

BIOCYCLE NATIONAL SURVEY

# FOOD COMPOSTING INFRASTRUCTURE

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**BIOCYCLE NATIONAL SURVEY: NEW ENGLAND**

# FOOD COMPOSTING INFRASTRUCTURE

**F**ROM 1995 to 2000, *BioCycle* published an annual national survey of food waste composting projects in the United States. Since then, we have continued to track food waste composting activity, and in 2007 launched [www.findacomposter.com](http://www.findacomposter.com), a publicly searchable data base that lists many sites in the U.S. that receive municipal, commercial, institutional and industrial food waste streams.

Recently, there has been a surge of interest on the part of generators of food-based materials to switch from disposal to recovery via composting and anaerobic digestion. There also has been a boom in college and corporate campuses wanting to either manage cafeteria food scraps on-site or divert them to a composting facility. And to top this all off, municipalities and states, recognizing that food waste comprises a significant portion of MSW being disposed, have made their diversion and recovery a top priority.

For *BioCycle* and others involved in the composting industry, this expanding interest has led to regular emails and phone calls asking for a list of composting facilities in the U.S. that accept food waste. While many of these sites are captured in [www.findacomposter.com](http://www.findacomposter.com), the data base is relatively new and still being populated. So this summer, we decided to embark on a national survey of food waste composting facilities, dividing our outreach and reporting by regions of the country. For simplicity, we opted to group the states by the U.S. Environmental Protection Agency's regions (11 in all). If there aren't many sites to list in a single region, several will be combined. As we compile the lists, we are adding these facilities to [www.findacomposter.com](http://www.findacomposter.com), to keep the data base growing.

The following sectors are included: Municipal, Commercial, On-Farm and University. Not included are facilities established solely to manage food residuals from a single generator, e.g., an industrial facility processing its own material, a farm-based operation servicing a single generator in a community (typically a food processor), or correctional facilities. We have included colleges and universities, as this is one of the fastest growing

sectors of food waste diversion in the country. Some campuses do on-site composting while a number divert organics to a local composter. In all cases — just as it does with the very small food waste composting and vermicomposting projects at elementary and secondary schools — having young people actively engage in source separation and composting is helping to create critical behavior changes that need to be fostered as students embark into the world.

**NEW ENGLAND STATES**

This first installment focuses on the New England states (EPA Region 1) that include Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut. Rhode Island is the only state where we could not identify food waste composting projects. A total of 51 projects were identified.

Table 1 provides a geographical distribution of the projects in New England by sector. There are a total of 17 college and university projects, 18 farm-based operations, 12 commercial composters and 4 municipalities accepting food waste at their composting facilities. Of the sites reporting annual tonnages composted (Table 2), 15 are in the 0 to 200 tons/year (tpy) range, 10 in the 200 to 1,000 tpy category, 7 in the 1,000 to 5,000 tpy range, and 9 over 5,000 tpy.

Table 3 lists all the sites composting food waste in New England in the sectors we surveyed. Projects at colleges and universities are pretty evenly split between composting on campus versus sending feedstocks off-campus to a composting site.

*BioCycle* editors welcome additions to this list. Please email facility name, location and a contact if available to [fac@jgpress.com](mailto:fac@jgpress.com). ■

*BioCycle* survey series provides region by region listing of food waste composting projects in the U.S.

*Cristina Olivares and Nora Goldstein*

**Table 1. New England's distribution of food waste composters by sector**

State	Colleges/ Universities	Farms	Commercial Composters	Municipalities
Connecticut	2	2	1	—
Maine	6	5	2	1
Massachusetts	5	7	5	—
New Hampshire	2	—	2	2
Vermont	2	4	2	1
Total	17	18	12	4

**Table 2. New England's distribution of food waste composters by size<sup>1</sup>**

State	Number of Sites Accepting (tons/year)			
	0-200	200-1,000	1,000-5,000	5,000 plus
Connecticut	2	1	—	2
Maine	8 <sup>2</sup>	3	2	1
Massachusetts	3	1	4	5
New Hampshire	1	1	1	—
Vermont	1	4	—	1
Total	15	10	7	9

<sup>1</sup>Ten facilities did not report annual quantity of food waste composted. <sup>2</sup>Colleges not providing annual tonnage were counted in the 0-200 column.

**Table 3. Food waste composting facility highlights in New England**

State/Facility Name	City	Food Waste Tonnages <sup>1</sup> (annual unless noted)	Materials Composted <sup>2</sup>	Source	System
<b>CONNECTICUT</b>					
Connecticut College	New London	up to 17.5	FW	ICI	In-vessel (Earth Tub)
New Milford Farms	New Milford	53,865	FW, YW	ICI, Res	Aerated windrow, enclosed
Old Maids Farm	Glastonbury	5,900 (permitted capacity)	FW, YW, manure	ICI	Windrow
Park Farm	East Windsor	890 (permitted capacity)	FW, YW, manure	ICI	Windrow
Wesleyan University	Middletown	3.25 (125 lbs/wk)	FW	ICI	In-vessel (Earth Tub)
<b>MAINE</b>					
Bartlett Farm Services	Eliot	3-4; 750 (permitted capacity)	FW, YW, WCC, SP	ICI	Windrow
Bates College	Lewiston	n/a	FW, SP	ICI	Off-site to compost facility (Ricker Farm)
Benson Farm Earth Products	Gorham	2,000	FW, YW	Res	Windrow
Bowdoin College	Brunswick	16.2 (80-100 lbs/day)	FW	ICI	In-vessel (Earth Tub) but transitioning to off-site
Colby College	Waterville	180	FW	ICI	Off-site to compost facility (Hawk Ridge)
Hawk Ridge Compost Facility	Unity	72,500	FW, YW, SP, MB	ICI	In-vessel
Knox Ridge Holstein Farm	Thorndike	250-500	FW, manure	ICI	Windrow
Maine's Best Compost	Harpwell	250	FW, YW	ICI, Res	Windrow
Ricker Farm	Lisbon	200-350	FW, YW, manure	ICI	Windrow
Sandy River Recycling Association	Farmington	14 in 2006	FW, YW	ICI	Windrow
University of Maine, Farmington	Farmington	35	FW	ICI	n/a
University of Maine, Orono	Orono	50 gallons/day (using a pulper)	FW	ICI	Windrow
University of New England	Biddeford	n/a	FW	ICI	Off-site to compost facility
Winterwood Farm	Lyman	5,000 (max)	FW, SP, manure	ICI	Windrow
<b>MASSACHUSETTS</b>					
Agracomp	Bolton	5,000-10,000	FW, YW	ICI	Windrow
Boston College	Chestnut Hill	64 (800 lbs/day) in 1 dining hall	FW	ICI	n/a
Brick Ends Farm	S. Hamilton	5,200	FW, YW	ICI	Windrow
Clear View Composting	Orange	2,000 (permitted capacity)	FW, YW	ICI	Windrow, aerated static pile
Groundscapes Express, Inc.	Wrentham	7,500	FW, YW	ICI	Windrow
Hampshire College	Amherst	129 in 2006	FW	ICI	Windrow, aerated static pile
Harvard University	Cambridge	842	FW, YW	ICI	Off-site to compost facility
Holiday Farm	Dalton	n/a	FW, YW, WCC	ICI	Windrow, aerated windrow
Kingfisher Corp	N. Dartmouth	3,650 (max)	FW, YW	ICI	Windrow, passive piles
Martin's Farm	Greenfield	4,000 (max)	FW, YW, WCC, SP	ICI, Res	Windrow
Mass Natural Fertilizer	Westminster	n/a	FW, manure	ICI	Windrow, static piles, vermicomposting
Mt. Holyoke College	South Hadley	80 in 2006	FW	ICI	Off-site to compost facility
Rocky Hill Farms	Saugus	5,400 (15 tons/day)	FW, YW	ICI	Windrow
Scantic Valley Farm	Hampden	n/a	FW, YW, WCC	ICI	Windrow
University of Massachusetts, Amherst	Amherst	3,650 (permitted capacity)	FW, YW, SP	ICI	Off-site to compost facility
Watts Family Farms	Forestdale	n/a	FW, YW, WCC	ICI	Windrow, passive piles
WeCare Environmental	Marlborough	12,000 in 2007	FW, YW, WCC, SP	ICI, Res	In-vessel, aerated windrow
<b>NEW HAMPSHIRE</b>					
Dartmouth College	Hanover	253 in 2006	FW, SP	ICI	Off-site to compost facility
Ideal Compost Co., LLC	Peterborough	500; 4,000 (permitted capacity)	FW, YW	ICI	Windrow
Keene, City of	Keene	n/a	FW, YW	ICI	Windrow
Keene State College	Keene	61 in 2006	FW	ICI	Off-site to compost facility
Peterborough Recycling Center	Peterborough	n/a	FW, YW, SP	ICI, Res	Passive piles
Seacoast Farms Compost Products, Inc.	Exeter	n/a	FW, YW, SP	ICI	Windrow
<b>VERMONT</b>					
Green Mountain College	Poultney	18	FW	ICI	In-vessel (Earth Tub)
Green Mountain Soil	Stowe	n/a	FW, manure	ICI	Vermicomposting
Highfields Institute	Hardwick	364 (max)	FW, YW, SP	ICI	Windrow
Intervale Compost Products <sup>3</sup>	Burlington	22,000 (permitted capacity)	FW, YW, SP	ICI	Windrow
Middlebury College	Middlebury	329 in 2006	FW, YW, SP	ICI	Passive piles
Northeast Kingdom Waste Management Dist.	Lyndonville	n/a	FW, YW	ICI, Res	Windrow
Sanctuary Farm	Morrisville	350 (max)	FW, YW, SP	ICI, Res	Aerated windrow, vermicomposting
Vermont Compost Co.	Montpelier	n/a	FW, manure	ICI	Windrow
Vermont Natural Ag Products Inc.	Middlebury	364 (max)	FW, YW	ICI	Windrow

