



# Frost Valley YMCA

## Claryville, New York

### 100% Recovery of Food Discards



*Using a static aerobic composting system, this 6,000-acre residential educational and recreational facility in the Catskill Mountains composts 100% of the food discards from its kitchen and dining room. From 1990, when Frost Valley began its comprehensive waste reduction program, to 1997, the facility reduced its total solid waste by 53% (by weight). Through food recovery, Frost Valley now realizes a net savings of \$5,200 annually and provides a unique educational opportunity to thousands of visitors per year.*

### Program Description

**F**rost Valley runs environmental education programs and a summer camp, as well as hosts conferences throughout the year. About 30,000 people per year stay at this facility for periods of one to seven nights. During the summer when camp is in session, the kitchen serves 800 people a total of approximately 2,400 meals daily.

In the late 1980s, as waste disposal costs steadily rose, Frost Valley sought alternatives to landfilling its waste. When a waste assessment found food to be the greatest contributor to the waste stream, Frost Valley decided to implement a **composting** program.

Kitchen staff put all food preparation scraps, meat, bones, and paper towels in unlined 30-gallon plastic cans in the kitchen. Guests deposit their leftovers in an unlined can in the dining room. Staff stationed in the dining room during meals educate guests and help them with food recovery procedures.

Staff bring filled cans to a refrigerated room adjacent to the dining hall. When they have collected approximately 30 cans, they empty the cans into a

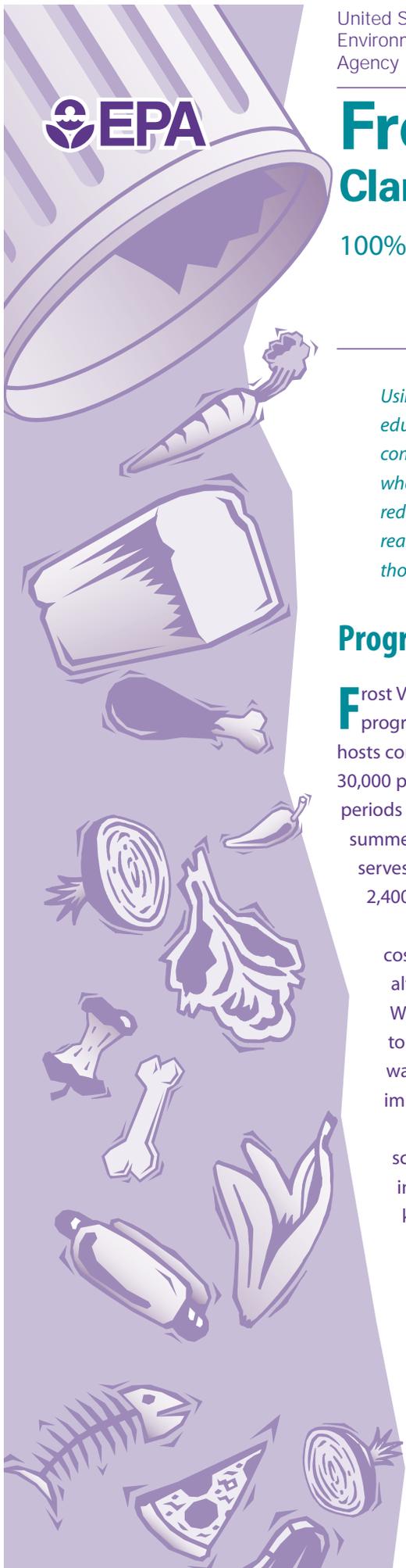
knight standard feed mixer, which holds up to 6 tons of material. Staff wash cans after each use. During the summer with camp in session, it takes 3-4 days to amass one mixer load of material; during the fall and winter it takes 2 to 2 1/2 weeks.

