



**CALIFORNIA STATE SCIENCE FAIR  
2010 PROJECT SUMMARY**

<b>Name(s)</b> Mark A. Amash	<b>Project Number</b> <b>S2001</b>
<b>Project Title</b> Can Cotton Replace Soil for Plant Growth?	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Would plants be able to grow if their primary nutrient source, soil, is replaced with cotton? If so, would cotton be better or worse for the plant?</p> <p><b>Methods/Materials</b> For my materials, I used soil, cotton, lentil beans, black beans, garbanzo beans, red kidney beans, pinto beans, water, 5 pots, 5 saucer plates, and a metric ruler. I first went to purchase my supplies. Next, I labeled all the pots and saucer pans. I planted six seeds of each plant in five different labeled pots according to the label. I planted six seeds of each plant in the cotton as well (for each of the five plants in the appropriate saucer pans). After i finished planting them, I watered each of the 10 total plants and each day I would measure their height (cm), the number of plants that grew, and the number of leaves that sprouted.</p> <p><b>Results</b> Each plant that was grown in cotton had delayed growth and productivity. The plants in soil showed normal, healthy plant growth. The lentils in the cotton were the only plants that were growing as normaly as though they were grown in normal potting soil. However, all the other four plants grown in cotton were shorter, had less leaves, and less plants sprouted over the same period of time. As the plants grew taller, the beans in the cotton began to fall to the ground earlier than the five corresponding plants in the soil.</p> <p><b>Conclusions/Discussion</b> Cotton retains some similar properties as soil does. Even though soil is better, I can conclude that cotton has the ability to support plant life. Each plant in the cotton grew, the growth and production was just delayed. Cotton has cellulose, water, phosphorous, calcium, and other proteins and organic matter that is required for plant growth. For this reason, plants were able to survive in the cotton environment. Based on the data, the taller the plants grew, the more they fell to the ground in the cotton. The fact behind this is that cotton is less dense than soil so soil has the strength to hold up a plant.</p>	
<b>Summary Statement</b> I tested to see whether plants will be able to survive and grow successfully if they are grown in cotton rather than in soil.	
<b>Help Received</b> Mother helped take pictures of me doing the project.	