



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Krystal R. Horton	Project Number J1510
Project Title Loop Mediated Isothermal Amplification to Detect Huanglongbing Infections	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Huanlongbing is a disease spread by the Asian Citrus Psyllid vector which has done billions of dollars in damage to the citrus industry worldwide. Presently, tests for the bacteria are expensive and must be performed in sophisticated labs. My objective was to validate the LAMP process as a portable, inexpensive, simple method for verifying the infection in psyllids.</p> <p>Methods/Materials Smart-DART unit, Android tablet with Smart-DART software, mini-centrifuge, loaded PCR tubes, fixed-volume pipette</p> <p>Results Using known positive samples and controls in the reaction strips, I was able to verify that the LAMP process is simple and effective. With a few hours of training, a farmer could learn to perform the test on his/her own samples. After validating the process, I used it to test Psyllid samples from around Riverside County and was unable to find any Psyllids carrying the Huanglongbing disease.</p> <p>Conclusions/Discussion Huanglongbing has devastated citrus orchards in Arizona, Mexico, South America, and Florida. California is known to have Asian Citrus Psyllids, the vector for the disease. Presently, there are no Psyllids in California known to be infected. After collecting Psyllids from numerous citrus trees around the county, I did not find any infected specimens.</p>	
Summary Statement I validated a simple, inexpensive method for testing Asian Citrus Psyllids for the bacteria that causes Huanglongbing (Citrus Greening Disease)	
Help Received UCR online biological safety course, Dr. Keremane gave me access to and training on the Smart-DART system	