CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY

Name(s)
Kelsey L. De Avila

Project Number
S1412

Project Title
The Correlation between Manure Composting Time and the Presence of Escherichia coli on Spinach

Abstract

Objectives/Goals
The goal of this project is to prove that composting time is needed to kill the e. coli bacteria and also to prove that there is a direct correlation between manure composting time and the presence of e. coli on spinach.

Methods/Materials
Manure; 5 plant containers; Spinach seeds; Shovel; Soil; Water; Watering can; Latex gloves; Half of a milk carton; 33 Petri dishes; 9.0 g of Agar; 1.5 g of Yeast; 300 mL of distilled water; Microwave; Flask; 33 inoculating loops; Incubator; Freezer.

Results
For 4 weeks composted: zero e. coli colonies. 3 weeks composted: an average of 2 e. coli colonies. 2 weeks composted: an average of 19 e. coli colonies. 1 week composted: an average of 37 e. coli colonies.

Conclusions/Discussion
Due to recent events in 2006, e. coli has broken out through the United States.There were 5 containers, each of them were growing spinach. In 4 out of 5 trays cow manure with different composting times (1-4 weeks) was placed onto the spinach early in the experiment. One month later the leaves were tested proving that e. coli dies off between weeks 3 and 4 of composting. With the recent outbreaks in spinach, consumers should be one of the first to know what they might have purchased.

Summary Statement
To see if there is a correlation between manure composting time and the presence of e. coli on spinach

Help Received
Mrs. Hampton my teacher at Arlington High and also Mr. Ellis from Arlington who provided the pure e. coli for e. coli control.