



WINTER LIVESTOCK

By Martin Curry

Providing adequate water to livestock during Wyoming's harsh winter conditions is essential.

Water provides for every function within an animal's body. A horse requires on average 4 to 8 gallons per day whereas a cow requires 7 to 10 gallons. Livestock will consume snow, but this is not an adequate source of water.

Ideally, the water provided should be clean, have a temperature ranging from 40 to 65 degrees Fahrenheit, and be accessible and in adequate quantities to meet herd demands.

Methods of delivery

There are several designs of winter watering systems that help deliver water to livestock during Wyoming's cold and windy winters.

The most common method is running a waterline below frost line underground. This prevents freezing of the line and allows warm air into the standpipe (Figure 1) from the earth. A standpipe connects the waterline to the tank. Ensure there is a good seal between the tank, concrete base pad, and standpipe. This will prevent cold air from entering into the standpipe.

For additional protection, use flexible foam insulation around the vertical supply line. This type of insulation protects the pipe down to -40 F. Typically, there is a shutoff valve where the waterline begins to run vertical. In addition, there should be a way to drain the vertical line when not in use. Within the tank's housing, a float valve regulates water flow; this will eliminate the need to monitor the tank during filling.

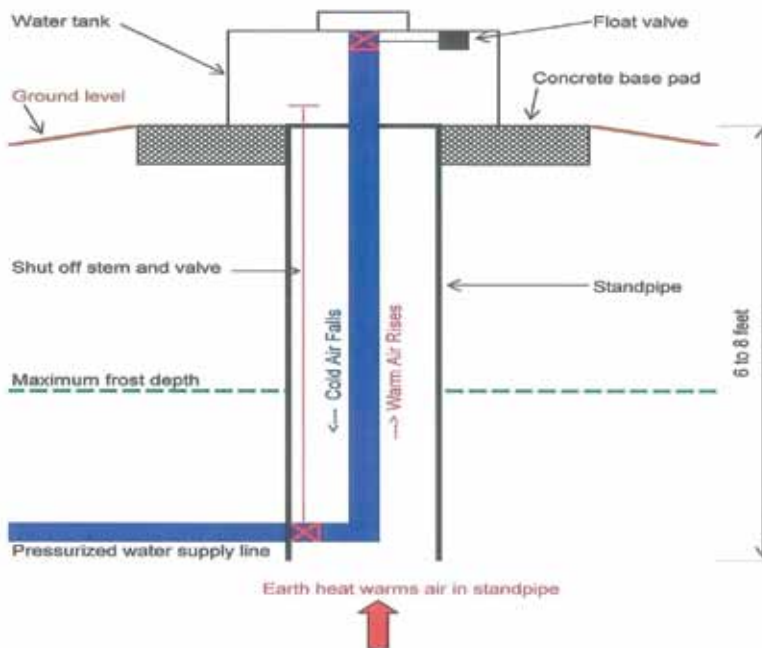
Methods to prevent freezing

All watering systems incorporate one main concept: supply heat in some form to prevent freezing. The most common method of supplying heat is with electricity. This method is relatively inexpensive to operate. The initial cost of installation is \$800 to \$1,000; this includes a concrete base, tank, and water line, and hiring an electrician.

A typical electric watering system includes a heater that can be set to maintain a specific temperature range. A common-sized heater for a 6- to 10-gallon tank is 250 watts, similar to the amount of power needed to operate a kitchen hand mixer. A note of caution: electricity and water do not mix. When installing a watering system that uses electricity, consult a qualified electrician.

Ideally, an electric line would run underground from an electrical source to the tank. A GFCI (ground fault circuit interrupter) would then be installed in the tank's body. A GFCI outlet monitors the flow of electrical current through the outlet. If there is a change in the flow of electrical current, the GFCI will trip and shut off electricity to the heater and help prevent electrical shock to livestock. The installation of the GFCI at the tank will allow for the use of floating and submersible plug-in heaters.

A second option is to use a propane tank heater. This is very similar to a hot water heater in a home. The heater mounts to the side of most steel, wood, or concrete tanks. These heaters would be best for larger tanks used in pastures. A



Modified from a figure in "Winter Outdoor Livestock Watering"
www.agf.gov.bc.ca/resmgmt/publist/500series/590307-3.pdf

Figure 1. Schematic diagram.

WATERING DONE RIGHT

Photo by Martin Curry



Concrete tank.

Photo by Martin Curry



Insulated metal tank.

thermostatic gas control valve and pilot light regulate water temperature – this is a good alternative in locations where electricity is not available. The propane tank can be set back from the water tank to prevent contact from any livestock and the gas supply line buried up to the watering system.

Reducing heat loss

The most common problem with a watering system in cold weather is freezing due to heat loss. Reducing heat loss from a watering system can improve efficiency by decreasing the amount of energy used.

The first step is to limit the exposure of the water tank to open air and wind. The proper placement of the tank is important. Water tanks need to be protected from the wind where possible.

Above are two examples of enclosed watering tanks for use outdoors. Tanks can be inside barns and sheds to prevent exposure to the outside air and wind.

These tanks allow access by pushing the lids or balls down by the livestock (see below).

Locate the tank to take full advantage of solar energy if possible. A tank painted a dark color will help collect solar heat. The most common styles are made of plastic and have insulated walls of 2 to 3 inches thick.

Maintain the correct amount of water in the tank. This will help ensure lids or balls are properly seated and seal outside air from flowing into the tank.

Lastly, having the appropriate size tank for your operation is important. For example, 10- to 20-gallon tanks provide water to 20 head of horses daily. During a cold winter month, you can expect to spend \$50 per month for such a system, but it sure beats the alternative of hauling water and chopping ice.

Being a livestock owner can be very rewarding, but keep in mind the livestock you own need extra care and attention during winter months. A good practice to get into is checking your livestock watering system daily. Remember, water is as essential to livestock as it is to human beings.



Hinge lid-type watering tank

(Courtesy davonsales.com/cattlewaterbowls.html)



Floating ball-type watering tank

(Courtesy daileysfence.com/water.htm)

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