Calving Difficulty in Beef Cattle

A Review

Answers questions about:

- birth weight?
- bull and heifer selection?
- breeds and genetics?
- sex and birth weight?
- selection for gestation length?
- age and parity of dam?
- pelvic area?
- nutrition?
- environment?
- exercise?
- hormonal influence?
- season of the year?

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CALVING SEASON is one of the most important times of the year to a cow–calf producer. It is the time for cattlemen to reap the benefits of their genetic planning and feeding program through calves that are alive, healthy and capable of performing at a desired growth rate.

Unfortunately, calving time is also associated with tremendous economic losses in the cattle industry. Data collected from various areas of the United States have indicated that too often only 70-85 percent of beef females wean a calf. Upon evaluation of the factors that affect net calf crop, researchers have noted the largest losses in percent calf crop were a result of: (1) failure of cows and/or heifers to conceive or early embryonic death, and (2) calf death largely due to dystocia (calving difficulty). Along with decreased calf crop, calving difficulty is also associated with increased cow mortality, increased veterinary and labor costs, delayed return to estrus and lower conception rates.

Since calving difficulty is such an important economic problem, let's look at the management and genetic factors associated with dystocia. These include: (1) calf birth weight, (2) dam's pelvic area, (3) sex of calf, (4) gestation length, (5) age and parity of dam, (6) dam's breed and/or size, (7) sire breed, (8) dam's sire, (9) nutrition and condition of dam, (10) implant effect, (11) geographic region, (12) exercise and (13) endocrine (hormonal) aspects.

? Should I Be Concerned About Calf Birthweight?

It has been well documented by numerous researchers that birth weight is usually the major factor causing calving problems. In fact, research from Miles City, Montana, would indicate birth weight is the trait most highly correlated with dystocia, followed by sex of calf, pelvic area, gestation length and cow weight. The following table illustrates how the incidence of dystocia increases as birth weight increases.

These data would indicate that full attention should be given to factors that influence birth weight. Many of the management and nutritional factors that will be mentioned later directly relate to birth weight and should be considered.

Genetics and breed of sire play the most important role in determining calf birth weight; however, the maternal genetic influence should not be overlooked. For example, the heritability of birth weight is nearly 48 percent. Therefore, by putting selection pressure on bulls for birth weight and *calving ease*, it would be possible to alleviate many existing calving problems within a herd.

Cattlemen should be particularly concerned about mating high birth weight heifers to bulls with a genetic history for high birth weight. Because birth weight is so heritable, this mating practice could result in extremely large birth weights in their progeny.

Table 1. Effect of Birth Weight on Ease of Calving in Percentage Simmental Females

	Ease of Calving			
	Normal Birth	Hand Pull	Mechanical Puller	Caesarean
No. of Females	68	34	16	2
% of Total	56.7	28.3	13.3	1.7
Birth weight (lbs)	81.1	88.3	100.3	121.0

(Meacham, Virginia Tech)

In Selecting a Calving Ease Bull, What Criteria Should Be Considered?

Producers need to emphasize the following performance traits when selecting a bull for calving ease (particularly for first-calf heifers):

A. EPDs for birth weight
B. EPDs for calving ease (in those breeds that provide this information)
C. Actual birth weight

For example, let's evaluate an Angus bull for use on first-calf heifers. Given two bulls, one with an EPD (Expected Progeny Difference) for birth weight of +6 and another with an EPD of +2. This means the first Angus bull will be expected to sire progeny that are, on the average, 6 pounds heavier at birth than the average of all calves sired by an Angus bull.

The second bull is expected to sire calves that are only 2 pounds heavier than the average of the Angus breed. In most cases, the bull with the smaller birth weight EPD is going to be an easier calving bull, since birth weight accounts for a major portion of calving difficulty.