<sup>1</sup>Calculations based on 1,000 lbs = 1 cy; <sup>2</sup>FW = food waste, YW = yard waste, Res = Residential sources, ICI = Institutional, Commercial, and/or Industrial sources, SP = soiled paper, WCC = waxed corrugated cardboard, MB = Municipal Biosolids; <sup>3</sup>Currently facing regulatory challenges that may preclude them from receiving food waste. Note: Additional information on facilities listed can be found at [www.findacomposter.com](http://www.findacomposter.com).

**BIOCYCLE NATIONAL SURVEY:  
NORTHEAST, MID-ATLANTIC**

# FOOD COMPOSTING INFRASTRUCTURE

**O**NE OF the first food composting facilities in the U.S. was located in Freehold Township, New Jersey. The company, American Soil, Inc. (ASI), started composting yard trimmings in 1988. In 1992, it received permission from the New Jersey Department of Environmental Protection and Energy (now Department of Environmental Protection) to run a six month trial to compost food and paper from supermarkets and a food processor.

Ultimately, 1,200 tons of supermarket residuals were composted successfully during the pilot, notes a 1994 article in *BioCycle* ("Supermarket Stream Added To Composting Mix," October 1994). Rob Young and his partner, Patrick Kennedy, owners of ASI, began pursuing a full permit for commercial organics while the pilot was ongoing, and by August of 1993, it began receiving an average of 10 tons/day from about 20 supermarkets. The facility processed commercial organics until 2000. Another commercial composting facility — Woodhue, which eventually was bought out and became Eastern Organics — operated in New Jersey for a number of years as well. It serviced supermarkets and other food waste generators. That site closed several years ago.

Today, New Jersey has one composting facility receiving food waste from the supermarket stream. Ag Choice LLC, in Andover, services several ShopRite (Wakefern Corporation) supermarkets. It composts those organics with horse manure; the site's permitted capacity for food waste is 5,000 cubic yards/year. Recently, WeCare Organics, LLC, based in Jordan, New York, was awarded the contract to manage the Burlington County, New Jersey's biosolids composting facility. When originally conceived by Burlington County many years ago, the facility was going to take source separated commercial organics as well as its core feedstocks, biosolids and ground yard trimmings. The site uses the IPS agitated bay composting technology,

*Second  
installment  
of BioCycle  
National Survey  
reports on  
food waste  
composting  
facilities and  
projects in the  
Northeast and  
Mid-Atlantic  
states.*

*Cristina Olivares  
and Nora Goldstein*

which would allow it to process commercial organics separately from biosolids.

"The facility is permitted to accept organic waste other than biosolids," says Jeffrey LeBlanc, President of WeCare Organics. "The site is undergoing retrofits and upgrades, and will be back in operation in mid-November 2008. We have excess capacity for organic waste."

**COMPOSTING CAPACITY**

The food composting experience in New Jersey has been mirrored in other Northeast and Mid-Atlantic states over the past 15 years. Private entrepreneurs have ventured into and out of the field, such as Capital Compost in the Albany, New York region. The only public jurisdiction in the region to invest in a composting facility for MSW organics during this period is Delaware County, New York, which opened its mixed waste composting plant in 2006. It processes 24,000 tons/year of mixed MSW, 6,500 tons of biosolids and 2,800 tons of organics from local dairy plants.

In short, few facilities — public or private — have opened with the capability to meet the growing demand for organics diversion in the Northeast and Mid-Atlantic states. Looking at the data collected for this survey, there is about 300,000 tons of permitted processing capacity for food waste in this region, not counting colleges and universities. Two facilities — McGill-Sussex and Royal Oak Farm — represent 270,000 tons of that processing capacity (that includes their capacity for other organics processed). The Peninsula Compost project in Wilmington, Delaware is fully permitted and expected to open in May 2009. That will add about 150,000 more tons of annual capacity in the Northeast and Mid-Atlantic region.

For this national survey — which is appearing in multiple parts over the next several months — *BioCycle* is using the U.S. Environmental Protection Agency's regional breakdown of the states and territories (there are 10 in total). EPA Regions 2 and 3 comprise states in the Northeast and Mid-Atlantic. Region 2 also includes Puerto Rico and the Virgin Islands. The only state within Regions 2 and 3 that does not have any food waste composting projects is West Virginia.

A total of 48 food waste composting projects were identified in the Northeast and Mid-Atlantic states. Three are in the permitting phase at this time (all farms) and are expected to be taking food waste in the first half of 2009, which is why they are included in this report. As noted in last month's survey article ("*BioCycle* National Survey: New England"), we are not listing facilities that manage food residuals from a single generator, e.g., correctional facilities. We do include colleges and universities, as this is one of the fastest growing sectors of food waste diversion in the country.

Table 1 provides a summary of food waste composting projects by sector. There are 23 college and university projects, 9 on-farm

**Table 1. Northeast, Mid-Atlantic distribution of food waste composting facilities by sector**

State	Universities	Colleges/ Farms	Composters	Commercial Municipalities
Delaware	—	—	1	—
Maryland	1	—	1	—
New Jersey	1	—	1	1
New York	8	2	4	—
Pennsylvania	12	5	3	1
Virginia	1	2	3	—
Total	23	9	13	2

**Table 2. Northeast, Mid-Atlantic distribution of food waste composting facilities by size<sup>1</sup>**

State	Food Waste Throughput (tons/year)			
	0-200 <sup>2</sup>	200-1,000	1,000-5,000	5,000 plus
Delaware	—	—	—	1
Maryland	—	1	—	—
New Jersey	1	—	1	1
New York	7	3	2	1
Pennsylvania	12	3	3	1
Virginia	1	—	2	2
Total	21	7	8	6

<sup>1</sup>Seven facilities did not report annual quantity of food waste composted. <sup>2</sup>Colleges not providing annual tonnage were counted in the 0-200 column.

sites, 14 commercial (private sector) facilities and 2 public sector (one municipality and one county). Pennsylvania has the most facilities (21), followed by New York (15). Of the sites reporting annual tonnages composted (Table 2), 21 are in the 0 to 200 tons/year (tpy) range, 8 in the 200 to 1,000 tpy category, 8 in the 1,000 to 5,000 tpy range and 6 over 5,000 tpy. Not all projects provided an annual tonnage; four of those were colleges/universities and were added into the 0 to 200 tpy category.

Table 3 lists all the sites composting food waste in the Northeast and Mid-Atlantic states. It also should be noted that there is a new facility — Converted Organics — in New Jersey that is permitted to process 78,000 tons/year of food waste. That site is not included in this survey as it utilizes an aerobic digestion technology.

### COMPOSTER PERSPECTIVES

The Borough of Columbia in Lancaster County, Pennsylvania recently completed a food waste composting pilot with three public schools, a local market and a restaurant. Pre-consumer food waste was collected weekly over the course of a year; a total of 100 tons of food waste were composted at the borough's yard trimmings composting facility, which is located on a farm. "The pilot was very successful," says Ron Miller, Public Services Manager for Columbia. "It has created a lot of interest and there are much larger generators now interested in joining the program. We are applying for a General Permit, which would allow us to take greater quantities. We have the capacity and the materials to mix with the food waste. And we know the process we used works well."

