

ENCOURAGING HOME COMPOSTING THE HANDS-ON WAY: LESSONS FROM CHARLOTTE-MECKLENBURG

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ABSTRACT

Since 1993, Charlotte-Mecklenburg (North Carolina) Solid Waste Management's popular home composting program has reached over 1500 households. The program offers hands-on workshops, free bin distributions, a compost demonstration garden and a how-to brochure and compost guidebook. Charlotte's hands-on home composting workshops teach a simple, inexpensive and effective method of making compost at home using a wire bin. Charlotte emphasizes teaching a specific composting method (a 'model' approach) in its home compost program, rather than using a 'museum' approach of displaying many types of home compost units. Home composting is less energy intensive than large-scale centralized compost processing. Estimated cost of Charlotte's home composting program ranges from \$21 to \$57 per tonne (\$19 to \$51 per ton) over 5 years. In Charlotte, 'macro' and 'micro' composters work together to implement community composting and to encourage public acceptance of composting as a resident-friendly and environmentally sound technology.

INTRODUCTION

Much like economists, composters split into two camps, the 'macros' and the 'micros'. 'Macro' composters, working on a scale of truckloads, tonnes and hectares (tons and acres), approach composting as a way to manage the mountains of organic solid waste generated by modern cities, industries and agriculture. Meanwhile, measuring in wheelbarrows, buckets and shovelfuls, 'micro' composters see composting as a way to grow bigger tomatoes and healthier zinnias, and to help the environment by transforming banana peels and autumn leaves into 'black gold' for their gardens.

The biological processes in a well-managed backyard compost pile are fundamentally the same as those in a carefully monitored aerobic windrow at a municipal composting site. Nevertheless, 'micros' and 'macros' speak different languages. 'Macro' composters discuss aerated static piles and process kinetics; 'micro' composters talk about the ratio of 'browns' to 'greens' and whether or not to add coffee grounds or eggshells. Sometimes, it is hard to see what the two have in common.

In truth, both approaches transform 'wastes' into resources for building soil fertility and safeguarding the environment. Working together, 'macro' and 'micro' composters can help increase public acceptance of composting as a community-friendly and environmentally sound technology, and, at the same time, advance the science and art of composting.

Community-sponsored home composting programs help build a synergistic relationship between 'macro' and 'micro' composting. In 1994, Johnson found and surveyed 539 community home compost education programs around the United States and Canada (Johnson, 1995). Since 1993, Charlotte-Mecklenburg Solid Waste Management has sponsored a home composting program. Lessons from Charlotte can be useful for other communities interested in encouraging home composting, especially in the southeastern US.

CHARLOTTE-MECKLENBURG'S HOME COMPOSTING PROGRAM

Charlotte-Mecklenburg Solid Waste Management, a county agency, converts yard debris to mulch and compost, using a windrow system, at two large sites. Yard wastes may not be landfilled in North Carolina. The city and

county collect yard waste from the curbside weekly throughout the year. Charlotte launched its home composting program, in part, as a way to cut the amount of yard waste put out for collection, to reduce pressure on its 'macro' facilities so they can run more efficiently.

Charlotte-Mecklenburg's composting operations offer mulch and compost for sale, both on site and through a contract with a private firm that markets the compost under the 'Eco' brand. Home composting workshops and displays at 'The Compost Garden', located at Compost Central, the county's 25 acre yard waste composting facility, offer a way to publicize and market the mulch and compost, and increase positive public awareness of the county's yard waste operations.

Key elements: Charlotte-Mecklenburg's home composting program features four key components; hands-on workshops, free bin distributions, a compost demonstration garden and a how-to brochure and compost guidebook. Workshops teach residents a simple, inexpensive and reliable method of home composting. Over 1000 people have attended hands-on home composting workshops since 1994. In addition, the county has distributed almost 500 free bins at locations throughout the city. The Compost Garden is attractively landscaped with low maintenance plants well adapted to the Piedmont, and features informational signs on composting and examples of home compost bins. County residents can obtain a composting guidebook and brochure specifically designed to accompany workshops.

A brief history: The roots of Mecklenburg County's home composting program go back to January 1990, when Charlotte environmental activist Martin Webster contacted the county on behalf of the 'Pile-it Project', a citizen-based home composting initiative. Brenda Barger began working on the program in 1992, when Cary Saul of Solid Waste Management named her to a newly organized Backyard Composting Education Team.

Cooperative Extension Master Gardeners joined the effort in 1993, working with Steve Elliot, Compost Central's site manager, to create a 'vision' for a home composting demonstration garden at Compost Central. Early in 1993, representatives from Mecklenburg County Waste Management and Cooperative Extension visited the National Horticulture Society (NHS) National Home Compost Park in Alexandria, Virginia, set up by Joe Keyser, as well as home compost demonstration sites in North Carolina. After these visits, Cooperative Extension Agent Ted Caudell and Master Gardeners designed a 0.3 ha (3/4 acre) Compost Garden for Compost Central.