Unfortunately, it maybe necessary to go through a trial-and-error process to determine exactly what birth weight EPD value will work in a herd. For example, in one herd a breeder may be able to use an EPD birth weight value of +2 to +4 on first-calf heifers and not have any problems, while in another case a cow–calf producer using that level would have a tremendous amount of calving difficulty. The second producer may have to use bulls that have an EPD value around 0 or even a negative EPD value for birth weight to reduce calving problems.

In some breeds, such as Simmental and Gelbvieh, you can use EPD information for birth weight along with EPD information for direct calving ease. The simultaneous use of these two figures can help identify young bulls that can be used on beef females without causing major calving problems. Calving ease EPDs also have an advantage in that this measurement of performance is not affected by management and nutritional factors which may influence actual birth weight.

Do easy calving bulls (based on the direct EPD for calving ease) sire easy-calving heifers? A study conducted with the American Simmental Association reported a negative correlation of .27 with the hypothesis that calving-ease bulls sire smaller calves, but the daughters of these bulls are smaller at calving and are more liable to experience calving difficulty. A later selection study, however, didn't verify this, with daughters of calving-ease bulls having calves that (1) were born 1.6 days earlier, (2) weighed 4.0 pounds less, and (3) required 7.8 percent less assistance at birth.

In utilizing actual birth weights, a producer should keep in mind that many factors cause actual birth weight figures to vary. For example, the birth weight of a calf out of a first-calf heifer will be less than from a mature cow, yet genetically they may be the same in terms of causing calving difficulty. In addition, bull calves born in the fall of the year will be lighter than bull calves born in the spring. Yet, a commercial producer should take a look at birth weights, because on the average, a bull that has a birth weight of 110 pounds is going to be a more difficult calving bull than one that has a birth weight of 75 pounds.

How Important Is the Dam's Pelvic Area?

Dystocia occurs largely because of an incompatibility at birth between the size of the calf and the pelvic opening of the mother. Therefore, the pelvic opening determines the maximum birth weight that can be accommodated by individual cows before calving difficulty is experienced.

Heritability estimates for pelvic dimensions range from .40 to .53. Although moderately heritable, conflicting reports relating pelvic area to dystocia puts the usefulness of pelvic measurements in question. For example, research conducted in Montana and Nebraska shows that dystocia is inversely related to pelvic area, whereas reports from Kansas and Indiana indicate that pelvic dimensions did not affect incidence of dystocia, particularly when size and condition of the female, sex and weight of the calf and genetic background of the female and calf were accounted for. One set of Kansas data that showed no relationship of pelvic area to dystocia included field records on 994 head of Simmental and Angus heifers from 11 herds in Ohio, Kansas, Montana and Virginia.

As this research became available, it was noted that pelvic area appears to be highly correlated with heifer size. Therefore, by selecting for larger, growthier heifers, producers are also indirectly selecting for a larger pelvic area. Unfortunately, when larger, growthier heifers are selected, there is a tendency for these heifers to have calves with heavier birth weights. Subsequently, the use of pelvic area has not been shown to be as clear-cut a criteria in predicting

which heifers will experience calving difficulty as was once thought .

Pelvic measurements still, however, have the potential to be useful as a selection tool when used for heifers within specific weight and age classifications. In other words, if pelvic area is adjusted to a common age (much like yearling weights are adjusted to a common 365-day age) and is only used to compare heifers of a similar weight and frame, then pelvic measurements could be useful. When used in this manner, pelvic measurements could be used to cull heifers which do not meet predetermined minimum pelvic area requirements.

How Does Sex of Calf Influence Birthweight?

Bull calves are generally heavier at birth than heifer calves. Reports indicate bull calves outweigh heifer calves at parturition by 1.5 to 10.0 pounds and require a 10 to 40 percent higher assistance rate. For example, research from the Meat Animal Research Center (MARC) at Clay Center, Nebraska, indicated that calf losses were higher in male (22.4 percent) than in female calves (16.3 percent) when difficult births were experienced. There was no difference in calf mortality between sexes when assistance was not required at birth.

