CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s)
John P. German

Project Number
J2009

Project Title
When Farmland Is Gone, Where Will We Grow Our Food? Hydroponics Is the Answer

Abstract

Objectives/Goals
The goal of this project was to prove that hydroponics is capable of producing an equal, if not more, yeild than traditional farming in soil.

Methods/Materials
For this experiment I required: Hydroponic growing trays, hydroponic starter plugs, romaine seeds, potting soil, grow lights, aluminum foil, plant labels, work bench, pH tester, All purpose 16-16-16 water soluble concentrate seaweed plant food, micronutrients botanical extract, funnel, 5 gallons of distilled water, general hydroponics "pH Up", calculator, gram scale and measuring cups.
Place the starter plugs in one of the hydroponic growing trays then fill the other tray with potting soil. Plant 50 romaine seeds in the individual holes of the starter plugs, one seed per hole. Plant 50 evenly spaced romaine seeds in the potting soil tray. Mix the watering solution and adjust the pH level of the solution so that the pH is neutral. Water the hydroponic tray with enough of the solution that the plugs become damp. With the same water, dampen the soil tray. Label the trays soil and control. Place aluminum foil on wall to magnify light intensity. Place trays under grow lights with the lights on 24 hours per day. Water the trays in two day intervals. After four weeks of plant growth, harvest exactly half of the plants that grew from each tray. Weigh the plants that were harvested on a gram scale seperatly.

Results
The results of this experiment were that the weight of romaine lettuce grown hydroponically weighed the exact same as the romaine grown in soil. The final weight was 10 grams each.

Conclusions/Discussion
From this experiment I can conclude that romaine lettuce grown hydroponically will produce an equal yeild as romaine lettuce grown in soil. I can also conclude that once all of our farmland is developed, hydroponically grown crops could be one of the possibilities that could sustain our society and perhaps the world.

Summary Statement
My project was to prove that plants grown hydroponically will produce an equal yeild as compared to plants grown in soil.

Help Received
Father got supplies; Mother helped type and developed pictures on my board.