



Carcass Disposal


Composting




KANSAS STATE UNIVERSITY
College of Veterinary Medicine

Composting


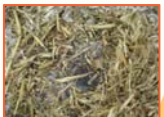
- Carcasses layered with organic material
 - Thermophilic microbes
 - Heat generation
 - Accelerates biological decomposition
 - Destroys pathogens
- Relatively safe and simple
- Nutrient rich, organic byproduct
 - ‘humus’



Just In Time Training Carcass Disposal: Composting

Compost Components

- Nitrogen
 - Carcasses, manure
- Carbon
 - Plant co-compost
 - Sawdust, ground cornstalks, peanut hulls, mulch, poultry litter, leaves
 - 3-5 yards³/1000# carcass
- Carbon: Nitrogen ratio
 - 25:1 to 40:1 ideal

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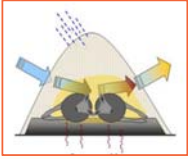
Moisture

- Moisture – 40-60%
 - Crucial for microbial growth
 - < 40%
 - Slower degradation
 - > 60%
 - Fills air pockets, less oxygen/air flow
 - Slower degradation

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Oxygen

- Maintains aerobic environment
- 5% ideal
- Dependent on pile porosity
 - Encourage natural air flow
- Aeration
 - Forced: use of fans
 - Active: mechanical turning
 - Passive: air exchange within pile



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Composting Process

- 1st phase – aerobic
 - Oxygen dependent
 - High temperature (135-140°F)
 - 3-12 weeks
 - ~50% reduction in biodegradable solids
- 2nd phase – curing
 - Lower temperature (77-86°F)
 - 10-240 days
 - Aeration less critical
 - Bulk density reduced 25%

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Temperature

- Temperature range
 - 120-150°F
 - Monitor frequently
- Inconsistent throughout pile
 - “cool zone” on surface
- Ambient temperature can influence decomposition




Source: T. Grande, AEE

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Mixing

- Accelerates decomposition
- When core temperature
 - > 140°F
 - <90°F
 - Form new windrow or transport to second bin



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COMPOST DESIGN

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Location

<p>Indoors</p> <ul style="list-style-type: none"> ● Less affected by <ul style="list-style-type: none"> – Weather, ambient temperature, wind, scavengers ● Space limitations ● Vehicle movement ● Prolonged management and monitoring 	<p>Outdoors</p> <ul style="list-style-type: none"> ● Large animal ● Cover to protect <ul style="list-style-type: none"> – Weather – Scavengers ● Site location <ul style="list-style-type: none"> – Away from public areas, animal areas, water sources – Vegetated site – Clay/impermeable base
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Basic Design

- Base layer (18-24”)
 - Porous
 - Absorbent
- Carcasses
 - Whole or ground
 - Caution if zoonotic



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Basic Design

- Layer with co-compost (4-6”)
 - 5-7 feet high total
 - 12 inches on sides
- Biofilter layer on top
 - Weather dependent
 - Cool weather-silage
 - Warm weather-cornstalks
 - Porous materials
 - Absorbs moisture and promotes air flow

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Pile Types: Bins



- Construction
 - Treated lumber or concrete
 - 3 sided, doors, drop-board front
 - Size dependent on carcass size and equipment used
- Secondary bins
 - For mixing or storing co-compost
- Decreases scattered material
- Retains heat well



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Pile Types: Open and Windrows

- Size dependent on carcass
 - Place carcasses away from pile edge
 - Thick cover layer
- Management important
 - Check temperature, monitor pile
 - Add extra cover when necessary



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Distributing Compost

- FAD may make compost unsafe for cropland
- Soft tissue should be decomposed
- Large bones should be buried
- Nutrient levels should be tested
- Reuse as compost cover material

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CONSIDERATIONS

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Composting Considerations

- On-site process
- Adaptable process
- Nutrient rich end product
- Transport of co-compost material
- Regulations

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Record Keeping

- Start date of each compost batch
- Date and quantity of dead animal(s) or additions
- Internal temperature of each active compost batch
 - Measured, at minimum, weekly
- Date compost material aerated

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Biosecurity

- Responders must
 - Wear appropriate PPE
 - Follow movement control procedures
- Vehicle cleaning and disinfection
- Site security
- Public perception

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Resources

- USDA Foreign Animal Disease Preparedness (FAD PReP) Guidelines: Disposal
 - http://www.aphis.usda.gov/animal_health/emrs/nahems.shtml
- USDA Foreign Animal Disease Preparedness Standard Operating Procedures (SOP): Disposal
 - http://www.aphis.usda.gov/emergency_response/tools/aphis_role_emergency_tools.shtml

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Acknowledgments

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