

FOOD WASTE COMPOSTING ACTIVITIES IN THE MID-ATLANTIC STATES

MARYLAND

Chesterfield Farms - Crofton, Maryland

Chesterfield Farms' upcoming Ag-Bag composting program will speed up the composting process for a rapidly growing composting industry. Chesterfield Farms' Ag-Bag program, which will launch in October 2006, will decrease the time required to process food waste into compost. The Ag-Bag is a silage bag, a bag used by farmers to store silage for fermenting, outfitted with two heat durable plastic tubes used to aerate the compost that makes it easier to control the temperature of the mixture. The only thing slowing down Chesterfield Farms' composting is limited space for expanding its composting facilities. Once Chesterfield Farms completes its expansion, however, it will be able to process 100 tons of food waste per day.

General Manager Alan Boehm's recipe for a successful composting program started with a mixture of yard waste and horse manure. He quickly learned that horse manure, of which there was a large supply and little demand, mixed well with food waste because of its dryness.

The word is spreading about Chesterfield Farms' composting, as this farm is one of the only composting operations in Maryland—and even more rare in that it is a private enterprise. The company is now collecting food waste from redistribution processors, restaurants, municipalities, and American University in the District of Columbia. After visiting Chesterfield Farms' Web site, many interested parties, including the Maryland Department of Environmental Protection, Maryland Environmental Systems, the U.S. Environmental Protection Agency, and other local municipalities have toured Chesterfield Farms to learn more about its composting operations in rural Maryland.

Contact: Alan Boehm, (410) 721-7206, (410) 923-6081 x111 or
marketing@chesterfieldfarmsorganic.com

PENNSYLVANIA

AgRecycle, Inc. - Pittsburgh, Pennsylvania

AgRecycle began its composting operations in 1991 when the company started collecting yard waste to create a high-quality end-product for landscaping operations. Today, AgRecycle is the largest composting operation in Pennsylvania and supplies a wide variety of customers with three different grades of compost for uses as varied as golf courses and green roofs. Currently AgRecycle accepts wax corrugated cardboard, herbivore manure, yard debris, kraft bags, newsprint, pallet pieces, yard trimmings, and garden residue as source materials for its final compost products, but the only form of food waste that it accepts is source separated pre-consumer vegetative food. AgRecycle anticipates that in the near future the permitting process for food waste composting will allow a wider range of food waste materials to be used for compost. The majority of the incoming waste is from industrial food processing facilities, although AgRecycle also works with some grocery stores.

AgRecycle's composting products are sold to a wide range of organizations, including sod farmers, organic farmers, golf courses, professional landscapers, developers, municipalities, athletic fields, and homeowners, who use it for landscaping and soil remediation. AgRecycle began selling its product locally and continues to sell primarily to buyers within a 150-mile range from its Pittsburgh, Pennsylvania, facility. To alleviate access challenges created by its rural location, AgRecycle maintains organics recycling centers throughout the region, where suppliers and customers can drop off and purchase materials. AgRecycle's specialized compost for green roofs is shipped to many different states. This custom compost is mixed following architects' precise specifications for green roofs and is preferred to soil because of its light weight, positive effect on root systems, and ability to stabilize temperature.

Contact: Carla Castagnero, (412) 767-7645 or carla@agrecycle.com
Dan Eichenlaub, (412) 767-7645 or dan@agrecycle.com

Allegheny College

In the fall of 2001, Allegheny College became the first college or university in Pennsylvania to install an on-campus composting facility. The college processes approximately 2,000 pounds of food scraps each day from its three main dining halls and produces around 200 yards of finished compost per year, which is used as a soil amendment across campus and offsets the cost of topsoil.

Staff combines food scraps from plates and kitchen areas with wood chips from commercial tree-trimming operations in an in-vessel composter for 18 to 20 days. This process breaks down the food, but results in a product too high in salt to use in landscaping. To create finished, useable compost the material from the in-vessel composter is arranged in windrows and diluted with a mixture of manure and hay. Allegheny took the waste reduction initiative to help increase composting within the state of Pennsylvania as part of the Pennsylvania Department of Environmental Protection's newly formed "Organics Recycling Task Force."

Contact: Physical Plant Office, (814) 332-5378
Rick Porter, (814) 332-2925
Ken Hanna, (814) 332-2860 or kenneth.hanna@allegheny.edu

Briar Patch Organic Farm

Briar Patch Organic Farm, located in Union County, Pennsylvania, currently uses yard trimmings from the Borough of Lewisburg and agricultural waste from its animals to make compost on its certified organic farm. As soon as its permit is approved, Briar Patch will begin collecting and composting food waste from nearby Bucknell University. Workers process the materials on windrows and sell the finished compost for soil amendments or apply it on site to grow certified organic feed for dairy farmers.

