



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Courtney J. Smith	Project Number J1637
Project Title The Effects of Various Ozone Levels on Gossypium barbadense C.V. Pima S-6	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this study was to determine if Gossypium barbadense c.v. pima S-6 exposed to low, medium, and high levels of ozone would affect the G. barbadenses' roots and shoots. This study was conducted to help know how ozone affects plant growth.</p> <p>Methods/Materials Three chambers were programmed at a high level of ozone, three at medium, and three at low. Each chamber contained 12 pots, with two seeds each, totaling 216 plants. Each week, two pots were taken from each chamber. One plant per pot, exhibiting the poorest growth, was eliminated. Each plant was washed and cut, separating the root and shoot. Each root and shoot were weighed, measured, and dried in force-air ovens. Dry weights were recorded for each root and shoot. This was completed over a six week study period and was repeated for another six weeks. Each group was identified as a generation.</p> <p>Results The results of this study showed that the average growth of plant roots grown in varying levels of ozone were as follows: high 0.19 g, medium 0.47 g, low 0.84 g. The average growth of plant shoots were as follows: high 0.74 g, medium 1.15 g, low 1.86 g. Plants exposed to low levels performed best, exhibiting the highest growth rates.</p> <p>Conclusions/Discussion Ozone affected the growth of the G. barbadenses' roots and shoots. However, ozone affected root growth more than the shoot. Ozone contributes to poor air quality in the Central Valley, which in turn affects the yeilds of crops grown. This results in less profits for farmers.</p>	
Summary Statement The purpose of this study was to determine the affects of various levels of ozone on the growth of Gossypium barbadense c.v. pima S-6; the data showed that plants exposed to low levels exhibited the highest growth rates.	
Help Received Used lab facilities and equipment at UC California Kearney Agricultural Center under the supervision of Dr. David Grantz	