



Demeter Association Inc. Commercial Composting Standard

1) Purpose

This Standard for Commercial Composting serves to provide the framework for composting in a commercial setting commensurate with Biodynamic® principles.

The philosophy behind Biodynamic agriculture recognizes the farm as a self-contained, living organism. In such a system the value of inputs generated out of the living dynamics of the farm itself, including animal manures and the presence of livestock on the farm, play a critical role due their contribution to the sustainability and vitality of the farming system. A commercial composting operation, by its nature, will often be steps removed from such an agronomic principle however this Standard recognizes the value of high quality, locally sources animal manures, and local sourcing of other high quality feed stocks, in the overall quality of a certified compost product.

Making Biodynamic compost, using the Biodynamic compost preparations, is a very deliberate process. Rudolf Steiner described this as a process of literally making the compost pile inwardly sensitive and receptive. In this sense it imparts a cosmic intelligence to the pile and ultimately to the soil the compost is applied to.

2) Principles

2a) While the composting process, upon initial observation, seems to be a breaking down process, it is also a building and stabilizing process that moves raw compost ingredients towards a colloidal humus state. The heat cycle reduces pathogens and weed seed viability.

The compost must not present a health risk due to pathogens that may be present in feed stock materials. The carbon to nitrogen ratio of the ingredients must be in the range of 25-40 to 1. Producers using an in-vessel or static aerated pile system must maintain the

composting materials at a temperature above 131 °F for 3 days. Producers using a windrow system must maintain the composting materials at a temperature above 131 °F for 15 days, during which time, the materials must be turned a minimum of five times. While there may be instances that arise where such a windrow system needs to be used (such as piles that become over saturated with water for example) as a general rule excessive turning of the compost pile should be avoided. A properly built compost pile should have the Carbon to Nitrogen ratio, porosity, and moisture content to allow the pile to decompose properly without excessive turning. Temperatures reached by the Biodynamic compost should not exceed 150 F.

2b) There are instances where quality composts that do not meet such times and temperatures might be made, such as a high carbon compost or barrel compost. Note that if such composts are to be used in compliance with the NOP organic regulation, their use may need to recognize 90-120 day pre-harvest intervals, or be shown to be in contact/ incorporated with soil for 90-120 days during the process of making the compost- such as is often the case with making barrel compost.

2c) The Biodynamic compost preparations 502-507 must be utilized in order to make Biodynamic compost. They should be present to guide each stage of the manure's decomposition cycle to a humus state and at a minimum are utilized upon the initial building of the pile and also with the first turning of the pile. It is also recommended that they be used each time the pile is turned thereafter.

2d) In some climates, a cover might be needed to prevent excessive moisture addition or excessive moisture loss. In such instances the cover used needs to allow the compost pile to breathe and interact with its surrounding environment.

2e) Ideally Biodynamic compost piles are made in direct contact with the earth if it is possible to do this in compliance with local regulations (state, county, etc.)

2f) As a rule a commercial Biodynamic compost must contain 25% high quality animal manure as an ingredient. Exemptions to this requirement can be granted based on circumstance.

3) Environmental concerns

The location, design and function of manure/ingredient storage facilities need to comply with all federal, state and local laws governing clean water, clean air and health, safety and welfare. Manure/ingredient storage facilities need to be located outside of floodplains and areas of shallow groundwater, as well as outside frequently moist or saturated soils. A manure/ compost ingredient storage management plan should be developed and put in place, taking into consideration a 25-year 24-hour storm event. Manure/ingredient storage facilities need to be designed to prevent any direct or indirect flow of manure/contaminants into surrounding land, streams, rivers, or other surface

waters in the event of sustained heavy rains and runoff, ruptures in storage tanks, leaching from in-ground pits, or breaching of storage lagoons. Clean water run-off from roofs, surface flows, and overflowing waterers need to be diverted away from manure piles. If manure and/or compost piles are less than 50' upland from a waterway the piles need to be covered during rainy periods and/or a leachate containment system is in place. Active and finished compost piles must be stored up slope from manure / ingredient storage to prevent contamination.

