Carcass Disposal
Overview

Method Selection
- Animal species
- Number of animals
  - Space and equipment needed
- Pathogen and its ability to persist or spread
- Environmental issues
  - Soil characteristics
  - Water sources
  - Air quality
- Public health issues
- Regulations

CARCASS DISPOSAL METHODS
- Burial
- Subsurface Disposal/Landfills
- Incineration
- Composting
- Rendering

Burial
- Excavated trench or pit
  - Decomposition and heat
- Puncture/vent carcasses
  - Minimize accumulation of gases
  - Displacement and shift of soil
- Soil characteristics critical

Burial: Construction and Design
- Trench area
  - 4-8' deep x 6' wide
- Site size/area
  - Depends on species, age/size, quantity
  - 42 cubic feet per
    - 1 adult bovine OR
    - 5 pigs/sheep OR
    - 40 chickens
- Liners to minimize seepage

Regulations and Monitoring
- Consult State regulations
  - Sites highly regulated
  - Depth, width, length, max size
- Environmental impact
  - Groundwater monitoring
  - Surface water sources
  - Air quality/odor
- Record site GPS location
Burial: Considerations

- Quick, easy, inexpensive
- Equipment generally readily available
- Takes large areas of land
- Difficult in cold weather conditions
- Environmental impacts
  - Water sources
  - Odor
  - Scavengers
- Public opposition

Landfills

- Public and privately owned
  - Licensed
- Existing site
  - Leachate and gas collection systems
  - Minimal environmental risk
- Highly regulated
  - Resources Conservation and Recovery Act (RCRA)
- Carcass degradation may take longer

Landfills: Considerations

- Immediately available
- Minimal environmental risk
- May have limited capacity
- Owner acceptance and terms of use
- Transportation
  - Biosecurity
  - Cost
- Public opposition

Incineration

- Thermal destruction
  - High-temp combustion
  - Various fuel sources
- Methods
  - Open-air burning
  - Fixed-facility incineration
  - Air-curtain incineration

Incineration: Considerations

- Complete combustion
- Limited capacity
- Air pollution
- Transportation
  - Biosecurity
- Regulations
  - State approval for process
  - Licensing
- Trained personnel
- Public opposition

Composting: Design

- Carcasses layered with organic material
  - Microorganisms → heat → pathogen destruction
- Indoor or outdoor
  - Bin or static windrow (pile)
- Requirements
  - Carbon:nitrogen ratio: 25:1 to 40:1
- Biofilter layer

Just-In-Time Training for Animal Health Emergencies
Carcass Disposal: Overview

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Composting: Process
- Two phases
  - Active phase
    - Aeration essential
  - Curing phase
- Monitor frequently
- Aeration
- Odor, vector control

Composting: Considerations
- On-site process
- Adaptable process
- Nutrient rich end product
- Transport of co-compost material
- Predators and scavengers

Rendering
- Off-site process
  - Transport of carcasses
- Heat conversion into
  - Meat and bone meal
  - Fat/Tallow
  - Water
- Dry rendering
  - Batch or continuous process
- Tell renderer cause of death

Rendering: Considerations
- Facilities have procedures for biosecurity, wastewater, byproducts
- Process closely regulated
- Transport of carcasses to site
  - Biosecurity
  - Leak proof containers
  - Coordination
  - Temporary storage may be needed

Alkaline Hydrolysis
- NaOH or KOH hydrolysis
- Sterile aqueous product
- Advantages
  - Highly automated
  - No emissions, minimal odor
- Disadvantages
  - Effluent disposal
  - Lack of availability

Carcass Disposal Considerations
- Site location
  - Soil topography and area
  - Slope, permeability
  - Proximity to water sources, public areas
- Subsequent use of site
- Regulations
- Environmental impacts
  - Water source contamination
  - Air quality
  - Scavengers
Carcass Disposal Considerations

- Biosecurity
  - Personal protective equipment
  - Movement control
  - Cleaning and disinfection
- Site security
  - Unauthorized persons
  - Log book
  - Warning or restriction signs
  - Site security personnel

Transporting infected materials
- Closed, leak-proof
- Liquid collection/absorption system
- Required permits
- Applicable laws/regulations

Safety Issues
- Physical and psychological

Regulations

Public perception

Disposal of Other Products

- Milk, wastewater, feed, grain, manure, bedding, wool
- Similar options as for carcasses
- Site selection guidelines apply
- Land application following treatment for manure, litter, slurry

Resources

- USDA Foreign Animal Disease Preparedness (FAD PReP) Guidelines: Disposal
- USDA Foreign Animal Disease Preparedness Standard Operating Procedures (SOP): Disposal

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