



Roger Shanks built a pump house on pastureland where he keeps cattle during the summer. Eight solar panels on the roof supply power to the pump.

## Solar-Powered Well Waters Cattle

Missouri farmer Roger Shanks built a solar-powered well pump on rented pastureland to water his herd of 50 cattle that spend the summer there. Shanks says he built the solar system because the 80-acre pasture doesn't have an electric line nearby to run a pump and getting one from the power company would cost him \$3,000 per pole. The solar panels, pump and controls that Shanks installed cost him about \$4,000, and he can use the system year after year without any operating costs. "The sunlight is free once all the equipment is in place," he says.

Shanks says his pump gets power from eight solar panels mounted on top of the

well house. The pump fills separate 1,000 gal. storage tanks that feed water by gravity flow to smaller tanks located downhill from the well. He says the 7 gal. per minute flow rate from the 300-ft. deep well is more than adequate to keep the storage tanks full. Shanks rotates cattle in the pasture between eight different paddocks, with water always accessible. He's had the system for two years and says it's worked perfectly, even without a battery backup.

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## "The Fetch" Pulls Up Broken Well Pipes

"The Fetch is the perfect tool to help you remove broken pipes or pumps from wells and other cavities. You'll save time and potentially thousands of dollars if it saves you from having to drill a new well," says Paul Newton, the Belle Plaine, Kan., inventor of The Fetch well pipe retrieval tool.

Newton was inspired to come up with The Fetch after buying a place with broken well pipes.

"I didn't know a lot about fixing well pipes, so I called around, and people gave me lots of ideas on ways to handle the problem, none of which made sense," he said. "After that, they told me how much it would cost to drill a new hole. I didn't want that either."

After roughly two weeks of working on concept designs, he hit the workshop and had a prototype built in about four hours. After another year of tweaking and designing, The Fetch was born.

It's made from long, flat, solid steel that has jaws (called "dogs") toward the bottom. When lowered down through a pipe via a retrieval line, one of the jaws slides into the opening of the broken pipe and grabs it there, while the other grips it on the outside.

Gravity locks the dogs into place for pulling the pipe out of the hole. "The harder you pull, the tighter the dogs will get," Newton said.

"Broken pipes are typically located along the sidewall of the casing," says Newton. "Attempting to lower The Fetch along different parts of the sidewall will yield more success than dropping it down the center of the casing."

There's a second line that needs to get tied to The Fetch before lowering it into the hole. It's the release line that gets tied in one of the smaller holes on the release mechanism built into The Fetch.

"If you can't pull The Fetch up, don't worry," Newton said. "If you're stuck, relax the retrieval line and pull up on the release



When lowered down through a pipe via a retrieval line, one of The Fetch jaws slides into the opening of the broken pipe and grabs it there, while the other grips it on the outside.

line instead. This will cause the dogs to let go, and you can pull The Fetch back up."

The Fetch comes in different sizes. The 110-3 model is designed for 1-in. pipes. Model 100-2 fits into 2-in. casings. The 114-3 is designed for 1.25-in. openings but is currently out of stock.

"Both of our in-stock models retail for \$686.34," Newton said. "We also offer a buy-back program if you think you'll only need it one time. Just check the website for details."

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Agri Spray Drones builds a self-contained metal Launch Box on a pallet type frame that carries a spray drone and its control system along with mixing tanks and a refilling pump.

## Launch Box Built For Drone Applicators

As a farmer, seed dealer and sprayer drone dealer, Taylor Moreland still finds time for new ideas. "I'm a tinkerer and an engineer at heart, so I used those skills to design and build what I call the Agri Spray Launch Box."

The 4-ft. tall steel box, built on a sturdy pallet size frame, carries a commercial-size spray drone together with all the essential items needed to operate it.

Moreland has been operating drones since 2014 and realized early on that they could be used for more than just crop scouting and providing visual data on colorful maps.

"When sprayer drones came on the market, I realized we could help farmers with a custom application business, so we became a dealer," Moreland says.

Because they use several pieces of equipment to prepare, load and manage the drones, Moreland realized that organizing all the components in one place would benefit the operation. Early ideas gelled into the Launch Box, which carries a T20 sprayer drone, its batteries, chargers, a generator and an auto-mixing system. Moreland says the Launch Box sits on a trailer or truck and pulls water from an external tank into its mixing system. Three separate ingredient tanks feed into that tank to create a spray mix for the drone.

"We've had several customers who started drone operations in 2021 and they were able to pay for their equipment and have an income the first season," Moreland says. "A drone and the Launch Box are ideal for individuals or seed salesmen who want to offer another service to their customers," he adds.

Moreland says a T20 drone will cover more than 20 acres an hour, and this year's new T30 model can do more than 30 acres an hour. Drones can apply liquid mixes at rates from 1/2 gal. to 10 gals. per acre. Herbicides, fungicides, insecticides, and foliar fertilizers are commonly applied. Granular products like dry fertilizer or cover crop seed can also be applied. The drone weighs about 55 lbs. empty and up to 145 lbs. loaded.

"The Launch Box is to a drone operator what a toolbox is to a carpenter," Moreland says. "It's a way to bring components together into one area and make drone spraying more efficient."

The Launch Box retails for \$13,000 plus shipping and drones vary in price depending on the model and accessories chosen.

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Smith says the weight of the rotary mower holds the 4 by 4 in place. When he wants to detach the mower, he simply lifts it up and unbolts the 4 by 4.

## Tired 3-Pt. Gets Added Support

Simple ideas are the best, and you can't get any simpler than Bernard Smith's solution for his Bush Hog bottoming out on his Allis WD. A couple of feet of a 4-in. sq. post was all it took.

"The hydraulic pump on the WD is weak, and the lift is really sensitive," says Smith. "It's either all the way up or down and all the way down is too far for the mower. It's hard to keep it in one spot."

After lifting his Bush Hog, Smith bolted the 4 by 4 to the hitch. When the arms lower, they rest on the 4 by 4.

"They lower to just the right height for mowing," says Smith. "It's still easy to lift if I'm going over a stump and then drop back

down onto the 4 by 4."

Smith says the weight of the rotary mower holds the 4 by 4 in place. When he wants to detach the mower, he simply lifts it up and unbolts the 4 by 4.

The support wasn't the first alteration to hydraulics on the WD. Since WDs weren't equipped with a 3-pt. hitch, Smith and his son rigged one up using lift arms from a Deere 2010. They attached them to the WD rock shaft with leveling arms.

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