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*Field-tested ways to improve  
beef calf survival and growth*

## Cow Management at Calving

Calf losses at birth and during the first few weeks of life are often caused by diseases, death and poor growth performance. Calf losses remain a major problem in many beef cow/calf herds. Field observations suggest that good herd management may help to prevent these calf losses. An Idaho Total Beef Program field research and demonstration project, conducted in a five-county area in southeastern Idaho, identified clinical and management practices for beef cows during and after calving that may be directly or indirectly important in determining the survival and growth performance of neonatal calves.

This publication summarizes findings and recommendations based on observations made of the dams during the field research and demonstration project.

### Calving Interval

Calving interval is one of several important indicators of the reproductive health and efficiency of brood cows. It is determined by calculating the number of days between succeeding calving dates. The goal is to have all cows in a herd deliver a live calf every 12 months or less. Calving intervals that exceed 365 days decrease the total production efficiency of a herd by increasing the costs of maintaining the cow/calf units.

Regardless of the age of the animals, the calving intervals of beef cows usually range from 332 to 380 days, averaging about 358 days. Routinely examining the cows for pregnancy during the fall season, culling nonpregnant animals and recording calving dates will help to assure acceptable calving intervals of all animals.

### Udder Conformation

Udder conformation includes physical characteristics such as teat size and udder suspension. Abnormally large

or small teats or oversized udders suspended close to the ground often cause delays in the time and efficiency of first suckling, and will continue to hamper the ability of calves to receive proper nutrition. The udder conformation of beef cows should be checked routinely to identify problems with teat size and suspension.

The American Polled Hereford Association developed a practical system for evaluating udder conformation of beef cows. This system scores teat size and udder suspension by numbers ranging from 50 to 0. High-numbered scores indicate small teat or udder size/suspension, while low-numbered scores indicate large teat or udder size/suspension.

First-calf beef heifers commonly have small-sized teats (average score = 33; range = 25 to 39), and their teat size scores are often significantly higher than those of older animals. Similarly, first-calf beef heifers usually have small-sized udders (average score = 34; range = 25 to 42), and their suspension scores are often significantly higher than those of older animals. Teat size increases and udder suspension often becomes lower as cows age. Thus, close attention should be given to udder conformation as a reason for culling aged animals.

### Grouping Animals

During the calving season, most producers schedule their 2-year-old heifers to deliver calves first, while older cows in the herd calve later. This allows producers the best opportunity to provide help to the younger animals that are most likely to experience calving problems. Before the mature cows in the main herd calve, they also should be divided into small groups according to expected calving date. This management practice permits close attention to these animals during and after calving. The small groups,



consisting of up to 15 cow/calf pairs, are easily fed, watered and cared for. Dividing the herd into small groups in this manner creates an orderly and uninterrupted flow pattern of cattle as they proceed through the calving season. Further, this system allows better disease control by limiting the spread of infections in calves to a small group rather than a large group of animals.

## Calving Facilities

Opinions differ about the use of an enclosed facility to house animals during calving. Calving facilities are usually pole barn-type structures with a sand or gravel floor covered with straw bedding, full-sized entry/exit doors on each end, a center alley and individual pens on both sides. These buildings are not heated except for a calving equipment/medicine room and a warming area for cold-stressed calves. Care is taken to avoid exposure of animals to cold air drafts and excessive moisture along exterior walls, windows and doorways.

The advantages of calving facilities include close supervision of cows during calving and of calves during the first 12 to 24 hours of life. In addition, cow/calf pairs are confined to individual pens located in a reasonably clean, dry and draft-free environment. Cows are easily restrained in a head chute or behind a squeeze gate for examination and treatment. Calving facilities also make it more convenient to help calves with suckling or to hand- or tube-feed them when necessary. Producers who use calving facilities are careful to sanitize the pens with iodine-containing or organic disinfectants and to clean and re-bed the pens between cow/calf pairs. These routine sanitation practices help to keep neonatal calf diseases, such as diarrhea and pneumonia, at a minimum.

## Length of the Calving Season

The length of the calving season is determined by the length of the breeding season. Many producers operate with a calving season between 90 and 120 days, while the ideal is about 60 days. Recording all calving dates and having a veterinarian examine cows for pregnancy after the fall roundup provides helpful information for determining the length of the calving season. A shorter calving season is an important factor in determining the uniformity and performance of calves. Calves that are matched closely according to age will have more uniform weaning weights and will command a more favorable sale price at weaning than calves that vary significantly in age.

Controlling the length of the breeding season is beyond the scope of this discussion. Important management practices, however, include retaining only cows that calve during a prescribed time period, preventing and controlling reproductive diseases by appropriate health management and vaccination procedures and selecting and using high-performance bulls.

