Effect of Biochar on Zea mays Growth in Different Soil Types

Peuster, Jayleigh

The purpose of this project was to determine the effect of biochar on the growth of Zea mays in different soil types, as well as measure the soil capacity of each. 8 pots were labeled, and 200 g of pebbles were poured into each pot. The appropriate amounts of soil/biochar were then measured and poured into the pots. 4 Zea mays seeds were planted and drainage containers were placed under each. On days one, three, five, 300 mL of spring water was poured into each pot, and after three minutes, drainage was measured. On days seven, nine, eleven, the process was repeated using 50 mL of spring water. On even numbered days up through twelve, the growth of each Zea mays shoot was measured in centimeters. All of the above steps were then repeated for two more trials. In this experiment, it was hypothesized that biochar would increase the soil capacity of the tested growing environments: sandy soil, topsoil, peat and loam, with sandy soil having the greatest increase in soil capacity. These hypotheses were accepted. It was also hypothesized that the amount of biochar directly correlates with increased Zea mays growth. This hypothesis was also accepted; during research, it was discovered that biochar is used as a soil enhancer. This soil, in specific, had an overall average growth increase of 12.81 cm after the twelve measurement days. In sharp contrast, the least amount of overall soil improvement for growth occurred in the topsoil environment, as the average growth of plants in pots containing biochar was 4.42 cm lower than in biochar's absence.

Awards Won: