

## Portable Pasture Shelter For Calves

Father and son Wisconsin dairymen Jim and Luke Wavrunek designed and built a slick portable pasture shelter for grazing dairy heifers from 2 to 4 months old. The idea came to them after they attended a Door County "Breakfast on the Farm" event a couple years ago and spotted an old abandoned building, which that producer used for calf housing. The building could be moved for cleaning, providing fresh stalls for the livestock.

"Seeing that, we thought why not build something ourselves that we could move every day around a pasture," says Jim. "We went home and put our thoughts on paper, eventually building a 24-ft. square portable shelter."

All sides of the structure use 4-ft. tall steel hog fencing panels that are welded onto metal tubing for extra strength. Panels interlock on the corners with a metal pipe. A feed trough with a hinged cover is attached to one side and two 55-gal. drums are strapped to another side, supplying fresh water in a float cup. One end of the shelter rests on metal feet and the opposite end is supported by wheels

from an old hay conveyor. A large white tarp covers the shelter to protect calves from the sun and rain.

The Wavruneks move the shelter with their skid steer on a schedule that coincides with feeding their milk cows and replacement animals. "The calves do extremely well with zero scours and they stay really clean," Jim says. "They're getting fresh grass a couple times a day and we also supplement dry feed that we deliver with a four wheeler. It's a very economical and efficient way to raise calves on pasture."

The Wavruneks say that having calves outside during warm months and moving them frequently to new pasture reduces flies and is good for the animals. "It's called aggressive grazing, and we've had zero health problems," Jim says. "The moveable housing has also cut down on feeding costs, eliminating the need to use dry hay. Nutrient content in the livestock's manure has increased, showing 83 percent water and 17 percent dry matter. "By having them outside there is just less water in the manure," he says.



**"It's an efficient way to raise calves on pasture," say Jim and Luke Wavrunek about their home-built, 24-ft. sq. portable pasture shelter.**

The Wavruneks have also noticed fewer pneumonia infections by having the calves outside with fresh air and exercise. "If a calf doesn't get pneumonia, that translates into better growth, and once they freshen, we see

less mastitis," Luke says.

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## DIY Gearbox Reverses Shaft Direction

Rick Bown created a shaft-reversing gearbox with a piece of pipe and a set of 1959 spider gears. He needed a way to reverse his pto to drive a salvaged pump.

"When a pump at the water treatment plant where I work was replaced, the contractor told me to take it," recalls Bown. "I needed an irrigation pump for some fields I farm, so I brought it home."

The Gorman-Rupp trash pump was still in good shape, so he hooked it up to his tractor, primed the pump, got the rpms up...and nothing happened.

"I wondered what the deal was," recalls Bown. "I looked on the internet and finally saw one without paint that had arrows for the direction of the shaft. My pto turned the wrong way."

Bown then looked for ways to reverse the shaft. "There were all kinds of ways with pulleys and other stuff, but they either looked ridiculous or super expensive," he says. "I've worked on a lot of cars and trucks, and it hit me that spider gears might work. I didn't know if they would last, but they are a dime a dozen so I decided to give it a try."

He paid \$50 for a 1959 Austin rear end he found online. "The rear end looked like



**Rick Bown needed to reverse the pto on a salvaged trash pump he wanted to use as an irrigation pump. So he created a shaft-reversing gearbox by using a piece of 6-in. dia. pipe and a set of spider gears off the rear end of a 1959 Austin car. He stuck the spider gear housing inside the pipe and also cut the axle shafts on the spider gears down to extend past the pipe.**

a pile of rusty junk, but I pulled it apart, and the inside looked good," says Bown. "I stuck the spider gear housing in a piece of 6-in. diameter steel pipe. It fit perfectly, like a machined piston in a cylinder."

Bown tapped the pipe for a filler hole. He drilled a second hole midway up the pipe and welded an elbow fitting to it for checking oil level.

He cut the axle shafts on the spider gears and milled them down to 1-in. shafts that extended past the pipe. He also cut square



plates out of 3/8-in. flat stock for end caps on the pipe and drilled holes for the shafts.

"I also welded the casing inside the pipe, so the housing would be stationary," says Bown.

Once everything was lined up, he tapped holes in the plates to fit flange bearings for the shafts and welded the end plates to the pipe. The end plates were then welded to strips of angle iron bolted to the skids under the trash pump.

A bushing salvaged from an old Bush Hog mower connects one spider gear shaft to the

pto driveshaft. A collar connects the other spider gear shaft to the pump driveshaft.

"I added gear oil, and it has worked well for 2 years," says Bown. "The tractor is only 50 hp., but that's enough for the pump. You could use a bigger set of spider gears if driving a more powerful machine, but if I keep oil in it, I think it will last a long time."

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## State-Of-The-Art Wireless Barn Cameras



**Daxton Valyear's expandable barn camera systems include wireless cameras with wide angle lenses and infrared night vision.**

With more than two decades of experience in IT and video surveillance, Daxton Valyear knows what it takes to set up wireless barn cameras. Brick and steel buildings interfere

with transmission. Wireless and standard Wi-Fi only transmit about 300 ft. His solutions include outdoor wireless antennas and 100 percent digital HD technology.

"We have systems installed that are more than a mile line of sight between the house and the barn," says the Brooklin, Ontario, entrepreneur. "Our systems are expandable, and we have a number of clients that have 6 or more cameras. We can also link multiple barns and buildings together. Each barn can have multiple cameras in them."

The cameras have wide angle lenses and infrared night vision. So instead of getting up and going into the barn several times a night during calving, lambing or foaling, a producer can monitor livestock by looking at their phone, tablet or computer.

Valyear designed a plug-and-play system that is easy for anyone to set up. For example, the basic package (\$850) comes with two outdoor antennas (one for the house and one for the barn), a camera, and the cables. The house antenna plugs into your existing Wi-Fi router or modem. A free app on your phone lets you view the cameras anywhere. You can also view the cameras on your TV by using



**Systems are available with outdoor wireless antennas and 100 percent digital HD technology. The house antenna plugs into your existing Wi-Fi router or modem.**

an additional piece of equipment.

Valyear's cameras are designed for harsh temperatures and the cable comes with a special weather-proof boot over the

connection to the camera. Systems can be as large and complex as customers need. He offers add-ons such as Wi-Fi in the barn, microphones for listening, and pan tilt zoom cameras that move around and are sharp enough for a producer to read an ear tag 150 ft. away.

"We can add automation to turn lights on/off and receive alerts from a temperature or motion sensor. We also have security camera recorders," Valyear says. "What sets us apart is that we offer a high level of support and will do our best to help the customer get the system up and running."

Besides helping customers monitor their animals, Electroguy systems provide property security, allowing property owners to check on their property when traveling.

Packages are available on the Electroguy website. Or, call Valyear to customize a system to meet any agriculture, residential or commercial operation.

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