 150 days of age, it may improve the accuracy of your Milk EBVs if you weigh all calves when they are around 150 days of age.

#### 4. How do I submit weight information?

Live weight information should be submitted directly to the BREEDPLAN office at ABRI.

The main method of submitting live weight information is by completing the BREEDPLAN “performance recording forms”. Performance recording forms will be sent to you shortly after you record your calves with your Breed Society/Association or can be requested by contacting staff at BREEDPLAN.

Alternatively, live weight 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.

*For more information regarding how to record information for the Milk EBVs, please contact staff at BREEDPLAN.*





## Recording Docility Scores

Docility EBVs are estimates of genetic differences between animals in temperament. Docility EBVs are calculated from docility scores recorded on animals when the animals are between 60 and 400 days of age.

### 1. Why should Docility Scores be recorded?

Docility in cattle is the way cattle behave when being handled by humans or put in an unusual environment such as being separated from the mob in a small yard. What we define as poor docility is a survival trait in the wild – fear of anything unusual and the desire to escape. In domesticated cattle it is exhibited as flightiness. Importantly, docility is a highly heritable trait and can be improved genetically.

### 2. How do I record Docility Scores?

Docility EBVs are calculated from docility scores recorded on animals when the animals are between 60 and 400 days of age.

The recommended time of scoring is at weaning or shortly afterwards. The advantage of scoring at weaning is that all calves should have had similar treatment so variation in handling prior to scoring should be minimised.

Animals can be scored for temperament using either a yard or crush test.

❑ **Yard Test**

The calves are individually put into a small square yard and the handler should attempt to hold the animal in one corner for about 30 seconds.

❑ **Crush Test**

The calves are put up a race and individually held in the crush for about 30 seconds.

When using either the crush or yard test, the behaviour of animals should be observed and animals scored using the following criteria.

Score	Code	Description
1	Docile	Mild disposition, gentle and easily handled, stands and moves slowly during handling, undisturbed, settled, somewhat dull, does not pull on headgate when in crush, exits crush calmly.
2	Restless	Quieter than average but slightly restless, may be stubborn during handling, may try to back out of crush, pulls back on headgate, some flicking of tail, exits crush promptly.

Score	Code	Description
3	Nervous	Manageable but nervous and impatient, a moderate amount of struggling, movement and tail flicking, repeated pushing and pulling on headgate, exits crush briskly.
4	Flighty	Jumpy and out of control, quivers and struggles violently, may bellow and froth at mouth, continuous tail flicking, defecates and urinates during handling, frantically runs fence line and may jump when penned individually, exhibits long flight distance and exits crush wildly.
5	Aggressive	May be similar to score 4 but with added aggressive behaviour, fearful, extreme agitation, continuous movement which may include jumping and bellowing while in crush, exits crush frantically and may exhibit attack behaviour when handled alone.

### 3. What considerations should be made when recording Docility Scores?

- ❑ There needs to be some variation in the scores for them to be used effectively by the BREEDPLAN analysis. That is, scoring all animals in a group with a docility score of [1] will not identify any genetic differences in docility.
- ❑ BREEDPLAN can accept half scores if animals exhibit behaviour which is intermediate to the above scores.
- ❑ Animals should be assigned a different “temperament management group” if they have had a different level of handling prior to scoring.
- ❑ The method of scoring used (ie. crush or yard) should be specified when submitting the docility scores.
- ❑ When recording docility scores, it is important that both a consistent scoring method is used and the same person scores all animals that are being assessed in the herd on that particular day.

### 4. How do I submit Docility Scores?

Docility scores should be submitted directly to the BREEDPLAN office at ABRI.

*For more information regarding how to record docility scores, or Docility EBVs in general, please contact staff at BREEDPLAN.*



## **Recording Management Groups for BREEDPLAN**

The recording of management group information is one of the most important aspects of BREEDPLAN. This document provides information regarding management groups and when they should be submitted to BREEDPLAN.

### **Introduction**

BREEDPLAN analyses cattle in contemporary groups to take out the influence of as many of the non-genetic effects as possible (eg. feeding, years, seasons). The underlying principle is that only animals that have had an equal opportunity to perform are directly compared together within each contemporary group.

If the contemporary groups are not correctly formed, the EBVs calculated will be less accurate and possibly misleading. Most of the problems that breeders encounter in “believing” their BREEDPLAN EBVs can be traced back to incorrect contemporary grouping – either calves being fragmented into isolated groups of only one or two animals (and thereby virtually eliminating those calves from any comparison with their peers) or by not differentiating between calves that have had different levels of management or feeding.

Importantly, the breeder has a major influence on deciding which animals will be directly compared within each contemporary group. This influence is through both their on farm management and the submission of management group information to BREEDPLAN. In this manner, it is vital that breeders understand the factors that influence the formation of contemporary groups to ensure they maximise the effectiveness of their BREEDPLAN recording.

