CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
Eva J. Cover

Project Number
J1606

Project Title
Fertilizer Withdrawal

Abstract

Objectives/Goals
The goal of my experiment is see what happens to plants given fertilizers (inorganic vs. organic) when they stop receiving the fertilizers. Using the results of this experiment, I hope to find which fertilizers are better for plants, over all. That way, farmers can have higher percent of marketable healthy plants, that haven#t died of unnatural causes.

Methods/Materials
Materials: 18 pots; Organic bat guano; Organic fish emulsion; Organic kelp meal; Organic plant food; Inorganic Alaska plant food; Inorganic Miracle Grow plant food; Inorganic Schultz plant food; Inorganic Peters plant food; Four level store bought greenhouse (2 ½#, 5#, 2#); 9 16 oz bottles to feed plants with; 18 plates; 4 bags of microwave soil; Lettuce seeds (Lactuca Sativa).
Methods: Buy a green house (2 1/2 x 5 x 2 feet); Microwave dirt; Put plates under pots with dirt on greenhouse shelf; Plant lettuce seeds; Give each plant 1/16 of a Tablespoon of fertilizer, do this every five days; Give plants fertilizer for three months then take them off the fertilizers.
Five days after the plants stop receiving fertilizer, tally up the amount of discolored leaves on the plant and the amount of leaves. Then find the height of each leaf, add all the heights together, and the divide them. In other words find the average. Record data for 9 days.

Results
I found that the plants given inorganic fertilizers had life threatening withdrawals or died. One plant given inorganic fertilizers wasn't affected in this way, it only had a decrease in its grouth rate. I believe this happened because it was given a fertilizer that was not all a chemical combination. On the other hand the plants given organic fertilizers only had minor withdrawals, for instance a decrease in grouth rate.

Conclusions/Discussion
The plant that did the best was the plant given Organic Kelp Meal. It was 19.4 cm tall and only had one discolored leaf. Before I started this experiment, I thought that the plant given Organic Fish Emulsion would do best. The plant given Organic Fish Emulsion didn#t die but the plant given Organic Kelp Meal did better. The plant given Inorganic Miracle Gro and the plant given Inorganic Schultz died.

In conclusion, plants given organic fertilizer and fertilizers not made out of chemicals experience only minor withdrawals from fertilizers and plants given inorganic chemical fertilizer experience life threatening withdrawals.

Summary Statement
The effects on plants conditioned to recieving organic vs. inorganc fertilizers when they stop recieving the fertilizer.

Help Received
Christie Rowe from the Dept. of Earth Sciences at UC Santa Cruz, for assisting my project via e-mail. Olivia Murphy and my teacher Lise Whitfield proof read my paper. I recieved interviews from Darren Pearson, Clara Vo, and Linda Cover.