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LAUREL WILT & THE REDBAY AMBROSIA BEETLE

Laurel wilt is caused by the fungus *Raffaelea lauricola*, the symbiotic fungus of the invasive redbay ambrosia beetle, *Xyleborus glabratus*. Since its first detection in 2002, the redbay ambrosia beetle has spread across the eastern US causing devastating impacts, both economic and ecological, to several tree and shrub species within the family Lauraceae, including redbay, avocado, and sassafras. So far, half a billion native trees have been killed in North America (Crane et al., 2020). Laurel wilt is currently limited to the southeastern US; however, it represents a threat to species of Lauraceae in other regions of the US as well as other areas of the world (Olatinwo et al., 2021).

DISTRIBUTION

The redbay ambrosia beetle is native to southeast Asia, including India, China, Vietnam, Japan, Taiwan, and others. In 2002, it was introduced in wood packaging material into Georgia through Port Wentworth (Mayfield & Thomas, 2006). In the United States, laurel wilt has been reported from 12 southeastern states, including Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Texas (USDA Forest Service, 2021). In Texas, laurel wilt was detected in 2015 in dying redbay trees in Hardin County. To this date, 15 counties of East Texas have reported the presence of laurel wilt.

SYMPTOMS AND SIGNS

- Discoloration of leaves in early stages of infection.
- Wilting of branch tips and leaves.
- Branch dieback.
- Compacted sawdust tubes across the trunk and major limbs from ambrosia beetle boring activity. Root transmission is also observed, with no beetle attack signs.
- Small dark circular holes and galleries in the sapwood.
- Brown to black discoloration in the sapwood (streaks parallel to the wood grain).

Females of the redbay ambrosia beetle have a slender and cylindrical body and are approximately 2 mm long; they are blackish with a nearly glabrous upper surface, and an abrupt apical declivity with a few small bumps (tubercles).

Identification of ambrosia beetles can be difficult. Consulting a trained entomologist or a technical expert with Texas A&M Forest Service or Texas A&M AgriLife Extension Service is recommended.



PREVENTION AND CONTROL

- Report any diseased redbay, swampbay, camphor, sassafras, northern spicebush, and avocado trees to Texas A&M Forest Service or to your local Texas A&M AgriLife Extension Service office.
- Keep trees as healthy as possible through proper silviculture/horticulture.
- Avocado growers should survey for trees showing wilt symptoms and beetle attack.
- Infested trees should be removed and destroyed by burning, burying, or chipping. Debris from trees with laurel wilt should always be disposed on-site and should not be transported to other areas.
- Live host trees, such as redbay, sassafras, and avocado, should not be moved into counties or areas where laurel wilt is not known to occur.
- Firewood, tree trimming, or mulch from sassafras (and other host species) should not be moved out of counties with records of laurel wilt.
- Volatiles such as verbenone and methyl salicylate, have been shown to effectively repel redbay ambrosia beetles (Hughes, Martini, et al., 2017), and could potentially be used as part of push-pull strategies (Martini et al., 2020; Rivera et al., 2020).
- Protection of high-value ornamental trees can be accomplished by systemic fungicides (propiconazole) through macro injection (Mayfield et al., 2008).
- Public awareness and participation could help to limit the spread of the insect/fungus complex. Buying firewood locally where you plan to burn it, as well as avoiding transport of firewood to campgrounds or parks, is key.



Photos by M Hughes, Y Li, and R Gazis (University of Florida)



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