Kentucky Nursery LISTSERV Bulletin

University of Kentucky Nursery Crops Team

End of May 2018

Warmer and Wetter Summer Ahead

Moving into the final weeks of spring, The NOAA Long Range Outlooks are predicting warmer and wetter than average weather across the commonwealth for June, July and August.

Subtropical storm Alberto drifted across the western part of the state at the end of May, prompting flood warnings all over the south eastern U.S.

Many growers are experiencing difficulty getting into the field due to saturation, and these conditions are likely to continue further into the growing season.

Please see the **UKAg Weather Center's Long Range Outlooks** for more information.

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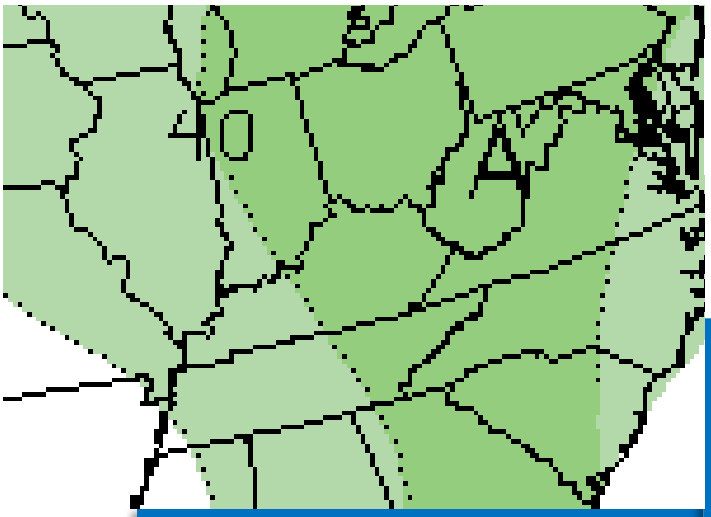

8-15 Day Outlook, Precipitation Probability
March 29, 2018. Valid April 6—12, 2018
Source: NOAA Climate Prediction Center

- **Spider Mites on Landscape Plants**
- **Avoid Introduction of Boxwood Blight into the Landscape**
- **Dogwood Anthracnose**

Spider Mites on Landcape Plants

ENTFACTS, UK Entomology

Spider mites are a common and difficult to control pests in nursery crops. Attacking both deciduous and evergreen plants, spider mites can cause stippled and distorted leaves. During the summer months, growers should be aware of a variety of spider mite species, including:

Twospotted Spider Mite (Tetranychus urticae)

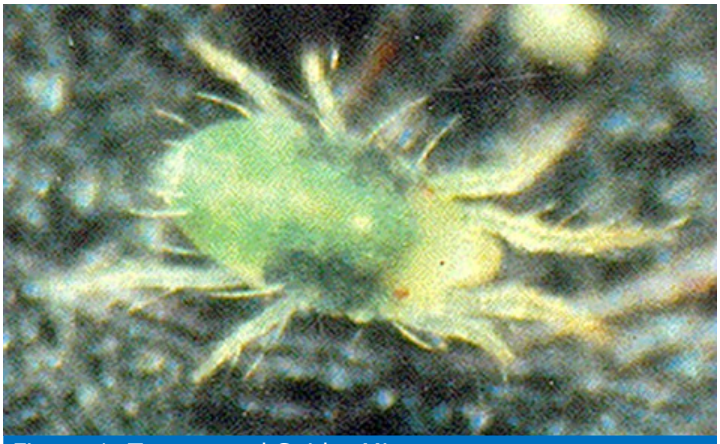

Figure 1. Twospotted Spider Mite
Image: University of Kentucky Entomology

This spider mite has a wide host range and is therefore the most commonly found spider mite. Immatures and adults are yellowish to greenish with two dark spots on either side of the body. Twospotted spider mites overwinter as adult females in the soil or under the bark of host plants. They become active during the spring and may feed and reproduce throughout the summer and into fall provided conditions remain favorable for plant growth. Damaging populations are seldom found during wet, cool weather. The mites are especially destructive to winged euonymous (burning bush) in landscapes.

European Red Mite (Oligonychus ununguis)

It is especially common on flowering fruit trees such as apple/crabapple, cherry, pear, plum, hawthorn, and serviceberry. European red mites overwinter as bright red eggs laid in clusters on branches, limbs and trunk, often in such great number that the bark seems to be covered with red brick dust. Following spring egg hatch, there may be several generations per year. Development from egg to adult varies from about 3 weeks at 55 degrees F to less than 1 week at 77 degrees F. All life stages (eggs, immatures, and adults) are brick red.

EUROPEAN RED MITE
FEMALE

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Maple Mite (*Oligonychus aceri*)
This mite is an important pest of nursery-grown maples, especially Freeman maples, and it occasionally infests maples in landscapes as well. Feeding on the underside of leaves causes stippling and yellowing of foliage. The mites resemble twospotted spider mites but may have a more reddish or pinkish tint. Maple mites overwinter as bright red eggs on the bark.

Figure 3. Adult female maple spider mite on a red maple leaf

Image: Adam Dale, NC-State Extension

Controlling Infestations

Spider mites are one of the more difficult groups of landscape pests to control. Infestations are easiest to control when detected early, before the mite populations have reached very high levels. Twospotted spider mite infestations can often be traced to the purchase of infested plant material. When buying new plants, it pays to inspect the lower leaf surfaces for evidence of mites. Low populations of spider mites may be held in check by naturally occurring predatory mites which feed on both eggs and active stages.

Elimination of moderate to heavy infestations of spider mites usually requires the use of specific pesticides known as miticides. Some, but not all, insecticides will also control mites. Several mite-control products are listed in the table below. Some kill only active mites while others also kill eggs. Always read and follow the directions accompanying the product you are using. Some miticides may harm or discolor certain types of landscape plants. In most cases, two or more applications at 5-10 day intervals will be needed for satisfactory control. Spider mite eggs that have not yet hatched are unaffected by most miticides; the same may be true of larvae and nymphs that are molting. Horticultural oils can be used on landscape plants during the warmer months of the year when green foliage is present and the plants (and mites) are actively growing. Horticultural oils are applied at rates of 1.0 to 2.0%.

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Product Name	Formulation[1]	Residual activity	Comments
Akari	SC	Up to 21 d	Controls all life stages including eggs; no translaminar activity so thorough coverage is essential
Avid	EC	Up to 28 d	Translaminar; controls mobile life stages, not active against eggs[2,3]
Floramite		Up to 28 d	Same as for Akari
Forbid	SC, F	Up to 30 d	Translaminar, controls all life stages
Hexygon	DF	Up to 45 d	Controls eggs and newly-hatched nymphs; no activity on adults; not translaminar so thorough coverage essential
Judo	SC	Up to 30 d	Same as for Forbid
Oil, Dormant		NR[4]	Contact activity only, thorough coverage essential
Oil, summer		NR	Same as for Oil, Dormant
Ovation	SC	Up to 45 d	Same activity and mode of action as Hexygon
Pylon	EC	Up to 28 d	Same as for Avid
Sanmite		Up to 45 d	Same as for Akari
Shuttle	SC	Up to 28 d	Same as for Akari
Soaps (fatty acid salts)		NR	Contact activity only, thorough coverage essential
TetraSan	WDG	Up to 28 d	Translaminar, controls eggs and immature stages; minimal activity on adults but treated females do not produce viable eggs

1SC = soluble concentrate; EC = emulsifiable concentrate; F = flowable ; DF = dry flowable; WDG = water dispersable granule
2Translaminar refers to insecticides and miticides that can penetrate the leaf tissue and form a reservoir of active ingredient within the leaf.
3Mobile life stages include nymphs and adults, but not eggs
4NR: no residual, mites must be hit by spray

CAUTION! Pesticide recommendations in this publication are registered for use in Kentucky, USA ONLY! The use of some products may not be legal in your state or country. Please check with your local county agent or regulatory official before using any pesticide mentioned in this publication.

Of course, **ALWAYS READ AND FOLLOW LABEL DIRECTIONS FOR SAFE USE OF ANY PESTICIDE!**

Information from ENTFACT-438: Spider Mites on Landscape Plants

Avoid Introductions of Boxwood Blight into the Landscape

Kim Leonberger, Extension Associate, Plant Pathology
Nicole Ward-Gauthier, Extension Specialist, Plant Pathology

Boxwood blight can be devastating to American boxwood cultivars, which are common in the Kentucky landscape. Complete defoliation can occur within a week and plants can die within a single growing season. Use of tolerant cultivars, cultural practices, and fungicides can reduce incidence and spread of boxwood blight.

