

MIKE BOVATT PHOTOS

Cattlemen of the Northern Plains know to expect severe winter weather and to prepare for it. Still, as was the case in the winter of 1996-97, Mother Nature can deal a hand no one could foresee. After a bluff in March, she played her trump card in April.

BY TROY SMITH



If you ask cattle people who know winter, they'll tell you that the way to cope with bitter temperatures, icy winds and deep snow is to be prepared.

On the Northern Plains severe winter weather is never welcomed but always expected. Savvy cattle producers plan accordingly, often stockpiling feed and equipping themselves to handle a big blow. But not even the most cold-tempered veterans expect it to blow all winter long.

That's just what happened three years ago when the Dakotas were socked by the most extreme winter conditions on record. Arriving early and lingering late, winter brought snow and more snow driven by unrelenting winds. Temperatures remained low for weeks on end as drifts piled to heights of 20-30 feet. A brief respite in late March was followed by an April storm that took the greatest toll on herds already weakened by too much winter.

Hundreds of thousands of cattle and calves were lost to blizzards, subsequent

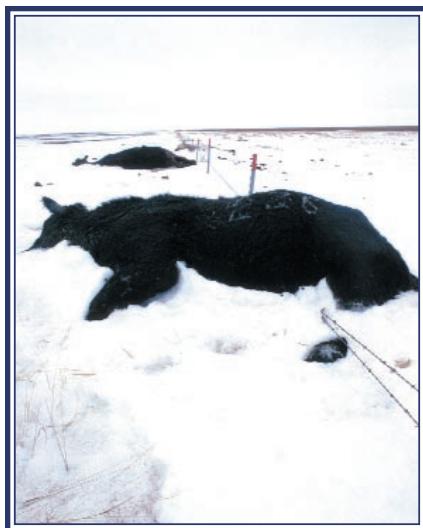
flooding and months of stress. It was stressful for producers, too — a nightmare of extremes that taxed the physical, financial and emotional resources of even the best prepared operations. It was an experience from which many cattlemen learned how to survive better the next time.

Larry Stomprud had returned to his ranching roots less than two years previous to the bad winter of 1996-97. After extended service in the Army, Stomprud had come back to Faith, S.D., and 6,000-plus acres of rolling prairie. But he was no stranger to winter.

"Every year is different, but a typical winter brings a couple of months or more when temperatures hover between zero and 20 degrees. And we'll often get 10 to 20 days when it doesn't get above zero," says Stomprud. "Sometimes there isn't much snow at all. More often, we get several snows followed by warmups that melt it in a week or so. Then sometimes it snows and we don't see bare ground again until spring. In any case, we always expect a lot of wind."

Stomprud maintains a herd of about 200 commercial cows. He sells calves at weaning in October, which normally allows close to two months for cows to recover on fall range before winter arrives in earnest.

Harvested feed includes about 200-300 tons of alfalfa and tame grass hay, which Stomprud starts feeding to cows around the



first of the year, unless his range is snowed under earlier.

"That happened in the fall of '96. We had to take the cows directly to the feed grounds after weaning because of the early snow. They didn't get a chance to pick up much flesh before it got cold," Stomprud shares. "We started feeding hay right away, plus supplemental range cubes. We ended up feeding nearly twice as much hay as usual — about 400 tons."

The frequency of snowfall increased during December that year but with little wind until mid-month. Then it snowed and blew so that, by Christmas, Stomprud says the deer were starving.

In January conditions worsened. Stomprud's 3-mile driveway already had been plowed several times when a mid-January storm brought minus-30-degree temperatures, 70-mph winds and more snow to pack the driveway hard and tight.

We spent over \$1,700 to hire to move snow and open the roads so we could get out to feed and buy fuel and groceries," says Stomprud. "I guess it's good that we started having trouble with our old feed tractor early in the fall. I'd replaced it with a four-wheel-drive tractor, and I don't know how we would have made it through the winter without it. I also bought a snowblower to make sure we could get to the cows."

