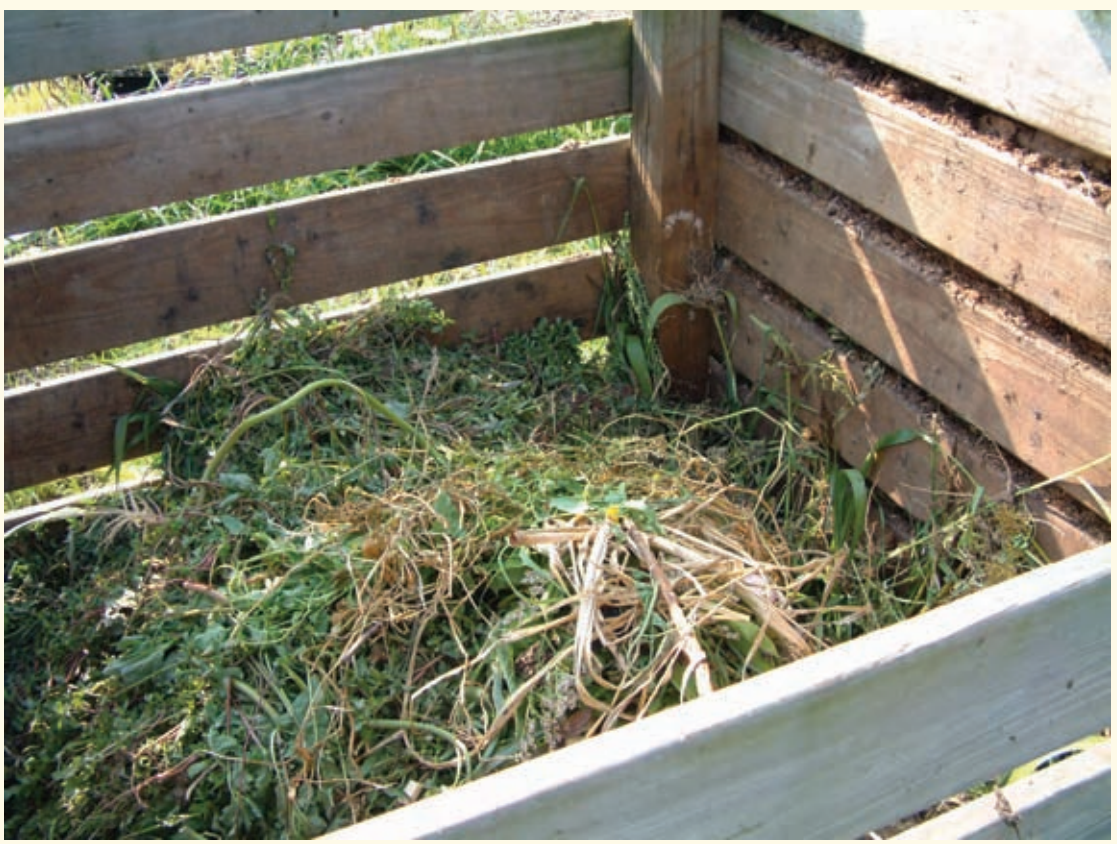
# COMPOSTING

*By Andrew H. Baker, Farmpark Administrator*

Driving through the New England countryside, my Dad would roll down the window of the Rambler and take a deep breath of the fresh spring air, redolent with the smell of freshly manured fields. For him it was a pleasant reminder of his youth. To us kids in the back seat, it was, "Eeuw, close the window!" However, I have since come to appreciate the smells of the farm, having shoveled a lot of manure at part-time jobs and as an interpreter portraying a nineteenth century farmer.

Manure management was important to nineteenth and early twentieth century farmers since manure was their primary source of fertilizer. Efforts to make manure and preserve it from the elements were the initial reasons for the cellars placed under most barns during this period. Today, as farms have become specialized and larger in scope, the management of manure is a critical issue because there is too much manure in one place. Run-off from farm operations has been identified as a source of pollution in many waterways. The large lagoons used to collect liquid waste from feedlots, poultry facilities and hog operations have caused local residents to voice concern about smells, flies and fear of spills into waterways. Farmers are pressured to clean up wastes in a more environmentally friendly manner.



