Mortality Composting: Proper Disposal Methods to Manage Mortalities in the Sheep Flock

M.A. Berg

Carrington Research Extension Center, North Dakota State University, Carrington, ND

INTRODUCTION

Natural disasters, diseases and accidents can all contribute to livestock death losses. Animal mortalities in North Dakota must be disposed of within 36 hours of death using 1 of the 4 approved methods: rending, incineration, burial or composting. Although historically done, carcass abandonment is strongly discouraged. Proper carcass disposal ensures air, water, and soil quality are maintained and the potential for spreading disease is decreased.

PROCEDURES

Composting mortalities is a relatively simple process that can typically be done with materials that are already present on the farm.

In a typical flock, the majority of sheep mortalities likely occur during lambing. Composting these losses would be an excellent management option. Because lambing mortalities are small in size, a layered pile system is best. Heat will be maintained during cold months and land area will be used effectively. A source of carbon material such as straw or old hay will be needed to create a base layer. Additionally, core material such as manure or spoiled silage, as well as cover material such as straw, old hay or sawdust will be needed. Each farm will have different material sources available, thus there is not a single "recipe" that is best. Use the following guidelines for composting lambing mortalities to get you started.

- Do not place the windrow, pile or bin in a floodplain, in a low area where water gathers during spring's melt or heavy rain, or on a sandy or other porous surface.
- Start with 2 feet of base material in a windrow, pile or bin-type setup (Figure 1).
- Place the carcasses on top of the base. Make sure the carcasses do not touch. Have at least 1 foot of base material between the perimeter of the carcass and the edge of the base.
- Cover the carcasses with 6 to 8 inches of core material.
- Either layer more carcasses on top of the core material or if all of the mortalities fit in one layer, cover the entire pile or windrow with 2 feet of cover material. The cover material should be placed on the top and sides, no part of the carcasses should be showing. A good cap on the pile will keep predators out and seal in heat.
- When additional carcasses need to be added to the windrow, pile, or bin; layer them on top of the cover material, cover with additional core material and add more cover material to the top (Figure 2).
- During cold weather composting, make sure the completed windrow, pile or bin is at least 4 feet tall. This will maintain proper heating and prevent the pile from freezing.

- Leave the windrow, pile or bin undisturbed to keep heat sealed in during the very cold winter months. Small carcasses will completely breakdown within 2-4 months and temperatures should reach above 130 degrees Fahrenheit. For lamb carcasses even the bones will decay during this process. Note: larger carcasses (ewe) will take longer to decay and may require aeration, after 2-4 months, to reintroduce oxygen for the process to continue properly.
- The final compost product can be used as the core material to start a new mortality composting process or can be used as a fertilizer on crops applied at agronomic rates. A sample should be sent to a commercial laboratory for a nutrient analysis to properly calculate application rates.

More information can be found by watching the eXtension Livestock and Poultry Environmental Learning Center's video series at http://tinyurl.com/ktghhlw or visiting www.ag.ndsu.edu/lem. If you have questions or would like help setting up a windrow, pile or bin-type mortality composting system, please contact Mary.Berg@ndsu.edu or 701-652-2951.

REFERENCES

Bass, T., D. Colburn, J. Davis, J. Deering, M. Fisher, R. Flynn, S. Lupis, J. Norton, N. Schauermann. 2012. Livestock mortality composting for large and small operation in the semi-arid west.

North Dakota Department of Health, Environmental Health Section, Division of Water Quality. 2005. North Dakota livestock program design manual.

Rahman, S., T. Dvorak, C. Stoltenow, S. Mukhtar. 2009. Animal carcass disposal options. NDSU Extension Service publication NM-1422.

Figure 1. Bin-type mortality compost system with a 2-foot carbon base prepared for mortalities.

Figure 2. Bin-type mortality compost system with several layers of moralities and core material.