Stomprud's cows spent most of the winter along a wooded creek in the only pasture that offered any real protection. The biggest problem was getting to them with feed since that pasture was 3 miles from headquarters. There were no first-calf heifers on the ranch that particular year, but the second-calvers were moved to headquarters where they could receive extra care.

"We had a cow die later on while calving, but we never lost a cow to the weather. If there had been a better place to go, with even more protection, we would have done it. But by keeping them behind the trees and feeding all they could hold, we made it through. The bulls had protection, too, but some suffered freeze damage, and we had to sell them," relates Stomprud.

More serious losses came later. A March meltdown meant moving cattle away from the swelling creek to a pasture offering less natural protection. After several days of shirtsleeve weather, an early April blizzard caught Stomprud in the midst of calving season. After picking up some new calves during the storm, he was heading toward headquarters when he became disoriented in the zero-visibility storm. Stomprud drove his pickup into a snowdrift and was stuck there for the night.

Managing weak calves

There are many factors that may contribute to weak-born calves, including tough winters that leave cows or heifers in less-than-optimum physical condition. The thinner the mother, the more likely it is that she will deliver a weak calf, according to Charles Stoltenow, North Dakota State University veterinarian.

Stoltenow says the best cure for weak calves is prevention. He recommends that pregnant cows and heifers be maintained in "good" condition with a body condition score (BCS) of 5 or 6. They will produce more colostrum, and their calves generally stand and nurse more quickly.

Weak or strong at birth, all calves are born with a limited immune system and, for the first four to six weeks, are totally dependent upon antibodies supplied through their mothers' colostrum, or first milk. Stoltenow says a calf needs to consume an amount equal to 5%-6% of its body weight within the first 6 hours of life and again before 12 hours. For an 80-pound (lb.) calf, that is approximately 2 quarts of colostrum per feeding.

In the event that a cow or heifer dies or otherwise cannot provide adequate colostrum for her calf, producers should have an alternative source. Some dairy farms make colostrum

available, and it can be stored frozen until needed. Colostrum supplements, which can provide substantial doses of antibodies to newborn calves, are available from veterinarians.



"Those calves were two of the 20 lost in that storm and its aftermath, but the stress on my family, knowing I was out in the storm, was just as hard to cope with," Stomprud says. "I think the hardest part of the whole winter was the combination of mental and physical fatigue. You fought the snow and wind all day long and got up the next day and fought it again. But our religious faith helped sustain us."

Lawrence Woodward says his son, Delbert, also spent time stranded as one of that winter's blizzards swept across their farming and ranching operation near Dupree, S.D. Thereafter, neither ventured far alone while caring for 1,100 black baldy cows and the nearly 2,000 calves they background each

winter. For them, regaining mobility after the many road-clogging storms was the greatest challenge.

After grazing leased summer pastures on the Cheyenne River Indian Reservation,

Woodward says their cows are turned onto fall pastures near headquarters. Normally calves weaned in late October are backgrounded along with purchased calves until March, when they are marketed at 700-800 pounds.

Ideally, the cows get along on range and supplemental protein until the first of the year. Then they receive 15-20 pounds (lb.) of hay per day until about March 1, when they are driven still nearer to headquarters and fed all the hay they will eat. That's up to 30 lb./day of the best



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COPING WITH WINTER CONTINUED

quality hay — mostly alfalfa — during and after calving.

"We had to do things differently in the winter of '96-'97," tells Woodward. "We were feeding about 30 pounds per day by the first of November. Fortunately we raise plenty of hay, and we had extra that came off of CRP (Conservation Reserve Program) ground. But it was a constant battle to get feed to the cattle, which were grouped in several locations where there was protection."

The Woodwards considered their cow losses minor, losing a few during the winter

along with a few bulls. As on the Stomprud operation, losses were most severe during and after the April blizzard. Calves born during the night were nearly impossible to find, but losses were greater among calves up to 2 weeks of age that were pushed into fence corners and trampled by milling cows.

