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DISEASE NOTES

First Report of Laurel Wilt, Caused by *Raffaelea lauricola*, on Spicebush (*Lindera benzoin*) in South Carolina

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Most members of the laurel family (Lauraceae) indigenous to the United States appear to be highly susceptible to laurel wilt, a disease caused by *Raffaelea lauricola* T.C. Harr., Aghayeva & Fraedrich, a fungal symbiont of the redbay ambrosia beetle (*Xyleborus glabratus* Eichhoff) (Fraedrich et al. 2008; Harrington et al. 2008). The beetle and fungus were introduced into the United States from Asia around 2002, and the disease has caused widespread mortality of redbay (*Persea borbonia*) throughout the southeastern United States. Although pondberry (*Lindera melissifolia*) is susceptible and rarely affected by laurel wilt (Fraedrich et al. 2011), spicebush (*L. benzoin* (L.) Blume) has been shown to be susceptible in inoculation studies (Fraedrich et al. 2008) but is not known to be naturally infected. Spicebush is a deciduous shrub that occurs in alluvial forests and along streams throughout much of the eastern United States. In September 2015, a spicebush shrub at the Swan Lake-Iris Gardens in Sumter, South Carolina, exhibited wilt-like symptoms, including dying and dead foliage as well as black streaking in the sapwood. The plant had multiple stems that ranged from 0.3 to 6.2 cm diameter at groundline with heights up to 3 m. All stems were symptomatic. Beetle holes were observed in the base of a 2 cm diameter stem, and *X. glabratus* female beetles were present. Samples of the discolored wood from a stem and roots were plated on malt

extract agar (MEA) amended with cycloheximide and streptomycin (CSMA) (Harrington et al. 2010). A fungus with the unique mucoid growth, conidiophores, and budding conidia the size and shape of *R. lauricola* (Harrington et al. 2008) was consistently isolated. The sequences of a portion of the large subunit (28S) rDNA of two of the isolates (C4078 and C4079, Iowa State Univ.) were identical to each other and to all other U.S. isolates of *R. lauricola* (GenBank accession EU123077) (Harrington et al. 2008). In order to confirm pathogenicity, two container-grown redbay saplings (mean height = 98 cm, mean diam = 1.3 cm at groundline) were inoculated with MEA plugs containing mycelium and conidia (Fraedrich et al. 2008) for each of two isolates (one isolate from a root and one from a stem). Two additional redbay saplings were mock inoculated with sterile MEA plugs, and all plants were placed in a growth chamber at 28/25°C (day/night) with a 15-h photoperiod. Inoculated plants began to exhibit wilt symptoms within 13 days, and at 35 days all inoculated plants had died and had xylem discoloration. Control plants remained healthy and had no discolored xylem. Pieces of sapwood from 15 cm above the inoculation points were plated on CSMA, and colonies with the unique mucoid growth and budding conidia of *R. lauricola* were recovered from the wilted plants but not from control plants. Spicebush may be too small in diameter to serve as a good brood host for *X. glabratus*, as was previously suggested for *L. melissifolia* (Fraedrich et al. 2011). However, laurel wilt may affect spicebush and other shrubby Lauraceae in areas where the disease is present in larger diameter redbay and sassafras (*Sassafras albidum*), and beetle populations are high. In fact, numerous redbay trees were dead and dying from laurel wilt in the Swan Lake-Iris Gardens and adjacent forests where the infected spicebush was found. Where feasible, the prompt removal and destruction of infested redbay and similar brood hosts may reduce *X. glabratus* populations (Spence et al. 2013) and thus reduce the overall risk of laurel wilt to high value, small diameter specimen plants.

***References*:**

Fraedrich, S. W., et al. 2008. Plant Dis. 92:215. https://doi.org/10.1094/PDIS-92-2-0215 [Abstract] [ISI] Open URL

Fraedrich, S. W., et al. 2011. Plant Dis. 95:1056. https://doi.org/10.1094/PDIS-11-10-0841 [Abstract] [ISI] Open URL

Harrington, T. C., et al. 2008. Mycotaxon 104:339. Open URL

Harrington, T. C., et al. 2010. Mycotaxon 111:337. https://doi.org/10.5248/111.337 [CrossRef] [ISI] Open URL

Spence, D. J., et al. 2013. J. Econ. Entomol. 106:2093. https://doi.org/10.1603/EC13072 [CrossRef] [ISI] Open URL