

Abstract

Project Title: Plants v. Global Warming

Project ID: 238

The purpose of this experiment was to answer the question: How does the number of plants affect the temperature in regards to global warming? Global Warming is a problem in our world today. It has already caused our planet's temperature to rise since 1900. It will only become worse in the years to come. This is caused by the overloading of carbon dioxide into our atmosphere. This traps heat and makes the planet's temperature higher. Some effects of global warming are ice caps melting, ocean levels rising, and more severe storms. One way people are trying to help stop global warming is planting trees.

One way people are trying to help stop global warming is planting trees. The goal of the experiment was to identify if there was a relationship between the number of plants and temperature change. The experiment involved placing various amounts of plants in glass jars to simulate the greenhouse effect where it was placed under a grow lamp to simulate sunlight for 12 hours a day while adding additional CO_2 to the jars every 2 hours. It was hypothesized that the jars with plants will record the lowest temperature compared to the control because of the idea that the more plants there are, the more CO_2 will be converted into oxygen which will reduce the temperature compared to a jar with no plants. Each jar had a different amount of plants: Jar 1 had zero plants (control), Jar 2 had one plant, and Jar 3 had 3 plants. In conclusion, the hypothesis was supported. This means that with an absence of plants to convert CO_2 to oxygen, the temperature will continue to rise. The hypothesis was supported because the jars with the plants had a lower average temperature than the jar with no plants for 4 out of 5 trials. For trials 1 and 3, jar 2 recorded the lowest average temperature. For trials 2 and 5, Jar 3 recorded the lowest average temperature. For this experiment, the only logical way to incorporate averages is if the outliers (entire trials) are excluded from the calculations. This would account for the hottest summer days and the coldest winter days. Outliers skew the data and do not allow for an accurate representation of an average.

For Jar 1, the average including the outliers was 23.04 C and without outliers it was 22.8 C. For Jar 2, the average including the outliers was 23.10 C and without outliers it was 23 C. For Jar 3, the average including the outliers was 23.07 C and without outliers it was 22.76 C. By excluding the outliers in the averages, Jar 3's average decreased by 0.31 C, Jar 2's average decreased by 0.10 C, and Jar 1's average decreased by 0.24 C. This experiment was done on a smaller scale, but the effects would be substantial if compared on a global scale.