

Title: Early Detection of Africanized Honeybees and Exotic Honey Bee Species

Organization: Hawai'i Department of Agriculture, Plant Pest Control Branch, Apiary Program

Award: \$14,007.48



Introduction: In Hawai'i, honey bees are needed for honey production, are part of the largest queen bee production operations in the world, and are responsible for the pollination of approximately one third of food crops. In 2007, Hawai'i experienced the incursion of its first serious pest of honey bees – the varroa mite (*Varroa destructor*), generally considered to be most destructive pest of honey bees worldwide. In 2009, the Hawai'i Department of Agriculture received temporary funding through the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) specific to assisting beekeepers in mitigating the impact of varroa mite. In 2011, the State of Hawai'i approved the creation of a permanent (although as yet unfunded) Apiary Program through HDOA. Additional funds, including those granted to the Apiary Program by HISC, have broadened our scope of work to include surveillance for other potential invasive pests of honey bees, including Africanized bees, whose presence in Hawai'i would harshly affect beekeeping industries, tourism, and everyday life for all residents of our state.

The Hawai'i Apiary Program is committed to promoting the sustainability of beekeeping in our state, primarily through the distribution of science based recommendations for hive health and crop pollination needs to beekeepers and growers.

Approximately five percent of our total funding needs for FY2012 were supplied with HISC funds.

Achievements in FY12

Placement of swarm traps at high-risk areas: Using information provided by the State Department of Transportation (HDOT), the Apiary Program has determined all air and sea ports that have the potential to receive commercial cargo. Making use of geographic information systems (GIS) technology, a one-mile radius for swarm trap placement has been created around each of these locations. This strategic placement of swarms traps is allowing for monitoring at 20 high-risk port areas statewide (Figure 1).



Apiary Specialist servicing a swarm trap on Moloka'i

Monitor swarm traps on a regular basis: The Apiary Program has three full time staff members (two on Big Island and one on O'ahu). With assistance from HDOA staff on Kaua'i and Maui, we have been able to check swarm traps regularly statewide, resulting in capture and examination of over 30 honey bee swarm over the past year. No new pests have been detected.

Provide training to beekeepers to ID new species: Apiary Program staff gives talks to a variety of audiences, though most often beekeepers. At each talk, emphasis is placed on examination and documentation of hive health – beekeepers are taught that without observation, new problems will not be detected in a timely fashion. Beekeepers are encouraged to contact the Apiary Program immediately with questions and/or concerns about anything unfamiliar that they may observe in their hives. Public talks are ongoing – we have presented on Kaua'i, O'ahu, Maui, Lana'i, and the Big Island this year. Our voluntary beekeeper registry (currently consisting of 121 beekeepers statewide) has also been a

valuable tool; when we heard rumors that some local beekeepers were interested in acquiring Africanized queens due to their perceived varroa resistance, we were able to quickly disseminate the illegality and immense negative effects of this idea.

Provide education and training to state and federal inspectors and ship based cargo carriers:

- Working with HDOA Plant Quarantine Branch (PQB) inspectors to improve their knowledge and equip them (educationally and materially) to handle swarm calls they may need to deal with.
- Attended meetings of the Hawai'i Risk Assessment Committee in Nov 2011 and Feb 2012 to describe our program and its mission; this committee brings together several agencies, including USDA-APHIS, Department of Homeland Security-Customs and Border Protection, and HDOA-PQB.
- Provided a training session for Customs and Border Protection agents (May 2012)
- Participated in an interview for an HDOT airport biosecurity project (Feb 2012)
- In discussion with HDOT staff at Honolulu International Airport for placement of swarm traps
- Published information in the employee newsletter at Young Brothers (Figure 2) (Jan 2012)

Develop outreach materials to improve and maintain a high level of awareness of bees and bee pests:

- A website (www.hawaiibee.com) with over 10,000 hits since its launch in Feb 2012.
- Informational emails through our voluntary beekeeper registry.
- A quarterly newsletter (since Jan 2102) that goes out to registrants, always with an article about a pest/disease (Figure 3). Archives are posted on our website.
- Flyer focusing on American foulbrood (Figure 4) and a HDOA New Pest Advisory for small hive beetle (Figure 5).
- The Hawai'i Apiary Program worked with the non-profit Pollinator Partnership to request that Hawai'i join 37 other states across the country to celebrate pollinator week, June 18-24, 2012. On June 18, Governor Abercrombie held a proclamation signing ceremony at the State Capitol to declare the first Hawai'i Pollinator Week (Figure 6).

Other achievement s:

- In Sept 2011, the Apiary Program worked with HDOA-PQB on the interception of a swarm of honey bees that was discovered by a trucking company inside a shipping container that had originated in California. The container was fumigated, the bees collected and tested for Africanization.
- Hawai'i has participated for the fourth consecutive year (since its inception) in the USDA Honey Bee Pests and Disease Survey project. This national survey takes 25 samples from across the state and tests for a variety of pests and diseases, some of which are not known to occur in Hawai'i and/or the United States. No new pests have been found in Hawai'i.
- Our staff has arranged to receive local training in morphometric detection of Africanized honey bees from David Barnes, a USDA-certified trainer for FABIS and USA-ID.
- Our program hosted Dr. Jamie Ellis, an authority on small hive beetle and Africanized bees, from the University of Florida in February 2012. He spoke to beekeepers on Kaua'i, O'ahu, Maui, and both sides of the Big Island.
- The Apiary Program has assisted two new queen breeders (the first in many years) on Kaua'i and Maui to reach strict certification guidelines, enabling them to ship their certified-healthy queens inter-island and to the mainland.
- The USDA has provided funding for FY13 to increase our swarm trapping efforts and to test all catches for Africanization through Dr. Allen Szalanski at the University of Arkansas.