Contact: Preston Boop (570) 966-1658

Delaware Valley College

Delaware Valley College is researching an innovative method to cultivate its compost—wind power. To offset some of the thousands of gallons of diesel fuel needed to mix and aerate agricultural compost in Pennsylvania every year, researchers at Delaware Valley College are looking into using wind-driven power to operate the equipment instead, thanks to a \$199,000 grant from Pennsylvania Department of Environmental Protection.

Researchers will use a computer-controlled windmill placed on campus to store extracted wind energy as compressed air. The compressed air will run the in-vessel composter, rotating and aerating the compost material. The windmill is designed to run in winds as low as 5 miles per hour. Surplus compressed air power may be slated to run air shop tools at the machinery building, milking and cooling equipment at the dairy, or ventilation fans in the greenhouses.

Contact: Larry Hepner, (215) 489-2334, hepnerl@devalcol.edu

Dickinson College

What began with only salad bar leftovers in 2001 bloomed into a campus-wide composting project including breakfast and dinner food scraps in the fall of 2005. In collaboration with dining services, facilities management, and the student garden, Dickinson College composts more than 100 pounds of its food waste daily. Each afternoon, students who work at the student garden collect pre-consumer food leftovers from the salad bar department and post-consumer food scraps from collection bins in the cafeteria. Students in the cafeteria receive information about which foods can be composted from educational stickers displayed throughout the cafeteria and "Why Compost?" signs in other areas of campus.

Food scraps from the dining facilities are combined in windrow formation with wood chips collected and chipped on campus by the grounds department. Facilities management turns the rows, composed of equal amounts of carbon (hay, dried leaves, crop residue) and nitrogen (grass clippings, food scraps, manure), to produce compost. The finished product is used in groundskeeping and landscaping projects throughout the university grounds, promoting campus sustainability.

Contact: Jenn Halpin, (717) 245-1251, halpinj@dickinson.edu

Pennsylvania Recycling Markets Center and Redner's Supermarkets

The Pennsylvania Recycling Markets Center (RMC) is working on a new project to integrate organics recycling in Pennsylvania supermarket chains. RMC is coordinating a three-month pilot between Redner's Supermarkets and a community-supported agriculture organic farm where Redner's waste hauler will collect and manage the organic material and deliver it to the farm for processing into compost. RMC acts as a facilitator to this process that connects recycling markets and the business community to develop profitable alternatives to discarding unused food residuals.

RMC is also partnering with the Pennsylvania Department of Environmental Protection to address the need for improvements in the area of organics recycling. RMC will use GIS technology to develop a map of organic materials generators and organic materials recycling sites across the commonwealth. This project aims to fuel both ends of the supply chain and simplify the process of recycling organic materials. The map will be posted on the RMC Web site at <www.parmc.org>.

Contact: Bob Bylone, (717) 948-6729 or rjb128@psu.edu

Pennsylvania State University

For almost a decade, Pennsylvania State University's composting program has enriched the soil at select locations throughout campus. Since 1997, the Organic Materials Processing and Education Center (OMPEC) has processed feedstocks that include food residuals from various campus food service outlets and hotels, greenhouse debris, brush and logs, unpainted and untreated wood, crop residuals, and animal manure. The generator of each of these materials source separates them, and the Office of Physical Plant collects and manufactures the materials into value-added products such as compost and mulch.

To manufacture compost, the Office of Physical Plant blends feedstocks using a mixer and forms the material into windrows, where it undergoes an active composting phase for 12 to 16 weeks. Then, the staff screens and cures the compost before it is used in landscape operations, construction projects, and research. Employees use the compost in soil manufacturing and as top dressing, potting medium, and soil conditioner. Campus tree maintenance operations supply brush and logs to use as mulch.

In addition to fulfilling operational needs within the university, OMPEC collaborates and facilitates various research projects associated with organics processing and serves as an information source for the industry. OMPEC hosts tours and workshops for various groups including the Pennsylvania Department of Environmental Protection, National Resources Conservation Service, Professional Recyclers of Pennsylvania, and the Governor's School for the Agricultural Sciences.

