



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Darrick L. Gowens	Project Number J1618
Project Title Comparing Varying Levels of Oxygen Aeration in Increasing Plant Production	
Objectives/Goals The objective of my project is to determine if the amount of aeration has any effect on plant production.	
Abstract Methods/Materials I am using a stone that will aerate the water with various amounts of time. I am using vermiculite as a growing medium in five different containers. I built screened boxes to hold the vermiculite medium to set inside the container. In four of the containers, I placed an aeration stone. I added water to each of the containers and planted each container with the seeds. In the control group, I will use the same amount of growing medium in each growing container. I will place the seeds one and one-half inches apart. I will record the germination rate. Then I will allow the plants to grow for twelve weeks before I harvest the plants for weight, the length of the taproot, the height of the plant and the diameter of the taproot and stem of the plant. The experimental variables that I am using are the varying amounts of aeration that is added to the water. <ul style="list-style-type: none">· Three hour aeration period· Six hour aeration period· Twelve hour aeration period· Twenty-four hour period	
Results The average days of germination was eight and one-half days in all groups (aeration and control group). The average height of the plant is twenty-nine and one-half centimeters tall. The difference between the plants that are aerated and the control group is eight and three-quarters centimeters taller in height. The average length of the plant taproot is twenty-three and eights-tenths centimeters long. The difference between the plants that are aerated and the control group is one and three-quarters centimeters longer. The average width of the plant taproot is fifty-two thousandths. The difference between the plants that are aerated is five thousandths. The average width of the plant stem is one hundred twenty-five thousandths. The difference between the plants that are aerated is eighteen thousandths. The average weight of the plant is two and five tenths of a gram. The difference between the plants that are aerated is thirty-five hundredths of a gram. The more aeration that is given to a plant after germination, the larger and healthier the plant will become than plants with less or no aeration.	
Conclusions/Discussion My conclusion on adding aeration to growing plants hydroponically was that I discovered the more you aerate the water the stronger and larger the plant will become.	
Summary Statement My science project is to determine if the amount of aeration has any effect on plant production.	
Help Received My grandfather guided me in building the plant boxes. My mother advised me of errors and in board setup.	