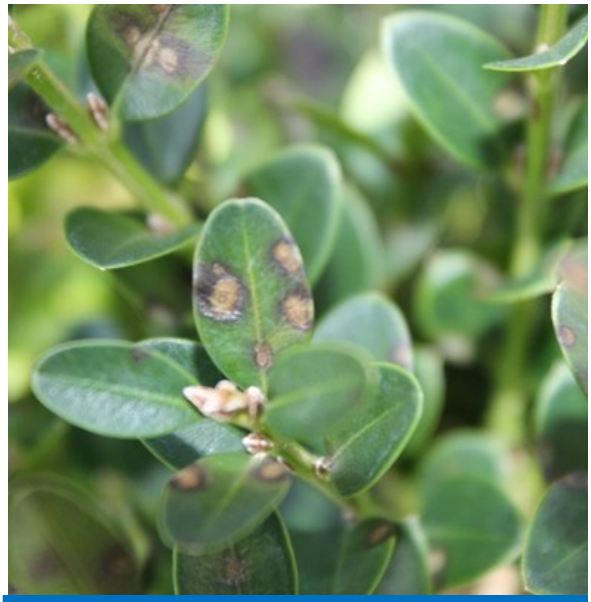

Figure 1. Early symptom of boxwood blight include the development of circular leaf spots with dark borders

Image: Nicole Ward-Gauthier, UK

Boxwood Blight Facts:

- Symptoms on leaves can appear as light or dark brown circular leaf spots with darker borders (Figure 1). These symptoms often go unobserved due to rapid defoliation. Defoliation of the lower plant canopy is often the first obvious symptom of boxwood blight (Figure 2).
- Dark brown or black streak-like lesions appear on infected stems (Figure 3).
- Favored by warm, humid weather.
- Caused by the fungus *Cylindrocladium buxicola*.
- The pathogen can survive on plant debris in the soil for at least 6 years.
- The disease may be spread by splashing water, wind, tools, clothing, and wet hands. Long distance movement is reliant upon the transport of infected plants, infested soil, or contaminated equipment.

Figure 2. Defoliation of the lower portions of the plant is often the first noticeable symptom of boxwood blight

Image: Nicole Ward-Gauthier, UK

Avoid Introduction of Diseased Plants:

- Careful selection of healthy plant material is the first step to prevent spread.
- Inspect nursery plants carefully; do not purchase unhealthy or symptomatic plant material.
- Discuss concerns with landscape contractors before new landscapes are installed.

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Figure 3. Symptoms of boxwood blight on stems may appear as dark brown or black streak-like lesions.

Image: Nicole Ward-Gauthier, UK

- Nurseries and garden centers should communicate plant history with suppliers before receipt of new material. All shipments should be inspected before unloading.

Cautiously Introduce New Plants into Established Landscapes:

Protect established landscapes, especially if valuable boxwood are on site.

- Introduce only symptom-free plants into landscapes.
- If valuable or established boxwood already exist, avoid hasty introduction of new boxwood plants. Move new plants in slowly by setting up a transitional site or quarantined area that can serve as a holding area for three weeks. If plants remain vigorous and symptom-free, they are likely safe to introduce to landscapes.

Management Options:

If boxwood blight is suspected, contact your local Extension agent, who may submit a sample to the UK Plant Disease Diagnostic Lab for confirmation.

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If boxwood blight is confirmed, the following management options are recommended:

- Diseased boxwoods in landscapes should be removed immediately to prevent spread.
- Replant landscapes with boxwoods that have disease tolerance. Some recommended cultivars are listed in Table 1.
- Diseased boxwoods grown for commercial sale should be destroyed and not sold.

Once boxwood blight has been diagnosed in the landscape or nursery, take these steps to prevent infections to nearby healthy boxwoods:

- Increase plant spacing and prune dense shrubs/trees within the landscape to allow for air movement, reduced humidity, and rapid leaf drying.
- Minimize overhead watering and sources of leaf wetness that can increase fungal spore production.
- Fungicides do not cure boxwood blight. Use of fungicides can help protect nearby healthy plants, but residual protection lasts only 7 to 14 days.
    - Homeowners can utilize fungicides containing chlorothalonil to protect plants from infection or suppress disease development. Always follow label directions when utilizing fungicides.
    - Commercial growers and retail centers should contact UK Extension Agents and/or Specialists for specific fungicide recommendations.

