WITH a background in environmental journalism and a personal and professional passion for local food and sustainable farming, I’m the new kid on the block here at BioCycle. One of my first orders of business as managing editor was to reach out to my old network to explore new connections and possibilities. On a fishing expedition of sorts, I cast the following request to the Community Food Security Coalition listserv (COMFOOD), a robust online assortment of activists and academics bent on fixing our broken food system: “If you know of any innovative campus composting initiatives, please send them our way.”

Within minutes we were flooded with responses. Next, we drafted an informal survey and sent it back out to those who had expressed interest or were suggested by others. What came back were more than 30 completed surveys representing a broad range of geography, scale, techniques and funding mechanisms, with student participation spanning kindergarten to PhD. Our challenge was to put it all together in digestible form.

The resulting article series is not intended to be a comprehensive survey of campus composting across the country but rather a snapshot in time and space. These projects are numerous and growing — too numerous and fluid to adequately cover in one or even several issues of a print magazine. Instead, our goal is for established campus composting programs to inspire each other as well as those just getting started. We begin with schools that have tied composting to academic programs (see Table 1). In subsequent issues, we’ll visit campuses where student farms are an integral part of the mix, other operations that combine enterprise and education and outreach, those borne out of campus-wide sustainability initiatives and finally the K-12 composting set.

ALLEGHENY COLLEGE, MEADVILLE, PA

“In 2001, Allegheny became the first college in Pennsylvania with an in-vessel composting operation for food scraps,” says Kelly Boulton, the college’s Sustainability Coordinator. A Wright Environmental Composter processes the school’s wastes for the first 14 to 16 days. After discharge, the compost is mixed with hay and animal manure for further maturation in outdoor windrows. The grounds crews found that compost from straight food scraps contained excessive concentrations of salt for healthy plant growth, so now the food scraps (800 to 1,000 pounds a day) are blended with other organic materials (about half that weight in wood chips) to reduce salt concentrations.

“Two years previous to our installation, the nearby Crawford County Prison and County Care Center installed a composter for their institutions’ wastes,” Boulton explains. “After their successful installation, the director of the Crawford County Solid Waste Authority approached our president asking if he’d be willing to be the recipient of an in-vessel composter if the county submitted a grant proposal on behalf of the college. The idea for our composter was conceived in the spring of 1999; the grant was approved at the end of 2000, and the composter was unveiled and the compost operator hired in October 2001.”

Students and faculty were essential in the process. “After applying for the grant and before installing the composter, there was an entire class devoted to issues surrounding it,” Boulton says. “The students

Composting food waste and landscape trimmings on campuses is becoming commonplace. This first article in a series focuses on schools that have tied composting into academic programs.

Part I

Dan Sullivan

A $247,000 PA DEP grant accommodated the purchase of composting equipment at Allegheny College.
analyzed costs, savings, operations efficiency, waste production, proposed a pick-up plan, discussed training of dining services staff and discussed educational and instructional signage. There is also a student-held position of ‘Compost Assistant.’

“We have been able to use all the compost in our campus flower beds, student vegetable gardens and other landscaping. In addition, we use the compost to create a compost tea that we spray over all lawns and athletic fields twice a year to increase the fertility of the soil.” A high quality topsoil is also created for use on various new projects and applied to lawns and fields for fertility, she adds. “This has decreased our use of chemical fertilizers to a negligible amount.”

Students continue to integrate the composting operation into their coursework. “For example, last semester students in an Introduction to Environmental Science course created a YouTube video about the composters [see link below],” says Boulton. “Another group of students explored how best to educate their peers on how to compost in the dining halls.”

