



# CALIFORNIA STATE SCIENCE FAIR

## 2007 PROJECT SUMMARY

Name(s) <b>Marie R. Laube</b>	Project Number <b>J1823</b>
<b>Project Title</b> <b>Do Different Household Substances Kill Whitefly on Hibiscus Plants?</b>	
<b>Objectives/Goals</b> My objective was to determine if different household substances would kill whitefly on hibiscus plants. I thought that the canola oil, dish soap, and whitefly insecticide would work the best.	<b>Abstract</b> The household substances I tested were water, whitefly insecticide, dish soap, canola oil, rubbing alcohol, 409, and bleach. I found two hibiscus plants with whitefly and used these for the experiments. At the beginning of each experiment I first counted the white eggs on the leaves. Then for each of the seven household substances I sprayed two leaves with each substance and counted the white eggs every three days for a total of nine days and recorded the results.
<b>Methods/Materials</b> The household substances I tested were water, whitefly insecticide, dish soap, canola oil, rubbing alcohol, 409, and bleach. I found two hibiscus plants with whitefly and used these for the experiments. At the beginning of each experiment I first counted the white eggs on the leaves. Then for each of the seven household substances I sprayed two leaves with each substance and counted the white eggs every three days for a total of nine days and recorded the results.	<b>Results</b> There were three experiments conducted on two different hibiscus bushes. In the best experiment, number three, when the leaves on hibiscus bush number two were treated with water, 409, bleach, and rubbing alcohol, the number of whitefly eggs was reduced. However, the leaves treated with dish soap, canola oil, and whitefly insecticide had no live whitefly eggs on them after day three.
<b>Conclusions/Discussion</b> There was some confusion on which eggs to count in the first experiment. Both white eggs and yellow larvae were counted, but in the next two experiments only the white eggs were counted. Also it took two experiments to determine the right concentration of dish soap to use. Although some of the household substances (409, bleach, rubbing alcohol, and water) had just a small effect on the number of whitefly eggs killed, the only substances that completely killed all the whitefly eggs on both tested leaves in at least one experiment were canola oil, dish soap, and whitefly insecticide. The reasons that these substances killed whitefly eggs are different. The dish soap disrupts the cell membrane which causes the contents of the cell to leak out and the eggs die. The canola oil suffocates the eggs. The whitefly insecticide, which was used as a positive control, contains canola oil and pyrethrins. Pyrethrins kill adult insects by disrupting the nervous system and causes paralysis. Therefore the hypothesis that dish soap, canola oil, and whitefly insecticide will kill the most whitefly eggs on hibiscus plants is correct.	
<b>Summary Statement</b> Different household substances were tested to determine if they could kill whitefly on hibiscus plants.	
<b>Help Received</b> Mother helped me choose project and gather data, brother helped me with the graphs, my teacher Mr. Pashkow helped me with editing.	