Building Windrows Cont.

Treat Excess Contaminated Litter

Place excess contaminated litter in windrows to compost and deactivate pathogens.

Disinfect tools and site

- ✓ Disinfect all tools and equipment from house after forming windrows
- ✓ Disinfect site according to approved disinfection procedures

Turn up heat in poultry house

Turn up to 100F for 1-3 days to expedite composting process and eliminate the pathogens on surfaces.

Monitoring and Turning

Temperature Monitoring

1. Use a 3-foot long digital temperature probe connected to a data logger to take daily readings. Digital recording thermometers reduce the need to enter the building to once a week.
2. Use at least 2 probes per windrow. Best to have 1 at outside edge and 1 in center of windrow every 10 ft.
3. Put tip of thermometer in contact with carbon source layer at the center of the windrow.
   NOTE: If the temperature reaches 180F, monitor and/or turn the hotspot to prevent fire hazard.

Turning windrows

1. Turn windrows when temperature drops below 125F.
2. Turn inside house, shifting windrows toward ends.
3. Scrape along edges of the turned windrow and deposit material on top.
4. Cap with at least 4 inches carbon source to cover any exposed tissue.
5. Cover pile with compost fleece or another suitable porous fabric to protect from scavengers. Do not use airtight cover as this will cause condensation and may negatively affect the composting process.
6. Secure the material using dirt and soil on the edges or some other means to restrict scavengers access.

Weight	1st Turn	2nd turn/removal
4lbs	10 days	20 days
10lbs	16 days	26 days

Post-turning monitoring

2-3 weeks after 1st turning, test compost for maturity using a test kit such as Solvita.

Disposal

2-3 weeks after the 1st turning, compost may be land applied and incorporated in accordance with the nutrient management plan for the soil and crop or hay. Total time may vary by locality and season depending on the temperature. The cooler the weather, the longer this process takes. If the temperature is below freezing, you may have to wait until spring before compost is assumed to be pathogen-free.
If no growers are willing to take the mature compost, it should be landfilled as a nonhazardous waste.

Important Numbers and Websites

Numbers

State veterinarian _____

University extension _____

Websites

USDA APHIS

Procedures for In-House Composting of AI- Infected Poultry Carcasses

This brochure contains information about composting AI-infected poultry mortalities inside poultry houses. It's divided into four sections:

- ✓ Steps you can take now to prepare for in-house composting in the event you have to implement it.
- ✓ Composting procedures
- ✓ Procedures to follow after composting
- ✓ Contact numbers and websites

Preparation

If your poultry houses have enough ceiling clearance, in-house composting is a highly effective means to dispose of large numbers of poultry carcasses.

There are a number of steps you can take right now to prepare in the event of an outbreak.

- ✓ Obtain contact information for the proper authorities which may include: State veterinarian, poultry company personnel and university extension personnel.
- ✓ Identify any permits required to compost in your region especially those from APHIS and state/ local environmental personnel.
- ✓ Determine the composting method best suited for your facility.
  - ❑ Mixing and Piling - ideal when carcasses are distributed more evenly over the litter surface. Less expensive than layering.
  - ❑ Layering - if depopulation concentrates carcasses in a small section of the house
  - ❑ Shredding and Piling - not preferred for highly pathogenic organisms
- ✓ Determine carbon source needs – This is the bulking agent used for moisture and odor control and as necessary ingredient for microbes to produce compost. Identify sources in advance.

