Hot Composting with the Berkeley Method

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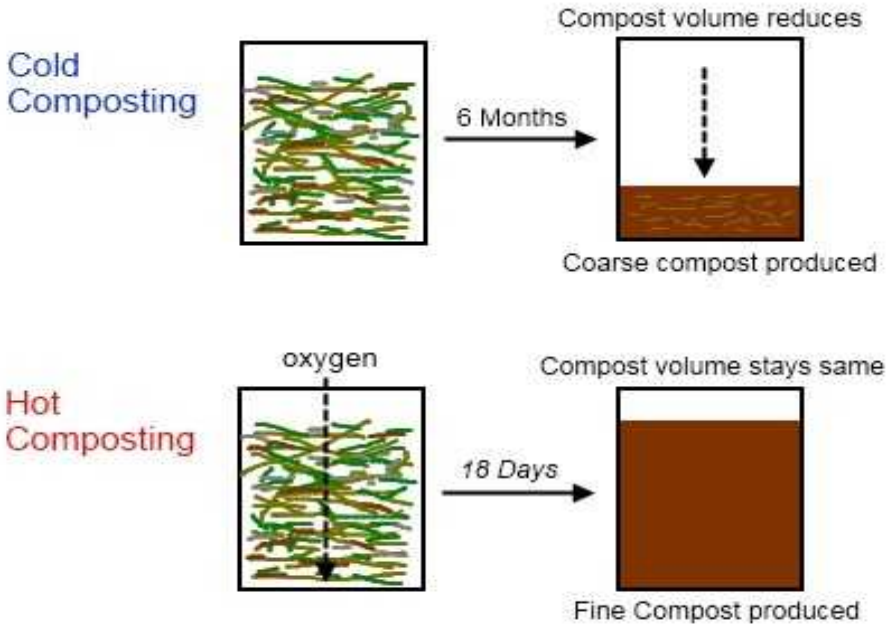
Student Intern 2013
August 2013

A fast method of composting was introduced by Robert D. Raabe, a plant pathology professor at the University of California, Berkeley. The common names for this method are “Berkeley method,” “fast composting,” or “hot composting.” The Berkeley method

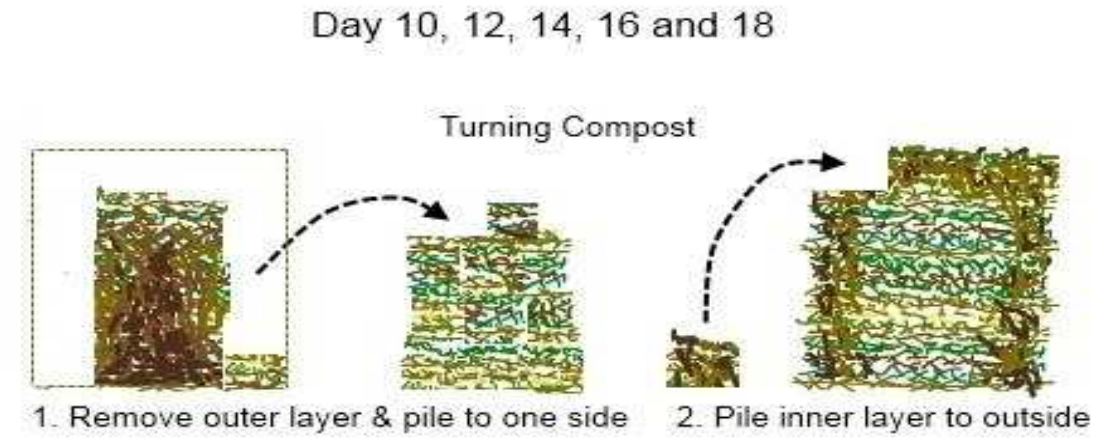


produces more yields of finished compost than the traditional method. With a little more effort and hard work, one can establish usable, finished compost in as little as two to three weeks. Rather than waiting up to six months to a year or longer for the traditional compost to cure and be ready to use, one can have finished compost in under a month.

