



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> <b>Hannah J. Washburn</b>	<b>Project Number</b> <b>J1222</b>
<b>Project Title</b> <b>Does Adding Polymers to Soil Prolong the Toxicity of Pesticide? Year 2 Study</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of my science project is to determine if adding PAM (polyacrylamide) to topsoil will prolong the toxicity of pesticide. A second year study was needed to remove the possibility of cricket age being a factor in cricket death. I solved this problem by using special order healthy 5/8" crickets (approximately 3.5 weeks old). Also, my year 1 study did not have a control group which I added in my year 2 study.</p> <p><b>Methods/Materials</b> To test my hypothesis I filled 30 plastic storage containers with 2 cups of untreated topsoil. Group A is containers 1-10, group B is 11-20, and group C is 21-30. Groups A and B then recieved 1 full spray of pesticide to each container. Group A also recieved 3/4 tsp. of PAM to each container. Group C was free of PAM and pesticide. I labeled and punched 10 holes in the lids of each container for air circulation. Then I added cricket food and 1 cricket to each container. I checked the containers 2 times a day for 51 days. If a cricket died I charted it in my data book and on the container lid then replaced the dead cricket with a live one.</p> <p><b>Results</b> My results for test group A showed that adding PAM did not significantly prolong the toxicity of pesticide. It took an average of 6.5 days for the 10 test containers to kill 92 crickets in a 51 day test period. Results for Group B are similar to Group A. Group B took an average of 6.9 days to kill 87 crickets in a 51 day test period. Group C appeared to provide an environment that allowed the crickets to live close to a normal life span. On average it took the 10 test containers 13.3 days to kill 30 crickets in a 51 day testing period.</p> <p><b>Conclusions/Discussion</b> After completing my science project I found my hypothesis was incorrect. My hypothesis stated that I believed adding PAM to topsoil would prolong the toxicity of pesticide. After studying the data I discovered that test group A and test group B had results so similar I could not claim a correct hypothesis. Also , when comparing the results of my year 2 study with those of my year 1 study I discovered significant differences in results. This leads me to believe that still even more testing is needed to acurately determine if adding PAM to soil prolongs the toxicity of pesticide.</p>	
<b>Summary Statement</b> This project is about determing if adding PAM to farmland for water conservation and to prevent soil erosion is also prolonging the toxicity of pesticide.	
<b>Help Received</b> Dr. James Ayars, Agricultural Engineer USDA-ARS helped with guidance and research; Dan S. Munk M.S. U.C. Davis Coop Extension helped with guidance and research; Carl Gong helped with graphs; and my mom helped to type some of my written work and photograph the experiment.	