The Sandhills Way

Pasture-calving, moving bred cows minimizes scours in calves.

Story & photos by ***Micky Wilson***

For many cattlemen, calving season is the most labor-intensive, sleep-deprived time of the year. Night checks, inclement weather and sick calves only add to the strain of daily life during calving. But what if there were a way to avoid some of the hands-on work, sickness, scours and stress of calving?

Nebraska ranchers and veterinarians, including veterinarian David Smith of the University of Nebraska–Lincoln (UNL), have put into practice a calving system that does just these things. The main goal of the Sandhills Calving System, implemented and studied during a five-year period on two Nebraska Sandhills ranches, is to calve cows in small pastures for seven- to 10-day periods, minimizing disease agents that can cause calf scours.

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Jed Connealy, Connealy Angus, Whitman, Neb., has seen firsthand how the Sandhills Calving System works. Every fall, between July 20 and Sept. 5, he calves out some 350 cows on pasture. Cows have been fall-calved on pasture for the last three years. The Sandhills Calving System was put into place when the ranch started fall-calving.

The significance of the Sandhills Calving System can be explained by

- ►first, checking out the background of disease agents that can harm calves;
- ►second, considering environmental factors that can contribute to calf sickness; and
- ►third, looking at the details of implementing the Sandhills Calving System.

Disease agents

"Diarrhea is one of the most likely reasons young beef calves become sick or die," Smith says. Scours typically occur within one to two weeks of age. To the rancher, Smith says, "Calf scours is costly due to poor calf performance, death and the expense of medications and labor to treat sick calves."

Common agents of calf diarrhea include bacteria, such as *E. coli* and salmonella; viruses, such as rotavirus and coronavirus; and protozoa, such as cryptosporidia. Some of these agents are common to most cattle herds and can be recovered from calves in herds not experiencing calf diarrhea.

Soon after they are born, Smith explains, calves obtain passive immunity against common agents of calf diarrhea by absorbing antibodies from colostrum.

"The amount of antibodies absorbed is determined by the quality and quantity of colostrum the calf ingests, and how soon after birth it is ingested," he says. "The presence of antibodies in colostrum requires prior exposure of the dam to the agent."

The issue, however, is the time period between the utilization of colostrum, and the development of a full immune system.

"The first seven to 14 days of age defines the age of susceptibility, as well as the age calves are most likely to become infective and shed the agents in their feces," Smith says.

But the calf's age isn't the only factor in agent susceptibility. Heifers, as opposed to cows, produce a lower quality and quantity of colostrum. Therefore, Smith says, calves born to heifers may have lower maternal antibody levels. Additionally, heifers may have poor mothering skills, and are more likely to experience calving difficulty.

Environmental factors

"Exposure to pathogens may occur through direct contact with other cattle or via contact with contaminated environmental surfaces," Smith explains. "Keeping the environment clean has long been recognized as important for controlling calf diarrhea."

Connealy agrees. "There is a reduction of sickness with pasture-calving because pairs have the ability to spread out in the area. They have a chance to be isolated as pairs, so they 'mother-up' better."

Crowded conditions, excessive heat or

cold, and moisture are stressors that impair the ability of the calf to resist disease and may influence pathogen numbers, Smith says.

Most likely, he continues, "The adult cow herd serves as the source of calf scour pathogens from year to year." The cows shed small numbers of pathogens, but once calves start being born, it is the calves that serve as pathogen-multipliers, and, Smith says, "become the primary source of exposure to younger, susceptible calves." Further, he says, "Each calf serves as growth media for pathogen production, so the number of pathogens shed gets greater and greater as calves transmit the pathogens to each other."

Unlike early-born calves, late-born calves may be exposed to larger doses of pathogens. In turn, these calves may become relatively more infective by growing greater numbers of agents.

"Eventually," Smith says, "the dose-load of pathogens overwhelms the calf's ability to resist disease." This may explain why late-born calves are at greater risk for disease or death.

Total disease prevention, however, may not be possible.

"The endemic nature of the common pathogens of calf diarrhea makes it unlikely that cattle populations could be made biosecure from these agents," Smith warns. "Biosecure" is the complete prevention of an introduced disease agent into a population.

Additionally, Smith says, "Vaccines are not available against all pathogens of calf diarrhea. A biocontainment approach to control calf diarrhea seems more useful." An advantage of the Sandhills Calving System, Smith says, is that reductions in sickness and death due to calf scours greatly reduced use of medications.

The Sandhills way

It's simple, really. In the big picture, the goal is to segregate calves by age, reduce the level of exposure to pathogens, and minimize contact time between early-born and late-born calves. In Smith's terms, "The Sandhills Calving System prevents effective contacts by using clean pastures, preventing direct contact between younger and older calves, and preventing later-born calves from being exposed to an accumulation of pathogens in the environment."

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But just how does a rancher get this done? Calving and scheduling preparation are a must. Connealy suggests a well-organized moving schedule, because "Pasture-calving makes strict rotation schedules a little "messy" because you can't move newborns easily," he says.

First, pasture or open ground is needed — and a lot of it.

"The Sandhills Calving System uses larger, contiguous pastures for calving, rather than high-animal-density calving lots," Smith says. "Cows are turned into the first calving pasture as soon as the first calves are born. Calving continues in Pasture 1 for two weeks. After two weeks the cows that have not yet calved are moved to Pasture 2. Existing cow-calf pairs remain in Pasture 1."

This approach helps recreate ideal conditions that exist at the start of the calving season during each subsequent week of the season.

"The result is cow-calf pairs distributed over multiple pastures, each containing calves within one week of age of each other," Smith points out. Once calves reach 4 weeks of age, pairs from different pastures may be commingled. At Connealy Angus, calves are commingled at 6 weeks of age for branding and vaccination.

"The routine movement of pregnant cows to new calving pastures prevents the buildup of pathogens in the calving environment over the course of the calving season, and prevents exposure of the latest-born calves to an overwhelming dose-load of pathogens," Smith says, explaining why the Sandhills Calving System works.

With all that room, though, Connealy warns that the amount of acres to cover while checking heavy cows is large, as opposed to the convenience of checking heavy cows in a "lot" situation.

But this system isn't just for large ranches. As long as the size of the pasture is appropriate for the number of pairs, any size cow herd can utilize the Sandhills Calving System. Smith warns, however, that pasture-calving shouldn't be damaging to later grazing.

"Cattle management systems based on an understanding of infectious disease dynamics have successfully reduced sickness and death due to calf diarrhea," Smith concludes. It's the Sandhills way.

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