

Laurel Wilt/ Redbay Ambrosia Beetle Working Group Update



Fall 2010 - Spring 2011

The working group was formed to assemble research, regulatory, outreach/extension and industry expertise to review the current status and chart effective management strategies to mitigate the potential impact of the beetle and disease on the Florida avocado industry.

Recent survey information

- February 2010 – one redbay ambrosia beetle (RAB) trapped in a residential area adjacent to Everglades National Park, west-central Miami-Dade County
- February/May 2010 – RAB detection survey intensified; 111 manuka oil-baited Lindgren traps arrayed in west-central Miami-Dade County south to northern edge of avocado production area, checked every two-weeks
- May 2010 – sixty-five RAB detection survey traps employed, half with manuka oil and half with phoebe oil attractant; checked every 30 days
- July 2010 – 6 months of intensive trapping, 12 trap inspections, 10 survey transects of the initial RAB trap area, and 5 grove trap inspections
- September-October 2010 - Three cycles of monitoring the intense array of traps in Miami-Dade County and 151 samples collected. No additional RAB has been detected and no avocado or native tree found positive for the laurel wilt pathogen (LW)
- **February - May 2011 – several redbay ambrosia beetles collected in traps, and three swamp bay trees infected with laurel wilt found seven miles north of the commercial avocado production area in Miami-Dade County. Aerial survey conducted in the area of the positive finds to determine the extent of the laurel wilt infestation - 105 suspect trees identified through aerial survey - 35 ground truthed. A total of 38 positive trees have been confirmed through all surveys conducted.**
- FDACS-DPI and USDA-CAPS implementing agreement to hire three staff dedicated to continue RAB-LW surveys and monitor RAB traps for the foreseeable future.
- The FDACS Firewood and Unprocessed Wood Products (Chapter 5B-65) been approved and DPI inspectors and investigators have been notified. Grocery chains and their suppliers have also been notified of the rule. State and national campaigns are in progress, targeting the general public and state and national parks.
- Later this year DPI will conduct a survey to determine how much firewood is entering Florida through NASCAR events.

On-going research

Entomology

- The number of redbay ambrosia beetles to other ambrosia beetle species emerging from redbay wood samples (bolts) taken from Brevard, Alachua, St. John's, Indian River, and Highland counties is much greater (1:166) than from avocado wood bolts taken from Brevard County. This suggests several possibilities: avocado is not a preferred host for RAB, there may be competition among ambrosia beetles and this competition suppresses RAB emergence, and/or that climate may be affecting RAB populations. Significantly fewer RAB infested avocado bolts pre-treated with the repellent verbenone.
- Parasites and predator insects found in RAB infested wood are being collected, catalogued and identified.
- Continued evaluation of insecticides for efficacious and residual control of RAB.
- Further refinement of the biology (life cycle) of the RAB and how climate affects RAB populations and behavior.
- Continued evaluation of RAB attractants

Plant Pathology

- Field investigations continue on the RAB survival during redbay wood chipping and storage. Lab studies ongoing to assess the temperature limits of RAB and LW. Preliminary findings suggest, chipping appears to reduce RAB populations, but not eliminate them; little recovery of LW from wood chips.
- Research has shown that the avocado fruit and seeds of LW-infested trees are not infested with the LW pathogen. The hilum tissue which is distal to the fruit pedicel blocks the transmission of the pathogen into fruit.
- Data indicate that the genetic background of avocado cultivars influences susceptibility to LW; from most to least susceptible – WI≥G-WI≥G-WI-M>G=G-M race avocados.
- Anatomical research has clearly demonstrated blockage of the xylem (water conducting) tissue in avocado wood. Ongoing work suggests some xylem blockage is caused by the pathogen or a hyper-reaction of the tree or both.
- Avocado field trials with application methods for propiconazole suggest tree directed sprays and soil drenches may have only limited efficacy and use. Further testing is ongoing.
- Macro-infusion of fungicides is being explored and is undergoing a technical and economic review; research is planned. Evaluation of additional fungicides and application technology is in progress.

Outreach/Extension Efforts

- Posters, tweets, press releases and additions to LW-RAB websites are on-going
- Educational outreach to county governments and county regulatory agencies continues.
- Educational outreach to plant societies, urban residents, UF Extension Agents and Master Gardeners are on-going.
- Save the Guac campaign efforts continue.

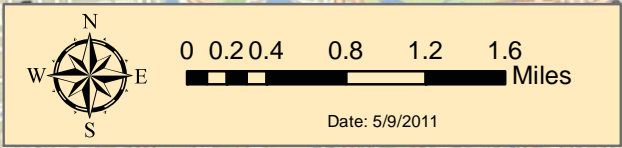
Next Steps

- Continued RAB-LW surveying throughout Florida and intensively in Miami-Dade County.
- Continued research into short-, mid- and long-term control measures for RAB and LW.
- Continued extension activities to update the agricultural community, county governments, regulatory agencies and citizens.
- Continue to evaluate pest mitigation strategies.

Laurel Wilt and Redbay Ambrosia Beetle Survey

Miami-Dade County, FL 2010-2011

- Aerial Survey Positive Trees (*R. lauricola*) - 35
- Reported as Not Accessible Trees
- Reported as Not Found / Not Sampled Trees
- Active Trap (Lychee Bolt)
- Active Trap (Phoebe Oil)
- ▲ Sentinel Sites
- DPI Positive Trees (*R. lauricola*) - 10
- IFAS Suspect Trees (4) on January 19, 2011
- ★ *X. glabratus* (32)
- + Initial Beetle Detection (February 5, 2010)



FDACS, DPI, CAPS
 J. Dietz, L. Whilby, W. Dixon
 Map for illustrative purposes only



GCS North American 1983
 PCS Albers Equal Area Conic
 Data Source: CAPS, IFAS