

EXTENSION PLANT PATHOLOGY, EXTENSION HALL, AUBURN UNIVERSITY, AL 36849-5624  
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**AUGUST PLANT PROBLEM REPORT FROM THE  
AUBURN PLANT DIAGNOSTIC LAB**

**AUGUST PLANT PROBLEM REPORT FROM THE  
BIRMINGHAM PLANT DIAGNOSTIC LAB**

**AUGUST INSECT REPORT FROM THE AUBURN PLANT  
DIAGNOSTIC LAB**

**DISEASE POSSIBILITIES FOR SEPTEMBER**

**NOTES ON SUDDEN OAK DEATH (SOD)**

Jackie Mullen

Extension Plant Pathology Specialist-Auburn

Jim Jacobi

Extension Plant Pathology Specialist-Birmingham

Charles Ray

Research Fellow IV-Auburn

Auburn Plant Disease Report-August (J. Mullen)

Many of our 159 plant samples in August were ornamental and turf problems. Some of the problems seen included alfalfa with summer black stem and leaf spot, azalea with *Phytophthora nicotiana* aerial blight, bermuda with *Bipolaris* crown rot, boxwoods planted too deep, many samples of shade trees with anthracnose leaf spot diseases, peanuts with tomato spotted wilt virus, a variety of trees and herbaceous plants with powdery mildew, soybeans with a variety of diseases, and peach with confirmed phony peach disease.

We were able to confirm Xylella Phony Peach disease on peach last month. Some recent previous ELISA assays had not confirmed this disease on trees showing the typical Phony symptoms of stunting and rosetting type of abnormal foliage growth. This bacterial pathogen, which is transmitted by leaf hoppers and develops in xylem vessels of the plant, can be difficult to confirm. ELISA is the best method we have for diagnosis, since culturing the bacteria can be difficult. Petioles and roots have been indicated to be the best locations to test for the presence of the bacteria. Control of this disease involves removal of the tree to help prevent transmission of the bacteria to other peach trees. Insecticide treatments have not been shown to be effective.

Aerial blight on azalea caused by *Phytophthora nicotiana* has been diagnosed on azaleas twice this past summer. Symptoms of brown leaf spots and blight are not diagnostic and could be confused with a variety of foliage leaf spot diseases. ELISA tests confirmed the presence of a *Phytophthora* and culture work showed the pathogen to be *P. nicotiana*. This is not a common occurrence on azaleas. *P. nicotiana* has been recognized as a crown and root rot pathogen of azaleas, but we do not typically see it as a leaf spot foliage disease. Fungicides listed in the Pest Management Handbook for *Phytophthora* shoot blight control (Heritage, Daconil Ultrex, Subdue, etc.) should provide protective disease control of this disease. Check with Austin Hagan if you have questions on disease control.

We received boxwood plants showing severe dieback. Also lower stems and roots were showing decay. The plants were planted about 3 inches too deep. Roots were present along the buried lower stems. Woody plants generally will not tolerate too deep planting, and dieback, crown and root rot will develop after 3-4 years in this stressed situation. The lower stems need oxygen and should be exposed to air. If buried under soil, lower buried stem & associated root tissues will die. If the problem is discovered early after planting (first 1-2 years), the plants should be dug up and replanted. Once the plants begin to show symptoms of dieback, it is usually too late to remedy the problem.

Fungal leaf spot diseases (including anthracnose and several other fungal leaf spots) and powdery mildews are often common occurrences on the pre-senescent foliage of woody plants that will soon drop their leaves. Powdery mildew and fungal leaf spots also develop on herbaceous plants in early fall. Powdery mildews will develop more when moderate temperatures fluctuate between day and night and when humidity is high. At this time of year, sanitation (clean up of fallen leaves and dying plants) is the only recommendation.

On peanut, tomato spotted wilt virus has been found in a few locations to be causing a serious dieback/poor growth problem. These areas also showed *Rhizoctonia* limb blight and leaf spot, but the major problem was the virus which caused plants to be stunted and develop poorly. In one recent, early September sample, root knot nematode was the major problem. Control of root knot involves crop rotations. Check with Austin Hagan for details.

Recent diseases on soybean in late August and early September included anthracnose, *Cercospora* (frog eye) leaf spot, charcoal rot, and stem canker. A few sites in the state have developed a foliage aerial blight that appeared as *Rhizoctonia* aerial blight symptoms. However, we could not detect the presence of *Rhizoctonia* on the samples. This was strange. We also saw some recent (early September) crown rots where *Fusarium* was present. We are still looking to see if *Cylindrocladium* (red crown rot) might also be present. Check with Ed Sikora if you have questions.

In late July we received a landscape holly with dieback, crown rot, and root decay. *Phytophthora* root rot was diagnosed. Continued observation of some slow growing cultures have confirmed the crown rot to be caused by the fungus *Cylindrocladium*. This fungal crown rot is not a common disease, but it does occur. It is not a water mold and is not dependent on

overly wet conditions. Control involves removal of damaged plants. As this is not a common problem, studies on disease control have not been done in our area. Check with Austin Hagan if you have further questions on disease control.

Table 1. 2004 August Plant Diseases Seen In the Plant Diagnostic Lab At Auburn.

<u>Plant</u>	<u>Diagnosis</u>	<u>County</u>
Alfalfa	Summer Black Stem & Leaf Spot ( <i>Cercospora medicaginis</i> )	Lamar
Apple	Cedar Apple Rust ( <i>Gymnosporangium juniperæ-virginanæ</i> )	Russell
Azalea	<i>Phytophthora nicotiana</i> Aerial Blight	*
Bermuda	Bipolaris Crown Rot	Jefferson
	Dollar Spot ( <i>Sclerotinia</i> )	Jefferson
	Rhizoctonia Brown Patch	Jefferson
Boxwood	Planted Too Deep	*
Centipede	Take-all Patch ( <i>Gaeumannomyces graminis</i> var. <i>graminis</i> )	Montgomery
Cotoneaster	Phytophthora Root Rot	Tallapoosa
Cotton	Cercospora Leaf Spot	Marengo
Dogwood	Cercospora Leaf Spot	Mobile
Elm	Zonate Leaf Spot ( <i>Cristulariella</i> )	Butler
Forsythia	Bacteria Leaf Spot	Lawrence
Grapes	Anthracnose	Greene
<u>Holly, Compacta Plant</u>	Anthracnose Cankers	*, Tuscaloosa
	<u>Diagnosis</u>	<u>County</u>
	Fusarium Canker	*

	Phytophthora Root Rot	Montgomery
Maple, Japanese	Anthrachnose	Lee
	Botryosphaeria Canker	*
Oak	Anthrachnose	Calhoun
Okra	Bacterial Soft Rot of Pod	Calhoun
	Cercospora Leaf Spot	Calhoun
	Fusarium Stem Decay	Calhoun
Peach	Phony ( <i>Xylella</i> )	Baldwin
Peanut	Late Leaf Blight	Henry
	Rhizoctonia Stem Blight	Henry
	Tomato Spotted Wilt Virus	Henry
Pear	Cercospora Leaf Spot	Butler
	Sooty Blotch ( <i>Gloeodes</i> )	Russell
Pecan	Powdery Mildew	Russell?
	Scab ( <i>Cladosporium</i> )	Russell
Pumpkin	Powdery Mildew	Marshall
Soybean	Anthrachnose ( <i>Colletotrichum</i> )	Cullman
	Cercospora Blight	Cullman, Marengo, Pickens
	Charcoal Rot ( <i>Macrophomina</i> )	Pickens
<u>Plant</u>	<u>Diagnosis</u>	<u>County</u>
	Stem Canker ( <i>Diaporthe phaseolorum</i> var. <i>caulivora</i> )	Pickens

Tomato	Bacterial Leaf Spot ( <i>Xanthomonas</i> )	Blount
	Cristuleriella Zonate Leaf Spot	Blount
Zoysia	Dollar Spot ( <i>Sclerotinia</i> )	Lee

\*Locations are not reported for nursery and greenhouse samples.

