EQUIPMENT

Frost-free nose pump allows cattle to pump own water

Heather Smith Thomas for *Progressive Cattle*

AT A GLANCE

Equipment developed two decades ago provides cattle easy access to water with a nose flap. The expanded use has proven its utility works in the coldest of environments.

Cold weather can present challenges for watering cattle, especially in areas with no access to electricity for tank heaters.

Rancher Jim Anderson of Rimbey, Alberta, solved this problem more than 20 years ago by creating an innovative water system in which cattle pump water for themselves from shallow wells, ponds or pressure systems – water that never freezes even at 40 below zero.

Anderson's invention uses a piston pump, like the old wells with a handle you pushed up and down to lift water. "We modified this so cattle could push a paddle on the drinking bowl with their nose. This operates the piston pump by raising and lowering the piston in the cylinder, the same as a handle did," he explains.

"Like the old-fashioned hand pump, we have a 3-inch cylinder down into the well. It captures enough geothermal heat from the ground, and contains that heat all the way up to the surface, to keep the water in the pipe from freezing," he says.

The waterer is a small basin on top of a vertical culvert with a lever that can be pushed. The culvert has 2 feet sticking above ground level; the rest goes down to whatever depth is required to make use of groundwater or water from the bottom of a pond or dugout nearby. Water from the pond is piped horizontally underground to the bottom of the culvert, where it then rises to the same level as the pond surface – but won't freeze. A buried collection tank from a spring will also work. Any well can be used, as long as the water level comes up within 50 (preferably 30 or less) feet from the surface.

"The typical installation is a road culvert at least 24 inches in diameter, set into the ground 20 feet or more. The factors that determine how much geothermal heat you'll gain is how deep you go and how big a diameter pipe you take to that depth. The bigger the pipe, the more opportunity for heat to rise, to keep the water pipe in the center warm enough," explains Anderson.

Today, there are many people using these innovative watering systems for cattle, and some use them for horses or bison.

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Cattle share from two pumps.

Kurt Dake, near Vegreville, Alberta, has been using nose pumps for five years. "I was tired of fixing water hydrants every time it got cold. We'd just created a new dugout and decided to put a nose pump on it," he says.

"If a person has any kind of water source, this nose pump is the answer for cold weather. If it gets 30 below zero or colder, there might be an occasional day we have to give the lever a thump if it sticks. Even though any water left in the bowl drains down after the cows drink [and the pipe won't freeze], the cows slobber. There's a drop of ice, then another and eventually there might be a lump of ice, and the plunger is stuck and won't open. So we check it twice a day in really cold weather, and if it's stuck we just give it a whack to knock the ice off, and it works fine again," he explains.

This is a simple fix compared to water systems that freeze up and take a long time to thaw out. Even though it's maintenance-free compared to most water systems in cold weather, it's not something that you simply install and never look at. "You want to check it when it's really cold. Otherwise, it might stop working until the next sunny day."

He has some other cattle waterers that run off wells. "They were expensive and not as trouble-free. They often break down if cows push too hard on them, or stop working when the power goes out, or in summer get too hot and cattle don't want to drink, or the water gets too cold in winter and they freeze up. When those freeze, it's not a five-minute job to remedy. They can freeze way down into the ground. You need a concrete pad around them and lines underground – electrical and water lines. We have two of

Photos provided by Jim Anderson.

LEFT: Cattle in a snow-covered pasture utilize the pumps in a winter terrain.
RIGHT: Ranch workers install double nose pumps into a well system.

those water bowls but don't use them anymore," he says.

He found it very easy to teach cows to use the nose pump. "I was wondering how to do that, since they have to push the lever. I asked Jim Anderson if I needed to put a water trough alongside it. He said the cattle can't have any other water; they have to figure out that the nose pump is where they get water. I just showed it to them [pushing the lever and letting water come into the bowl], and within a few days all of them were using it," Kurt says.

"We have 50 cows on one nose pump, and they take turns. When they first were learning, they all crowded around, wanting water, and figured it out by watching others drink. As time goes on, however, they realize only one can drink at once. They look toward that nose pump and when no other cow is there, they hurry over and get a drink. All day long, there are cattle taking their turn, and they no longer crowd around," he says.

"We got six new heifers that had never used a nose pump and just put them in with the herd. They watched the old cows pump water, giving the lever a few strokes before they start drinking, and pretty soon those heifers were pumping their own."

He has several neighbors who use nose pumps. "One guy has his out in the middle of the Bald-Headed Prairie. It services a very large herd of cattle, and he doesn't have any trouble with it. These pumps are the greatest thing because after the initial purchase and installation, there's no cost, no maintenance. I don't have to pay an electric bill or make any repairs," Kurt says.

There's also no risk of cattle walking out on ice and falling in. "We fenced off our dugouts years ago because my brother lost a bunch of cattle on his place when they fell through the ice. I never wanted that to happen, so we fenced ours, and the cattle can't get close to them."

Doug Carpenter of Bonanza, Oregon, has 100 Angus cattle and is president of High Desert Fencing. "One of the government agents we did fences for steered me toward getting a nose pump because he'd seen them in northern Oregon. The project we were working on at the time was government-funded, and we installed one. We did a couple more after that and then put some on our own place. They work really well," he says.

He's had as many as 50 cows on one nose pump, and they do fine. "We've heard of people having 100 cows per pump," Doug says. One of his neighbors has 700 cows and several nose pumps.

The thing he likes best about nose pumps is not having to go out and break ice when weather is cold. "I am busy enough and don't have time to break ice. These pumps are relatively inexpensive compared to other water systems and maintenance-free, so they are a lot cheaper in the long run."

Sometimes if the nose pump is the only water source in a pasture, it's hard for young calves to push the lever to get water, so he installed a calf creep and water trough off to the side of one nose pump.

"The cows pump the water, and when it drains out of the bowl after they drink, instead of draining back down the well, it is diverted to drain down into the trough for the calves. We put a creep panel around that trough so the cows can't get to it, and the calves can drink. I didn't come up with that idea; Jim Anderson [the guy we bought the nose pump from] told us how to do it, and it's worked very well." That time of year, when he has baby calves in the pasture, it's not so cold, and the calf trough doesn't freeze up.

Heather Smith Thomas is a freelance writer based in Idaho.