The composting method developed starts with a dedicated row of freshly ground wood chips. A trench is formed in the top of the windrow and food waste is emptied into the furrow and covered. "By the time we got to the end of a 200-foot row, we would start over again by adding more wood chips and then the food waste," explains Miller. "We would build the pile up

to four or five feet and then let it sit for a few days prior to turning the pile with our tow-behind Wildcat turner."

He adds that after trying several different mixes, the borough had the most success with wood chips ground from tree trimmings and other green waste. "We have a Peterson grinder, and started using the 'green' wood chips, and adding the food waste to those," notes Miller. "A tremendous amount of heat is generated in the piles." Based on their pilot experience, he believes that the yard trimmings composting site could take on 10 to 12



**Pilot project in the Borough of Columbia, Pennsylvania collected food waste weekly from several schools, a market and a restaurant. Materials were unloaded into a loader bucket (above) and added to a windrow.**

times the amount of food waste handled during the pilot using the same amount of manpower and equipment. "Extra caution is needed when composting food waste versus only yard waste, as there is the added risk of vectors and odors. But the composting method we developed generated no leachate or odors and didn't attract any vectors."

At the other end of the spectrum, the source separated organics composting facility being constructed in Wilmington, Delaware is going inside and under cover. Located in an industrial area at the Port of Wilmington, the closest residence is about a half-mile away. But given the volume of materials to be composted (the 500 tons/day includes food waste along with amendments), Peninsula Compost did not want to take chances with outdoor operations. "We are building a 16,000 square foot tipping building with overhead doors, multiple air changes/hour and an engineered biofilter," says Nelson Widell of Peninsula. "We will have a slow speed shredder inside, and then a picking line to remove plastic, and install magnets to remove metal. Material coming off the picking line will be put into the GORE covered composting system, where it will go through an 8-week process."

Estimated capital cost for the plant is \$25 million. The tipping fee for food waste will be in the \$40/ton range; the fee for woody wastes will be in the \$30/ton range. "Right now, we are targeting commercial and institutional organics from throughout the Delaware Valley area," adds Widell. "We will accept compostable products as well."

A number of people contacted while conducting this survey for the Northeast and Mid-Atlantic states noted that there is tremendous demand for composting services, but that the process of getting sites permitted to receive these materials can be costly and drawn out. "It is not easy to get sites permitted," says Mike Giuranna, Solid Waste Specialist for USEPA Region III, which has been very supportive of food waste composting initiatives. "A facility that closed recently in Maryland was essentially told it needed to get a wastewater permit for its storm water runoff. That is a very expensive undertaking."

Some states, such as Pennsylvania, have been focusing on getting farms permitted to take food waste. The state Department of Environmental Protection created an on-farm composting permit that allows farms to take up to 500 tons/year of this organics stream. As encouragement, this permit is designed to be easier to obtain than a General Permit (although the food waste quantity allowed is significantly less). See, "Connecting Food Scraps To Sustainable Agriculture," *BioCycle* July 2008.

The Virginia Department of Environmental Quality (DEQ) also is taking steps to streamline permitting of facilities to re-

**Table 3. Food waste composting facility highlights in Northeast, Mid-Atlantic**

State/Facility Name	Location	Food Waste Tonnages <sup>1</sup> (annual unless noted)	Materials Composted <sup>2</sup>	Source	System
<b>Delaware</b>					
Peninsula Compost <sup>3</sup>	Wilmington	500 tons/day (design capacity)	FW, YW, SP, WCC	ICI	Enclosed ASP (GORE)
<b>Maryland</b>					
Recycled Green Industries, LLC	Woodbine	Pilot (in planning)	FW, YW	ICI	Windrow
University of Maryland	College Park	212 in 2007	FW	ICI	
<b>New Jersey<sup>4</sup></b>					
Ag Choice, LLC	Andover	5,000 (permitted capacity)	FW, manure	ICI	Windrow
Burlington County <sup>5</sup>	Florence	10,000 (FW and biosolids)	FW, YW, MB	ICI, MB	In-Vessel (IPS)
Montclair State University	Montclair	15 tons of FW in 2007	FW	ICI	In-vessel (BW Organics)
<b>New York</b>					
Bard College	Annandale-on-Hudson	500 (permitted capacity)	FW, hay bales	ICI	Windrow
Cayuga Compost	Trumansburg	2,000 (permitted capacity)	FW, YW, SP	ICI, Res	Windrow
Columbia University	Bronx	18	FW, YW	ICI	In-vessel (Earth Tub)
Greenway Environmental Services	Newburgh	1,000 cy	FW, YW	ICI, Mun	Windrow
Ground Effects, Inc.	Memphis	n/a	FW, YW	ICI	Static Pile
Herkimer County Community College	Herkimer	18	FW	ICI	In-vessel (Earth Tub)
Ithaca College <sup>6</sup>	Ithaca	357 tons of FW in 2006	FW	ICI	Aerated static pile (ASP)
Lower East Side Ecology Center	Manhattan	100	FW	Res	Windrow, vermicomposting
McEnroe Organic Farm	Millerton	10,000 cy	FW, SP	ICI	Enclosed ASP (Polyflex), windrow
Misty Hills Farm	Troy	n/a	FW, YW	ICI, Manure	In-vessel (BW Organics), vermicomposting,
Rensselaer Polytech Institute	Troy	18	FW	ICI	In-vessel (Earth Tub)
SUNY Binghamton	Binghamton	n/a	FW	ICI	Static pile
SUNY Rockland Community College	Suffern	18	FW	ICI	In-vessel (Earth Tub)
Union College	Schenectady	18	FW	ICI	In-vessel (Earth Tub)
WeCare Organics, LLC	Jordan	<3,000	FW, YW	ICI	Windrow
<b>Pennsylvania</b>					
AgRecycle, Inc.	Washington County	6,000 cy at any one time (all materials)	FW, YW, SP	ICI	Windrow
Allegheny College	Meadville	82.5	FW	ICI	In-vessel (Wright)
Briar Patch Organic Farm	Mifflinburg	3,000 cy	FW, YW	ICI	Windrow
Columbia Borough	Columbia	100 (pilot)	FW, YW	ICI	Windrow
Delaware Valley College	Doylestown	n/a	FW, YW, manure	ICI	Windrow
Dickinson College	Carlisle	75 in 2007	FW, YW	ICI	Windrow
Four Springs Farm	Weisenberg Twp.	500	FW, YW	ICI	Windrow
Lafayette College	Easton	2.6	FW	ICI	In-vessel
Longwood Gardens	Kennett Square	3,000 cy	FW, YW	ICI	Windrow
Penn State University	State College	2000 in 2006	FW, YW	ICI	Windrow
Pennsylvania College of Technology	Montgomery	3 (pilot)	FW, YW	ICI	Windrow
Schneebeli Earth Science Center					
Red Earth Farm	Orwigsburg	Permitting phase	FW, YW	ICI	Windrow
Slippery Rock University	Slippery Rock	17 in 2006	FW, YW	ICI	Windrow, vermicomposting
Swarthmore College	Swarthmore	n/a	FW, YW	ICI	n/a
Tait Farm	Centre Hall	350 (permitting phase)	FW, YW, manure	ICI, Res	n/a
Two Particular Acres	Royersford	500 (permitted capacity)	FW, YW, SP, WCC	ICI	Aerated Static Pile
University of Pennsylvania	Philadelphia	5.58 in 2007	FW	ICI	In-vessel (Earth Tub)
Villanova University	Villanova	n/a	FW	ICI	Off-site to Two Particular Acres
Westminster College	New Wilmington	9 in 2006	FW	ICI	Windrow
Wilson College	Chambersburg	8 in 2006	FW	ICI	Windrow
Zwicky Processing and Recycling	Maidencreek Twp.	n/a (pilot with schools)	FW, YW	ICI	Windrow
<b>Virginia</b>					
Brookview Farm	Manakin-Sabot	2,500	FW, YW, manure	ICI	Windrow
McGill-Sussex Facility	Waverly	120,000 (permitted capacity)	FW, YW, SP, WCC	ICI	Aerated static pile
Poplar Manor Enterprises	Riner	2,800 (permitting phase)	FW, YW, Manure	ICI	Windrow
Royal Oak Farm, LLC	Evington	150,000 (permitted capacity)	FW, YW, SP, WCC	ICI	Windrow
Washington & Lee University	Lexington	18	FW	ICI	In-vessel (Earth Tub)
Watkins Nurseries, Inc.	Midlothian	n/a (services Ukrop's Super Markets)	FW, YW	ICI	Windrow

