



Cornell Waste Management Institute

# Securing Carbon Goal of Mortality Composting to Control Disease



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-- [cwmi.css.cornell.edu](http://cwmi.css.cornell.edu)



# What Happens in Mortality Composting?

- The Diet is all wrong (C:N about 80:1)
- Air flow occurs passively
- Moisture comes from the carcass as it decomposes

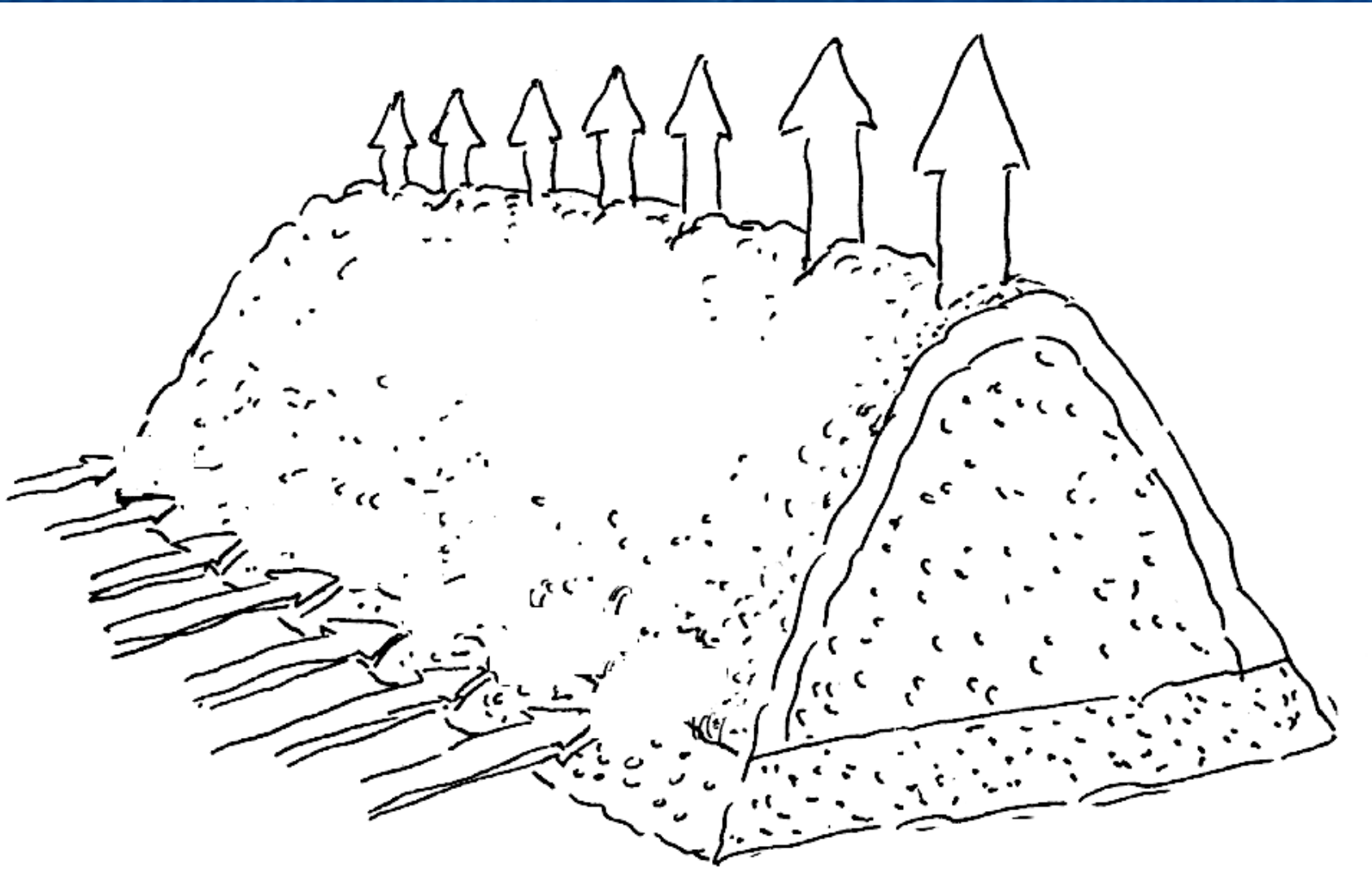
Nitrogen



Carbon



# Static aerated pile









# Carcass Composting Steps



- Select Site
- Secure Carbon
- Prepare base
- Place animal and cover
- Layer young and/or small animals
- Let sit 4 to 6 months
- Use the composted material
- Reuse bones/un-composted material





# Roadkill Composting-Lay 24-in bed of bulky, absorbing organic material containing some sizeable pieces





# Disconnect between Farm & Municipalities



King /Hutchinson



Barn explosion and fire  
Lost 100+ dairy cows





# Carbon/Feedstocks



Not all carbon sources are created  
equal





# Carbon Sources

Contact List for Sources of Carbon and Bulking Materials

Entity	Information
Tree Service Company (such as Asplundh)	Contact: _____ Phone: _____ Fax: _____ E-Mail: _____
Local (Town/Village) Highway Department	
County Highway Department	
State Highway Department	
Utility Company (Telephone, Electric, Cable)	
Landscapers	
Logging Companies	
Arborists	
Sawmill/Lumber yard (non-pressure treated only)	
Local Parks Department	





# Carbon sources

- Wood chips, shavings, sawdust
  - Tub grindings, double and triple grind, chipped pallets
  - Dead and diseased-Standing wood
- chopped corn stalk, crop stubble
- Straw, hay, bedded pack
- Haylage/silage



# Carbon Sources



**Clear a barn center to place a bed of carbon**



**Wood shavings**

Nut and seed hull-peanuts, sunflower, pecan, walnut, hazelnut,....

