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

![Image of temperature monitoring equipment and a person checking temperatures in a bin.]

![Graph showing temperature variations over time with different markers for temperatures near the center of the bin, external air temperature, and temperatures near external walls. The x-axis represents dates, and the y-axis represents temperature in degrees F.]
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