A few years ago, the college switched food service contractors to Parkhurst Dining Services, a regionally based company with sustainability goals in line with the school’s, including sourcing fresh food locally and utilizing compostable service ware. “We’re still working to educate our campus community on what to compost and what not to compost,” explains Boulton. “This will likely continue to be our biggest challenge since we have a constantly revolving community that requires an introduction and education about composting each year. We’re proud to have been composting and therefore responsibly using our ‘waste’ for so many years. We’ve also realized positive financial returns from the program.” A recent assessment estimated an annual savings of about $56,000 as a result of the composting operation, she says. “This can be attributed to avoided hauling costs by sending waste to the composter rather than the landfill, dollars saved by producing compostable topsoil and costs avoided by using compost tea and broadcasting compost rather than chemical fertilizers.”

Watch a student-produced video of Allegheny College’s composting operation here: http://www.youtube.com/watch?v=gpo0Lbkprk4. For additional details, see “Composting Helps Anchor University’s Climate Commitment,” May 2008.

APPALACHIAN STATE UNIVERSITY, BOONE, NC

Over the 1999 spring semester, students enrolled in a sustainable development curriculum at Appalachian State spearheaded a project to collect food waste from campus food services. A year later, students in an Appropriate Technology curriculum track launched a pilot project, constructing an aerated static pile and composting about 18 tons of food waste. At last count (2006/2009), that had increased to 105 tons annually. “The compost is utilized back into landscape application on campus as well as at our sustainable farm and edible schoolyard,” says Jennifer Maxwell, resource conservation manager for the university. “The facility is open to student tours at any time and is mostly utilized by classes within our Appropriate Technology and Sustainable Development program courses.”

A Sustainable Resource Management course has provided some hands-on educational opportunities where students get involved with compost process management as well as equipment operation. The Teaching and Research Farm, where much of the finished compost is utilized, is housed within the school’s Sustainable Development program.

One of the biggest challenges getting the project off the ground was gaining buy-in from food services, which had to learn new ways of operating.

Workshop

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Workshop Faculty: Metin Duran, Villanova University; Michael Mann, Organic Recycling Solutions, LLC; John Novak, Virginia Tech; Wayne Schutz, Derry Township (PA) Municipal Authority; and Timothy Shea, CH2M Hill

The cost for this full day workshop and tour will be $125, which includes continental breakfast and lunch. Registration also includes a one year subscription to BioCycle magazine.

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seen tremendous growth over the years. We have been able to expand to some postconsumer collection, as well as bring other departments on board as well.

Appalachian State’s program has become a model to other institutions and has been quite successful as an educational tool, she adds. “It gives our students the opportunity to see sustainable resource management in action right here on our campus. It is also successful in that it is a wonderful example of how collaborative efforts can work to promote sustainability on any campus or community. Another reward is that the outcome is beautiful, rich compost that we use on our campus.” Learn more about Appalachian State’s overall sustainability efforts at http://sustainability.appstate.edu/.

CLARK UNIVERSITY, WORCESTER, MA

Campus composting at Clark University, now integral to the school’s learning environment, began via a student initiative. “They conducted a waste audit and developed a proposal,” explains Dave Schmidt, Campus Sustainability Coordinator. “From there it gained momentum in the Sustainability Task Force.”

Nearly 200 tons of food waste annually gets composted at the WeCare Organics facility in Marlborough, Massachusetts, which utilizes a rotary drum/aerated windrow system. Even though composting does not take place on campus, several cross-curricular lectures and labs utilize the program as a learning opportunity. “They benefit from the process insofar as it is used as a teaching tool to root lessons of sustainable operations, waste management, the concept of recycling and closing the loop on material flows,” Schmidt says, adding that classes such as the “Sustainable University” and “Sustainability Science” chart the course of the material from generation to where it potentially comes back again as a useful product (the school has dibs on up to 20 yards annually of the Class 1 compost for free). In that manner, he says, “the university becomes a learning laboratory.”

Initial challenges included covering the cost of biodegradable bags, managing odor issues, establishing an effective pickup schedule with the waste hauler and management of the program during the summer, adds Schmidt. “All of the hurdles were cleared with aplomb.” Rewards have included increasing student perception of sustainability, offering a teaching tool and dramatically increasing the college’s waste diversion rate.

