



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kristina M. Scheufler</b>	<b>Project Number</b> <b>J2320</b>
<b>Project Title</b> <b>Effects of Fruit Pesticide Residues on Brine Shrimp Mortality</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My family recently began to purchase organic fruits and vegetables. I became curious about the actual health benefits of organic fruits versus commercial fruits. I decided to design an experiment. The goal of my project was to determine if there might be a measurable difference in toxicity between organic and commercial fruit due to pesticide residues that could be detected through brine shrimp mortality.</p> <p><b>Methods/Materials</b> In my experiment I tested approximately 230 brine shrimp in 46 different sample dishes. I carried out preliminary tests to become accustomed to transferring and observing brine shrimp behavior. I also wanted to see how long the shrimp would survive in purified water. The shrimp survived more than eight hours in purified water. I purchased commercial and organic samples of each test fruit. I tested bananas, strawberries, pears, oranges, apples and lemons. I weighed all the fruits and tried to test similar amounts. I soaked the fruits in bottled, purified water for 24 hours. I then extracted the fruit water samples and placed the already hatched brine shrimp into the sample water. After placing the brine shrimp in the water, I checked the brine shrimp every few minutes with a flashlight to see how long they would survive, in both the organic and commercial fruit sample water.</p> <p><b>Results</b> For all types of fruit tested, the brine shrimp survived longer in the water soaked with organic fruits. Strawberries showed the least amount of difference between organic fruit water and commercial fruit water. Oranges showed the greatest difference.</p> <p><b>Conclusions/Discussion</b> The findings seemed to support the hypotheses, that pesticides used in commercial fruit farming might affect brine shrimp mortality. These findings cannot be correlated directly to human health. However, the results suggest that commercial fruit skins may contain harmful pesticides and that further studies for effects on humans should be conducted.</p>	
<b>Summary Statement</b> This project attempted to determine if there might be a measurable difference in the toxicity effects of commercial fruit skin residues versus organic fruits on brine shrimp mortality.	
<b>Help Received</b> Thanks to my parents for driving me to the store to obtain my supplies. Thanks to my science teacher for providing equipment.	