

Common Livestock and Poultry Mortality Disposal Methods

Burial

Perhaps the most common method of disposal is burial. When proper guidelines are followed, burial can be a safe option. However, poor site selection, such as sandy soils or areas with high water tables, may pose a threat to groundwater contamination. Studies have shown zones of nitrogen accumulation years following burial of livestock in pits. General recommendations for burial include construction of a pit at least 300' away from waterways and at least 1' above any floodplain level (Figure 1). Carcasses should be covered with at least 2' of topsoil after placement in the pit. Burial does not recycle nutrients for forage growth as carcasses are buried too deep for nutrient uptake by most plants.

Landfills

Disposing of carcasses at a licensed landfill that accepts animal mortalities is another form of burial. Landfills may require notification before delivery and/or documentation from a licensed veterinarian stating the cause of death. Landfill tipping fees should be assessed and may range from \$20 to \$40/ton. Other considerations are transportation costs and breaches of biosecurity by moving carcasses off-farm. As with burial, nutrients from the carcass are not recycled and increasing landfill volume is not a sustainable practice.

Incineration

Incineration is a safe and effective means of carcass disposal, especially from the standpoint of biosecurity. The carcass is completely consumed by fire and heat within a self-contained incinerator. This process destroys pathogens by achieving high temperatures. Any remaining ash can be mixed with manure and land-applied following a nutrient management plan. Incineration is mainly designed for smaller carcasses and fuel costs should be considered. An air quality permit may be required. Due to odor and emission concerns, open air incineration is often discouraged unless the animal died of an infectious or contagious disease. It is often difficult to build an open fire that is hot enough to fully consume the carcass. Open air incineration should only be conducted during certain emergency disease management situations with regulatory permission.

Rendering

Rendering is a heat driven process that cooks the product between 240°F and 290°F while killing pathogens and converting the carcass into a value-added product such as an animal feedstuff. These feedstuffs, such as meat and bone meal, are generally used as pet food ingredients. Fat is another byproduct used to produce rubber, soap or biodiesel. Although rendering is a very effective method, currently, there are limited rendering services available. The transportation expense of collecting small volumes creates a financial obstacle for most rendering companies. Furthermore, federal regulations require that the brain and spinal cord be removed from cattle 30 months of age and older prior to rendering. This practice was implemented to further strengthen existing safeguards against bovine spongiform encephalopathy (BSE) disease transmission risks but it has also increased processing costs for rendering plants. Some rendering facilities will still collect routine livestock mortalities while some require the producer to transport carcasses to the plant. Fees may

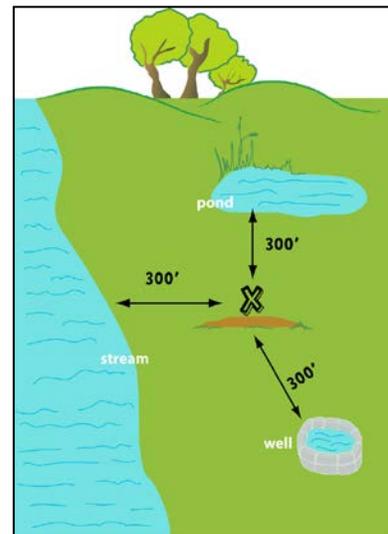


Figure 1. Site selection for burial

be associated with this service. Rendering can be a viable option if locally available. Biosecurity and disease transmission risks should be considered when allowing vehicles on the farm and when transporting carcasses off-farm.

Composting

Composting dead animal mortalities is an inexpensive, biosecure, and environmentally sound approach to addressing the issue of carcass disposal. By definition, composting is a controlled biological decomposition process that converts organic matter into a stable, humus-like product. The carcass (nitrogen source) is buried in a bulking agent (carbon source), such as wood shavings, allowing for the proper carbon to nitrogen ratio (C:N) required by microorganisms to successfully decompose the carcass while absorbing excess moisture and filtering odor (Figure 2). For smaller carcasses, a bin system can be utilized which layers carcasses with bulking agents such as chopped straw, poultry litter and wood shavings (Figure 3). The high temperatures (130°F to 150°F) achieved through proper composting will destroy most pathogens. Microorganisms will degrade the carcass leaving only a few small bone fragments, which are brittle and break easily. This valuable by-product can then be land-applied as a fertilizer source, adding nutrients and organic matter to the soil or recycled for new compost piles. Proper management is key for composting to be effective. As with burial, site selection is important. The site should be located in an area that does not pose a risk to surface or groundwater contamination.

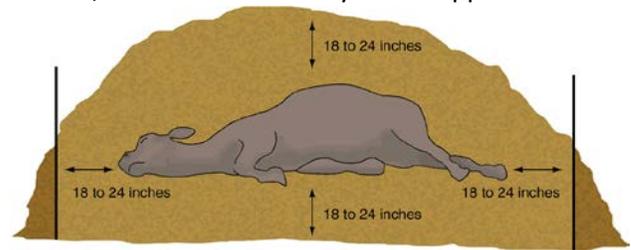


Figure 2. Livestock mortality compost pile.

Catastrophic losses are best composted in windrows of bulking agent due to the increased quantity of carcasses. Height, width and length of these windrows are dependent on the size and amount of carcasses to be composted. For both routine and catastrophic composting, piles must be appropriately managed to achieve proper decomposition and prevent scavenger invasion. Emergency management plans should be in place for catastrophic losses. With large numbers of mortality, more than one option may be necessary.

Summary

Proper livestock and poultry mortality disposal is essential to the sustainability and environmental stewardship of farming operations. In addition, state laws regulate disposal methods. These methods should adequately dispose of animal carcasses without negatively affecting the environment, while remaining economical to the producer. Incineration, rendering and composting are common methods preferred for carcass disposal. Each method recycles nutrients, producing a usable by-product. Local availability and cost may limit both incineration and rendering. When properly managed, composting livestock mortalities is a safe, effective option for most producers to consider. This publication focuses on composting as a method for on-farm livestock and poultry mortality management.

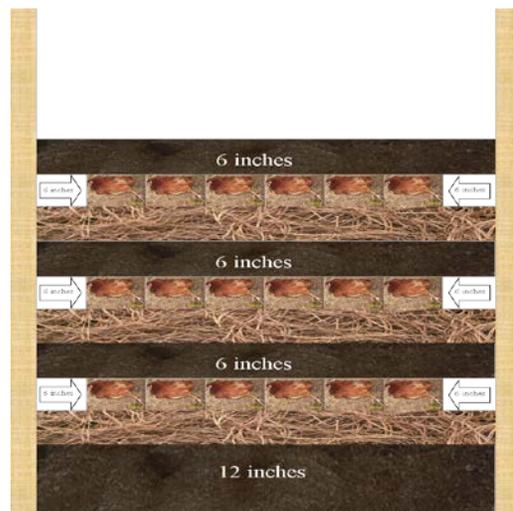


Figure 3. Poultry mortality compost bin.

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