Organic Homemade Fertilizer: An Analysis of Organically Made Compost and Nutrient Water Compared to Store Bought Fertilizer

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Reusing food waste and using natural fertilizers on organically grown produce is important to me. I redesigned and rebuilt a compost grinder to create a new type of organic fertilizer for seven outdoor food plots (12 ‘by 8’ each). I compared this fertilizer to commercial fertilizers (Miracle Grow, Bonnie, Expert, Scotts and Espoma). Organic wastes I included were banana peels, egg shells, peanut shells, coffee grounds, grass clippings, paper and water. The fertilizer was dried and amended into the soil to provide the required nutrients for growing. Based on my research, I hypothesized the organic fertilizer would produce plants with significant or equivalent mean height and produce more produce. Each plot contained plantings grown from seeds of corn, beans, carrots, pumpkins, cucumbers and onions. Throughout the 146 day trial, plants were watered, fertilized, weeded, measured and produce weighed. P-Values and 36 two-sample t-tests for population means were used to determine the significance of growth. The p-value is on a normal distribution curve, and the two-sample t-test for population means is a way of standardizing the average means. Thereby my hypothesis was supported due to 22 out of 36 tests being either significantly in favor of organic fertilizer or not significant at all. The organic fertilizer is a better alternative to commercially made fertilizers due to its environmentally friendly nature. This project helped my family to consume produce without chemicals. This is my final year of science fair, however I plan to continue to pursue science studies in college.

Awards Won: