



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>John R. Haggerty</b>	<b>Project Number</b> <b>J0605</b>
<b>Project Title</b> <b>The Effect of Dextrose as an Interfering Agent on Sugar Crystal Formation</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> This experiment investigates the relationship between the interfering agent, dextrose and crystal formation in sugar solutions. What is the least amount of dextrose that can be added to a sugar solution to prevent crystals from forming? The hypothesis is that a solution with one molecule of dextrose for every molecule of sucrose (ratio 1.0) will prevent crystals from forming.</p> <p><b>Methods/Materials</b> Four different sugar/dextrose solutions were tested with ratios of 0, 0.5, 1.0, and 1.5 dextrose molecules to sugar molecules. The solutions were placed in jars with strings suspended by toothpicks and allowed sit for twelve days. Half of the jars had strings that were seeded with sugar crystals. The resulting crystals were observed and weighed to compare the amount of crystals formed.</p> <p><b>Results</b> The 1.0 ratio solution yielded the least crystallization. The 0.5 ratio solution yielded significantly more crystallization than the control. The 1.5 ratio solution yielded more crystals on the string than the 1.0 ratio solution and had many small crystals forming throughout the solution. Seeding the strings had little to no effect on the crystallization.</p> <p><b>Conclusions/Discussion</b> The hypothesis was incorrect because all solutions yielded crystals. The 1.0 ratio solution did yield the least amount of crystallization. However, the dextrose seemed to support crystallization in the lower and higher concentration solutions. Additional testing of a greater variety of ratios of dextrose to sucrose would more precisely identify the effect of dextrose.</p>	
<b>Summary Statement</b> The experiment investigated the relationship between the interfering agent, dextrose and sugar crystal formation to determine the least amount of the dextrose that can be added to a sugar solution to prevent crystals from forming.	
<b>Help Received</b> My father taught me how to use Excel for data analysis. My mother assisted with seeding the strings and mixing the solutions when more than two hands were needed at the same time. My mother also assisted with typing.	