



# CALIFORNIA STATE SCIENCE FAIR 2010 PROJECT SUMMARY

<b>Name(s)</b> Calla E. Lipscomb	<b>Project Number</b> <b>S2012</b>
<b>Project Title</b> <b>Growing Pains: A Study of the Effect of Pot Size on Plant Growth</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective is to determine if plants grow taller in larger sized pots.</p> <p><b>Methods/Materials</b> 72 bean seeds were planted in 24 pots of varying sizes (8, 6, 4 and 3 inches). Six pots of each of the four sizes were used to ensure a sufficient amount of data would be available for analysis. Three seeds were planted in each pot to ensure that every pot had a seed sprout. If more than one seed germinated per pot, the pot was thinned to only one sprout. The bean plants were watered on a daily basis, with equal amounts of water relative to pot size. The pots were placed on four separate trays and were kept under a fluorescent light at all times. Once a day, the trays were rotated one quarter turn around the table so that each tray would face a window and receive the same amount of natural light. Once the plants had been given around three weeks to grow, the heights were measured and recorded. For the next six weeks, each plant's height was measured and recorded on a weekly basis. Once the plants had reached a certain height, the stems had to be tied to dowels in order to ensure straight growth. After the final heights were measured and recorded, the statistical analysis was accomplished.</p> <p><b>Results</b> The tallest plant came from a 6 inch pot. In terms of overall height average, 6 inch pots were the tallest with an average height of 41.6 centimeters. 8 inch pots had the second highest average at 37.3 centimeters, followed by 4 inch pots at 37.2 centimeters. The 3 inch pots had the shortest average height at 33.4 centimeters. Once these averages had been calculated, a comparison between all pot size averages using the t-test was made. Based on calculated t-statistics, the only two pot comparisons that were statistically different were the 6 inch vs. 4 inch and the 6 inch vs. 3 inch.</p> <p><b>Conclusions/Discussion</b> Overall, the data did not support the hypothesis. The results indicate that the tallest plants did not come from the largest pots, but from a smaller sized pot. However, the data did show that the smallest plants came from the smallest pots. Furthermore, the statistical difference between the largest pots and the pots that yielded the tallest plants was not significant. Although the data analysis does not support the hypothesis, there appears to be some relationship between pot size and plant height.</p>	
<b>Summary Statement</b> This project is about the impact of pot size on plant growth.	
<b>Help Received</b> Parents assisted with project layout; Father assisted with statistical analysis	