



College of Agriculture,
Food and Environment
Cooperative Extension Service

Kentucky Nursery LISTSERV Bulletin

University of Kentucky Nursery Crops Team

End of August 2019

First Half of September, Drier Than Average

While the Southeast and Atlantic region are experiencing increased precipitation from Hurricane Dorian, Long Range Outlooks from NOAA are predicting the first 12 days of September to experience lower than average rates of precipitation, starting in the western half of the Commonwealth, before the pattern moves to cover the entire state.

By mid-September, cooler than average weather is expected to show in Northern, Central, and Eastern Kentucky.

See [UKAg Weather's Long Range Outlooks](#) for a variety of forecasts of temperature and precipitation probabilities.

Nursery Crops Extension & Research Team

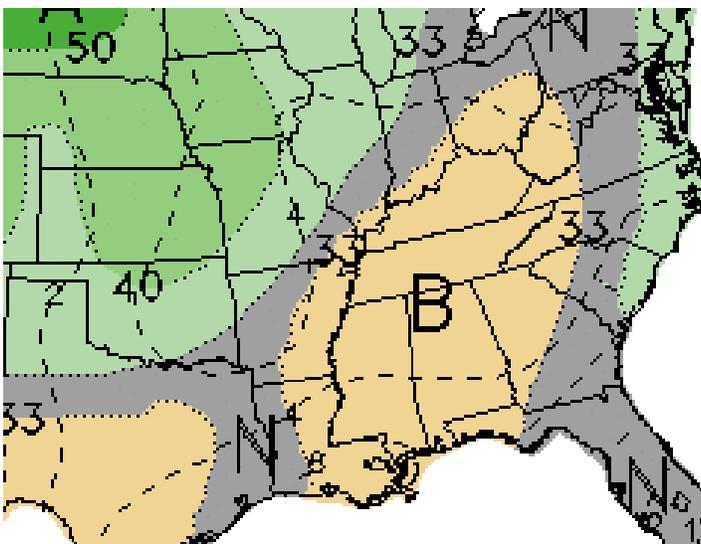
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Sept 06-12, Precipitation Probability
Image: NOAA Climate.gov, 29 AUG 2019

- **Laurel Wilt Disease: A Threat to Kentucky Sassafras Trees**
- **Dieback in Landscape Trees — Could it be Verticillium Wilt**
- **Soil Health and Cover Crops**

Laurel Wilt Disease: A Threat to Kentucky Sassafras Trees

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Laurel wilt is a new disease, that was recently detected in southwestern KY. This disease, which is transmitted by the redbay ambrosia beetle, has the potential to rapidly kill sassafras trees. Currently no management options are available for this disease. However, it is important to avoid movement of infected plants or dead wood to prevent spread of the disease. As this disease is new to Kentucky, efforts are ongoing to determine the extent to which this disease is present in the state. If laurel wilt is suspected, please contact a local county extension agent for further assistance.

Laurel Wilt Fast Facts:

- Symptoms include sudden wilt and rapid death with dead red-brown leaves still attached (Figure 1). Death can occur within weeks to months after infection. Sapwood may exhibit a dark, streaky staining when bark is cut away (Figure 2).
- The fungal pathogen is moved by the invasive redbay ambrosia beetle, *Xyleborus glabratus*. These small insects (approximately 1/16-inch long) bore into trees or shrubs leaving a small circular hole in the bark, accompanied by a thin “toothpick” of sawdust. These beetles carry fungal spores with them that infect the xylem of trees resulting in disease. However, keep in mind that not all ambrosia beetle damage on sassafras is related to laurel wilt and laurel wilt can still be present even if you see no ambrosia beetle signs.
- Human movement of contaminated wood, such as firewood, may aid in the spread of the pathogen and insect responsible for laurel wilt.
- In Kentucky, sassafras trees are likely the species most at risk from laurel wilt. However, redbay, spicebush, and other members of the *Lauraceae* family are also susceptible to the disease. Potential hosts do not include mountain laurel, which, despite its name, is not in this family.
- Laurel wilt is caused by the invasive fungal pathogen *Raffaelea lauricola*, which colonizes sapwood and travels along the xylem. The disease clogs the flow of water in the tree’s trunk, resulting in the “wilt” symptoms similar to those of a tree without enough water. This effectively strangles the tree and rapidly kills it.



Figure 1. Symptoms of laurel wilt include sudden wilt and rapid death with dead red-brown leaves still attached.

Photo: Ellen Crocker, University of Kentucky



Figure 2: Sapwood of infected trees may exhibit a dark, streaky staining when bark is cut away.

Photo: Ellen Crocker, University of Kentucky

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Disease Prevention Options:

No management options are currently available for laurel wilt. Thus, techniques that prevent infection are critical to limit spread and incidence of this disease.

- Do not move wood products, such as firewood, from infected trees/shrubs, or from species susceptible to laurel wilt.
- If laurel wilt is suspected, contact a local county extension office for additional assistance.

Additional Resources:

- Laurel Wilt Information from the University of Kentucky Department of Forestry and Natural Resources - [Link](#)
- Kentucky Cooperative Extension Service County Offices - [Link](#)

Dieback in Landscape Trees – Could it be Verticillium Wilt

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The stress of hot, dry conditions in midsummer can prompt leaf scorch in many landscape trees. However, extensive canopy dieback or tree collapse, particularly on one side of a tree, may indicate Verticillium wilt disease. Numerous cases of this vascular wilt disease have been confirmed by the UK Plant Disease Diagnostic Laboratory (UK-PDDL) in recent weeks.

Verticillium wilt can affect a wide range of ornamental trees and shrubs, resulting in branch dieback, decline, and eventual tree death. Since numerous environmental stresses, including heat and drought, can result in similar symptoms, lab confirmation is recommended. County Extension agents can assist in preparing a sample for submission to the UK-PDDL. While there is no cure for Verticillium wilt, proper plant care may prolong the life of infected trees with mild symptoms. Furthermore, a confirmed diagnosis of Verticillium will assist homeowners and landscape professionals in making the best choice of tree or shrub for replanting



Figure 1. Dieback from Verticillium wilt may appear scattered throughout the tree or only on one side (as shown).

Photo: John Hartman, University of Kentucky

Verticillium Wilt Fast Facts:

- Symptoms include dieback and decline of branches scattered over the entire plant; or affected branches may be confined to one side (Figure 1). Leaves may be undersized, may wilt suddenly, or exhibit marginal scorch, yellowing or browning (Figure 2). If bark of a limb is removed, a cut into the sapwood *may* reveal olive-green, brown, or black streaking in the water-conducting tissues of the plant, depending on the plant species (Figure 3). Ultimately, plant death occurs, particularly following drought stress.
- The Verticillium fungus can survive in the soil for many years and typically enters plants through the roots.
- Over 400 herbaceous and woody plant species have been reported as hosts for this disease. Some common hosts include lilac, maple, catalpa, magnolia, redbud, smoketree, and tulip poplar.
- Caused by the fungal pathogen *Verticillium dahliae*.



Figure 2. Early symptoms of Verticillium wilt including browning or scorching leaf tissue.

Photo: Minnesota Dept. of Natural Resources Archive

Management Options:

The life of plants with mild symptoms may be prolonged through the following plant care steps:

- Prune and destroy symptomatic plant material. Be sure to sanitize tools between cuts.
- Water trees liberally as needed, especially during hot summer months, but avoid overwatering.
- Plants with severe symptoms cannot be saved, and the following steps should be taken to avoid disease spread and further incidence.
- Remove and destroy entire affected plant.
- Avoid moving soil from the infested area to other parts of the landscape.
- Replant with resistant plant species or cultivars (Table 1).



Figure 3. Vascular streaking beneath the bark of a maple branch infected with *Verticillium* wilt.

Photo: John Hartman, University of Kentucky

Additional Information:

Verticillium Wilt of Woody Plants ([PPFS-OR-W-18](#))

University of Kentucky Plant Pathology Extension Publications ([Website](#))

Common name	Genus
Apple	<i>Malus</i>
Beech	<i>Fagus</i>
Birch	<i>Betula</i>
Crabapple	<i>Malus</i>
Chestnut	<i>Castanea</i>
Dogwood	<i>Cornus</i>
Firethorn	<i>Pyracantha</i>
Ginkgo	<i>Ginkgo</i>
Hawthorn	<i>Crataegus</i>
Hickory, Pecan	<i>Carya</i>
Holly	<i>Ilex</i>
Honey Locust	<i>Gleditsia</i>
Hornbeam	<i>Carpinus</i>
Juniper	<i>Juniperus</i>
Katusuratree	<i>Cercidiphyllum</i>
Linden	<i>Tilia</i>
Mountain Ash	<i>Sorbus</i>
Mulberry	<i>Morus</i>
Oak	<i>Quercus</i>
Pawpaw	<i>Asimina</i>
Pear	<i>Pyrus</i>
Poplar	<i>Populus</i>
Rhododendron	<i>Rhododendron</i>
Sweetgum	<i>Liquidambar</i>
Sycamore	<i>Platanus</i>
Walnut	<i>Juglans</i>
Willow	<i>Salix</i>
Zelkova	<i>Zelcova</i>
Needled evergreens	<i>Picea, Pinus, Taxus, etc.</i>

Table 1: Partial listing of woody plants considered resistant to *Verticillium* wilt.

Soil Health and Cover Crops

Joshua Kight, Extension Associate, Nursery Crops

Soil is obviously the foundation of agriculture. It is important to remember that soil is a living ecosystem that must be maintained for optimum plant growth. Healthy soils hold and release nutrients and water for plant uptake, filters and buffers potential pollutants, and provide physical stability and support.

Field production of trees and shrubs requires 3-7 years to grow a saleable product. When a crop is harvested as ball-and-burlapped plants, part of the farm is sold with the crop. Therefore, the nursery manager must invest time and effort to building up the soil between crops to maintain healthy soil structure and soil organic matter required for long-term productivity.

There are different ways a nursery can manage soil quality by buying and adding more topsoil, adding compost, and cover cropping. Buying in topsoil is expensive and may add "unknowns" to the field. Adding compost is great but finding compost can be difficult. Cover cropping is relatively inexpensive, and has many benefits to maintaining soil quality.

Managers must build-in fallow periods between crops during which measures can be taken to build-up the soil. That time period between crops is most often 1 year, although it could be more or less. It is advantageous to grow multiple cover crops before replanting in trees or shrubs. An example of a cover crop rotation would be to plant Sudan grass and buckwheat after spring digging. Mow to prevent the crop from going to seed. Then in late July early August mow if needed and spray out with herbicide. In mid-august plant annual rye and vetch and in early April mow, spray out, and then incorporate into the soil with a chisel plow.

The objective is to increase overall soil health. Cover crops reduce soil compaction, add organic matter, improve soil structure, suppress weeds and scavenge nutrients. Legumes will fix nitrogen from the air and increase the nitrogen status of the soil. There are many possibilities when it comes to cover crop options and a manager

should custom design a program that best suits the nursery's needs.



Figure 1. A field in buckwheat.

Photo: Alex Stone, Oregon State University



Figure 2. (Left) Sudex being mowed in a fallow field. (Right) Sudex in a row middle of a field nursery.

Photo: NC State

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Species	Seeding Rate	Weight (pounds/bushel)	Planting Dates
Barley	2.0 bu/A	48	Aug-Oct
Rye (annual)	1.5 bu/A	56	Aug-Oct
Ryegrass (annual)	2.0 bu/A	24	Aug-Oct
Oats	1.5 bu/A	32	Aug-Oct
Buckwheat	1.5 bu/A	45	Aug-Oct
Wheat	25.0 lb/A	60	Aug-Oct
Crimson Clover	20.0 lb/A	60	Aug-Oct
Sorghum-Sudan Hybrids	25.0 lb/A	50	April-May



Figure 3. A field in crimson clover
Photo: Alabama A&M & Auburn Extension



Figure 4. Winter pea, crimson clover and cereal rye cover crop mix
Photo: USDA NRCS

Additional Resources

- NC State Extension: Field Production of Nursery Stock: Field Preparation, Planting and Planting Density ([link](#))
- USDA Natural Resource and Conservation Service—Cover Crops and Soil Health ([link](#))

The University of Kentucky's **Nursery Crop Extension Research Team** is based out of two locations across the bluegrass to better serve our producers.

The **University of Kentucky Research and Education Center (UKREC)** in **Princeton** serves western Kentucky producers while our facilities and personnel on main campus in **Lexington** serve central and eastern Kentucky producers.

Check out our [YouTube Channel!](#)

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