### Birmingham Plant Disease Report-August (J. Jacobi)

We received 120 samples during August. Problems seen last month included Armillaria root rot on arborvitae and hemlock, gall midge damage on azalea, bacterial leaf scorch on American elm and pin oak, leaf spots (caused by *Colletotrichum*, *Cercospora*, *Corynespora*) on hydrangea, lace bug on lantana, Microdochium blight on squash, and bacterial canker on tomato.

We continued to get samples of red oaks (primarily pin oak) that tested positive (using ELISA) for bacterial leaf scorch (*Xylella fastidiosa*). Last month we also had an American elm sample test positive for the disease. On elms, bacterial leaf scorch (BLS) and Dutch elm disease (DED) look somewhat similar from a distance. Both diseases occur in our area. One difference between the two diseases is that the symptoms of DED are usually seen in early summer (June), compared to mid-late summer (July-September) for BLS. Another difference between the two diseases is that DED causes brown discoloration of the sapwood of branches, while BLS does not cause discoloration. Lastly, trees infected with DED usually die within one to two years, while trees infected with BLS decline over a period of time. The following publication provides more information on BLS (<http://www.aces.edu/pubs/docs/A/ANR1050/>).

Lantana lace bug (*Teleonemia scrupulosa*) has caused considerable damage to lantana in the Birmingham area. Often plants damaged by lace bugs will stop flowering. To identify lantana lace bug, look for upper leaf surfaces that are mottled or speckled yellow or white and green. On lower leaf surfaces, look for droplets of brown excrement, cast skins, and adult lace bugs. See the following web page for more information and control options (<http://www.aces.edu/dept/extcomm/newspaper/june17a03.html>).

Bacterial canker (*Clavibacter michiganensis* sp. *Michiganensis*) is a destructive disease of tomato. Vascular infections cause wilting, chlorosis, and eventual death of the plant. Secondary or superficial foliar infections cause necrosis of the foliage, usually from the leaf margins inward. These superficial leaf infections may be referred to as leaf 'firing'. In this case, we saw both the vascular and the superficial leaf symptoms. The extension publication, Wilt Diseases of Tomatoes (<http://www.aces.edu/pubs/docs/A/ANR-0797/>), can provide more information on this disease and the control options. And the following web site provides some great images of the different symptoms including marginal leaf necrosis (leaf 'firing') and fruit infections, ([http://vegetablemdonline.ppath.cornell.edu/PhotoPages/Tomatoes/Tom\\_BactDiseases/Tom\\_Bact3.htm](http://vegetablemdonline.ppath.cornell.edu/PhotoPages/Tomatoes/Tom_BactDiseases/Tom_Bact3.htm)).

Table 2. 2004 August Diseases Seen In The Birmingham Plant Diagnostic Lab.

<u>Plant</u>	<u>Problem</u>	<u>County</u>
Arborvitae	Armillaria Root Rot	Jefferson
Asparagus	Cercospora Leaf Spot	Cullman
Azalea Gall Midges	Jefferson (2)	
	Lacebugs	Jefferson (3)
Bentgrass	Anthracnose	*
	Fairy Ring	*
Bermudagrass	Bipolaris Leaf Spot	Jefferson
	Dollar Spot ( <i>Sclerotinia</i> )	Jefferson
	Spiral Nematodes	Jefferson
Boxwood, Common	Macrophoma Leaf Spot	Jefferson
	Phytophthora Root Rot	Jefferson (2)
Boxwood, English	Pythium Root Rot	Jefferson
Butterfly Weed ( <i>Asclepias</i> )	Milkweed Bug	Jefferson
Camellia, Sasanqua	Anthracnose ( <i>Colletotrichum</i> )	Jefferson
	Cotton Camellia Scale	Jefferson
	Tea Scale	Jefferson
Canna	Larger Canna Leafroller	Jefferson
Centipedegrass <u>Plant</u>	Localized Dry Spot <u>Problem</u>	Jefferson <u>County</u>
Cherry Laurel	Shot Hole ( <i>Cercospora</i> )	Jefferson
	Shot Hole ( <i>Xanthomonas</i> )	Jefferson

	Southern Red Mite	Shelby
	White Peach Scale	Shelby
Crape Myrtle	Cercospora Leaf Spot	Jefferson
	Powdery Mildew	Jefferson, Shelby
	Suspect Roundup Injury	Cullman
Cypress, Leyland	Botryosphaeria Canker	Jefferson
	Cercosporidium Needle Blight	Shelby
Dogwood, Kousa	Cercospora Leaf Spot	Jefferson
Elm, American	Bacterial Leaf Scorch ( <i>Xylella</i> )	Jefferson
Fig	Rust	Jefferson
Hawthorne, Indian	Entomosporium Leaf Spot	Jefferson
Hemlock	Armillaria Leaf Spot	Jefferson
Hydrangea, Bigleaf	Anthracnose ( <i>Colletotrichum</i> )	Jefferson
	Cercospora Leaf Spot	Cullman/Jefferson
	Corynespora Leaf Spot	Jefferson
Hydrangea, Oak Leaf	Sooty Mold	Madison
Jasmine, Asiatic	Ambrosia Beetle	Jefferson
Jasmine	False Spider Mite	Jefferson
Lantana	Lantana Lace Bug	Jefferson
<u>Plant</u>	<u>Problem</u>	<u>County</u>
Liriope	Anthracnose ( <i>Colletotrichum</i> )	St. Clair
Maple, Japanese	Botryosphaeria Canker	Jefferson

	Physiological Leaf Scorch	Jefferson
Maple, Red	Anthraco nose	Jefferson
	Zonate Leaf Spot ( <i>Cristulariella</i> )	Jefferson
Mondo Grass	Pythium Root Rot	Jefferson
Oak, Pin	Bacterial Leaf Scorch	Jefferson (2)
Pachysandra	Volutella Blight	Jefferson (2)
Pecan	Scab	Jefferson
Peony	Cercospora Leaf Spot	Jefferson
Rhododendron	Botryosphaeria Canker	Jefferson (2)
Squash	Microdochium Blight	Cullman
St. Augustinegrass	Chinch Bugs	Jefferson (2)
Tomato	Bacterial Canker	Blount (2)
	Cucumber Mosaic Virus	Cullman
	Early Blight	Jefferson (2)
	Fusarium Wilt	Jefferson
Zoysia	Two-lined Spittlebugs	Jefferson
	White Grub (May-June Beetle)	Jefferson (2)
	Zoysiagrass Mite	Shelby

\*Counties are not reported for samples from commercial nurseries, greenhouses, and golf courses.