Other researchers report dystocia rate in mature cows carrying male calves to be twice that of cows carrying female calves. This can partly be explained by the fact that bull calves generally have a one- to two-day longer gestation length which contributes to heavier calf birth weights.

Is It Possible to Select for Shorter Gestation Length?

Gestation length would appear to have an indirect influence on calving difficulty with a longer gestation period resulting in larger birth weights. As gestation length increases, birth weight increases from .3 to .8 pound per day.

Recent research in Nebraska has indicated that gestation length is a trait that can be selected for. This means the potential exists to select cattle for shorter gestation length and subsequently lighter birth weights.

Another indirect benefit of a shorter gestation period is that cows calving at an average gestation length of 280 days as compared to 287 days have an additional 7-days postpartum to start cycling. This could have some influence on reproductive efficiency.

Although selecting for shorter gestational periods has possibilities, Colorado researchers concluded that "selecting for growth and moderate birth weight was more effective as a means of increasing growth rate without a simultaneous increase in birth weight than selection for growth and shorter gestation."

Therefore, the economic feasibility of selecting for gestation length is yet to be determined.

How Are Age and Parity of Dam Related to Calving Difficulty?

It is well documented that age and parity of dam influence the incidence of dystocia. Table 2 summarizes calving data from MARC and Colorado State University relating calving difficulty to age of dam.

Although first- and second-calf heifers experience more calving difficulty, they typically have lighter birth weight calves (by 2.5 to 5.0 pounds) than mature cows. This is because mature, multiparity cows have a fully-developed skeletal structure and body size, compared to their heifer counterparts, and are therefore capable of giving birth to heavier calves. This illustrates why it is important to know age of dam when evaluating birth weight performance data so genetic potential for birth weight and calving ease are not misinterpreted.

Table 2. Effect of Dam's Age on Calving Difficulty

	Research Station	
	MARC	CSU
Dam's Age	Percent Calving Difficulty*	
2 yr	54	30
3 yr	16	11
4 yr	7	7
5 yr and over	5	3

*Calving difficulty in MARC Hereford and Angus cows is higher than in CSU Hereford cows, presumably because the former tended to be mated to larger, exotic sires, whereas the latter were mated to smaller, British breed sires. *(Ritchie, Michigan State University)*

Where Does Dam Size or Breed Fit?

As indicated earlier, body size (frame) is highly correlated with pelvic area, and pelvic dimensions determine birth weight limitations. It stands to reason, then, that larger breeds of cattle will in turn have larger pelvic areas and produce calves with heavier birth weights. Therefore, a large difference in calving ease should probably not be expected between dams of various beef breeds that also vary in size.

This theory is substantiated by data from MARC which shows very little difference in incidence of dystocia when 15 breeds were compared. Exceptions to this theory include Jersey-X and two Zebu-X breeds (Brahman and Sahiwal) which experienced an average of 3.7 percent incidence of dystocia compared to an average of 14.1 percent for the other breeds in the study. The calving ease advantage expressed in these Brahman cross cattle was further substantiated by a Kansas study at the Fort Hays Experiment Station which reported 13.5 percent calving difficulty in Brahman X Hereford heifers compared to 39 percent difficulty in Angus X Hereford heifers.

How About Sire Breed?

Most producers are well aware of the impact a bull can have on the degree of calving difficulty and subsequent calf death loss. Traditionally, beef cattle producers have predominantly used British breed sires on first-calf heifers, unless it is a non-British breed purebred operation.

Unfortunately, as beef producers emphasized size and growth rate in recent years, many British breed bulls are now producing large birth weight calves. In some states, this has led commercial cattlemen away from bulls of these breeds to use Jersey or Longhorn bulls on first-calf heifers. This has resulted in decreased value of calves due to a reduction in performance traits and beef type.

