

# GORDONDALE FARMS – NELSONVILLE, WI

## SYSTEM DESIGN

Since April 2002, Gordondale Farms has successfully operated an innovative anaerobic digester that offers multiple benefits. The owners took advantage of the opportunity to install the digester during a planned farm expansion in 2001. Gordondale chose the design for its many economic and environmental benefits, plus the flexibility to grow with the farm.

The 71,000 ft<sup>3</sup> digester employs a fixed cover and a U-shaped channel. The U-shape was chosen because locating the influent and effluent equipment next to each other made sense for the project. Plus, the digester can easily be expanded by extending the looped end. A patented biogas injection system mixes the slurry vertically to enhance digestion and the fixed cover virtually eliminates odors.

After digestion, a screw press separator mechanically separates coarse fibrous solids from the digester effluent, which is used for bedding with excess sold to other farms. This system allows for improved nutrient management planning, better water quality protection, and the system generates revenue.

Alliant Energy owns and maintains the electricity-generating equipment and pays a set fee per kWh. All of the electricity generated is delivered to Alliant's transmission system. Gordondale purchases electricity from Alliant.

## PROJECT BENEFITS

Gordondale's digester project includes the following financial benefits:

- Increased farm revenue from sale of electricity
- A reduction in the cost of heating the milking center and offices by capture and use of waste heat from the engine-generator set
- A reduction in bedding costs through the use of separated solids in place of conventional bedding materials
- Reduced need for commercial fertilizer and lime applications

[A 2005 study](#) of the Gordondale digester project completed for AgSTAR confirms the environmental quality benefits of the project. Results also confirm that the economic value of the electricity generated and the stabilized solids recovered can be adequate to recover the capital investment in a reasonable period and then generate a long-term income stream.



Photo: Alliant Energy

*"The advantages are just unreal. With all the features of the whole thing, it's pretty much a win-win for the community and the environmental concerns."*

—Gale Gordon  
Gordondale Farms (quoted at [www.dvoinc.net](http://www.dvoinc.net))

- **Population Feeding Digester:** 850
- **Baseline System:** Storage Tank or Pond or Pit
- **Digester Type:** Two-Stage Mixed Plug Flow™
- **System Designer:** DVO, Inc.
- **Biogas Use:** Cogeneration
- **Generating Capacity:** 140 kW
- **Receiving Utility:** Alliant Energy, Inc.