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**Warren Wilson College
Asheville, North Carolina
Waste Reduction - Composting**

SCHOOL

Warren Wilson College (WWC) is a four-year private liberal arts college located on 1,100 acres of picturesque rivers, ridgelines, rolling forest and farmland in the Swannanoa Valley near Asheville, North Carolina. The college enrolls 900 students, employs 200 staff and faculty, and offers Bachelor Degrees in 43 majors and concentrations, and 26 minors

ABSTRACT

The GREENDRUM is a continuous feed system that uses an insulated drum, and can accommodate as much as 3,000 pounds of material each day. Composting material undergoes a 3-day residence period in the GREENDRUM during which compost is heated to, and sustained at, temperatures of 131 °F or higher. Woodchips and sawdust are combined with food wastes in a predetermined proportion; woodchips and sawdust are a byproduct of the Warren Wilson College sawmill. Composted material is placed into the horizontally positioned drum that continuously tumbles the material at a slow rate, three rotations per hour. This rotating, mixing and movement exposes the material to air, adds oxygen and releases the heat and gaseous products of the decomposition process, producing a highly aerobic environment that creates minimal odor and isolates waste until the composting process is complete.

GOALS AND OUTCOMES

Warren Wilson College's Recycling and Solid Waste Program (see *Waste Reduction* case study) is dedicated to closing the sustainability loop on campus, and is a major component of the work program. Composting is one of the most far reaching means of addressing waste reduction on campus; natural processes are harnessed to prevent thousands of pounds of pre and post consumer food wastes from streaming into landfills each year. The composting program collects food waste from both cafeterias, dormitories and on campus housing, processes the wastes, and returns the composted material to the soil to enrich Warren Wilson's ecology.

The mission of the Warren Wilson College Recycling Crew is "to provide the campus with effective and innovative recycling, composting and waste disposal services and to reduce the volume and environmental impact of waste generated on campus. We strive to run an efficient and environmentally sound operation, to educate the community about effective resource use, and to inspire the community to find creative alternatives to unsustainable consumption patterns."

The ultimate goal of the waste reduction program is to create a closed-loop sustainability cycle, and to achieve the collection, processing and reuse of virtually 100 percent of the college's food waste stream.

Solid waste is the largest emitter of methane on the Warren Wilson Campus. Composting emits no methane, thereby contributing to offsetting methane emission from solid waste. During the 2005/2006 academic year, 56.9 tons of composted material was diverted from the landfill. 37.41 tons were diverted during the 2006-2007 academic year. The 2006-2007 Emissions Inventory for Warren Wilson College

shows that when composting offsets were factored into the overall methane emissions inventory resulting from solid waste, methane production decreased by 20 percent.



Student workers composting food scraps

An experimental composting system was trialed in 2003. During this trial year, 29 tons of pre- and post-consumer food wastes were collected to be composted, and the college decided that the system could not efficiently meet the college's needs. The abandonment of the system and loss of supervision from its designer resulted in a reaction site that had no more capacity to collect waste and was rapidly becoming an eyesore and a producer of odor. On February 15, 2005 the college purchased a GREENDRUM In-Vessel Composter, manufactured by BW Organics, after a year long research and grant-writing project spearheaded by the student Compost Manager, Phillip Shaw. The Recycling Crew began to collect food waste from both dining facilities after a state permit was granted in April of 2005.

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Warren Wilson College is the first institution of higher learning to use the GREENDRUM for both pre and post consumer food wastes. It has become a model of sustainability, and is being used to educate the community and its visitors.

The college has been ranked the nation's "Leading School for Waste Reduction and Recycling" in NWF Campus Ecology's "Campus Environment 2008: A National Report Card on Sustainability in Higher Education. The ranking marks the second major recognition Warren Wilson has received in 2008 for its recycling/solid waste operations. Earlier this year, the Carolina Recycling Association, comprising both Carolinas, gave its first award for Outstanding College or University Recycling Program to Warren Wilson College.

Commentary and Reflection

Due to the vision and drive of several students, Warren Wilson has become a model for waste reduction and closed-loop waste management. The GREENDRUM is a source of pride for students, faculty and staff, and has set a standard that requires academic institutions to use innovation and determination in order to take responsibility for their wastes.

ENGAGEMENT AND SUPPORT

After an arduous student-led research process, the GREENDRUM was determined to be the ideal composter. The hang-up, however, was that it was priced at \$20,000. The purchase of the Greendrum was negotiated and aided by a generous grant from an anonymous donor. The annual savings in fertilizer and mulch that are produced by the GREENDRUM instead of being purchased are estimated to be approximately \$5000.

CONTACTS

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Case study submitted by: Stan Cross

MORE ABOUT YOUR SCHOOL

The mission of Warren Wilson College is to provide an education combining liberal arts study, work and service with a strong commitment to environmental responsibility and experiential opportunities for international and cross-cultural understanding in a setting that promotes wisdom, spiritual growth, and contribution to the common good. A distinctive aspect of WWC is the Triad. The Triad is learning framework that includes academics, work and service learning. Each student is required to work 15 hours per week on work crews that are essential to the daily operation of the college, perform 100 hours of community service, and meet all academic expectations. WWC's commitment to sustainability has evolved over decades, and is an authentic outcome of the engaged, place-based learning that the Triad framework enables (for a comprehensive look at our campus greening history visit www.warren-wilson.edu/~elc/sustainability). Sustainability is a term we have come to understand at WWC in this way—sustainable practices take into account the environmental, social/cultural, and economic impacts of decisions. Sustainable practices seek to balance and honor all three areas. They are practices that will eventually insure quality of life on a planet we all want to live on, for all people, for generations to come.