Food processing residuals-bagasse, cotton seed, rice chaff, coffee residual, cocoa hull



## Questions about Carbon

- What carbon feedstock are available in that region?
- What carbon is generated or used on Farm?
- If How long is material composted/aged, and by which method?
- Has medium, hay or bedding been imported from midwest or west?
- Livestock manure





# Eggs, Feed, Manure, Carcasses



Spent feed





## Questions about Carbon

- Is it screened and size of screen? Size of Chips, double/triple grind, tub grindings, moisture?
- Is source aware of any contaminants?
- Does any medium include pressure treated sawdust or shavings?



# Carbon/Feedstocks

- Fine Carbon



Mixed Carbon

- Coarse Carbon



Very Coarse Carbon





# The Composting Process

## Air, Moisture and Shelter

### FEEDSTOCKS



### MANAGEMENT



### METHOD





# Composting Methods



**Static Pile  
Passively Aerated OR  
Turned Windrow**



**In-Vessel – buildings, bags,  
cylinders**





# Prepare a Base



Lay 24-in bed of bulky, absorbing organic material containing some sizeable pieces, preferably woodchips









# Building windrows with chickens



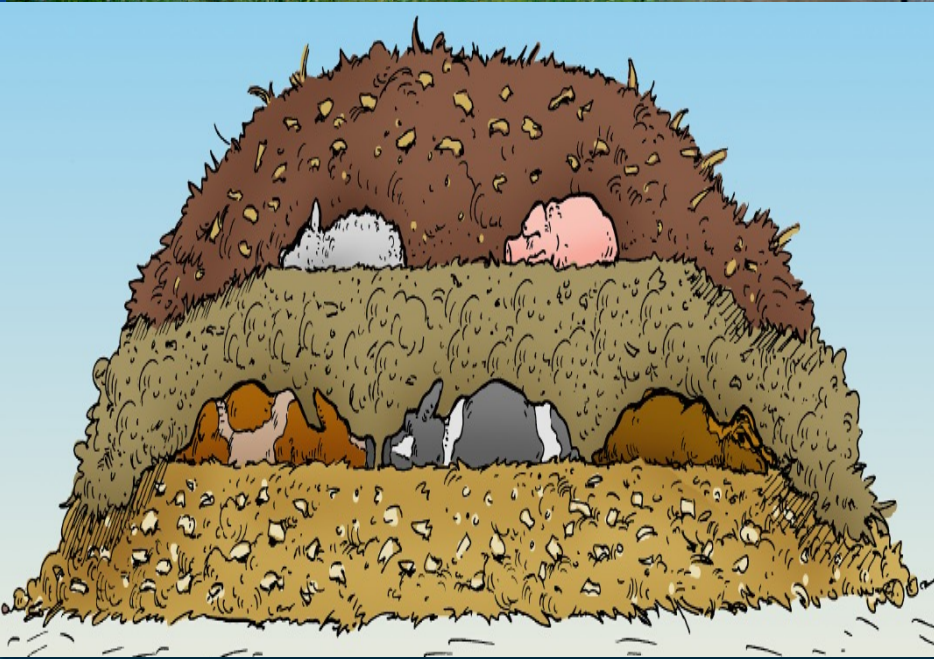
Should always be enveloped in carbon



Indoor windrows



# Compost Windrows





# Collecting BS Samples





# Northern Right Whale







## **Mortality Composting**

Materials address composting as a method to manage livestock mortalities (including mass mortalities resulting from avian influenza), butcher wastes and road killed animals.

<https://cwmi.css.cornell.edu/mortality.htm>

**\*Natural Rendering: Composting Livestock Mortality & Butcher Waste**

**\*Avian Influenza and Poultry Composting**

**\*Composting Road Kill**

**\*Horse Mortality: Carcass Disposal**



# USDA Animal & Plant Health Inspection Service

## SOP's

- FY2016 HPAI Response Mortality Composting Protocol for Avian Influenza Infected Flocks

[https://www.aphis.usda.gov/animal\\_health/emergency\\_management/downloads/hpai/mortalitycompostingprotocol.pdf](https://www.aphis.usda.gov/animal_health/emergency_management/downloads/hpai/mortalitycompostingprotocol.pdf)

- Composting Livestock 2017 Livestock Mortality Composting Protocol

[https://www.aphis.usda.gov/animal\\_health/emergency\\_management/downloads/nahems\\_guidelines/livestock-mortality-compost-sop.pdf](https://www.aphis.usda.gov/animal_health/emergency_management/downloads/nahems_guidelines/livestock-mortality-compost-sop.pdf)