



Craig Carlson's "water sled" uses an off-the-shelf stanchion watering bowl, which is clamped to a 3-ft. by 4-ft. pipe frame.



A 6-ft. long hose stays with the sled and attaches to a coupler at each paddock. Carlson pulls the sled by hand between paddocks.

Foolproof "Water Sled" For Pastured Cattle

"I needed a better way to water cattle on rotational grazing. So I built a low-cost 'water sled' that makes use of an off-the-shelf stanchion watering bowl. It's virtually foolproof," says Craig Carlson, Hamburg, Wis.

He used recycled 2-in. dia. metal water pipe to build a 3-ft. wide, 4-ft. long frame and clamped a high flow valve drinking bowl to it. The bowl bolts to a length of vertical pipe that's welded on top of the frame. A 6-ft.

long hose stays with the sled and attaches to a coupler at each paddock. The hose comes up through the pipe, and then goes through an elbow on top of the pipe and back down to the bowl.

One end of the sled is fitted with a pair of D-clamps. To move the sled between paddocks, Carlson pins a removable handle to a clamp and pulls the sled by hand to the paddock, then removes the handle and pins the clamp to a steel T-post.

"I use it with a herd of 30 cows and haven't had any problems with it at all," says Carlson. "My only cost was the \$40 I paid for the water bowl. I had been using a rubber tank equipped with a float valve. However, I didn't like it because every time I wanted to move the tank I had to dump out 20 gal. of water on the ground. If I lost water pressure and the tub was empty, the cows would tip it over or break the float. And if the set screw on the float ever became loose, the tub would

overflow all day long, resulting in a large mud hole.

"My cows have never tipped this water sled over, and there's no float that can overflow. Also, there's no water to dump out at moving time."

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Farm-Designed System Inflates/Deflates Tires On-The-Go

After traveling to Europe to look at on-the-go tire inflation systems, farmer-manufacturer Jake Kraayenbrink realized there was no system on the market that would do what he wanted when pulling his big liquid manure tank. So, he decided to develop his own system.

"We need 28 psi when our tank is full and on the road, but in the field we need to be at 14 psi to minimize compaction," says Kraayenbrink. "Turning at the headlands, we like to be at 20 psi, which is easier on the tires and also doesn't pull up dirt ridges like lower pressures do."

With the help of engineers from the University of Guelph, the Ontario farmer successfully designed his Automatic Air Inflation/Deflation (AAID) system. After testing the AAID on his own manure tank, his company, AgriBrink, has just installed its first system commercially.

"It went on a new 12,000-gal. Nuhn Quad tanker," says Kraayenbrink. "Deflating its tires will double its footprint and reduce its compaction impact in the field. It'll also extend tire life."

The AAID system consists of air supply, controls and delivery components. Air supply includes tanks pressurized to 150 to 170 psi and a small compressor with a hydraulic pump. Air control includes sensors, valves, a small pressure tank and the manual override. It triggers air release and pumping. The air delivery system, with airlines, brackets and

quick release valves, provides 360-degree access to the revolving tire valve stem.

The control box is designed with quick connects and pins so it can be used on more than one piece of equipment, once the air compressor and delivery systems are installed.

The small (12-in. by 8-in. by 3-in.) box contains an rpm sensor for the compressor, as well as an automatic control system with its valves and mini-pressure tank and a manual override.

"If for some reason, the automatic system with toggle control switch in the cab didn't work, the operator can go to the control box and adjust the pressure as needed," says Kraayenbrink.

When the operator hits the toggle switch in the cab, valves open, and the tire pressure drops from 28 psi to 14 psi in 25 seconds. Reserve air in the tanks reinflates on demand from 14 psi to 22 psi in two minutes time, at which point the compressor kicks in and continues inflation.

"I can safely run my empty tank at 22 psi on the road, but not at 14 psi, so full inflation isn't so critical," explains Kraayenbrink. "Once the tires are back up to 28 psi, the compressor refills the reserve tanks."

The air delivery system was one of the more challenging aspects to the project. A bracket had to be designed and installed to carry air lines to the outer face of the wheel. The 3/4-in. valve stem has its own shut-off



Automatic Air Inflation/Deflation system allows you to adjust your implement's tire pressures with the touch of a button.

to retain pressure should a leak develop in the lines. A swivel over the hub allows the final portion of the line to rotate with the wheel stem.

Currently, the air control system is priced at \$2,500. The delivery system is around \$600 per tire. The cost of the air supply with its tanks and compressor will depend on how quickly tires need to be inflated or deflated and how many tires are involved.

"The complete AAID control, supply and delivery system we just installed is for four large tires, and it cost under \$12,000 for everything," says Kraayenbrink. "If there are only two tires and less volume, the cost would be considerably lower."

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Shredder Makes Great Mini Feed Mill

When Mike Corder needs some ground feed for his 15-head cow herd, he just fires up his leaf shredder. The unit didn't cost much, and it makes it easy to adjust the coarseness of the grind.

"If I want to just crack the corn, I run it at a slow speed," he says. "If I run it fast, it turns the corn kernels to meal."

Corder says used chipper/shredders are easy to find. Unlike a full-size hammer mill, they don't require a separate tractor to power them either. The little gas engine is more than enough.

Grinding up a batch of feed is as simple as

pulling the shredder up to the door of an older gravity box wagon. The top of the shredder fits just under the lip of the door, allowing corn to flow in at the desired speed.

"I pull a rubber horse tank up to the blower side, and the cracked corn collects in it," says Corder. "It's ideal for a small herd of cattle, goats, sheep or any other livestock that eats corn."

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When Mike Corder needs ground feed for his cattle, he just pulls this leaf shredder up under the door of his gravity box wagon.