Drought Impact on Soilborne Fungal Pathogen of Tomato

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During the course of my project, I conducted 11 Main Procedures: Gather All the Soils, Sterilize the Soils Using Auto-Clave, Water Retention Test Using Auto-Clave, Cultivate Pathogen, Grow Tomato Plant, Count Pathogenic Cells, Innoculate the Pathogen, Conduct Root Dip, Grow Positive and Negative Samples, Test for Fusarium, and the Soil Separation Experiment with Pathogenic Soil. These tests proved my hypothesis incorrect: “Under a drought condition, soilborne pathogen will increase because of changes in the soil such as its water retention capacity, affecting the pathogen population to harm the plant.” First, I tested 6 Main Soils used in farming throughout California. The Yolo Series, Whiterock Series, Euic Soil, Potting Soil, Blacklock Series, and Henneke Series. I tested the dry/wet weight of the soils, as this gave me a good estimate of how much water the soils can retain. This is very important because I found a direct correlation between the soil that retained the most amount of water and the soil that had the least harms done. Next, the other labs were completed to cultivate, inoculate, and test the pathogens in the soil. Later, after I finished conducting the root dip, and raising the tomato plants; I counted the Fusarium amount and plated the samples. In each of the 90 reps. the Fusarium decreased, which differed from my hypothesis becuase I believed that it would increase. From my Pathogen Severity Experiment, I learned that the harms done to the Early Pak 7 Tomato Plants were much greater, even though the pathogen were dying. Since, the soil was poor with low water content, and dry material; the plant’s vascular system was weak, thus it was easier for a small Colony Forming Unit to weaken the plant and eventually kill it.

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