Sun Tracker solar panel is used to pump 10,000 gal. of water a day to Fricke's cattle.

# Solar-Powered Pasture Paying Off

When the local power company estimated it would cost $18,000 to bring power to a remote pasture, Brad Fricke turned to solar. The $18,000 would only have brought power to the edge of his property. He needed electricity another half mile further on.

"It was an 85-acre piece of bottom ground that was too sandy for corn. I decided to use it for intensive grazing," says Fricke. "I needed power for the fences and to get water to the calves."

Working with Missouri Valley Renewable Energy and a grant from the Missouri Department of Natural Resources, Fricke installed a Sun Tracker solar panel. His initial cost for a system to pump 10,000 gal. of water a day to his cattle was $12,000. It was 2/3 what the power company wanted and on site where he wanted it. He still needed a separate 12-volt battery and solar charger for his fences, and the water pumping was inconsistent depending on the available light.

Since then, he has upgraded the system with a control panel and battery storage that lets him pull 120-volt power 24 hours a day. He can even pull 20 amps for short periods of time to power tools or recharge tool battery packs on site, if needed.

Best of all, the new system will pump water at a consistent rate, and he no longer needs his 12-volt battery pack, solar fence system.

"We now have about $24,000 invested, but it will pump water 24 hours a day for irrigation and cattle tanks for up to three days," says Fricke. "If we get a three-day extended cloudy spell, we can hook up a generator and charge the batteries up to get another three days."

A 4-in. water pipe is buried the length of the 85 acres. Four-inch risers with taps come off the line to fill the tanks. Water is pulled from a pond in the pasture. Although it is about half a mile from the Missouri River, it shares a common water table with the river. The pump only has to raise water 20 ft. to reach the highest part of the field.

"So far we've had no problem keeping up with the cattle," says Fricke. "Now we are establishing another area across a levee. If we get to 150 acres at 7 head capacity per acre, we should be able to run 1,000 calves down there at a time."

They have plans for a simple irrigation system of four 500-ft. pvc pipes with sprinklers on them. His 4-in. buried pipe will easily handle them, putting an inch on two acres every 12 hours. Since he hasn't needed the $6,000 system yet, he hasn't spent the money.

He says having the more high-powered solar system is well worth it and not just for the high-powered, 54-joule fence charger or the water systems. "There are no monthly electric bills," explains Fricke. "We have a 10-year life expectancy on the batteries and pumps, plus it is more efficient than grid source power. We have no worries over power surges or outages."

Contact: FARM SHOW Followup, Brad Fricke, 2361 Hwy F, Hermann, Mo. 65041 (ph 573 486-2453; triplef@ktis.net) or Henry Rinse, Missouri Valley Renewable Energy, 2378 Berkemeyer Road, Hermann, Mo. 65041 (ph 573 486-5709 or 800 854-7191; henry@movre.com; www.movre. com).

## Don't Miss The Next Issue Of FARM SHOW

***Every day our editors are uncovering exciting new products and farmer-built inventions that promise to save you time and money. Don't miss out! You can tell when your FARM SHOW subscription expires by checking your address label on the front cover. It gives you the date of your final issue (example: 10/1/2006). You can use the order envelope enclosed with this issue, or the order coupon on page 44, to send in your renewal. Or call us toll-free at 800 834-9665.***

Black turned a rotary grain cleaner into a compost sifter, replacing the screen with hardware cloth.

# Rotary Compost Sifter

When Dave Black saw his neighbor's rotary grain cleaner sitting in the weeds, he knew right away what he wanted to do with it.

"I thought it would make a great compost sifter. All I had to do was replace the old screen with hardware cloth, and it was just about ready to go," says Black. "I ran some corn through to clean it out and painted it."

The first batch went flying out the end, so Black lowered the front end, forcing the clumps to climb higher before exiting. Once he had it adjusted, it worked great, with all the fine, well composted material sifting through the hardware cloth. Uncomposted materials gradually worked their way to the opposite end and exited into a pile.

"I just use these rejects to start my new compost pile," says Black. "The finished compost is easy to scoop up underneath."

Black only makes about a pickup load of yard and kitchen compost a year, but fixing up the grain cleaner was worth it to him. He paid his neighbor around $200 for it and threw away his old sifting frame.

Contact: FARM SHOW Followup, David Black, 8781 Ulery Rd., New Carlisle, Ohio 454344 (ph 937 255-9231; blacklane9 @woh.rr.com).

Shingle-type solar strips simply nail on in place of asphalt shingles.

# Shingle-Type Solar Roofing

Solar roofing from United Solar is taking the hassle out of installing solar collectors. The shingle-type strips simply nail on in place of asphalt shingles.

"The bulk of the industry is dominated by 50-year-old technology," says Subhendu Guha, president, United Solar Ovonic, LLC, Auburn Hills, Mich. "It's very reliable, but very heavy, fragile and high cost. Our solar cell is only half a micron thick and is deposited on thin, flexible stainless steel. Our manufacturing costs are lower and so are our installation costs."

The solar shingle strips are 86.4 in. long and 12 in. wide with 5 in. of exposed area. Each strip is rated at 17 watts output. The strips are wired in series with bypass switches in case some are shaded and not producing power. So far the company has been concentrating on large commercial installations, but the residential market is beginning to be explored by dealers, says Guha.

"With increased demand, production is going up and the cost is coming down," he says. "Today we have capacity to produce 250,000 100-watt strips. By the end of this year, our capacity will double, and by the end of next year, it will double again."

Right now, United Solar Ovonic strips are selling for between $6 and $8 per watt or $700 for a 100-watt system. Payback depends on state and federal tax credits and local cost of power. Guha points to California residents who he says have a 7 to 10-year payback on an installation today.

Solar shingle strips measure 86 in. long and 12 in. wide with 5 in. of exposed solar cells.

The shingle strips are nailed in place with common roofing nails over 30-lb. felt underlayment. A stick-on product to go over metal roofs is also available.

Each strip of shingles is wired through the roof into a conduit. Produced power is fed to an inverter and into the grid.

Contact: FARM SHOW Followup, United Solar Ovonic, LLC, 3800 Lapeer Rd., Auburn Hills, Mich. 48326 (ph 248 475-0100; fax 248 364-0510; info@uni-solar.com; www.uni-solar.com).