

Neonatal Diarrhea PREVENTION

How to wean more calves in two easy steps.

by **Kevin Hill** and **Lowell Midla**

“What to do” to prevent morbidity and mortality due to neonatal diarrhea (calf scours) is well documented and widely known. However, implementing the “what to do” on your operation, with your management and facility constraints, can be challenging. If you embrace the challenge and do not cheat or take shortcuts when implementing the recommendations below, then you will be well along the path toward weaning 100% of live-born calves.

Step One: Decrease the magnitude of the challenge

That is, decrease pathogen ingestion by the calf for the first two to four weeks of life.

Consider two extremes: 1 cow-calf pair on 100 acres vs. 100 pairs on 1 acre. There is a much

higher likelihood of problems with neonatal diarrhea in the latter situation — primarily due to pathogen concentration. While both of these situations are extreme and thus rare, there are specific locations within farms resembling the overstocked situation that are common. Examples include calving barns, calving stalls, feeding areas, watering areas and small lots where pairs are monitored for a few days after calving.

Cows are the reservoir of the bacteria, viruses and protozoa that cause neonatal diarrhea. Cows are immune to clinical disease from the pathogens but still carry them and shed them in small to moderate numbers. Calves become infected, essentially act as incubators, and then shed the bad bugs in large numbers. Frequent

cleaning and bedding of areas of high stocking density/heavy traffic areas will decrease the number of pathogens to which susceptible calves are exposed. Clean and dry is the goal — how to achieve clean and dry is up to you.

An alternative to frequent cleaning is the “Sandhills Calving System.” In this system, cows that have not yet calved are moved away from pairs every one to two weeks during calving season into a fresh pasture relatively uncontaminated by pathogens. If implemented correctly, newborn calves are spared exposure to the bacteria, viruses and protozoa excreted by older calves.

We commonly complain about the weather during calving season — wind, snow, frigid temperatures, temperature swings, rain, mud, etc. — and blame our problems on these conditions. Good planning includes having a plan for what to do when externalities disrupt the original plan. We can either continue with current management and facilities and hope for good weather, or we can alter management and facilities to account for inevitable bad weather.

Bottom line: Regardless of any other preventive intervention, the likelihood of illness is directly related to hygiene, which determines the absolute number of pathogens to which the calves are exposed.

Editor’s note: More information on the Sandhills Calving System can be found at Beef.Unl.edu/beefreports/symp-2007-17-xx.shtml

Step Two: Enhance calf resistance to the challenge

Late gestation cow rations should be properly balanced for energy, vitamins, minerals and particularly protein. An improperly fed cow will produce a weak calf and low-quality colostrum.

You have probably heard the “colostrum lecture” about a hundred times, and with good reason — *it is important*. Calves are born with very little to no antibodies with which to fight disease. Without colostrum calves are immunologically naked. Volume and timing are, by far, the two biggest factors affecting the amount of antibody gained via colostrum. Regarding volume, the answer is “all the cow has” up to four quarts. Regarding timing, forget any guidelines you may have heard or read, such as within 6 hours or within 4 hours after birth. The efficiency of antibody absorption from colostrum begins to decline immediately after birth, declines to 50% of baseline by 6 to 12 hours after

birth and is near zero by 24 hours after birth^{1,2}. Therefore, colostrum ingestion needs to occur immediately after the calf recovers from the trauma of birth or as soon as possible thereafter.

Cull cows with large teats. Large teats make it more difficult for newborn calves to nurse colostrum in a timely manner.

Vaccinate cows during late gestation to increase the level of antibody directed against neonatal diarrhea pathogens in the colostrum. There are several commercially available vaccines designed for this purpose — e.g. Guardian® from Merck Animal Health. Cows with higher levels of antibody in their colostrum will provide greater protection to their calves. Remember, if the calf does not receive an adequate volume of colostrum at the appropriate time, then the antibody generated in the dam will not be beneficial. Always follow vaccine label directions — e.g. generally animals being vaccinated for the first time (heifers) need both a dose and a booster for the vaccine to be effective.

