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BROILER TIP . . .

COMPOSTING DAILY MORTALITY

Poultry producers in the United States have to deal with numerous issues in the day to day operation of their facilities. One important issue is the disposal of their daily mortality. Several options are available to poultry producers, including: burial, incineration, rendering, and composting. Available options are becoming more restrictive with rising processing costs and continued concerns of environmental safety. The objective of this broiler tip is to inform readers of the viability of composting daily poultry mortality, not only as a means of dead bird disposal but also as a means of maintaining good environmental stewardship.

While there are several options available for mortality disposal, issues of environmental concerns have been raised regarding some of these alternatives. The use of burial pits has been eliminated as a disposal option in much of the United States due in part to the discovery of undecomposed carcasses unearthed years after burial. The utilization of rendering facilities have been limited due to high transportation costs to these facilities and the issue of incorporation of feathers during the rendering process. The use of incineration is now popular and is used by a large number of poultry producers where pits are outlawed. While it is one of the most biologically secure methods of dead bird disposal, the rising price of fuel globally is making incineration a very expensive method of disposal. Incineration also poses concerns of air quality due to particulate emission and odors associated with the process.

Composting is considered to be a positive method for disposing of daily mortality. It is simply a natural biological decomposition process that takes place under aerobic and thermophilic conditions. The composting process is achieved by combining carbon source (e.g. litter, including straw, wood shavings, peanut hull etc.) and nitrogenous sources (dead bird and manure), mixed with water and oxygen to meet aerobic microbial metabolic requirements. The carbon to nitrogen ratio should range from 25:1 to 40:1.

The process is achieved by layering the carbon source with the nitrogen source until the pile reaches 5-6 feet in height.

PUTTING KNOWLEDGE TO WORK

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The process will proceed as the temperature of the pile rises to 140° to 160° F which will promote the growth of thermophilic microbes which promote rapid decay. The moisture content of the pile should be 40-60%; the process will not operate effectively if the material is too wet or too dry. Temperature is one of the most important factors in the composting process and the temperature of the pile should be monitored on a daily basis as this will inform you of the progress of the decomposition process. Oxygen and moisture content within the pile are also important since the microbes involved in the process are aerobic organisms which require oxygen in order to survive. Too much moisture in the pile will reduce the oxygen content and convert the environment to an anaerobic one thereby changing the microbial profile resulting in the cooling of the pile and slowing down of the decomposition process slows down.

For daily farm mortalities it is recommended that the composting be done in bins in a two phase composting process, which involves a primary phase and a secondary phase. The primary phase as the name suggests is the first stage of the process. It involves the rapid increase in temperature up to 140° or more after which it will gradually decline. The primary phase can last from seven to twenty-one days depending on several factors including; temperature, size of birds and source of carbon material. When the temperature drops to below 120° this marks the end of the primary phase and the pile is reconstituted and turned for the secondary phase.

The secondary phase is achieved by transporting the compost from the primary bin and placing it in the secondary bin (turning) for a second heating phase. Water is added to the pile if it is too dry and the pile is capped with additional litter to cover any un-decomposed carcass that may be exposed.

Setting up a compost facility on your farm for daily mortality composting can be as simple as modifying a section of your litter storage facility to a more complex process of constructing a structure specifically for composting. It is recommended that the structure have a roof and concrete floors. The walls of the bins can be either wood or concrete.

While composting your daily mortality requires more management than the other methods that are practiced, composting makes it possible to transform what would be considered waste into an end product that is easy to transport, easy to store and is in fact a valuable soil amendment.

Additional information on composting poultry mortality can be obtained at: www.poultry.uga.edu/extension.



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Extension County Coordinator/Agent

Consult with your poultry company representative before making management changes.

“Your local County Extension Agent is a source of more information on this subject”