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AA DAIRY – CANDOR, NY

DAIRY FARM IN NEW YORK – FINANCIAL AND COMMUNITY RELATIONSHIP REWARDS

SYSTEM DESIGN

Before installing its anaerobic digester in 1998, odors from AA Dairy's manure storage and spreading sites were an issue. With plans to double its size to 1,000 cows, AA needed a way to control odors more economically and manage manure more effectively. With installation of the plug flow digester, the farm not only increased its capacity and reduced odor, but also created revenue streams from electricity generation and sale of its "Fields of Dreams" compost.

Designed to handle a capacity of 1,000 cows, the 112-foot digester currently receives approximately 11,000 gallons of manure each day from 600 cows. The manure, scraped from the freestall barn, includes newspaper, sawdust, and shavings that are used for bedding. A flexible cover captures the biogas produced, which is collected, filtered, and pressurized before fueling a 130 kW engine-generator set that produces enough power to operate the farm with excess sold to the local utility.

A screw press separator is used to separate the coarse fiber from the digester effluent, which is then composted and sold as 'Fields of Dreams' compost for use as a soil amendment. It is essentially weed-free compost with a dry matter content of 20-30 percent and a pH of about 8. The farm sells various quantities from bags full to truckloads. Sale of the compost has helped offset the capital cost of the digester and reduces the rate of phosphorous application to the farm's cropland.

Additional information is available in a [Cornell University case study](#). As of January 2014, the digester is not currently operating.

PROJECT BENEFITS

- Reduced odor improves community relationships
- The nearly odorless liquid effluent is applied directly to crops with virtually no nutrient loss
- Recovered heat from the engine-generator set heats the digester and hot water reserve, saving propane expense
- Sale of 'Fields of Dreams' compost to the community and other farms as a soil amendment generates revenue

[A 2004 study](#) of the AA Dairy 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: RCM International, LLC

"We want to stay on the cutting edge of the dairy industry, utilizing new technologies and innovations to increase efficiency of milk production."

— Bob Aman,

AA Dairy (Quoted in Cornell University fact sheet: *Anaerobic Digestion with Combined Heat and Power*)

- **Population Feeding Digester:** 600
- **Baseline System:** Storage Tank or Pond or Pit
- **Digester Type:** Horizontal Plug Flow
- **System Designer:** RCM International, LLC
- **Biogas Generation:** 42,868 ft³/day
- **Biogas Use:** Cogeneration
- **Generating Capacity:** 130 kW
- **Receiving Utility:** New York State Electric & Gas