



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Remy A. Reeb	Project Number J2027
Project Title Reducing Food Waste: Better Preservation Techniques for Ice Cream	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals 24% of all ice cream is wasted every year in the United States creating a tremendous waste of resources. Formation of ice crystals is one of the main reasons people throw ice cream away. My hypothesis is that better preservation techniques will reduce the formation of ice crystals in ice cream resulting in less ice cream wastage.</p> <p>Methods/Materials To test my hypothesis, five different ice cream preservation techniques (plastic bag, plastic wrap, Sponge, Ice Pack and metal hitch) were tested against a Base Case with no extra preservation. In addition, "before" and "after" taste and appearance tests were conducted with test subjects to see if any preservation technique had an impact on the flavor or look of the ice cream. 18 tubs of ice cream were observed every other day for three weeks, and ice crystal counts (per square inch) and sizes were measured.</p> <p>Results My tests indicated that there is a correlation between ice crystal count, preservation technique, flavor, and appearance. Two preservation techniques (Sponge and Ice Pack), produced significantly lower ice crystal counts than the Base Case, as well as smaller average crystal sizes. The "Sponge" technique also resulted in the smallest decline in both flavor quality and appearance appeal according to the test subjects.</p> <p>Conclusions/Discussion In conclusion, my hypothesis has been confirmed that better preservation techniques can reduce the formation of ice crystals, which results in better flavor and appearance preservation. Lower crystal counts and better looking and tasting ice cream should result in less ice cream being thrown away.</p>	
Summary Statement Exploring preservation techniques to help save resources by reducing the amount of ice cream thrown away every year in the U.S.	
Help Received My father, Pete Reeb, helped me take measurements and create excel charts, and Mrs. Lopatka, my science teacher, provided insights.	