

Kentucky Nursery LISTSERV Bulletin

University of Kentucky Nursery Crops Team

End of August 2017

Late Summer, Cool and Wet

September is like to start off cooler and wetter than average, likely from the persistent storm system currently impacting the western gulf states.

What are average temperatures in KY for September? Weather data from 1981-2010 shows normal average temperatures for KY between 78-81F across the state for the highs and 53-58 for the lows. Precipitation ranges from 2.8-3.3 inches for the whole month. Fall technically won't be here until the 22nd, but it looks like we will be getting an early preview this year in terms of weather.

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

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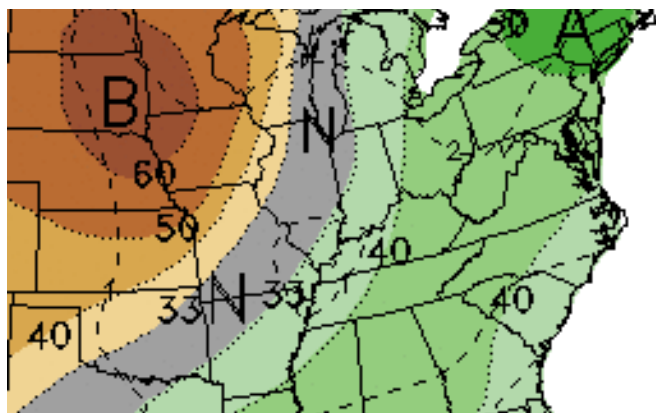
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Rain Probability, Sep 3—Sep 7, 2017
Image: NOAA Climate.gov, Aug 28, 2017

- **Avoid introduction of boxwood blight into the landscape**
- **Spider and false spider mites: mite morphology and damage**

Avoid Introduction of Boxwood Blight into the Landscape

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Boxwood blight has been detected in Kentucky again this year. The disease 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.

Photo: Nicole Ward Gauthier University of Kentucky

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.

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.



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

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.

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.

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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.

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	<i>B. sempervirens</i> 'Suffruticosa' <i>B. sinica</i> var. <i>insularis</i> 'Justin Brouwers'
Susceptible	<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'
Moderately susceptible	<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'
Moderately resistant	<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'
Most resistant (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'

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](#))

Spider and false spider mites: mite morphology and damage

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Spider mites (Family: Tetranychidae) are microscopic phytophagous arachnids (Figure 1) that feed on lower and/or upper leaf surfaces, and other plant tissues as flowers and tender fruit by piercing cells and sucking their content. They are identified as the most important pest in ornamentals in the southeastern US. Spider mites usually develop large populations due to their high reproductive rate and short life cycle, in consequence injury progresses rapidly causing chlorosis, leaf drop and occasional plant death. Depleted plant hosts make mites migrate to new plants. Spider mites spin a dense web as a strategy to avoid predation, in fact, in the presence of predators more eggs are laid on the web to protect the offspring. Also, silk is used for dispersion. Webbing covering foliage and large portion of a plant can be observed on heavily infected plants. High summer temperatures trigger population growth.

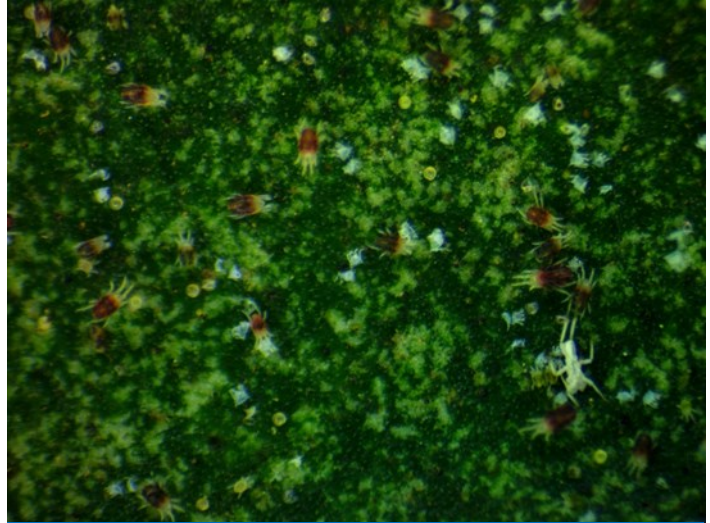


Figure 1. Eggs, immatures and adults of *Tetranychus urticae* mites.

Photo: Zenaida Viloria, University of Kentucky

We found high populations of spider mites on 'Coffee Cups' and 'Jack's Giant' elephant ears (*Colocasia sculenta*) and elephant ear 'Thailand Giant Strain' (*Colocasia gigantea*) in the greenhouse this summer. Small chlorotic dots could be noticed as general leaf chlorosis, and a profuse web covering the leaf blade and upper portion of the petiole (Figure 2). The damage was severe on old and new leaves. It is worth noting that an earlier aphid attack took place in these plants. Two-spotted spider mite attack was also observed in Weigela 'Spilled Wine'. Spider mites attack a large number of hosts in greenhouse and outdoors including annuals, perennials, shrubs, trees, and grasses.



Figure 2. 'Coffee cup' elephant ear leaf infested with spider mites and covered with webbing.

