

Nurturing Composting in North Carolina

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North Carolina is now in the second year of a concerted effort to stimulate the development of the composting industry in the state. This effort has resulted in greater amounts of solid waste diversion to composting and the growth of the separation, collection and composting components of the needed infrastructure. Future efforts will be directed at stimulating market demand for composts, enhancing the professionalism of the composting industry through training and education, and continuing to make investments in emerging and second-stage growth composting companies.

Organic wastes and wood wastes made up 24% of the 8,493,921 tons of solid waste landfilled in North Carolina in 1998. Food waste alone totaled over 862,500 tons. The trend over the past ten years has been a steady increase in both total tonnages and the *per capita* rate of waste generation. In more recent years, it has become obvious that North Carolina would not be able to meet its legislatively mandated goal of 40% waste reduction by the year 2001.

In recognition of this problem, the Division of Pollution Prevention and Environmental Assistance (DPPEA) in the Department of Environment and Natural Resources decided to refocus resources to increase waste reduction. In late 1997, the Division decided to recruit a full-time environmental professional to concentrate on organic wastes. The posted job description included:

“conducting research on the generation of organic wastes and for identifying the array of source reduction, recycling, composting and digestion alternatives for these wastes, including technical and economic feasibility of alternatives....plan and implement infrastructure building strategies and the application of technical assistance to address needs....deliver direct assistance to business, industries and government agencies, making recommendation for improvements in existing programs, assessing current and potential financial methods, producing cost/benefit analyses on various management alternatives and providing marketing assistance for recyclable or compostable wastes....responsible for administering waste reduction grants...”

I took the position in March 1998 bringing 20 years experience in developing beneficial use programs for municipal and industrial wastewater treatment sludges as well as fifteen years experience in small business management (my wife and I own a landscaping company).

An important component of the program is the administration of waste reduction grants. These grants are used to help emerging composting companies with growth needs,

and to finance capital equipment purchases, site improvements, research projects, educational and outreach initiatives and other public and private sector plans that result in increased waste diversion. In North Carolina, the Solid Waste Management Trust Fund was created by the passage of the Solid Waste Management Act of 1989 (“SB 111”) and is funded routinely by a fee on the sale of new tires, a tax on virgin newsprint, and an advanced disposal fee on white goods (appliances). The purpose of the Trust Fund is to provide funding for a range of solid waste management activities in support of achieving the state’s 40 percent waste reduction goal by 2001. Funding is intended for such activities as technical assistance to local governments, businesses, and other entities on solid waste issues; solid waste educational activities; research and demonstration projects; and recycling market development activities (G.S. 130A- 309.12). Revenues to the Fund in 1999 were \$868,312.

In late 1998, DPPEA conducted the first grant cycle aimed at reducing organic solid wastes. In October 1998, a Request for Proposals was sent to all interested parties, including local government agencies, and non-profit and for-profit organizations, soliciting project proposals for the reduction of organic wastes. DPPEA received 33 proposals requesting a total of \$737,393 in funding. In December 1998, DPPEA made grant awards to eleven recipients for a total award amount of \$183,543. These eleven projects included:

- “Food Waste Composting Feasibility Evaluation” – a project to evaluate the technical and economic feasibility of source-separating and composting (with windrows and aerated static piles) grocery store food wastes in Huntersville.
- “Increase Waste Wood System Capacity” – a project to expand the throughput capacity of a facility that processes waste wood from the furniture industry into hydraulic mulches and erosion control blankets in Conover.
- “Food Waste Diversion at the 1999 Special Olympics Games” – a project to demonstrate source-separation and windrow composting of pre- and post-consumer dining hall food wastes during the Special Olympics Games in the Triangle.
- “Waste Reduction Using Vermicomposting in Public Institutions” – a demonstration project using a vermicomposting system for handling food wastes at the NC Sampson Correctional Institution in Clinton.
- “InVessel Food Residuals Composting” – a demonstration project of food waste source-separation and invessel (rotary drum) composting at the Brown Creek Correctional Institution in Polkton.
- “Effects of Compost on the Growth of Christmas Trees in North Carolina” – an evaluation of the growth response and disease suppression characteristics with Fraser fir Christmas trees in Ashe County.
- “Composting Production and Marketing” – an evaluation of alternative floor aeration systems for aerated static pile composting of sawmill residuals and dairy manures in Buncombe County.
- “Sustainable Campus – A Community Project” – a project to implement source-separation and invessel (modular bin) composting at the University of North Carolina at Asheville.