The Compost Garden opened in July 1993, with more than a dozen models of commercial and homemade backyard composting bins on display. Landscaping featured drip irrigation and well-adapted native plants, herbs and perennials. The front section of the garden was designed for workshops, with benches made from recycled plastic.

Martin Webster taught Charlotte-Mecklenburg's first two home composting classes in August and September of 1993 at the Cooperative Extension Auditorium in the Hal Marshall Center in downtown Charlotte. Following a 1 hour indoor lecture-demonstration, participants took an optional field trip to the Compost Garden.

After Webster relocated to the Asheville (NC) area, Don Boekelheide was hired in early 1994 to work with the county's Susan Richards to write a composting guidebook and to organize and teach a series of workshops. Boekelheide, a returned Peace Corps volunteer with an agriculture background, suggested changing the composting workshops to 'Peace Corps-style' hands-on activities held outdoors in the Compost Garden. These workshops proved popular, and have been offered annually spring and fall since April 1994.

In fall 1996, building on the success of the home compost program, the county sponsored a free bin distribution and gave away over 150 bins in an hour. The following year, Boekelheide teamed with the county's Bobbie Campbell to write a \$10,000 North Carolina state grant to fund four 'neighborhood compost fairs' in Charlotte. Over 300 people received bins and saw a composting demonstration at these fairs. The grant also provided funding for revising the 'how-to' compost brochure and for a survey of bin recipients. The survey found that over 80% of free bin recipients continue to compost after six months.

METHODS USED IN CHARLOTTE'S HOME COMPOSTING PROGRAM

Best practices: Charlotte actively seeks out and researches home composting programs in other communities. Before preparing printed materials, staff carefully reviewed pamphlets and documents from other programs, including those from the Pacific Northwest (Seattle, 97; VanMiert, 91) and the National Horticultural Association (Keyser, 93). The World Wide Web, especially the Cornell University Compost Site (Cornell, 98) and the Home Composting Listserv (Home Compost, 98), has provided invaluable information and feedback.

Hands-on extension-style workshops: For a \$5 workshop registration fee, participants receive a wire compost bin and a guidebook on composting which covers the method taught in the workshop. Workshop participants learn a specific compost making method that is inexpensive, efficient and predictable in Charlotte's climate. Even composting novices leave ready to set up a bin at home and succeed in composting.

Composting workshops are taught outdoors, hands-on. In classes of 8 - 20 (12 - 16 is ideal), participants build a bin just as they will in their backyard, using fallen leaves. Each workshop also 'turns' (remixes) a compost pile built by the previous week's workshop, and adds kitchen scraps to a pile. Workshop members also see finished and actively decomposing compost in bins built by earlier workshops.

Compost workshops are offered on Saturdays during a 5 to 6 week period in the fall, beginning with the leaf drop in October; and again in the spring, beginning in mid-March. Each workshop lasts 2 hours. Two sessions are held each Saturday, one in the morning, one in the afternoon.

Inexpensive large-capacity bins: Workshops use a simple bin, a cylinder formed from a length of 5 cm x 10 cm (2 in x 4 in) welded wire fencing 90 cm (3 ft) tall and 3.8 m (12 ft 6 in) in length. This cylinder holds slightly over 1 m³ (roughly 1.4 yd³) of materials.

Charlotte chooses to keep home composting simple and low cost, requiring no mechanical shredding or special equipment. The low cost of the wire bins (\$4.50 per unit) keeps workshops and free bin distributions affordable. The large bin is ideally suited to yard waste composting under local conditions. (An accompanying paper, entitled *Charlotte-Mecklenburg's Hands-on Composting Workshops and Home Composting Method: A Technical Description* (Boekelheide, 98) details technical aspects of Charlotte's home composting system.)

Free bin distributions: Mecklenburg County has sponsored 5 free bin distributions, each with a live demonstration of the composting method. The first was held at the Compost Garden in the fall of 1996; the others are grant-funded 'Neighborhood Compost Fairs' at school and community garden sites in Charlotte in the fall of 1997. The county has distributed over 500 bins through these events.

On-going evaluation and research: Workshops, free bin distributions, and the compost method itself are the subjects of continuous evaluation and on-going research. The bins set up during hands-on workshops are a valuable source of information on the composting process, and have helped fine-tune the compost method we teach.

All workshop participants fill out an evaluation form after each workshop. Both the workshop instructor and Solid Waste Management staff review these evaluations. Staff recently conducted a well-designed survey of all recipients of free bins during the 'Compost Fairs', with assistance in procedure and data analysis from Dr. Diane Zablotsky of the University of North Carolina, Charlotte Department of Anthropology and Sociology.

Future activities: Solid Waste Management is considering a new compost demonstration site closer to downtown Charlotte, in cooperation with Mecklenburg County Park and Recreation; a 'Master Composter/Recycler' program modeled on the Cooperative Extension 'Master Gardener' program; offering more information and possibly workshops on natural landscaping, grasscycling, compost use in gardens, and vermiculture; and creating school materials for science education based on composting and vermiculture. Ann Gill has joined the Waste Reduction staff to manage and expand the home composting program, under the direction of Waste Reduction Program Manager Loret Hall.

