CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s)
Gabriel H. Bloch

Project Number
J1904

Project Title
How Does Your Garden Grow? What Is Your Compost to Soil Ratio?

Abstract

Objectives/Goals
The hypothesis: box #3 with 50% compost to 50% soil ratio would grow the fastest and would be the most efficient.

Methods/Materials
I started my project by going to Dixieline and getting a two section worm casting (compost box). I put newspaper at the bottom of the box, a handful of sand, a handful of soil, and some crushed leaves into the box. Then I retrieved 20 red wriggler worms from my garden and consistently gave all our organic leftovers to be composted. I waited about a month, and then I saw worm castings at the bottom section of the box. I got four pots with a length of 44cm, width of 16cm, and a depth of 12cm. I started to fill the pot with only soil, the next pot with 25% compost, the third box with 50% compost, and the fourth box with 75% compost. After doing so, I placed the boxes in a place where they would get a half days sun. After finding a suitable spot, I put 10 cherry radish seeds in each pot 5cm away from each other and 1cm into the soil. I placed plastic food wrap over the pots for 3 days with holes in them, and waited for the seeds to sprout. When they started to sprout, I took off the plastic food wrap. I watered the plants everyday with 1 cup over each pot equally. I waited and measured each plant when they started to grow, and observed obvious signs of health improvements.

Results
After 40 days of testing 10 plants in each of the 4 pots, I saw drastic differences between the plant sizes and health. The second pot was by far the healthiest and tallest of the plants, and had an average plant height of 12.65cm. The first box then came second with fairly healthy looking plants, and an average height of 6.9cm. The plants in the third box looked very weak, and were dying towards the end of the experiment; this pot had an average height of 6.7cm. The fourth pot never sprouted and was too moist and watery throughout the experiment. I then decided to weigh the radishes, and saw that the second pot's radishes weighed the most and tasted the sweetest. I was happy to see this drastic difference because hopefully this will encourage others to stop filling the landfills with left over#s, but instead, compost it down in your own backyard and use it for a smarter purpose.

Conclusions/Discussion
Box #2 with 25% compost was the most efficient, and I would recommend that you should use this ratio to make a healthier and more productive garden.

Summary Statement
too determine the ratio of organic compost to soil that would benefit your garden and the environment around you.

Help Received
my dad helped me compost down scraps, and put compost and soil in each pot.