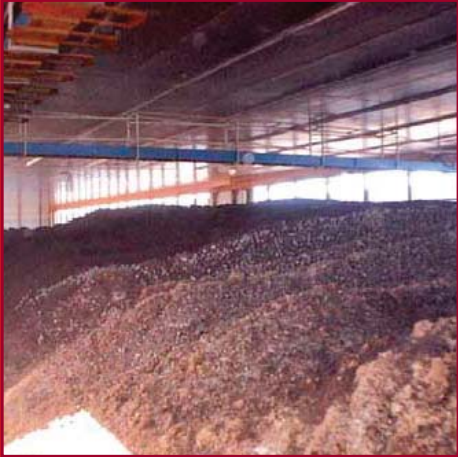


# COMPOSTING

## VALUE-ADDED PROCESSING OF DAIRY MANURE USING VERMICOMPOSTING

Fessenden Dairy, King Ferry, Cayuga County



Fessenden forced aeration compost facility.



Vermicompost bed with earthworms.

**Using worms to improve the quality of composted livestock manure can add value in an energy-efficient manner.**

### OBJECTIVES

- Develop and operate a full-scale manure vermicomposting system;
- Convert the solid fraction of manure produced at a 500-cow dairy to a marketable vermicompost.

### OVERVIEW

Spreading manure on land can discharge nutrients and pathogens to water resources. Dairy farms in critical watersheds are under pressure to control contaminants from manure so that expensive and energy-intensive water treatment plants will not be needed. Composting livestock manure can significantly reduce environmental impacts such as these, but also reduces odors, along with volume and weight. Using worms to further improve compost quality can add value in an energy-efficient manner and permit exporting of the vermicompost off the farm and out of critical watershed areas. Also, worm castings contain up to 5 times the plant-available nutrients found in average potting soil mixes. To realize the potential energy, environmental and cost saving benefits of vermicomposting, farmers need information to evaluate the energy, labor, land and equipment costs.

### OUTCOME

This NYSERDA project design uses partially composted manure solids as a medium for vermicomposting. A mechanical separating system is used to recover the manure solids for composting. A percentage of the composted manure is processed with worms and the rest is sold as regular compost. To date, the system is successfully operating and market development is ongoing. Energy and economic impacts are currently being examined. Fessenden Farm was recently awarded additional funding by NYSERDA to focus more closely on managing the liquid fraction of manure wastes produced on farm.

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