Photo: Zenaida Viloria, University of Kentucky

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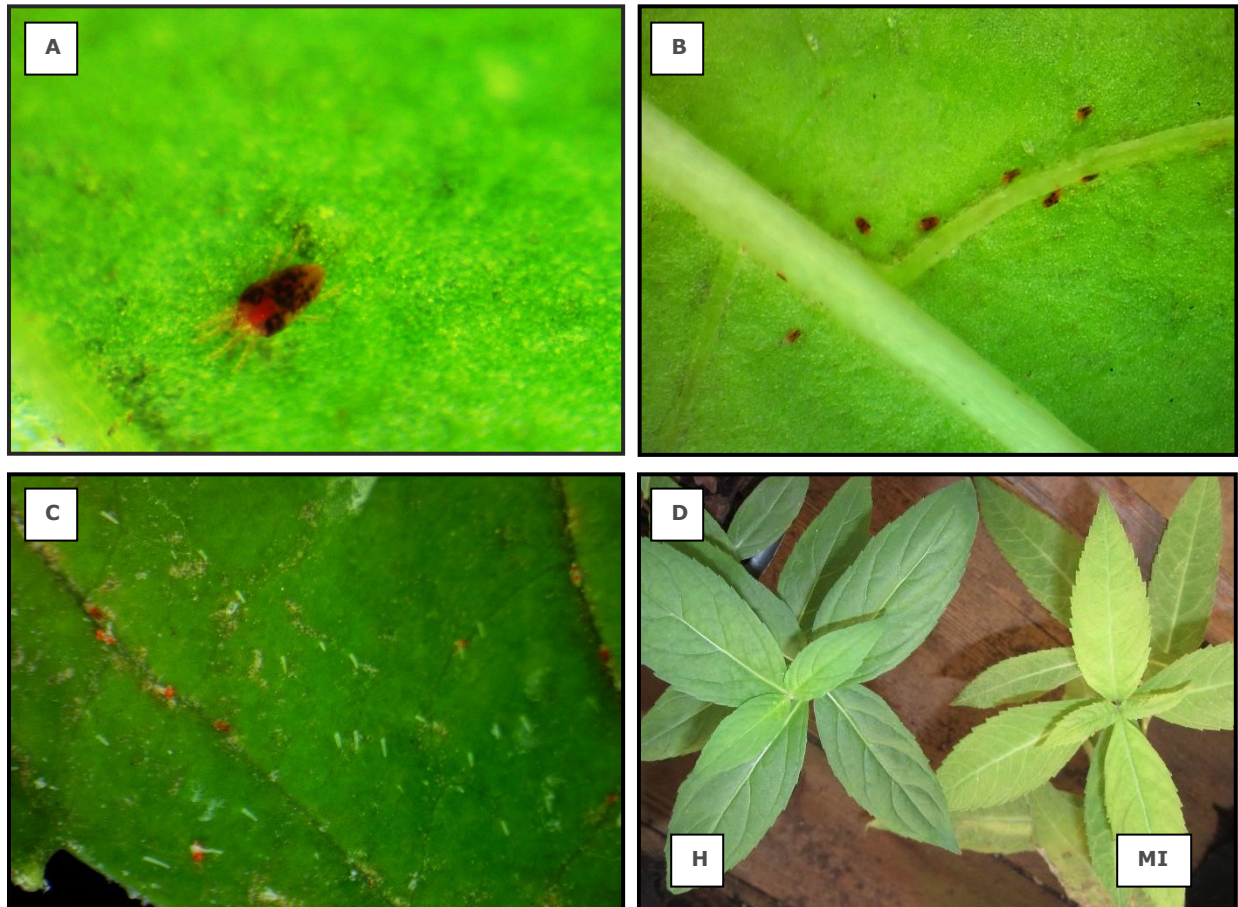


Figure 3. High infestation of false spider mite in turtlehead (*Chelone glabra*) **A.** Adult false spider mite; **B.** False spider mite feeding on lower leaf surface along the veins; **C.** False spider mite eggs on leaf surface. **D.** Healthy (H) and mite infested (MI) turtlehead plants (Photo: R. Villaneuva).

False spider mite or flat mite (Family: Tenuipalpidae) is a relative of spider mites. Both groups belong to the same superfamily (Tetranychoida), however false spiders do not produce silk webbing. This mite is red with black spots and a flat body (Figure 3A), usually found along the veins (Figure 3B) on upper or lower leaf surface. Their eggs are also red (Figure 3C). False spider mites were detected feeding on the native turtlehead plants (*Chelone glabra*) foliage causing severe chlorosis and some leaf necrosis (Figure 3D). High false spider population was observed on upper and lower leaf surfaces of tender and old leaves.

False spider mite puncture leaf epidermis and suck cell content, causing mottling, chlorosis, silver appearance or leaf necrosis. They feed on leaves, fruit, twigs, stems and flowers. One of the most important characteristics of false spider mites is that they are vectors of virus or virus-like diseases. They transmit Leprosis in citrus and orchid fleck virus in orchids. Common host plants: orchids, privet, conifers, grasses, bamboo, salvia, schefflera, pelargonium, hibiscus, hедера, and ligustrum.

Mite management: Scouting must be performed periodically to detect timely attack. Magnifier 10X hand glasses help to find small colonies at early stage. It was shown that some insecticides (pyrethroids and neonicotinoids) increase the population growth of spider (hormoligosis) and in addition they cause great mortality of specialized natural enemies such as *Stethorus* spp., *Scymnus* spp. (small lady bugs), and predacious phytoseiid mites.

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The management of mites has been improved in fruit trees with the increase use of pheromone based mating disruption strategies, however there are still many issues in strawberries and greenhouses. Miticides or acaricides (products that kill mites) are effective but spider mites can develop resistance if their use is injudiciously (low rates, and repeated applications of the same product). Insecticidal soaps and horticultural oils kill adults, immatures and eggs, with no residual activity. Horticultural oils should be used at dusk or when the temperatures are low to avoid burning or damage of plants.

Additional Information

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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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