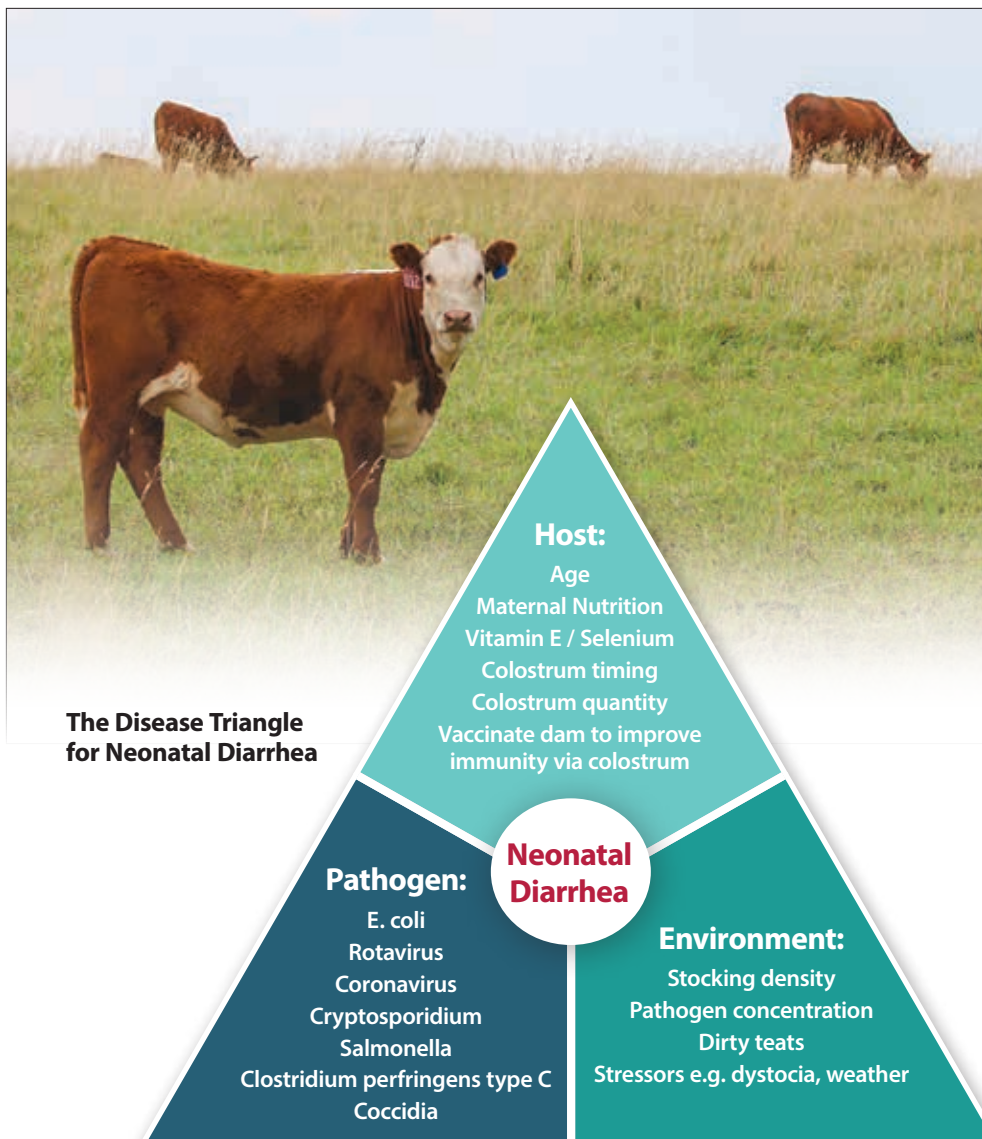
If you believe a calf may not have received colostrum, then a colostrum replacement product is indicated. Calves need approximately 150 to 200 grams of IgG² (also known as immunoglobulin or globulin protein). Read product labels prior to purchase to be sure it is possible to administer at least 150 grams of IgG in 4 quarts of water or less when mixed according to label directions. Timing of administration of colostrum replacers is just as important as timing of ingestion of maternal colostrum with respect to fraction absorbed.

Minimize other stressors. Examples include dystocia (adversely affects calf’s ability to absorb IgG and often delays colostrum ingestion) and navel ill (dip navels in bona fide 7% iodine solution). While calves need shelter from wind and extreme cold, remember any shelter will also become an area of pathogen concentration.

Knowing what to do to prevent neonatal diarrhea is easy. Actually doing it is difficult, but far less stressful and costly than a scours outbreak. The planning and effort you put into prevention will determine the degree of success you achieve. **HW**

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¹ Stott GH, Marx DB, et al; 1979: Colostral immunoglobulin transfer in calves. III. The amount of absorption. *J Dairy Sci* 62: 1902-1907.

² Gomez DE and Chamorro MF; 2017: The importance of colostrum for dairy calves. *Rev Colomb Cienc Pecu*: 30(Supl): 241-244.