<sup>1</sup>Calculations based on 1,000 lbs = 1 cy. <sup>2</sup>FW = food waste, YW = yard waste, Res = Residential sources, ICI = Institutional, Commercial, or Industrial sources, SP = soiled paper, WCC = waxed corrugated cardboard, MB = Municipal Biosolids, Mun = Municipalities. <sup>3</sup>Start-up expected May 2009. <sup>4</sup>FW processing capacity in NJ includes Converted Organics, an aerobic digestion plant designed to process 78,000 tons/year of FW. <sup>5</sup>Start-up expected November 2008. <sup>6</sup>Started diverting FW to Cayuga Compost in 2008.



ceive food waste, says Craig Coker of Coker Composting & Consulting in Vinton, Virginia. "Virginia regulators are very enthusiastic about food waste diversion and are actively looking to modify the regulations to facilitate getting a permit without creating any risk to the public health or the environment," says Coker, who is assisting Poplar Manor Enterprises in Riner, Virginia to permit its farm to receive food waste. "If a site is composting less than 2,800 tons/year of compostable food waste and bulking agent, they can get a permit by rule [PBR] desig-

nation, which is much less paperwork and much less costly than a full-blown permit. The facility still needs to meet the state's composting requirements."

He adds that DEQ is considering raising the PBR limit from 700 tons/quarter to 3,000 tons/quarter, or 12,000 tons/year. "They are doing this to encourage on-farm composting of food waste," says Coker. "The DEQ understands that the composting infrastructure is so thinly spread that to get food waste diversion in any quantity, they need to create capacity on farms." ■

**BIOCYCLE NATIONAL SURVEY:  
SOUTHEAST, UPPER MIDWEST**

# FOOD COMPOSTING INFRASTRUCTURE

*Third installment of BioCycle National Survey reports on food waste composting facilities and projects in the Southeast and Upper Midwest states.*

*Cristina Olivares and Nora Goldstein*

**I**N MAY 2008, the Georgia Environmental Protection Division (EPD), in cooperation with the Georgia Recycling Coalition, The Coca-Cola Company and US EPA Region 4, held a day-long workshop titled “From the Table to the Farm: Options for Diverting Food from Landfills.” The purpose of the workshop was to explore options available for reducing the amount of food sent to landfills, including source reduction, procurement changes, food rescue/donation and composting.

The workshop grew out of a stakeholder meeting convened in November 2006 to address the fact that 12 percent — or more than 800,000 tons — of the waste sent to Georgia landfills each year is food waste, according to a statewide waste characterization study completed in 2005. This represents the largest single category of solid waste going into the state’s landfills. Approximately 48 percent of this comes from the greater Atlanta area. The stakeholder group identified barriers to diverting food waste in metro Atlanta, discussed how to overcome the barriers and prioritized potential projects.

“More than 60 people representing hotels, K-12 schools, universities, government agencies, nonprofits, farms and businesses attended the workshop this past May,” says Stephanie Busch with EPD. “Topics covered included food rescue, sustainable agriculture, purchasing locally grown organic food and the greenhouse gas connection to organics in the waste stream.”

EPD’s next step is to hold a series of facilitated stakeholder meetings to review Georgia’s composting rules and recommend modifications that could facilitate development of more processing infrastructure. Those meetings are expected to get underway this fall, with recommendations completed by late January. Developments in Georgia can be tracked at EPD’s food waste webpage, [www.gaepd.org/Documents/fwd.html](http://www.gaepd.org/Documents/fwd.html).

Ohio is another state covered in this third installment of *BioCycle’s* National Survey of food waste composting facilities and projects in the Southeast and Upper Midwest. Like Georgia, there have been a series of stakeholder meetings and workshops in Ohio to advance diversion of food waste from landfills, sponsored by the Ohio Environmental Protection Agency (EPA), the Ohio Department of Natural Resources (DNR), the Ohio Compost Association and The Ohio State University. Ohio DNR has provided grants to compost facilities and universities to facilitate food waste processing. Ohio EPA set up a webpage — [www.epa.state.oh.us/ocapp/food\\_scrap/index.html](http://www.epa.state.oh.us/ocapp/food_scrap/index.html) — where there is easy access to permitting requirements and regulations, as well as case studies of existing projects.

As was discussed in last month’s survey installment (focusing on the Northeast and Mid-Atlantic states), regulations regarding food waste composting play a huge role in a state’s infrastructure to process these or-

ganics. “We have noticed that the regulations are make or break deals as to which states have thriving programs, and which don’t,” observes Chris Newman, who works in the Materials Management Branch at the US EPA’s Region 5 office.

**COMPOSTING PROJECTS IN THE SOUTHEAST**

This national survey is appearing in multiple issues — August 2008 through Decem-

**Table 1. Southeast, Upper Midwest distribution of food waste composting facilities by sector**

State	Colleges/ Universities	Farms	Commercial Composters	Municipalities
<b>Southeast</b>				
Florida	1	—	—	1
Georgia	1	1	2	1
Kentucky	1	—	—	—
North Carolina	7	2	5	—
South Carolina	1	—	—	—
Tennessee	—	—	—	2
Subtotal	11	3	7	4
<b>Upper Midwest</b>				
Illinois	2	—	1	—
Indiana	1	1	—	—
Michigan	1	1	1	2
Minnesota	3	1	1	4
Ohio	3	1	4	—
Wisconsin	2	3	2	2
Subtotal	12	7	9	8
Total	23	10	16	12

**Table 2. Southeast, Upper Midwest distribution of food waste composting facilities by size<sup>1</sup>**

State	Number of Sites Accepting (tons/year)			
	0-200 <sup>2</sup>	200-1,000	1,000-5,000	5,000 plus
<b>Southeast</b>				
Florida	1	—	1	
Georgia	1	—	1	2
Kentucky	1	—	—	
North Carolina	7	1	—	2
South Carolina	1	—	—	—
Tennessee	—	—	—	—
Subtotal	11	1	2	4
<b>Upper Midwest</b>				
Illinois	2	—	—	1
Indiana	1	—	1	
Michigan	1	—	2	1
Minnesota	2	—	1	6
Ohio	—	4	—	4
Wisconsin	2	—	1	1
Subtotal	8	4	5	13
<b>Total</b>	<b>19</b>	<b>5</b>	<b>7</b>	<b>17</b>

<sup>1</sup>Thirteen facilities did not report annual quantity of food waste composted, <sup>2</sup>Colleges not providing annual tonnage were counted in the 0-200 column.

ber 2008. Municipal, commercial and farm-based composting facilities processing food waste are included, along with colleges and universities. *BioCycle* is using the US EPA's regional breakdown of the states and territories (there are 10 regions in total). This article reports on Regions 4 and 5. Region 4 comprises the Southeast states; Region 5 comprises the Upper Midwest states.

Table 1 summarizes the distribution of food waste composting facilities by sector in the two regions. *BioCycle* editors identified food waste composting projects in six of the eight Region 4 states (all but Alabama and Mississippi). In the Southeast, there are 7 commercial composters — 5 in North Carolina and 2 in Georgia — and 4 municipal sites receiving food waste (one each in Florida and Georgia and 2 in Tennessee). There are 11 colleges and universities — 7 in North Carolina, and one each in Florida, Georgia, Kentucky and South Carolina — and 3 farms composting food waste (1 in Georgia and 2 in North Carolina).