Nearly 40 calves were lost from one bunch of 250 pairs. Nearly 30 calves from a group of 100 artificially inseminated heifers died when the month-old babies were pushed into a water hole during the storm.

Removing snow from the backgrounding lots became a losing battle. Fences drifted under, so the Woodwards strung electric wire over the snow banks. The 16-foot wooden feedbunks were repeatedly lifted out of the drifts and eventually sat on four feet of packed snow.

"We sold our backgrounded calves about a month earlier than usual because we knew the lots would be flooded," tells Woodward. "We saw it coming when the thaw began, so we set up portable panels on higher ground to use during calving. We got by."

While the Woodwards normally harvest more forage than they require, their experience reinforced the need for emergency supplies and the importance of having those supplies located where they catch the least snow, yet near to feeding grounds. Corrals and pens are being rearranged to minimize drifting and muddy conditions after a thaw.

"We've installed some automatic waterers in big tire tanks, and we need to add some more. In pastures where we had dams, sometimes there was two or three feet of snow over the top, and the ice underneath wasn't thick enough to hold cattle that walked on top," adds Woodward. "We've split our calving season, too. We still have a bunch that starts about March 20, but a second bunch starts in April on a different place. Hopefully that will spread out the risk."

Cold exposure and bull fertility

Severe cold and blizzard conditions threaten the future reproductive success of the cow herd when viability of herd bulls is compromised. Like the cow herd, bulls need to be maintained in a body condition score (BCS) of 5 to 6 to be in ideal breeding condition, according to Russ Danielson, North Dakota State University animal scientist. Low temperatures and windy conditions can easily increase feed requirements 25%-30% above normal maintenance requirements.

Prolonged exposure to extreme cold and wind increases the incidence of frostbite to the scrotum. Evidence of frostbite usually appears within a few days in the form of noticeable inflammation and swelling. The heat generated from inflammation directly affects the sperm that are maturing and stored in the epididymis, which surrounds the testicle at the lower end of the scrotum. Resulting damage may cause temporary or permanent sterility, depending upon severity.

Severe frost damage to the testicle and epididymis may cause tissue adhesions, affecting motility and circulation within the scrotum. A scab may appear on the lower portion of the scrotum as healing occurs, but absence of a scab is no assurance that injury has not occurred.

Danielson recommends evaluation of possible frostbite damage by a veterinarian performing a breeding soundness examination (BSE) 45-60 days after the injury has occurred. A semen test conducted earlier will most likely indicate poor semen quality and result in the unnecessary culling of a bull that could produce satisfactory semen after healing was complete.

An examination normally includes a physical evaluation of the entire reproductive tract and a microscopic semen evaluation recording sperm motility and morphology.

When winter threatens, the first priority of most producers is the well-being of the cow herd, but Danielson cautions cattlemen against neglecting the immediate needs of herd bulls. Nutrition affects future reproductive performance, and adequate wind protection and bedding are advisable for relief from prolonged exposure to extreme cold that can cause physical damage.

In North Dakota, Richard Tokach manages a diversified seedstock and farming operation near Saint Anthony. The primary enterprise involves 500 purebred Angus cows that graze the rough, steep hills and wooded creek bottoms along the Missouri River breaks. Small-grain and row-crop production also provide crop residues that are grazed in winter, along with alfalfa regrowth.

"As crop residues diminish, we start feeding corn silage, but we try to avoid feeding hay until about a month before calving starts in mid-February," explains Tokach. "The February and March storms were bad, but April was worse. We lost calves that were buried by snow and suffocated, hung up in fences, or were trampled. We had some freeze damage to bulls, but fortunately not a lot. It was mostly in the older herd bulls that had less protection from the wind than the younger bulls."

Tokach says the weeks spent huddled against the wind-driven snow and ice left his cows acting like walking zombies. Only a few died, but all were weakened, and he feared the stress would affect conception rates.

