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**Calving Ease – Birth Weight is Not the Whole Story**

*Jane Parish – Extension Beef Cattle Specialist, Mississippi State University*

No matter whether 20 cows or 200 cows are calved out on the farm, it is easy to appreciate calves that are born without difficulty on any operation. Achieving high levels of calving ease within the herd is possible with advance planning. A good place to start is with understanding what factors affect calving ease and the implications of selection and management for calving ease.

**Birth Weight Vs. Calving Ease**

Birth weight has often been used as an indicator of calving ease, but at the same birth weight there can be lots of variation in calving ease. In other words, birth weight does not tell the whole story. It is not uncommon for a very heavy calf to be born unassisted while a herdmate has difficulty giving birth to a much lighter calf. The Beef Improvement Federation fact sheet “Calving Difficulty in Beef Cattle” lists 20 factors that affect calving difficulty:

***Factors Affecting Calving Difficulty in Beef Cattle (BIF Factsheet)***

- |                      |                               |                             |
|----------------------|-------------------------------|-----------------------------|
| 1. Age of dam        | 8. Breed of sire              | 15. Nutrition of dam        |
| 2. Calf birth weight | 9. Breed of dam               | 16. Condition of dam        |
| 3. Sex of calf       | 10. Uterine environment       | 17. Implants/feed additives |
| 4. Pelvic area       | 11. Hormonal control          | 18. Feeding time            |
| 5. Gestation length  | 12. Geographical region       | 19. Exercise                |
| 6. Cow size          | 13. Season of year            | 20. Other unknown factors   |
| 7. Shape of calf     | 14. Environmental temperature |                             |

Although birth weight does play a major role in calving difficulty, it is just one of many factors that affects calving difficulty in beef cattle. It is important to note that heifers that are not developed properly or have structural constraints on pelvic area may experience difficult calving even when bred to a “calving ease sire” or “heifer bull”.

**Actual Birth Weight Vs. Birth Weight EPD**

Birth weight expected progeny differences (EPDs) are a selection tool that gives some indication of expected calf birth weights relative to calves out of other cattle within a breed. Unlike actual birth weight data, which is for an individual animal, birth weight EPDs combine information from the individual animal and its relatives. Breed associations publish sire summaries that contain breed average EPDs and percentile rankings within the breed that can be useful benchmarks for comparison purposes.

Just because a bull has a higher actual birth weight than another bull, it does not mean that his calves will have higher average birth weights than the other bull’s calves. Actual

birth weights do not always follow the same trends as birth weight EPDs within a contemporary group. An example from the recent Mississippi BCIA bull sale illustrates this point. Actual birth weights and birth weight EPDs from a two bull calves born four days apart in the same Mississippi cattle herd and sold through the BCIA sale are as follows:

#### Bull A

Born September 6, 2002

Actual birth weight = 76 lbs.

Birth weight EPD = 3.4

#### Bull B

Born September 10, 2002

Actual birth weight = 83 lbs.

Birth weight EPD = 1.7

These bulls were of the same breed and managed the same in one contemporary group. Bull A weighed seven pounds less at birth than Bull B, yet based on EPDs, we would expect calves sired by Bull A to weigh on average 1.7 pounds heavier at birth ( $3.4 - 1.7 = 1.7$ ) than calves out of Bull B if bred to the same type of females. Because many factors can influence actual birth weight, such as gestation length and calving season, birth weight EPDs tend to give a better indication of expected calf birth weights and calving ease than actual birth weights.

### **Calving ease EPDs**

When possible, emphasizing calving ease in selection rather than birth weight may make it easier to select for calving ease and growth performance at the same time. Birth weight and several of the other factors listed in the BIF factsheet are components of calving ease EPDs published by a growing number of breed associations. Birth weight is accounted for in the calving ease EPDs, so selection based on both calving ease and birth weight EPDs is discouraged since it may put too much selection emphasis on birth weight.

Two types of calving ease EPDs are calving ease direct and calving ease maternal EPDs. Calving ease direct EPDs provide information about the expected assistance required at birth for an animal's calves and predict the ease with which an animal's calves will be born to first-calf heifers. Calving ease direct indicates the percent more or less of calves out of a particular animal that are expected to require assistance at calving out of two-year-old heifers. For example, a bull with a calving ease direct EPD of +10% compared to a bull within the same breed with a calving ease direct EPD of +2% is expected to sire, on average, 8% ( $10 - 2$ ) more calves that can be born unassisted.

Calving ease maternal EPDs, on the other hand, give an indication about the expected assistance required at calving for calves out of an animal's two-year-old daughters. In this case, a bull on which the EPD is evaluated would be the grandsire of the calf for which the necessary assistance at birth is being predicted. Calving ease maternal is

also referred to as daughter's calving ease and is the ease with which an animal's daughters calve as first-calf heifers.

### **Selection for Calving Ease**

For genetic progress to be made within the herd, sire selection should not be based solely on one trait such as birth weight or calving ease. There are performance tradeoffs that must be considered. Birth weight is highly, positively correlated to weaning and yearling weights. Selection for increased growth rate may increase weight at all ages, including birth, while selection for low birth weight alone may decrease weaning and yearling weights. Make sure that, by selecting a calving ease bull, not too much ground is given up in these other economically relevant traits. Easy-calving, high growth sires are available that break the rules for the genetic antagonism between birth weight and growth. Try to strike a balance among several economically relevant traits, and avoid selecting for extremes.

It is important to approach sire selection with the needs of the cow herd in mind. Calving ease may be an essential consideration in the selection process, particularly when first-calf heifers are to be bred. First, decide what level of calving difficulty is acceptable in the herd. Mature cows may be expected to calve unassisted, while assistance may be acceptable for a few of the heifers. Labor availability may also influence how a calving ease bull is valued. Sire selection is a balancing act where a little may have to be given up in one trait to make gains in another trait. By prioritizing the needs of the cow herd and comparing sires using available information on breeding and genetic potentials, bulls can be found that fit each unique cow-calf operation.

Calving season is a good time to assess calving ease in the herd and to start thinking about sire selection for the next round of calves. Calf birth weight data should be collected by weighing calves within 24 hours of birth. Problems with calving difficulty also need to be documented for use in future herd selection and management decisions. When keeping calving records, be sure to include calving ease scores. An easy scale for calving ease scoring is as follows:

- 1 – No assistance, calf born normally
- 2 – Assisted, easy (some assistance)
- 3 – Assisted, very difficult (mechanical assistance)
- 4 – Caesarean section
- 5 – Abnormal presentation/delivery (e.g., breech)

Without detailed documentation of calving difficulty and related factors, it becomes more of a challenge to avoid it in future calf crops. As calving ease EPDs continue becoming more available, take time to report accurate information for calculating them and to learn how to use them in herd improvement efforts. Then the results of sire selection and herd management for calving ease will pay off as performance-oriented calves start hitting the ground without much trouble getting here. For more information on calving ease or related topics, contact your local county Extension office.