

Avocado Laurel Wilt



Laurel wilt was first discovered in Georgia in 2002 on the red bay tree, *Persea borbonia* due to the insect *Xyloborus glabratus* and its associated symbiotic fungi, *Raffaelea lauricola*

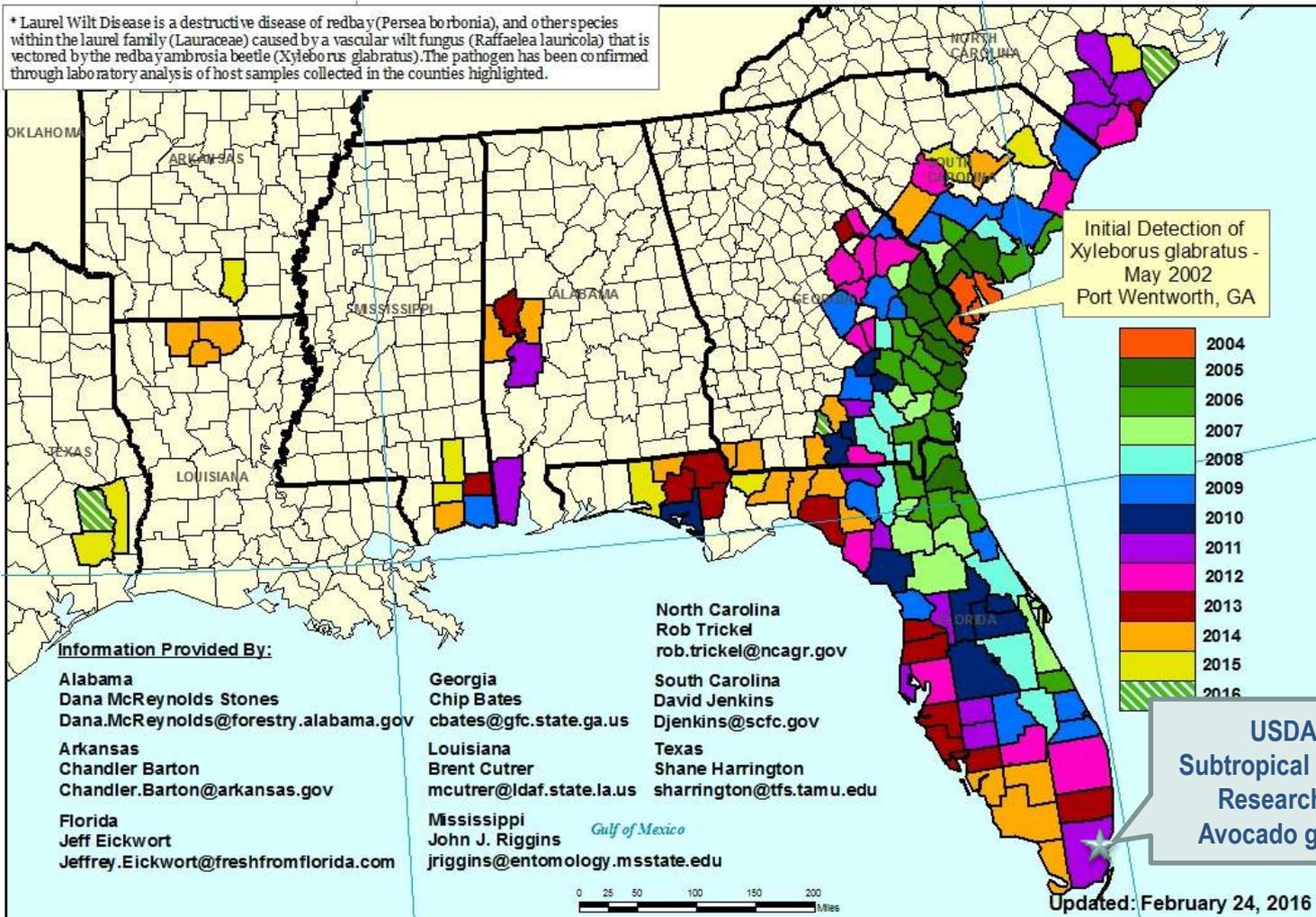
The fungus infects and kills other members of Lauraceae including avocado, *Persea americana*



Laurel Wilt was detected in Miami-Dade county in 2011

Distribution of Counties with Laurel Wilt Disease* by year of Initial Detection

* Laurel Wilt Disease is a destructive disease of redbay (*Persea borbonia*), and other species within the laurel family (Lauraceae) caused by a vascular wilt fungus (*Raffaelea lauricola*) that is vectored by the redbay ambrosia beetle (*Xyleborus glabratus*). The pathogen has been confirmed through laboratory analysis of host samples collected in the counties highlighted.



