

Frost-free pump lets cattle drink

Cold weather can present challenges for watering cattle, especially in climates where water sources freeze up, or in areas with no access to electricity for utilization of tank heaters.

Jim Anderson, of Rimbey, Alberta, Canada, solved this problem by creating an innovative water system in which cattle pump water for themselves from shallow wells, ponds or pressure systems — water that never freezes up even at 40 degrees below zero.

Anderson's innovation is a piston pump, like the old-fashioned type in which a person works the handle up and down to lift water.

"We modified this so cattle could use their nose to push a lever. This operates the piston pump by raising and lowering the piston in the cylinder, the same as a handle used to do," he says.

"Like the old hand pump, we have a 3-inch cylinder, and it's down inside the well. We can capture enough geothermal heat from the ground and contain 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 enclosed basin on the top end of a vertical culvert with a lever to be pushed by the cow's nose. The culvert has a 2-foot section sticking above ground level and 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 will not freeze.

A buried collection tank from a spring would work also. A regular well can be used, as long as the water level comes up to within 50 feet (and preferably 30 feet or less) from the surface.

The nose pump can be adapted for an existing well if it meets these criteria.



Courtesy of Kip Panter

This innovative type of watering system is a nose pump installed by Kip Panter that doesn't freeze in winter and can be used in situations where you need to fence cattle away from streams or ponds.



Courtesy of Kip Panter

If there are many cattle to water, two pump basins can be situated on top of the upright culvert.

"Some ranchers use large pipes, but the typical installation is a road culvert at least 24 inches in diameter, set in the ground at least 20 feet," Anderson says. "The two factors that determine how much geothermal heat you'll gain is how deep you go and size of the pipe. The bigger the pipe, the more opportunity for heat to rise, to keep the water pipe in the center warm enough."

Kip Panter, who works for USDA-ARS Poisonous Plant Research laboratory in northern Utah, has cattle on his small ranch at Franklin about eight miles

from the Idaho border and has been using a nose pump for three years.

"A creek runs through my place and NRCS has been working to help ranchers get cattle away from streams. They sent us a letter telling about a cost-share program. They were willing to do a 75-25 percent split and they had information on the nose pumps. They asked if I would be willing to be a test case for one of these," Panter says. "I put in the pumps, following Anderson's instructions."

This type of watering system is a good way to

provide an alternate source of clean water for cattle, away from riparian areas. The creek or pond can be fenced off, with water piped underground to the nose pump culvert.

"Cattle learn how to use it quickly, and the water is always fresh and clean. It doesn't take cattle very long to figure it out," Panter says. "But Jim Anderson told me, 'Don't stand around and watch them trying to learn, because it will drive you nuts. Just fill the pan, so they know that's where the water is.' I filled it a couple of times and walked away, and when I came back one cow had figured it out and she was showing the rest how to do it. They smell the water and know it's there and figure it out very quickly."

"I check the pump once a week in winter, just to make sure it's working, but it always is. Since the water coming in is always clean, and the pan is empty except when cattle are actively using it, the pan stays clean. You never have moss or algae in the summer and no water is left in it to freeze in the winter," he says.

"It is very strong. I've had 2,000-pound bulls using them and they've



HEATHER SMITH THOMAS
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rubbed on and played with them and never hurt them. These pumps are really foolproof."

He put a 20-by-20 foot concrete pad around his pumps, so cattle are never standing in mud. The pad also insulates the ground around the pump. Winter temperature gets down to 25 degrees below zero sometimes and the pump never freezes.

His pumps are located near a creek.

"The groundwater is near the surface. I hired a backhoe to dig a 20-foot hole — as far as the backhoe would dig — and put a perforated culvert down the hole and filled the hole around it with gravel," Panter says. "The groundwater feeds it, even when the creek almost dries up in late summer."

The creek may freeze over in winter, but water in the pump culvert never freezes.

"I've gone through three winters and summers with this and I haven't had any problem with the pumps," Panter says. "I've had as many as 40 head of cattle on a pump. Some ranchers have 80 or more on one pump and they do fine. Mine is a single basin, but you can make it double so more cattle can drink at once. I have two pumps, but I have them set up in different paddocks. The cattle don't hang around the water source; they just go get a drink when they want and there's no crowding."

Horses can also learn how to use the nose pumps.

Heather Smith Thomas and her husband raise beef cattle and horses on a ranch in the mountains near Salmon. She can be reached through Farm & Ranch Managing Editor Bill Bradshaw at freditor@postregister.com.