With proper bull selection and heifer development, this move away from British breed and even some continental breed bulls may not be necessary. Emphasis on multiple trait sires (bulls with acceptable birth weight, calving ease and growth EPDs) can minimize the degree of calving difficulty, while still maintaining beef type and growth. In fact, recent data published by Cornell University would indicate certain sire lines have the ability to reduce birth weight and at the same time increase growth rate (weaning and yearling weights) in their progeny. If these unique sires of each breed can be identified, they could be of substantial economic importance to beef producers.

Can EPDs Be Used to Select Replacement Heifers?

Typically in the cattle industry, producers plan to prevent calving difficulty through bull selection and proper heifer development. Obviously, these are extremely important, but the maternal influence on calving difficulty should not be overlooked.

In selecting heifers, the sire of that heifer can have a great deal of influence on how easily the heifer calves. Analyzing records from two commercial/purebred ranches in Kansas showed that the maternal grandsire (heifer's sire) was one of the most influential factors in determining calving difficulty. This study records from 1,495 spring and fall calving Simmental and Angus heifers. These numbers certainly provide credibility to the importance of the maternal grandsire in the development of calving ease females. Recognizing this, some breed associations (Simmental and Gelbvieh) provide performance information on maternal grandsires in the form of an EPD for daughter's first calf calving ease. Although many breed associations do not provide EPDs for daughter's first calving ease, almost all breeds provide EPDs on sire birth weight.

Selecting replacement heifers out of bulls with low EPDs for birth weight should help reduce birth weight and calving difficulty. Canadian research shows that selecting heifers out of low birth weight sires tends to result in females with a lower mature size, which may, or may not, be desirable.

These results indicate that sire information can play a major role in replacement heifer selection. Therefore, commercial cattlemen are encouraged to evaluate important sire EPDs (birth weight, calving ease and daughter's first-calf calving ease) from heifers they are considering keeping as replacements.

What Nutritional Program Will Best Help Me Avoid Calving Difficulty?

In beef cattle herds, there are two phases of nutritional development that affect calving difficulty:

A. Weaning to Breeding
B. Breeding to Calving

Weaning to Breeding: Early research at KSU by Schalles and co-workers evaluated the importance of heifer development at various stages and found that gain from weaning to first breeding had an important impact on calving ease. Recent research at the Fort Hays Experiment Station by Patterson and co-workers further evaluated the importance of post-weaning heifer development.

In this study, Angus X Hereford heifers were developed to be either 55 or 65 percent of their mature weight by the time of first breeding. Those heifers developed to the heavier breeding weight (1) were still heavier at calving; (2) had larger pelvic areas; (3) had a higher post calving body condition score; and (4) experienced less calving difficulty (52.3 percent vs. 28.8 percent) than their lighter weight counterparts.

These results underscore the importance of a sound nutritional development program from weaning to breeding. This can not be underestimated when trying to prevent calving difficulty.

Breeding to Calving: Nutritional factors affecting dystocia are not fully understood and are complicated by energy vs. protein relationships. It has been established, however, that energy supplementation prior to calving influences calf size, calving difficulty, subsequent reproductive performance and calf growth rate.

Table 3 summarizes the effects of supplemental prepartum energy on these factors.

Table 3. Summary of Supplemental Prepartum Energy Effects on Calving Difficulty, Subsequent Reproductive Performance and Calf Growth

Researcher	Supplementation*	Summary of Effects
Christenson et al., 1967	HE vs LE for 140 d Prepartum	HE increased birth weight, dystocia, milk and estrus activity
Dunn et al., 1969	ME vs LE for 120 d Prepartum	ME increased birth weight and dystocia
Bellows et al., 1972	HE vs LE for 82 d Prepartum	HE increased birth weight but had no effect on dystocia or weaning weight
Laster & Gregory, 1973	HE vs ME vs LE for 90 d Prepartum	HE increased birth weight but had no effect on dystocia
Laster, 1974	HE vs ME vs LE for 90 d Prepartum	HE increased birth weight but had no effect on dystocia
Corah et al., 1975	ME vs LE for 100 d Prepartum	ME increased birth weight, estrus activity, calf vigor and weaning weight but had no effect on dystocia
Bellows and Short, 1978	HE vs LE for 90 d Prepartum	HE increased birth weight, estrus activity, pregnancy rate and decreased postpartum interval but had no effect on dystocia
Anderson et al., 1981	HE vs LE for 90 d Prepartum	HE had no effect on birth weight, milk or weaning weight
Houghton et al., 1986	ME vs LE for 100 d Prepartum	ME increased birth weight and weaning weight but had no effect on dystocia

