



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

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Project Title The Effects of Wildfire Ash on Soil Nutrient Levels	
<p style="text-align: center;">Abstract</p> <p>Objectives There have been multiple wildfires around the state of California in the past few years. I wanted to see if the ash from the wildfires affect the nutrient and pH levels of the soil, making it easier for plants to grow back.</p> <p>Methods I gathered the branches and duff layer from where I collected my dirt to simulate a wildfire and to collect the ash. I had two containers without an ash layer for controls and four containers with an ash layer for testing samples. I watered once every 12 hours for 24 hours with 4 gallons of water for each sample each time. I obtained a core sample from the middle of each container and tested each one three different times with a Rapitest soil test kit. I tested it for nitrogen, phosphorus, potassium, and pH. I then sent each soil sample off to A and L Laboratories in Modesto, CA for more accurate testing.</p> <p>Results The results from the Rapitest soil test kit and A and L Laboratories were very similar, but A and L had much more detail with numbers instead of colors. The nitrogen in my controls was very low at 1 ppm and the samples with the ash were all 1 ppm except for Sample 2 which was 4 ppm. The phosphorus in my controls was 10.5 ppm and in the samples with the ash were averaged to 28.75 ppm. The potassium in my controls was very low at 167.5 ppm and the samples with the ash were 288.75 ppm. The pH of the controls were 6 and in the samples with the ash my pH was between 6.5 and 7.1. Samples 1 and 3 are similar and samples 2 and 4 are similar except there is a significant difference between the two groups. I found part of an owl pellet in Sample 4 and I think the rest of it may have been in Sample 2 making these two samples outliers.</p> <p>Conclusions After using the Rapitest soil test kits and getting the results back from A and L Laboratories, I found that the ash did indeed add nutrients back into the soil and made the pH more neutral because the soil was acidic before adding the ash.</p>	
Summary Statement After the recent wildfires we have had the past few years in California, I decided to test nutrient and pH levels of the soil to see if wildfire ash affects it in a positive or negative way.	
Help Received	