

GUIDANCE FOR COMPOSTING OF MASS MORTALITY FROM HURRICANE MATTHEW

Composting has been used successfully to manage mortality from hurricane impacts as well as other natural disasters. The end result of the compost process is an organic material with fertilizer value for land application to crops on agricultural land.

RECOMMENDED SITE ASSESSMENT CRITERIA (OUTDOOR COMPOSTING)

- Perform adequate assessment of outdoor composting areas to prevent contamination of groundwater or surface water by pollutants such as dissolved solids, nitrates or ammonia from decaying organic materials.
- Adequate assessments for outdoor composting should consider the predominant soil type and its textural properties.
- The outdoor compost site should be located so as to minimize the effect of stormwater runoff.
- Composting should not be conducted in the tiled area of an under-drained field.

RECOMMENDED BUFFERS AND SETBACKS (OUTDOOR COMPOSTING)

- Compost areas should be at least one foot above the seasonal high water table. Soil textures coarser than loamy sand may require a greater separation distance to the seasonal high water table.
- 100 feet from residences.
- 50 feet from the property boundary unless the owner of the adjacent property is the same person or entity.
- 50 feet from intermittent, perennial streams or public body of water.
- 25 feet from ephemeral streams, waterways or ditches.
- 100 feet from an existing well.

Alternative setbacks may be determined based on site-specific criteria.

RECOMMENDED PROCESS MANAGEMENT CRITERIA

- Adequate carbon material should be available to ensure that a balanced carbon-to-nitrogen ratio can be created. Sources include woodchips, sawdust, litter, bedding material, hay, etc. Carbon sources with particle sizes greater than 1-2 inches should not be considered.
- Construct indoor or outdoor windrows with a 12-15 inch base of carbon material 8-12 feet wide (alternative sizes may be considered).
- Use available equipment to combine carcasses and carbon/litter material together prior to placing it on the 12-15 inch base.

- Windrow construction should prevent carcass exposure.
- Construct windrows to a 4-8 foot height and cap with 12 inches of carbon material with sufficient structure to remain in place during normal weather events.
- Moisture should be added (if necessary) to keep piles within a 40-60 percent moisture range. Leachate from the base of the windrow is indicative of excessive moisture within the windrow and additional carbonaceous material may need to be added. Leachate should not discharge to any surface water body, waterway or ditch.
- Compost should be managed as instructed by the Compost SME. Compost can be moved outdoors if indoor composting was utilized initially.

RECOMMENDED MONITORING CRITERIA

- Temperatures at 18 and 36 inch depths should be taken at 5 locations along the windrow to ensure adequate temperatures (110 or above) are being achieved at both depths. Temperatures should be monitored every 2 or 3 days for approximately two weeks to ensure that thermophilic temperatures are reached.
- If elevated temperatures are not reached, the SME should evaluate the compost windrows and correct the problem.
- If pile temperatures decrease early in the composting process, there may be inadequate oxygen (<5%), requiring the pile to be mixed or aerated.
- Excessive temperatures over 160 degrees Fahrenheit should be closely monitored to prevent spontaneous combustion.
- Calibration of temperature probes should be considered to ensure their accuracy.

RECOMMENDED STORAGE AND LAND APPLICATION OF COMPOST CRITERIA

Composted material that satisfies the above criteria and has been certified by the SME may be transported offsite for disposal or land application as a Class B compost product. Class B compost is restricted to distribution for land and mine reclamation, silviculture, and agriculture (on crops not for human consumption). Other beneficial uses may be approved by DENR. The following are recommended setbacks and practices for the storage and land application of compost.

- Compost stockpiles should be at least 100 feet from residences.
- 100 feet from any well.
- 50 feet from intermittent, perennial streams or public body of water.
- 25 feet from ephemeral streams, waterways or ditches.
- 50 feet from the property boundary unless the owner of the adjacent property is the same person or entity.
- Land application of compost should be at least 100 feet from residences.
- 100 feet from any well.
- 50 feet from intermittent, perennial streams or public body of water.
- 25 feet from ephemeral streams, waterways or ditches.

- 50 feet from the property boundary unless the owner of the adjacent property is the same person or entity.
- Compost should be applied at no greater than agronomic rates.
- Records should be maintained of dates the compost was removed from the farm, estimated amount of compost removed, and the location of sites where compost was land-applied.

Alternative setbacks may be determined based on site-specific criteria.

RECOMMENDED ADDITIONAL COMPOSTING CONSIDERATIONS

- Further composting of the mortality may be conducted in addition to the minimum requirements in order to reach a Federal Class A standard. Class A standards for windrow composting include five turning events over a 15-day period where temperatures are at or above 131 degrees Fahrenheit. Additional sampling of the finished product for heavy metals, pathogens, and inert material is required for Class A material. Class A composted materials have much greater distribution options.
- Compost should not be distributed and marketed to the public unless it meets federal Class A standards and the facility is issued a permit by DENR's Division of Water Resources.
- Siting of compost windrows should be considered to ensure they can be accessed by heavy machinery and firefighting equipment.
- Siting locations for storage of carbon materials that are in close proximity to the barn (indoor composting) or the outdoor windrow area should also be considered.
- Analytical testing of finished compost is recommended to ensure agronomic loading rates are not exceeded in land application systems. The NCDA&CS Agronomics Division offers compost waste analysis testing to determine nutrient content.
- When each project is complete, the compost Subject Matter Expert will sign a form to verify that the compost process was initiated, conducted and finalized such that the materials used to dispose of the poultry carcasses through composting did address the threat to public health.
- Documentation will be obtained from the farmer to verify that finished compost will be utilized for agricultural purposes and not sold.