## Calving Ease

Calving ease refers to the ease or difficulty that cows experience when giving birth. Calving ease should be recorded for all cows at delivery by use of a numerical scoring system. For example, "1" could indicate an unassisted delivery; "2" a manually assisted delivery; "3" use of a mechanical calf puller, and "4" a Cesarean delivery.

A new system is being developed to predict calving ease in first-calf heifers. This system is based on internal measurements of the pelvis of breeding heifers and bulls and average birth weights of calves sired by breeding bulls. Except for first-calf heifers, most beef calves are born by unassisted delivery. Calves born after assisted or prolonged delivery may lack normal vigor and stamina and should be observed for loss of appetite and body weight and early signs of disease.

## Lactation and Mothering Scores

Each cow should be observed daily for evidence of a healthy udder and for indications that she has sufficient milk to nourish her calf properly. Insufficient volume of milk due to poor udder development is usually a problem associated with first-calf heifers. Calves from these animals should be observed carefully for signs of unthriftiness due to malnutrition. A lactation scoring system should be developed to keep track of cows with normal udders and those with diseased udders or poor milking ability. For example, a score of "3" might indicate normal udder health and lactation activity; "2" would indicate moderate swelling and warmth (flushing) of the udder and reluctance of the cow to nurse her calf, and "1" would indicate a great amount of swelling of the udder or evidence of mastitis. This information often relates directly to udder conformation scores, and can be used later as a basis for culling cows unable to raise thrifty calves because of udder problems.

Cows also should be observed daily to evaluate their mothering ability and willingness to groom and care for their calves in an attentive manner. A scoring system should be developed, based on the mothering behavior of the dams. For example, a score of "3" might indicate aggressive attention to the needs of the calf; "2" could indicate passive behavior to the needs of the calf, and "1" would indicate rejection of the calf. Poor mothering behavior, such as abandonment or neglect resulting in unthrifty calves, should be reason for culling those dams.

## Quality of Colostrum

Colostrum is an important secretion from the cow's udder that is available only shortly before and after calving. Colostrum contains high concentrations of nutrients and immunoglobulins necessary to protect neonatal calves from infections. Calves are born with minimal concentrations of immunoglobulins in their blood, so they must rely after birth on colostrum feeding to acquire passive protec-



tion from organisms that commonly cause calfhood diseases. Generally, the quality of colostrum from beef cows, as measured by the total immunoglobulin concentration, is excellent, although sometimes individual cows may secrete colostrum of moderate or inferior quality.

Regardless of age or breed, the total immunoglobulin concentration in the colostrum of beef cows at calving ranges from 96.5 to 99.0 milligrams/milliliter (mg/ml). Colostrum rated superior contains greater than 50 mg/ml of total immunoglobulins, while colostrum rated moderate has between 20 and 50 mg/ml and inferior quality colostrum has less than 20 mg/ml of total immunoglobulins. In contrast to beef cows, the average total immunoglobulin concentration in colostrum from dairy cows at calving is about 50 mg/ml. This lower average concentration of total immunoglobulins in colostrum of dairy cows may be due in part to the larger volume of fluid secreted and subsequent dilution of the immunoglobulins.

## Colostrometer

A colostrometer is a commercially available hydrometer used to estimate colostrum quality. Colostrometers indirectly determine total immunoglobulin concentrations by measuring the specific gravity of fresh colostrum. A numbered scale on the stem of the colostrometer indicates the total immunoglobulin concentration, and a colored scale indicates the quality of the sample as superior, moderate or inferior. About 1 pint of fresh colostrum is required for the test, and the sample needs to be 72°F during the test.

Producers who use colostrometers randomly sample and test colostrum from a representative number of cows and heifers during the calving season. This provides useful information about the overall quality of colostrum produced, and identifies animals that produce colostrum of moderate or poor quality. Use of a colostrometer also allows the selection of superior quality colostrum that can be frozen and used later for calves whose dams produce inadequate or poor colostrum. These calves should be hand- or tube-fed supplemental, superior-quality colostrum either from other cows that have calved recently or from pooled colostrum that has been preserved by freezing.

## Pocket Field Book

A pocket field book has been developed for beef cow/calf producers as part of the Idaho Total Beef Program. This book is designed so producers can easily record important health and management information about their herds during the year-long production cycle. Computer software programs are available to summarize part or all of the information entered in the books. The summary reports are used by the producer, veterinarian, feed and equipment suppliers and lending agencies to identify management changes that should be made to improve the production efficiency of the herd. All items discussed here involving calves can be included as part of the data base in the pocket field book. These pocket field books are available for a nominal charge from the Extension Agricultural Agent in your area.

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