

# Best Management Practices for Colleges and Universities



## Waste Management

### *Dining Services Composting Program*

Updated January 2007

**Summary:** The increasing use of lifecycle analysis has led to a greater understanding of the environmental impacts associated with even the most basic items-food. Efforts to understand and "close the loop" are resulting in best practices for reducing waste, pollution prevention, and safeguarding our environment. In response to this life cycle analysis, and to "be recognized as one of the finest collegiate level dining services in the nation, known for its highest quality and professional character", the dining service staff at Bates College implemented a food program in 1994 that looked toward reducing wastes and costs, and to use crops grown by local farmers. While the entire dining program looked at (1) recycling, (2) composting, and (3) community outreach, this BMP will focus primarily on composting; however, the benefits of each branch out to many different areas on campus.

### Project Goals



The program began as an attempt to increase composting and it evolved into a management system that benefits both Bates and the local community. The Dining Department looks toward implementing environmentally friendly programs that will meet the following goals: 1) reduce the amount of waste sent to the city's landfill, 2) reduce costs associated with food waste (i.e. by composting pre-consumer food scraps), and 3) increase recycling (i.e. by sending used unbleached recycled paper napkins to a local farm for compost).

### Description

Food waste used to be collected in a bin system and discharged to the sewer after going through a garbage disposal. The garbage disposal was running an average of ten hours a day. This adds up to 3,300 gallons of water a day (using an average of 5.5 gallons a minute). In one week, about 4,000 pounds of food was wasted or about 4.4 ounces per meal. This food waste was believed to be the cause of high biochemical oxygen demand (BOD), an indicator of biological activity and oxygen uptake in wastewater. If the BOD level is too high in a river, the result may be the depletion of dissolved oxygen, loss of river life and decreased water quality.

## Bates

### Campus Profile

**Bates College**  
Lewiston, ME  
**UG Students:** 1,767  
**Resident Students:** approx. 1,654  
**Faculty and Staff:** 703  
**Campus Area:** 109 acres  
**No. of Dining Halls:** 1 plus an auxiliary site for lunch.  
**Operating Budget:** \$64.5

### Green Activities

*Environmental Resources* at Bates integrates Academics, the Environmental Confederation (a group of faculty, staff, students and administrators called together by the President to further green practices), Recycling, related Student Organizations, Campus Stewardship, and Events. Information on these programs can be found at <http://abacus.bates.edu/admin/offices/environment> The College's Dining Department has won several awards to include the Best of the Best ReNew America National Award for Sustainability in April 2000, the Christopher and Dana Reeve Award for Environmental Leadership in 1999, and the National Award for Sustainability in 1999.

U.S. EPA New England Best Management Practices Catalog for Colleges and Universities.

For more information about the catalog and other case studies visit

<http://www.epa.gov/region1/assistance/univ/bmpcatalog.html>

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Created by Campus Consortium for Environmental Excellence through EPA funding

Bates, as a significant wastewater discharger and the largest "restaurant" in the area, has its sewage continuously monitored by the local POTW. The city's treatment plant pays for costs associated with the use of ammonia and phosphorous, and oxygen to reduce BOD levels. Bates and other major dischargers pay to offset the costs incurred by the treatment plant in treating high BOD levels.

## Pre-Project Considerations

1. Consider the culture of the college/university and if they are willing and ready to take some time to separate out waste materials.
2. The training of all dining employees in the program.
3. Communication of the program to students, faculty, and staff eating in dining halls.
4. Where to send/store composting material. To develop a relationship with a composting farm or decide if the campus can house and maintain a composting area.
5. Consider eliminating self-service in dining, or how to accommodate a similar type program with self-service (e.g. smaller utensils).

## Steps Taken

In 2001, Bates Dining installed a commercially available 4 inch slotted pan strainer at the sinks that collects food instead of letting it go down the garbage disposal. This type of system has greatly reduced the amount of organic matter going into the sewer system.

Straining the food waste can help the BOD problem but it does nothing to reduce the amount of food waste. So, the Bates community began to help by being more conscious of the amount of food they asked for and what happens to the uneaten portions. Some ways in which both students and employees have been educated are:



- The Dining Hall is *not* self-service, rather trained dining staff serve portions with specific sized utensils. They also gauge the amount of food typically taken from previous days, meals, etc. as the menu is reviewed daily to gauge how much to serve. For instance, when chicken fingers are on the menu the portion served is 3 fingers. Students could always ask for a double serving or come up for more!
- Dining worked with faculty and student groups on campus (EFAD & the Environmental House) to increase communication to students, faculty, and staff.
- Dining employees reached out to students in the dining hall and provided presentations, posters, signage, updated their web page, and even performed special events called "Monotony Breakers" on Wednesday evenings where presentations provided information on recycling plus many other topics. Newsletters go home to students each summer on recycling efforts on campus.
- Three bins are set up in dining (and for all functions and events) one for food waste, one for recyclables, and one for composting.
- The students educate each other. A culture change has taken place where students know this is how things are done at Bates and when they see another student incorrectly disposing of waste, they are instructed as to the proper methods. This happens with employees in the kitchens and dining areas as well.
- Each night Dining reviews (1) the amount of food coming out of the kitchen, (2) the amount of food served in the serving lines, and (3) the sanitation coordinator figures out how much is being sent out as waste. These are all compared to determine if too much food is being served, among other things.
- The Director in dining receives a weekly report defining 42 different categories of waste and will note any issues or needs for correction in how food and waste is being managed. For instance when compost bags are overloaded, when boxes are incorrectly broken down, when there is trash in the recycling.




