

There are many cow-calf operations across the country, but not all of these operations are created equal. Some are productive and successful while others are not. Although climate, type of cattle, and other factors may vary from operation to operation, many producers would likely agree that there is one necessary requirement in these operations, regardless of location, size, or appearance of the herd. In order to be headed down the road to success, a cow-calf operation *must* have a large percentage of cows wean a live, healthy calf each year. This week we will talk about the importance of producing healthy calves, and how the first day of the calf's life can set the whole trajectory for the rest of its life.

Without calf immunity there would be no healthy calf, and no cow-calf operation. The calf's resistance to disease greatly depends on antibodies or immunoglobulins, which may be of active or passive origin. Active immunity is created when the body produces antibodies in response to an infection or vaccination. Passive immunity gives temporary protection by transfer of certain immune substances by resistant individuals. For example, passive immunity takes place when the dam passes antibodies to her calf via colostrum. This colostrum, which is only produced in the first 24 hours following calving, is critical in protecting the calf from disease, and should be consumed by the calf immediately after birth in order for the antibodies to be best absorbed. A recent study showed the effect of time of colostrum consumption compared to antibody absorption in calves. It was found that at 6 hours after birth the antibodies were absorbed at 66%. At 12 hours after birth the antibodies were absorbed at 47%, and at 24 hours after birth the antibodies were only absorbed at 12%. In other words, in order to have better antibody absorption, the calves need to receive colostrum as soon after birth as possible.

Although colostrum intake is critical for the health of a newborn calf, it can also greatly impact the performance of the calf for the rest of its life. In a study of 263 crossbred calves, it was found that the lowest levels of passive immunity were observed among calves that were sick or died prior to weaning. Calves with inadequate passive immunity had a 5.4 times greater risk of death prior to weaning, 6.4 greater risk of being sick during the first 28 days of life, and 3.2 times greater risk of being sick any time prior to weaning when compared to calves with adequate passive transfer. Calves with lower passive immunity as newborns also had a three times greater risk of being sick in the feed lot. Further, due to the effects on calf health, passive immune status is indirectly associated with growth rates. Calves sick during the first 28 days of life had an average 35lb lower expected weaning weight, and calves sick in the feedlot had lower average daily gains than calves that remained healthy.

Adequate passive immunity from colostrum is a critical component in determining the health of the calves both pre- and post-weaning. Because calves are born without the beneficial antibodies that protect them from sickness, they must get this passive immunity from their dams. As a cow-calf producer, it is your responsibility to help your cattle perform so that you will have healthy calves. To help have a healthy, successful operation it is important to properly grow out your replacement heifers, provide a good herd health program for the females, and ensure that each calf receives adequate quantities of colostrum within the first 24 hours. Keep in mind that the first day of the calf's life sets the stage for the rest of its life.

For more on the studies referenced in this article, please visit:

[http://www.iowabeefcenter.org/Beef%20Cattle%20Handbook/Management\\_Passive-Immunity.pdf](http://www.iowabeefcenter.org/Beef%20Cattle%20Handbook/Management_Passive-Immunity.pdf)

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