

Protecting Water from Freezing

One of the challenges of surviving a Nebraska winter is keeping the water you use from freezing. A little bit of science and a healthy dose of trial and error have yielded ideas for avoiding the hassles of unwanted ice. Let's look at some advice regarding winter protection for water pipes, tanks and water dishes.

Keeping water thawed is simply a matter of conservation of heat. You need to keep the temperature of the water above freezing. Now, HOW you do that is a more complicated issue. The three most common methods are:

- adding heat with a heating device,
- insulating to conserve heat, and
- adding heat by bringing in warmer water.

Any water lines that can be drained for the winter (sprinkler lines, empty buildings, pasture water lines, garden hoses, etc.) should be disconnected and drained. Compressed air can help remove water from some low spots, but separating connections at the low points is the surest way to make sure water doesn't get trapped in low spots. Remember to remove garden hoses from hydrants and outside faucets on your home. Connected hoses can trap water and cause freezing even in faucets designed to be "freeze-proof."

Household Pipes

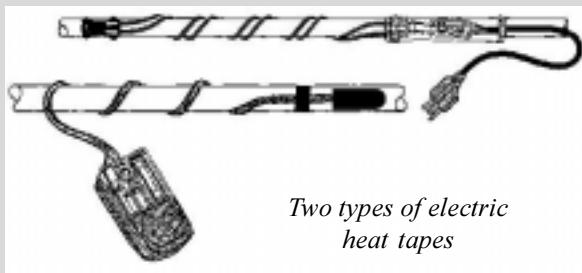
Household water pipes in exterior walls can freeze in extreme weather. Check to see that there is sufficient insulation between the outside of the wall and the water pipes. Removing insulation between the warm room and the pipes can let more heat get to the pipes. Even leaving doors ajar on the counter under the kitchen sink can allow a little extra room heat in to keep pipes warmer. In extreme cases, letting a trickle of water run all night will constantly replace the cold water in the pipes with warmer water from the basement or well.

Water pipes in exposed locations will need extra added heat. In a small enclosed space like a well pit or pump house, you might consider a small electric heater or heat lamp. For \$30-\$50 you can even add a thermostatic control to turn a heater or lamp off when it isn't needed.

Remember to keep fire and electrical safety in mind when selecting and installing heaters or lamps. Adding insulation to the pump house or well pit cover can help conserve the heat that is already present. Many people use hay or straw bales to insulate over a well pit. This works, but hay and straw

attract rodents and hold moisture. Insulating inside the pit and cover with materials like fiberglass may be a better plan.

In open areas like unheated buildings or crawl spaces, you may need to localize the heat directly to the pipes. Long strips of heating element (heat tape) may be the answer. Heat tapes can be wrapped around the pipe to add heat directly to the pipe. Some heat tapes include built-in thermostats to turn them off in warmer weather. Be careful to follow manufacturer's instructions when installing heat tape.



Two types of electric heat tapes

Never apply heat tape over itself (double wrapping) or over or under pipe insulation unless specifically recommended by the manufacturer. The Consumer Product Safety Commission (CPSC) estimates 2,000 fires and ten deaths every year related to malfunctioning heat tapes. The CPSC recommends using only new heat tapes certified by Underwriters Laboratories Inc. (UL) or similar agency. They also recommend using a

ground fault circuit interrupter and replacing any heat tapes more than three years old with new, certified heat tapes utilizing grounded (3-prong) plugs.

Underground Pipes

Even buried, underground water pipes are subject to freezing. Problems usually arise when soil in new water line trenches has not fully settled, or when earthwork or construction above the pipeline removes too much soil or replaces soil with materials like concrete that conduct heat away more easily. If you have a buried water line that is at risk because of fresh backfill or thin cover, you can add insulation on top of the ground in the form of hay, leaves or even snow piled over the water line. In extreme cases, letting a small flow of water run continuously through the water line can supply enough warm water to keep a line open through temporary periods. With buried lines, remember that the risk period may last for days or even weeks beyond the extreme cold weather until ground heat from below can migrate back up to the water line.

Stock Tanks

Speaking as one who spent many hours trying to keep waterers open for sheep in an unheated barn, I can attest to the

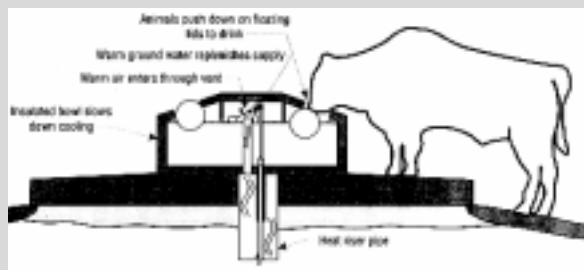


Submersible, electric stock tank heater

challenges and frustrations of tank waterers in winter. If electricity is available, submersible electric trough, tank and bucket heaters are available for \$20-\$50.

For safe operation, you must have a power supply with a third wire ground. If electricity is not available, liquid propane gas (LPG) stock tank heaters are available for \$300-\$500.