Auburn Entomology Report-August (C. Ray)

County	Crop	Category	Specimen Name
Lamar	Roadside	Miscellaneous	Japanese Beetle

County	Crop	Category	Specimen Name
Marion	Timber	Forest - Misc.	American Carrion Beetle
Russell	Lawn	Turfgrass	Juvenile Millipedes
Lawrence		Miscellaneous	Burying Beetle
Dale	Tree	Ornamental	Bumblebee
Lawrence		Miscellaneous	Forked Fungus Beetle
Elmore	Lawn	Turfgrass	Tiger Beetle
Colbert	Timber	Forest	Weevil
Colbert	Timber	Forest	Pales Weevil
Colbert	Timber	Forest	Long-Horned Wood Boring Beetle
Jefferson	Home	Structural	No Arthropod Detected
Butler	Trees	Ornamental	Green Lynx Spider
Digital	Office	Household-Misc.	House Centipede
Crenshaw	Lawn	Turfgrass	Yellow-Necked Caterpillar
Lee	Home	Household-Misc.	Spider Wasp
Jefferson	Indica Azalea	Ornamental	Rhododendron Tip Midge, Spider Mite, Snail
Jefferson	Blackjack Oak	Ornamental	A Gall Midge, Tydeid Mites, Stigmaeid Mites, Tarsonemid Mites
Chilton	Sod	Turfgrass	Sugarcane Beetle
Marengo	Lantana	Ornamental	Lantana Lacebug
Montgomery	Business	Miscellaneous	Bombadier Beetle
Calhoun	Clothing	Stored Products	Furniture Carpet Beetle
Lawrence	Timber	Forest	1 Burrowing Beetle, 3 Sawyer Beetle, 1 Rove Beetle, 1 Bark Beetle
Lee		Miscellaneous	Fishing Spider

County	Crop	Category	Specimen Name
Mobile	St. Augustine Sod	Turfgrass	No Arthropod Detected
Tuscaloosa	Earthworms	Miscellaneous	Sowbug
Tuscaloosa	Pecan Trees	Nuts	Walnut Caterpillar
Marion	Wood	Forest	Pandora Sphinx Moth
Pike	Home	Household-Misc.	Spined Micrathena Spider
Lee	Azalea	Ornamental	Azalea Caterpillar
Pike	Cypress	Ornamental	Bagworms and Tarsonemid Mites
Escambia	Home	Household-Misc.	“Guinea” Wasp
Jefferson	Human	Medical	Nymphal Lone Star Tick
DeKalb		Miscellaneous	Lady Beetle Larvae-probably Twice-Stubbed
Morgan	Blue Point Juniper	Ornamental	Maskell Scale and Spider Mites
Morgan	Blue Point Juniper	Ornamental	Maskell Scale (few) and Spider Mites
Calhoun	Oak	Ornamental	Damage from a leaf skeletonizer poss. Oak Leaf Skeletonizer
Cullman	Muscadine Grape	Small Fruits	Darkwinged Fungus Gnat
Cullman	Muscadine Grape	Small Fruits	A Sap Beetle
Lee	Angel Trumpet	Ornamental	Geometrid Moth Larva
Mobile	Human & Household	Medical	House Dust Mites

#### Disease Possibilities For September

Seasonably cooler conditions are more favorable for powdery mildew and downy mildew. Both of these diseases cause yellow blotches on dicot leaves. With powdery mildew, blotches may be more diffuse and a white dusty layer may be visible on the upper and/or lower

leaf surfaces. With downy mildew, yellow spots may begin as more definitive angular yellow spots. These spots may merge resulting in large yellow areas. On lower leaf surfaces when weather is wet, humid and temperatures are 60-80°F, a brown-gray-colored webbing may be present on lower leaf surfaces. These diseases are often confirmed in the lab by microscopic observation of characteristic spores.

Evidence of bacterial scorch disease may occur in September. Scorch disease, caused by the bacteria *Xylella*, causes leaf edge scorch and dieback of elm, oaks (red and black oaks including northern red, pin, scarlet, southern red, laurel, shingle, and water oaks), sycamore, mulberry, and red maple. Initial symptoms of scorch may first occur in mid-late June, but disease is often not noticed until late summer or early fall when symptoms are more pronounced. Generally, leaf symptoms progress from older to younger leaves, with leaves at branch tips often showing no symptoms. Scorched leaves curl upward and remain attached. Infected trees develop a progressive dieback and general (usually slow, over many years) decline. Scorch can be confirmed with an ELISA test. Disease symptoms may be confused with drought or root problems. In August of 2002, this disease was confirmed in a sycamore sample from Barbour County and in a plum sample from Mobile County.

Many fungal leaf spot diseases will develop on pre-senescent shade tree foliage in September. Generally these spots are of no concern. It is, however, always a good idea to remove fallen spotted foliage from the area later this fall or winter. Stressed trees are more susceptible to these leaf spots.

Table 3. Disease Descriptions and Brief Control Comments on Some Common Diseases Often Seen in September.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Abelia	Cercospora Leaf Spot	Small-large brown, circular leaf spots.	Sanitation.
Alfalfa	Summer Black Stem and Leaf Spot ( <i>Cercospora</i> )	Small brown spots become larger (2-6 mm diam.) and reddish brown or smoky brown. During humid conditions, spots become ashy-gray	Maintain appropriate fertility; harvest frequently.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
		with spores. Lesions occur on stems; small stems and petioles may die from girdling lesions.	

Ajuga	Cercospora Leaf Spot	Medium brown, circular-irregularly shaped leaf spots of varying sizes.	Sanitation. Cleary's 3336 or Halt may be used.
Althea	Rust ( <i>Puccinia</i> or <i>Kuehneola</i> )	Orange, powdery specks on small yellow leaf spots appear.	Sanitation.
Apple	Bitter Rot ( <i>Colletotrichum</i> )	Initially small gray or brown spots appear on the fruit. These spots enlarge into medium brown circular lesions. Orange spores often develop in concentric rings.	Sanitation. See the Spray Guide for Fruit Crops.
	Black Rot ( <i>Botryosphaeria</i> )	On young fruit, tiny red flecks appear. As fruit matures lesions become large black and irregular sometimes with a red halo. Sometimes alternating rings of brown & black develop. Limb cankers are red-brown, slightly sunken, cracked. Leaf spots are brown with a purple border (4-5 mm diam.)	Sanitation. See the Spray Guide for Fruit Crops.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Fly Speck ( <i>Schizothyrium</i> )	Tiny black dots occur in patches (usually) on the surface (only) of apple fruit.	Sanitation. See the Fruit Spray Guide.
	Sooty Blotch ( <i>Gloeodes</i> )	Medium gray spots which resemble sooty smudges appear or surface layer of apple skin only.	Sanitation. See the Fruit Spray Guide.

