Portable Solar Watering System

Jack Vernon of Lakeview, Oregon needed a watering system for several ranchland pastures scattered miles apart. He wanted to use solar energy but couldn't find what he needed on the market. So he built his own system.

"It has a lot of capacity and can be towed at highway speeds. I use it all year long," says Vernon, who has 8 different wells scattered across about a 30-mile area.

"An added benefit is that I don't have to worry about starting small engines in freezing weather, or worry if the engines will run long enough to pump the required volume. Each system can produce more than 5,000 gal. per day during winter and early spring, which will maintain up to 300 calving or lactating cows."

He built 2 similar systems, one equipped with 3 solar panels and the other with 4. The panels mount on a steel frame that's welded on top of a 10-ft. long metal trough.

"The trough was purchased in the late 1950's as military surplus and was designed to ship jet engines. We used it as a stock tank for many years," says Vernon. "It has a heavy metal angle iron base and holds about 450 gal. of water."

Vernon welded 2-in. square tubing together to build the frame, then mounted the solar panels so they can be adjusted from side to side depending on the sun angle and the season. Each system includes a Grundfos 20 gpm solar pump with controller and 100 ft. of 1-in. industrial rubber hose, which rolls up on a drum on back of the trough. A float switch is used to turn the pump on or off.

To transport the system, he attached the stub axles and wheels off an old Deere seeder and a junked utility trailer. A pair of hydraulic jacks from Northern Tool are used to raise or lower one end of the tank for transport.

"I use a compass to align the trough true north and south," says Vernon. "Then I remove the hitch, lower the trough to the ground, drop the pump down the well, and attach the hose to the trough or to an existing water distribution system that I have with some of my wells. Then I pull a pin to adjust the position of the panels, plug in an electric cord that runs from the panels to the pump, flip the switch and watch the water come out. It takes only about 15 min. to set up the trough or get it ready for transport."

Vernon welded a 1 1/2-in. valve at the bottom back end of the trough to quickly drain the water. He also attached a bleeder valve just above the pump so that during winter once the pump stops, the water will drain back down into the well without freezing up. "The bleeder valve also makes the pump lighter when removing it from the well with each move, because there's no water in the hose as the pump is lifted for transport," says Vernon. "Because the pump has an electric cord, I can use a generator if the solar panels can't keep up with demand on cloudy days."

"It has a lot of capacity and can be towed at highway speeds," says Jack Vernon about the portable solar watering system he built. He uses it on ranchland pastures scattered miles apart.

Vernon says he has used both systems on his pastures, feeding grounds and calving grounds on a year-around basis, and has found them to be reliable and labor saving. "Providing fresh well water in irrigated pastures increases cattle gains and reduces the need for ditch cleaning. Warm well water also reduces the need to chop ice," he says.

He says his average investment was about $4,500 for each system. "However, the reduced work load and increased dependability over generators, centrifugal pumps or air compressors is worth the cost. Solar tax credits helped to offset the initial outlay," he notes.

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Field Trailer Built From 1-Ton Pickup

Gary Swensen of Yankton, S. Dak., converted an 80-gal. propane tank into a high capacity, inexpensive portable air supply. He mounted the tank on the tongue of a 1-ton, 4-WD dual wheeled pickup box that he converted into a field trailer.

"It comes in handy whenever I need to fill up a low tire anywhere. It has enough capacity to air up one truck tire and 2 or 3 implement tires before I have to fill it up again," says Swensen. "I use a big compressor in my shop to fill it."

He made a bracket to hold the tank and uses a 25-ft. log chain to hold it in place. "The chain serves a dual purpose," explains Swensen. "When using the trailer to haul a load of hay, I place a couple of wooden pallets on top of the bales, then wrap the chain around them and tighten it down with a binder to keep any bales from falling off."

The trailer is supported by leaf springs that were already on the Chevrolet 1-ton pickup. Swensen added 1-ft. high wooden sideboards to the bed. "I've loaded it heaping full of black dirt above the 1-ft. sideboards and never had a problem," he says.

The trailer has a telescoping ball hitch made from 3 and 3 1/2-in. sq tubing. By pulling a pin Swensen can adjust the hitch length from 6 to 8 ft.

To build the trailer he cut the pickup frame off at the motor mounts, then folded the front part of the frame together into a "V" shape and welded it back together.

Swensen has also used the trailer to haul everything from scrap iron to dirt and gravel.

Gary Swensen converted a 1-ton, 4-WD dual-wheeled pickup into this handy field trailer. A converted 80-gal. propane tank on front provides an inexpensive portable air supply.

"The trailer doesn't have a hoist, so to dump the load I have to unhook it and then use a loader tractor to lift the tongue," he notes.

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Rugged Trenchers Built To Handle Tough Conditions

Denny Kirian has put a lot of tough digging equipment to the test over the years, and after most of them bent, sagged or cried "uncle" when things got tough, he decided to build his own. "In the digging business there's no such thing as overbuilt," says Kirian, who now builds 3 models of his rugged DK Trenchers in his Ohio shop.

The model DK-612 fits farm tractors in the 150 to 400 hp. range. Customers use it for laying cable, irrigation pipe and drainage tile, among other things. It digs a variable width trench up to 8 1/2 ft. deep. With auto self-leveling and tilt, it'll make a 90 degree turn in about 60 ft.

When Kirian got calls for a "tougher and larger" trencher, he and his production team came up with the DK-628. "The Beast" digs up to a 24-in. wide trench 6 ft. deep. It's a 3-pt. hitch model that weighs almost 7 tons and requires a variable speed transmission for operation. Power reaches the large trenching chain through dual gearboxes that are operated by a 1,000 rpm pto. Heavy-duty hydraulic lift and tilt cylinders raise, lower and adjust the cutting angle.

"The Beast will install larger mains in a variety of conditions. It's built stronger than our original model, with thicker steel, double the power, double the weight and capacity," says Kirian.

DK recently introduced a pull-type model DK-836 that's mounted on a tandem wheeled cart with walking beam axles. The cart is built with a huge 8 by 12-in. tube steel framing with the trencher mounted on a massive support system on front. It lifts with an 8-in. hydraulic cylinder and tilts with two 8-in. cylinders mounted on top of the trencher frame. All hydraulics are self-contained and operate through the pto drive system. Kirian says a 300 to 600 hp. tractor is needed to pull the machine.

"We built this model for people and companies who have big trenching needs and a need to put in dual wall pipe. This machine has all the features of our 3-pt. models and is built for the toughest conditions." Call DK Trenchers for pricing and a free quote.

Denny Kirian builds 3 models of rugged DK Trenchers in his Ohio shop. This new pull-type model is mounted on a tandem-wheeled cart with walking beam axles.

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