As concerns for the management of animal wastes grew in the agricultural community, experimental composting programs were undertaken at facilities like Ohio Agricultural Research and Development Center in Wooster. Although Farmpark is not a large-scale operation, manure management is still an issue. While we need manure to improve our clayey soils, the quantity of fresh manure from our animals at certain times of the year is more than we are able to handle on our fields.

Farmpark Operations Manager Rob Preseren worked with officials from the Soil and Water Conservation District and the Department of Natural Resource Conservation Service to develop a Comprehensive Nutrient Management Plan and design an approved composting pad. During 2002 and 2003, Lake Metroparks, with support from a state grant, built a 60′ x 120′ concrete pad to EPA specifications and purchased a compost turner.

Composting involves mixing appropriate materials to achieve the proper carbon-to-nitrogen ratio. (The ideal ratio for composting is 30:1.) Decomposition produces heat, and a well managed process produces enough to kill harmful bacteria. Properly composted manure piles are turned frequently to continually mix the materials, prevent overheating and provide oxygen to the pile. Overheating can kill beneficial microbes while lack of oxygen will slow the decomposition process and cool the pile down. Farmpark staff use temperature and oxygen probes to determine when the pile should be turned again. Under good conditions, manure and straw bedding from sheep,

cows and pigs can be turned into finished compost in 30 to 90 days. The composting operation provides us with plenty of ecologically sound organic material to use in the gardens and on the fields.

Metroparks staff are also experimenting with composting the less desirable mixtures of horse manure and sawdust bedding to determine what techniques work best. Sawdust has a 500:1 carbon-to-nitrogen ratio, so when sawdust predominates in the manure it takes a long time to break down. Sawdust actually takes nitrogen from the soil as it decomposes.

Additionally, with support from Greta and Hugh Pallister, Farmpark staff constructed an interpretive kiosk next to the composting pad. The three-sided kiosk provides information on the composting process and our composting operation. Combined with our active garden composting display at the Plant Science Center, it provides visitors with information on the science of composting.

*Information kiosk next to Farmpark's composting pad.*

# Home Composting

Composting is a simple process that allows you to recycle garden waste into a nutriment rich addition for your garden. Using the equation of three parts high-carbon material plus one part high-nitrogen material, plus water, and you'll get a healthy, productive compost pile.

The key to a successful pile is to fluff the pile as more ingredients are added and to turn the pile at least once a month. This moves material from bottom to top, allowing air to penetrate and aid breakdown of organic materials.

The ideal pile should be three feet to four feet cubed. If too small, the pile won't hold heat; if too large, air cannot get inside to reach microbes at the center of the pile. Proportions are important if your goal is fast, hot composting. However, exact measurements are not required for slower composting.

| Material | Carbon-to-Nitrogen Ratio |
|---|---|
| Food waste | 15:1 |
| Wood | 700:1 |
| Sawdust | 500:1 |
| Straw | 80:1 |
| Grass clippings | 19:1 |
| Leaves | 60:1 |
| Fruit waste | 35:1 |
| Rotted manures | 20:1 |
| Cornstalks | 60:1 |
| Alfalfa hay | 12:1 |

*Ideal ingredients for home composting are:*

- Grass clippings
- Leaves (best chopped)
- Coffee grounds
- Green garden wastes (disease free)
- Vegetable scraps

*Do not use:*

- Meat scraps
- Bones
- Cooked food
- Herbicidal ingredients
- Dog, cat or human waste

# Benefits Beyond the Bin

***Compost can:***

- Suppress plant diseases and pests.
- Reduce or eliminate the need for chemical fertilizers.
- Promote higher yields of agricultural crops.
- Facilitate reforestation, wetlands restoration, and habitat revitalization efforts by amending contaminated, compacted, and marginal soils.

## Pollution Solution

***Compost can:***

- Cost-effectively remediate soils contaminated by hazardous waste.
- Remove solids, oil, grease, and heavy metals from storm water runoff.
- Capture and destroy 99.6 percent of industrial volatile organic chemicals (VOCs) in contaminated air.
- Provide cost savings of at least 50 percent over conventional soil, water, and air pollution remediation technologies, where applicable.

Source:
U.S. Environmental Protection Agency
www.epa.gov/epaoswer/no-n-hw/composting