



CALIFORNIA STATE SCIENCE FAIR 2002 PROJECT SUMMARY

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Project Title Effect of Fluvalinate on Apis mellifera Honeybees Infested by Varroa Mites	
Abstract Objectives/Goals Worldwide, the Varroa jacobsoni mite levels on Apis mellifera honeybees have increased. Statistics show that more beekeepers are quitting the bee business mainly because of the increase of these parasites called the Varroa jacobsoni mite. These mites can cause total destruction and eradication of entire apiaries. If the varroa mite does not become controlled, the future of the honeybee industry could be at stake. The objective of this project is to determine if the Varroa Mite infestation levels found in honeybee colonies can be effectively treated with a miticide called Fluvalinate. Recently, the Varroa Mites are developing a resistance to this miticide. Methods/Materials Using the anti-varroa mite sticky board trap, the varroa mite count was determined and 4 honeybee colonies with high infestation levels were used. 3 colonies were treated using the Fluvalinate miticide strips. 1 colony was left untreated as the control. After the eight week recommended treatment period, the Fluvalinate strips were removed and a new anti-varroa mite sticky board was inserted. The mite fall was counted and the numbers were compared with the pre-treatment mite count. Results There was an increase in the number of varroa mites present in the honeybee colonies post Fluvalinate treatment than prior. The three colonies prior to treatment had a mite count between 3,000 to 5,200 mites. The control colony had approximately 1700 mites before treatment. After the Fluvalinate treatment the 3 colonies now had a mite count between 6,200 to 7,400 while the control also increased to approximately 2,500 mites. Conclusions/Discussion The results did not support the hypothesis that the varroa mite population would decrease after the Fluvalinate treatment. Based on the results, the experimenter concluded that these honeybee colonies that were infested by varroa mites, had developed a resistance to the miticide, Fluvalinate. An explanation to this resistance is that mites that have been exposed to frequent treatments of miticides eventually develop a resistance to the substance.	
Summary Statement This project focuses on the parasite called the Varroa Mite which infests honeybee colonies, and the treatment method Fluvalinate, used to control them.	
Help Received The experimenter visited the University of California at Riverside, Department of Entomology. With the assistance of Dr. Kirk Visscher PhD, the experimenter viewed his bee lab, apiary, and used his macro-lense camera to photograph bees and varroa mites.	