In Region 5, the Upper Midwest, all 6 states have food waste composting projects. Editors identified 9 commercial composters accepting food waste — 4 in Ohio, 2 in Wis-

**Table 3. Food waste composting facility highlights – Southeast region**

State/Facility Name	Location	Food Waste Tonnes <sup>1</sup> (annual unless noted)	Materials Composted <sup>2</sup>	Source	System
<b>FLORIDA</b>					
New College of Florida University	Sarasota	18	FW	ICI	In-vessel (Earth Tub)
Reedy Creek Improvement District	Lake Buena Vista	4,587	FW	ICI	In-vessel (Wright Env'tl)
<b>GEORGIA</b>					
Back to the Garden Inc.	Athens	n/a	FW, YW, SP, manure	ICI, Res	Passive piles
City of Valdosta Public Works	Valdosta	8,016	FW, YW	ICI	Static Pile
Community Environmental Management	Atlanta	4,974	FW, YW	ICI	Windrow
Greenco <sup>3</sup>	Barnesville	12,480 (design capacity)	FW	ICI	Windrow
University of Georgia	Athens	18	FW	ICI	In-vessel (Earth Tub)
<b>KENTUCKY</b>					
Berea College	Berea	35 in 2006	FW	ICI	Windrow
<b>NORTH CAROLINA</b>					
Appalachian State University	Boone	70	FW, YW	ICI	Aerated static pile
Brooks Compost Facility	Goldston	n/a	FW, WCC, SP, manure	ICI	Windrow
Duke University	Durham	n/a	FW	ICI	Off-site to Brooks Contractor
McGill-Chatham Facility	New Hill	100,000 (permitted capacity)	FW, WCC, SP, YW, manure	ICI	Aerated static pile
McGill-Sampson Facility	Rose Hill	100,000 (permitted capacity)	FW, WCC, SP, YW, manure	ICI	Aerated static pile
Meredith College	Raleigh	75	FW	ICI	Off-site to Brooks Contractor
Nature's Green-Release	Franklinton	n/a	FW, WCC, YW	ICI	Windrow
Piedmont BioFarm	Pittsboro	12	FW, SP	ICI	In-vessel vermicomposter
Tri County Environmental	Charlotte	n/a	FW, WCC, SP, YW, manure	ICI	Aerated windrows
UNC Asheville	Asheville	18	FW, SP, YW	ICI	In-vessel (Earth Tub)
UNC Chapel Hill	Chapel Hill	428	FW	ICI	Off-site to Brooks Contractor
UNC Charlotte	Charlotte	18	FW	ICI	In-vessel (Earth Tub)
Wallace Farm, Inc.	Huntersville	n/a	FW, YW, manure	ICI	Windrow
Warren Wilson College	Swannanoa	37	FW	ICI	GreenDrum
<b>SOUTH CAROLINA</b>					
Winthrop University	Rock Hill	10	FW, YW	ICI	In-vessel (Earth Tub)
<b>TENNESSEE</b>					
Knox County Greenwaste Recycling Facility	Knoxville	n/a	FW, SP, YW, manure	ICI, Res	Windrow
Sevier Solid Waste, Inc. <sup>4</sup>	Pigeon Forge	n/a	FW, WCC, SP, MB	ICI, Res	In-vessel, aerated windrow

<sup>1</sup>Calculations based on 1000 lbs = 1 cy, <sup>2</sup>FW = food waste, YW = yard waste, Res = Residential sources, ICI = Institutional, Commercial, or Industrial sources, SP = soiled paper, WCC = waxed corrugated cardboard, MB = Municipal Biosolids, MSW = Municipal solid waste, <sup>3</sup>Greenco to begin composting FW on October 1, 2008,

<sup>4</sup>Compost facility closed due to fire; will begin operations again in Feb-Apr 2009, <sup>5</sup>Tonnages listed for each facility are maximum daily amount allowed under annual Ohio EPA license.

Like Georgia, there have been stakeholder meetings and workshops in Ohio to advance food waste diversion.

consin and one each in Illinois, Michigan and Minnesota — and 8 municipal sites composting food waste (4 in Minnesota and 2 each in Michigan and Wisconsin). There are 12 colleges and universities with projects — 3 in Minnesota, 3 in Ohio, 2 in Illinois, 2 in Wisconsin, one each in Indiana and Michigan — as well as 7 farms composting food waste (3 in Wisconsin, and one each in Indiana, Michigan, Minnesota and Ohio).

In Table 2, composting facilities were categorized by size. There are 11 facilities in the Southeast and 8 in the Upper Midwest in the 0 to 200 tons/year (tpy) range, 1 facil-

ity in the Southeast and 4 in the Upper Midwest in the 200 to 1,000 tpy range, 2 facilities in the Southeast and 5 in the Upper Midwest in the 1,000 to 5,000 tpy range, and finally 4 facilities in the Southeast and 13 in the Upper Midwest receiving over 5,000 tpy.

Table 3 lists all commercial, municipal, farm and colleges/universities composting food waste in the Southeast. There are a total of 25 projects. (Note that Greenco, in Barnesville, Georgia, was to begin composting food waste October 1, 2008.) Table 4 lists those in the Upper Midwest; total number of projects is 36. ■

**Table 4. Food waste composting facility highlights – Upper Midwest region**

State/Facility Name	Location	Food Waste Tonnages <sup>1</sup> (annual unless noted)	Materials Composted <sup>2</sup>	Source	System
<b>ILLINOIS</b>					
LHF Compost, Inc.	Peoria	60,000 (permitted capacity)	FW, YW, manure	ICI, Res	Aerated windrow
Illinois State University Farm	Normal	n/a	FW	ICI	Windrow
Southern Illinois University	Carbondale	n/a	FW	ICI	Vermicomposting
<b>INDIANA</b>					
Depauw University	Greencastle	n/a (starting Fall 2008)	FW	ICI	In-vessel (Earth Tub)
Koetter & Smith	Borden	2,500	FW, YW	ICI, Res	Static pile
<b>MICHIGAN</b>					
City of Ann Arbor	Ann Arbor	20,000	FW, YW	ICI	Windrow
Mackinac Island Public Works	Mackinac Island	5 tons/day	FW, YW	ICI, Res	Aerated static pile
Spurt Industries	Ada	2,500 (3 locations)	FW, YW, manure	ICI	Windrow
Tuthill Farms & Composting, Inc.	South Lyon	n/a	FW, YW, manure	ICI	Windrow
University of Michigan	Ann Arbor	62 in 2006	FW	ICI	Off-site to city site
<b>MINNESOTA</b>					
College of St. Scholastica	Duluth	9.6	FW	ICI	Off-site to WLSSD
CreekSide Soils	Hutchinson	30,000 (permitted capacity)	FW, YW, manure	ICI, Res	In-vessel, windrow
Praireland Compost Facility	Truman	17,500	FW, YW, MSW	ICI, Res	In-vessel
RRT Empire Compost Facility	Rosemount	50,000 (permitted capacity)	FW, WCC, SP, YW	ICI, Res	Enclosed ASP (Versa), Windrow
RW Farms - Univ of Minnesota Arboretum	Chanhausen	10,000 (permitted capacity)	FW, SP, YW	ICI, Res	Static pile
Swift County Environmental Services	Benson	5,200 (permitted capacity)	FW, YW	ICI	Aerated windrow
University of Minnesota - Duluth	Duluth	n/a	FW	ICI	Off-site to WLSSD
University of Minnesota - Twin Cities	St. Paul/Minneapolis	1,200	FW, SP	ICI	n/a
Western Lakes Superior Sanitary District (WLSSD)	Duluth	7,900 (permitted capacity)	FW, YW	ICI, Res	Windrow
<b>OHIO<sup>3</sup></b>					
Baldwin-Wallace College	Berea	12/day	FW, YW, SP	ICI	In-vessel (Earth Tub)
Barnes Nursery, Inc.	Huron	100/day	FW, YW, WCC, SP, manure	ICI	Windrow
Hirzel Farms	Pemberville	25/day	FW, YW, WCC, SP, manure	ICI	Aerated static pile
Paygro (Garick Corporation)	South Charleston	100/day	FW, YW, WCC, manure	ICI	In-vessel (Paygro)
Price Farms Organics	Delaware	75/day	FW, YW, WCC, manure	ICI	Windrow
Sagamore Soils	Hudson	12/day	FW, YW, WCC, SP, manure	ICI	Windrow
The Columbus Academy	Columbus	12/day	FW, YW, SP	ICI	Aerated piles (bins)
Youngstown State University	Youngstown	12/day	FW, SP, YW	ICI	In-vessel (Earth Tub)
<b>WISCONSIN</b>					
Colombia County Co-composting Facility	Portage	80 tons/day of MSW	FW included in MSW	ICI, Res	In-vessel
Green Earth Compost Products	La Crosse	n/a	FW, YW, manure	ICI	Windrows
Growing Power	Milwaukee	n/a	FW	ICI	Vermicomposting
Northland College	Ashland	18	FW	ICI	In-vessel (Earth Tub)
Oneida County Solid Waste Department	Oneida	n/a	FW	ICI	Windrow
Pheasant Run Composting (WM, Inc.)	Bristol	1,000	FW, YW	ICI, Res	Windrow
Soil Solutions Co. and Braun Excavating Inc.	Black Creek	50,000 (permitted capacity) n/a (pilot)	FW, YW, wood ash, paper mill sludge	ICI	Windrow
University of Wisconsin - Stevens Point	Stevens Point	n/a	FW, YW	ICI	Windrow; vermicomposting (proposed)
White Oak Farm Premium Organics	Oconomowoc	n/a	FW, YW	ICI	Windrow

<sup>1</sup>Calculations based on 1000 lbs = 1 cy, <sup>2</sup>FW = food waste, YW = yard waste, Res = Residential sources, ICI = Institutional, Commercial, or Industrial sources, SP = soiled paper, WCC = waxed corrugated cardboard, MB = Municipal Biosolids, MSW = Municipal solid waste, <sup>3</sup>Tonnages listed for each facility are maximum daily amount allowed under annual Ohio EPA license.

