



# Middle Tennessee State University



## Aerobic Decomposition as an Alternative Method for Managing Large Scale Animal Fatalities

Dr. Hugh Berryman, berryman@mtsu.edu, 615-494-7896

Prevent, Protect, Respond, Recover

### Homeland Security Challenge:

There is a need to develop practical and cost effective methods which do not pose a threat to public health for the disposal of mass fatalities of large scale and large size animals after a disaster or catastrophic event. A catastrophic event of great magnitude not only involves excessive human loss, but depending upon the nature of the incident, could also involve the loss of high numbers of animals as well as the loss of high quantity of large size animals.

### Research Project Solution:

The objective of this research is the creation of a scientifically proven, publicly acceptable method for the appropriate disposal of deceased animals in high-magnitude mass fatalities. An aerobic decomposition method will be developed to accommodate the disposal of animals in mass disaster situations or for commercial operations. The research will be conducted in three phases. Phase 1 will allow construction of the basic infrastructure needed for the initial experiments in seclusion and security, and will provide a baseline test of decomposition in the three main media—sand, sawdust and soil. Initial experiments will be conducted to establish baselines on decomposition rates, microorganism and chemical runoff, and odor that can be used for the large animal study in Phase 2 in which horses may serve as the large animal models. Phase 3 is the concluding phase designed to answer questions identified in Phases 1 and 2, so that a high-magnitude, large-size animal fatality protocol can be formulated.

### National Implications:

Aerobic decomposition through composting has been used in the last decade for disposal of poultry and swine, but no recommendations are in place for the composting of large animals. The equine industry, along with other large animal industries, needs research to develop alternatives of disposal not only for the normal end of life occurrences but also for mass disasters where large numbers of animals die or have to be put to death. The State of Tennessee, for example, has one of the nation's largest populations of horses and more improved ways to dispose such large scale and size animals is needed to enhance disaster response and recovery. Results of this research on mass fatalities of animals may also be used to improve the handling of high-magnitude human loss.



It is difficult for producers to deal with the death of large numbers of livestock due to any reason. In a mass disaster it is overwhelming.



Burial of large numbers of animals can be difficult and pose threats to the water supply.

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**For More Information on SERRI, contact;**

Warren Edwards, Director, SERRI  
865-574-8277, edwardswe@ornl.gov

Ben Thomas, Operations Manager  
865-574-5438, thomasbjr@ornl.gov

SERRI is managed by the Department of Energy's Oak Ridge National Laboratory for the U.S. Department of Homeland Security