Vegetative Treatment of Compost Site Runoff

Changes made last year to the Rules for Bodies of Dead Animals (BODA) have brought alternative methods for composting into the spotlight. This article focuses on the potential use of vegetative treatment or filter strips around the composting site.

Since the filing of the latest Rules for the Bodies of Dead Animals (BODA) Act in September 2007, much has been said about new alternative methods of composting. This spring and summer many producers will be putting new mortality composting practices into place in their farms. Though much could be said about these rules, this article focuses on the potential use of vegetative treatment or filter strips around the composting site.

Specific rules were included to protect surface and groundwater. During rainfall and storm events, nutrients and contaminants wash through uncovered compost. This is very similar to what happens with manure, silage storage, feed preparation areas, and waste water from animal holding areas. Runoff or effluent may be directed over a vegetative area to reduce amounts of nutrients, organic compounds, and pathogens that leave the compost site and potentially pollute the waters of the state.

Farms producing over 20,000 pounds of mortality (bodies of dead animals) annually and all animal processing operations (e.g. butcher plants, livestock collection points) are required to compost in a concrete lined storage structure designed in accordance with the liner criteria in the NRCS Waste Storage Facility standard (CPS-313). In addition, BODA Rules require that effluent leaving uncovered compost on these farms must be reintroduced immediately back into compost, collected and stored for crop production, or diverted to a wastewater treatment strip designed and constructed according to the NRCS Wastewater Treatment Strip standard (CPS-635). CAFOs under General Permit cannot use a wastewater treatment strip, unless they have applied for an Individual Permit.

One essential component of a wastewater treatment system is a collection structure or a settling basin. The collection structure is designed to settle and collect solids and collect any dry weather leachate. The structure must have the capacity to collect the runoff water from a 25-year, 24-hour storm event (3.56 to 4.48 inches of precipitation, depending on location in Michigan) falling on the composting area and the area of the structure itself. Wastewater leaving this structure and going to the rest of the system must flow at a rate less than that caused by a 2-year, 24-hour rainfall event (2.09 to 2.42

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inches depending on location in Michigan). The first 100 feet of the grass treatment strip must be at least 1% slope so that runoff does not pond and kill plants. The entire length of the treatment strip must provide at least 15 or 30 minutes of flow time for filtering and infiltration depending upon whether an overland or channelized treatment strip is used. A dense and vigorous vegetative stand and a shallow, uniform flow depth are critical for proper functioning of a filter strip. Concentrated or rill-causing flow is not acceptable because there is inadequate contact for removal of nutrients, solids, and other contaminants among the water, vegetation, and soil. Harvest of the vegetation in the treatment strip is beneficial, but the vegetation must be maintained at a height of four inches or more (see NRCS Operation and Maintenance Plan at: <http://www.mi.nrcs.usda.gov/technical/engineering/O&M_Plans.html>). Upright vegetation provides better treatment than lodged or flattened vegetation. Strips may be flashed-grazed, allowing the livestock access to the wastewater treatment strip when soil moisture conditions are low enough that loss of vegetative stand and compaction are avoided.

Farms producing less than 20,000 pounds of mortality annually may choose to compost on bare crop ground. Collection of effluent is not required, but it must not cause a violation of any federal, state, or local laws. Runoff must not pond in a low area and should be directed to a filter strip around the compost site. A filter strip is not the same thing as wastewater treatment strip. The NRCS Filter Strip standard (CPS-393) is intended for edge-of-field losses. These smaller composting sites which are located on bare crop ground must be moved to a new location every 2 years so a wastewater treatment strip system is not practical.

More information about a wastewater treatment system or a filter strip can be obtained from your local Michigan NRCS Field Office. A complete copy of the BODA Rules can be found at <http://www.msu.edu/~rozeboom/>.