**BIOCYCLE NATIONAL SURVEY:  
CENTRAL, MOUNTAIN**

# FOOD COMPOSTING INFRASTRUCTURE

**T**HE Harvey County, Kansas landfill closed in October 2001. Since that time, trash is hauled to a landfill in Reno County, about 90 miles round trip from Harvey County's transfer station. Residential, commercial and institutional waste generators are charged a solid waste fee to cover transfer and disposal costs. The first three tons are accepted at \$37; the remaining waste is \$37/ton, plus the tipping fee of \$28/ton at the transfer station.

Three years ago, the local Wal-Mart store decided it wanted to reduce its solid waste costs and began separating food waste to be composted. The county composts biosolids, using sawdust as an amendment. "From June 1, 2007 to May 31, 2008, Wal-Mart sent us 160 tons of food waste," says Roy Patton, Harvey County Solid Waste Superintendent. "They weren't assessed the \$37/ton solid waste fee, resulting in significant savings."

The food waste is blended with sawdust, and added to existing windrows on the composting pad. The compost is used as cover material on the county's C&D landfill, as well as for final grading of the closed landfill. "We plan to focus on schools and hospitals next for food waste diversion," adds Patton. "We've approached them in the past, but they felt it wasn't economical. Now, having an example like Wal-Mart — showing what they are saving each year in solid waste fees — should have an impact on their decision."

**STATS FOR CENTRAL,  
ROCKY MOUNTAIN REGIONS**

*BioCycle's* National Survey of food waste composting facilities and projects is being conducted region by region across the U.S. This month's survey article — the fourth in our series — covers states in the Central and Rocky Mountain regions. *BioCycle* is using the USEPA's regional breakdown of states to report our data findings. States covered here are in USEPA Regions 6, 7 and 8. The final article in this series, to appear in the December 2008 issue of *BioCycle*, covers USEPA Regions 9 and 10 — the western states along with Hawaii and Alaska.

Municipal, commercial and farm-based composting facilities processing food waste are included in this survey, along with col-

**Fourth  
installment of  
*BioCycle*  
National Survey  
reports on food  
waste  
composting  
facilities and  
projects in the  
Central and  
Mountain states.**

*Cristina Olivares  
and Nora Goldstein*

leges and universities. There are 15 states in the three EPA regions; *BioCycle* identified food waste composting projects in 11. Table 1 summarizes the distribution of food waste composting facilities by sector. There are 16 commercial composters, 11 municipal projects, 7 college and university sites and 2 farms that are involved with food waste composting. Only 14 projects provided food waste tonnage data (Table 2). Of those, 7 process under 200 tons/year (this includes some pilot projects) and 6 process over 5,000 tons/year. Fifteen projects indicated that they were not under any regulatory restriction regarding the quantity of food waste processed annually, however they didn't report current tonnages composted.

Table 3 lists all commercial, municipal, farm and colleges/universities composting food waste in the Central and Rocky Mountain states. Unlike the other regions covered to date, many more municipal projects — 11 of the 36 — were discovered. In Texas, for example, the cities of McAllen, Plano and Wichita Falls all compost food waste along with yard waste. Plano and Wichita Falls include manure and soiled paper in their mix. In Iowa, the City of Dubuque composted 104 tons of food waste in 2007. The city offers residential curbside collection to a portion of its households. In Cedar Rapids, Iowa, the Linn County Solid Waste Agency composted 100,000 tons of food waste, yard trimmings and brush/wood in 2007. Residents have a "Yardy" cart set out weekly for collection and are allowed to include fruit, vegetable peelings, coffee grounds, tea bags and soiled paper along with their yard trimmings and garden wastes.

In the August (New England), September (Northeast, Mid-Atlantic) and October (Southeast, Upper Midwest) survey articles, there was a much higher number of college and university projects (17, 23 and 11, respectively) than those listed in Table 3 (total of 7). In fact, in the Southeast and Upper Midwest regions, more college and university projects were identified than any other sector (23 out of 48 total projects). Interestingly, farms were the leading category of

**Table 1. Central, Mountain distribution of food waste composting facilities by sector**

State	Colleges/ Universities	Farms	Commercial Composters	Municipalities
Arkansas	—	—	—	1
Colorado	2	1	3	—
Iowa	2	—	1	3
Kansas	1	—	—	2
Missouri	1	1	4	—
Montana	—	—	—	1
New Mexico	—	—	2	—
South Dakota	—	—	—	1
Texas	—	—	5	3
Utah	1	—	—	—
Wyoming	—	—	1	—
Total	7	2	16	11

**Table 2. Central, Mountain distribution of food waste composting facilities by size<sup>1</sup>**

State	Food Waste Throughput (tons/year)			
	0-200	200-1,000	1,000-5,000	5,000 plus
Arkansas	1	—	—	—
Colorado	2	—	—	1
Iowa	3	—	—	2
Kansas	1	—	—	—
Montana	—	—	—	1
South Dakota	—	—	—	1
Texas	—	—	—	1
Utah	—	1	—	—
Total	7	1	—	6

**Table 3. Food waste composting facility highlights — Central, Mountain Regions**

State/Facility Name	Location	Food Waste Tonnages <sup>1</sup> (annual unless noted)	Materials Composted <sup>2</sup>	Source	System
<b>Arkansas</b>					
City of Fayetteville	Fayetteville	50 (pilot)	FW, YW	ICI	Windrow
<b>Colorado</b>					
A1 Organics	4 locations <sup>3</sup>	145,000	FW, YW, WCC, SP, manure	ICI, Res	Windrow
Cacaloco Compost	Carbondale	n/a	FW, YW, MB, manure	ICI, Res	Static pile
Colorado College	Colorado Springs	18	FW	ICI	In-vessel
Teague Enterprises	Fort Morgan	n/a	FW, YW, sludges, manure	ICI	Windrow
University of Colorado	Boulder	118	FW, SP, WCC, YW	ICI	Off-site to Western Disposal, A1 Organics
Western Disposal, Inc. <sup>4</sup>	Boulder	n/a	FW, YW, wood	ICI, Res	Windrow
<b>Iowa</b>					
Chamness Technology	Eddyville	115,000	FW, YW, SP, MB, manure	ICI	Windrow
City of Dubuque	Dubuque	104	FW, YW, SP	ICI, Res	Windrow
Iowa City Landfill	Iowa City	104	FW, YW	ICI	Windrow, passive piles
Iowa State University	Ames	n/a <sup>5</sup>	FW	ICI	Windrow
Linn County Solid Waste Agency	Cedar Rapids	100,000 (all materials)	FW, YW	ICI, Res	Windrow
University of Iowa	Iowa City	15	FW	ICI	Off-site to Iowa City Landfill
<b>Kansas</b>					
City of Olathe	Olathe	One year trial with school	FW, YW	ICI	Windrow
Harvey County	Newton	160	FW, MB, sawdust	ICI	Windrow
Kansas State University	Manhattan	6-month trial with cafeteria	FW, YW	ICI	Windrow
<b>Missouri</b>					
BFC Composting Co	Perryville	n/a <sup>6</sup>	FW, manure	ICI	In-vessel, static pile
Black Oak Organics LLC	Verona	n/a <sup>6</sup>	FW, WCC, SP, YW	ICI	Windrow, static pile
Lincoln University	Jefferson City	n/a <sup>6</sup>	FW, manure	ICI	In-vessel
Missouri Organic	Kansas City	n/a <sup>6</sup>	FW, YW, WCC, SP, manure	ICI	Windrow
Route 66 Landscape Supply Center	Pacific	n/a <sup>6</sup>	FW, YW, manure	ICI	In-vessel, static pile
Windswept Worm Farm	Kansas City	n/a <sup>6</sup>	FW, manure	ICI, Res	Vermicomposting
<b>Montana</b>					
West Yellowstone Compost Facility	West Yellowstone	5,000 (total capacity)	FW, YW, WCC, SP, manure	ICI, Res	In-vessel
<b>New Mexico</b>					
Biogrind	Ruidoso	n/a <sup>6</sup>	FW, YW, manure	ICI	Windrow, static pile
Soilutions	Albuquerque	n/a <sup>6</sup>	FW, YW, SP, manure	ICI	Passive piles
<b>South Dakota</b>					
Rapid City Material Recovery Facility	Rapid City	54,000 (all materials)	FW, SP, WCC, MB, MSW	ICI, Res	Rotary drums, in-vessel
<b>Texas</b>					
Discount Materials	Midland	n/a <sup>6</sup>	FW, YW, SP, manure	ICI	Windrow, passive pile, static pile
City of McAllen Composting Facility	McAllen	n/a <sup>6</sup>	FW, YW	ICI, Res	Aerated windrow
Nature's Way Resources	Conroe	n/a <sup>6</sup>	FW, YW, SP, manure	ICI, Res	Static pile
New Earth	San Antonio	n/a <sup>6</sup>	FW, YW, manure	ICI, Res	Windrow, passive pile, static pile
City of Plano/Texas Pure Products	Plano	n/a <sup>6</sup>	FW, YW, SP, manure	ICI	Windrow, passive pile, static pile
Texas Disposal Systems	Austin/San Antonio	13,000	FW, YW, SP, MB	ICI, Res	Windrow, static pile
Vital Earth Resources	Big Sandy	n/a <sup>6</sup>	FW, YW, manure	ICI	In-vessel, windrow
Wichita Falls Organics Recycling	Wichita Falls	n/a <sup>6</sup>	FW, YW, SP, manure	ICI, Res	Aerated windrow
<b>Utah</b>					
Brigham Young University	Provo	215	FW	ICI	Windrow
<b>Wyoming</b>					
Terra Firma	Jackson	Pilot	FW, YW	ICI	Windrow

