



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Lauren M. Aoki	Project Number J1402
Project Title The Effects of the Antioxidant Vitamin C on Organic Granny Smith Apples	
Abstract Objectives/Goals My objective is to determine whether or not the antioxidant, Vitamin C, is an effective preservative when applied to organic Granny Smith apples. Methods/Materials 132 organic apples, hand picked, from the same orchard, were randomly divided into two groups after an iodine-starch test was previously conducted to insure the apple's ripeness. The test group, consisting of 66 apples, was sprayed with a solution of Vitamin C (300 mg/5cc) every three days as an organic preservative. Internal fruit pressures were then obtained from three apples in each of the two groups every three days, using a penetrometer. The pressures were recorded and at the end of 66 days the readings were compared to determine the firmness of both the treated and untreated (control) apple groups. The weights of the apples were also recorded during the test period to determine if there was any relationship to the apple's firmness over time. Results The data showed the untreated group of apples decreased in internal pressure by 27%, while the treated apples with Vitamin C decreased in pressure by 14% over 66 days. This showed the treated group of apples had a 13% higher pressure and slower decline of firmness at the end of the experiment. The data also showed that all the apples in both groups lost weight over the test period, but this did not correlate with the decline of the apple's internal pressure. Conclusions/Discussion Vitamin C is a widely used vitamin supplement and antioxidant. Vitamin C when applied as a preservative to organic apples kept the treated apples 13% firmer than the untreated apples. This supported my objective and suggests Vitamin C can be used as a preservative for apples and other fruits and vegetables. Vitamin C should be considered as a preservative that also has antioxidant properties that can provide other medical benefits such as helping to prevent heart disease and certain cancers in humans.	
Summary Statement My project was to measure the effect of Vitamin C as a preservative and antioxidant on organic apples using the apple's weights and penetrometer readings.	
Help Received Mr. Piercy, Mr. Kinney, and my father reviewed my work and my mother helped type my report.	