



College of Agriculture,  
Food and Environment  
Cooperative Extension Service

# Kentucky Nursery LISTSERV Bulletin

University of Kentucky Nursery Crops Team

End of June 2019

## Cooler-Than-Average Weather Ahead for Parts of the Commonwealth

The temperature probability map for July is predicting an above normal chance of cooler-than-average weather for the month. This deviation from normal is mostly confined to the western part of the commonwealth and along the Ohio River.

The above average rates of precipitation that have been lurking in the Midwest part of the US are predicted to continue in July and likely into August and September, though they do not quite reach into Kentucky. A climate report from the NOAA's National Center for Environmental Information indicated May was the second wettest month in the U.S. since record keeping started in 1895 (May 2015 was #1).

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

## Nursery Crops Extension & Research Team

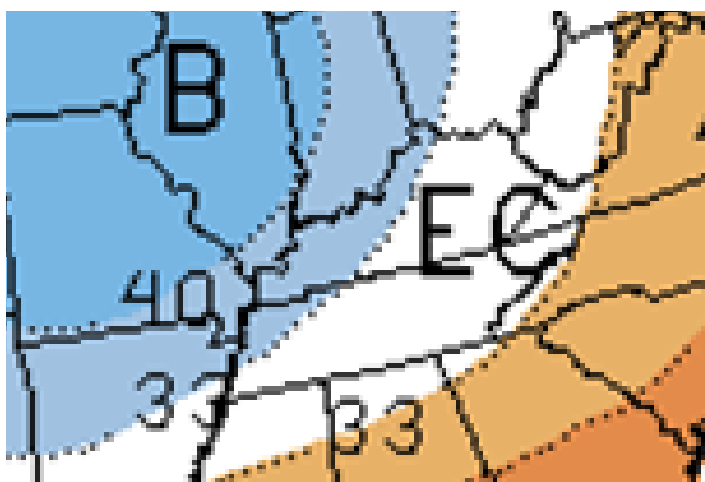
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Joshua Knight, Managing Editor



June 07-13, Precipitation Probability  
Image: NOAA Climate.gov, 30 MAY 2019

- **Management of Weeds in the Nursery**
- **Avoid Introduction of Boxwood Blight into the Landscape**
- **Dogwood Anthracnose**

# Management of Weeds in the Nursery

*Joshua Kight, Extension Associate, Nursery Crops*

Weeds in the nursery can be a major hindrance to the industry. They can harbor insect pest, plant disease pathogens, and rodents. If weeds go unchecked, they can reduce airflow. This can lead to an increase in humidity, and consequently increase disease pressure and severity. The presence of weeds ties up fertilizers, fungicides, insecticides, and water, therefore reduces their effectiveness. So, it is important to manage weed pressures. Nurseries should adopt an integrated weed management program that uses techniques to reduce the weed population.

Weed scouting is probably the first and most important of steps in developing an integrated weed management program. Making effective weed management decisions is based on field history, as well as the current weed population. Field nurseries should be scouted at least twice a year: late summer/early fall and again in late spring/early summer. By doing this, prevalent weed populations and weeds requiring special control measures can be identified. This allows a manager to develop a customized program for integrated weed management in their nursery. As there is no silver bullet for controlling weeds, the program's methods may change from year to year.

Weeds can be controlled or managed with cultural practices and/or by the use of chemical PRE/POST emergent herbicides.

	Late Winter	Early Spring	Late Spring	Early Summer	Mid Summer	Late Summer	Early Fall
Weed Scouting			X	X	X		X
PRE Herbicide	X		X			X	
POST Herbicide			Spot Treat	Spot Treat	Spot Treat	Spot Treat	Treat Perennial weeds
Sprayer Maintenance	X						
Nutsedge Control	PRE	PRE	PRE	POST	POST	POST	

Cultural practices, include methods such as sanitation and cultivation. In container nurseries, always use weed free substrates. Store pots and flats in area where they will not become contaminated with weed seeds. Keep production areas as weed free as possible to prevent the introduction and spread of weeds.

