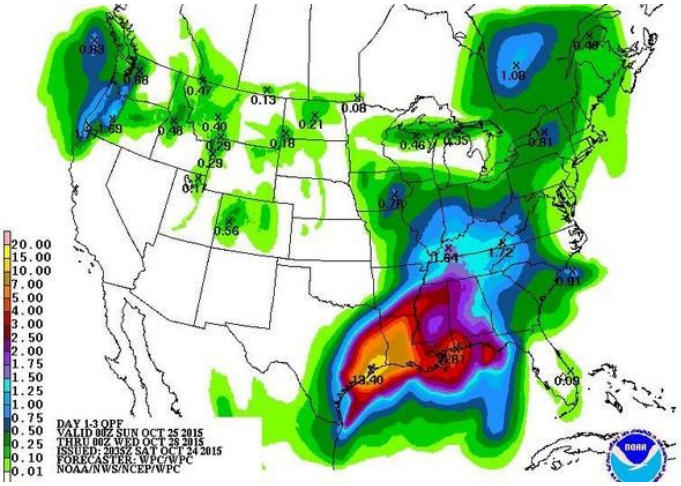
Kentucky Nursery LISTSERV Bulletin

University of Kentucky Nursery Crops Team | **End of October 2015**

The Dormant Season is coming…

Though the end of October brought some rains from the dissipating hurricane Patricia, but the 30 day forecast for the University of Kentucky Ag Weather Center predicts normal precipitation and normal temperatures for November. This month the bulletin focuses on overwintering strategies and tactics.



Hurricane Patricia dissipates over Texas, bringing days of precipitation to the upload South. NOAA, October 25th

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Pine straw mulch for overwinter protection of rhododendron. Image — Winston Dunwell

In This Issue

Landscape Sanitation: Clean Up for Clean Plants

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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 oversintering site for plant pathogens.

Photo: Nicole Ward Gauther, 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.
- Soil from containers should be discarded and not reused.
- Remove weeds, including roots, which may serve as alternate hosts for pathogens.
- When treating infected plants with fungicides, remove infected tissues prior to application.

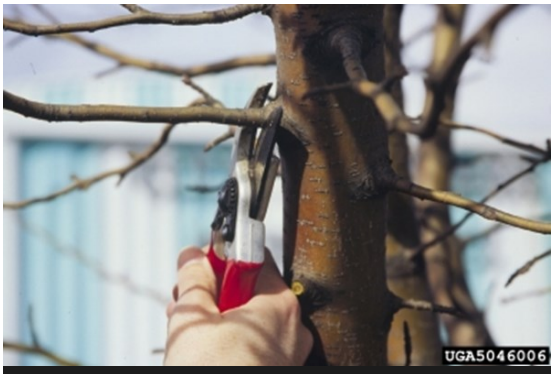

Figure 2 — When removing cankers, make cuts below visible symptoms or at the base of branches.

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

Figure 3 — Fallen leaves and other plant parts should be gathered and discarded

Photo: Nicole Ward Gauthier, University of Kentucky

Overwintering Nursery Crops

Plants develop the ability to survive winter temperatures following exposure to shortening days and lower temperatures (acclimation). In order to develop maximum tolerance to cold the plants must be exposed to freezing temperatures. Ultimately, if exposed to consistently lower temperatures, without sudden damaging drops or swings up and down, many plants are able to tolerate very cold temperatures. Of course, temperatures do not consistently drop in our area but vary up and down dramatically, often with devastating results, such as the fall damage to azaleas where the bark separates from the stem. Cultural practices, such as fertilizing, watering, and pruning impact a plants ability to acclimate. Any practice that stimulates late season growth should be avoided.

While shoot hardiness of temperate plants is important when making overwintering decisions, roots rarely, if ever, will survive temperatures below -10F, therefore, root hardiness should be our primary concern related to making overwintering decisions. Young roots of some plants do not seem able to acclimate at all, mature roots normally are able to tolerate more cold than young roots.

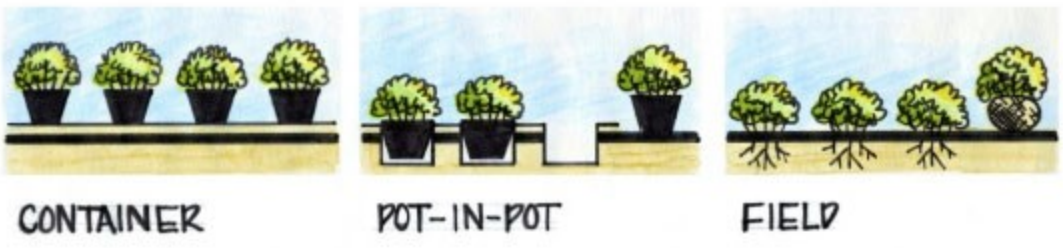

Figure 1. Three production systems: Plants are grown above-ground in containers on a container bed; plants are grown in containers placed in below-ground socket pots (pot-in-pot); or plants are grown directly in the field and harvested balled and burlapped or bare root.

Illustration by Sarah Vanek

Experienced nurserymen often find certain balled and burlapped plants cannot be left in the field overnight if the temperature is going to be below freezing, while other plants such as junipers can be left out in the field. Holding or staging areas for loading trucks can have straw or mulch available to put around the root balls stacked closely together. With the current trend to load trailers directly in the field, using a Tree Boss, covers should be put over plants as soon as possible.