HE = high energy (over 100 percent NRC); ME = moderate energy (approximately 100 percent NRC); LE = low energy (under 100 percent NRC)

Summarizing these studies, supplemental dietary energy fed for 90–100 days prior to calving will increase birth weight, but does not have an adverse effect on calving ease. In fact, Table 4 illustrates the incidence of calving difficulty was actually lower in the moderate- and high-energy groups than in the low-energy group. These data clearly demonstrate that *"You cannot starve calving difficulty out of cows and heifers."*

Table 5 shows additional effects of gestation energy level. When low energy was provided 90 days prior to calving, it took heifers an average of 41 days longer to return to estrus and cows 17 days longer. Pregnancy rates were also decreased in females receiving low energy diets by 33 and 3 percent for heifers and cows, respectively. These numbers demonstrate why it is important not to underfeed the productive beef female and particularly prepartum first-calf heifers, if you expect to maintain reproductive efficiency in your cowherd.

Cow condition has also been implicated as a factor that contributes to calving difficulty and is closely related to gestation feed level.

Table 6 summarizes the effect of cow condition on dystocia.

This summary shows that underfeeding cows to the point where they are emaciated will result in calving difficulty, as will overfeeding cows to the point of obesity. Overfat cows appear to have increased dystocia due to a fat-filled birth canal and increased abnormal presentations, while thin cows don't have the strength to withstand the birth process and have weak, non-vigorous calves. Therefore, it becomes extremely important that cows are not over- or underfed, but are provided adequate feed to meet their nutritional requirements. Depending upon body size, stage of pregnancy and climate, weaned heifer calves require 8 to 12 pounds of Total Digestible Nutrients (TDN) daily; pregnant two-year-old heifers, 9 to 13 pounds of TDN; and mature pregnant cows, 8 to 12 pounds of TDN.

In recent years, interest has also been shown in protein supplementation and its effect on calving difficulty. Table 7 summarizes the work that has been done in this area.

Although researchers in the late '70s thought excessive protein supplementation during

Table 4. Effect of Pre-Calving Energy Level on Birth Weight and Dystocia in 2-Year-Old Cows

Energy Level	Birth Wt, lb	Dystocia (percent)
Low (10.8 lb TDN)	58.0	26
Medium (13.7 lb TDN)	61.5	17
High (17.0 lb TDN)	63.9	18

(Ritchie, Michigan State University)

Table 5. Effects of Gestation Feed Level on Reproduction

Dam	Gestation Feed Level*	Interval, Calving to First Estrus (days)	Pregnancy Rate (%)
Heifer	Low	100	50
	High	59	83
Cow	Low	77	78
	High	60	81

*Low = 8.0 lb.; high = 15.0 lb. TDN fed for 90 days before calving.
(Bellows, Miles City, MT)

Table 6. Summary of Cow Condition Effects on Calving Difficulty, Subsequent Reproductive Performance and Calf Growth

Researcher	Summary of Effects
Wiltbank et al., 1961	Obesity caused increased dystocia and calf mortality
Hight, 1966	Thin cows had calves with decreased birth weight, vigor and suckling activity and cows exhibited a 20 percent decrease in pregnancy rate; dystocia was not reduced
Nelson & Huber, 1971	Obesity caused a 10-20 percent increase in dystocia over moderately conditioned and thin cows
Arnett et al., 1971	Obesity increased dystocia, calf mortality and services/conception and decreased weaning weight and calves weaned
Houghton et al., 1986	Thin cows had calves with decreased birth weight and weaning weight; dystocia was not reduced

