

Compost Operator Certification

By Joshua Levings

▶ What is composting?

- Composting is a controlled, biological, aerobic process to speed up the decomposition of organic materials.



▶ The composting process

- Composting requires a balance of air, water, carbon (browns) and nitrogen (greens). If these ingredients are out of balance the microorganisms responsible for composting can not thrive.
 - Optimal carbon to nitrogen ration is from 30:1 up to 60:1
 - Optimal moisture content is 50% to 60%



▶ Microorganisms

- Psychrophilic

- Needed to start decomposition in winter
 - Thrive at temperatures of 32° F to 68° F

- Mesophilic

- Start the heating process
 - Thrive at temperatures of 68° F to 113° F

- Thermophilic

- Maintain the heating process
 - Thrive at temperatures of 113° F and above



▶ Carbon to nitrogen ratio

- Why is this ratio important
 - Microorganisms use carbon for energy and building blocks and nitrogen for building blocks only.
 - Too much carbon based material and not enough nitrogen based material the composting process stops.
 - Too much nitrogen based material and not enough carbon based material and the composting process will produce a sulfur smell.
 - Not enough air or water and the microbes will stop reproducing



▶ What is compost?

- Compost is simply decayed organic material such as leaves, shredded yard trimmings, kitchen scraps, manure, and sometimes sludge (Bio Solids)



▶ Pros of composting

- Good way to recycle
- Environmental benefits – regenerate poor soil, prevent erosion, degrade chemicals in wood and the soil itself, and reduces the need for fertilizers.



▶ Benefits of compost

- Supplies nutrients to plants
- Reduces the need for chemical fertilizers
- Holds water
 - For every 1% increase in organic matter in the soil, water-holding capacity increases by ~20,000 gallons per acre
- Reduces erosion
- Filters storm water



▶ Cons of composting

- Equipment and effort required – the proper equipment, time and effort is needed to make sure the compost comes out right.
- If the pile is not processed and turned frequently you will get bad smells and attract rodents and other pests.
- Is it Safe?
- All this equipment and effort costs money.



▶ Composting vs. Landfill

- Did you know that about 80% of what is disposed of in landfills is compostable?
 - Argument – well it will just decompose in the landfill.
 - Answer – yes it will decompose in the landfill however this is a anaerobic (without air) process which produces methane gas. Also, you can not return the material to the soil.



▶ Types of composting

- Static pile – without turning, needs air pumped into pile. This process is best for small scale composting.



- Windrow – in a long row that is turned frequently during the process. This process is best for larger scale composting.



- In vessel – contained inside a container. This process is best if odors and pests are an issue.



- Vermicomposting – With worms. This process is great for small in home composting and education but can be done on a large scale.



▶ Money – It's all about the money.

- Composting can cost a lot of money but can also generate income to cover those costs.
 - On average 1 cubic yard of Class A compost can sell for anywhere between \$50–\$100.
 - To produce compost a facility must be registered with the New Mexico Environment Department.
 - To sell compost a seller must be registered with the New Mexico Department of Agriculture.
 - Note: Compost is not solid waste and does not fall under the same regulations as solid waste .



▶ Permitting / Registration

- To produce compost a facility must be registered with the New Mexico Environment Department.
 - Los Alamos County already has a registered compost facility. This registration included the ability to compost food waste.
- To sell compost a seller must be registered with the New Mexico Department of Agriculture

- Note: Compost is not solid waste and does not fall under the same regulations as solid waste .



▶ Santa Fe Bio Solids Compost Facility



Questions?

