

A Guide to Carcass Composting

Introduction

Given the increasing requirement for sustainable, environmentally sound processes for dealing with wastes from pig operations, composting of carcasses is commonly used to deal with pig mortalities on-farm. Check with your local Council about rules associated with composting pig mortalities.

The composting process

Composting is an aerobic biological process, which uses naturally occurring micro-organisms to convert biodegradable organic matter into a humus-like product suitable to apply to land. The process generates heat which destroys pathogens and prevents fly incubation, and converts nitrogen from unstable ammonia to stable organic forms. The effectiveness of the composting process is influenced by the temperature, amount of aeration, moisture content, particle size, compaction and the carbon: nitrogen ratio. The process is straight forward and can work successfully with minimal management. For successful composting it is recommended to have carbon: nitrogen (C: N) ratio between 20:1 and 35:1. Outside this range the process will be slower and may cause odour.

Site considerations

Site the compost area away from water bodies such as water courses and drains. A raised area will prevent surface water entering the composter and will allow any leachate to be contained. Site the area in close proximity to the piggery for ease of handling the pig carcasses, and requires vehicle access to deliver all the inputs and remove the finished product. Site composter away from high traffic areas and where suitable screening is provided for site aesthetics.

What do you need?

Firstly you need a source of carbon to create the correct C: N ratio. Farmer experience suggests that sawdust works well due to its small particle size that allows good surface area interaction, has high carbon content, high absorbency, and is easy to handle. Other substrate such as spent bedding and straw may be used successfully but the composting process will be slower. Sawdust seems to shed or absorb water whereas straw based substrates are reported to leach more liquids.

In addition to the supply of substrate, the carcass composting process requires a front end loader or some means of handling sawdust or straw and to move or turn the substrate for aeration. The shape of the bins or bunkers is not critical but needs easy access by the loader. Three-sided layouts work well, containing the material and offering a common wall to allow construction of a series of 3 bays. Storage requirements for clean substrate are also required. Construction materials can include concrete panels, timber or hay or straw bales to contain the substrate material and bins with an area of 12-15 m² (dimensions of 4 m x 3 m to 5 m x 3 m) work well. Actual dimensions will depend on construction materials. As a guide 1000 kg of carcasses would require bin capacity of 2-2.5 m³

Windrows of sawdust or spent straw bedding can also be used for carcass composting.

How to do it?

Commence with a 300 mm layer of sawdust or more if a large carcass, on to which the carcass or carcasses are laid. Carcasses need to be covered on all sides with 300 mm of sawdust, and alternating layers added until the bin is full. Larger carcasses can be cut open or dismembered to prevent swelling, and still may need to be 're-covered' after a few days. After 3 months move the compost to the secondary bin or turn it, and allow this second stage to stand for another 3 months. After around 6 months in total, the material in the bin should be a dark coloured, humus like material with little odour and may be able to be carted away for land application.



Carcass compost 'bin' constructed of timber



Covered composter using spent straw bedding

Tips for operation:

1. Keep the fresh sawdust as dry as possible. Fresh sawdust will shed water if the pile is mounded with steep slopes.
2. More sawdust in the base of the bins reduces leaching.
3. Where leaking occurs due to rainfall or coarser substrate, roof over the composter.
4. Maintain good rodent control and protect from other livestock.
5. Aeration is important for the composting process and turning the secondary pile can be time consuming. Passive aeration i.e. not turning the pile will make the process take more time.

Schematic layout of 3 bay carcass composting bin

