CERES Policy

Manure Composting Procedures under NOP

1	**Aims**	Specify requirements concerning composting procedures for different kinds of farms and crops.
2	**Background**	NOP gives detailed instructions for composting animal manure, to avoid food contamination with pathogenic micro-organisms, especially aggressive *E. coli* strains.
3	**Normative framework**	**§ 205.203** (c) The producer must manage plant and animal materials to maintain or improve soil organic matter content in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances. Animal and plant materials include: (1) Raw animal manure, which must be composted unless it is: (i) Applied to land used for a crop not intended for human consumption; (ii) Incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or (iii) Incorporated into the soil not less than 90 days prior to the harvest of a pro duct whose edible portion does not have direct contact with the soil surface or soil particles; (2) Composted plant and animal materials produced though a process that (i) established an initial C:N ratio of between 25:1 and 40:1; and (ii) maintained a temperature of between 131° F and 170° F for 3 days using an in-vessel or static aerated pile system; or (iii) maintained a temperature of between 131°F and 170°F for 15 days using a …..windrow composting system, during which period, the materials must be turned a minimum of five times. **§ 205.103(b)** …records must… (4) Be sufficient to demonstrate compliance with the Act and the regulations in this part. **National Organic Standards Board, Compost Task Force Recommendation, 2002** …researchers did not observed growth of enteric pathogenic organisms when compost tea or extract was prepared only with water and high quality compost. By high quality compost, they mean compost that has met criteria for destroying pathogenic organisms, i.e., 131ºF for 3 days, or compost that has less than 3 MPN salmonella per 4 grams compost (dry weight) and less than 1000 MPN fecal coliforms. The critical determinant regarding pathogen growth in compost teas and extracts is the addition of the carbon sources like sugars, molasses, or yeast or malt extracts during the “brewing” phase. Recommendation: Compost teas if used in contact with crops less than 120 days before harvest must be made from high quality compost described above and not prepared with addition of supplemental nutrients such as sugars, molasses or other readily available (soluble) carbon sources. (…) Vermi-composting, while not contributing to contamination of the environment by

		heavy metals, needs careful preparation and management of the organic wastes. Feed stocks for vermicompost materials include organic matter of plant or animal origin; either a single material or mixture, preferably thoroughly macerated and mixed before processing. Pathogenic organisms are eliminated in 7-60 days, depending on the technology used. All vermi-composting systems depend upon regular additions of thin layers of organic matter at 1-3 day intervals to maintain aerobicity and avoid temperature increases above 35 degrees C (95 degrees F), which will kill the earthworms. Permitted methods and required duration of vermicomposting include outdoor windrows (6-12 months), angled wedge systems (2 - 4 months), indoor container systems (2-4 months) and continuous flow reactors (30-60 days).
4	**Terms**	• Compost (NOP definition): "The product of a managed process through which micro organisms break down plant and animal materials into more available forms suitable for application to the soil. Compost must be produced through a process that combines plant and animal materials with an initial C:N ratio of between 25:1 and 40:1." CERES clarification: Obviously, compost can also be produced **only** from plant materials. In this case, however, the NOP requirements are not applicable, because this compost is not considered a health risk. Composts made **only** from animal manure, without plant material, however, are <u>not</u> compliant with NOP! • 131° F ≅ 55° C; 170° F ≅ 75° C • Compost tea (NOP definition): "A compost tea is produced by combining composted plant and animal materials with water and a concentrated nutrient source such as molasses. The moisture and nutrient source contribute to a bloom in the microbial population in the compost, which is then applied in liquid form as a crop pest or disease control agent." • Vermi-composts are organic matter of plant and/or animal origin, consisting mainly of finely-divided earthworm castings, produced non-thermophilically with bioxidation and stabilization of the organic material, due to interactions between aerobic micro-organisms and earthworms, as the material passes through the earthworm gut (NOSB definition, 2002).
5	**Policy**	
5.1	**Records on composting**	CERES will require detailed records on composting procedures, including temperature readings, whenever there is a real health risk, i.e. when animal manure is applied within 4 months before harvest on crops, where contact between manure and the edible part of the plant is possible. This is the case for most vegetables, strawberries and similar crops. CERES provides producers a special record form for this purpose. For crops, where the health risk is low, obviously the farm has to comply with the NOP compost standard, too, but CERES will not request detailed records. It is sufficient, if the farmer can explain, how the required temperature is achieved, and how often the compost is turned.
5.2	**C:N ratio**	Normally, CERES will not request a laboratory analysis for the initial C:N ratio of compost material. It is sufficient, if the farmer can demonstrate a reasonable mixture of C-rich (like straw, sawdust, and most crop residues) and N-rich (like manure and urine) materials of around 1:1 to 2:1 (volumes).
5.3	**Old compost**	It is debatable, whether the waiting periods of 90 respectively 120 days are necessary for animal manure, which has been decomposing (without respecting C:N ratio and temperature requirements) for one or even several years. The NOP, however, has been very strict on this, so there is no space for different interpretations here. So exactly the same requirements exist for any kind of manure, which has not undergone a composting procedure as described under § 205.203, be it fresh or old.
5.4	**Vermi-compost**	CERES will follow the above mentioned NOSB recommendation regarding vermicompost. In tropical regions, minimum composting time in outdoor windrows is four months, in temperate regions 6 to 12 months.

5.5	**Compost tea**	CERES will follow the above mentioned NOSB recommendation regarding compost tea containing animal manure. No restrictions apply for teas made from compost tea of plant origin only.
5.6.1	**Pastures: high animal concentration**	In some regions, animals graze on the same land, where some kind of cultivated, wild or semi-wild crop is harvested (e.g. zero-input fruit orchards, wild crafting of typical grassland species, etc.). CERES considers this as comparable to a fresh manure "application" **only, if the density of droppings is very high**, like e.g. below shade trees, or close to watering places. On such places with high density of animal droppings, the same waiting periods apply as on arable land: • Products, where there is a possible risk of contact between animal droppings and the harvested product (e.g. apples collected from the ground, *Taraxacum* or *Plantago* leaves harvested from grassland): The 4 months period between grazing and harvest has to be respected. • Products, where there is no or a very low risk of contact between animal droppings and the harvested product (e.g. cherries picked from the tree, *Agave* leaves, wild crafted elderberries or *Taraxacum* roots): The 3 months period between grazing and harvest has to be respected.
5.6.2	**Pastures: Normal animal concentration**	No restrictions exist for products collected from **normal** pasture land, with low density of animal droppings (except that it must, of course, comply with "land requirements" according to § 205.202: no use of prohibited substances during 3 years).
6	**Related documents**	3.2.10: Brief Info NOP 4.3.1: Organic Management Plan Crop Production 4.3.1.1: NOP Composting Record Form