CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s)
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Project Number
J2025

Project Title
Carbon Dioxide's Relationship to Plant Growth

Abstract

Objectives/Goals
There is no doubt that the earth's atmosphere is changing. Since the Industrial Revolution, the CO2 level has risen 30%. Knowing that CO2 plays such an integral part in photosynthesis, would this increase in CO2 mean an increase in plant productivity? Afterall, for years agriculturalists have been using CO2 to boost plant production. Our objective for this project was to see if increased CO2 would in fact cause increased plant growth.

Methods/Materials
Two sets of six Shasta Daisies were placed in a sunny, indoor location. They were seperate from one another yet, with equal temperature, water and sunlight. Set one had a drip system of vinegar (one drip per second) and baking soda. Set two was the control set with no drip. Weekly measurements were taken over the course of a month to see which set produced the most biomatter.

Results
Several factors influenced our results. It was a time of year with large temperature variances. It was difficult to accurately monitor CO2 levels. Once weakened, the plants were susceptible to insects and disease.

Taking these factors into account, results did show a rise in plant productivity at first with set one. After a peak in the first two weeks, this productivity slowed down. At this point, set two overtook set one in size and vitality. By the end of the experiment, set two was obviously healthier and larger overall.

Conclusions/Discussion
Our conclusion is that there is a distinct correlation between increased CO2 and plant productivity. However, over a period of time this increased productivity may put too much stress on the plant and decrease overall health and stamina as well as production. Short-term crop production may benefit. However, in the long run this stress may negate the benefit as plants peak and then fail.

Summary Statement
Our project is about the affects of increased carbon dioxide on plant growth.

Help Received
Mom typed the report for the backboard. She also did the drawings. We colored them in ourselves and pasted them on the board.