4) Source Materials

4a) The effective carbon footprint that results from the movement of compost ingredients from their source to the composting site needs to be considered. Bulk manure and feedstock ideally comes from the farming system itself or are imported from the general region where the compost is made. Ideally the composting of waste contributes to the overall well-being of a given local community and serves as a solution to local waste management concerns. If imported from the outside of a given farming system bulk imported compost ingredients (such as bulk manures and feedstock) should not travel long distances to the composting site.

Bulk raw ingredients must not travel more than 250 miles to reach the composting site.

Please note that the Demeter Farm Standard does not permit Demeter farmers to import finished compost from sources that are located more than 250 miles from the farm.

4b) The use of organic wastes from municipal sources, industrial sources or synthetic, chemically farmed agriculture can be problematic. Such materials may be contaminated with environmentally persistent chemicals, heavy metals, and genetically modified plant material.

Municipal "green waste" used as feedstock must not contain compostable plastics and must be source separated prior to receipt at the certified composting site. Green waste arriving with large amounts of plastic, glass and other non-organic materials cannot be used as feedstock.

There must be a clear chain of custody documented for all imported feedstock used

Care should be taken with regard in the choice of sources used as compost ingredients. Attempt to use materials that have not been contaminated with prohibited materials such as prohibited pesticides, GMO's, heavy metals, wormers and antibiotics. In the event this is not possible product testing may be required to show that the finished product is not contaminated with materials suspected to be in the ingredient source.

Manure sources should come from certified organic livestock production at a minimum. If

this is not possible and conventional livestock manure is used, the materials used in the conventional livestock production (i.e. wormers, hormones, GMO feed, antibiotics, persistent pesticides) must be documented. No manure that is derived from “intensive” confinement operations- animals not having regular, reliable and effective access to the outdoors- will be allowed.

5) Use of the Biodynamic compost preparations 502-507

The base of compost preparations (502-7), the method of use and production as indicated by Rudolf Steiner in the Agriculture course, need to be utilized in all composting operations. The use of other preparations, developed since Steiner’s lectures on agriculture, may be approved on a case-by-case basis.

Proper storage of the Biodynamic preparations is extremely important and will be checked during the evaluation visit. Preparations should be stored in a material that allows for the presence of oxygen and that does not impede on the life and well being of the preparations themselves. Earthen crocks with non-metallic or synthetic lids are ideal. These containers should be stored in an untreated wooden box surrounded by peat or an insulating substance of similar nature. It is desirable to keep the peat moist and to check the condition of the stored preps from time to time. They need to be kept moist and cool but not wet. They should not freeze. The box should be placed in a location free of electromagnetic fields (EMFs) as well volatile chemical compounds such as gasoline, paints etc.

6) Packaging, Storage and Transportation

Storage and transportation of finished compost should not be done in a manner that compromises its biological or nutrient quality. Packaging, storage and transportation of compost should not be done in a manner that presents a risk of contamination of compost with prohibited materials.

7) Labeling

The Demeter labeling standard must be followed. Please see the Demeter labeling standard. Potting mixes/ soil blends labeled using Biodynamic®, to reference the compost contained as ingredient, must contain at least 25 % compost made to these Standards and the remaining ingredients must meet the requirements of the National Organic Program at a minimum and each non – compost ingredient must approved by the Demeter Association.

8) Recordkeeping

Records maintained by the composting operations must be able to track finished product sold back through the building of the compost and finally to the receiving of the

ingredients used to produce compost sold.

9) Testing

If the finished product results from feedstock that present a risk of contamination from persistent pesticides, heavy metals, pathogens or GMO's, product testing of finished compost for these materials will be required. Unless feed stocks are shown to be from certified Biodynamic or organic agriculture the following will need to be tested for at a minimum:

- a) Organo chlorine pesticides - needs to show non-detected.
- b) Chlopyralids and related persistent herbicide materials- needs to show non-detected.
- c) GMO's- if feedstocks are from GMO agricultural sources or sources potentially fed GMO feed – needs to show non- detected for the DNA suspected.
- d) Heavy metals- test results must fall below these levels:

Arsenic (As)	13 ppm
Cadmium (CD)	10 ppm
Chromium (Cr)	200 ppm
Copper (Cu)	600 ppm
Lead (Pb)	300 ppm
Mercury (Hg)	10 ppm
Nickel (Ni)	200 ppm
Selenium (Se)	36 ppm
Zinc (Zn)	2800 ppm