

Kentucky Nursery LISTSERV Bulletin

University of Kentucky Nursery Crops Team

End of November 2017

Mild November into Variable Winter

November was slightly milder than normal, with average highs a few degrees above the typical 55°F for much of the state. NOAA predicts December to have an equal chance of warmer or cooler than normal temperatures. For reference, the average high/low for the entire state in December is 44°F/28°F. This forecast does not mean we won't have short duration cold or warming events, so stay alert to forecasts.

In the near term, be advised the second week of December is predicted to be significantly cooler than average for the entire state.

For more information see [UKAg Weather Center's Long Range Outlooks](#)

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8-14 Day Outlook Temperature Probability
Made 29 Nov 2017, Valid Dec 7-13, 2017
Source: NOAA Climate Prediction Center

- **Landscape Sanitation: Clean Up for Clean Plants**
- **Tree Wounds — Invitations to Wood Decay Fungi**
- **Reducing the Risk of Deficient Performance of Bare-root Liners**

Landscape Sanitation: Clean Up for Clean Plants

Kimberly Leonberger, *Extension Associate, Plant Pathology*
Nicole Ward Gauthier, *Extension Professor, Plant Pathology*

Autumn has arrived in Kentucky and, as leaves change color and fall from trees, it is time to focus on landscape sanitation. Good sanitation practices can help reduce disease-causing pathogens. These organisms can survive for months or years on dead plant material or in soil, causing infections in subsequent years. Elimination of disease-causing organisms reduces the need for chemical controls and can improve the effectiveness of disease management practices. Following these sanitation practices both in autumn and throughout the growing season can reduce disease pressure in home and commercial landscapes.



Figure 1. Cankers can provide an overwintering site for plant pathogens.

Image: John Hartman, University of Kentucky

Sanitation Practices:

- Remove diseased plant tissues from infected plants
- Prune cankers (Figure 1) and galls from branches by making cuts well below visible symptoms (Figure 2). Clean tools between each cut with a sanitizer, such as rubbing alcohol or household bleach.
- Rake and remove fallen buds, flowers, twigs, leaves, and needles (Figure 3)
- Discard all above and below ground portions of heavily infected perennial and annual plants. Severely infected trees and shrubs should be cut down and stumps removed/destroyed.
- All discarded plant material should be burned, buried, or removed with yard waste. Do not compost diseased plant material. Exercise caution when storing limbs and trunks as fire wood or using for mulch.



Figure 2. When removing cankers, make cuts well below visible symptoms or at the base of branches.

Photo: Joseph O'Brien, USDA Forest Service, bugwood.org

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- Used container media should be discarded.
- Remove weeds, including roots, which may serve as alternate hosts for pathogens.
- When treating infected plants with fungicides, remove infected tissues prior to application.



Figure 1. Fallen leaves and other plant parts should be gathered and discarded.

Image: Nicole Ward Gauthier, University of Kentucky

Additional Information

- Landscape Sanitation (PPFS-GEN-04)
http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-GEN-04.pdf
- Plant Pathology Publications
<http://www2.ca.uky.edu/agcollege/plantpathology/extension/pubs.html>

Tree Wounds—Invitations to Wood Decay Fungi

Kimberly Leonberger, Extension Associate, Plant Pathology
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Wood decay leads to loss of tree vigor and vitality, resulting in decline, dieback, and structural failure. Wounds play an important part in this process since they are the primary point of entry for wood decay pathogens. While other factors may also result in decline and dieback, the presence of wounds and/or outward signs of pathogens provides confirmation that wood decay is an underlying problem. Wounds and wood decay reduce the ability of trees to support themselves.

Wounds may result from numerous sources such as lawn equipment (Figure 1), pruning, vehicles, herbicides, insects, wildlife, weather, or objects that girdle or embed in trunks or branches (Figure 2). Once stress or damage from wounds occurs, fungal decay pathogens may enter plants to cause further damage. During rainy seasons and moderate temperatures, many wood decay fungi produce visible reproductive structures, such as shelf-like fungal bodies (Figure 3) or mushrooms.



Figure 1. Lawn equipment damage to the base of a tree.

Photo: Cheryl Kaiser, University of Kentucky



Figure 2. Wire from stakes and fences creates wounds and can lead to girdling.

Photo: Nicole Ward Gauthier, University of Kentucky



Figure 2. When weather conditions are favorable, the shelf-like fungal fruiting structures of some wood decay pathogens may be visible.

Photo: Joseph O'Brien, U.S. Forest Service, bugwood.org

Additional Information

- Tree Wounds – Invitations to Wood Decay Fungi ([PPFS-OR-W-01](#))
- Plant Pathology Publications ([Website](#))

<http://plantpathology.ca.uky.edu/extension/publications>

Reducing the Risk of Deficient Performance of Bare-root Liners

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In nursery crops, the October-March period is a very busy time despite the dormant stage of the trees; new tree liner stocks are planted while other trees are harvested for sale. The quality and profitability of nursery trees depend to a considerable extent on the quality of liner stocks. Quality liners are expected to recover their growth faster after outplanting compared with inferior quality stocks. Upon receiving liners at the nursery, they must be checked to assure plants are in good condition before planting or storing. This task might take some time but it is worthwhile when it is possible to anticipate poor plant performance in the nursery.

According to the American Standard for Nursery Stock, the minimum requirements for all nursery stock regarding quality within the terms of standard shall be free of damaging insects and diseases, in good living condition and typical in habit for the species in the region of the country in which it is grown. It would be difficult to predict the field performance of trees based on these characteristics, therefore it is necessary to assess bare-root liners' attributes to estimate plant performance in the field.



According to a study by University of Tennessee and Texas A&M University (Jeffers et al., 2009), growers choose 1+0 bare-root liners based on number of first order lateral roots, uniformity, liner height and canopy density. Liner morphological and physiological characteristics are very informative to determine the current plant status and future plant survival and development in the field. Some plant attribute measurements for instance nutrient levels, carbohydrate storage, cold hardiness, root electrolyte leakage, water status and root growth potential are very valuable and useful to assess liners quality, but these methods require equipment, plant sampling and destruction, trained personnel and time.

Measuring morphological attributes might be practical approaches that can be completed in short time. Shoot height and weight, root weight and volume, root collar diameter, number of the first order lateral roots, fibrous roots, balanced root:shoot ratio, axillary bud status and caliper measurements can be evaluated in the different tree species with varying levels of success of an evaluation.

The best quality liners can be vulnerable if the conditions during storage, shipping and planting are not right. In most tree species, roots are very susceptible to desiccation which affects further plant development. The control of lifting and transplanting time of bare-root liners and storage conditions is a very important to assure the success of outplanting.

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Additional Information

Jacobs, D.F. Nursery production of hardwood seedlings. Hardwood Tree Improvement and Regeneration Center. North Central Research Station USDA Forest Service.

<https://www.extension.purdue.edu/extmedia/fnr/fnr-212.pdf>

Jeffers, A., M. Palma, W. E. Klingeman, C. Hall, D. Buckley and D. Kopsell. 2009. Assessments of bare-root liner quality and purchasing decisions made by green industry professionals. HortScience 44(3):717-724.

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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