

The Sandhills Shuffle

A new calving strategy helps reduce pathogen exposure and eliminate calf scours.

Story by

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Preventing outbreaks of neonatal calf scours, or diarrhea, can be an expensive, time-consuming task, but it's one that is critical to raising healthy calves and reducing costs.

Veterinary scientists at the University of Nebraska (NU) developed the Sandhills Calving System to help ranchers coping with persistent scours outbreaks to minimize or eliminate performance losses, mortality, and labor and medication expenses associated with the contagious disease. This cost-effective scours-prevention strategy helps break the disease's multiplication cycle.

The Sandhills Calving System uses multiple pastures during the calving season instead of housing

expectant mothers nearby for shelter and observation purposes. Ranchers funnel pregnant cows and heifers into a new pasture every week, while cow-calf pairs stay in the pasture where the calf was born.

The system naturally creates groups of calves born within one week of each other. This age segregation is key in preventing the spread of scours among calves. NU research showed calves born later in the season are at higher risk for the disease, says David Smith, the NU veterinary scientist who directed the research.

"We found you start out having calves born healthy," he says. "But as the calving season progresses, they're more likely to scour and more likely to die over time."

Even in situations where cattle rapidly move through pastures, leaving little time for ground contamination, scours can be problematic. Researchers conclude that the disease is more than just an environmental problem.

So, they aim to make every week of the calving season mirror the first week — with healthy, scours-free calves.

How it works

The Sandhills Calving System starts by turning cows into the first calving pasture when the first calves are born. A week later, producers move pregnant cattle to the next pasture, leaving cow-calf pairs behind. After a week in each new pasture, the process is repeated (see Fig. 1). The resulting pastures contain calves within one week of

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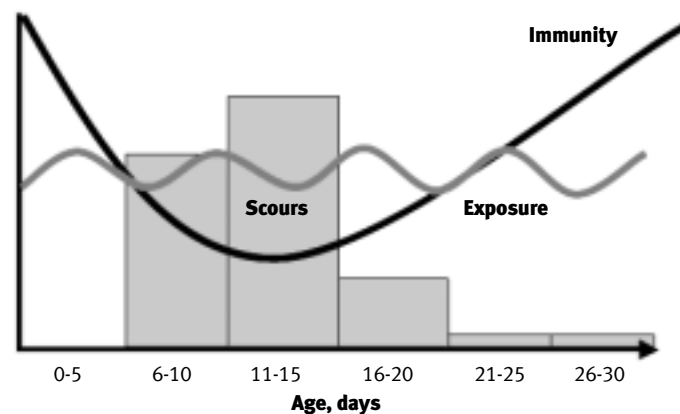


The Sandhills Calving System moves pregnant cows and heifers, not cow-calf pairs, to a new pasture. Smith says this ensures that calves are born on clean pastures where they aren't exposed to larger doses of scours-causing pathogens. [PHOTOS BY SHAUNA ROSE HERMEL]



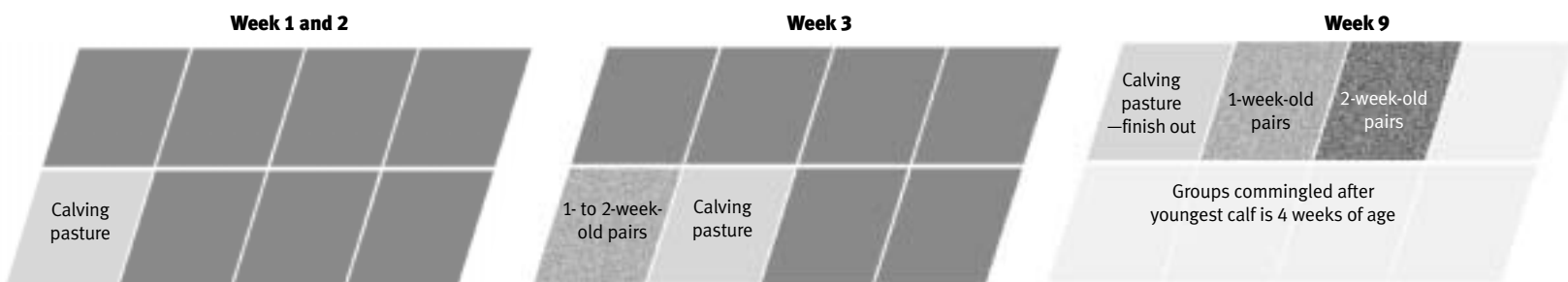
Age segregation is critical for the Sandhills Calving System's success, says NU veterinarian David Smith, since calves begin to shed high numbers of scours-causing organisms in their manure at about 2 to 3 weeks of age. [PHOTO BY SHANNON HARTENSTEIN]

