

Introduction to the pros and cons of composting

Composting has been revived as a way to deal with manure, odor, and water pollution. In general, finished compost is a rich, humus-like material that is an excellent soil-conditioner and soil structure enhancer, while providing nutrients for crop production. Soil nutrient-holding capacities and water-retaining capabilities are also improved. The formation of compost occurs when mixtures of organic materials like manure and bedding decompose in the presence of oxygen along with a carbon source and a low moisture content. Composting may be beneficial on farms where problems exist for odor, flies, nutrient management, polluting runoff, or lack of manure storage.

If manure management is a specific problem for a dairy operation, composting can create a product that is lower in moisture and biological activity than fresh manure. Well composted animal manure has the odor of humus and is usually acceptable for land application in locations where fresh manure would be objectionable. Volume reduction can range from 25-50 percent, depending upon the initial material. Because compost contains less water and weighs less than fresh manure, this may allow more convenient storage and handling, particularly compared to daily spreading. The final product stores well, causing very few problems with odor or flies. Compost releases nutrients more slowly than commercial fertilizers so it won't burn crops and will feed them over a longer period of time. The extent to which nitrogen is conserved in the composting process depends largely on the carbon-to-nitrogen ratio. Carbon-to-nitrogen ratios above 30:1 generally result in very little nitrogen loss, however, more time is required to reach completion because nitrogen is a limiting nutrient.

Composting is not a solution for every farm situation. Depending on the size and scale of the animal operation, initial time and monies for site preparation, planning, permitting, and any possible equipment investments need to be evaluated. It can involve a lot of time and money to manage and maintain; for example, supplying carbon sources and managing the moisture content. Small to mid-sized operations can probably utilize equipment already on the farm for the volume of manure to be generated. Larger operations may need to invest in more equipment.

Any type of alternative in handling manure involves costs. Some questions producers can ask themselves before pursuing composting are:

1. What quantity of organic material is available to compost and at what price?
2. What kinds of on and off-farm materials are available?
3. Is a consistent source of clean, low moisture, high carbon amendments available?
4. How much land can be devoted to composting? Serious producers probably need to consider at least an acre of land with suitable slope, drainage and access.
5. What are the expected markets or uses for the finished compost?

Every farm will have variable costs that are specific to their operation. Examples would include labor, fuel prices, land value, and purchasing and maintaining equipment.

More information on composting can be found on the web at

<http://www.age.psu.edu/extension/index.html> under solid waste management. NRAES has some publications on composting including *Field Guide to On-Farm Composting* NRAES-114 (\$14) and *On-Farm Composting Handbook* – NRAES – 54 (\$25) at <http://www.nraes.org/publications.html>