KEEPING WINTER WATER FREEZING AT BAY

BY MAURA KELLER

While each season of the year brings about its own set of challenges for dairy producers, winter – with its mind-numbing cold and frozen 'everything – offers its own set of challenges, mostly importantly, ensuring animals always have access to water with the help of winter watering systems.

Michele Marcoux, territory manager at Gallagher Animal Management points out that there are a few items ranchers need to consider when thinking about winter watering systems, including the amount of stock on each waterer, weather conditions, power availability and a bottom seal.

"The most important items to consider when choosing a watering system for the ranch is the amount of head that will be on each waterer. During winter months it is important to have enough stock pressure drinking from the tank to keep the water moving," Marcoux says. "If the water sits too long it has a higher chance of freezing."

And in areas that are windy, it is important to have or place the waterer in an area that will have a windbreak to decrease the likelihood of the bowls freezing.

"Depending on whether the rancher will have power or no, will determine the type of waterer they should consider," Marcoux says. "If the tank is being place in an area where there is no power, the Marafout ball waterers are a great option that do not require power and the tanks provide complete protection from the elements, as the balls sit in the opening to keep the tanks cleaner and protected from wind and snow."

Gallagher offers a series of Marafout waterers, the tanks of which tend to hold more water that open waterers and thus are less likely to freeze completely.

"The smaller the amount of water exposed to the elements the faster it will freeze. If the rancher has access to power the open tanks become an option as they can connect a heater into the tank. If power is available, having the proper heating system in place is key," Marcoux says.

When installing any tank, it is recommended to be installed on a concrete pad and applying a seal or gasket to the bottom of the tank. As Marcoux explains, creating a seal blocks cold air from moving under the tank and cooling water in the pipe and tank.

"It is important for all watering systems in areas that have winter to install heat tubes around the water lines creating an insulated area through the frostline," Marcoux says.

Thanks to the many technological advancements, today's winter watering systems look nothing like those of generations past. Timothy Duff, managing director at JDJ Solutions says insulation has improved dramatically in the past years and advances in float valves with bleeders have also improved, as have materials used in making valves to withstand freezing tem-