Fig. 2: Relationship of a calf's age, immunity and exposure to pathogens



At birth, calves acquire passive immunity to scours-causing pathogens by absorbing antibodies from colostrum. As the calf grows, it develops an active immune response to protect it from disease. However, as passive immunity wanes prior to the active immune response being fully developed, a window of vulnerability is created during which pathogens can overload the immune system and cause disease.

Fig. 1: Sandhills Calving System



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The Sandhills Calving System naturally creates groups of calves born within one week of each other. This age segregation is key in preventing the spread of scours.



age. After the youngest calf in a pasture is 4 weeks old, the pairs in that pasture can be commingled with the older pairs.

Because the Sandhills system moves pregnant cows and heifers, not cow-calf pairs, to a new pasture, it ensures calves are born on clean pasture where they aren't exposed to older calves carrying large doses of scours-causing pathogens, Smith says.

Age segregation is critical for the system's success since calves begin to shed high numbers of scours-causing organisms in their manure at about 2 to 3 weeks of age.

These organisms persist from year to year in cow herds, and calves will always be exposed to them, Smith says. However, it's the number of organisms calves encounter that matters.

Earlier-born calves are exposed to small doses of pathogens, which multiply in their intestinal tracts and are excreted in manure. Younger calves are exposed to these multiplied pathogens, which further reproduce in their intestines and intensify the problem. This multiplication means later-born calves are exposed to increasingly dangerous doses of pathogens as the calving season progresses.

The system is designed to break this multiplier effect, so when calves are exposed to a pathogen, they're only exposed to a small dose, Smith says.

A rancher's story

Gail Nason, a rancher near Tryon, Neb., was one of the first to use the Sandhills system in 2001. She uses rotational grazing and early summer calving in her 400-cow herd.

Nason was losing 12% of her calves to scours each year. She had given up on treating calves, since many often still died, even after significant investments in labor and medication costs, she says.

"I was thinking there was an easier way to do this if I was going to stay in the ranching business," Nason says.

Her veterinarian, Tim Knott of the Sandhills Veterinary Hospital in Arthur, Neb., was working with Smith and other NU veterinary scientists on the Sandhills system. He helped Nason adapt the system for her operation to reduce calf losses.

The system was easy to apply to Nason's rotational-grazing system since small pastures were already in place, she says. Her herd already calved on the move in her old system, so Nason was accustomed to having pregnant cows and heifers far from the barn and her watchful eye.

"It was very easy to turn the cows out there and let them sit," Nason says. "I didn't struggle with them not being around the place because, to me, it just seems more natural."

The system helped Nason significantly reduce death losses from 48 deaths per 402 births in 2000. After the second year of testing, she had eliminated death losses to scours. After experiencing such dramatic results, Nason says it would be difficult to return to her old system.

"There is no way — I would be too scared to go back to the traditional way altogether," she says.

Nason operates one of two ranches with frequent calf scour losses where researchers tested the Sandhills Calving System.

The second test was on a 900-cow Sandhills ranch with a traditional system, calving in lots in early March

and later moving cow-calf pairs to pastures. The ranch usually lost 7%-14% of calves to scours. Three years after starting the Sandhills system, the rancher has completely eliminated deaths due to scours and reduced associated costs 24-fold, Smith says.

"We believe that we really had an impact because these ranchers had been concerned about scours for years," Smith says.

Economic benefits

The second ranch estimated as much as \$50,000 in savings from reduced calf losses and increased growth and performance of survivors, Smith says. In addition, the ranch reduced medicine, veterinary and labor costs for treating sick calves.

"Not only that, but when you don't have to medicate that calf, and he doesn't get sick, his immune system doesn't get challenged," Knott says. "He's a much healthier calf and will probably weigh more in the fall and have a better immune system to resist other diseases."

Labor costs also can be reduced since the system makes it easier to sort and move pregnant cows instead of pairs.

