Name(s)	**Project Number**
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Project Title

Grow with the Flow: The Effect of Aeration on Compost

Abstract

Objectives/Goals
My goal is to motivate people to recycle food waste by finding the best way to compost by differing amounts of aeration and noting the effects by examining its nutrient levels and radish growth in compost.Because the Nature Mill Automatic Composter and the 0-holed trash can received no aeration,inside the composting container it'll be warm and moist,desirable for bacteria,a main component of creating compost.I thought a symbiotic mutualism would occur between the bacteria and the compost,so in return for the moisture and warmth,the bacteria would decompose the organic matter into compost to provide nutrients for plants.I hypothesize compost will be moister in the compost bins with no aeration because of the heat and no air flow within them;so when tested for nutrients and used to grow radishes,these composts will yield the tallest radishes and highest nutrient levels.

Methods/Materials
I added the same amount of food waste to the Nature Mill compost machine and the 4 20-gallon trash cans, each bin varied in amounts of aeration: Nature Mill machine had no holes, 1 trash can with 90 holes, 1 with 45 holes, 1 with 23 holes, and 1 with 0 holes. The Nature Mill machine composted by plugging it into the wall and the trash cans required mixing once a week with a hoe. I tested each compost for their nutrients(pH,nitrogn,potassium,and phosphorus) with the Mosser Lee Test kit. I grew radishes in each compost with controlled conditions.The materials are Mosser Lee Kit, radish seeds,pots,20-gallon trash cans,Nature Mill,and many organic materials.

Results
I recorded results including the number of leaves the radish contained in each pot, the height of the radishes in each pot, and the nutrient levels of each compost compared to the most desirable for radish growth. Data was collected from each compost and the results varied. All of this data helped me determine which compost was the most desirable for radish growth.

Conclusions/Discussion
My hypothesis was disproven,since less aeration did not produce compost with the highest nutrient levels. The Mosser Lee Soil Test Kit was used to determine the most appropriate nutrient levels for growing radishes and along with the data obtained through growing of radishes, the compost and aeration from Trash Can 2 with 45 holes was determined to be the most desirable for radish growth. Other conclusions were made from the various patterns in my data based on aeration variation.

Summary Statement

It's about encouraging people to recycle food waste by discovering the best way to compost through differing amounts of aeration and observing the effects by examining its nutrient levels and radish growth in compost.

Help Received

Mother and Father provided supplies. Father drilled holes in the trash cans.