



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

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Project Title Promoting Sustainable Pest Management with a Beneficial Fungus	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The major objective of this experiment was to discourage the use of chemical pesticides and increase the use of fungal biopesticides which will improve the environmental health. The two goals of this experiment were to:</p> <ol style="list-style-type: none">1. Evaluate the compatibility between an entomopathogenic fungus (<i>Beauveria bassiana</i>) based biopesticide and one fungicide from each of the eight different mode of action groups.2. Evaluate the potential of increasing the compatibility between the fungicides and the biopesticide by increasing the application intervals. <p>Methods/Materials Mealworms were exposed to paper towels treated with <i>B. bassiana</i> and the eight fungicides (Captan, Merivon, Microthiol Disperss, Pristine, Rally, Rovral, Switch, and Thiram) applied from 0-6 day intervals. <i>B. bassiana</i> and the fungicides were applied alone along with an untreated control which was used for comparison. The mortality was observed and recorded everyday for seven days. The assay was repeated for a total of three times, and the results were averaged. The data was analyzed using various statistical procedures, and the impact of time intervals was assessed.</p> <p>Results Very few mealworms from the last treatments, the fungicides alone, died. There were only 6 deaths out of a total of 560 mealworms per assay. Because of this negligible amount, we can safely assume that the fungicides had no effect or impact on the mealworms. None of the untreated mealworms died, while all of the Botanigard treated mealworms died. Captan and Thiram had a negative effect on the <i>B. bassiana</i> with a 43% and a 57% average mortality rate, respectively. The other six fungicides had a 96% to 100% mortality in the mealworms.</p> <p>Conclusions/Discussion The usage of Captan and Thiram is discouraged as they had the least compatibility with the biopesticide, Botanigard (<i>B. bassiana</i>). Also, the time interval between application of the biopesticide and the fungicide had no affect on the compatibility of the two.</p>	
Summary Statement Investigating the interaction between eight fungicides and a fungus based biopesticide in an effort to promote sustainable pest management.	
Help Received Two other students helped us with this project as well as the supervisor from the UC system.	