

Understanding Calving Ease EBVs

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”. BREEDPLAN Calving Ease EBVs attempt to take all the factors affecting calving difficulty into consideration and allow the best possible genetic improvement to be made for ease of calving.

What Calving Ease EBVs are Available ?

BREEDPLAN produces two Calving Ease EBVs – Calving Ease Direct & Calving Ease Daughters.

(i) Calving Ease Direct

Calving Ease (DIR) EBVs are estimates of genetic differences in the ability of a sire's calves to be born unassisted from 2 year old heifers. The EBVs are reported as differences in the percentage of unassisted calvings.

Higher, more positive, Calving Ease (DIR) EBVs are more favourable. For example, a bull with an EBV of +5.0% would be expected, on average, to produce 3% fewer difficult calvings from 2 year old heifers than a bull with an EBV of -1.0% (6% difference between the sires, then halved as they only contribute half the genetics).

(ii) Calving Ease Daughters

Calving Ease (DTRS) EBVs are estimates of genetic differences in the ability of a sire's 2 year old daughters to calve without assistance. The EBVs are also reported as differences in the percentage of unassisted calvings.

Higher, more positive, Calving Ease (DTRS) EBVs are more favourable. For example, a bull with an EBV of +4.0% would be expected to on average produce 2 year old daughters that have 3% less calving problems than the daughters of a bull with an EBV of -2.0%.

Importantly, the two Calving Ease EBVs share an antagonistic relationship (ie. they are negatively correlated). In simple terms, this means that bulls who may produce lighter calves at birth, therefore causing fewer difficult calvings, will tend to produce smaller, lighter daughters who themselves have a higher number of difficult calvings when calved down as 2 year olds. The challenge is to identify animals who don't follow this genetic relationship and have both positive EBVs for Calving Ease (DIR) & Calving Ease (DTRS).

Recording Information for Calving Ease

Calving Ease EBVs are calculated from three main sources of information - calving difficulty score, birth weight and gestation length data. By far the most important of these sources is calving difficulty score.

Calving difficulty scores should be measured at birth by visually scoring females on the following scale of 1 - 6.

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
6	Elective Surgical	Surgical removal of calf before the cow has the opportunity to calve

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

Calving difficulty scores 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.

When recording calving difficulty scores, it is important to consider:

- ❑ 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.



- ❑ A birth 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 scores [5] & [6] are excluded from the BREEDPLAN analysis as the problems are considered non-genetic in origin.

As mentioned previously, in addition to calving difficulty scores, birth weight and gestation length information is also included in the calculation of Calving Ease EBVs. Breeders wishing to optimise the accuracy of their Calving Ease EBVs should also consider collecting this information and submitting it to BREEDPLAN.

Using Calving Ease EBVs

As a practical guide to the use of Calving Ease EBVs, please consider the following bull buying exercise. In this exercise, you need to advise three bull buyers on which bull would most suit their operation from a list of four bulls.

Please note, for the purpose of this exercise:

- ❑ All bulls were assumed to be structurally sound and fertile.
- ❑ All EBVs are GROUP BREEDPLAN EBVs for bulls of the same breed.

Answers to the exercise are provided on the back page

BULL	BIRTH WEIGHT		400 DAY WEIGHT		CALVING EASE DIRECT		CALVING EASE DAUGHTERS	
	EBV	Acc	EBV	Acc	EBV	Acc	EBV	Acc
A	+0.2	65%	+6	60%	+10	35%	-6	30%
B	+0.5	79%	+25	75%	+9	67%	-9	51%
C	+1.3	83%	+21	80%	+1	58%	+5	60%
D	+0.7	95%	+18	93%	+8	85%	0	75%
Breed Av	+1.0		+16		0.0		0.0	

Buyer 1 - Seeks a terminal sire to join with crossbred heifers, for yearling production. Calving ease is of moderate importance.

Buyer 2 - Is straight breeding for yearling production and wishes to improve calving ease of the females.

Buyer 3 - Is straight breeding and seeks a sire to join with heifers. Calving ease is of considerable concern to this breeder of grass finished yearlings.

For more information regarding Calving Ease EBVs, please contact staff at BREEDPLAN.

Answers

- Buyer 1 - Bull B (Positive Calving Ease Direct EBV with moderate accuracy and with good 400 day weight. Note: bull A has a similar, but lower accuracy Calving Ease EBV; but low 400 day weight)
- Buyer 2 - Bull C (Positive Calving Ease Daughters EBV, with acceptable 400 day weight)
- Buyer 3 - Bull D (Positive Calving Ease Direct, with the highest accuracy, as calving ease is so critical)