Better Breedplan EBVs

How to Record..... BIRTH WEIGHT

A technical bulletin prepared for members of Shorthorn Beef

Birth Weight is an important trait for the commercial beef producer who often uses the trait as an indicator of potential calving problems of a sire's progeny. Whilst many factors contribute to calving problems, research has clearly demonstrated that birth weight is the single most important factor contributing to calving problems.

Birth Weight is a trait of medium heritability and is positively correlated with growth - select bulls for high growth rate and you will get progeny with a high growth rate potential, **and** a high birth weight potential.

Managing this conflict is important for the commercial breeder, but is only possible if high accuracy EBVs for Birth Weight are available at selection time.

Birth weight EBVs are expressed in kgs, and can be used to estimate the average difference in birth weight that you might expect in the progeny of different sires when all other conditions are the same.

The difference in average progeny birth weight attributed to sire effects is calculated as half the difference in EBVs of the sires being compared. *For example, if Sire A has a BWt EBV of +4kg and Sire B has a BWt EBV of +7kg, then Breedplan estimates the sire effect on the average birth weight of the two progeny groups will be 1.5kg (7-4 =3, /2 = 1.5).*

The estimated difference will be the <u>average</u> difference you might expect - you will always get a range of birth weights within a sire progeny group regardless of whether they are from high or low birth weight sires.

High Birth Weight EBVs does not mean that the bull has reduced value – it just sets parameters for how he is best used; for example, - joining to mature, low calving risk cows to produce high growth rate progeny. If the buyer does not have access to high accuracy Birth Weight EBVs the bull might be inadvertently joined to high calving risk heifers, with unfortunate results – and it will be your bull that gets the blame!

The birth weight EBV is calculated from birth weights recorded within 24 hours of birth

If birth weight information is not available, the Birth Weight EBV is calculated as the average of the parents EBVs, and/or as a correlation from the animal's 200/400/600 day weight EBVs.

This method is surprisingly accurate (because growth rate and birth weight are so highly correlated) but the resultant EBVs will be of lower accuracy. Because it is a straight line correlation you will not pick up those few valuable curve-bender bulls that go against the biological expectation by having high growth rate and low birth weight.

Some tips to improve the accuracy of your Birth Weight EBVs:

- If possible, **weigh your calves rather than relying on EBVs calculated as a correlation from later weights**. – actual weights will give you higher accuracy EBVs, and will pick up curve benders.

- **Weigh calves within 24 hours of birth** as there are significant fluctuations in weight of calves over their first week of life.

- **Do not estimate/guess their birth weights or use chest/girth tapes to estimate birth weight**, as you will get it wrong, Breedplan will get the EBVs wrong, and your clients will get their selection wrong.

- **Either weigh the calves or don't record birth weight.** Far better to rely on a BWt EBV calculated as a correlated trait rather than on an EBV based on fudged weights.
  n.b. Shorthorn Beef will soon be conducting an audit of its Birth Weight database records to identify records that do not comply with normal distribution expectations. Unless verified, these records will be removed from the database.

- **Birth weight should be recorded for the whole calf drop**, not just difficult births or the big calves. Without comparison to the other calves, "occasional" measurements are of no value and can be misleading.

- **Put the calf in a separate management group** if you believe the measured weight is affected by special circumstances, for example, the calf is premature or the dam has been sick. Heifers on their first calf are *automatically* sub-grouped from more mature cows for birth weight EBV calculation.

- If you weigh your calves, make sure you **weigh the dead calves as well**, and record their birth date and sex. – the reason they are dead is probably related to their birth weight, and that information is important in calculating the EBVs of the dead calf's sire and half-sibs. There is no cost for processing birth weight records for dead calves.

Weighing calves - just as Mrs Beeton's celebrated recipe for Jugged Hare started with the simple statement of "*first catch a hare*", weighing calves has its own challenges but it does give you the opportunity to observe the temperament of your cows !.

Breeders have come up with a range of methods for weighing calves, however the most popular methods include;

- calving close to the stockyards, or building a temporary yard in the calving paddock, so that mother and calf can be put through the yards and the calf weighed using the platform scales.

- putting the calf in a sling and suspending from a set of quality clock face scales, either by brute force lifting, or by a range of lifting devices built onto the back of the ute or quad bike.

- placing a quality set of bathroom scales on a board, grabbing the calf and standing on the scales, then subtracting your weight. Finding level, firm ground might be a limiting factor and scale capacity might be limiting for the more mature figures!

Bob Freer,
Technical Extension Specialist.