### **Breeder Defined Management Groups**

There are two different forms of breeder defined management group.

a) the “Birth Management Group” allows breeders to describe different treatments of the cows prior to the birth of the calf. For example, where one group of cows have had different feed availability that may affect the birth weight and/or calving ease and/or gestation length when the calf is born.

b) the “Post Birth Management Group” allows breeders to identify animals that have received different treatment or management following birth that has influenced their performance. This treatment may be deliberate (eg when some of your young bulls receive supplementary feeding and others do not) or accidental (eg if a calf is sick).

Providing BREEDPLAN with management group information is the responsibility of the breeder. By assigning animals into management groups, breeders are acting as “eyes” for the BREEDPLAN evaluation.



## Management Groups in Practical Terms

Animals should be assigned into different management groups in any situation when either individually or as a group, they have not had equal opportunity to perform. By assigning animals into management groups, only like treated animals will be grouped together and therefore directly compared in the BREEDPLAN analysis.

Some examples of where animals should be recorded in separate management groups are:

- sickness gives some calves a permanent set back;
- some animals are fed for show or sale;
- grain fed animals versus paddock reared animals;
- some animals being given growth promotants;
- animals reared in different paddocks in which feed is of different nutritional value;
- a bull has been fighting and clearly lost weight prior to recording;
- yearling bulls used as sires compared to those not used as sires;
- different stages of pregnancy for heifers (try to weigh before joining and certainly before two months);
- spayed heifers as compared to non-spayed heifers;
- calves weighed on different scales;
- calves weighed straight from the paddock as compared to those off feed for say three hours or more.

Importantly, if you are in any doubt as to the correct management grouping of your animals, please contact staff at BREEDPLAN.

*For further information regarding management groups, please contact staff at BREEDPLAN.*

## **Methods of submitting Performance to BREEDPLAN**

The following document outlines the different methods by which breeders can submit the performance information of their animals to BREEDPLAN.

### 1. Paper performance recording forms

The most traditional method used by breeders to submit the performance information of their animals is by completing the standard BREEDPLAN paper performance recording forms.

Using this method, breeders will automatically be forwarded pre-printed paper performance recording forms shortly after they have recorded/registered their calves with their relevant Breed Society/Association. Each form will list all calves within the herd for a particular calving year, season & sex. Breeders will then enter the performance information of their animals into the relevant columns by hand and mail the completed form to the BREEDPLAN office at ABRI. The completed form will be processed and a new form forwarded to the breeder for use when recording the next set of performance for their animals.

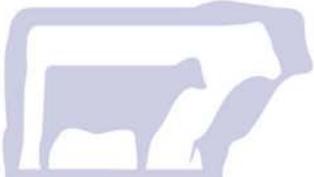
A different paper performance recording form is available for recording post birth weights, mature cow weights, scanning information & abattoir carcase data. The appropriate form should be used for the type of performance information being collected.

### 2. BREEDPLAN compatible herd recording computer program

Many of the modern herd recording computer programs have the facility to submit performance electronically to BREEDPLAN. Using this method, breeders simply enter the performance information of their animals into their herd recording program. They can then use the facilities available within the herd recording computer program to export the performance and submit it to BREEDPLAN via either email or disk.

Examples of BREEDPLAN compatible herd recording computer programs that are currently available include Herdmaster / Herd Magic (Saltbush Software), Cattle Plus / StockBook (Practical Systems), and Herdlink / Cattlelink (Herdlink Software).

Please contact your software supplier if you are in any doubt about whether your herd recording computer program is BREEDPLAN compatible and/or if you require any assistance submitting your performance to BREEDPLAN using this method.



3. BREEDPLAN compatible standard Microsoft Excel format \*\*

A standard Microsoft Excel format has been developed which enables breeders to submit performance electronically to BREEDPLAN. Using this method, breeders simply enter the performance information of their animals into a standard Microsoft Excel spreadsheet and submit it to BREEDPLAN via either email or disk.

The standard Microsoft Excel format (+ detailed information regarding how to submit data using this method) can be obtained by contacting staff at BREEDPLAN. Please note, BREEDPLAN will not accept the submission of performance via Microsoft Excel if it is not in the correct format.

4. Internet Solutions facility on Breed Society/Association website \*\*

Many of you will be familiar with the “Internet Solutions” services offered by several of the Breed Society/Association’s websites. These services include the ability to submit your calf registrations electronically, search the Society/Association database with member, animal & EBV enquires, and download upcoming sale catalogues, just to name a few. This service also enables the electronic submission of performance to BREEDPLAN.

Using this method, an electronic worksheet will automatically be created shortly after a breeder has recorded/registered their calves with their relevant Breed Society/Association. Each worksheet will contain preloaded information for all calves within the herd for the particular calving year, season & sex. This worksheet will be downloaded into the relevant breeder’s membership area on their Society/Association’s internet system and a notification email forwarded to them. Breeders can then access the prebuilt worksheet, complete the performance information for their calves and submit the worksheet to BREEDPLAN. When the breeder submits the completed worksheet, an email will automatically be sent to their BREEDPLAN processor notifying them that performance has been sent from that herd and is ready for processing.

*\*\* Please note, options 3 & 4 are not available for members of all Breed Societies/Associations.*

For more information regarding the different methods available to submit the performance information of your animals, please contact staff at BREEDPLAN.