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The Effects of Organic and Inorganic Fertilizers on Soil

The purpose of this project was to determine the effects of organic and inorganic fertilizers on soil. The project shows the impact that fertilizers have on different aspects of soil health, bacteria and nutrients in the soil. I hypothesized that organic fertilizer would have a more positive effect on soil health in general.

The project involved pouring water with different types of fertilizer through soil to represent the leaching of the soil, and the water that came through was tested. To do this, different types of agar that promoted the growth of certain types of bacteria were used. Water test strips were used to determine nutrient content.

The data collected somewhat supported the original hypothesis. It indicated that the concentration of Nitrate escaping the soil through leaching when inorganic fertilizer was 65.13% of the amount of Nitrate that leached when organic fertilizer was used, and Phosphate leaching when organic fertilizer was 87.92% of the leaching that occurred as a result of using inorganic fertilizer. In general, inorganic fertilizer seemed to promote the growth of acid-producing and gram-negative bacteria. Organic fertilizer, on the other hand, promoted the growth of ammonia-producing, hydrogen- sulfide producing and gram-positive bacteria more.

These findings lead me to believe that inorganic and organic fertilizers promote soil health in different ways. Both fertilizers promoted the growth of helpful and harmful bacteria, and each caused more of a certain nutrient to be present. Either type may be more useful, depending on the type of plant grown.