

Solar-Powered Geothermal Watering System

Bill Kolodziej keeps water flowing to his 100-head cattle herd no matter what the temperature, thanks to his solar-powered geothermal watering system. The 1,780-watt solar panels and a bank of 20 long-cycle, 12-volt batteries power the 24-volt DC submersible pump. Winter water access is assured with an insulated, earth-warmed water tank and an ultra-low voltage connection instead of a float.

"The system is kind of a copy of one developed by the Alberta Ministry of Agriculture and Forestry," says Kolodziej. "The control system has 2 stainless steel needles. They maintain an ultra-low voltage connection when in water. When the water level falls or freezes over, the connection fails, and the pump turns on."

In the case of ice, the pump runs until warm water thaws out the connection. The actual watering hole consists of an 8-ft., 30-in. culvert placed vertically in the ground. A foam insulated, 24-in. dia., culvert insert sits in the upper 4 ft. of the larger culvert. An aluminum cap with a 10-in. dia. hole caps the 2 culverts. The combination of insulated upper culvert and earth-warmed lower culvert keeps the water from freezing solid.

"When temperatures recently hit 29 degrees below zero, there was a thin layer of ice on it," says Kolodziej. "I cleared it away, and once the cattle started drinking and the pump started up, the water stayed ice free. Unlike standard electric waterers that can freeze solid, this one always has ground-heated water underneath."

Kolodziej set the 8-ft. culvert in the ground

to a depth of 5 ft. A raised area of dirt topped by a 12 by 12-ft. concrete pad surrounds the waterer. This reduces mud problems and protects the water hole.

An insulated chest protects the batteries from the weather, including cold winter temperatures. The entire system cost about \$4,000, not including well drilling.

"I work off the farm and wanted a watering system that would take minimal time and care, especially in the winter," says Kolodziej. "The panels and battery provide enough power to pump about 3 gal. per min., as well as power a 12-volt fence energizer."

The fence is another element of low maintenance cattle feeding. Kolodziej uses polywire fencing on fiberglass posts to fence off enough bales for a week's feed for the herd. He places bale rings around the apportioned bales. The fiberglass posts with their hot wires are pushed into remaining bales to keep the cattle away.

The winter paddock is a sandy field that was row cropped for many years. The cattle manure fertilizes the soil, while seed heads found in the low-quality hay Kolodziej feeds reseeds the field.

"With larger bales, I can go 10 days without moving the wires or bale rings," says Kolodziej.

Contact: FARM SHOW Followup, William D. Kolodziej, Marathon County Conservation, Planning and Zoning Dept., 210 River Dr., Wausau, Wis. 54403 (ph 715 261-6038 or 715 581-1125; william.kolodziej@co.marathon.wi.us).

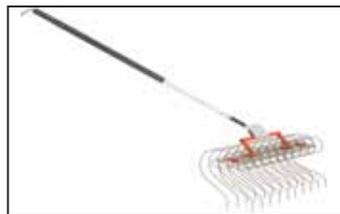


Solar panels stand next to insulated chest that holds the batteries shown above. Cattle drink through 10-in. dia. hole in aluminum cap, shown at left.



Weeding Tools With A Light Touch

"Our new hand weeding tools for market farmers are lightweight and work fast. We're using modern technology to make weed control more efficient than ever," says Peter Gile, Two Bad Cats, LLC, Clarendon, Vt. "A lot of testing, over many years, went into the development of these tools."



Tine weeder's curved tines pull out tiny weeds without damaging plants.

Tine Weeder

The Tine Weeder has a 30-in. wide head, which is equipped with 2 rows of curved, offset spring tines spaced 3 in. apart. The tool is used to suppress weeds while the crop is in the early stages of growth, when the plants are established but the weeds are not. The tines go around the plants without damaging them, while pulling out tiny weeds.

"The Tine Weeder lets you quickly control any weeds in your garden beds. It sometimes requires 2 passes per week for optimum weed control," says Gile. "The Tine Weeder doesn't work well on rain crust, but it works well any time the soil is reasonably soft."

A metal pivot plate on the weeder's head is used to adjust the angle of the handle, by changing the position of a screw in one of the holes provided.

The Tine Weeder is available with heads from 9 to 36 in. wide. A model equipped with a 30-in. head sells for \$260 plus S&H.

Wire Weeder

The Wire Weeder uses a 5-in. wide thin spring wire to pull out roots of small weeds in the top layer of soil, with minimal disturbance. In soft soils it can be used to remove larger,



Wire weeder moves easily through soil, pulling out weeds by the roots.

more established weeds.

"The Wire Weeder pulls the weeds with roots and all, which keeps them from re-establishing like they do when using an ordinary garden hoe," says Gile. "It weighs only 1 lb. 7 oz.

Available in 60 and 73-in. lengths and with 3 different wire heads: flat wire, 1 flat, and 2 flat, which describes how many bends the wires have in the head. The heads are interchangeable by removing a single bolt and nut and removing a clamp from inside the handle.

The 60-in. Wire Weeder sells for \$49.99 plus S&H.

Hand Wire Weeder

The Hand Wire Weeder is a much shorter version of the Wire Weeder. It comes with a 10-in. long aluminum handle and has a total length of 14 in.

The Hand Wire Weeder sells for \$29.99 plus S&H.

Contact: FARM SHOW Followup, Two Bad Cats, LLC, 11 Brookside Lane, N. Clarendon, Vt. 05759 (ph 802 775-8233; Pete@twobadcatsllc.com; www.twobadcatsllc.com).

He Made His Own Running Boards

Dennis Alexander, Clifton, Kansas, needed cheap but strong running boards for his pickup, so he made his own out of a couple of used batts off the reel on a Deere self-propelled swather.

"I had to replace the batts after I hit a post with the swather. I used a chop saw to cut off the bent parts," says Alexander. "They're not the prettiest running boards in the world, but I think they'll outlast my pickup."

He came up with the idea after he bought a used 2006 Dodge Ram 2500 quad cab pickup. It was difficult to get into the cab because it was so high off the ground. "I'm not a tall person, and I got tired of jumping into the cab and then falling out. I plan to paint the running boards some day to make them look nicer," says Alexander.

He used 6 steel teeth off a used field drag to make 1-ft. long mounting brackets, using a plasma cutter and welder to bend the teeth into an L-shape and then drilling holes into them. He loosened the pickup's cab mounts and installed 3 brackets on each side of the pickup, bolting them into the pickup frame using pre-drilled holes from the factory. He then bolted each batt horizontally onto the brackets.



Alexander used batts off the reel on a self-propelled swather to make running boards for his Dodge Ram 2500 quad cab pickup.

Contact: FARM SHOW Followup, Dennis Alexander, 255 Fox Rd., Clifton, Kansas 66937 (ph 785 455-3786; dalexander@twinvalley.net).

Make Your Own Wire Weeder

Michael Kilpatrick of In The Field Consultants (www.inthefieldconsultants.com), who originally came up with the wire weeder, recommends the original "made it myself" weeder design that costs only a couple bucks. He uses 1/8-in. dia. stainless steel wire, bent into a loop and held in place on the end of a wood handle with two hose clamps. That size wire works great for light weeding of young plants. For more aggressive weeding in more mature crops, he makes one out of larger 9-gauge wire.

