Accelerating Plant Growth to Improve Crop Production and Soil Fertility: Analyzing the Effects of Macronutrients and Mycorrhizal Fungi for Zea mays, Phase III

Livesay, Kayla (School: Van Buren Community Schools)

I tested how combinations of fertilizers and fungi would affect biological aspects of Zea mays (corn). I also compared soil and tissue samples throughout growth to measure environmental impact on plant and soil conditions. My project is crucial to help society be more conscious when applying macronutrients. This helps producers be economical by reducing inputs. Growers can also improve the environment; reducing fertilizer quantities which create chemical run-off, detrimental to the biome. Knowing which methods produce better biological aspects is pertinent so producers can increase production, paramount as the population expands. Previously I grew corn indoors, then moved outdoors researching the effects of macronutrients on growth, health, and yield. This year I was striving to discover a natural solution to raise yield with fungi while monitoring similar components. I introduced the fungi to different applications of fertilizer to simulate the interaction with modern farming practices. In conclusion the Mycorrhizae/Foliar plants experienced the quickest growth. The Y-Drop plot had the most improper pollination, diminishing yield. The Mycorrhizae/Foliar combination facilitated pollination, biological aspects, and soil fertility. Overall the use of Mycorrhizae/Foliar is most beneficial for plant and soil conditions, showing Mycorrhizal fungi can be a natural replacement for fertilizers.

Awards Won: