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Sudden Oak Death Syndrome (SODS) and it's threat to Alabama's Nursery and Landscape Industry

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Sudden oak death syndrome or Phytophthora canker was first described just over a decade ago in Europe on rhododendron. The death of numerous oak trees was first recognized in California in the mid-1990's. The fungus *Phytophthora ramorum* was identified in 2000 as the causal agent responsible for the mass death of oaks in forest and landscape settings in northern California. Until very recently, this disease was found only in the Pacific Northwest and had not been identified on any plant material in Southern California. Within the past two weeks, the causal fungus of SODS was confirmed in six cultivars of container-grown camellia from two large commercial nurseries in Southern California. One block of possibly infected camellia was shipped from a nursery in the San Diego area to a facility in the Tuscaloosa area. Efforts are being made by the Alabama Dept. of Agriculture and Industries to determine whether other plant material from the nurseries in question were shipped into Alabama and if *P. ramorum* is present in container-grown woody ornamentals.

As a result of the discovery of camellia from the nursery in question, the Alabama Dept. of Agriculture and Industry has issued a Stop Sale on camellia shipped into Alabama from California. Florida also issued a stop sale order for all plant material from the nursery where the disease was identified. In contrast, the Georgia Dept. of Agriculture responded to the spread of this disease to more container nurseries with a quarantine of all nursery plants from California, not just camellia from the affected nursery.

The concern among some forest professionals and others is risk that SODS could be the next dogwood anthracnose, chestnut blight, or Dutch Elm disease. This disease has caused the death of tens of thousands of oak trees in Northern California forests. The appearance of SODS on a wide variety of plants in container nurseries across the Northwest that ship to other regions of the U.S. has greatly increased the likelihood that disease will rapidly spread across the nation on infected nursery stock.

Host Range - As the name of this disease implies, oaks are one of the main targets of *P. ramorum*. Destructive bark cankers develop on tan oak, coast live oak (*Quercus agrifolia*), California black oak, Shreve's oak, canyon live oak, coastal redwood, and Douglas fir. Note that none of the above oaks are grown in Alabama. In laboratory studies, the northern red oak, pin oak, and other members from the red oak group were susceptible to attack by *P. ramorum*. Whether or not these latter oaks would be open to attack in forest and landscape settings has not been answered. Several species from the white oak group have not been identified as host for *P. ramorum* and none exhibit symptoms in the field. Foliar blighting has been seen *Vaccinium* spp. (blueberry and relatives), Rhododendron spp., bay laurel or Oregon myrtle, mountain laurel (*Kalmia* spp.), bigleaf maple, poison oak, California buckeye, honeysuckle, camellia, and Andromeda (*Pieris* spp).

Symptoms - The most distinctive symptom of SODS is the bleeding cankers that develop on the trunk or the scaffold limbs on tan oak and other susceptible trees. Initially, the seepage of sap occurs through intact bark that shows no indication of a visible wound. Later, the bark will start to slough off the tree and the bleeding will occur from areas of damaged and intact bark. Badly cankered trees die within a few months to a couple of years. Apparently the cankers continue to enlarge until the limb or trunk is girdled and often the entire crown of the disease tree will suddenly turn brown and die. Diseased trees are susceptible to attack by oak and minor oak ambrosia beetle, oak bark beetle, and the fungal stress pathogen *Hypoxylon* spp. and may actually succumb to these pests. The leaf blight phase of this disease is characterized by the appearance of gray to reddish brown leaf spots with indistinct edges. Several spots may merge to form large irregular lesions on the diseased leaves.

Further discussion on the host range and diagnosis of SODS can be found at <http://www.ncpmc.org/sod> and the web site for the California Mortality Task Force www.oaksuddendeadth.org, and the APS web site (www.apsnet.org/online/SOD/).

Once word of this disease get out to the general public, some of our clientele will no doubt become extremely concerned about the risk of this disease to oaks and other woody ornamentals in their landscapes. A few will be convinced that SODS is killing their trees or shrubs. Right now, the likelihood of this disease appearing in Alabama landscapes is quite low. Unless, camellia, rhododendron, or other container grown host plants that were shipped here from California or the Pacific Northwest was established in the landscape, the risk of a disease outbreak on any tree or shrub is virtually nil. Oaks and woody shrubs like camellia succumb to a wide range of diseases, insect pests, and disorders that have symptoms that are very similar to those reported for SODS. Bleeding cankers similar to those associated with *P. ramorum* infections are also caused by other *Phytophthora* spp. in landscape plantings of trees such as flowering dogwood. Sudden tree or shrub death is most often follows an extended period of hot, dry weather patterns or poor management. In some other cases, a root rot caused by fungi such as *Armillaria* spp. is responsible for the death of some hardwoods, particularly oak. Finally, *Phytophthora parasitica*, *P. cinnamomi*, and other *Phytophthora* spp. cause destructive and common root rot, dieback, and leaf blight diseases on a wide range of container and field grown woody ornamentals in Alabama and surrounding states. The planting of *Phytophthora*-infected

plant material has resulted in the spread of these pathogens statewide.

A preliminary SODS risk/hazard map developed by APHIS indicates that forests over a large portion of Northeast Alabama from the Tennessee border down to Auburn and a line east of Auburn to Florence is at an elevated to high risk should this pathogen become established. Some of the members of the red oak family that occur in forested areas of northeastern Alabama have proven susceptible in laboratory studies to attack by *P. ramorum*. In addition, weather patterns in that area may be conducive to the development of SODS.

Control - While the SODS pathogen has not (yet) been found in Alabama, the control procedures for this pathogen on container stock are the same as those described for other Phytophthora-incited diseases in ANR-571, 'Phytophthora Root Rot on Woody Ornamentals'. The fungicides that are active against the widely distributed *Phytophthora parasitica* will also provide good protection from *P. ramorum*. A complete list of the fungicides recommended for the control of Phytophthora root rot are listed in ANR-500, 'The Alabama Pest Management Handbook Vol. 2'.

More information will be forwarded to you as the situation develops.