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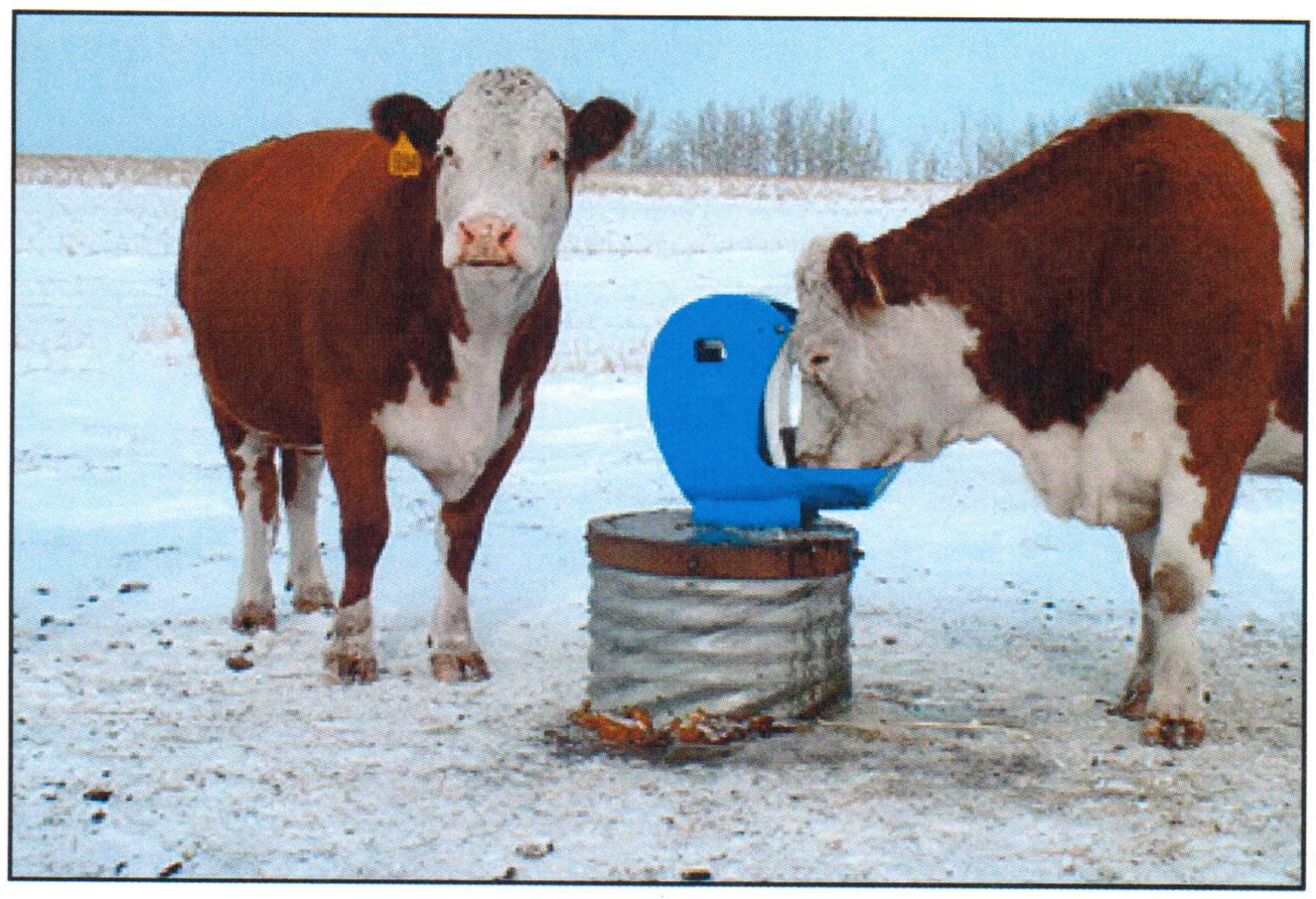

Photo courtesy of Frostfree Nosepumps

peratures.

JDJ Solutions offers the Jobe Valves brand of float valves for the market.

"For those using electric, electric heaters are for more efficient that they used to be and longer lasting in some cases," Duff says. "Covered troughs and other advanced troughs are almost the normal from old open style tanks that allowed heat to escape."

Electricity Free

Jim Anderson at Frostfree Nosepumps says that when producers are considering winter water systems for their livestock, they need to ask "can the system work under the severest temperatures?" Most systems will work in summer temperatures, but freezing cold temperatures can limit mechanical behavior especially if water is involved.

As Anderson explains, the costs required (usually electricity) to overpower the influence of freezing cold temperatures can vary, and be prohibitive between different winter watering alternatives.

"Sometimes a product will be marketed as an energy-free system, but somewhere in the system – perhaps not part of what they are selling – there could be a need for an energy source to support or protect the system," Anderson says.

Other key questions to ask include:

• How many animals will the system support, and does the system require constant traffic to prevent the waterer from freezing?

• Will the system contaminate the water source by allowing animals to access a dugout or other source, or does contaminated water from the animals drain back down into the water source?

• Can the winter watering system support their animals out in the pasture to accommodate swath grazing, bale grazing or feeding – enabling the manure to stay out on the pasture and not have to be hauled in the spring, or enabling new calves to get out on fresh ground to prevent scours?

The Frostfree Nosepump is a winter tolerant, sustainable, animal operated, watering device that requires absolutely no purchased energy. That means that there are no costs to operate, and no ongoing use costs. It does use energy, but it uses geothermal as the heat source and the pumping source is the animal that wants the water, and they are quite happy to use their nose to pump in exchange for water – without cost.