Acceptable carbon sources include:

- ❑ Litter
- ❑ Wood chips
- ❑ Sawdust
- ❑ Straw
- ❑ Silage
- ❑ Corn husks
- ❑ Bedding material

Carbon Source Calculation Equations

Pounds of Broiler Meat = (# of birds) * (Avg weight)

Area of House = Length x width of house

$$\textit{Total Required Litter} = \frac{\text{Pounds Broiler Meat}}{\text{Area of House} \times 0.8\ ^*}$$

**or 1.0 for large turkeys or layering compost method*

Average Litter Depth =

$$\frac{\text{Sum litter depths in each part of house}}{\text{Number of parts of house}^*}$$

**converted to same units as length/width of house*

Litter Available = (Avg litter depth) * (area of house)

Required Carbon Source Material =
(Total litter required) – (litter available)

Post Infection

Secure the infected site

- ✓ Rope off infected area and establish disinfection area
- ✓ Ensure disinfectant is contained and doesn't run offsite or to surface or ground water
- ✓ Prohibit entry into infected area unless personnel are properly trained, fit tested, and wearing personal protective equipment

Identify existing mortality storage areas and remove possible contaminants

- ✓ Move any carcasses and infected organic materials inside the building on the secured infected site
- ✓ Clean and disinfect the mortality storage area to eliminate the pathogen

Evaluate the site

Assess housing and inventory available supplies, equipment, materials in order to enable planning for the disposal of carcasses. Compile information compiled about:

- ❑ Bird age, species, avg. weight
- ❑ Production type (cage, floor, outdoor)
- ❑ House type
- ❑ Litter depth, moisture and condition
- ❑ Depopulation method/ location of carcasses
- ❑ End door access to deliver carbon source and remove compost
- ❑ Ability to turn piles
- ❑ Security – How to protect compost pile from scavengers, vandals or disease vectors
- ❑ Poultry house type and dimensions including ceiling height [Sufficient clearance for front loader to make windrow 4 to 6 feet high?]

Inventory/Supplies

At least one day prior to composting event, obtain required items, including:

- ❑ Personal protective equipment
- ❑ Mixing equipment
- ❑ Monitoring equipment
- ❑ Carbon source
- ❑ Turning equipment

Till litter

If carcasses are confined to a portion of house and caking is extensive, till the litter in the house in order to enhance composting.

Final Preparation for Composting

- ✓ Let birds consume all feed
- ✓ Raise the feeder and drinker lines
- ✓ Depopulate

Building Windrows

Address health concerns

- ✓ Provide dust control measures if needed.
- ✓ Ventilate composting byproducts by opening one of the curtains part way or using one of the smaller ventilation fans on the building – filter ventilation to avoid pathogen spread.

Select composting method – See Preparation topic

Mixing and piling method

1. Remove carcasses one bucket-width wide from along the sidewalls and spread them evenly in the center of the house.*
2. Starting with a 3-inch minimum base of clean carbon source, use feed line as a guide and mix the carcasses with the carbon source to start windrow.
3. Continue rolling materials together to form a windrow 10-12 ft. wide or twice the reach of your loader so you can access the middle.
4. Cover with 6-12 inches of litter or sawdust over all carcasses and bird parts.

* If litter is inadequate and supplemental sawdust is required, this step is not required.

Layering method

1. Create a 3-inch thick base of clean carbon source. Make the base 10-12 feet wide or twice the reach of your loader so you can access the middle.
2. Place carcasses on top of base using loader.
3. Spread carcasses evenly with rake or pitchfork until the carcass layer is 8-10 inches thick.
4. Repeat layering procedure until the pile is 4-6 feet high, depending on height of ceiling.
5. Cover with 6-8 inch layer of clean carbon source with a foot overlap on the sides over all material.

Shredding and piling method

1. Remove carcasses one bucket-width wide from along the side walls and spread them evenly in the center of the house.
2. Either - Shred the carcasses using a tiller attached to a skid steer loader or a 3-point hitch, PTO driven unit for farm tractor.
   - At least 2 passes
   - Use sharp tines and high rpm.
   - Use the best angle and direction of rotation for shredding.
3. Alternate - Crush carcasses with a rubber tire loader and roll carcasses into the litter/sawdust windrow. Dust control may be issue.
4. Pile shredded carcass/litter mixture into a 12-14 foot wide by 3-5 foot high windrow.
5. Cap windrow with litter/carbon source to cover exposed carcasses.