

# Project Profile: AA Dairy



Photo Credit: RCM International, LLC (now Martin Construction Resource, LLC)



Candor, NY

Key Features	PLUG FLOW	ELECTRICITY	COMPOST

## Highlights

- Anaerobic digestion system in operation for nearly 25 years
- Dairy sells compost as soil amendment to help offset digester costs and decrease phosphorous application rate to cropland
- Benefits include removal of odor, increased capacity for farm, and reduction of operating costs

## Overview

Before commissioning its anaerobic digester in 1998, AA Dairy faced odor issues with manure storage and land application. With plans to expand its herd, AA Dairy needed a way to control odors more economically and manage manure more effectively.

“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

By installing a plug flow digester, the farm not only increased its capacity and reduced odor, but also created revenue streams from electricity generation and the sale of its “Fields of Dreams” compost.

## About the Digester

Designed to handle a capacity of 1,000 cows, the 112-foot digester receives approximately 11,000 gallons of manure each day from about 600 cows. The manure, scraped from the free stall barn, contains 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. AA Dairy sells excess electricity to the local utility.

AA Dairy uses a screw press separator to remove coarse fiber from the digester effluent. The dairy then composts the fiber and sells it as a soil amendment called “Fields of Dreams,” which has a dry matter content between 20 and 30 percent and a pH of about eight. The farm sells various quantities of compost, from 20-pound bags to

truckloads. Sale of the compost has helped to offset the capital cost of the digester and reduce the rate of phosphorous application to the farm’s cropland.

## Benefits

AA Dairy advances sustainability in the following ways:



- Protects human health by reducing pathogens in manure through the anaerobic digestion process
- Improves quality of life in the community by reducing odor on local farms
- Reduces methane emissions from livestock manure
- Decreases phosphorus application to land
- Offsets the use of fossil fuels in electricity generation
- Generates revenue from the sale of compost as a soil amendment
- Reduces operating costs by producing renewable energy and using it on site

SYSTEM DESIGN PROPERTIES	
Feedstock Processed	Dairy cow manure
Digester Type	Horizontal plug flow
Population Feeding Digester	600 dairy cows
Baseline System	Storage tank, pond, or pit
System Designer and Developer	RCM International, LLC (now Martin Construction Resource, LLC)
Biogas Generation	42,868 ft <sup>3</sup> /day
Receiving Utility	New York State Electric & Gas
Biogas Uses	Cogeneration
Genset Output	130 kW

## System Financing

AA Dairy received a grant through the Tioga County Soil and Water Conservation District to help fund the project, but the award did not cover the entire cost of the system. The combined economic value of stabilized solids and electricity generation allowed AA Dairy to recover its capital investment and continues to generate income.

## Want to learn more?

Review a case study by Cornell University’s Manure Management Program, at [https://ecommons.cornell.edu/bitstream/handle/1813/65738/DES\\_AA\\_Case\\_Study.pdf?sequence=2&isAllowed=y](https://ecommons.cornell.edu/bitstream/handle/1813/65738/DES_AA_Case_Study.pdf?sequence=2&isAllowed=y).

For more information about Martin Construction Resource, visit <https://martinenergygroup.com/digesters/>.

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