

# Fighting Frostbite

Chilled calves can be frostbitten or worse.

by Heather Smith Thomas

Mother Nature sometimes presents ranchers with challenges during calving season. Summer-born calves may suffer heat stress and dehydration, and calves born in late winter or early spring may become chilled or suffer from frostbite. A chilled calf whose body temperature drops below 100 degrees Fahrenheit (F) needs warming (101.5 F is normal), and if its temperature becomes subnormal, it becomes an emergency. Extremities, like ears, tail and feet may freeze in severely cold weather.

even though hind feet will freeze just as easily.

“There is usually some swelling after those tissues have been frozen. On the post-mortem table when we open up the skin of these frostbitten calves, there is blood-tinged swelling under the skin.”

Steve Hendrick, DVM, Coaldale Veterinary Clinic, Coaldale, Alberta, says bedding and windbreaks can help prevent frostbite in baby calves, but sometimes they get too cold before they can nurse and need to be warmed and dried.

“With hypothermia, what you do for them depends on how chilled they are,” Hendrick says.

Some just need to be in a warm, dry place until they warm up. Others are so cold that they need to be warmed more quickly — but carefully, since there is already some frostbite damage.

“Calves have a large surface area and less body mass compared to an adult cow and chill faster,” Hendrick says.

Even if the calf isn't at immediate risk of freezing to death, it may lose ears or tail. If the feet are frozen to the point

of losing them, euthanasia is the most humane option. Calves with short ears or tails don't have many issues later in life, but they may be discounted at sale time.

## Caring for chilled calves

If you find a calf that's been out in the cold too long, assess how cold it is and how aggressively you need to restore warmth and circulation. Rectal temperature can be a clue. Check its ears, tail and feet.

“With severe frostbite, it's obvious that the feet are frozen; the calf may not be able to move them, and they have no sensation,” Hendrick says.

A set of frozen ears or a frozen tail will be stiff and solid. Check the feet by pinching between the toes to see if the calf reacts. A pin prick just above the hoof can let you know if the calf can feel anything. If you warm the calf and the feet are still cold, there's probably no blood circulation to the feet.

There are several ways to safely warm calves. If the calf is not severely cold, putting it in a warm box to help warm and dry may be enough, especially if you provide colostrum to give it energy. If a calf is very cold, however, with frostbitten extremities, a warm water bath may be better than a warming box.

The calf needs energy to generate body heat. Shivering increases circulation and helps warm the muscles, but that requires energy. Some calves will be too cold to shiver.

“Calves are born with fat stores for energy and insulation but go through that pretty fast when they are cold. They need colostrum, quickly, to provide energy,” Hendrick says.

When warming cold calves with a warm water bath, it's best to not use hot water; it should not be above normal body temperature because you don't want to risk further damage to skin that's already compromised and damaged by cold. A really hot bath can also be too much shock to a cold calf.

“To prevent frozen ears on newborns, some people use earmuffs or fold the ears back against the body,” Hendrick says. “The most important thing, however, is just getting them dry and protecting them from severe wind and cold.”

## Sickness and snow

A wet calf chills much more quickly than a dry calf, and a calf that is compromised in any way, like sick with scours, has a harder time keeping warm.

“During a cold spell, even older, larger animals have more

problems with cold if they are sick. In feedlots, we've seen cattle in sick pens end up with white hairs on the tips of their ears. Some of the skin cells (including pigment-producing cells) died in the cold weather. Those cattle didn't actually lose their ears, but because they were sick or compromised, circulation to the extremities wasn't as good. Later on, this shows up as white tips or sometimes losing the tips of the ears,” Hendrick explains.

Young calves with scours readily freeze ears, tails and feet just because they are dehydrated and have poor circulation; the body moves what little fluid there is into the body core to keep important organs alive, and therefore the legs, ears and tail get cold.

“It's not always the newborns that suffer frostbite; sometimes people are surprised when an older calf loses ears, a tail or feet, but anything that impairs blood circulation puts a calf at risk,” according to Hendrick.

Producers who calve in March, April and even May, can run into problems with late winter storms. The weather may not stay bitterly cold for a long period of time, but cold, wet snow can severely chill new calves or even older calves — and it can be worse if they are sick. A calf with pneumonia or scours is at high risk for hypothermia.

“In these later storms, the temperature might not be as cold, but being wet and cold can take a toll on older calves as well as newborns,” Hendrick says. If a calf is cold and miserable, and maybe a little sick, he doesn't feel like nursing. This creates more problems, because a calf that's off feed doesn't have the energy to create body heat. Wind can make cold weather many times worse. It whips away body heat, and a calf chills much faster than a larger animal.

“Some pastures have trees or natural protection, but in other areas, producers often set up wind fence or portable windbreaks,” Hendrick says. Emergency windbreaks can be created by putting out a row of large bales or setting up panels with tarps tied to them.

Cows need wind protection as much as the calves. After a severe storm, some cows may lose the tips of their ears or suffer from frostbitten teats. This can make their teats so sore they won't let their calves nurse, creating another problem.

Purebred breeders calving in January and February usually have access to barns and shelter, but folks who calve later and expect to have good weather are sometimes caught by surprise with a late severe storm.

Producers should be proactive and prepared for anything.

“You might not have to deal with severely cold weather or wind this calving season,” Hendrick says. “But at some point, you will.” **HW**

## No perfect time to calve

Folks who calve later, to avoid bad winter weather, sometimes run into the opposite extreme — hot weather.

“Newborns and young calves are also very vulnerable to heat stress and dehydration,” Hendrick says.

A young calf in hot weather needs a lot of fluid, and if the calf is hot and doesn't feel like nursing, it can dehydrate quickly.

Calving in early summer can also create challenges if cows are being bred in August, when heat stress can hinder fertility in cows and bulls. No matter what time of year you calve, there can occasionally be adverse events or disadvantages. A person should try to select what might work best in their own situation and have a plan in place to deal with possible problems. You might have really great weather for many years and think it's perfect, and then get hit with unusual weather that can take a toll — unless you are prepared to deal with it. **HW**

Ted Clark, retired veterinarian and pathologist, has seen many cases of severe frostbite in his career, especially when doing postmortem cases at the University of Saskatchewan, where he worked for 30 years.

“Stockmen need to recognize the signs of frostbite and be aware of possible frostbite issues,” Clark says. “Sometimes this problem is confused with infectious arthritis because the calf is lame and sore. The lameness is more noticeable on the front feet because the calf tends to stand up on tiptoes, with knees cocked forward. The pain isn't quite as noticeable in the hind feet,