



## PATTERSON FARMS – AUBURN, NY

DAIRY FARM IN CENTRAL NEW YORK MAKES SYSTEM CHANGES TO PRODUCE BIOGAS, RESULTING IN ELECTRICITY GENERATION AND ADDITIONAL REVENUE

### SYSTEM DESIGN

Elm Road Dairy is the newer of two Holsum dairies With Patterson Farms, Inc.—located only two miles from Cayuga Lake, a popular recreational facility—the farm constructed a digester to control odor and improve manure management. A combined heat and power (CHP) system was installed to provide heat to maintain the digester temperature and supply electricity to the facility.

The farm selected a complete mix digester for its ability to handle low solid concentration influent, as well as food waste from outside sources. Food waste (whey) from a nearby Kraft Foods Inc. cream cheese factory is combined with dairy manure and fed into a complete mix mesophilic digester. Kraft Foods Inc. pays a tipping fee to the farm, which substantially improves the economics of the system.

Cornell University provides an in-depth 2012 [case study](#) about the farm and digester system.

### PROJECT BENEFITS

- Odor and pathogen reduction
- Reduced risk of run-off and leaching of nutrients
- Conversion of nutrients from organic to inorganic form, allowing them to be readily utilized by plants as a natural fertilizer
- Potential revenue from sale of excess energy, food waste tipping fees, and carbon credit sales

Biogas is produced daily and approximately one-third is fed to the engine to generate electricity, while the remainder is flared on site. Carbon credits from all the combusted gas may provide additional revenue to the farm.

Digested effluent is separated using a screw-press separator. Separated solids are used for freestall bedding and the excess is sold.



Photo: Patterson Farms, Inc.

*“The digester helps us deal with the odor problem, and the food waste tipping fees and electricity payments generate positive cash flow for the farm.”*

—Connie Patterson  
Patterson Farms, Inc.

- **Population Feeding Digester:** 950
- **Baseline System:** Storage Tank or Pond or Pit
- **Digester Type:** Complete Mix
- **Co-Digestion:** Food processing waste (cheese whey, waste onions, and potato starch water)
- **System Designer:** RCM International, LLC; Digester cover installed by Environmental Fabrics, Inc.
- **Biogas Generation:** 171,585 ft<sup>3</sup>/day
- **Biogas Use:** Cogeneration
- **Generating Capacity:** 405 kW
- **Project Funding:** USDA