CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY

Name(s)
Taylor Gillis; Cooper Louie

Project Number
J1610

Project Title
Humic Acid: The Root to Healthy Plant Growth

Abstract

Objectives/Goals
The objective of our project is to determine which soils will yield the greatest plant growth, root length, and root weight: soil without additives, soil with dry humic acid, soil with liquid humic acid, or soil with a combination of dry and liquid humic acid. We believe that the combination of dry and liquid humic acids will yield the best results.

Methods/Materials
Sixty pots were filled with potting soil. Dry humic acid was added to 30 of those pots. We put all the pots in a cold frame we built to keep the plants warm and enhance growth. Over the next two months we watered 30 pots with plain water and 30 pots with liquid humic acid. Two months later we pulled our plants and began gathering data, using the carrots, which grew the best. We measured the root and plant growth, and weighed the roots. After calculating the average weight and length of the roots and the average plant growth we developed graphs of our results.

Results
We measured the carrots in several different ways. The greatest root lengths were in soil without any additives. This is the opposite of what we hypothesized. Second we measured the plant growth. Once again the results did not support our hypothesis. After we measured all of our roots and plants, we dried the roots at a low temperature to remove moisture that had been absorbed while growing. When we weighed the roots the results supported our hypothesis.

Conclusions/Discussion
The hypothesis was partially supported by our data. A combination of liquid and dry humic acid in soil did produce the highest root weight. However, this combination did not produce the highest root length and plant growth. We think it would be valuable to complete more trials when our plants can be grown in warmer weather and aver a longer period of time. In addition, we would be interested in looking at the amount of minerals humic acid helps the plants to absorb.

Summary Statement
Our project was about testing the effects of dry and liquid humic acid on root length, root weight, and plant growth.

Help Received
Borrowed triple beam balance from science teacher and father supervised building of our cold frame.