"They're easier to move than a cow with a baby calf," Smith says. "It turns out when ranchers ride in there to sort cattle, they just about sort themselves."

In addition, producers can schedule the weekly move when employees are available.

Ranchers not only reap economic benefits, but also minimize or eliminate the stress that accompanies calf losses.

"It amazes me, the emotional toll that calf loss can take on an operation," Knott says. "You'd think these old, rough ranchers that lose a calf — it's \$100 — but it's more than that. When it gets far enough into it, and you are putting money into treating calves and not getting results, it's very depressing."

Adapting the system

The system was designed, tested and named for the Sandhills of western Nebraska, but its concepts could be easily adapted for use in other regions.

However, Smith notes that the system was specifically designed for producers with scours problems and may not be a good fit for otherwise healthy herds.

"If you're getting along with the system you're using now, don't mess up a good thing," Smith cautions.

Knott agrees. Only a few of his clients, those with scours problems, are using the system.

"If producers don't have any problems, they don't care about changing. And why should they?" he says.

If starting the system appears to be a viable solution, ranchers should plan months in advance to start the calving system. But Knott and Smith agree that even in the middle of a scours outbreak, starting the system can be beneficial.

Most producers using the system move pregnant heifers and cows after one week. While the number of days

can vary slightly, Smith cautions ranchers on the importance of timing.

"We think the age at which you make the move is really important," he says.

"That interval needs to be short enough that we don't stretch the system out.

"The natural tendency is to say, 'Well, maybe I can make it work for 10 days or maybe two weeks or longer,' and that's

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where you've kind of broken the system," Smith continues.

Pregnancy exams could help producers channel expectant mothers into the system. Smith recommends starting cows and heifers with earlier calving dates into the system first, then adding those with later due dates to

pastures containing pregnant cattle as the season progresses.

Many ranchers may be concerned about storms and dystocia, or calving difficulty. Smith says he challenges producers to compare past losses from these causes with scours losses.

"Scours has always been the bigger problem, and so that's the one we save," he says. "I think the biggest hurdle is getting

over the mind-set that those cattle have to be close to the barn so you can watch them. What they've found is that they can get by without checking on the cattle every two hours."

In many cases, ranchers probably are assisting with more calvings than necessary, Smith notes.

Nason agrees. "To me, it just seems more natural. It gives a first-calf heifer

time to calm down and relax if you're not out there watching her, bugging her and making her nervous."

Smith adds, "You're still calving in a single lot, so all of your calving problems are still in one place. It's just that that place moves around."

To ease producers' worries about storms, Smith recommends identifying possible shelter for cattle if the need arises. However, in four years of using the system, it's only been a problem once, he says.

Producers starting the Sandhills system can expect a few costs, such as installing additional fencing to create lots and increased feeding times since cattle are spread across several lots. But those are balanced out since the system eliminates labor costs to catch and treat infected calves, Smith says. In addition, producers can avoid mass contamination of pastures.

There are no guidelines for required acreage, he says. "Cattle congregate anyway. You can put them in 1,000 acres, and the herd is still going to have some kind of density. They're not going to spread out over the entire acreage. So, there already is some concentration."

However, producers should have plenty of small pastures to keep groups separate, since the real issue is the animal-to-animal spread of the virus, he says. That's why age segregation is so important in preventing new calves from being exposed to high doses of pathogens.

Even though start-up costs are minimal, some producers may find it difficult to change their ways.

"For my practice, it's a whole new, innovative way of management," Knott says. "It's nontraditional, and for that reason, it may not be as easy for producers to think in those terms. It's thinking outside the box, and that isn't always comfortable for us."

It is important that a producer involves his or her veterinarian, like Nason has, Knott stresses.

"Overall, I think the biggest thing is learning that change is good," Nason says. "It's going to be a tough sell to a lot of people, but it was a tough sell to me and my veterinarians. Seeing is believing."

She's seen how valuable the system's changes in management practices have been in getting her calves off to a healthy start and reducing costs. Other producers with scours problems could similarly benefit from the system, Nason says.



Editor's Note: For more information on this calving system, visit real-time coverage of the 2003 Range Beef Cow Symposium at www.rangebeefcow.com. This Angus Production Inc. (API) Web site is made possible via the sponsorship of Boehringer Ingelheim Vetmedica, Inc.