While he normally shies away from feeding cows supplemental grain, Tokach decided to go with a ration of about 3 lb./day of ground barley.

"We started them on barley right after the April storm to get them coming and continued feeding grain until May 10. As it turned out, conception was good, and most of the cows settled when they were supposed to," Tokach adds.

Of course, extra feed spells extra expense, added to the cost of moving snow nearly every day. Tokach says he used about 1,000 gallons more fuel than during a typical winter. More expense is tied up in the new windbreaks and guardrail fences that have been built to help reduce losses when winter hits hard again.

"You have more expense and less to sell. The hardest part was picking up the dead calves and knowing you've lost part of your future. We lost a large percentage of our older AI-sired calves that represented genetics we thought would influence our herd for the next 10 years," says Tokach. "Some of the genetic progress you've planned for years is gone, and it will take more years to recover."

Northern Plains producers like Stomprud, Woodward and Tokach did receive some compensation for livestock losses through a federal indemnity program. Many producers also qualified for emergency feed assistance and reimbursements for emergency snow removal. Dan Maher, an Angus breeder and banker from Morristown, S.D., says there is no doubt that federal assistance helped.

"It had a big impact, by providing producers with some cash when the only other way to get it was selling down from herds already reduced by the winter. It helped some people hold their nucleus together," explains Maher. "But it probably wasn't enough to save those that might have been in trouble before that winter hit. It was bad and everybody suffered some loss, no matter how good their management was. But if they had kept their debt in line and could manage to minimize losses, they could survive. Winter is just a fact of life and you have to be prepared for it."

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Feeding grain to beef cows

While beef cows are generally wintered most economically on rations consisting primarily of roughage, grain can provide a concentrated, highly digestible source of energy when roughage supplies are limited. Grain or grain byproducts may be a viable option when harvested forages are high-priced, relative to grain, or when forage quality is too low to maintain adequate cow condition.

John Dhuyvettet, North Dakota State University Extension livestock specialist, says the choice of grain depends on local availability and price. Corn, oats and barley are the likely options.

Corn has the highest energy value, and in many locations it is the most economical grain to feed. In Dhuyvettet's state, barley often is the least-cost grain, and it has a higher protein content than corn. Oats has a lower energy value due to its high fiber content, but that makes it the "safest" grain and the least likely to contribute to digestive disturbances.

According to Dhuyvettet, wheat and rye are sometimes fed when competitively priced as may be the case with discounted, damaged or inferior grades of those grains. Wheat should be limited to small amounts or fed in mixtures with oats or corn to minimize digestive problems. Cattle may find rye to be less palatable than other grains.

Digestibility is generally improved when grains are rolled or coarsely ground. Improvements in efficiency for barley and wheat often offset processing costs; but depending on those costs and the level of grain being fed, the advantage from processing corn and oats may be marginal. Finely ground grain is more subject to loss from waste, and fines may contribute to faster rumen fermentation and potential digestive upset.

Dhuyvettet advises slow introduction of grain to the rations of cows previously on forage-only diets. Grain overload usually leads to rumen acidosis and the associated problems of founder and diarrhea. Problems may be minimized when grain is introduced gradually, fed so all cows get their share, and grain amounts are small relative to roughage in the ration.

Since grains are composed largely of starch, rumen microbe populations that effectively break down roughage fiber will decline as increasing levels of grain are fed. As microbe populations shift toward those that ferment starch, rumen efficiency for digesting roughage declines and reduced forage intake may result.

Dhuyvettet says this is of minor concern when a producer is trying to stretch hay supplies by feeding little and grain is being substituted as a primary feed source. However, if grain is being fed to meet a marginal energy deficiency while forage remains the primary feed source, grain levels should be limited to avoid offsetting the desired effect from feeding grain through decreased forage digestibility and intake.



JAMES SHUEY PHOTO

The physical stress on cattle caused by severe weather increases nutritional requirements. Extra feed spells extra expense.