- “Macon County Solid Waste Management Program” – expansion of the existing composting facility to incorporate source-separated food wastes from school cafeterias and restaurants.
- “WIN/WIN Mobile Pantry” – a project for a Food Bank to develop a mobile distribution system for edible food rescue and distribution in Charlotte and surrounding areas.
- “Custom Application of Biofertilizers” – a technology development project to evaluate wet and dry methods of distributing large amounts of finished composts in Chatham County.

A second grant cycle was launched in August 1999. A Request for Proposals was issued and 19 proposals, requesting \$449,937 in funding were received in October. In November, the Selection Committee decided to award grants to eight applicants, with the total award amount at \$180,237. These eight projects include:

- “Food Waste Diversion for Central North Carolina” – a project to continue development of the first source-separated commercial organics collection/composting effort in North Carolina.
- “Institutional Food Waste Composting Pilot Project” – a project by the University of North Carolina at Charlotte to divert pre-consumer food wastes from one of the campus dining halls to an on-site in-vessel composting system.
- “Manufacturing High Value Products from Residential & Commercial Food Waste” – expansion of an existing on-farm composting system to include source-separated grocery store food wastes in the Asheville area.
- “An Assessment of the Economic Impact of Compost on Open Ground Vegetable Production” – a project to examine the economics of compost utilization in large-scale conventional agriculture in Eastern North Carolina.
- “North Carolina Compost Promotional Initiative” – development of statewide compost market development and educational activities designed to stimulate demand for compost products.
- “Backyard Composting Demonstrations in Cherokee County” – a project to construct five composting demonstration sites in Cherokee County.
- “Aerated Floor Development and Testing Project” – a continuation of a previous grant-funded project to develop an alternative aerated compost bin system design.
- “Evaluation of Commercial Food Waste as a Raw Substrate for Co-Compost Products” – an examination of the feasibility of using thermophilic anaerobic digestion for source-separated food wastes.

The total investment of \$363,780 made since December 1998 is projected to result in diversion of an additional 23,000 tons of organic wastes from landfilling once all projects are up and running. This translates to a cost of diversion of \$15.81 per ton. This cost is considered conservatively high, as several of these projects are meant to stimulate market demand for composts, and will not produce measurable diversion until some point in the future.

In addition to these two dedicated organics grant cycles, DPPEA has funded several other composting projects: the creation of Backyard Composting (BYC) programs, development of an invessel composting system for seafood processing wastes and Special Event composting and recycling guidance. These projects are funded through another grant cycle for the Trust Fund, the Solid Waste Reduction Assistance Grants. Since 1998, DPPEA has invested approximately \$93,000 to encourage development of BYC programs in 14 communities, \$20,000 to prepare a guidance document on recycling and composting wastes from community festivals and special events and \$30,000 to help a local municipality develop an invessel composting system for seafood wastes.

North Carolina's organic wastes diversion program is moving toward its third year with several new activities in planning stages, including:

- Development of a Compost Operator and Training Course along the lines of the US Composting Council's Compost Facility Operator Training and Certification Program;
- Supporting Governor Jim Hunt's Executive Order No. 8, which requires State Agencies to practice more environmentally sustainable procedures, including "Agencies that operate or contract for the operation of food service establishments, such as snack bars, cafeterias, dining halls, etc., shall implement programs to recover and recycle leftover food when feasible.";
- Exploring the potential to adopt the USCC's Seal of Testing Assurance concept for composts produced in the State; and
- Supporting the development of a Compost End-Use web page, in concert with the USCC Research Foundation, which would make a wide variety of compost use information available to interested users.

Many challenges exist to successful implementation of our organic wastes diversion strategy, including low landfill tipping fees, lack of consistent compost product quality standards, insufficient training for composters, and most, if not all of the many issues that confront today's composting industry. Nonetheless, we are making progress.