

Dormant Season and Early Spring Methods to Control Insect Pests and Pathogens  
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Fall is just around the corner and our growing season is coming to an end. But don't pack up the garden tools just yet. There are a multitude of tasks that can be done in the coming months to help combat next year's insect pests and pathogens. So, it's time to take a look around the landscape and evaluate your plantings, particularly those that had insect or pathogen problems during the past season. There are the general clean up activities that can be done when you have time, but certain tasks, especially preventative chemical applications, need to be applied at very specific times of the year to achieve optimal results against insects and pathogens. We use insecticides and fungicides sparingly and try to get the most out of them by remembering that timing is everything.

**Off-season Tasks to Help Control Pests and Diseases:**

Plant dormancy, the period between leaf fall to before bud swell in spring, is the time to prune out all dead and dying or damaged plant parts. Pruning before a plant is fully dormant may cause late season delay in hardening-off and make plants more susceptible to winter injury.

Raking and destroying fallen leaves, needles, twigs, cones, fruit, etc. from diseased plants will help remove a source of inoculum for diseases.

Making sure your plants have adequate moisture until the first frost occurs, and even later for evergreens, is important for pest and disease control. Drought stress predisposes trees to many ailments and can cause poor growth and reduced vigor long after drought occurs.

The following table contains specific off-season control methods that were mentioned in this year's Plant Health Care (PHC) reports. In some cases, the controls listed are the only options available for managing a pest or disease. Refer to the specified PHC report (in parentheses) for more information on the pest or disease and growing season control methods.

## LATE FALL/WINTER

<b>PRUNE OUT DAMAGED TWIGS, BRANCHES (after dormancy and in dry weather)</b>		
<b>Insect/Pathogen</b>	<b>Hosts</b>	<b>Notes</b>
Apple scab (6)	Rosaceae	
Arborvitae leafminer (2)	Arborvitae	
Black knot (3)	Cherry, plum, and other <i>Prunus</i> spp.	
Black spot of elm (7)	Most species of elm	
Black spot of rose (8)	Roses	
Botryosphaeria canker (12,16)	Redbud, apple, dogwood, elm, hickory, horsechestnut, oak, and sycamore	
Brown rot (8)	Peach, plum, cherry, apricot, and other <i>Prunus</i> species	Also remove and destroy mummified fruit.
Cladosporium of peonies (15)	<i>Paeonia</i> spp.	Cut stems at ground level and destroy plant material.
Cytospora canker (3) (causal agent: <i>Leucostoma kunzei</i> )	Spruces, western red cedar, Douglas-fir, hemlock, larches, and red and eastern white pines	
Dutch elm disease (4,9,10)	Native and European elms	Prune during dormancy to avoid beetle vectors.
Fire blight (9)	Rosaceae	
Frogeye leaf spot (6)	Apple and crabapple	Also remove mummified fruit and prune susceptible trees to thin out dense crowns.
Golden canker (2) (Cryptodiaporthe)	Pagoda dogwood	
Mossy rose gall (12)	<i>Rosa</i> species	Prune out galls.
Oak wilt (10,16)	Red and white oak groups	Prune during dormancy to avoid beetle vectors.
Sphaeropsis tip blight (6,10,20)	Most common on Scots, red, mugo, and Austrian pines; Douglas-fir, true fir, spruce, and juniper	Also remove diseased cones.
Thyronectria canker (21)	Honey locust	
Zimmerman pine moth (1)	All pines; Scots and Austrian preferred	
<b>COLLECT AND DESTROY FALLEN LEAVES, FRUITS, CONES (leaf litter can be composted or thrown away)</b>		
<b>Insect/Pathogen</b>	<b>Hosts</b>	<b>Notes</b>
Anthracnose diseases (6,8,9,16,17,18,20)	Sycamore, walnut, oak, ash, maple, birch, catalpa, elm, horsechestnut, yellowwood, and hickory	
Apple scab (6)	Rosaceae	
Black spot of elm (7)	Most species of elm	
Black spot of rose (8)	Roses	
Brown rot (8)	Peach, plum, cherry, apricot, and other <i>Prunus</i> species	
Cercospora leaf spot (11,15)	Numerous trees and shrubs	
Dothistroma needle blight (2)	Austrian and ponderosa pines most susceptible; mugo, Japanese red pines	

