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University of California, Davis
Davis, California
Composting

SCHOOL
University of California, Davis (UC Davis) is a public, four-year university, with an enrollment of 24,324 undergraduate and 7,102 graduate students. UC Davis is located in Davis, California.

ABSTRACT
In what began as a pilot project in 2001 funded in part by the Associated Students of the University of California, Davis (ASUCD) to support the organic farming practices of the campus' Student Farm, University Dining Services (UDS) now diverts nearly 98% of all organic matter including kitchen scraps (pre-consumer) – uneaten food (post-consumer) from the university-owned landfill. In 2007, Dining Services engaged Jepson Prairie Organics located in Dixon, Calif. to logistically plan for the post-consumer composting initiative. The composting program was fully realized in 2008 with all four dining rooms participating in the composting initiative, which to date has yielded over 881 tons of organic material to the composting facility.

GOALS AND OUTCOMES
In March of 2007, the University of California, Office of the President, adopted aggressive waste diversion goals for the 10 campus system. The goals (50% reduction by June 30, 2008; 75% by June 30, 2012; and an ultimate goal of zero waste by 2020) have paved the way for innovative, cost-effective implementation strategies for the reduction of food waste at UC Davis.

Waste reduction through pre- and post-consumer composting was already practiced by University Dining Services (UDS) prior to the Office of the President's policy. UDS partnered with Associated Students of the University of California, Davis (ASUCD) in September of 2001 to launch a pre-consumer composting program in each resident dining room kitchen. The initial goal of this project was to support the Student Farm by providing organic matter for soil conditioning purposes. All four resident dining rooms engaged in this practice, which yielded over 22,250 pounds of pre-consumer organic matter per month.

Five years into the project, a team collaboration comprised of R4 Recycling, ASUCD Project Compost, UC Davis Dept. of Grounds, Jepson Prairie Organics, and UDS identified that more than 80 percent of the waste stream from dining rooms was comprised of post-consumer organic matter. A goal was set forth to implement tactics that would eventually eliminate organic matter from entering the university landfill, through pre-consumer composting, post-consumer composting, recycling, and a reduction in manufacturers packaging.

Through these efforts and a recent partnership with UC Davis' Biogas Energy Project, Dining Services' ultimate goal is to divert 100 percent of organic matter from the landfill. Current and future efforts will continue to support the Student Farm; provide nutrient-rich material for local farms or vintners through post-consumer compost in partnership with Jepson Prairie Organics; or support the energy needs of campus facilities through methane digesting at the Biogas Energy Project.

Dining Services is striving toward making waste reduction strategies a culture, not just a sustainable idea. Our goal is to continuously engage the campus community and support the move towards zero waste by 2020.

Accomplishments and Outcomes

The University of California, Davis has been actively working towards increased diversion rates since 2000 through recycling and composting. Dining Services has been an integral part of instituting post-consumer composting and has continuously focused on becoming a zero-waste community. The following timeline highlights the accomplishments of the composting program:

- Six years of pre-consumer composting (2001-2007) diverted nearly 11.2 tons of food scraps per month from the campus landfill.
- In October, 2007, post-consumer composting was piloted at Tercero Dining Room. Today, more than 881 tons of organic matter have been post-consumer composted.
- In November, 2008 all four resident dining rooms and catering events were active in a pre- and post-consumer composting program.
- University Dining Services' resident dining program decreased food waste by nearly 30 percent by removing trays from dining rooms in June of 2008 and saved more than 50,000 gallons of water.
- In February, 2009 all university catering events were standardized to be zero-waste events. Compostable matter is sent to the Segundo compost compactor using yellow totes.

<u>Policies Adopted and Positive Impact</u>

Several informal and formal policies have been adopted as a result of the composting initiatives:

Tray-less Dining: to reduce food waste, energy use, water use, and chemical use. This policy has effectively decreased resource consumption by decreasing food wasted.

Training: all incoming employees are educated to identify and sort for the different waste-streams.

Supply Management: to reduce unnecessary or excessive packaging by: 1) using 100 percent post-consumer recycled materials that are recyclable, reusable, or compostable; 2) non-toxic; or 3) using minimal natural resources while still maintaining product protection. Next Generation Foods, as an example, provides UDS with local balsamic vinegars which were shipped in 12-count cases topped with Styrofoam peanuts. Dining Services worked with Next Generation Foods to identify a more environmentally friendly packaging solution and since February, 2009, Next Generation Foods now ships product using biodegradable filler which is post-consumer composted.