Find out more about Clark University’s composting program and sustainability initiatives at http://www.clarku.edu/offices/campussustainability.

GUILFORD COLLEGE, GREENSBORO, NC

“Although some students have been composting on campus for years, last year we bought an Earth Tub in-vessel unit to man-
tinue to work out the kinks with the system, that faculty will continue to use our composting system as curricula and that we can all find time to dedicate to our system."

To learn more about Guilford's overall sustainability efforts, go to http://www.guilford.edu/about_guilford/services_and_administration/facilities/recycling.html.

Murray State's four-bay composting system utilizing highway dividers represents a large-scale version of the nailed-together pallet configuration popular with backyard gardeners.

MURRAY STATE UNIVERSITY, MURRAY, KY

"The director of Dining Services and head of Murray State University (MSU) Horticulture/Greenhouse Facilities got together and decided to hire a student — myself — to initiate, manage, organize and carry out composting and garden programs," says Justin Van Horne, who heads up campus composting at MSU. "I have expanded the student workforce to a total of three Dining Services employed students."

About 13 tons of preconsumer food waste annually gets mixed with other campus-generated feedstocks. The finished compost is incorporated into the Dining Services garden, the faculty garden, Murray State's Arboretum Project and the greenhouse grounds. Biology, geology, sustainability and agricultural curricula and research is conducted both at the on-campus compost facility and in the garden, Van Horne says, adding that interactive projects and seminars are also offered to area elementary and middle schools. A Sustainability course also requires volunteer hours, which are often fulfilled within the composting and gardening programs.

Educating the university and campus community about the need for and value of a composting program, and lackluster interest and full buy-in on the part of the student body, have presented some challenges, says Van Horne. Inclusion into the MSU Arboretum Project, recognition and use of garden produce by the university president (and incorporation of compost in his private garden), student consumption of MSU garden produce and growing and continued community awareness all provide the motivation to continue.

Learn more about Murray State's composting and overall sustainability efforts here: http://www.murraystate.edu/CampusLife/Dining/Sustainability.

UNIVERSITY OF GEORGIA, ATHENS

At the University of Georgia (UGA), a quarter century of campus composting has become fully integrated into the school's research, curriculum and sustainability mission. "We have a fully permitted window facility," explains UGA Sustainability Coordinator Andrew Lentini. Finished compost is distributed on campus. Various composting research projects experiment with a variety of other composting methods. Animal wastes and mortality are composted at a separate agricultural facility on campus property.

"Composting originally began on campus in 1986 to manage organic wastes and create a nutrient-rich soil resource," says UGA Director of Sustainability Kevin Kirsche. "Thirteen years ago the UGA Bioconversion Research & Education Center formalized the campus composting program to enhance its operational, research and educational value." This came after the Department of Biological and Agricultural Engineering within the College of Agricultural and Environmental Science.

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Table 1. Campus composting at a glance