Aucuba	Lasiodiplodia Canker	Black sunken spots or sunken areas on aucuba stems. Dieback of foliage results.	Cleary's 3336, or Domain protective sprays labelled for ornamentals; sanitation.
Azalea	Cercospora Leaf Spot	Small dark brown-black, usually circular spots (1-2 mm) scattered over leaf surface.	Sanitation. See the AL Pest Management Handbook.
	Colletotrichum Leaf Spot	Small, round, brown leaf spots.	Sanitation. Protective sprays of Daconil or Cleary's 3336 or Halt could be used.
	Phomopsis Canker/ Dieback	Elongated, sunken, elliptical cankers on twigs and branches with resulting dieback.	Sanitation; protective sprays of Cleary's 3336 may help.
	<i>Phytophthora</i> Crown and Root Rot	Lower stem near soil and roots become brown and water-soaked.	Sanitation and proper soil or potting mix drainage are important. See Alabama Pest Management Handbook and/or ANR-571.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	<i>Rhizoctonia</i> Aerial Blight	Brown, irregular spots and lesions begin on lower leaves. Whole leaves may become blighted; leaf drop occurs.	Sanitation; See AL Pest Management Handbook.
Azalea, Native	Cercospora Leaf Spot	Small, brown, circular spots develop.	Sanitation. Cleary's or Halt may be used.
Bahia Grass	Dollar Spot ( <i>Sclerotinia</i> )	Pale, cream-colored, silver dollar-sized spots appear in grass area. Individual grass blades show cream colored spots with brown-black borders.	Sanitation. See the AL Pest Management Handbook.

	Helminthosporium-type Leaf Spot	Tiny (2-3 mm), elongated brown spots may cover leaf and stem, stolon surfaces. Severe spotting may cause foliage death.	Maintain appropriate fertility; harvest as frequently as possible.
Bald, Cypress	Cercosporidium Blight	Lower foliage becomes brown. Microscopic study usually shows small spore bodies of Cercosporidium.	Pruning. Cleary's 3336 will provide protective disease control.
Basil	Rhizoctonia Stem & Root Rot	Wilt, dieback; brown, dry lesion on lower stems, crown, and roots.	Sanitations; crop rotation.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Beans, Garden	Anthracnose ( <i>Colletotrichum</i> )	Black, sunken cankers on pods which become red-orange when spores are produced. Similar spots are found on stems. Foliage symptoms involve black, dead portions of veins on the underside of the leaf. Infections of older plants cause damage primarily to pods.	See the AL Pest Management Handbook.
	Pythium Lower Stem Rot	Lower stems near soil-line show brown, wet rot.	See AL Pest Management Handbook.
	Rhizoctonia Aerial Blight	Leaf blight develops. Leaves become brown and tattered.	Sanitation.
	Rhizoctonia Lower	Stem Rot	Lower stems near

soil-line have dried brown lesions.

See AL Pest Management Handbook.

	Root-Knot Nematode ( <i>Meloidogyne</i> )	Roots develop round-irregularly shaped galls; plants become yellowed; wilt during dry periods.	Rotate to dwarf french marigolds for 1 year or grasses (such as bahia or centipede) for 3-4 years or solarization.
	Uromyces Rust	Reddish-brown powdery pustules on all above ground plant parts, especially lower leaf surfaces.	Protective fungicide sprays. See the AL Pesticide Handbook.
Begonia	Phytophthora Crown Rot	Crown tissues are dark and wet-rotted.	Sanitation. Reduce watering.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Phytophthora & Pythium Root Rot	Roots become brown and water-soaked, decayed.	Sanitation. Reduce watering. See the AL Pest Management Handbook.
	Rhizoctonia Root Rot	Brown, dry, decayed roots.	Sanitation. Banrot protective drenches.
	Root-Knot Nematode ( <i>Meloidogyne</i> )	Galls on roots; plants stunted and wilted.	Solarization.
	Tomato Spotted Wilt Virus	Yellow mosaic and ring spots present. Sometimes brown spots also present.	Thrips control. Sanitation.
Bentgrass	Anthracnose ( <i>Colletotrichum</i> )	Brown leaf spots, dieback; yellowing.	Sanitation; collect clippings; Cleary's 3336. Check with A. Hagan.
	Bipolaris Leaf Spot	Tiny brown leaf spots that will coalesce to cause large areas of leaves to be blighted.	See ANR-621 or the AL Pest Management Handbook.
	Nematode Damage from Ring ( <i>Criconemoides</i> ) and Sting ( <i>Belonolaimus</i> )	Nematodes	Thinned, blighted, yellowed turf areas.

See ANR-523.

	Pythium Root Rot	Roots become light brown, wet, and rotted; foliage dies.	See ANR-594 and the AL Pest Management Handbook.
Bermuda, Coastal	<i>Bipolaris</i> ( <i>Helminthosporium</i> ) Leaf Spot	Tiny (2-3 mm), elongated brown spots may cover leaf and stem, stolon surfaces. Severe spotting may cause foliage death.	Maintain appropriate fertility; harvest as frequently as possible.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Bermudagrass	<i>Bipolaris</i> Leaf/Stem Spot & Blight	See Bermuda, Coastal.	Collect grass clippings; See AL Pest Management Handbook.
	Dollar Spot ( <i>Sclerotinia</i> )	Pale, cream-colored, silver dollar-sized spots appear in grass area. Individual grass blades show cream colored spots with brown-black borders.	Sanitation. See the AL Pest Management Handbook.
	<i>Rhizoctonia</i> Brown Patch	Symptoms may vary slightly depending upon the situation. Typically, light-medium brown, large, circular patches occur on lawns. Individual grass blades develop small to large brown lesions. Lesions may involve the whole leaf blade or whole plants.	Collect grass clippings; See AL Pest Management Handbook.
	Rhizoctonia Leaf & Sheath Blight ( <i>R. zea</i> )	Brown leaf spots; dieback; blight.	Sanitation; collect grass clippings; see ANR-492; See the AL Pest Management Handbook.
	Fairy Ring	Large rings or half rings of dead grass with an outer border of dark green turf.	When conditions are wet, mushrooms will form in the dark green ring area.

See ANR-372. Also, see AL Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Take-All ( <i>Gaeumannomyces</i> )	Spots or areas in turf become yellowed and thinned. Roots become decayed in spots.	See ANR-823. Also, see AL Pest Management Handbook.
Bermuda, Tifeagle	Curvularia Blight	Large leaf areas become blighted. This fungus usually develops as a secondary event.	See AL Pest Management Handbook for brown patch recommended fungicides.
Blackberry	Rust ( <i>Gymnoconia</i> )	Lower leaf surfaces are covered with orange powdery masses of spores; witches brooms may develop. Plants stunted; a systemic disease.	Remove infected plants.
	Septoria Leaf Spot	Reddish-brown, angular leaf spots.	See the AL Pest Management Handbook.
Boxwood	Phytophthora Root Rot	Brown, water-soaked roots.	See AL Pest Management Handbook.
	Volutella Blight	Dieback; canker, small-orange specks that are the fruiting bodies of the fungus.	Sanitation; See the AL Pest Management Handbook.
Boxwood, American	Macrophoma Leaf Spot	Yellow-brown blotches or areas, sometimes with small black specks that are the fungus fruiting bodies.	Correct stress conditions. Cleary's 3336 or Halt may be used.
Cabbage	<i>Alternaria brassicicola</i> Stem Blight	Dark brown-black, oval stem lesions; some lesions have a zonate pattern; dieback.	Sanitation; See the AL Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Black Rot ( <i>Xanthomonas</i> )	Yellow v-shaped lesions at leaf edges. V-shaped lesions become black and leaf veins become black; eventually, main stem/stalk becomes black and soft rotted.	Sanitation; Crop rotation 2 years, see AL Pest Management Handbook.
Celosia	Phytophthora, Pythium, Fusarium Lower Stem Rot & Root Rot	Roots brown and decayed.	Sanitation. Reduce watering. Improve soil drainage.
Centipede	Brown Patch ( <i>Rhizoctonia</i> )	See Bermudagrass.	See Bermudagrass.
	Dollar Spot ( <i>Sclerotinia</i> )	Pale, cream-colored, silver dollar-sized spots appear in grass area. Individual grass blades show cream colored spots with brown-black borders.	Sanitation. See the AL Pest Management Handbook.
	Ring & Spiral Nematode Damage ( <i>Criconemoides</i> and <i>Rotylenchus</i> )	Patches or areas become yellowed and dieback.	See ANR-523.
Cherry	Septoria Leaf Spot	Small (0.5 cm or less in diam.), angular brown spots.	Sanitation in the fall.
Cherry, Kwanzan	Anthrachnose ( <i>Colletotrichum</i> )	Brown spots and blotches along leaf veins and along leaf edges.	Sanitation. Cleary's 3336 or Halt may be applied.
Cherry Laurel	Phytophthora Root Rot/Overwatering	Roots become brown, wet, decayed.	Sanitation; correct excess water problem.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Chrysanthemum	Ascochyta Stem Blight	Brown, irregular, sunken, stem cankers; dieback; yellowing.	Sanitation; See the AL Pest Management Handbook under Ascochyta ray blight.
	Phytophthora Blossom Blight	Brown, wet blotches and blight on flowers.	Sanitation. Avoid over-head irrigation.

	Phytophthora Root Rot	Roots become brown, wet, decayed.	Sanitation; correct excess water problem. See AL Pest Management Handbook.
Cleyera	Phytophthora Root Rot	See Boxwood.	Sanitation. Improve soil drainage.
Collards	<i>Alternaria</i> Leaf Spot	Gray-black, sooty spots with ring patterns on older leaves; disease of seedlings is severe.	Sanitation. See the AL Pest Management Handbook.
	Black Rot ( <i>Xanthomonas</i> )	Dark V-shaped lesion at leaf edge; blackening of leaf veins; black vascular ring if stem is cut cross-wise.	Rotation for 2-3 years; solarization may help.
	Rhizoctonia Wire Stem	The lower stem and major root becomes thin and discolored brown with a dry rot. Plants decline and die.	Remove damaged plants; see the AL Pest Management Handbook.
Coral Bells	Cylindrocladium Root Rot	Brown-black root decay.	Sanitation. Cleary's 3336 or Halt drenches for protective action.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Pythium Root Rot	Roots become light brown, decayed, and water-soaked.	Sanitation. Reduce water levels in the area.
Corn	Charcoal Rot ( <i>Macrophomina</i> )	Gray lesions develop on lower stems and roots. Under the epidermis, numerous resting structures and fruiting bodies are scattered throughout the stem and root tissues which become dried and separate easily. These tissues appear as though they	were sprinkled with finely-ground pieces of charcoal.

Maintain healthy plants with proper	fertilization and watering if possible,	crop rotation.	
Cotoneaster	Phyllosticta Leaf Spot	Round, cream-colored leaf spots with dark borders. When severe, leaf drop.	Sanitation; See AL Pest Management Handbook.
Cotton	Alternaria Leaf Spot	Irregular, or circular, slightly zonate brown leaf spots/blotches.	See Ed Sikora.
	Botryodiplodia Pod Decay	Pods become black and decayed.	Sanitation.
	Cercospora Leaf Spot	Irregularly shaped brown leaf spots develop.	See Ed Sikora.
	Root-Knot Nematode ( <i>Meloidogyne</i> )	Plants grow poorly; roots have galls.	Crop Rotation. See Ed Sikora.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Crape Myrtle	Cercospora Leaf Spot	Irregular shaped brown leaf spots develop.	Sanitation. See the AL Pest Management Handbook.
Cypress, Leyland	<i>Cercosporidium</i> Blight (formerly Cercospora)	Needle and twig blight that usually begins on lower foliage.	Sanitation. Cleary's 3336 protective sprays.
	Phytophthora Crown Rot	Brown, wet lower trunk decay.	Sanitation. See AL Pest Management Handbook.
	Pythium Feeder Root Rot	Light brown feeder root decay.	Sanitation. See AL Pest Management Handbook.
	Seiridium Canker	Elongated, sunken lesions with oozing sap.	Sanitation; pruning; protective sprays of Cleary's 3336.
Daylily	Daylily Rust ( <i>Puccinia hemerocallidis</i> )	Leaves develop small orange, powdery spots and affected leaf areas become yellow,	then brown.

Sanitation. Protective fungicide treatments of Banner Maxx or	Heritage are available for commercial situations.	Spectracide Immunox or Fertiloam System Fungicide may be	used in homeowner situations.
Dianthus	Phytophthora Stem Blight	Brown, water-soaked cankers.	Sanitation. Reduce water levels.
	Pythium Root Rot	Slightly brown, water-soaked root decay.	Sanitation. Reduce water levels. Subdue may be used.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Dogwood	Botryosphaeria Canker	Slightly sunken lesion, sometimes with cracks along the margin.	Sanitation.
	Cercospora Leaf Spot	Angular-irregular tan-brown lesions (2-6 mm diam.) sometimes with a thin yellow halo.	Usually sanitation is the only control measure needed.
	Powdery Mildew ( <i>Oidium</i> ; <i>Microsphaera</i> or <i>Phyllactinia</i> )	White, powdery patches on leaves; affected areas become blighted.	See AL Pest Management Handbook. Sanitation.
	Septoria Leaf Spot	Angular, brown spots, about 1 cm or less in diam; may be confused with Cercospora leaf spot.	Collect and remove fallen leaves this fall.
Dusty Miller	Alternaria Leaf Spot	Dark, angular spots	Sanitation; Cleary's 3336.
Eleagnus	Phytophthora Root Rot	Brown, wet root decay.	Sanitation. Improve soil drainage.
Euonymus	Anthracnose ( <i>Colletotrichum</i> )	Small brown spots (about 5 mm or smaller) on foliage.	Sanitation; See the AL Pest Management Handbook for protective fungicide recommendations.
Fatsia	Colletotrichum Blotch	Brown leaf spots & blotches.	Sanitation of fallen leaves. Cleary's 3336 or Halt would provide protective disease

control.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Fern	Anthracnose ( <i>Colletotrichum</i> )	Gray-brown irregular blotches on fronds. Orange spore masses may be present in humid weather.	Sanitation; See the AL Pest Management Hand-book under leaf spot.
	Rhizoctonia Aerial Blight	Gray or brown irregular blotches on fronds; some 'shot-hole'.	Sanitation; See the AL Pest Management Handbook.
Fescue	Brown Patch ( <i>Rhizoctonia</i> )	See bermudagrass.	See bermudagrass.
	Helminthosporium Leaf Spot	Tiny, elongate brown leaf spots that may be numerous, coalesce and cause blight of entire leaf blade.	See ANR-621 or AL Pest Management Handbook.
Fig	Cercospora Leaf Spot	Gray-brown irregular spots, blotches.	Sanitation of leaves in the fall.
Gardenia	Phytophthora Crown Rot	Lower stem/trunk at the soil line develops wet decay.	Sanitation. (See the AL Pest Management Handbook under Root Rot for protective treatment.)
Grancy Gray Beard	Algal Leaf Spot ( <i>Cephaleuros</i> )	Green-reddish, slightly raised spots with wavy edges.	Sanitation.
Grape	Cercospora Leaf Spot	Angular medium brown leaf spots.	Recommendations for anthracnose should help.
Hickory	Scab ( <i>Cladosporium</i> )	Small, dark brown, slightly raised leaf spots.	Sanitation in the fall.
Holly, Blue Maid	Botryosphaeria Canker	Brown or black sunken, cracked lesions (cankers) on branches.	Sanitation. Protective sprays of Cleary's 3336, Domain or a WP benomyl labelled for ornamentals.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Phytophthora Root Rot	Feeder roots become water-soaked, decayed.	See the AL Pest Management Handbook.
Holly, Helleri	Rhizoctonia Aerial Blight	Lower foliage becomes blighted.	Sanitation. See the AL Pest Management Handbook.
Holly, Japanese	Pythium Root Rot	Foliage becomes yellowed on lower branches. Roots become slightly discolored and rotted.	Sanitation. Reduce soil/media water levels. See the AL Pest Management Handbook.
Honeylocust	Cercospora Leaf Spot	Round, brown leaf spots.	Sanitation.
Hosta	Anthracnose	Brown, circular-oval leaf spots; may show some zonation.	Sanitation; Cleary's 3336 will provide some control.
	Southern Blight ( <i>Sclerotium rolfsii</i> )	Lower stems become rotted. A white mold may develop. Small, brown or black mustard seed sized overwintering bodies may appear.	Sanitation. (Removal of soil in root zone, if a small area.)
Hydrangea	Armillaria Root Rot	Sudden dieback; white, thin fungal layer may be present under bark; black thread-like structures may be present over or under bark near roots; honey-colored mushrooms may be present near base of shrub.	Sanitation.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Cercospora Leaf Spot	Relatively large (0.5-1.0 cm) dark brown circular spots with reddish borders.	Sanitation. See the AL Pest Management Handbook.
	Phytophthora & Pythium Root Rot	Roots become brown and water-soaked.	Sanitation. See the AL Pest Management Handbook.

	Powdery Mildew	White dusting on leaves. Necrosis follows.	See the AL Pest Management Handbook.
Hypericum	Rust ( <i>Uromyces</i> )	Yellow leaf spots; brown powdery pustules on lower leaf surfaces.	Sanitation of infected plant parts.
Impatiens	Alternaria Leaf Spot	Small circular or angular dark brown spots.	Sanitation; a mancozeb product such as Duosan or Zyban.
Indian Hawthorn	Cercospora Leaf Spot; Possible Bacterial Leaf Spot Involvement	Angular, vein-bound brown-red leaf spots.	Sanitation.
Iris	Bacterial Soft Rot	Soft, wet, watery rot of rhizome.	Sanitation. Control insect problems.
	Fusarium Rhizome Rot	Areas of the rhizome exhibit a dry, brown rot.	Sanitation. See the AL Pest Management Handbook.
Irish Potato	Rhizoctonia Black Scurf	Small, black, crusty bodies on tuber surface.	See the AL Pest Management Handbook.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Ivy, English	Alternaria Leaf Spot	Round or oval, brown leaf spots.	Sanitation. Protect T/O or other labelled mancozeb product.
	Anthracnose ( <i>Colletotrichum</i> )	Circular or irregularly-shaped brown leaf spots develop.	Sanitation. See the AL Pest Management Handbook.
	Phytophthora Crown & Root Rot	Tissues dark and water-soaked.	Sanitation; reduce irrigation or improve drainage.
	Phytophthora Leaf & Stem Rot	Dark, water-soaked, irregular lesions that	become dry.

Sanitation; avoid	over-head irrigation;	Heritage or Protect	T/O.
	Pythium Root Rot	Light brown rotted roots.	See Phytophthora Root Rot.
Juniper	Cercospora (formerly Asperisporium and Cercospora) Blight	Blight of needles beginning with lower foliage.	Sanitation. Cleary's 3336 protective sprays.
	Pestalotia Needle Blight	Lower foliage needle blight associated with plant stress.	Sanitation.
	Phomopsis Dieback	Juniper branch tips become brown. Cankers develop on twigs and dieback continues down the twig.	See the AL Pest Management Handbook.
	Phytophthora Root Rot	See Holly.	See AL Pest Management Handbook.
Leucothoe 'Drooping Rainbow'	Cercospora Leaf Spot	Brown circular to irregular spots.	Sanitation; Cleary's 3336 or Halt.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Ligustrum	Cercospora Leaf Spot	Brown irregular spots (about 1 cm diam.) on foliage; when leaf spot is severe, defoliation may result.	Sanitation; See the AL Pest Management Handbook.
Lilac	Phyllosticta Leaf Spot	Brown or light brown leaf spots with dark margins.	Sanitation. Cleary's 3336 or Halt would provide protective disease control.
Liriope	Anthracnose ( <i>Colletotrichum</i> )	Brown irregular blotches on leaf blades; often, leaf tip areas are involved.	Sanitation; See the AL Pest Management Handbook.
Loripetalum	Pythium Root Rot	Light brown, water-soaked, rotted roots.	Sanitation. Reduce irrigation or improve soil drainage.
Magnolia	Black Mildew	Black mold develops on lower leaf surfaces.	Reduce high humidity levels by increasing air circulation; pruning suggested.

