



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Lauren C. Biedenharn</b>	<b>Project Number</b> <b>S1401</b>
<b>Project Title</b> <b>Survivor: The Cricket?</b>	
<b>Objectives/Goals</b> Can crickets take on fruit oils, even though they eat fruit? Which fruit oil is more toxic to crickets? What kills faster, oil sprayed on or oil through food? To answer this question I did multiple tests on crickets, fruits, and their oils. I placed two crickets in 12 test tubes. The first test tubes contained fruit slices, the next contained cricket meal with fruit oil of the same fruit slices, and the last 4 test tubes contained pure fruit oils which I sprayed onto the crickets. After leaving the crickets in their tubes for a few days, I observed them, and found that, the orange slice kept the crickets alive the longest, but its oil in the food and spray killed quickest. I also found that the fruit oils directly sprayed onto the crickets killed much faster than the oils in the food.	
<b>Abstract</b>	
<b>Methods/Materials</b> 12 cricket or fruit fly opened tubes; 12 cotton balls; A slice of Orange, Lemon, Lime, and two Green Olives (stuffed or un-stuffed); Orange, Lemon, Lime, and Green Olive Oils; Sprayer; Cricket Meal ( you can use oatmeal or a piece of bread);24 crickets (2 crickets for each tube, more crickets are fine. Procedure: 6. Next add two crickets to each tube. 7. On the #fruit slice# and fruit oil/food# section place a cotton ball in the opened top so the crickets cannot escape but can still breathe. 8. In the #Fruit Oil/Spray# section, now spray one oil per tube, and observe each test tube after you spray two or three small sprays. Be sure to put the cotton ball on top.	
<b>Results</b> Time of First Dead Cricket: Fruit Slices Fruit Oils/Spray Fruit Oil/Food Orange < 4 Days(88 hours) Instant Contact (1 second) > One Day(30 hours) Lemon 3 Days(72 hours) Almost Instant Contact (5 seconds) < Two Days(40 hours) Lime > 1 Day( 32 hours) 1 Minute Two Days(48 hours) Olive 8 Hours 5 Minutes < Three Days( 55 hours)	
<b>Conclusions/Discussion</b> After all my tests were complete I founded that the orange slice appeals most to the crickets and keeps them alive longest, but the orange oil in both spray and food kill fastest. Second was Lemon, the Lime, and lastly Olive for quickest killing of oil, but visa versa on slices. I also founded that direct spraying killed much faster than oils through food. I also researched that the crickets die of these oils because they suffocate them and the fruit acids also contribute to the death of crickets.	
<b>Summary Statement</b> I tested how toxic different fruit oils were to crickets and found directly sprayed on Orange oil killed fastest, next lemon, then lime, and lastly olive oil.	
<b>Help Received</b> My Mother- She purchased all the items for this experiment with me; Mrs. Rader- she supplied me with the tubes; My Brother- He helped catch the crickets and place them into their tubes	