



A stacker delivers manure from barn gutters directly into prefabricated building.

## BUILDING KEEPS RAIN OUT, ODORS IN

# Indoor Manure Pits Solve Odor Dilemma

Indoor manure pits are starting to catch on in Canada where tough water quality regulations - and odor complaints near urban areas - are prompting some farmers to store semi solid dairy cattle manure inside new prefabricated buildings.

The buildings, which have a cement floor surrounded by an 8-ft. high retaining wall, keep rain and snow out of the manure and prevent odors from escaping. A stacker delivers manure from barn gutters directly into the building.

"Indoor manure pits are environmentally safer than dumping manure outside or pumping it into a lagoon and are virtually Bodco Farm Equipment, St. Francois Xavier, Quebec. The company, which makes barn cleaning equipment, has constructed a number of buildings 80 ft. wide, 100 ft. long, and 30 ft. high with enough capacity for nine months of manure storage from 100 cows.

"Most of our customers had been stacking manure outside but live close to town and wanted to eliminate odors," says Vachon, who notes that some farmers install a "chimney vent" on top of the roof for extra

ventilation in addition to the roof peak vents. "Keeping rain and snow out results in a more solid form of manure that's less likely to seep into ground water or run off fields. The manure can be handled with a front-end loader and conventional manure spreader. Indoor manure pits cost about 25% more than lagoons. However, there are no underground pipes to plug up, and if you ever stop milking cows you can use the building for other purposes."

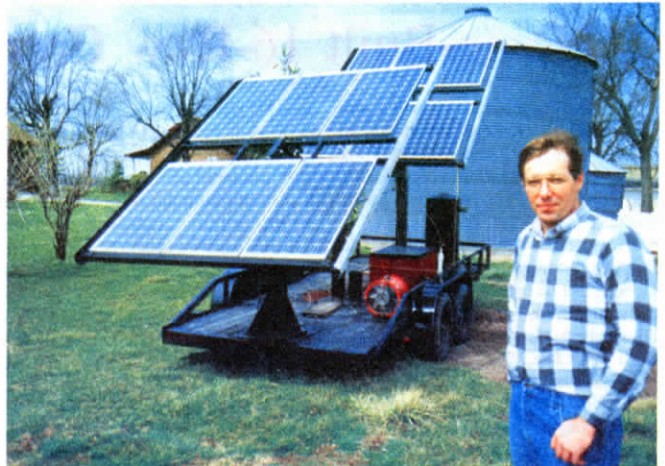
Two independent stackers are used, one inside and one outside the barn. The inside stacker drops manure onto the bottom of the outside stacker, the bottom end of which is barn. "The shed keeps the outside stacker from freezing up in winter," says Vachon.

The outside stacker has a transmission on the top end that automatically declutches if the chain plugs up and automatically reengages when the motor is restarted, eliminating the need to climb up to the top of the stacker to put it back in gear.

For more information, contact: FARM SHOW Followup, Bodco Farm Equipment, 10 Route 249, St. Francois Xavier, Quebec Canada JOB 2V0 (ph 819 845-7824).



The 80 ft. wide, 100 ft. long, and 30 ft. high building has cement floor surrounded by 8-ft. high retaining wall.



Rieckmann mounted 12 90-watt photovoltaic panels on trailer. Box houses 24-volt direct current motor and pump, and water tank behind it primes the pump.

## PHOTOVOLTAIC POWER UNIT ALSO RUNS BIN AERATION FAN

# Trailer-Mounted Solar Water Pump

By C.F. Marley

"My trailer-mounted solar water pump doesn't cost anything to operate and is maintenance free. I also use it to aerate grain bins," says Illinois farmer Perry Rieckmann, who primarily uses his home-built solar system to pump water into a 5-acre pond for wildlife.

Rieckmann, of Valmeyer, mounted 12 90-watt photovoltaic panels on steel frames that attach to 6-in. dia. steel pipes welded to motor and pump and a 1 hp direct current aeration fan also mount on the trailer. A linear current booster converts solar energy to low-voltage direct current. A freon tracking system rotates the panels during the day so that they constantly receive maximum sunlight.

"The photovoltaic panels provide 24 volts of direct current which is enough to pump 45 to 50 gal. of water per min. or about 30,000 gal. per day," says Rieckmann. "I use it to flood some Mississippi river bottomland that used to have water on it for a few months every year so I'd only get a decent crop once every 5 years or so. Since I can't depend on it for farming I decided to keep it full of water all year long so wildlife could use it. At first I used a gas engine to pump water into the pond. However, I had to spend a lot of time refueling and the engines kept burning up from the non-stop use.

"I can go weeks without even looking at my solar pump. It runs so quiet that deer and ducks hardly notice it. I can hear the motors vary in speed according to the amount of



Switchbox mounted on pole is used to start motor and pump.

sunlight received by the panels. However, low power won't damage the motor because it's direct current. It quits running when the sun goes down or when the weather turns cloudy. I could use batteries to power the motor after dark, but after checking out prices I decided I couldn't justify the expense."

Rieckmann got a grant to pay for the \$12,000 project. He worked with the Extension Service, the Soil and Water Conservation Service, and the Illinois Department of Energy and Natural Resources in setting up the system. He plans to use it to aerate grain for the first time next fall.

For more information, contact: FARM SHOW Followup, Perry Rieckmann, Valmeyer, Ill. 62295 (ph 618 935-2713).

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