Biodegradables at Special Events: recycling receptacles are at all special events; biodegradable food service utensils, plates, cups, napkins, and containers to support zero-waste efforts. This practice has helped educate students and the broader campus community about waste streams and the environmental impact of contributing to landfill mass.

Elimination of Plastic Bags*:* Dining Services eliminated plastic bags from all dining facilities and switched to a bagless or bagless-upon-request environment, only providing reusable canvas or compostable paper bags when necessary. This policy has made a significant shift in the use of petroleum-based plastic to renewable resources.

Challenges and Responses

Some major challenges with the pre-consumer composting program included contamination and consistency of pick-up. Often non-compostable material such as plastic bags and latex gloves would end

up in the pre-consumer compost bin 'contaminating' it. This challenge was solved by dedicating 2 hours of training per quarter to new and existing staff about the pre-consumer waste sorting system and posting posters above each waste stream receptacle. The pick-up and removal of compostable materials was arranged with ASUCD Project Compost, a student organization. Some times bins would be overlooked and not picked up timely, leading to overfilling bins and compostable materials being inadvertently sent to the landfill. This challenge was solved by a streamlined communication plan with ASUCD Project Compost volunteers and detailing a reliable pick-up schedule.

During the initial implementation stages of post-consumer composting, Dining Services was challenged to ensure limited taint within compost-ready material. Within a matter of five years, staff was asked to sort through six different waste streams: 1) recycling bottles/cans; 2) recycling mixed paper; 3) pre-consumer compost; 4) hazardous materials; 5) post-consumer compost; and 6) landfill. We solved one of these issues by combining the pre- and post-consumer stream into one, thereby sending all compost-ready material to Jepson Prairie Organics. This also proved beneficial for ASUCD Project Compost, who was relieved from an ever increasing amount of pre-consumer compost from ancillary dining establishments.

Dining Services began its pilot program for going tray-less in spring of 2008 – called "Tray-less Tuesdays." There was an initial student concern regarding the delivery of food items. This challenge was solved when students became educated about the energy consumption of washing trays. In order to make a smooth transition, trays were gradually removed from the dining rooms between the 2007-2008 and 2008-2009 academic years to ensure the incoming population would experience a completely tray-less dining room.

Campus Climate Action: Your School's Carbon Footprint

Landfills are the third largest source of man-made greenhouse gases. Methane, a greenhouse gas, emission from landfills occurs when organic matter breaks down in the oxygen-less environment common in landfills. When ASUCD Project Compost introduced the idea of pre-consumer composting to University Dining Services in 2001 the goal was to divert waste from the landfill in order to contribute less to greenhouse gas emission and also to reuse the organic material by converting it into compost.

By improving the program to include both pre- and post-consumer composting over the years, Dining Services has reduced its contribution to greenhouse gas emissions from the UC Davis campus landfill.

ENGAGEMENT AND SUPPORT

Leaders and Supporters

A strong team of stakeholders, seamlessly working together is essential whenever pursuing a large-scale project. Direct leadership, support, and engagement from campus departments and community organizations has paved the way for Dining Services' composting program to be a best practice that can be duplicated at other large institutions. Departments that have contributed to this success are:

<u>ASUCD Project Compost</u>

Project Compost was started from an internship with the campus-recycling program (R4 Recycling) in the fall of 1999. The recycling program was able to divert newspaper, bottles, aluminum cans, scrap wood, and even metal, but when it came to food and agricultural waste there was no available infrastructure for diversion. Through the internship, composting systems were researched that would best divert organic matter from the dining rooms. Today, pre-consumer composting has been implemented campus-wide.

(Information from the Project Compost website - http://projectcompost.ucdavis.edu/history.html)

UC Davis R4 Program

The R4 Program is committed to the delivery of effective, courteous, innovative, and responsive waste reduction and recycling services to the UC Davis Campus. R4 works in a supportive and informational role to facilitate recycling between the various campus units, other universities and colleges. In addition, the R4 Program prepares students to integrate the ideas and practices of waste management with the environmental foundation they receive on Campus.