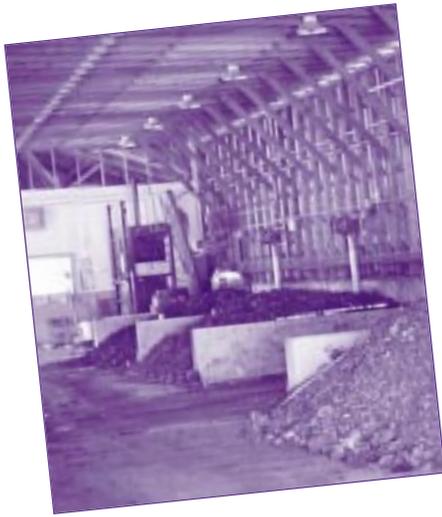
In addition to food, Frost Valley YMCA composts anything organic, including yard trimmings and lumber. Large items such as lumber are put in a hydraulic grinder and shredded before being added to the mixer.

Staff weigh food and other material going into the mixer and then add an equal amount of wood chips as a bulking agent. The wood chips add carbon, creating a proper carbon/nitrogen ratio. After mixing, materials are piled in a holding bay in the facility's Resource Management Center. Wood chips piled around six-inch PVC perforated pipes line the bottom of the bay. On top of that, staff layer the mixer contents and wood chips.

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Fans attached to the pipes cool the piles and add oxygen.

Materials stay in these piles for approximately 13 weeks until the volume, moisture, and temperature levels have all dropped. Staff then use a front-end loader to put material in a

modified trommel grain separator, which separates out larger material that has not completely broken down.

Material that has gone through the separator is windrow composted for 13-15 weeks.

Frost Valley has no contamination or odor problems. Wood chips control odor, and because the composter and bays are inside, there are no vector problems.

## Costs/Benefits

Frost Valley raised \$250,000 for composting equipment and site, educational facilities and equipment, and development before beginning the project. One of the greatest program costs was building the attached classroom, greenhouse, and gardens used to share the program with the thousands of students and families that visit Frost Valley every year. Other costs associated with the program include electricity, fuel, and miscellaneous

operating costs. This totaled approximately \$500 in FY97.

In 1997, as a result of food recovery, Frost Valley avoided approximately \$9,700 in waste disposal costs. It also derives revenue from the sale of recycled materials such as cardboard. Since implementation of its waste reduction program, including composting, Frost Valley has reduced the number of trips to the landfill to empty the dumpster from 16 to 10 per year. In addition, composting is continuously used as an educational program. The educational value of this program is hard to measure in dollars. Because it draws visitors to the facility, it has been very successful in generating additional dollars for other environmentally related projects on the

property such as composting toilets and wood chip technology for heating buildings. In addition, as guests learn more about the project and its benefits, they become more interested and invested in composting as a method of handling food discards.

Landscaping projects and an on-site green house and organic garden demonstrate uses of finished compost.

## Tips for Replication

- Make it easy for guests to understand your program and its value. Although it initially cost more to build the classroom, this educational space is an important component of composting at Frost Valley.

## Program Summary, 1997

<b>Sector</b>	Residential education facility
<b>Number of meals per year</b>	485,000 (estimated)
<b>Start date</b>	1990
<b>Dedicated Employees*</b>	0.5
<b>Method</b>	Static aerobic piles
<b>Materials collected</b>	Pre- and post-consumer food discards; yard trimmings; lumber
<b>Part of comprehensive waste reduction program?</b>	Yes
<b>Total waste generated</b>	190 tons (estimated)
<b>Food and other organic discards generated (TPY)</b>	80 tons (estimated)
<b>Results:</b>	
<b>Food and other organic discards recovered (TPY)</b>	80 tons (estimated)
<b>Food discards recovered (%)</b>	100%
<b>Total waste recovered (TPY)</b>	100 tons (estimated)
<b>COSTS:</b>	
<b>Average composting costs</b>	\$56 per ton
<b>Average avoided landfill hauling and tipping fee</b>	\$121 per ton
<b>Net savings**</b>	\$65 per ton

\* This part-time employee works with both on-site composting and trash management.

\*\* Net savings do not reflect the cost of the composting machine, site, and classroom. Frost Valley reports that these costs have been more than offset via fees paid by visitors.

TPY = tons per year