

National Organic Program Final Rule
Guidelines for Compost and Manure for Organic Operations

Definition of Compost (205.2)

- 1) an initial C:N ratio of between 25:1 and 40:1, and
- 2) is maintained at a temperature of between 131 degrees F for 3 days using an in-vessel or static aerated pile system; or
- 3) is maintained at a temperature of between 131 degrees F and 170 degrees F for 15 days using a windrow composting system, during which period the materials must be turned a minimum of 5 times

Use of Animal Manure (205.203)

Raw animal manure must be composted unless it is:

- 1) Applied to land used for a crop not intended for human consumption;
- 2) 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;
- 3) Incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portions does not have direct contact with the soil surface or soil particles.

Recommendation on the definition of compost by a task force of the National Organic Standards Board

(these guidelines do not constitute a Federal regulation)

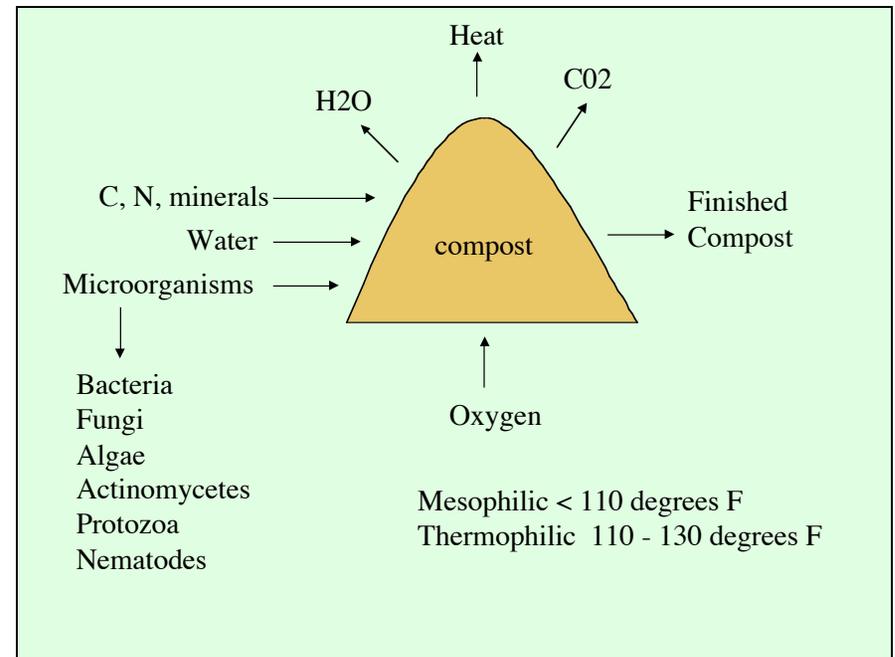
- 1) Compost, in addition to that described in section 205.203 is acceptable if:
 - a) made from only allowed feedstock materials, except for incidental residues that will not lead to contamination,
 - b) the compost undergoes an increase in temperature to at least 131 degrees F and remains there for a minimum of 3 days, and
 - c) the compost pile is mixed or managed to ensure that all of the feedstock heats to the minimum temperature

The monitoring of the above 3 parameters must be documented in the Organic System Plan submitted by the producer and verified during the site visit.

Benefits of Using Compost

- Improves the soil structure, porosity and density, thus creating a better plant root environment.
- Increases moisture infiltration and permeability of heavy soils, thus reducing erosion.
- Improves water-holding capacity, thus reducing water loss and leaching in sandy soils.
- Supplies a variety of macro and micronutrients.
- May control or suppress certain soil-borne plant pathogens.
- Supplies significant quantities of organic matter.
- Improves cation exchange capacity (CEC) thus improving their ability to hold plant nutrients.
- Supplies beneficial micro-organisms to the soil.
- Improves and stabilizes soil pH
- Can bind and degrade specific pollutants.