Contact: Nadine Davitt, (814) 865-6606, njh103@psu.edu

Slippery Rock University

Slippery Rock University's comprehensive composting program covers a variety of locations, techniques, and feedstocks. The Macoskey Center at Slippery Rock University received a grant from the Pennsylvania Department of Environmental Protection to partner with the borough of Slippery Rock and collect leaves from residents every fall. These leaves are added to buckets of food scraps from the university dining halls

and coffee grounds from the university coffee shop and composted in windrows at a three-acre area at the Macoskey Center. Each week, staff incorporates approximately 120 gallons of food scraps into the windrows. Center staff turns the windrows periodically with a tractor-operated compost turner. Compost piles approximately 5 feet wide produce enough finished compost to supply the center's organic market garden and orchards as well as a myriad of other agricultural initiatives sponsored by the university.

Slippery Rock University also uses a vermicomposting system and composting toilets to produce additional compost for on-campus landscaping. The Macoskey Center employs a continuous vertical flow vermicomposting system in which staff adds kitchen scraps in layers with shredded newspaper twice a week and periodically removes finished compost from the bottom layer of the system. Also at the center, a composting toilet has turned human waste into nutrient-rich compost since 1990. Material is collected in a composting chamber located in the basement and a small amount of carbon-rich material such as wood shavings or sawdust is added after each use. The toilet composts without water and uses a ventilation fan to aerate the pile while creating negative pressure in the bathroom and basement to eliminate odors. The composting toilet system saves about 30,000 gallons of potable water each year and supplies a topsoil-like material used to fertilize ornamental plantings, trees, and other non-food related agricultural endeavors.

Contact: Thomas Reynolds, (724) 738-4049, macoskey.center@sru.edu

Two Particular Acres

Two Particular Acres, a small family farm in western Montgomery County, Pennsylvania, received the very first On-Farm Compost Permit from the Pennsylvania Department of Environmental Protection. The farm accepts feedstocks such as manure, yard waste, and preconsumer food waste from various sources for producing compost. Manure comes from the Two Particular Acres farm and local farms while other municipalities contribute yard trimmings and crop residue. Recently, Two Particular Acres shifted its focus to include more preconsumer food waste from grocery stores like Whole Foods and other commercial providers. Two Particular Acres accepts dated produce, floral department waste, and waxed cardboard from these sources.

Once Two Particular Acres secures the feedstocks, farm staff uses the aerated static pile method to produce finished compost, which takes about 10 to 12 weeks. In the aerated static pile method, organic waste is mixed together in one large pile instead of rows. Feedstocks are blended and prepared in a mixer and composted in piles with layers of loosely stacked wood chips for four weeks. The piles are then deconstructed and reformed for a second four-week phase of composting. After deconstructing the second pile, the compost is cured for 30 days and then screened for sale. Two Particular Acres produces about 5,000 yards of compost each year, which is either used on the farm or sold to garden centers, golf courses, homeowners, and contractors. The farm makes compost blends (manufactured topsoil) for the horticulture and nursery markets. It also provides roll-off container service for manure removal from any agricultural operation.

Contact: Ned Foley, (610) 454-9635, ejf@twoparticularacres.com, www.twoparticularacres.com

Westminister College

Westminister College received a grant from the Pennsylvania Department of Environmental Protection to expand its composting program to include food scraps from the college cafeteria and the community. Students and kitchen staff deposit pre- and post-consumer food scraps into bags, which are hand-sorted into compostables and noncompostables by staff at the field station.

After collection and separation, the field station staff lets food waste cure on a temporary pile for two weeks, and then moves it to a windrow where it is incorporated with leaves, yard trimmings, and pond weed harvested from the campus lake. The college then dispenses of the finished compost in one of three ways: 1) the staff uses some compost around the field station to amend the soil and to plant trees; 2) in the spring, the

staff uses compost on the main campus around trees instead of mulch, and 3) the compost is given away for free to the public for gardening and landscaping purposes.

Contact: Clarence Harms, (724) 946-8520

Wilson College

Wilson College has been composting campus food, animal, and yard wastes for several years with the support of the Pennsylvania Department of Environmental Protection. Student volunteers collect food scraps from the campus dining hall, then transport them weekly to the farm for composting. On the farm, food waste is mixed with horse manure, leaves, and grass clippings to produce a useful soil amendment. Wilson College recycles more than 500 pounds of organic materials per week throughout the school year.

Contact: Fulton Center for Sustainable Living, (717) 264-4141

VIRGINIA

Environmental Solutions – Richmond, Virginia

Environmental Solutions is a Virginia environmental consulting firm that provides technical assistance on food waste recovery and composting programs to a variety of organizations, including the Virginia Department of Corrections (DOC), the Virginia Manufacturers Association, and the Saint Regis Mohawk tribe in New York.