Maple	Anthracnose ( <i>Kabatella</i> )	Brown spots and blotches on foliage; enlarged spots may involve more than half of individual leaves.	Sanitation. See the AL Pest Management Handbook.
	Phyllosticta Leaf Spot	Gray circular spots (¼ inch diam., approx.) with dark brown or reddish brown borders.	Sanitation. See the AL Pest Management Handbook.
Maple, Red	Botryosphaeria Canker	Elongated, sunken, often cracked lesions.	Sanitation. Remove stress factors.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Marigold	Alternaria Leaf Spot	Small (0.2-0.3 cm diam.) dark brown-black spots. Numerous spots cause death of plants.	Sanitation. See the AL Pest Management Handbook.
	Phytophthora Crown Rot	Crowns become brown, decayed, water-soaked.	Sanitation. See the AL Pest Management Handbook.
	Pythium Crown Rot	Crowns become brown, decayed, water-soaked.	Sanitation. See the AL Pest Management Handbook.
	Rhizoctonia Crown Rot	Tissues become brown and dry rotted.	Sanitation. Banrot may be used as a protective treatment.
Millet	<i>Piricularia</i> Leaf Spot	Irregular, 3-6 mm diameter gray-brown leaf spots.	Crop rotation.
Mondgrass	Anthracnose	Light brown blotches, leaf spots on leaves; often spots have dark brown borders.	Cut foliage back. Cleary's 3336 will help.
Muscadine	Anthracnose ( <i>Colletotrichum</i> )	Circular or angular, brown lesions on leaves or stems, which may coalesce.	Centers of lesions may become gray-white. Lesion borders are dark purple-

brown-black. Cracking may occur. Similar-looking lesions may occur on fruit. Fruit lesions extend into fruit pulp.

Sanitation. See AL Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Black Rot ( <i>Guignardia</i> )	Brown circular spots with dark brown borders on foliage and fruit. Spots may coalesce to involve large area of tissue.	See the AL Pest Management Handbook.
Mustard	Cercospora Leaf Spot	Irregularly-shaped brown leaf spots.	Sanitation.
Myrtle, Wax	Botryosphaeria Canker	Sunken, cracked lesions on stems.	Pruning 3-4 inches from edge of decay.
Nandina	Cucumber Mosaic Virus	Plants show stunted new growth; some mosaic, leaf distortion, mottle and/or curling/puckering may be present.	Sanitation; aphid control may help a small amount.
Nectarine	Brown Rot	Brown, soft rot sometimes with gray spore masses.	Sanitation. See AL Pest Management Handbook under 'peach'.
	Phomopsis Canker	Brown, sunken, dry decay lesions on twigs and branches.	Sanitation. See AL Pest Management Handbook under 'peach'.
Oak	Bacterial Scorch	Inner leaves first develop a leaf edge scorch. Gradually all foliage becomes scorched; dieback follows.	Removal of infected trees.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
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	Hypoxylon Canker	Bark cracking and sloughing off; gray or black hard stroma layer develops under bark layer.	Sanitation.
	Oak Leaf Blister ( <i>Taphrina</i> )	Brown puckered spots.	Sanitation.
	Powdery Mildew ( <i>Microsphaera</i> )	White dusty coating on upper leaf surfaces. Some distortion of new leaves.	Collect and remove fallen leaves this fall.
Oak, Black	Hypoxylon Canker	Dark brown or gray, hard, flat, fungal bodies form under the bark; bark cracks and fall off.	Sanitation - pruning.
Oak, Pin	Xylella Scorch	Lower and oldest leaves show leaf edge scorch; problem progresses upward through the tree canopy. Dieback develops; eventual tree death.	Remove dying trees.
Oak, Red	Tubakia Leaf Spot	Round or irregular-round spots or blotches.	Sanitation of fallen leaves in the fall.
Oak, Sawtooth	Tubakia Leaf Spot (Formerly <i>Actinopelte</i> )	Circular, brown leaf spots may have tiny black specks scattered on leaf spot surface.	Sanitation of fallen leaves in fall.
Oak, Shumard	Hypoxylon Canker	Dark brown or gray, hard, flat, fungal bodies form under the bark; bark cracks and fall off.	Sanitation - pruning.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Pansy	Anthrachnose ( <i>Colletotrichum</i> )	Small, round, light brown, cream-colored spots.	Sanitation. Cleary's 3336.
	Myrothecium Crown Rot	Dieback; decayed crowns.	Sanitation; See A. Hagan.

	<i>Phyllosticta</i> Leaf Spot	Relatively small (2-3 mm diam.) medium brown, roughly circular spots. Spot centers may become gray.	Sanitation. Protective sprays of Cleary's 3336, Domain, or a benomyl WP labelled for ornamentals.
	Phytophthora & Pythium Root Rot	Brown, wet-rotted roots.	Sanitation. See AL Pest Management Handbook.
	Phytophthora Root Rot	Roots become brown and water-soaked.	Sanitation. See the AL Pest Management Handbook.
	Pythium Root Rot	Roots become brown and water-soaked.	Sanitation; See the AL Pest Management Handbook.
	Thielaviopsis Root Rot	Roots become covered with black spots/ lesions.	Sanitation; Cleary's, or Domain protective drenches.
Peanut	Diplodia Collard Rot	Wilt; plant collapse and death; brown lesions with dark brown margins at lower stems/collar; roots become gray-black and shred.	See A. Hagan.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Early Leaf Spot ( <i>Cercospora</i> )	Brown spots with halos develop on lower leaf surfaces; spore production usually on upper leaf surface.	Protective fungicide sprays. See Peanut Spray Guide and Timely Information PP-350 on Folicur.
	Late Leaf Spot ( <i>Cercosporidium</i> )	Brown to black spots, sometimes difficult to distinguish from early leaf spot unless spores are observed	microscopically; spore production usually on lower leaf surface.

Protective fungicide	sprays. See Peanut	Spray Guide and PP-	350.
	Lesion Nematode Pod Damage ( <i>Pratylenchus</i> )	Pods shrivelled, sunken lesions.	See A. Hagan.
	Pepper Spot ( <i>Leptosphaerullina</i> )	Tiny, black spots scattered on upper leaf surfaces; another symptom is a brown wedge-shaped lesion at upper surface leaf tip area; a yellow halo is usually present.	See A. Hagan.
	Rust ( <i>Puccinia</i> )	Orange pustules on foliage.	See A. Hagan.
	Peanut Mottle Virus	Plants stunted with regular green, light green color pattern.	See A. Hagan.
	<i>Rhizoctonia</i> Limb Rot	Oval to elliptical, brown spots develop on stems. Young spots may have a target ring pattern. Whole limbs or stems become blighted.	See AL Pest Management Handbook and PP-350; Careful water management.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	<i>Rhizoctonia</i> Pod Rot	Dull, light or dark brown, sunken lesions. Dark brown fungal threads (hyphae) may be seen on seed surface and inside wall of the shell.	See <i>Rhizoctonia</i> Limb Rot.
	Root-Knot Nematode ( <i>Meloidogyne</i> )	Plants are stunted and grow poorly; galls develop on roots.	Crop rotation. See Timely Information, Nematode Suppressing Crops, PP-341.
	Southern Blight (White Mold)	Soft decay spots on stems near the soil usually become	covered with white mold that sometimes contains tiny black

spherical fungal bodies.