(Information from the UC Davis R4 website - http://r4.ucdavis.edu/aboutR4/)

Jepson Prairie Organics

Jepson Prairie Organics operates the post-consumer compost facility approximately nine miles from campus. Jepson Prairie Organics' comprehensive recycling program diverts yard trimmings, food scraps and other compostable material from homes, restaurants, hotels, markets, delis, and coffee shops from Northern California. These source materials create especially rich, black compost - perfect for reconditioning soil due to its diverse feedstock.

(Information from the Jepson Prairie Organics website - http://www.jepsonprairieorganics.com/)

Department of Grounds and Facilities

The University of California, Davis Department of Grounds and Facilities provides a broad array of professional facility services including waste management, logistic transportation of compost-ready material to Jepson Prairie Organics, and assisting with implementation and infrastructure of recycling and composting receptacles at UC Davis.

Funding and Resources

Minimal costs were incurred for the post-consumer composting program; however these costs were compensated by the savings and cost-effective policies implemented. For example, instead of buying brand-new food waste compactors to accommodate the organic waste, trash compactors were converted to house compost-ready materials. A new compactor was purchased for Segundo Dining Room in order to allow smaller, ancillary dining units across campus to contribute compost-ready material. Existing inventoried electric flatbed trucks are used to transport totes from across campus to the Segundo compactor.

Overall, our waste reduction strategies have essentially washed at the end of year in terms of dollar spent. Dining Services saves money in detergent, water, and energy costs by having tray-less dining rooms, and while biodegradable bags are six times more expensive than petroleum-based trash liners, Dining Services does incur tipping fees for our organic waste because it does not go to the landfill facility. There is an increased transportation cost for compostable materials shipped to Jepson Prairie Organics post-consumer composting facility. In the end, no financial impact has been attributed to these waste diversion practices.

Education and Community Outreach

Outreach to the campus through media outlets was one way for us to engage the campus and local community. An article on our composting program was featured in the UC Davis Dateline - http://www-dateline.ucdavis.edu/dl_detail.lasso?id=9174.

The community did show interest in our conservation initiatives and in 2007, Dining Services was awarded the Best Practice Award for Innovative Waste Reduction by the University of California, Office of the President.

UC Davis is the first campus of the University of California system to start an all encompassing post-consumer program, thus becoming a model for other UC campuses.

Farm-to-College theme meal nights are celebrated twice a year in the resident dining program were the campus community comes together to celebrate a more sustainable food system. Composting, recycling and zero-waste education is highlighted at each of these meals.

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MORE ABOUT YOUR SCHOOL

Campus Sustainability History

University Dining Services works towards a more sustainable food system with six core practices: recycling, composting, purchasing natural and organic products, buying local, promoting sustainable health, and ensuring environmental stewardship. The sustainability program is supported by these 6 practices and a group of Dining Services managers – Brenan Connolly (General Manager), James Boushka (Marketing Director), Linda Adams RD (Nutrition and Sustainability) and Danielle Lee (Food System Sustainability and Education Coordinator). The sustainability program would not be a success

without the support of University Dining Services managers and staff, the UC Davis community and the Davis community.
For more information about the sustainability program at the University of California, Davis Dinning Services, please visit - http://dining.ucdavis.edu/sustainability.html.

Photographic Essay

A Sous Chef at Tercero Dining Room places vegetable scraps into a designated pre-consumer compost receptacle.

Student volunteers from ASUCD Project Compost collect pre-consumer compost from the loading dock of Tercero Dining Room.

Students at Segundo Dining Room place their plates, napkins, and any uneaten food on the dish return line.

A dedicated team of service workers at Tercero Dining Room scrape uneaten food into a pulping system that is hauled to a compost compactor at the loading dock, shown below. Note the trays on the return line; these trays were re-used to prevent plates and cups from falling through the wire holders.

Compost-ready materials are collected here at Tercero Dining Room until transported to Jepson Prairie Organics.

Segundo Dining Room has a specially designed and dedicated compost compactor to facilitate the collection and staging needs of compost-ready material from both the dining room and ancillary dining units across campus. When full, the compactor is loaded onto a flatbed truck and hauled to Jepson Prairie Organics.

Organic matter is sorted at Jepson Prairie Organics prior to being placed in windrows to begin the composting process.