<sup>1</sup>Calculations based on 1,000 lbs = 1 cy; <sup>2</sup>FW = food waste, YW = yard waste; Res = Residential sources, ICI = Institutional, Commercial, or Industrial sources, SP = soiled paper, WCC = waxed corrugated cardboard, MB = Municipal Biosolids, MSW = Municipal solid waste; <sup>3</sup>A1 Organics has composting sites in Eaton, Platteville, Golden and Keenesburg, Colorado; <sup>4</sup>Majority of current volume (8,500 tons/year) is yard waste and wood waste, but food waste volumes expected to grow substantially in 2009 with recent adoption of residential compostables collection by both city of Boulder and Boulder County; <sup>5</sup>Food waste composting to begin in Fall 2008; <sup>6</sup>No specified permit limit on quantity of food waste allowed to accept.

food waste composters in New England (18), whereas in the Central and Mountain regions, only 2 farms were identified.

#### **TWIST ON INFRASTRUCTURE DEVELOPMENT**

All three previous survey articles reported that state permitting and regulatory requirements are a significant hurdle to establishing food waste composting projects. While hurdles may exist in some states in the Central and Mountain regions, they are not the reason for a lack of infrastructure in Kansas, says Ken Powell with the Kansas Department of Health & Environment's Solid Waste Facilities Unit. "Permitting-wise, the only difference between our yard waste composting and food waste composting permits is the need for an engineer to stamp the plans," explains Powell. "That costs \$3,000 to \$5,000. In our state, the issue is infrastructure. Sites don't have the equipment, a large enough pad and/or the dry material to mix in with the food waste. If we can ever get a full-scale project off the ground here and show people how it can be done, I don't think composting sites will stop after that."

Recently, Powell was contacted by a large hospital system and a large retail operation about composting food waste from their facilities. "The hospital was looking at diverting material system-wide, while the retailer was looking mainly at its grocery and garden shop waste. After several years

of encouraging composting facilities in the state to take food waste, it looks like the real driver may be the generators."

The City of Olathe, Kansas has a pilot program that is expected to become permanent in 2009. The secondary schools and a number of the elementary schools in the city are involved in the pilot. All food is prepared in a central kitchen and then sent out to all the schools. Kitchen prep waste from the central kitchen is being composted with yard waste at the city's facility, which processes 12,000 tons/year of yard trimmings. "To conduct a pilot project, all a facility has to do is write a letter saying what they are planning, and give the state assurance that it will take the steps necessary to properly manage the food waste," says Powell.

He adds that facility operators are reluctant to compost food waste, citing odor concerns. "A lot of sites handle around 1,000 tons/year of yard waste. They don't have much equipment or personnel — things that go with a bigger site that would take this material."

Like other states, e.g., Ohio, Georgia and Massachusetts, Kansas plans to hold workshops for food waste generators and composters in 2009. "We need to connect the city, county and private composting facilities with the grocery chains, schools, food service operations, hospitals and others so that both sides are talking to each other," notes Powell. ■

# FOOD COMPOSTING INFRASTRUCTURE

**B**IOCYCLE undertook a national survey of composting sites processing food residuals in the summer of 2008. It was decided to conduct the survey by regions, starting with New England. The states were grouped by the U.S. Environmental Protection Agency's (USEPA) regions. The first survey report ran in the August 2008 issue of *BioCycle*. This fifth and final report focuses on the Western region of the United States (EPA Regions 9 and 10).

The need to conduct the survey and publish the findings resulted from the surge of interest on the part of generators of food-based materials to switch from disposal to recovery via composting and anaerobic digestion. There also has been a boom in college and corporate campuses wanting to either manage cafeteria food scraps on-site or divert them to a composting facility. Recognizing that food waste comprises a significant portion of MSW being disposed and is a source of landfill-generated methane, municipalities, states and the USEPA have made its diversion and recovery a top priority.

The first place examined for food waste composting facility information was [www.findacomposter.com](http://www.findacomposter.com), *BioCycle's* publicly searchable database of composting projects in the U.S. and Canada. Next, *BioCycle* editors contacted the organics coordinators at USEPA's 10 regional offices, as well as organics recycling staff at state solid waste agencies. Their assistance is greatly appreciated.

The following sectors are included in the *BioCycle* National Survey of Food Composting Infrastructure: Municipal, Commercial, On-Farm and University. Not included are facilities established solely to manage food residuals from a single generator, e.g., an industrial facility processing its own material, a farm-based operation servicing a single generator in a community (typically a food processor), or correctional facilities. Colleges and universities are included as this is one of the fastest growing sectors of food waste diversion in the country.

## WESTERN STATES

Food waste composting projects were identified in six of the eight states in the

*This fifth and final installment of BioCycle National Survey reports on food waste composting facilities in the Western states.*

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Western region — Alaska, Arizona, California, Nevada, Oregon and Washington. No projects were found in Hawaii and Idaho in the sectors surveyed. Table 1 provides a breakdown of the 72 projects identified: 23 colleges and universities, 4 farm-based operations, 35 commercial composters and 10 municipalities accepting food waste at their composting facilities. Table 2 reports on the size of the projects, where that information was provided. There are 24 projects in the 0 to 200 tons/year (tpy) range, 6 taking between 200 and 1,000 tpy, 6 in the 1,000 to 5,000 tpy range, and 19 processing over 5,000 tpy. In some cases, these tonnages reflect all materials processed at the sites, not just food waste.

Table 3 lists all the sites composting food waste in the Western region in the sectors that were surveyed. More details on these projects, as well as the ones listed in the first four survey articles (running sequentially from the August 2008 issue of *BioCycle* through December 2008), can be found at [www.findacomposter.com](http://www.findacomposter.com).

## NATIONAL SUMMARY

The *BioCycle* survey identified 267 food waste composting projects in the United States. The statistics break out as follows: Colleges/universities — 93; Farms — 43; Commercial composters — 92; and Municipal — 39. Sorting the data by region, the West leads with 72, followed by New England (51) and Northeast/Mid-Atlantic (47). The Upper Midwest and the Central/Mountain regions each have 36. The Southeast has the fewest projects (25). ■

**Table 1. Western distribution of food waste composting facilities by sector**

State	Colleges/ Universities	Farms	Commercial Composters	Municipalities
Alaska	—	—	—	2
Arizona	—	1	—	1
California	14	—	16	4
Nevada	—	—	2	1
Oregon	2	2	8	—
Washington	7	1	9	2
Total	23	4	35	10

**Table 2. Western distribution of food waste composting facilities by size<sup>1</sup>**

State	Food Waste Throughput (tons/year)			
	0-200	200-1,000	1,000-5,000	5,000 plus
Alaska	—	—	—	—
Arizona	—	—	1	—
California	13	2	3	10
Nevada	—	—	1	2
Oregon	4	3	1	1
Washington	7	1	—	6
Total	24	6	6	19

<sup>1</sup>Sites not reporting tonnages were not included in this table, with the exception of non-reporting universities, which were categorized as 0-200 tons of FW/yr.



