



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> Monica Lydon; Brittany Schwandt	<b>Project Number</b>  22852
<b>Project Title</b> Mars Sweet Mars: Can Plants Survive on Mars?	
<b>Objectives/Goals</b> The objective of our project is to determine which amounts of fertilizer added to Martian soil produces the most growth to bean, tomato, and carrot plants. Our goal is to keep plants alive in Martian atmosphere for 3 days. <b>Abstract</b> <b>Methods/Materials</b> After terra-forming soil from silicon dioxide, magnesium oxide, aluminum oxide, calcium oxide, and ferrous oxide, we planted tomatoes, beans and carrots in low 20-gallon tanks, using different brands x each. We simulated Martian atmosphere in the tanks with carbon dioxide, argon, nitrogen, and oxygen, and added various amounts of Scott's and Bandini fertilizer to determine which amounts kept the plants alive longest. <b>Results</b> Our control group plants with no fertilizer died within 24 hours. Plants with 56.25 grams of fertilizer survived for 60 hours. Plants with 106.25 grams of fertilizer survived for 187 hours. However, plants with the 165.25 grams survived for only 9 hours, because too much fertilizer acted as a toxin and killed the plants. <b>Conclusions/Discussion</b> Although we predicted that plants would survive for 3 days, they actually survived for 8 days and grew up to 4 inches. This allowed oxygen to be released into the atmosphere, decreasing the amount of carbon dioxide in the atmosphere and becoming more similar to the Earth's atmosphere. As we continue studying the possibility of visiting Mars, we realize that if we could grow enough plants on Mars to alter its atmosphere, eventually humans could live there on the food produced.	
<b>Summary Statement</b> After replicating Mars' soil and atmosphere, we tested what amount of fertilizer produced optimum growth results.	
<b>Help Received</b> Our teacher helped us design the experiment.	