"Because there is no need for purchased energy, or other support, that makes this Frostfree Nosepump completely 'sustainable," Anderson says. "With the increased awareness and use of insulation

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Photo courtesy of Ritchie Industries, Inc.

and geothermal heat, some systems have evolved to provide water to animals without the need for a purchased energy source. Technology has increased access for solar systems but with these systems there is still a dependency on purchased energy. Most winter tolerant installations still require heat elements and a pressure system."

According to Cody Hinkle at Ritchie Industries, Inc. a few additional factors to consider are the amount of animals they will be serving, if they have the capability to get electricity to the site or if they need to go energy free, and the installation process including the proper water line depth, proper insulation of the vertical supply line, and proper mounting platform as well as location.

All of Ritchie Industries' units are totally sealed polyethylene, and the fully heated units all use 304 stainless steel troughs with high-quality heaters and thermostats.

"The best part about Ritchie units is the fact that we still use the same heating components and thermostats that we have used for over 50+ years," Hinkle says. "The biggest change we have experienced over the years is transitioning from all stainless steel units to totally sealed polyethylene units. This has increased the insulation and made our units more energy efficient."

Key Product Attributes

Some key attributes that winter water systems need to have include reliability, simplicity and availability of parts, with little or no maintenance required.

As Johnson explains, cold temperatures make everything more fragile. The process of thawing out a system may cause damage to some components. So the simpler the system, the more reliable, and the less likely there will be a need for parts.

For example, the Frostfree Nosepump is touted as a very simple device, especially because there are absolutely no electronic components, nor electronic dependency. And the only maintenance required is to be aware of the possibility of icing up inside the hood at extreme low temperatures (minus 25 degrees C or colder).

"A simple blow with a dead blow hammer will release the ice that may have accumulated inside the hood," Johnson says. "'Icing up' is a different concern to 'freezing up'. If the installation is done properly and completely, this device will not 'freeze up.' With the use of insulation, we can capture and contain geothermal heat, as well as keep frost away from all of our components."

In addition, the Frostfree Nosepump can support herds of any size because multiple pumps can be mounted on a wet well, and have multiple wet wells, based on the number of animals.

"Because geothermal heat is always there – it doesn't have to be bought, or pumped – our pump doesn't require constant use to keep it from freezing," Johnson says.

Hinkle also advises producers to look for totally sealed polyethylene units, because if your insulation absorbs moisture it will breakdown over time and lose its insulation properties.

"Also consider high-quality stainless steel. Our troughs are made

Photo courtesy of Ritchie Industries, Inc.

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Photo courtesy of Ritchie Industries, Inc.

with 304 stainless – the ultimate in durability and corrosion resistance," Hinkle says. "Stainless also gives you the all-around heat protection needed to keep the water open, even in the harshest conditions."

Also Duff stresses that a quality float valve is a "must." "There are lots of tank options, but if the valve fails, there's water everywhere regardless of choice of tank," he says.

Also pay close attention to heating elements and thermostats. The Miraco products offers by Gallagher features an array of heater options for each tank. For instance, 250W-500W heaters are available as is heat tape for the piping under the tank.

"Miraco prides itself on making sure that all tanks are insulated completely with no air pockets in the insulation that could compromise it effectiveness during winter months," Marcoux says. "They have added a convection hole to the open tanks to create subtle movement in the water to help decrease the likelihood of freezing."

Jamie Koepke at Hoskins Mfg. Co, says Hoskins uses ground heat in their waterers along with electric heaters to keep the water flowing. The company offers many different sizes of electric waterers and continuous flow models. The electric waterers are paired with the proper size heater

"Our waterer frames are all insulated with Energy Star certified R-Tech insulation," Koepke says. "The main objective is to have fresh water and not have to break ice. We encourage producers to properly install the waterer with big enough water lines and power lines. Which in this case the bigger, the better."

Koepke advises producers to make sure they do proper research and talk to fellow producers before purchasing a watering system. "Sometimes it might cost more upfront," Koepke says, "But it will pay off in the future if you buy quality products." ■