**Table 3. Food waste composting facility highlights — Western Region**

State/Facility Name	Location	Food Waste Tonnes <sup>1</sup> (annual unless noted)	Materials Composted <sup>2</sup>	Source	System
<b>Alaska</b>					
Gustavus Disposal & Recyc. Cntr.	Gustavus	n/a	FW, YW	Res, ICI	Static pile
Haines Sanitation	Haines	n/a	FW, MB, MSW	Res, ICI	In-vessel, windrow
<b>Arizona</b>					
Pinetop Lakeside Sanitary District	Lakeside	1,800 (permitted cap.)	FW, WCC, SP, MB, manure	Res, ICI	Rotary drum, ASP
Singh Farms LLC	Scottsdale	n/a	FW, YW		Windrow
<b>California</b>					
Agri Service Inc.	Coachella Valley	n/a	FW, YW	Res, ICI	Windrow
California Bio-Mass, Inc.	Victorville	9,500	FW, YW, WCC, SP, manure	Res, ICI	Windrow
California Bio-Mass, Inc.	Thermal	600	FW, YW, WCC, SP, manure	Res, ICI	Windrow
Cal Poly San Luis Obispo	San Luis Obispo	200 (est.)	FW	ICI	Windrow
Chabot College	Hayward	n/a	FW	ICI	In-vessel (Earth Tub)
Chico State	Chico	n/a	FW, YW	ICI	Windrow
Cold Creek Compost Inc.	Ukiah	50,000 (max FW/yr)	FW, YW, WCC, SP, manure	Res, ICI	Windrow, ASP
Community Recycling & Res. Recov.	Lamont	44,304 (max capacity)	FW, YW, WCC, SP, manure	Res, ICI	Windrow
CSU Monterey	Monterey	n/a	FW	ICI	n/a
Engel & Grey	Santa Barbara	Pilot (<2500 tons)	FW, MB, ag waste	ICI	Windrow
Grover Landscape Services, Inc.	Vernalis	1,500	FW, YW	Res, ICI	Windrow
Humboldt State University	Arcata	2.64	FW	ICI	n/a
Jepsen Prairie Organics	Vacaville	109,500 (max FW/yr)	FW, YW, WCC, manure	Res, ICI	Windrow, ASP
Kochergen Farms Composting, Inc.	Avenal	312,000 (total capacity)	FW, YW	ICI	Windrow
Liberty Composting, Inc.	Lost Hills	2,000/day (all material)	FW, YW, MB	ICI	ASP
Marin Sanitary Services	Marin	Pilot	FW	ICI	In-vessel (ECS)
Mariposa County	Mariposa	18,000	FW, YW, MSW	Res, ICI	In-vessel (ECS)
Miramar Landfill Compost Facility	San Diego	10,000 (max FW/yr)	FW, SP, YW	ICI	Windrow
City of Modesto	Modesto	n/a	FW, YW	Res, ICI	Windrow
Newby Island Compost Facility	San Jose (Milptas)	n/a	FW, YW	ICI	ASP
Point Loma Nazarene University	San Diego	n/a	FW, YW	ICI	n/a
Pomona College	Pomona	n/a	FW, YW	ICI	Windrow
San Francisco State	San Francisco	n/a	FW, YW	ICI	n/a
Santa Cruz County Public Works	Watsonville	2,500 (max FW/year)	FW, YW, WCC, manure	ICI	ASP
Sonoma Compost Company	Petaluma	n/a	FW, YW	Res, ICI	Windrow
South Valley Organics	Gilroy	117,000 (all material)	FW, YW, WCC,	Res, ICI	Enc. ASP (Ag Bag)
Stanford University	Palo Alto	67.5/month	FW, YW, SP	ICI	off-site to composter
Tulare Co. Compost & Biomass, Inc.	Tulare	Pilot	FW, YW, manure	ICI	Windrow
University of California	5 campuses <sup>3</sup>	n/a	FW, YW	ICI	n/a
Z-Best Composting	Gilroy	350/day (all material)	FW, YW, MSW	Res, ICI	Enc. ASP (CTI), windrow
<b>Nevada</b>					
A1 Organics Nevada LLC	Las Vegas	10,000 cy/month (all mat.)	FW, YW, SP, WCC, manure	Res, ICI	Windrow, static pile
Full Circle Compost	Minden	25,000 (total capacity)	FW, YW	Res, ICI	Windrow, vermicompost
City of West Wendover	West Wendover	3,600 (all material)	FW, YW, MSW	Res, ICI	Rotary drum, aerated wind.
<b>Oregon</b>					
Columbia Ridge Organic Fruit Comp.	Hood River	560 <sup>4</sup>	FW, manure, sawdust	ICI	Windrow
Grimm's Fuel Company	Tualatin	284 <sup>4</sup>	FW, YW, manure	ICI, Res	Static pile
Lane Forest Products	Eugene	n/a <sup>4</sup>	FW, YW	Res, ICI	Windrow
Modoc Orchards	White City	7,852 <sup>4</sup>	FW, YW, manure	ICI	Windrow
Nature's Needs	North Plains	438 <sup>4</sup>	FW, YW	Res, ICI	Enc. ASP (Ag Bag), wind.
NW Environmental & Recycling	Cornelius	135 <sup>4</sup>	FW, YW	Res, ICI	Static pile
Oregon State University	Corvallis	n/a	FW	ICI	In-vessel (Earth Tub)
Processing & Recovery Center	Corvallis	n/a <sup>4</sup>	FW, YW	Res, ICI	Windrow
Rexius	Eugene	n/a <sup>4</sup>	FW, YW, WCC, SP, manure	Res, ICI	ASP
University of Oregon	Eugene	18	FW	ICI	In-vessel (Earth Tub)
Waste Pro Composting Facility	La Grande	100 <sup>4</sup>	FW, YW	Res, ICI	Windrow
Woodwaste LLC (Compost Oregon)	Aumsville	1,477 <sup>4</sup>	FW, YW	Res, ICI	Windrow
<b>Washington</b>					
Cedar Grove Composting	Everett	220,000 (total capacity)	FW, YW, WCC, SP	Res, ICI	In-vessel (GORE), ASP
Cedar Grove Composting	Maple Valley	334,000 (total capacity)	FW, YW, WCC, SP	Res, ICI	In-vessel (GORE), ASP
Green Earth Technology	Lynden	n/a	FW, YW	Res	In-vessel
LRI/Compost Factory	Pullman	n/a	FW	ICI	ASP
Lenz Enterprises	Stanwood	n/a	FW, YW, SP, manure	Res, ICI	ASP
Natural Selection Farm	Sunnyside	20,000 (total capacity)	FW, YW	ICI	Windrow
North Mason Fiber Company	Belfair	56,000 (all material)	FW, YW	ICI	ASP
Pierce County Recyc./Comp./Dispos.	Puyallup	11,367 (total capacity)	FW, YW, WCC, SP, manure	Res, ICI	ASP
Saint Martin's College	Lacey	n/a	FW, YW	ICI	Off-site to composter
Seattle Pacific University	Seattle	25	FW, YW	ICI	In-vessel, static pile
Sequalichew Creek Earthworks	Fort Lewis	560	FW, YW, manure	Res, ICI	ASP
Silver Spring Organics LLC	Rainier	120,000 (total capacity)	FW, YW, WCC, SP, manure	Res, ICI	ASP
Skagit Soils Inc	Mount Vernon	n/a	FW, YW, SP	Res, ICI	Windrow, static pile
Soil Life Systems	Burbank	n/a	FW	n/a	n/a
South Puget Sound Comm. College	Olympia	n/a	FW, YW	ICI	In-vessel & sent off-site
The Evergreen State College	Olympia	n/a	FW, YW	ICI	In-vessel
University of Washington	Seattle	n/a	FW, YW	ICI	Off-site to composter
Washington State University	Pullman	175	FW, YW, SP, manure	ICI	Windrow, static pile
Western WA University (WWU)	Bellingham	n/a	FW, YW	ICI	Off-site to composter

<sup>1</sup>Calculations based on 1,000 lbs = 1 cy; <sup>2</sup>FW = food waste, YW = yard waste; Res = Residential sources, ICI = Institutional, Commercial, or Industrial sources, SP = soiled paper, WCC = waxed corrugated cardboard, MB = Municipal Biosolids, MSW = Municipal solid waste, ECS = Engineered Compost Systems; <sup>3</sup>Davis, Santa Cruz, Berkeley, LA, San Diego; <sup>4</sup>Can receive unlimited amounts of FW by permit