



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Lily N. Greenberg Call	Project Number 31077
Project Title Leave Me the Birds and the Bees Please!	
Objectives/Goals My objective was to learn if the pesticide imidacloprid affects a bee's appetite in that it makes the bee partial to foods higher in sugar content than their natural foods. Abstract Methods/Materials Materials: Plastic Vials, 1 tablespoon of pollen, Pollen Holder (the lid of a Mason jar), Nectar (1/2 cup) and nectar jar, Tripod (for holding the pollen holder), Pipette (P200) with tips, Pure sucrose , 7 uL of pure sucrose, 7 uL of sucrose with 2.16 ng of imidacloprid per bee, Incubator, Sterling silver harnesses, Sterling silver tweezers, Duct tape, Harness stands, Different concentrations of sucrose in water; 0.1%, 0.3%, 1%, 3%, 10%, 30%, and 50%. Distilled water (to give to bees in between testing), Testers paint, Paint brush, and Honeybees (Apis mellifera) Methods: The test bees were each fed 7 uL of sucrose, or 7 uL of imidacloprid-laced sucrose. After digesting the food given, the bees were put into a sterling silver harness, placed in an incubator, and were then tested for a positive response towards different concentrations of sucrose. The positive response was the raising of their proboscis (PER, proboscis extension reflex), the feeding tube of a bee. Results Results: Sixty-six bees were tested in total. Thirty-four bees were fed sucrose, the control, and thirty-two bees were fed imidacloprid-laced sucrose, the pesticide. Most of the sucrose bees responded at 11.36% sucrose, while the average response for the imidacloprid bees was 25.85% sucrose. Sucrose bees responded to the highest concentration of sucrose 74% of the time. Imidacloprid bees responded 34% of the time. The majority of the sucrose bees responded earlier than the imidacloprid bees, which follows my hypothesis. Conclusions/Discussion Conclusion: My hypothesis was that imidacloprid affects a forager bees appetite, therefore making it crave foods high in sugar. My results followed my hypothesis because the imidacloprid bees tested only responded to high concentrations of sucrose. This agrees with prior research.	
Summary Statement My project about how the pesticide imidacloprid will negatively effect a bee's health if the bee is exposed to it.	
Help Received My dad helped me use a paper cutter for my board; Daren Eiri, a graduate student at UCSD, helped me learn how to work with bees and related equipment.	