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- Dining staff have monthly meetings where their efforts for the previous month and improvements that need to be made are discussed.
- New employee orientation for dining staff includes a section on recycling responsibilities in Dining.

A strainer system on the scrim line was also installed. This is where students put plate scrapings. The scrim line consists of a steady stream of water flowing down a conveyor belt. Food is taken off the belt via the water where it is carried to the end of the line. The strainer catches all of the post-consumer (food) waste, which is sent to a local pig farmer. An added bonus is that the water which carries food down is recycled back into the scrim line, thus reducing the water usage from 25,000 gallons/day used when the garbage disposal was in operation down to 10,000 gallons/day.

Pre-consumer kitchen residuals from the school are taken to a farm in Lisbon, Maine, for composting. The farm, which is 12 miles away, receives the college's unbleached 100% recycled napkins (15,400 pounds per year), coffee grinds (5,200 pounds per year), fruit/vegetable peelings, (211,600 pounds per year) and egg shells (1,200 pounds per year). Bates pays the farm approximately \$2,000 per year to compost these materials. This includes gas for hauling and a penny a pound to compost. The composting program has saved Dining Services about \$1,000 per year in disposal fees. Bates buys back some of the compost at minimal costs to use for campus landscaping.

### Tools Used

- Slotted four inch pan strainer.
- Strainer system for the scrim line.
- Bins to collect food waste for the pig farmer.
- Compost bins to send to the farms.
- Containers for recycling.
- Communication tools (eg., posters, notices).
- Different sized utensils for serving food.



### Performance and Benefits

Bates College sums up the goals of the program: “We are committed to finding ways to improve our environment within the educational setting, improving the quality of the food we serve, reducing waste and ecological effects, helping the local area, and reducing cost.” All of these objectives are being met, plus many other added benefits, through responsible purchasing, composting, and recycling initiatives. The programs at Bates have a demonstrated positive benefit on the student body, the environment, and the economic health of local farmers and businesses.

The program has also fostered:

- Proud employees.
- A support for the local economy
- Demand for organically grown produce in the area.
- A tool to inform and educate students, faculty, employees, and the greater local community about the importance of sustainable practices.
- Reduced BOD levels for the city, which in turn reduces its costs for water treatment.
- Reduced costs for disposal of waste as the compost farm costs less for disposal than the landfill in Lewiston, ME.

When looking at all the dining programs working successfully together, these programs have brought the college one step closer to sustainability within its environment; from buying locally, seasonally and organically grown food to composting the waste, and recycling. A loop is completed when the food that is grown locally returns to the college grounds as fertilizer.

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## Lessons Learned

Of importance is the access to both a composting farm/area and a pig farm. To date, since the program started, the college is on their fourth contract with a pig farmer. The contract with the composting farm has been successful to date; however, if for any reason the farm contract ends, the college would have to find another location for composting.

The culture change has successfully made this program an integral part of the college. It is no longer dependant upon a 'champion' for it to succeed.

## For Further Information

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Detailed Descriptions of the Various Environmental Dining Programs at Bates  
<http://www.bates.edu/dining-about-us.xml>.

Food Waste Composting  
<http://pubs.caes.uga.edu/caespubs/pubcd/B1189.htm>

University Leaders for a Sustainable Future  
<http://www.ulsf.org/cgi-bin/searchresults.cfm?catID=7&subcatID=23>

The Sustainable University of Michigan  
<http://www.umich.edu/~usustain/sustain.html>

'Smart' Communities Network  
<http://www.smartcommunities.ncat.org>

Center for a New American Dream – have worked with EPA and the EPP Program (Environmentally Preferable Purchasing)  
<http://www.newdream.org/aboutus/>

## Other Successful Dining Programs

**Bates College Dining** has other successful programs, such as **community outreach**. They became affiliated with the Maine Organic Farmers and Growers Association and now purchase organic food from local farmers. They have instituted 'smart purchasing' (meaning environmentally sensitive and responsible purchasing practices, sustainable practices, and buying "green".) and buy from companies that try to minimize waste such as Stonyfield Farms. They purchase coffee from Green Mountain, a distributor of organic coffees. Cereal is bought in bulk and put in plastic containers to reduce the amount of cardboard packaging. Dining has also established a 'help the needy' program to provide food on a daily basis to soup kitchens and shelters. Each day uneaten food is picked up by the shelters to provide meals to 50-100 people daily. Other Bates Dining programs include **responsible purchasing**, and **recycling** tin cans, bottles, cardboard, and plastic. Details of these programs can be seen at <http://www.bates.edu/prebuilt/diningfacts.pdf>.

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**Other schools with successful food composting programs include:**

- Ithaca College
- Medical University of South Carolina
- Middlebury College
- Penn State
- University of Mass Amherst
- University of Vermont
- Washington State
- Williams College
- University of Oregon Composting Program  
[http://www.uoregon.edu/~recycle/Composting\\_text.htm](http://www.uoregon.edu/~recycle/Composting_text.htm)

**Other Environmentally Friendly Dining Programs:**

- Dartmouth College has an organic component to their Dining Programs
- University of Wisconsin-Madison has an organic component to their Dining Programs
- Northern Arizona has several environmentally friendly Dining Programs
- The University of Washington has a Food Donation Program

**Commentary**

- Both Campus Ecology and Second Nature have also documented this successful program.