Don’t overlook the importance of colostrum this calving season

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Calving time either has arrived or is approaching for many beef producers, and with it comes the joy of watching baby calves arrive, nurse, graze and grow to weaning. Unfortunately, not all calves make it to the pay window for producers. Losses that occur before weaning can often be traced back to birth, when calves did not receive adequate colostrum from their dams.

Colostrum is the first milk that the cow produces and is high in essential nutrients and antibodies. These antibodies, including immunoglobulin gamma (IgG), are especially important for newborn calves because antibodies do not pass directly from the mother to the fetus through the placenta in cattle like they do in other species (e.g., humans). This means that newborn calves are dependent on the passive transfer of antibodies through colostrum to help them build immunity to bacterial and viral infections. Research has shown that calves who do not receive adequate amounts of colostrum at birth have increased morbidity and mortality rates before weaning. In addition, sick calves will have reduced weaning weights and other additional health and performance issues in the feedlot. Ensuring that the calf receives adequate levels of colostrum is important to preparing that calf for a healthy and productive life.

The following factors can influence the calf’s ability to passively transfer the dam’s antibodies through colostrum consumption:

**Timing of colostrum intake.** The timing of the calf’s colostrum ingestion is the most important factor to remember when calving. The small intestine of a newborn calf only allows for the absorption of antibodies within the first 24 hours of the calf’s life. On top of this already small window of time, the efficiency of antibody absorption quickly declines within the first 12 hours. Calves should receive adequate amounts of colostrum within the first six hours of life — preferably in the first two hours — for optimum immunity.

**Quality and quantity of the cow’s colostrum.** Colostrum production is initiated around the last five weeks of gestation, and proper nutritional management is crucial to producing colostrum of a good quality and quantity. Cows with a body condition score (BCS) of 5 and above are known to produce colostrum with higher levels of nutrients, including IgG, than cows with a BCS of less than 5. Proper protein intake will ensure the production of colostrum at an adequate volume and quality and with adequate antibody levels — and will also reduce the number of weak calves at birth. Supplementing with vitamin E and selenium has been shown to increase the concentration of IgG in cows deficient in selenium, compared to non-supplemented cows. In addition to proper nutrition, utilizing a vaccination strategy prior to calving can improve the antibody concentration in colostrum. Follow manufacturer labels on the timing and administration of pre-calving vaccines to enhance colostrum quality and calf health.

**Calves born to first-calf heifers.** First-calf heifers are known to produce inferior colostrum compared to that of older cows. A heifer’s milk production is lowest during her first year, as is the volume of her initial production of colostrum. In addition, first-calf heifers have not built up the number of antibodies that older cows have and do not have efficient antibody transport mechanisms. The maternal instinct of first-calf heifers can also be limited, as they are still adjusting to the new life they have brought into this world. As such, the timing of colostrum intake may be delayed, as some heifers will not allow their calf to immediately nurse or may reject the calf altogether.

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Cow’s udder. The conformation of the udder and teats can inhibit a new calf’s ability to suckle colostrum for the first time. Calves are born with a natural suckling instinct, but if the calf is unable to latch on and nurse due to the size or shape of the teats, the timing of the colostrum intake may be delayed. Cows with quarters that do not produce milk, also known as blind quarters — usually caused by mastitis — will produce less colostrum. Culling cows with poor udders will reduce the possibility of calves being unable to nurse quickly and efficiently.

Dystocia and injury. Calves who go through difficult births, either assisted or unassisted, are at a higher risk of the passive transfer failing for several reasons. First, dystocia can be stressful for a calf and, as such, may increase the amount of time it takes for that calf to stand and nurse. Second, calves who experience a prolonged stage II of labor will often suffer from severe respiratory acidosis, resulting in less efficient absorption of IgG from colostrum. Lastly, injuries sustained during difficult births may prohibit calves from standing and nursing. Producers should keep a closer eye on calves who experienced a difficult birth and intervene, when needed, to ensure that those calves do consume colostrum.

Weather conditions. Cold weather can affect the calf’s ability to obtain passive transfer, as calves who experience severe cold stress at birth are often slower to get up and nurse, meaning that many of these calves do not consume adequate colostrum in a timely manner. Also, when human intervention is necessary to help calves quickly increase their core body temperatures, producers should remember that colostrum intake in that first six-hour window is key for optimum health.

Environment. Producers may not associate proper pen and pasture management with passive transfer, but it can play a major role. Muddy pen conditions can interfere with colostrum consumption by making it difficult for the calf to quickly stand and nurse, as well as by covering the cow’s udder and inhibiting the calf from efficiently nursing. If ingested, bacteria from mud and waste can colonize, or adhere, to the villi in the small intestine, reducing the absorption of key nutrients into the calf’s gut and potentially leading to scour outbreaks in calves.

In conclusion, calving time is always busy, so prepare in advance to help your calves get off to a good start. Keep a close eye on your heavy-bred cows. Maintain your equipment and facilities just in case intervention is necessary during a difficult birth. Also, make sure you have unexpired colostrum replacement products, like OptiPrime Colostrum Replacer, on hand. OptiPrime Colostrum Replacer is derived from cow colostrum and contains globulin proteins, along with fatty acids, vitamins and essential minerals, to support calf immunity, intestinal health and growth. Visit with your local Hubbard Feed representative for advice on other beneficial products for this calving season.
