The Effect of Smoke on Farm Crops

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In this project I wanted to conduct research to see if wood-fire smoke had an effect on the growth of farm crops. In many regions, there is a fire season that puts a large amount of wood smoke into the atmosphere. This season is also when many farm crops are hitting their growth peak. If the smoke has an effect on the plants then farmers may adjust their growing cycles around this fire season. I had two separate terrariums, one control environment and one environment where smoke was introduced weekly. Each environment had six wheat and six barley seeds each. They were kept in the same room and exposed to the same amount of light and water. The only variable that was changed was the smoke introduced to the environment. I pumped smoke into the terrarium through a duct attached to a small, student-made stove in which the fire was built. The terrariums were both sealed all the time except for when I had to measure the heights of the plants and water them. I measured their heights weekly. In order to obtain more data points I also added a second generation of plants to see if the smoke would also affect the sprout rate. I found that the wheat plants grew significantly better after being exposed to the smoke. The barley plants showed no significant change in height.

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