DISCUSSION

The importance of home composting: Although the amount of compost processed in a home bin is tiny compared to that processed in large composting operations, there are nonetheless unique strong points for a backyard approach. As Chiras points out:

'Leaves, grass clippings, branches, and organic kitchen wastes can be deposited in small backyard bins where they decompose over time. Far less energy intensive than municipal composting programs, which often require weekly pickups and massive machinery to process the compost, a backyard compost bin takes very little effort on the part of the homeowner. Bacterial and other microorganisms do most of the work. An occasional application of water and a periodic turning of the pile is about all a homeowner need do to produce a rich organic soil supplement' (Chiras, 92).

Home composters also play a role in shaping the public perception of composting. Home composters can be persuasive 'good will ambassadors' for composting, both 'macro' and 'micro', able to explain the benefits of composting across the back fence to neighbors who have little knowledge and sometime negative stereotypes about composting.

'Museum' or 'Model'? Home composters can choose among scores of compost-making devices available for purchase, some sturdy and effective, others less so. Reflecting the marketplace, some home composting programs present would-be home composters with a host of choices. Many home compost demonstration areas, notably The NHS National Home Compost Park, are organized as 'compost bin museums', featuring everything from wooden three unit compost bins to rotating compost tumblers.

Charlotte's Compost Garden used the 'museum' approach when it first opened. Over time, however, Charlotte's program has changed direction. Instead of offering a 'museum', the Compost Garden and workshops now emphasize a 'model', a single inexpensive reliable method of composting that is easy to master.

Which approach is better? Each has advantages and disadvantages, and the two are not mutually exclusive.

A 'museum'-style composting demonstration site is relatively easy to set up if funds are available, and requires little home composting expertise. Building a garden is the type of project that attracts volunteers and favorable press coverage. However, once the site is completed, someone must continue to work on a regular basis to keep it in good condition, especially if bins are used to make compost as a demonstration. This has proven difficult logistically in Charlotte. A poorly maintained site may hurt home composting's public image more than it helps.

A 'model' approach does not even require a permanent site, although one is helpful. Classes to teach or demonstrate the model can be held at community or school gardens, in backyards, or wherever materials and space are available. However, designing a model system and teaching hands-on compost classes requires staff skilled in both home composting and teaching or extension. (Influential and effective home composting teachers, such as Jim McNelly or Richard Merrill, make and use compost in their own gardens, and have years of experience doing so.) In Charlotte, community members with the needed expertise are hired on a contract basis, which requires county staff time for working with and managing contracts. A good working relationship among all parties is essential. Some communities draw on Master Gardeners or specially trained Master Composter volunteers as teachers, but this also requires staff time to train, organize and support the volunteers.

Compost utilization in the backyard: Many enthusiastic novice composters are also enthusiastic but novice gardeners, with little idea of how to use compost most effectively in their gardens. Home composting classes must teach how to use compost. An obvious ally in this effort is Cooperative Extension, particularly Master Gardeners. A handout or brochure illustrating compost use and listing optimum amounts for different purposes (for instance, initial vegetable bed preparation, topdressing shrubs, and so on) makes a helpful addition to workshop materials.

Estimated amount of diversion and cost-per-tonne: Estimating the cost-per-tonne of home composting programs is difficult, since much depends on the behavior of the composter (for instance - How many piles do they make per year? Do they compost kitchen scraps as well as leaves?). Further research in this area, especially following up with workshop participants to assess their composting patterns, would be of great value. For this paper, the cost-per-tonne estimate uses reasonable assumptions based on personal experience with home composting, discussions with workshop participants, and the recently completed survey of Compost Fair participants.

Since 1994, approximately 840 tonnes (924 tons) of waste have been diverted by the home composting program. The waste is mostly leaf drop, with some garden debris and kitchen scraps. The estimated cost per tonne \$21.43/tonne (\$19.48/ton), comparing favorably with the cost of large scale MSW composting at \$50 per ton (Renkow, 96). The cost per ton for the home composting program will continue to drop each year the program is in operation. Alameda County estimates the cost of their home composting program to be \$18/ton (\$19.80/tonne) (Alameda, 1997). This does not consider the value of compost to residents. Using assumptions based on the survey, home composters have produced over 275 tonnes of compost for home use. At the retail price of \$3.75 per bag (1.5 ft³ (~40 lb, or ~18 kg)), home composters would have paid over \$160,000 for an equal amount of Charlotte's municipal yard wastecompost purchased bagged at the garden store.

CONCLUSION

Charlotte's home composting program has made a positive contribution to waste reduction and a healthier environment since its beginnings in 1993. This cooperative effort has been lead by Mecklenburg County Solid Waste Management, in partnership with NC State Cooperative Extension and citizen environmental groups.

Charlotte-Mecklenburg's popular program has supplied over 1500 families with the materials and know-how they need to compost successfully at home, by teaching them a simple composting method that works. These successful home composters reduce the amount of material which large public composting facilities must process, act as 'good will ambassadors' for composting with their neighbors and friends, and make a personal contribution to waste reduction and the environment while improving their own garden soil.

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