



CALIFORNIA STATE SCIENCE FAIR 2011 PROJECT SUMMARY

Name(s) Tori C. Nishimoto	Project Number 31174
Project Title How Pesticides and Fertilizers Used in Home Gardens Affect the Hatching Rate of African Dwarf Frog Eggs	
Objectives/Goals My objective was to find out how harmful pesticides and fertilizers used in home gardens are on the hatching rate of African Dwarf frog eggs. Abstract Methods/Materials I used 2 different types of fertilizers and pesticides to test. I used water as my control group. I filtered all five solutions 3 times. I filtered each solution by putting each one into a different two inch pipe that was covered by fabric and I put 4 inches of soil in each pipe. I then poured a different solution into each pipe and collected what came out. Then I did the same thing, this time with 8 inches of soil. I also got 400 milliliters of each pollutant and the control group without filtering it. Using 15 silicone ice cube trays, I poured 20 milliliters of one of the 15 substances into all 15 compartments of the ice cube tray. I did this for the other 14 solutions, so there was a different solution in each ice cube tray. I placed these ice cube trays in a water bath set to 80 degrees. After waiting 24 hours, I placed a few frog eggs into every compartment of all of the ice cube trays. I waited another 24 hours and recorded the amount of frog eggs that hatched. Results The control group unfiltered had a hatching rate of 61%. Control 4 inch filtered had a hatching rate of 58.54%. Control 8 inch filtered had a hatching rate of 45.68%. This shows that there was something in the soil that made it harmful. The Bayer Advanced unfiltered, 4 inch filtered, and 8 inch filtered all had a hatching rate of 0%. The Organocide unfiltered had a hatching rate of 1.35%, which shows that it is still very harmful and only one egg was lucky enough to survive. The Organocide 4 and 8 inch filtered had a hatching rate of 0%. The Miracle-Gro unfiltered had a hatching rate of 3.08%. Miracle-Gro 4 inch filtered had a hatching rate of 22.58%. This high hatching rate could have been caused by a human error, and maybe I filtered it wrong. Miracle-Gro 8 inch filtered had a hatching rate of 0%. Alaska Fish Fertilizer unfiltered, 4 inch filtered, and 8 inch filtered had a hatching rate of 0%. These results show that all pesticides and fertilizers can be harmful to our environment. Conclusions/Discussion All pesticides and fertilizers can be harmful to our environment, so we should try to use as little as possible. Sometimes what is in the soil and collected in the pollutant during runoff can be harmful as well.	
Summary Statement I determined how harmful pesticides and fertilizers used in home gardens were on the hatching rate of African Dwarf frog eggs, which shows me how harmful they are in the environment.	
Help Received Retired science teacher helped get the frog eggs; Dad helped edit.	