The way to get one’s pile ready in such a short time period is having the right ratio of carbon to nitrogen, 30:1. For every unit of nitrogen used by the bacteria in compost, they also use about 30 units of carbon. To keep the pile working efficiently, the compost pile needs to be 30 parts carbon to 1 part nitrogen. The compost microbes and bacteria use the carbon for energy and the nitrogen for protein synthesis. Green material is to be considered nitrogen: examples include grass clippings, manure, alfalfa meal, comfrey, vegetable waste, or green prunings. Brown material is to be considered carbon:

examples include straw, cardboard, dead leaves, dried grass, or paper. Finding the right recipe for hot compost can be a challenge, but the right recipe is known when you get immediate heat, which means the microorganisms are hard at work processing the carbon and nitrogen. Some advantages to using the Berkeley method, besides the quick turnaround, are the higher nutrient contents due to less leaching of the nutrients. The longer the pile sits, the more nutrient loss due to runoff from the water running through the pile. Also, most weeds or weed seeds are killed from the high temperature the microorganisms cause.

One of the main keys to making a fast compost pile is having the materials, mainly the carbon materials, chopped or shredded into small pieces. This can be done with a shredder or chipper, or just by running the lawn mower over it. The material decays best when the material size is between ½ to 1 ½ inches. The smaller size gives the material more surface area for the compost microbes to work, and allows more air and water to get through the pile.



The ratio of the compost pile needs to be 30:1, carbon to nitrogen. Making the correct ratio can be difficult, but if one adds equal amounts of greens and browns it should approximately be 30:1. Green material can be vegetable waste, manure, grass clippings, or old flowers. Brown materials can be fallen leaves, straw, dried grass, or small twigs. Starting out with a coarse layer of material on the bottom gives the pile the ample aeration it needs. Next, one should take the shredded brown and green materials and begin layering them and mixing them into a large enough pile to start producing heat. While making the compost pile, water should be added to each layer to ensure that the pile is not too dry. However, adding too much can cause the microbes to stop working, and the pile will not decay properly. The moisture content of the pile should be about 50%. This can be determined by getting a handful of compost and squeezing it. If water runs out, the pile is too saturated.

Heat is a very important aspect to a fast compost pile. The heat is provided by the respiration of the microorganisms that are breaking down the organic matter. An adequate pile should have consistent temperatures between 140-160 degrees Fahrenheit. If the pile temperature gets higher than 160 degrees Fahrenheit, it will kill the beneficial bacteria that are needed to complete the composting process. The microorganisms decompose the compost materials most rapidly in this temperature range. A good pile

will stay at a constant temperature. One can measure the temperature using a thermometer.

The heat of the pile can also be checked by sticking a hand or arm into pile to test to see if the pile is hot enough. If so, the pile is ready to be turned. The bacteria in compost need air to survive, so the more often you turn the pile the better. Start turning the pile by bringing the outside to the inside of the pile. This should be done every other day to get the fastest results. The last thing there is to do is monitor the pile by turning it on time and making sure the compost pile does not get to hot or dried out.

My Experience:

Composting is trial and error; if you don't get it right the first time, then try again. That is what I had to do this summer. I made four different piles at the beginning of the summer using different materials in each pile to see if I could make fast turnaround compost. Out of the four piles, two are usable.

The first pile was made of storm debris, crop residue, comfrey, straw, grass clippings, and biochar. The pile was an experiment to see how well green leaves decompose in a compost pile, but the lignin in the leaves did not have enough time to break down. The carbon to nitrogen ratio was off by a lot. The green material, leaves, comfrey, and grass

clippings burned up so quickly and all that was left was brown material that would not compost.

The second pile was composed of pine needles, comfrey, crop residue, ag lime, and biochar. Pine needles were a challenge because of their acidity, which is the reason for adding the ag lime. I was trying to see if pine needles would be a logical thing to compost, and it turned out that it would not be. The breakdown time for the pine needles is so long that the pile would have to be on the ground for at least a year. Plus, the levels of acidity would be too high to have in your soil, unless you needed to change your soil from basic to acidic.

The third pile was of cow manure, comfrey, straw, crop residue, and biochar. This recipe was the most successful. It made some good usable compost. The one thing I would change is the amount of green material that was put into the pile. More nitrogen material needed to be added to get the carbon decomposed properly.

The fourth pile is a mixture of all three other piles with a combination of storm debris, cow manure, comfrey, pine needles, crop residue, and biochar. The combination made a well composted mix. It is not as rich as the cow manure pile, but good compost.

The final pile I made was a combination of using the first pile as brown material and horse/chicken manure, and comfrey. I started it on July 25, 2013, and by August 9, 2013,

the pile had already transformed into a compost-looking substance. This recipe for fast turnaround compost has worked the best. I believe that is because of the trial and error element, I have learned what to do and what not to do in making compost piles.

This is what 14-day old compost looks like if the recipe is correct.

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Report published 2013 by Kerr Center for Sustainable Agriculture; available online or by contacting the center.

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