



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Sara R. Nickel	Project Number 22690
Project Title Do Fruit and Vegetable Washes Really Work?	
Abstract Objectives/Goals The objective is to determine if the commercially available fruit and vegetable wash products remove bacteria better than dilute vinegar or water alone. Methods/Materials Five fruit and vegetable wash products, dilute vinegar and water were used to clean organically grown(no pesticides) tomatoes. The tomatoes were then cultured on blood agar plates and incubated for 48 hours at 37 degrees celcius. The plates were removed from the incubator and photographed. Bacterial colony counts and area of growth were measured for each plate. The data was recorded in tables and bar graphs. Results Washing with water or dilute vinegar solutions resulted in 80-90% reduction in bacterial colony growth. Three of the commercially available fruit and vegetable washes were comparable to water alone. Two of these products actually did worse. Conclusions/Discussion Several of these products advertise that they are 300-400% more effective than rinsing with water alone. None of these claims were proven true according to this experiment. In fact these products showed little, if any, benefit. Currently, the Federal Government does not have standardized testing methods for fruit and vegetable washes and advises consumers to rinse all produce with water.	
Summary Statement I compared the effectiveness of 5 fruit and vegetable washes to dilute vinegar and water alone.	
Help Received Dr. Michael Richardson, Pathologist, at St. Francis Hospital, in Santa Barbara, provided the petri dishes, incubator and photographic equipment. My parents helped with obtaining the tomatoes and the vegetable washes.	