## Nifty Bearing Protector

After years of replacing bearings damaged by plastic twine or weeds wrapped around the rotary cutting heads on his mower, Oklahoma farmer John Andrews finally found a simple solution to the problem.
"The breakdowns always seemed to happen during rush season when we were the most busy. But since I made this modification two seasons ago, I haven't had a single bearing or bearing seal failure," says Andrews, who operates a 7 -ft. Vicon rotary mower. "Replacement bearings for the cutterheads on this mower cost $\$ 45$ apiece, or as much as $\$ 750$ for the entire mower."

What he did was to weld short pieces of large diameter metal pipe to the cutterbar around each spindle. He cut each piece of pipe in half so that there are slots between the two halves of pipe to let dirt and other debris fall out while still protecting the bearings. Wire and twine wrap around the pipe, where it's easily removed with no stress caused to bearings.

Andrews says it cost just $\$ 40$ to protect the entire toolbar.


## Thawing Frozen Pipes

Dennis Nelson, Skiff, Alberta, says he's found a safe and simple solution to the old problem of thawing frozen pipes.

He uses a 12-V electric fuel pump, surgical hose like the kind used on oxygen masks, a $12-\mathrm{V}$ battery, and a 2 -gal. container of hot water.

The pump forces water from the container through the surgical hose down into the frozen pipe. The deeper you go into the pipe, the slower the thawing process, Nelson
says, adding that the process is fast and uses little water - $11 / 2 \mathrm{gal}$. does about 4 ft . of ice.

The system is portable and safe. And with the surgical hose Nelson can go around bends and corners without damaging plastic pipes.

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## Low-Cost "No Freeze" Cattle Waterer

You can make an inexpensive "no freeze" cattle waterer using components found on any farm, says Hugh C. Masson, Emo, Ontario, who's pleased with his low-tech waterer design after four winters of use. It makes use of the idea that running water won't freeze.
'This idea will only work where you have a heated building nearby your pasture but it's cheap to set up and is relatively trouble-free. Our house is fairly close to our pasture, where we have a small herd of 12 head. Here's what I did:
"I put a barrel fitted with a float valve in our basement and hooked it up to our household water system. Then I ran a $11 / 4-\mathrm{in}$. dia. plastic pipe from the basement barrel to a water trough out on pasture that's made out of a 45 -gal. barrel cut in half. I welded a $1-\mathrm{in}$. pipe near the top of the trough and fit the $11 / 4-\mathrm{in}$. plastic pipe to it. Then I put a small ( 200 gph ) submersible pump in the barrel in the basement and ran a small 3/8in. dia. water line from that pump, out through the center of the larger $11 / 4-\mathrm{in}$. dia. pipe to the water trough in the field.
"The constant flow of water through the smaller hose keeps water in the larger hose from freezing. And when cattle aren't drinking, the surplus drains down through the 1 $1 / 4$-in. hose back to the barrel in the basement.
"I wrapped the pipe with foam insulation to help stop the freezing. On cold days there's some ice on the surface but there's always an open spot that the incoming water keeps clear. As cattle start drinking, they melt the ice away. The only time it froze over was when we had one straight week of 30 to $40^{\circ}$ below zero. When temps went back up to zero, the ice melted.
"This setup is so trouble-free, I decided to let the water run all summer, too. The circulation of water seems to keep algae from forming in the trough.
"After testing this idea for four winters, I think I can say that it really works. I'll be happy to answer questions by phone or show visitors how it works."

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## He Stores Round Bales On Wooden Pallets

When the foundation of Mark E. Schuette's old barn collapsed a couple of years ago, he was left without storage for his big round bales.
"I was dead set against storing them on the ground because you can get so much spoilage," says the Napoleon, Ohio, farmer who puts up 2504 by 5-ft. alfalfa and orchard grass bales a year. "So I came up with a low-cost way to store bales just above the ground and limit spoilage.'

Schuette stacks bales on wood pallets The best pallets he's found for the job are 4 by $4-\mathrm{ft}$. or 3 by $4-\mathrm{ft}$. burr oak pallets he gets
for $\$ 1$ apiece at his local recycling center. Because of the high quality wood, the pallets will last three to four seasons, Schuette notes.

He lines up pallets in a single row, approximately 200 ft . long along his driveway. He leaves a space of 1 or 2 in . between each one. Then he simply stacks bales one high on top of the pallets using a tractor-mounted 3-pt bale spear or Bobcat loader-mounted spear.

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The Woywitkas unbolted the paddles from the spreader beaters and bolted on a twopiece rubber belt conveyor below and behind the back of spreader.

## Manure Spreader Doubles As Bunk Feeder

When cow-calf operators David and Ernie Woywitka of Legal, Alberta, started feeding mixed silage and grain, they couldn't justify the cost of a mixer-feed wagon so they bought a new New Holland manure spreader and converted it to do the job.

The only modification they made to the apron-type, rear-unloading spreader was to unbolt the paddles from the spreader beaters to keep them from throwing feed out too far. To load out feed they bolted a two-piece rubber belt conveyor below and behind the back of the spreader. A $51 / 2-\mathrm{ft}$. length of conveyor runs across the back and a $61 / 2$ ft . section runs out the side at an angle to dump feed into bunks. Both conveyor sections are chain-driven by an orbit motor that runs off tractor hydraulics. The angle of the discharge belt can be adjusted by an electric winch controlled from the tractor cab.

As feed comes out the back of the spreader it drops onto the belt. A plywood backstop keeps feed from falling off the back. To switch back to spreading manure, they simply unbolt the conveyors and re-
place the spreader paddles.
"It has a lot of capacity and few moving parts so it's virtually trouble-free," says David. "It can easily feed 200 cows at a time. We paid $\$ 10,000$ for the spreader and spent another $\$ 3,000$ for the belts, orbit motor, and winch. Big commercial mixer-feed wagons sell for $\$ 40,000$ to $\$ 45,000$ and we'd still need a spreader to clean out our corrals.
"We pull the spreader-mixer with our Versatile bi-directional tractor. We fill the spreader, alternating layers of silage and grain. The spreader is $171 / 2 \mathrm{ft}$. long so two dumps of our 8 -ft. bucket covers the entire length of it. The beaters evenly mix the silage and grain as it's unloaded. The discharge conveyor can be raised up against the side of the spreader when going through gates.
"The spreader has two unloading speeds - we use the slow speed for big loads and the fast speed for normal loads."

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