Courtesy US Composting Council



Compost Feedstocks:

Municipal yard waste
Animal manure (chicken 10:1) (horse 25:1)
Vegetable processing waste
Fruit processing waste
Straw
Sawdust

Types of Piles:

Passive
Turned windrow (most common)
Aerated static piles
In-vessel systems

Ideal Conditions for the compost process:

C:N ratio 20:1 - 40:1
Moisture 40% - 65%
Oxygen >5%
Temperature 110 to 150 degrees F (adequate to kill most weed seeds and pathogens)
Bulk Density 1,000 lbs per cubic yard (2 yards per ton)

Common Additives:

Limestone
Gypsum
Finished compost (inoculant)
Blood meal (N)
Bone meal (Ca, P)
Clay
Sand (aeration)
Seaweed (K)
Bulking materials

Potential Problems:

High Bulk Density
Compaction
C:N ratio too high
C:N ratio too low
Moisture too high >60% anaerobic
Moisture too low <40% process slows
pH too high > 8.5 NH₃ loss, inhibition of microbes
pH too low < 5.5 inhibition of microbes

Determining Maturity:

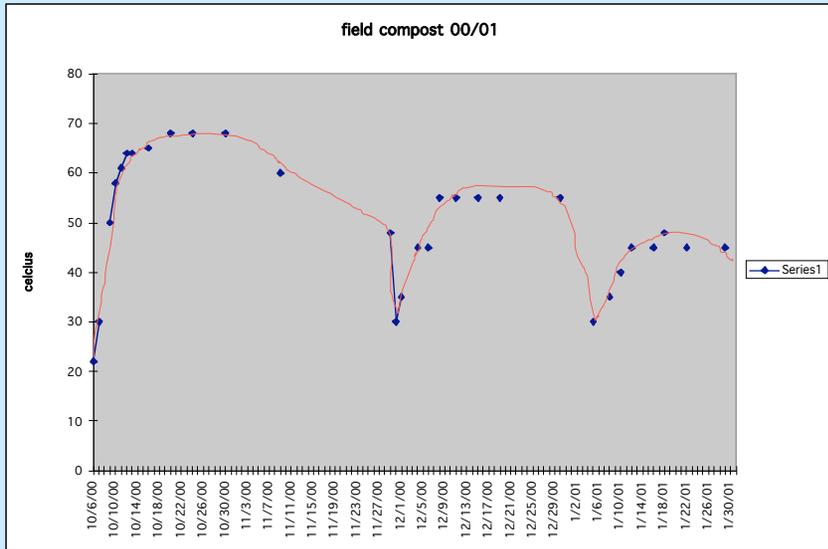
NO₃ : NH₃ ratio .5 - .3
CO₂ respiration low
C:N ratio 25 - 30:1
Total NH₄ ppm <100
Seed germination

Compost Quality Guidelines:

All material dark brown (black indicates possible burning)
Parent material no longer visible
Structure is mixture of fine and medium size particle and humus crumbs
Moisture 30% to 40%
Smells like rich humus
No ammonia or anaerobic odor
C:N ratio <17%
Total organic matter 20-35%
Total N 1-2%
Ammonium O or trace
pH 6.5-8.5

Courtesy Amigo Contasano (ag consultant)

Typical CASFS farm field compost temperature curve (3 turnings)

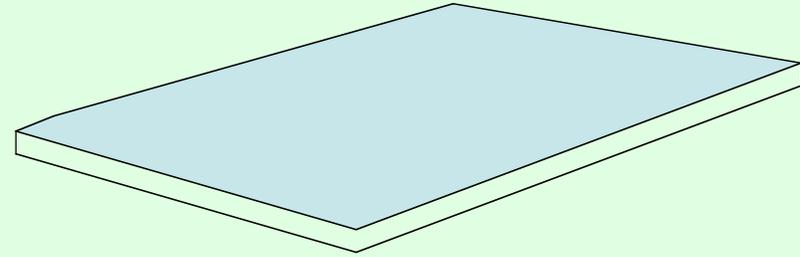


Field Application

25 tons per acre application rate = 3/8 inch thick layer

@ 1% N a 20 ton application rate will apply 400 lbs N per acre

Many organic growers on the Central coast apply between 5 and 10 tons per acre per year



One acre = 43,560 square feet