<table>
<thead>
<tr>
<th>School</th>
<th>City, State</th>
<th>Type</th>
<th>Years Composting</th>
<th>Feedstock</th>
<th>Volume Composted</th>
<th>Funding</th>
<th>Student Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allegheny College</td>
<td>Meadville, PA</td>
<td>In-vessel</td>
<td>10</td>
<td>Pre and postconsumer food waste, wood chips, compostable service ware</td>
<td>800-1,000 lbs. food scraps and 400-500 lbs. wood chips daily</td>
<td>$247,000 PA DEP grant for equipment/infrastructure</td>
<td>2.053</td>
</tr>
<tr>
<td>Appalachian State University</td>
<td>Boone, NC</td>
<td>Aerated static pile</td>
<td>11</td>
<td>Pre and (some) postconsumer food waste, wood chips, sawdust, leaves</td>
<td>1,050 tons of food waste annually</td>
<td>No outside funding</td>
<td>14,653</td>
</tr>
<tr>
<td>Clark University</td>
<td>Worcester, MA</td>
<td>Sent off-site to WeCare Organics, Marlborough, MA</td>
<td>3</td>
<td>Pre and postconsumer food waste, waxed cardboard, bathroom tissue paper and waste, animal bedding</td>
<td>About 200 tons of mostly food waste annually</td>
<td>No outside funding</td>
<td>3,118</td>
</tr>
<tr>
<td>Guilford College</td>
<td>Greensboro, NC</td>
<td>In-vessel</td>
<td>1 at current method</td>
<td>Pre and postconsumer food waste, compostable service ware, wood chips, leaves</td>
<td>6,000 lbs./semester</td>
<td>Student government</td>
<td>2,682</td>
</tr>
<tr>
<td>Murray State University</td>
<td>Murray, KY</td>
<td>Static pile</td>
<td>2</td>
<td>Preconsumer food waste, coffee grounds and filters, grass clippings, leaf litter, horse manure, sawdust, greenhouse and garden residues</td>
<td>About 13 tons of food waste annually</td>
<td>MSU Dept. of Horticulture and MSU dining services</td>
<td>10,266</td>
</tr>
<tr>
<td>University of Georgia</td>
<td>Athens, GA</td>
<td>Windrow</td>
<td>25</td>
<td>Pre and postconsumer food waste (pilot program); leaf and limb debris; animal bedding</td>
<td>57 tons/month (mostly leaf and limb debris); 20 tons food waste annually (pilot program)</td>
<td>Georgia Research Council grant to Dept. of Biological and Agricultural Engineering</td>
<td>33,660</td>
</tr>
</tbody>
</table>

A pilot program collecting food trimmings and plate scrapings from one UGA dining hall is expected to be rolled out to the whole campus in the near future.

obtained a grant through the Georgia Research Council to build a bioconversion facility, which was constructed in-house with Physical Plant Division forces. "Initially, composting was used to effectively manage landscape debris," Kirsch explains. "The Physical Plant Division (PPD) Grounds Department operated the program and turned the waste materials into useful compost to restore soils and enhance plant growth in the campus landscape. The formalized Bioconversion Center originated as a collaborative effort between the PPD Grounds Department and the Department of Biological and Agricultural Engineering to develop research protocols."

The 57 tons of campus-generated feedstock UGA composts each month is currently made up mostly of leaf and limb debris. The 20 tons of food waste UGA collects from one dining hall annually is expected to increase fivefold once a pilot project rolls out to the whole campus.

The compost is also utilized for ecological restoration purposes, in the campus community garden, in manufactured bioreactor soil mix designed for water quality improvement on campus and for soil erosion control best practices. "The operation functions as a laboratory for the UGA Engineering Outreach Services, which is housed within the College of Agricultural & Environmental Science," says Kirsch, adding that student courses and scheduled tours utilize the facility and research. Other research experiments conducted at the Bioconversion Research & Education Center include a biorefinery to create biofuels from multiple regional sources and algae propagation for fuel feedstock, to name a few. "Also, at the nearby Club Sports Complex, a composting toilet utilizes enclosed vermiculture to manage human waste," he adds. "And a robust on-campus construction and demolition debris recycling program creates useful gravel and wood mulch for application on campus."

The project has developed slowly over time since 1986, which has facilitated program acceptance. "The operation is extremely successful at minimizing waste on campus. It's rewarding to see the light bulb go off as students and visitors visit the site and see first-hand that waste equals food. It is very gratifying to see disturbed campus landscapes and soils regenerated and made productive again through incorporation of this fertile compost, which comes from the campus and is used on the campus to enhance its beauty and ecology."

Find out more about UGA’s Bioconversion Center here: http://www.engineering.uga.edu/engr/biorefinery.php.

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