Table 7. Summary of Supplemental Prepartum Protein Effects on Calving Difficulty, Subsequent Reproductive Performance and Calf Growth

Researcher	Supplementation *	Summary of Effects
Wallace & Raleigh, 1967	HP vs LP for 104–137 d Prepartum	HP increased cow weight, calf birth weight and conception rate but decreased dystocia
Bond & Wiltbank, 1970	HP vs MP throughout Gestation	HP had no effect on birth weight or calf survivability
Bellows et al., 1978	HP vs LP for 82 d Prepartum	HP increased cow weight, cow ADG, calf birth weight, dystocia, weaning weight and decreased conception rate
Anthony et al., 1982	HP vs LP for 67 d Prepartum	HP had no effect on birth weight, dystocia or postpartum interval
Bolze, 1985	HP vs MP vs LP for 112 d Prepartum	HP had no effect on birth weight, dystocia, weaning weight, milk or conception rate but decreased the postpartum interval

*HP = high protein (over 100 percent NRC); MP = moderate protein (approximately 100 percent NRC); LP = low protein (under 100 percent NRC),

late gestation might be responsible for some dystocia problems, more recent research has not substantiated this theory. Therefore, producers should be warned *not to underfeed* protein to the gestating cow in an effort to reduce calving difficulty. In fact, although not expressed in Table 7, several of these studies showed that low protein feeding during gestation resulted in decreased calf vigor, delayed uterine involution, increased interval to estrus and decreased conception rates following calving. These problems appear to be compounded when energy is also deficient, illustrating the need for a properly balanced diet.

? Is It True That Implants Increase Pelvic Size?

Research conducted at Miles City, Montana, in 1983 indicated zeranol (Ralgro) implants could increase pelvic area in beef heifers and could theoretically reduce calving difficulty. However, zeranol also resulted in a reduction in pregnancy rate by 16 percent (62 vs 78 percent) in this study and did not improve age or weight at puberty.

Other research with estrogenic implants substantiates an early increase in pelvic size in implanted beef heifers but this advantage disappeared once heifers reached 14 months of age. If heifer calves are implanted at birth, a subsequent reduction in first-service conception rates is often observed. Likewise, heifer calves receiving multiple implants experience reduced fertility.

These results suggest that the original recommendation by researchers not to use zeranol or other implants in replacement females still holds true. Implants, however, should not be overlooked as effective growth promotants in calves (suckling through feedlot phase) meant for slaughter.

? Can Geographical Location (Environment) Influence Calving Difficulty?

One of the interesting factors associated with birth weight is the environmental influence. Several studies have shown calf birth weight increases in colder environments as compared to warmer, southern climates. Similarly, northern states tend to experience a higher rate of calving difficulty than their southern neighbors. The exact reason for this phenomenon is unknown but, nevertheless, it is well documented. A good illustration of this is in genetically similar Hereford cattle in which part of them were calved in Montana and part in Florida. Each group was then moved to the other location and 10 years later, birth weight data were collected. Results of this study are in Table 8 on page 8 and clearly show the effect of colder environments on increased birth weights.

Table 8. Genetic X Environmental Interaction Effects on Birth Weight in Hereford Cattle

Breeding	Herd Location	No. Calves	Birth Weight (lb)
Line 1	Montana	727	81
	Florida	677	64
Florida	Montana	405	77
	Florida	363	66

(Burns et al., 1979, Brooksville, FL)

Can Exercise Make a Difference?

It stands to reason that increased muscle tone in heifers and cows would lead to easier calving. Studies looking at level of exercise, however, have yielded variable results. Researchers seem to be in agreement that differences in ease of calving due to exercise is dependent on previous shape and condition of the cattle and the management system to which they were accustomed. For example, a study conducted in Miles City, Montana, showed no difference in incidence of dystocia due to forced exercise but the cattle had been raised on hilly, sparse range. In contrast, confinement-raised dairy heifers responded favorably to forced exercise by exhibiting an improved calving ease score, reduced placenta retention time and less days open following calving (Table 9).