USDA ARS Subtropical Horticulture Research Station in Miami, FL

<u>Name</u>	<u>Accessions</u>
<i>Annona</i> spp. (sugar apple)	26
<i>Averrhoa carambola</i> (carambola)	13
<i>Cocos</i> spp. (coconut)	20
<i>Dimocarpus</i> spp. (longan)	10
<i>Ficus</i> spp. (tropical fig)	115
<i>Hevea</i> spp. (natural rubber)	13
<i>Litchi chinensis</i> (lychee)	18
<i>Mangifera</i> spp. (mango)	316
<i>Musa</i> spp. (banana/plantain)	93
Palmae (palms)	411
<i>Persea americana</i> (avocado)	269
<i>Psidium</i> spp. (guava)	13
<i>Saccharum</i> spp. (sugarcane)	
~1300	
<i>Theobroma cacao</i> (cacao)	120
Total	~3300

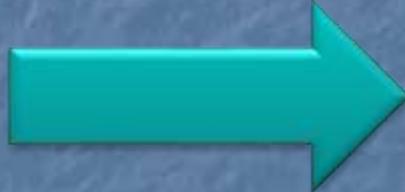
- Clonal repository for 269 avocado accessions among other tropical/subtropical fruit trees and sugarcane.
- Currently free from the ambrosia beetle and laurel wilt, but expensive prophylactic fungicide treatments are needed yearly.
- Hilo was selected as the backup for this valuable collection, but special measures were necessary to avoid transfer of laurel wilt or avocado sunblotch viroid (ASBVd).

Transfer of avocado germplasm from Miami to Hilo via Fort Detrick



ARS Miami sends seeds for rootstock and clean scion to the ARS Foreign Disease/Weed Science lab in Fort Detrick, MD

Plants are tested to be free of Laurel Wilt and Avocado Sun Blotch Viroid



Clean scion are sent to ARS Hilo and grafted in approved quarantine facility

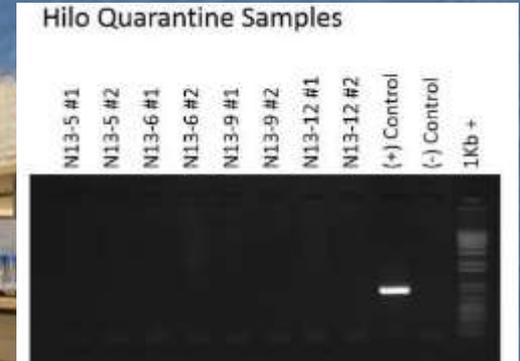
Triple-tested avocado accessions grown in Hilo



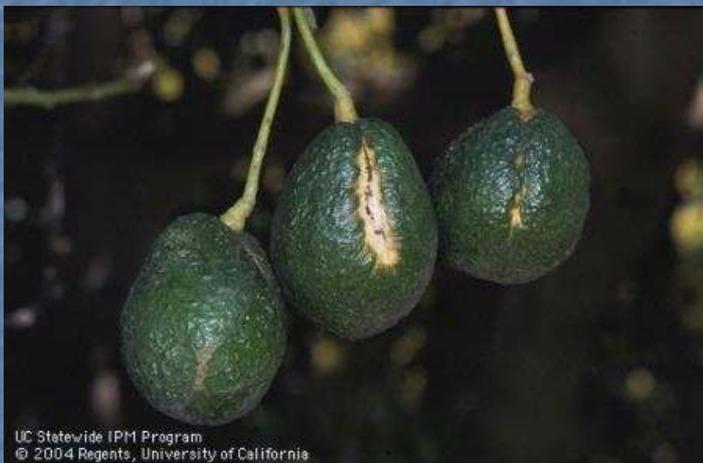
Each accession is maintained in a 5 gal pot in covered greenhouses and a field planting



Screening by Wade Heller



Triple-tested avocado accessions grown in Hilo



In addition to Laurel wilt each
plant is tested for the presence
of Avocado Sun Blotch ASBVd



ASBVd testing developed at USDA
ARS Miami (David Kuhn and
Barbara Freeman) and transferred to
ARS Hilo (Ryan)

Develop molecular markers to confirm identification of Sharwil avocados



Working with ARS SHRS, Miami (Kuhn and Freeman) to develop Sharwil specific SNP (single nucleotide polymorphism) markers to confirm identity of Sharwil avocado

Conducted in support of Dr. Alyssa Cho's Sustainable Hawaii Avocado Production for Market Expansion