By conducting waste assessments for the Virginia DOC, Environmental Solutions identified food waste composting as a waste reduction opportunity for Virginia’s correctional facilities. During its waste assessments, the company analyzed facilities’ mechanical operations and encouraged the facilities to transition from contained systems to composting using windrows. The James River Correctional Facility started as the pilot composting site, and Environmental Solutions continues discussions with seven or eight additional facilities.

Environmental Solutions has partnered with the Virginia Manufacturers Association to provide support on a wide range of environmental issues, one of which is food waste. Environmental Solutions is in the early stages of helping the partner companies assess their cafeteria operations for possible composting opportunities.

Environmental Solutions also worked closely with tribal representatives on various environmental advisory boards and realized that on many environmental issues, including food waste initiatives, tribes were often overlooked. The Saint Regis Mohawk tribe operates the Akwesasne Mohawk Casino located in Akwesasne, New York, and approached Environmental Solutions about developing an Environmental Management System for the casino, with a specific focus on food waste. The casino has set a goal to reduce the amount of food waste going to the landfill by 100 percent.

The Akwesasne Mohawk Casino is exploring opportunities to partner with university researchers at Clarkson University in Potsdam, New York, and with local farmers.

Contact: Brenda Robinson, (804) 740-5605 or Brenda.robinson@envirsol.com
Harry Gregori, (804) 740-5605 or Harry.gregori@envirsol.com

James River Correctional Center – State Farm, Virginia

The James River Correctional Center is setting an example—and the standard—for correctional facilities throughout Virginia. Specifically, the James River Correctional Center’s onsite composting program is a pilot project for the Virginia Department of Corrections (DOC) to demonstrate the cost benefits of composting; eventually, all DOC institutions will have composters on site.

The large-scale, stainless steel composter is operated five days a week by one staff member and two inmates. Kitchen and cafeteria food waste are collected in 62-gallon containers, mixed with crushed wood pallets, and added to the composter's hopper for mixing. The composter can hold between 2,000 and 4,000 pounds of waste per day and can produce a final product in 14 or 28 days. Correctional center staff members record the compost mixture's temperature daily, and Virginia Department of Environmental Quality (DEQ) staff perform pH and microbiological tests on the mixture. The final compost product is then used on fields worked by inmates as part of the agribusiness program.

The James River Correctional Center has spared no expenses for its onsite composting program. The center estimates that the combined costs of purchasing equipment and following Virginia DEQ requirements and regulations came to a total of \$600,000.

The facility did have to overcome several challenges, such as educating employees and inmates about proper disposal, and controlling odors and the temperature of the compost so that the process works correctly.

Contact: Frank Baber, III, frank.baber@vadoc.virginia.gov
Robin White, robin.white@vadoc.virginia.gov

Ukrop's Super Markets - Richmond, Virginia

Ukrop's Super Markets began a composting partnership in 2002 with Watkins Nurseries, Inc. to find a reuse option for its organic waste. Fruit, vegetable, and leaf trimmings are combined to create a completely vegetative compost mixture and then transported from Ukrop's Central Kitchen in Richmond, Virginia, to Watkins Nurseries for the composting process.

The final compost product made from Ukrop's scraps and waste is sold in 20 pound bags at Ukrop's stores and can also be purchased in bulk from Watkins Nurseries. Originating from a 2004 Earth Day agreement, a portion of the proceeds from Ukrop's Organic Compost are donated to the Alliance for the Chesapeake Bay. Ukrop's continues to research additional environmental organizations to which it can donate proceeds from compost sales.

Beyond collecting and processing organics to make compost, Ukrop's is also using compost in a bioretention filter at its Stratford Hills store to remove pollutants and slow storm water runoff.

Contact: Pat Hadden, (804) 378-8747 or phadden@ukrops.com

Virginia Polytechnic Institute and State University (Virginia Tech)

Virginia Tech's proposed new three-prong recycling program would include paper recycling, other materials recycling, and, most notably, composting. According to the Advisory Council for Environmental Sustainability's (ACES's) calculations, the cost to start a composting program at Virginia Tech would be over \$57,000, but the program would pay for itself in two years. ACES set forth a proposal to add \$6 to student fees per semester to undertake various energy efficiency and recycling initiatives. Virginia Tech's current recycling program is volunteer-run and operates in 30 campus buildings.

Virginia Tech formed ACES in February 2005 to discuss sustainability as it relates to the university, including addressing food waste issues. ACES was the outcome of a four-student initiative to become part of the growing movement to "green" universities. The goal behind the creation of the ACES was to form a cooperative working group of students and faculty that would provide environmental education for Virginia Tech and improve the campus' sustainability.

Contact: Jessica Folmar, Folmar@vt.edu
Steven Aultman, saultman@vt.edu