



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kristin N. Beshears; Rosemeri K. N. Patterson</b>	<b>Project Number</b> <b>J1402</b>
<b>Project Title</b> <b>To Bee or Not to Bee OR Wish I May, Wish I Mite</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Will formic acid be effective in removing Varroa jacobsoni, a species of bee mite, from Apis mellifera, the common honeybee?</p> <p><b>Methods/Materials</b> Methods: We exposed bee hives to formic acid with two different procedures (Soapy Water/Powdered Sugar Rolls and Sticky Board) and measured how many dead mites were found compared to control hives that were not treated with formic acid.</p> <p>Materials: bee hives, permanent marker, formic acid, notepad, pencil, 12 - 32oz. Jars, tweezers, powdered sugar, strainer, buckets, screen, dish detergent, sticky board, strawberry basket bottoms, 4 cotton cloths, aluminum foil</p> <p><b>Results</b> We found that the formic acid is effective in decreasing the population of Varroa mites in the commercial honeybee hive if the formic acid is diluted down to 60%, the ambient temperature is between 55-70 degrees F., and the correct amount of formic acid is applied within the hive with a sufficient evaporation rate of 20 mL a day.</p> <p><b>Conclusions/Discussion</b> The hypothesis was supported; formic acid was effective in removing Varroa mites from the hive. Apis mellifera is being attacked by Varroa jacobsoni by feeding off the larvae of the bee before it emerges, causing it to be deformed and an inefficient worker. Then, when the bee emerges, the Varroa mites spread through the bee's close contact with other bees. It is important to treat this problem because bees are very important pollinators.</p>	
<b>Summary Statement</b> We tested to find out if formic acid is effective in removing Varroa jacobsoni, a species of bee mite, from Apis mellifera, the common honeybee.	
<b>Help Received</b> Measured formic acid and applied in hives under supervision of expert in the field, Les Beshears, president of Central Valley Beekeepers Association. Mrs. Patterson and Mrs. Beshears aided us in organizing the board.	