The nurserymen has to deal with several questions when considering overwintering nursery crops. Some of the questions are:

what type of plant are we trying to store?

is it a container plant, balled and burlapped, bareroot?

is the plant sensitive to cold?

what part of the plant is most likely to be damaged and how do we protect it?

Containers are typically put in quonset-type greenhouses. The more northern the location of the greenhouse the narrower, or if wide, the taller the house in order to ensure the snow will slide off an unheated overwintering house.

Overwintering quonsets (Figure 3) traditionally have been 14 feet wide and hundreds of feet long, then 20 feet wide seemed more frequently used, but some nurserymen use standard greenhouses 28-30 wide by 96 feet or longer.

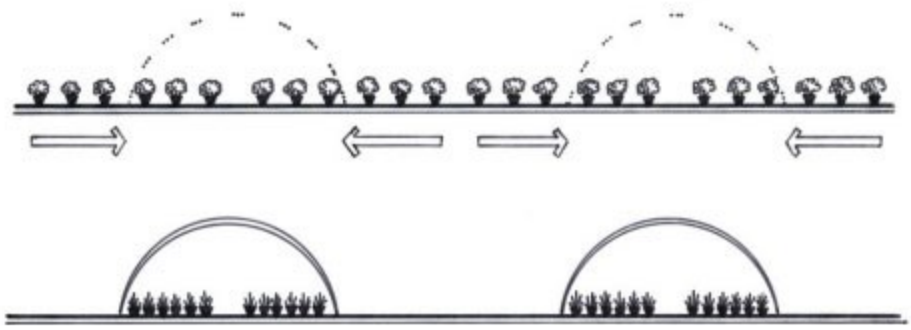

Figure 2. Above-ground container-grown plants are tightly spaced for overwintering. Plants generally require half as much space during the overwintering period .

Illustration by Sarah Vanek

Attempts are made, where feasible, to orient the houses south to north. Plants in the southeast corner, may receive more light and day length, requiring more frequent observation. With plants that are particularly cold sensitive a poly blanket should be set in the house so that if abnormally cold temperatures are encountered (below 0F or less) it can be pulled over the plants to provide a second layer of cover.

Figure 3. Poly-covered Quonset-type greenhouses are used for winter protection of container grown plants.

Photo by Sarah Vanek

Other Overwintering Tactics:

1. Push pots together with protection at the edges (Figure 2)
2. Mulching (Figure 4)
3. Microfoam with a poly cover directly over plants placed on the ground
4. Greenhouse with double-layer poly
5. Greenhouse with double-layer poly and a poly blanket
6. Greenhouse with double-layer poly and a microfoam blanket
7. Greenhouse with double-layer poly and heat

Figure 4. Mulching with sawdust in preparation to overwinter ball-and-burlapped trees.

Photo by Winston Dunwell, UKREC Horticulture

Botanical Name	**Temp***
Buxus sempervirens	27°F
Cotoneaster congestus	25°F
Ilex crenata ' Dazzler'	25°F
Cotoneaster dammeri	23°F
Daphne cneorum	23°F
Euonymus fortunei var. vegeta	23°F
Hypericum species	23°F
Ilex crenata 'Convexa'	23°F
Ilex crenata 'Helleri'	23°F
Ilex crenata 'Hetzii'	23°F
Ilex crenata 'Stokesii'	23°F
Ilex opaca	23°F
Ilex 'Nellie R. Stevens'	23°F
Ilex merserve	23°F
Mahonia bealei	23°F
Magnolia x soulangeana	23°F
Pyracantha coccinea 'Lalandei'	23°F
Cornus florida	22°F
Magnolia stellata	22°F
Rhododendron prunifolium	20°F
Viburnum plicatum f. tomentosum	20°F
Euonymus alata	19°F
Rhododendron 'Hino Crimson' C	19°F
Cotoneaster horizontalis	17°F
Cryptomeria japonica	17°F
Taxus x media 'Hicksii'	17°F
Rhododendron "Exbury Hybrid"	17°F
Cytisus x praecox	16°F
Ilex glabra	16°F
Koelreuteria paniculata	16°F
Acer palmatum 'Atropurpureum'	15°F
Euonymus fortunei 'Argenteo-marginata'	15°F
Euonymus fortunei 'Carrierei'	15°F
Hedera helix 'Baltica'	15°F
Kalmia latifolia	15°F
Rhododendron schlippenbachii	15°F
Rhododendron 'Purple Gem'	15°F
Viburnum carlesii	15°F
Pachysandra terminalis	15°F
Vinca minor	15°F
Cotoneaster adpressus var. praecox	12°F
Juniperus conferta	12°F
Juniperus horizontalis 'Plumosa'	12°F
Juniperus squamata	12°F
Mahonia aquifolium	10°F
Rhododendron 'Gibraltar'	10°F
Rhododendron 'Hinodegiri'	10°F
Taxus x media 'Nigra'	10°F
Thuja occidentalis	10°F
Euonymus fortunei 'Colorata'	5°F
Juniperus horizontalis 'Douglasii'	0°F
Rhododendron carolinianum	0°F
Rhododendron catawbiense	0°F
Rhododendron 'P.J.M.' hybrids	-9°F

Table 1. Temperatures that will injure primary and possibly secondary roots, will not result in 100% kill of the root systems in moist soils.

Overwintering information compiled from the following articles:

Overwintering Nursery Crops
http://www2.ca.uky.edu/HLA/Dunwell/ovrwtr9.html

Sustainable Production Systems: Efficient Wholesale Nursery Layout
http://www2.ca.uky.edu/agc/pubs/HO/HO109/HO109.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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