Energy-free waterers are available for new installations. These waterers channel heat up from the ground below and use lots of insulation to keep water warm. If properly adjusted, they seem to work very well in Nebraska. Expect



Energy-free waterers channel heat up from the ground below

to pay \$450-\$700 for energy-free waterers (about \$100 more than their electrically-heated counterparts.)

An inexpensive alternative for large stock tanks without access to electricity is the propane bubbler. This device is anchored to the bottom of the stock tank and releases a slow stream of bubbles from a 20-pound (5-gallon) propane tank. The bubbles, which are not harmful to livestock, carry warmer water from the bottom of the tank up to the surface where they maintain a small open hole in the ice during moderate weather. The bubbler costs less than \$100 and operates for up to three months on five gallons of propane (about \$10.)

Adding insulation to the outside of a water tank and even to the water surface can help conserve heat and keep water available longer during cold weather. When adding insulation, be sure to protect the insulation from animal chewing, manure and spilled water.

For small quantities of water, electrically heated buckets and water dishes are available for \$30-\$100 from hardware and farm supply stores. Make sure these units are properly grounded for safety. (DJ)

Urban Agriculture



Fire Safety in the Home

According to the National Fire Protection Association, last year there were 386,000 home fires in the United States resulting in 3,420 deaths, 16,975 injuries and 5.5 billion dollars in property damage. Data collected by the association over the past five years indicates that January was the peak month for home fire deaths, followed by February and December. Smoking was the leading cause of home fire deaths overall, but in the months of December, January and February, smoking and heating equipment caused similar shares of fire deaths. Cooking was the leading cause of home fires and home fire injuries year round.

Supplemental Home Heaters

Supplemental Home Heating Devices (wood burning stoves, fireplaces, kerosene heaters, gas fired heaters, and electric heaters) are involved in about 22 percent of all residential fires. These fires kill more than 600 people. There are also thousands of contact burn injuries and hundreds of carbon monoxide poisonings.

- Inspect your heating stove twice monthly. Have chimneys inspected and cleaned by a professional chimney sweep.
- Use a floor protector that extends 18 inches beyond the stove on all sides.
- Keep all combustible materials (drapes, furniture, firewood, etc.) at least three feet away from any heater.
- Never use gasoline or other flammable liquids to start wood fires.
- Keep rooms with unvented gas or kerosene heaters ventilated (e.g. door open or window ajar.)
- If you must use an extension cord with your electric heater, make sure it is marked with a power rating at least as high as that of the heater itself. Do not permit the cord to become buried under carpeting or rugs.
- Never operate heaters unat-

tended or while you are sleeping.

Cooking Equipment

Cooking equipment (both gas and electric) is associated with more than 100,000 fires annually, involving 400 deaths and 5,000 injuries.

- Roll up or fasten long loose sleeves with pins or elastic bands while cooking.
- Keep constant vigilance on any cooking that is required above the "keep warm" setting.
- Never place or store pot holders, plastic utensils, towels and other non-cooking equipment on or near the range.

Cigarette Lighters

Each year more than 200 deaths are associated with fires started by cigarette lighters. About two thirds of these result from children playing with lighters. Most victims are under five years old.

- Keep lighters and matches out of sight and out of the reach of children.
- Always check to see that cigarettes are extinguished before emptying ashtrays.
- Look for furniture designed to reduce the likelihood of furniture fire from cigarettes. Look for the gold colored tag on furniture that states — "Important Consumer Safety Information from UFAC."
- Always check the furniture where smokers have been sitting for improperly discarded smoking materials.
- **DO NOT** smoke in bed.

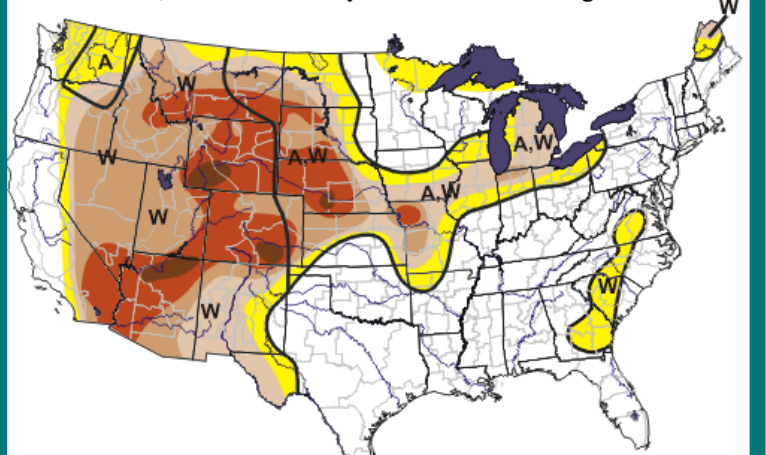
Smoke and Gases

Many fire deaths and fire injuries are actually caused by smoke and gases. Survival depends on being warned as early as possible and having an escape plan.

- Install smoke detectors on every level of your home and near all sleeping areas.
- Establish and practice a family plan for escape, including an established safe meeting place.
- Post the fire department phone number by every phone. (DJ)

Latest U.S. Drought Monitor Map

As of Dec. 31, Lancaster County is in Moderate Drought conditions.



For the most recent map, visit www.drought.unl.edu/dm