OhioEPA State of Ohio
Environmental Protection Agency

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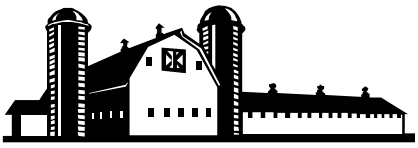
Fact Sheet

COMPOSTING: A DISPOSAL OPTION FOR DEAD ANIMALS



One of the aspects of raising livestock and poultry is management and disposal of dead animals. In the past, disposal was limited to burial on the farm or in a landfill, on-farm incineration, and renderer pickup. Now composting is another option available to farmers, which provides a cost-effective and environmentally friendly way for disposal of animal carcasses. A properly designed and managed composting operation degrades animal carcasses to a safe and useful soil amendment, without the presence of nuisances such as foul odors, flies, and scavenging birds or animals. Methods for dead animal composting were originally developed for broiler chicken farms, but have been successfully used for swine, cattle, horse, sheep and goat carcasses. Composting can be used as an alternative disposal option for individual deaths or catastrophic events where an entire population is lost to disease or other natural disasters.

How composting works

The composting process uses soil organisms to decompose organic material in an aerobic environment. Although it is a natural process, composting requires a balance of air, water, nutrients, and carbon. This balance is needed to begin and sustain the process in order to generate high enough temperatures to reduce pathogens, odors and leachate. The total time required to complete the compost process ranges from two to six months.

Material mix

An optimum mix of compostable material includes the animal carcass, which provides nitrogen and water, and fibrous materials that are high in carbon such as sawdust, straw, paper, and cornstalks. Various recipes for compost mixes can be developed. To reduce the need for new carbon-rich materials, old compost can be used in the compost mix. However, new carbon-rich material, such as sawdust, should account for at least half of the mix to ensure enough carbon is present. Livestock bedding and poultry litter can be used if it is dry and contains very little manure.

When composting dead animals with a carbon source other than sawdust, a roof is required. Because of sawdust's unique ability to shed water, it is the only carbon source appropriate for use without a roof.

Materials useful for mortality composting:

- Sawdust
- Cornstover
- Peanut hulls
- Yard waste
- Hay
- Rice hulls
- Straw
- Chopped soybean stubble
- Wood shavings/chips
- Recycled paper/cardboard
- Leaves
- Chicken litter
- Manure and bedding (horse, sheep, swine)

Source: OSU Extension, Ohio's Livestock and Poultry Mortality Composting Manual, 2000.

Moisture

Moisture content is very important for effective composting. Not enough moisture dehydrates and preserves animal tissues, whereas too much moisture decreases air flow and produces foul odors and contaminating liquids. The moisture content of the mixture should be between 50 and 60 percent. For example, a handful of compost, when squeezed, should leave wetness on your palm without forming drops.

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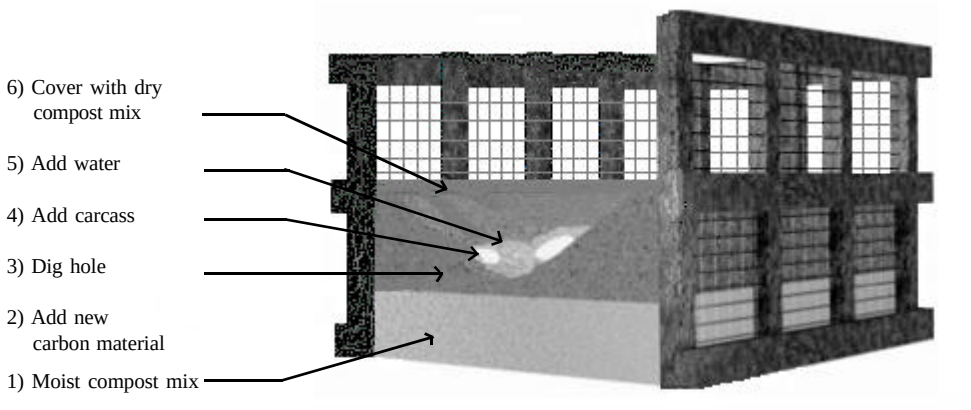
Temperature

Compost is turned for aeration and mixing once or twice during the active compost period and prior to moving to a curing pile. During the active compost period, heat produced slowly degrades the animal carcasses. The temperatures generated (between 130 to 150 EF) are high enough to kill disease causing organisms.

Composting systems

Dead animal composting can occur in back yard-sized bins called minicomposters, buildings specifically designed for composting, temporary open bins made of large hay bales, and windrows or piles on a paved or well-drained soil surface. Bins constructed of lumber or concrete with a roof and located on an impervious surface are ideal.



Example of a minicomposter. Source: Maryland Cooperative Extension Fact Sheet 717.

Minicomposters, like the one shown above, are designed for small animals such as poultry. Minimum dimensions, for adequate heat retention in the mass, are 36 inches in height and 40 inches square. Larger animals and equipment require larger bins, but bin height shouldn't exceed five feet.

For more information

Before attempting to compost animal mortalities, you should have a full understanding of the composting process. Reading composting publications and attending educational meetings or classes are ways to increase your knowledge. If you don't have experience, small-scale composting with yard waste and/or animal manure should be practiced first. This will increase your rate of success with mortality composting.

To find out about the requirements for dead animal composting in Ohio, contact the Ohio Department of Natural Resources, Division of Soil and Water Conservation at (614) 265-6610 or Ohio EPA, Division of Solid and Infectious Waste Management at (614) 644-2621.

BOOKS:

- The Complete Book of Composting by Rodale Books, Inc., 1007 pp.
- On-Farm Composting Handbook by Natural Resource, Agriculture, and Engineering Service (NRAES), 186 pp.
- Field Guide to On-Farm Composting by NREAS, 128 pp.
- Ohio's Livestock and Poultry Mortality Composting Manual distributed by OSU Extension, 118 pp.

WEBSITES:

- Ohio State University, College of Food, Agricultural and Environmental Services: ohioline.ag.ohio-state.edu/
- U.S. EPA Solid Waste Composting: www.epa.gov/epaoswer/no-hw/compost/
- Ohio EPA Solid Waste Composting: www.epa.state.oh.us/dsiwm/pages/compstpro.html
- U.S. Composting Council: www.compostingcouncil.org/index.html

MAGAZINES/NEWSLETTERS:

- Biocycle by JG Press, Inc., also available on the internet at: www.biocycle.net.
- Composting News by McEntee Media Corp, their website address is: www.recycle.cc.

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