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Biosecurity Considerations When Composting Livestock Mortalities

- Definition of Biosecurity
 - security from transmission of infectious diseases, parasites and pests.
 - set of preventive measures designed to reduce the risk of transmission of infectious diseases, parasites and pests.



Compost vs Rendering vs Burial

- Composting
 - Above ground burial
 - Provides good biosecurity and useable fertilizer
- Rendering
 - Unpredictable, poor biosecurity
- Burial
 - Good biosecurity but comes with lots of regulations



Why Compost?

- Agriculture terrorism, accidental poisoning, a naturally occurring disease outbreak, or a natural disaster such as flood, blizzard or tornado require disposal of large number of mortalities
- Decrease the risk of disease transmission
- USDA Regulations
 - Downers
- Rapid on-farm containment of carcass odor and pathogens
- Most operations have the equipment and materials necessary to compost



Pathogen Destruction

- Accomplished by a combination of Time and Temperature
 - Internal temperatures range from 120-150 degrees F
 - Will destroy most pathogens within 7-10 days of achieving this temperature
- Prion Diseases – Sheep & Goats with Scrapie
 - Science is still inconclusive
 - Recommend to **not** compost at this time
- Pile construction and management is important
 - Carcass size
 - Environmental temperatures



Biological Results

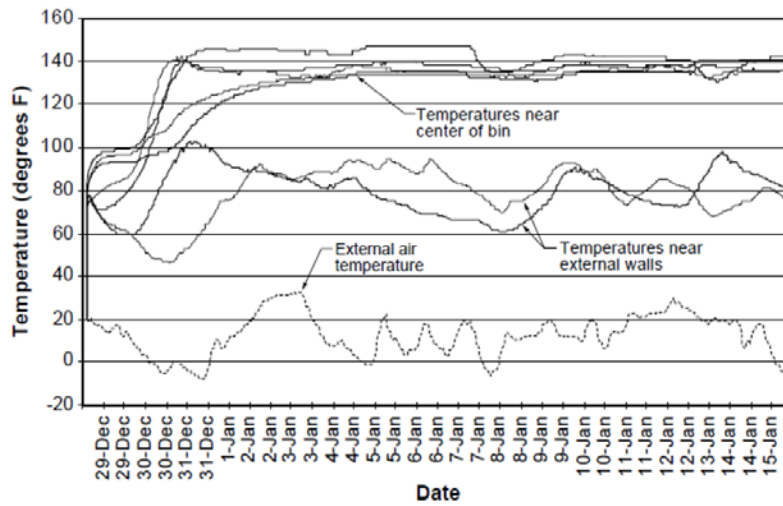
- Viruses:
 - Bovine respiratory viruses, Influenza viruses all tested negative after 7 days
- Bacteria:
 - Literature shows, that the temperature and the time profiles would kill all relevant bacteria
 - Previous work verified elimination of
 - Bacteria - e.g. C. Perfringens and Pasteurella spp.
 - E.Coli O157:H7, Salmonella spp. C. Jejuni



Temperature Monitoring



Temperature Monitoring



Management of Odors, Pest and Vermin

- Odor
 - Should be minimal except when turning the pile
- Flies and other insects
 - If pile is not properly constructed you will get leachate leaking and this attracts flies
 - Use Premise sprays to control insects
- Weeds
 - Mowing and Trimming
 - Herbicides may carry into final product so use is discouraged
- Vermin / Scavengers
 - Fence out if possible
 - May need to trap
 - Rodent bait stations



Site Biosecurity Recommendations

- Carcasses must be disposed of within 24 hours
- Outside of wetlands or the 100 year flood plain
- 300 feet from a public road, 500 feet from a secondary highway, 1000 feet from a primary highway
- 500 feet from private wells
- 1000 feet from public wells
- 50 feet from property lines
- 500 feet from inhabited residences
- 300 feet from flowing or intermittent streams, lakes or ponds
- 300 feet from other livestock
- Compost material can only be stored up to 12 months



Equipment

- Dedicated equipment is ideal but most likely impractical
- Wash equipment after entering compost area
 - Power washer and letting dry
 - Surface disinfectant
- Pay attention to
 - Loader Buckets
 - Tires
 - Inside the cab, change cab air filters
 - Disinfect boots and change clothing after working with compost
 - Use of respirators, other PPE, when turning the piles



Common Disinfectants & Use Recommendations

- Nolvasan (Chlorhexidine)
- Tecktrol
- Farm Premises & Equipment
 - 1. Remove all debris and manure from equipment and tires.
 - 2. Clean all surfaces with water.
 - 3. Spray all surfaces with appropriately prepared solution and let stand for a minimum of 10 minutes.
 - 4. Rinse with water and allow to dry.





Location Considerations

- Location needs to be less than 2% slope
- Preferably out of flood plains & wetlands
- Away from private or public wells
- Proper set back from property lines
- Away from inhabited residence
- Proper set back from flowing or intermittent streams, lakes or ponds



Site Considerations

- Reasonable distance from other livestock
- Out of the view of the public
- Traffic flow of the operation
- Good access road to minimize the challenges in operating and managing the compost
- Protect water and soil quality
 - Filter strips and berms



Protection of the Environment

- Storm Water Management
- Wind
- Dust Control
- Control of leachate



Topics for Today

- Why Compost?
- Pathogen Destruction
- Management of Odor, Pest, Weeds and Vermin
- Equipment