## LATE FALL/WINTER – Cont'd

<b>COLLECT AND DESTROY FALLEN LEAVES - Cont'd</b>		
<b>Insect/Pathogen</b>	<b>Hosts</b>	<b>Notes</b>
Entomosporium leafspot (15)	Apple, crabapple, hawthorn, mountain ash, chokeberry, cotoneaster, pear, photinia, quince, and serviceberry	
Leaf blight of witch hazel (11)	Witch hazel	
Melampsora rust (17)	Willow and poplar; alternate hosts: larch, Douglas-fir and other conifers	Willow and poplar leaves should be collected.
Septoria leaf spot on dogwood (16)	Dwarf, Tatarian, and flowering dogwood.	
Solitary oak leafminer (13)	White, red, black, scrub, post, and blackjack oaks	
Sphaeropsis tip blight (6,10,20)	Most common on Scots, red, mugo, and Austrian pines; Douglas-fir, true fir, spruce, and juniper	
Spot anthracnose (6)	Flowering dogwood	
Tar spot of maple (16)	Silver and Norway maples preferred; big leaf, mountain red, Rocky mountain, and sugar maples	
<b>CHEMICAL APPLICATIONS</b>		
<b>Insect/Pathogen</b>	<b>Hosts</b>	<b>Notes</b>
Boxwood psyllid (4)	Boxwood	Apply soil drench in fall.
Cooley spruce gall adelgid (2)	Requires alternate hosts: Spruce and Douglas-fir	Apply insecticide or insecticidal soap (to spruce) in late September.
Elm leafminer (4)	Elm	Apply systemic insecticide in October or November.
<b>OTHER</b>		
<b>Insect/Pathogen</b>	<b>Hosts</b>	<b>Notes</b>
Cankerworm (7)	Numerous species; elm, apple, oak, linden, and beech preferred	Band trunks with sticky adhesive in mid-October and again in February to control "fall" and "spring" cankerworm adults. Apply dormant oils to suffocate eggs of the "fall" cankerworm.
Cytospora canker (3)	Spruces, western red cedar, Douglas-fir, hemlock, larches, and red and eastern white pines	Ensure plants receive adequate moisture during the fall.
Eastern tent caterpillar (7)	Wild cherry, apple, and crabapple are preferred; will occasionally attack other ornamental trees and shrubs	Scrape off egg masses and soak in soapy water.
Gypsy moth (1)	Hundreds of species; oak and apple preferred	Scrape and destroy egg masses.

## EARLY SPRING/SPRING

CHEMICAL APPLICATIONS		
Insect/Pathogen	Hosts	Notes
Black knot (3)	Cherry, plum, and other <i>Prunus</i> spp.	Apply fungicide before buds begin to swell.
Black spot of rose (8)	Roses	Begin applying fungicide as soon as leaves emerge and continue, at labeled intervals, until early October.
Brown rot (8)	Peach, plum, cherry, apricot, and other <i>Prunus</i> species	Apply fungicide when first blossoms open and again during full bloom and at petal fall.
Cankerworm (7)	Numerous species; elm, apple, oak, linden, and beech preferred	Apply dormant oil in early March to suffocate eggs of the “spring” cankerworm.
Cedar rusts (6)	Apple, crabapple, and other rosaceous species to a lesser extent	Apply fungicide at pink flower bud stage and continue at labeled intervals until two weeks after petal fall.
Cedar rusts (6)	Hawthorn	Apply fungicide as flower buds begin to open and continue at labeled intervals for two weeks past petal fall.
Cladosporium of peonies (15)	<i>Paeonia</i> spp.	Apply fungicide when new growth is two to four inches tall.
Cooley spruce gall adelgid (2)	Requires alternate hosts: Spruce and Douglas-fir	Apply insecticide or insecticidal soap (to spruce) before bud break.
Dothistroma needle blight (2)	Austrian and ponderosa pines most susceptible; mugo and Japanese red pines	Apply fungicide as new growth emerges. Repeat application in 3-4 weeks.
Fire blight (9)	Rosaceae	Copper-containing compounds can be applied as a protectant in early spring.
Hemlock rust mite (1)	Hemlock, fir, spruce, <i>Pseudolarix</i> spp., and yew	Apply insecticide, insecticidal soap, or summer oil at 50-150 GDD.
Leaf blight of witch hazel (11)	Witch hazel	Apply fungicide when leaves emerge.
Scale (3,6,7,11,13,14,19)	Numerous trees and shrubs	Apply dormant oil sprays prior to leaf emergence.
Spruce spider mite (3)	Spruce, arborvitae, juniper, hemlock, pine, and Douglas fir	Apply insecticide or insecticidal soap at 50-150 GDD. Thorough coverage is important. Repeat application one week later.
Sphaeropsis tip blight (6,10,10)	Most common on Scots, red, mugo, and Austrian pines; Douglas-fir, true fir, spruce, and juniper	Apply fungicide when buds begin to elongate/swell. Repeat applications just before new needles emerge from the sheath and 10 to 14 days later.
Spiny witch-hazel gall aphid (7)	Requires alternate hosts: Witch-hazel and birch	Apply insecticides to witch-hazel at bud break. Soaps are recommended to avoid harming natural predators.
Sycamore anthracnose (9)	Sycamore	Treat with fungicide trunk injections in early spring.

## EARLY SPRING/SPRING – Cont'd

<b>CHEMICAL APPLICATIONS – Cont'd</b>		
<b>Insect/Pathogen</b>	<b>Hosts</b>	<b>Notes</b>
White pine weevil (15)	Eastern white pine and Norway spruce preferred; other pine and spruce and Douglas-fir	Apply insecticides before bud break.
Zimmerman pine moth (1)	All pines; Scots and Austrian preferred	Apply insecticide at 50-150 GDD for larval control.
<b>OTHER</b>		
<b>Insect/Pathogen</b>	<b>Hosts</b>	<b>Notes</b>
Bagworm (1)	Over 100 species of evergreens and deciduous trees and shrubs; arborvitae and red cedar preferred	Handpick bags.
Cypress twig gall (12)	Baldcypress and pondcypress	Prune out galls in early spring before midges become active.
Eastern tent caterpillar (7)	Wild cherry, apple, and crabapple are preferred; will occasionally attack other ornamental trees and shrubs	Scrape off egg masses and dispose of in soapy water.
Mossy rose gall (12)	<i>Rosa</i> species	Prune out galls before insects become active.