



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>Maria H. Yerena</b>	<b>Project Number</b> <b>S1735</b>
<b>Project Title</b> <b>Effect of a Commonly Used "Organic" Fungicide on a Freshwater Plankton Community</b>	
<b>Objectives/Goals</b> My objective was to understand how a fungicide that is commonly used in Santa Cruz County and is certified for use on organic farms can affect plankton abundance and diversity of pond ecosystems.	
<b>Abstract</b> <b>Methods/Materials</b> I collected plankton at Pinto Lake by towing a plankton net along the surface of the water from a dock and diluted it in 10 L of lake water. I mixed the bucket of water and plankton and filled each of 24 cups with 300 ml of water and plankton. 48 hours later, I applied treatments of 0, 1, 2, 3, 4, or 5 drops of the copper fungicide to 4 cups of each treatment using a pipette. 10 days later, I decanted each cup over a fine mesh filter and preserved the filtrate into test tubes in isopropyl alcohol. Using a Sedgwick rafter (slide for counting plankton) and compound microscope to count the amount of zooplankton per volume of sample, I counted each organism and assigned it to the lowest taxonomic level possible using a key we made.	
<b>Results</b> 10 days following the fungicide treatment, experimental ponds (cups) with higher treatments of fungicide were visibly less green, suggesting the fungicide had an effect on phytoplankton. Overall, I found no clear relationship between the amount of fungicide applied and the average number of individuals per cup or the average level of biodiversity.	
<b>Conclusions/Discussion</b> The results do not strongly support my predictions that the number and biodiversity of zooplankton would decrease with increasing concentrations of fungicide. There were, however, visible (although not quantified) effects of fungicide on the color of the water, likely caused by effects on phytoplankton. Future studies should look further into impacts of fungicides on phytoplankton growth, since like zooplankton, phytoplankton is an important part of pond systems. I could also try realistic concentrations of fungicide from farm runoff and run the experiment for longer periods of time.	
<b>Summary Statement</b> I found that a copper fungicide had no clear effect on the abundance or biodiversity of zooplankton collected from a lake strongly impacted by agricultural runoff.	
<b>Help Received</b> UCSC grad student Dave Fryxell helped design experiment, analyze data, and put together board.	