



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Aubryn R. Butterfield	Project Number S2403
Project Title The Missing Link in CCD	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To determine if the fat content of a Honey Bee, <i>Apis mellifera</i>, can be a factor contributing to colony collapse disorder.</p> <p>Methods/Materials I used a CardioChek Portable Blood Test System to analyze the fat content in various different preparations of bee abdomens. Throughout this 2 year study my method progressed from utilizing 25 bee abdomens in a paste form to 60 in a slurry form. After 92 different tests I developed a standardized operating procedure that I am comparing to the current procedure utilized by the USDA Honey Bee Research Unit Laboratory in Weslaco, Texas.</p> <p>Results Year 1- Honey Bees from strong hives had 21.5% more fat than Honey Bees from weak hives. Year 2- Based upon suggestions from the USDA Laboratory, I refined my standardized operating procedure utilizing the CardioChek Portable Blood Test System. These refinements resulted in lowering my standard deviation from 20.7 to 2.5.</p> <p>Conclusions/Discussion High fat bees correlated to strong hives and low fat bees correlated to weak hives. The CardioChek Portable Blood Test System can be a rapid and easily accessible tool allowing beekeepers to monitor the fat in their bees.</p>	
Summary Statement To determine if the fat content of a bee is a factor contributing to colony collapse disorder.	
Help Received I received financial assistance and quality control guidance from my parents.	