



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

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<b>Project Title</b> Pesticides: What Cleans the Most Pesticides off of Fruit?	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> What cleans the most pesticide residue off of fruit? Cold tap water, hot tap water, cold tap water with soap, or hot tap water with soap?</p> <p><b>Methods/Materials</b> Thirty-six test apples of same size and shape were dipped in a Tartrazine Dipping Solution, which is an orange-yellow dye used as a substitute for pesticide residue. After 24 hours, the apples were shaken vigorously for 15 seconds in a plastic ziploc bag containing one of the four test samples (cold tap water, hot tap water, cold tap water with soap, or hot tap water with soap). The liquid from the bag was then poured into a vial and the color of the liquid determined the amount of Tartrazine Dipping Solution removed from the apple. A colormetric system was created to determine the amount of Tartrazine Dipping Solution removed.</p> <p><b>Results</b> All of the test results fell into the same range, so further serial dilutions had to be done to the Tartrazine Unit 1/32. The control group was cold tap water, and cold tap water removed more pesticide residue from the apples than any of the other test samples; hot tap water came in second place, cold tap water with soap came in third, and hot tap water with soap came in fourth.</p> <p><b>Conclusions/Discussion</b> Cold tap water proved to be the best in removing the most pesticide residue, therefore, the hypothesis was not supported. Cold tap water took off 1/64 of the Tartrazine Unit, while the other tests took off 1/64 &lt; 1/256 of the Tartrazine Unit.</p>	
<b>Summary Statement</b> What cleans the most pesticide residue off of fruit?	
<b>Help Received</b> Used lab materials (Tartrazine, vials) provided by Dr. Robert Krieger, University of California at Riverside.	