In field production sanitation and cultivation can be used to control weeds. Difficult-to-control or persistent weeds, such as Mugwort (Figure 1) should be controlled before planting and considered when designing weed control during production.

Other cultural practices for reducing weed pressure include planting a temporary ground cover and plowing in the fall. A cover crop creates competition with weeds through shading, mowing, and can reduce the weed seed bank in the soil.

Chemical control is achieved with using PRE/POST emergent herbicides. Information from scouting will direct the choice of herbicides to be used. Some things that need to be considered before using certain PRE/POST chemicals are: crop safety, control spectrum, application rate, residual activity, activation, Mode of Action, and the potential for off-target losses.

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**Preemergence herbicides** are useful in nursery weed management programs because they form a residual barrier in the soil that keeps the weed seedling from emerging. It is very crucial to time applications so that a chemical barrier is in place before weed seeds germinate. Multiple applications throughout the season are necessary to maintain control throughout the year. In container nurseries 3 to 6 applications could be made, while in field production there may be the need for 2 - 3 applications. Application sites will differ due to the history of heavy weed pressure versus sites with little weed pressure.

The use of **postemergence herbicide** is necessary when there are weeds that have escaped the pre emergence application. Postemergence herbicides that are available are selective, non-selective, contact action, or systemic action. Glyphosate, Glufosinate, and Diquat are non-selective postemergence herbicides, as they injure any vegetation contacted. Sethoxydim, fluazifop-p and clethodim are selective post control herbicides that will control grasses but not broadleaf weeds. With non-selective herbicides it is necessary to apply as a directed spray, while selective herbicides may be applied over the top to tolerant plants. **With all chemicals it is very important to read the label and have an understanding on how the product should be applied.** Another important thing to consider when implementing a program, is managing for herbicide- resistance weeds. It is important to know a product's Mode of Action (MOA), to rotate MOAs and use multiple control tactics. For more information on MOA categories, use the Weed Science Society of America website [www.wssa.net](http://www.wssa.net).

Other methods for control are flame, steam or hot foam to weeds. They are most effective controlling seedlings of annual weeds, but larger annual weeds may grow back rapidly. Use of cultivation is proven to be effective, but may lead to erosion, the spread of rhizomatous weeds such as mugwort (Figure 1), and the damage to shallow rooted crops.



Figure 1. Mugwort

Image: University of California Extension

More information can be found at the links provided below:

[https://wiki.bugwood.org/IPM\\_book](https://wiki.bugwood.org/IPM_book)

[https://wiki.bugwood.org/IPM\\_Shrub\\_Book](https://wiki.bugwood.org/IPM_Shrub_Book)

<https://wiki.bugwood.org/SNIPM>

Source:

2017 Southeastern U.S. Pest Control Guide Nursery Crops and Landscape Plantings

# Avoid Introduction of Boxwood Blight into the Landscape

Nicole Ward Gauthier, Extension Professor, Plant Pathology  
Kim Leonberger, Extension Associate, 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.

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

Photo: Nicole Ward Gauthier, University of Kentucky



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

Photo: Nicole Ward Gauthier, University of Kentucky



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

Photo: Nicole Ward Gauthier, University of Kentucky

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## 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.
- 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.

**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/>)

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

## 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.

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

- Diseased boxwoods in landscapes should be removed immediately and destroyed 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.

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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.

### **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

Nicole Ward Gauthier, Extension Professor, Plant Pathology  
Kim Leonberger, Extension Associate, 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.

## Dogwood Anthracnose Facts

- Leaves may develop medium-to-large spots with purple borders 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 on 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.

## 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.



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

Photo: John Hartman, University of Kentucky



Figure 2. Infected petioles and branches exhibit dieback, typically beginning on lower branches.

Photo: Robert L. Anderson, USDA Forest Service, [bugwood.org](http://bugwood.org)

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## **Management Options continued...**

- 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.

Check out our [YouTube Channel!](#)

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