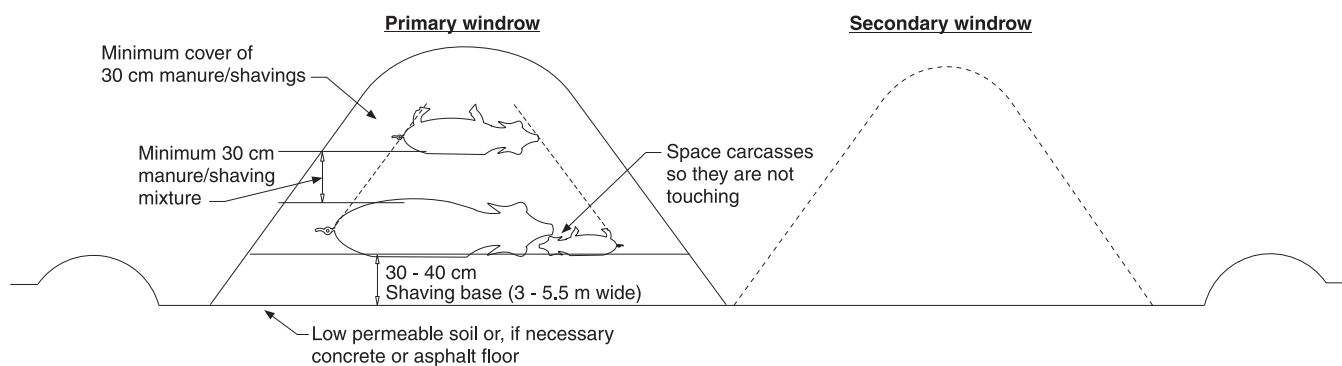


Windrow Composting of Swine (or Disaster Losses)

Composting swine mortalities has been proven to be a viable disposal option. Most swine composting system designs are based on daily mortalities and usually involve covered bin facilities. However, the same composting techniques can be used for regular mortality numbers or for disaster losses using an outside compost windrow. The following is the current recommended procedure for windrow composting of swine.

1. Choose a site with good drainage and low permeability soil. A concrete or asphalt pad may be necessary for coarse soils (see the *Livestock Diseases Act, Destruction and Disposal of Dead Animal Regulation* for location requirements).
2. Spread a 30 to 45 cm deep by 3 to 5.5 m wide base of shavings, sawdust, or straw. Length will depend on volume of mortality over a 2 to 3 week period (or from a disaster).
3. Place a single layer of dead swine on the shavings base, making sure they are at least 30 cm from the outside edges and that they are about 5 to 20 cm from each other (depending on carcass size).
4. Cover this layer of swine with 30 to 45 cm of a substrate of about 1.5 parts (by volume) of solid swine manure and 1 part shavings or sawdust (1:1 if using straw). The substrate moisture should be about 50 per cent (free moisture on a glove after squeezing a sample of the substrate or use a commercial hay moisture probe).
5. Place a second layer of 1 to 3 carcasses (depending on size).
6. Cover the windrow with 30 to 45 cm of manure/shavings to minimize odour and to prevent scavenging.
7. Leave the windrow untouched for the primary composting stage (8 to 10 weeks). Windrow temperatures should be monitored, and they should reach over 50°C (preferably 55°C for 15 days).
8. Turn the windrow over with a front-end loader after this initial 8 to 10 weeks or when pile temperatures fall below 35°C. Add water if the moisture content is below 50 per cent. Re-cover the windrow with a layer of sawdust or shavings, especially if body parts are visible. Leave the windrow for another 8 to 10 weeks for the secondary composting stage and monitor temperatures.
9. Windrow should be ready to land apply after these primary and secondary treatments. If land application cannot occur immediately, re-pile the material and allow to cure another 3 to 4 weeks.



Troubleshooting guide – composting swine

Problem	Cause	Possible solution
Temperature too cold		
	1. Too wet	1a. Mix in substrate. 1b. Protect pile from weather or shape surface to shed water.
	2. Low C:N ratio	2. Mix in carbon source, e.g. straw, shavings, etc.
	3. Too porous	3. Mix in sawdust or another small-particle substrate.
	4. Insufficient substrate cover	4. Add substrate ensuring 30 cm (1 ft) of cover.
	5. Too dry	5. Add water to pile.
Failure to decompose		
	1. Low carbon	1. Mix in carbon source, e.g. straw, shavings, etc.
	2. Mortalities layered too closely	2. Adjust pile ensuring 25 - 30 cm (10 - 12 in) of substrate between layers.
	3. Mortalities placed too closely together	3. Adjust mortalities ensuring they do not touch each other.
	4. Mortalities placed too close to the side of the pile	4. Adjust pile, ensuring mortalities are placed at least 30 cm (12 in) from the edge of the pile.
	5. Lack of oxygen	5. Turn pile to add oxygen.
Odour		
A. Foul, high sulfur, organic acids	1. Too wet	1a. Mix in substrate. 1b. Protect pile from weather or shape surface to shed water.
	2. Not enough cover substrate	2. Add substrate ensuring 30 cm (1 ft) of cover.
	3. Air flow restricted	3a. Mix in a larger-particle substrate. 3b. Adjust pile ensuring mortalities are placed at least 30 cm (12 in) from the edge of the pile.
	4. Excessive crusting on surface	4. Break up crusting on the surface and avoid using substrate that is frozen or too wet.
B. Smell of decaying flesh	1. Not enough cover substrate	1. Add substrate ensuring 30 cm (1 ft) of cover.
	2. Too cold	2. Follow steps outlined above under "temperature too cold."
C. Ammonia	1. Low carbon	1. Mix in carbon source, e.g. straw, shavings, etc.
Flies		
	1. Not enough cover substrate	1. Add substrate ensuring 30 cm (1 ft) of cover.
	2. Poor sanitary conditions	2a. Remove leachate from around pile. 2b. Maintain a clean, debris-free area around compost site.
	3. Too cold	3. Follow steps outlined above under "temperature too cold."
Animals/Vermin		
	1. Inadequate protection	1a. Add substrate ensuring 30 cm (1 ft) of cover. 1b. Construct a fence around the site. 1c. Enclose bin structure.

For additional information, see *Swine Mortality Composting*, Agdex 440/29-1

Available from Alberta Agriculture Publication Office (Phone 1-800-292-5697) or from Ag-Info Centre (Phone 1-866-882-7677)