Compost Use

Compost Use on Produce Farms

Composting of animal manure can reduce microbial pathogen numbers in the manure. This reduction in the numbers of pathogens in compost is due to the high temperature phase of an aerobic composting process. There is no time interval recommended between compost application and crop harvest, due to the reduction in pathogens by the high temperature phase of composting. High temperatures are maintained by manipulating the compost pile inputs (feed stocks), carbon and nitrogen ratios, moisture and aeration. The longer the duration of this high temperature phase, the more likely pathogens will be killed. The time frame required for this kill varies, depending on the inputs used for the composting and the conditions. Time frames range from 5 to 15 days, and desired temperatures range from 130° to 160°F. Monitoring the pile temperature is the only effective way to verify that killing temperatures have been reached. Turning the pile when temperatures fall to 100°F is one strategy to assure thorough mixing and even heating of the pile. Monitoring weed seed kill is not a consistent measure of heating for kill of pathogens.

Once a compost is curing, prevent recontamination of the pile by covering the pile or storing the pile in an enclosed facility. Compost is a nutrient rich media well suited to microorganisms. Care should be taken to prevent the movement of either compost or the runoff from piles into fields or packing areas. This runoff provides a nutrient rich media for the growth of pathogens.

Simply piling manure and bedding without active management to achieve high temperatures will not transform the manure to compost. Anaerobic systems for producing compost also do not have a high temperature phase. In both of these cases, the materials should be treated as raw manure products (see **Manure Use** section). Therefore, you should know how the compost producer handles and monitors both the composting process and the final product storage. Information the producer should provide includes temperature and moisture management, specifying the duration and high temperatures that were achieved.

The producer should also monitor carbon dioxide and ammonia levels, carbon to nitrogen ratios, and equipment sanitation between raw and curing piles. Turning the pile to insure all parts reach the desired high temperatures is important and should be documented. The compost producer should be able to provide this information and verify the pile was protected from recontamination.

Only well cured, well managed composts should be used for the making of compost teas. The process of brewing a compost tea may increase the levels of harmful human pathogens, if they are present in the compost. A preharvest interval for compost tea use has not yet been proposed.

Compost Sources and On-Farm Storage

Good Agricultural Practices — **Practices Requiring Attention**

Management Area	Best Practice	Minor Adjustments Needed	Concerns Exist; Examine Practice	Needs Improvement: Prioritize Changes Here
Knowledge of compost handling from the provider	Compost producer keeps and provides records on feedstocks and handling practices that insure complete aerobic composting such as temperature, aeration and moisture management, equipment sanitation, and isolation and protection of curing piles.	Compost producer follows appropriate composting protocols but does not keep records to verify practices.		Little or nothing is known about the compost source, material used, or management strategies.
Composting conditions for manure and bedding	Compost producer manages compost pile to achieve a high temperature (131° to 160°F) for at least 5 days **AND** aerates or turns the pile several times. Records are kept.	The compost pile is monitored for moisture and aerated or turned several times, and temperatures monitored to insure a high temperature of 131° to 160°F for at least 5 days, but no records are kept.	The compost pile is kept moist and aerated or turned at least twice. Temperatures are not monitored but the pile is hot to the touch for least 5 days. The resulting product regularly has viable weed seeds present. No records are kept.	Pile is more akin to manure pile and no high temperatures were monitored or observed **OR** nothing is known about the composting conditions.

Compost Sources and On-Farm Storage

Management Area	Best Practice	Minor Adjustments Needed	Concerns Exist; Examine Practice	Needs Improvement: Prioritize Changes Here
On-farm compost storage prior to land application	Compost is stored in an area that is physically isolated from produce handling facilities. Barriers or tarps are used to minimize risk of leaching, runoff, wind movement and possible recontamination by wild animals **OR** compost is immediately applied to fields when received.	Compost is stored near produce handling facilities, but tarps are used to minimize risk of leaching, runoff, wind movement and possible recontamination by wild animals.		Compost is stored near produce handling facilities, and no tarps are used minimize risk of leaching, runoff, wind movement and possible recontamination by wild animals.

Compost Sources and On-Farm Storage Action Plan

Date: _____ **Reviewer:** _____ **Field or Commodity:** _____

Management Area	Best Practice	Minor Adjustment	Concerns Exist	Prioritize Changes Here	Your Plans to Reduce Risks			
					Action for Improvement	Person Responsible	Estimated Cost	Target Date
Knowledge of compost handling from the provider								
Composting conditions for manure and bedding								
On-farm compost storage prior to land application								

Compost Application Practices

Good Agricultural Practices **Practices Requiring Attention**

Management Area	Best Practice	Minor Adjustments Needed	Concerns Exist; Examine Practice	Needs Improvement: Prioritize Changes Here
Compost teas	No compost teas are used.	Only composts that achieved a high temperature of 140° to 160° F for 15 days are used to make compost teas to be applied to produce crops. This source compost is well cured **AND** is tested free of human pathogens prior to use for making compost tea.	Well matured, stabilized compost or a plant product is used in production of teas applied to foliage for fertility and pest management, **BUT** the compost is not tested for human pathogens.	Composted manure is used, but the compost process was not monitored **AND** the compost was not tested for human pathogens.
Sidedressing crops with compost	No produce crops are sidedressed with compost.	Produce crops are sidedressed using only properly composted manure **AND** the material does not come into contact with the plants.		Produce crops are sidedressed with compost, but the quality of the composting conditions are unknown.

Compost Application Practices

Management Area	Best Practice	Minor Adjustments Needed	Concerns Exist; Examine Practice	Needs Improvement: Prioritize Changes Here
Barriers to reduce compost runoff or movement to surface water sources	Crop residues or cover crops are always used to minimize compost runoff from fields. Cover crops or "filter strips" are always used at field boundaries and along water courses to minimize compost runoff.	Crop residues or cover crops are usually used to minimize compost runoff from fields. Cover crops or "filter strips" are sometimes used at field boundaries or along water courses to minimize compost runoff.	Crop residues or cover crops are not routinely used to minimize compost runoff from fields. Cover crops or "filter strips" are seldom used at field boundaries or along water courses to minimize compost runoff.	Cover crops are never used to reduce compost runoff from fields. Filter strips are never used along water courses to minimize compost runoff.
Record keeping of compost use	Detailed records are kept of fields receiving compost, including rates and dates of application.	Records are kept of fields receiving compost, but not rates and dates of application.	No records are kept of compost application, but compost is applied only to fields to be planted to non-human food crops.	No records of compost use are kept.

Compost Application Practices Action Plan

Date: _____ **Reviewer:** _____ **Field or Commodity:** _____

Management Area	Best Practice	Minor Adjustment	Concerns Exist	Prioritize Changes Here	Your Plans to Reduce Risks			
					Action for Improvement	Person Responsible	Estimated Cost	Target Date
Compost teas								
Sidedressing crops with compost								
Barriers to reduce compost runoff or movement to surface water sources								
Record keeping of compost use								