Many beef heifers are grown and developed in semi-confinement, drylot conditions similar to dairy operations. Where this is the management system, it's possible heifers could benefit from increased exercise prior to calving. This could be accomplished simply by placing water and feed supplies at a distance from each other that would encourage more movement and exercise.

Table 9. Effects of Exercise During Gestation on Calving and Reproduction in Dairy Heifers

Group	No.	Calving Ease Score	Placenta Release Time	Days Open
Control	14	2.1	4.2	159
Exercise*	26	1.4	2.5	111

*Walk of 1 mile daily at 3.5 mph for 4 weeks prior to calving.
Lamb et al. (1979).

Are There Important Endocrine (Hormonal) Aspects to Consider?

Little information is available concerning the hormonal influences on calving difficulty. Some hormones that have been studied, however, include relaxin, prolactin, estrogens and progesterone.

Research with relaxin has indicated a potential beneficial effect on cervical dilation, pelvic area and subsequent parturition in beef heifers. Administration of relaxin into the cervix during late pregnancy has resulted in cervical dilation and elicited an increased pelvic area growth rate without inducing premature birth.

Other researchers have looked at prolactin levels and found lower pre- and postpartum plasma concentration levels in females experiencing dystocia than in normally calving cows. In addition, estrogen excretion rates were lower in dystocia cases than controls, but progesterone levels were similar in all cows .

Although these results should be considered preliminary, it may be possible at some point to predict the incidence of dystocia through hormonal blood levels. For example, it's been suggested that the dam or sire breed influences the level of estrogens produced by the fetus and subsequent urinary estrogen excretion by the cow. This trait has been estimated to have a heritability of about .30. If this heritability estimate is accurate, and low urinary estrogen excretion can be associated with dystocia, then sire selection for urinary estrogen excretion may be possible. Selection for estrogen excretion may also have some advantage in predicting milk yield because of the high relationship of blood estrogen levels in late pregnancy and subsequent milk production.

Does Season of Year Have an Effect on Calf Birth Weight and Calving Difficulty?

There is considerable year-to-year variation in birth weight and calving difficulty using the same sires and females. This is partially, but not fully explained by nutrition and environmental conditions.

Fall-born calves usually are lighter and born with less assistance than spring-born calves. This is because hot summer temperatures tend to reduce birth weights, whereas cold temperatures increase birth weights.

Summary

As this discussion on calving difficulty concludes, there are a few timely tips to keep in mind to help avoid dystocia in the cowherd. These include:

- Mate yearling heifers to low risk calving-ease bulls and mature cows to multiple-trait sires that are adequate for calving ease but excel in growth traits. Sire summaries and use of EPDs are helpful here.
- If actual birth weight is used to evaluate the genetic potential of a sire, take into account the environment and management his dam was subjected to prior to his birth.
- Feed pregnant females balanced diets; do not over- or underfeed. Remember first- and second-calf heifers require additional nutrients for growth and development!
- Breed over a short period (45-60 days) and breed heifers 2 to 3 weeks prior to the cowherd. These practices concentrate the breeding season so you can give more time and attention to calving and allow heifers more time to rebreed the following year.
- Manage first- and second-calf heifers separately from the mature cowherd. This allows you to feed more, and higher-quality feedstuffs to heifers and assures that mature cows don't get more than their fair share of feed.
- Know how and when to give assistance at calving. Be available to help females that are experiencing a difficult birth but don't try to pull calves from cows that have not yet achieved complete cervical dilation.
- Select replacement females from older, heavier heifer calves. These heifers will generally have larger pelvic areas, reach puberty earlier and will subsequently conceive and calve earlier. Usually, this advantage is maintained throughout the heifer's productive life.
- For long-term development of calving ease females, make use of available information on maternal grandsires (daughter's first-calf calving ease).

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