Table. 1. Susceptibility of 23 commercial boxwood cultivars to boxwood blight

(Compiled from research by Ganci, Benson and Ivors, North Carolina State University, 2012. Refer to latest cultivar trial results at http://plantpathology.ces.ncsu.edu/pp-ornamentals/)

Highly susceptible	*B. sempervirens* 'Suffruticosa' *B. sinica* var. *insularis* 'Justin Brouwers'
Susceptible	*B. microphylla* var. *japonica* 'Morris Dwarf' *B. microphylla* var. *japonica* 'Morris Midget' *B. sempervirens* 'Jensen' *B. sempervirens* 'Marginata' *Buxus* X 'Glencoe' (Chicagoland Green) *B. sempervirens* 'American' *B. sempervirens* 'Elegantissima'
Moderately susceptible	*Buxus* X 'Green Mound' *Buxus* X 'Conroe' (Gordo) *B. microphylla* 'Green Pillow' *B. microphylla* 'Grace Hendrick Phillips' *B. microphylla* 'Jim Stauffer' *Buxus* X 'Green Mountain'
Moderately resistant	*B. microphylla* 'Winter Gem' *B. sempervirens* 'Dee Runk' *B. sempervirens* 'Fastigiata' *Buxus* 'Green Gem' *B. microphylla* 'John Baldwin'
Most resistant (recommended for new plantings)	*B. microphylla* 'Golden Dream' *B. harlandii* *B. sinica* var. *insularis* 'Nana' *B. microphylla* var. *japonica* 'Green Beauty'

Additional Information

- Boxwood Blight (PPFS-OR-W-20)
- Homeowner's Guide to Fungicides (PPFS-GEN-07)
- Landscape Sanitation (PPFS-GEN-04)
- Susceptibility of Commercial Boxwood Varieties to *Cylindrocladium buxicola* (North Carolina State University)
- Best Management Practices for Boxwood Blight (Virginia Cooperative Extension)

Dogwood Anthracnose

Kim Leonberger, Extension Associate, Plant Pathology
Nicole Ward-Gauthier, Extension Specialist, Plant Pathology

Anthracnose of dogwood is a common problem in Kentucky. Symptoms on landscape and forest dogwood often first appear during wet periods in late spring. If left unmanaged, the pathogen spreads, eventually resulting in plant death. Selection of resistant varieties and maintenance of tree health are critical for disease prevention.

Figure 1. Dogwoods affected by anthracnose develop leaves with medium-to-large spots with purple borders or scorched tan blotches

Image: John Hartman, UK

Dogwood Anthracnose Facts

- Leaves may develop medium-to-large spots with purple boarders or scorched tan blotches that enlarge to kill the entire leaf (Figure 1). Infected petioles and branches exhibit dieback, typically beginning on lower branches (Figure 2). Cankers with a dark brown discoloration under the bark may develop limbs. The development of trunk sprouts increases.
- Other landscape trees can develop diseases also called anthracnose; however, these result from different fungal pathogens and symptoms vary depending on the type of tree.
- Disease is favored by cool, moist periods. Infection may occur throughout the growing season, as long as conditions are conducive.
- Caused by the fungus *Discula destructiva*.
- The pathogen survives winter in infected plant tissues, such as leaf debris and cankers.

Figure 1. Infected petioles and branches exhibit dieback, typically beginning on lower branches

Image: Robert L. Anderson, US Forest Service, bugwood.org

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Management Options

- Select disease resistant cultivars, such as Oriental dogwood or cultivars developed from the 'Appalachian' cultivar series.
- Inspect all trees prior to purchase and installation for symptoms.
- Do not transplant forest dogwood into landscapes.
- Prune trees to allow for increased air movement and leaf drying.
- Select good planting sites that allow for adequate sunlight.
- Maintain plant health with proper nutrition, irrigation, and the addition of mulch.
- Avoid injuries to trees.
- Prune all dead, dying, or diseased branches from trees.
- Fungicides may be applied preventatively. Contact a county Extension agent for more information on fungicide use.

Additional Information

Dogwood Anthracnose (PPFS-OR-W-06)

http://plantpathology.ca.uky.edu/files/ppfs-or-w-06.pdf

Landscape Sanitation (PPFS-GEN-04)

http://plantpathology.ca.uky.edu/files/ppfs-gen-04.pdf

Considerations for Diagnosis of Ornamentals in the Landscape (PPFS-GEN-15)

http://plantpathology.ca.uky.edu/files/ppfs-gen-15.pdf

Woody Plant Disease Management Guide for Nurseries and Landscapes (ID-88)

http://www2.ca.uky.edu/agcomm/pubs/id/id88/id88.pdf

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.

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