



Practical Biosecurity Programs
Standard Biosecurity Protocol (SBP)
SBP 11

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Biosecure Waste Disposal with Composting

1. **Purpose:** Using the composting process to destroy pathogens and prevent disease transmission from manure and mortality
2. **Responsibility:** Farm Staff
3. **Frequency:** Daily
4. **Biosecurity Protocols**
 - 4.1 Remove manure & other organic waste from the poultry/livestock/mink barn and transport to the composting area or facility
 - 4.2 The biological process of the active thermophilic, aerobic bacteria in the composting process will degrade organic material into humus -like material
 - 4.3 These aerobic bacteria will create enough heat for temperatures to reach high enough levels to destroy most, but not all, potential pathogens.



Picture 11.1, Tablonte & Malone, 2005

- 4.4 This composted material prevents potential disease spread associated with carcasses. Manure and litter is removed from farm and transported to landfills and other disposal sites
- 4.5 This composted material can be used without fear of spreading disease

4.6 For proper composting, the material to be composted must meet these criteria:

- 25:1- 30:1 Carbon to nitrogen ratio
- Carbon sources- litter shavings, straw, hay, wood/plant material



Picture 11.2, Oderkirk, 2009



Picture 11.3, Oderkirk, 2009

- Nitrogen source – litter, fecal material, manure, eggs, mortality, eviscera, etc.



Picture 11.3, Tablante & Malone, 2005

- Moisture content must be around 50-60%
- Oxygen concentrations should be greater than 5%
- Particle size 1/8 – 1/2 inches is best
- Best level of pH 6.5 -8.0
- Temperatures should reach 130-140 °F 52-60 °C

4.7 Composting Litter/Manure Process

- Windrow of 10-12 feet wide & 3-5 feet in height
- Let compost stand 10 days before turning (adding more air/oxygen for the aerobic bacteria) Compost will heat up by 5 days



Picture 11.4, Tablonte & Malone, 2005



Picture 11.5, Tablonte & Malone, 2005

- Continue to turn every 10 days
- Monitor the compost pile in a number of places with a long stem thermometer and record data on the **SBF 3: Compost Temperature Chart**
- When the core temperature reaches 120-125 F turn or stir the pile to reintroduce air and oxygen
- The pile can be covered with a tarp to prevent pests & run-off
- A collection area/ditch will allow any run-off to be captured
- At the high temperatures ,it only takes a few minutes to destroy pathogens
- Cure compost until ready for disposal/use

4.8 Composting Mortalities Process

- Start with a 3-4 inch litter/carbon source base
- Place a layer of dead birds/animals and cover with 3-4 inches of litter/carbon source (Picture 11.6)



Picture 11.6, Tablonte & Malone, 2005
2003



Picture 11.7, Vaillancourt,

- Keep moisture at 50 - 60%
- Place another layer of dead birds/animals and cover with 3-4 inches of litter/carbon source

- Repeat until pile is 3-4 feet high
- Top layer of litter carbon source should be at 4-6 inches
- Monitor temperature peaks and when temperature decreases, turn (picture 11.5) & mix pile to introduce more oxygen (Picture 11.4)
- Allow process to repeat until satisfied the mix is an even humus material
- Allow pile to cure (Picture 11.7)
- Mortalities can also be added right to the composting manure/litter/bedding piles
- Ensure that the carcasses are covered properly to allow optimum composting activity

5. Biosecurity Deviation Protocols

- 5.1** If composting material is not allowed to reach high enough temperatures, pathogens may not be destroyed. This could occur if wrong N:C ratio is used, too much or not enough moisture in the mix and the pile is not turned and mixed enough leaving the outside layers to stay too cool allowing pathogens to survive

6. Biosecurity Records

- 6.1** SBF 3: Compost Temperature Chart