See the AL Pest Management Handbook.

Tomato Spotted Wilt Virus

Stunted plants; leaves show ring spot and mosaic patterns; new leaves small with abnormally shortened internodes.

Control thrips and weeds; Sanitation.

Pear, Apple

Bitter Rot (*Colletotrichum*)

Brown, circular spots develop on the fruit surface. Orange dots of spore masses in a circular pattern develop on the surface of the discolored fruit skin. A brown rot extends through the fruit in a v-shaped area.

Sanitation. See AL Pest Management Handbook for fungicide sprays. Follow recommendations for Black Rot.

Plant

Disease

Description

Control

Black Rot (*Botryosphaeria obtusa*)

Brown, circular lesions (4-5 mm diam.) with purple borders on leaves; leaf yellowing and drop may occur; surface lesions on fruit show black-brown concentric rings which remain firm. Branch cankers may be small, long (5 m), sunken and/or cracked, superficial or deep.

Sanitation; See AL Pest Management Handbook for fungicide sprays.

Pear, Bradford

Alternaria Leaf Spot

Oval or round, brown leaf spots.

Sanitation of leaves in the fall. Protect T/O will help provide protective disease control.

Fabraea Leaf Spot

Black circular spots

(about 0.2-0.4 cm

diam.)	Sanitation of fallen leaves in the fall. Regular spray schedule may help. See AL Pest Management Handbook.		
Peas, Southern	<i>Fusarium</i> Wilt	Vascular tissues of lower stem are discolored reddish-brown.	Rotate peas out of the area for 10+ years.
	Mosaic Virus	Leaves show a yellow-green mosaic color pattern; sometimes green bands occur along the veins; plants are stunted.	Sanitation; control insects. Use resistant varieties such as Corona, Pinkeye Purplehull-BVR, Texas Pinkeye, Genegreen, Grant Blackeye or Royal Blackeye.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Pecan	Scab ( <i>Cladosporium</i> )	Small, circular, olive-green or black, slightly raised spots develop on leaves, petioles, and nut shuck tissue. Lesions may coalesce causing terminals to die.	See the Pecan Spray Guide; Sanitation.
	Zonate Leaf Spot ( <i>Cristulariella</i> )	On upper leaf surfaces, gray-brown concentric-ring spots (up to 2 cm diam.) appear. On lower leaf surfaces, spots are paler brown with dark brown borders.	Sanitation; protective fungicide sprays. See the Pecan Spray Guide.
Peony	Botrytis Leaf Spot	Irregularly-shaped brown-gray blotches.	Sanitation. Pruning to increase air circulation. Cleary's 3336, Halt.
Pepper	Bacterial Blight	Leaves develop dark	brown angular spots

which are often water-soaked along the edges. Leaf yellowing and drop often occurs on spotted leaves.

See AL Pest Management Handbook.

Pepper & Other Vegetables

Southern Blight (*Sclerotium rolfsii*)

Initially a dark brown lesion forms on the stem just below the soil surface. Plants wilt and turn yellow. The lower stem rot may also become a root rot. Coarse white fungal threads develop at the soil line around the stem. Eventually small, tan,

Use Terraclor 75WP on pepper. See Alabama Pest Management Handbook.

Plant

Disease

Description

Control

spherical fungal (mustard seeds) develop around and in bodies (resembling the coarse white fungal threads.

Petunia

Myrothecium Crown Rot

Crowns become decayed, brown and soft.

Sanitation. Protective sprays of Daconil may be used.

Phytophthora Aerial Blight

Stems & leaves develop brown, water-soaked decay.

Sanitation. Reducing water levels. See the AL Pest Management Handbook.

Phytophthora Crown & Root Rot

Crowns & roots become decayed and water-soaked.

Sanitation. See the AL Pest Management Handbook.

Pythium Crown Rot

Crown water-soaked and decayed.

Sanitation. Reduce water in the area. See the AL Pest Management Handbook.

Photinia

*Armillaria* Root Rot

Plant may decline slowly or suddenly; lower trunk under the bark and roots may be covered with closely appressed white fungal mat with black,

threadlike structures.

Sanitation. See ANR-

907.

*Phytophthora* Root  
Rot

See Azalea.

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Plant

Disease

Description

Control

Pine, Virginia

Lophodermium  
(*Ploioerma*) Needle  
Cast

Older needles turn  
brown and drop; very  
small (1-2 mm or 1/32  
inch) football shaped,  
black fruiting bodies  
develop on brown  
needles.

Protective fungicides  
spray. See AL Pest  
Management Hand-  
book.

Rhizosphaeria Needle  
Cast

Needles become gray-  
brown. Twig blight  
may develop.

Sanitation. See the  
AL Pest Management  
Handbook.

Pittosporum

Southern Blight  
(*Sclerotium rolfsii*)

Lower trunk becomes  
rotted and softened.  
White mycelial mats  
and tiny black  
spherical bodies  
(sclerotia) may be  
present on trunk at  
soil surface.

Sanitation.

Plum

Black Knot  
(*Plowrightia*  
*morbosum*)

Branches exhibit  
elongated black-  
surfaced, irregular  
galls that may involve  
a long (10 cm or  
more) distance of the  
branch.

Sanitation of galls.  
See AL Pest  
Management Hand-  
book.

Poinsettia

*Rhizoctonia* Stem Rot  
& Root Rot

Lower stems develops  
dry medium-dark  
brown surface lesions;  
roots may become  
brown and dried.

See AL Pest Manage-  
ment Handbook.

*Pythium* Root Rot

Roots become  
medium brown, soft,  
water-soaked and  
rotted.

See AL Pest Manage-  
ment Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	<i>Rhizopus</i> Stem Rot	Stem sections become glassy and water-soaked; a delicate black mass of fungal threads and small black spherical structures may develop over the lesions.	Sanitation.
	Bacterial ( <i>Erwinia</i> ) Stem Rot	Black, water-soaked spots or lesions on stems. Lesions may girdle stems.	Sanitation; pot-level irrigation; See AL Pest Management Handbook.
Pumpkin	Downy Mildew ( <i>Pseudoperonospora</i> )	Yellow spots/blotches develop on upper leaf surfaces; gray spots appear on corresponding areas of lower leaf areas. When temperature are cool-moderate and humid, a gray mycelium/spore layer will develop on lower leaf surface spots.	See the AL Pest Management Handbook.
	Mosaic Virus	Leaves develop a yellow mosaic pattern on dark green background. New growth is stunted.	Sanitation. Control insects. Do not save seed.
	Plectosporium Blight	Cream-colored, raised, scabby lesions on stems, leaves, fruit, and peduncles.	Sanitation. Check with Ed Sikora.
	Root Knot Nematode ( <i>Meloidogyne</i> )	Plants become stunted. Roots are galled.	Sanitation. Solarization. See ANR-713.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Raspberry	Septoria Leaf Spot	See Blackberry, under leaf spot.	See Blackberry, under leaf spot.
Red Cedar	Phomopsis Tip Blight	Tips of twigs become yellowed and browned. Dieback may spread down the twig-branch. Lower foliage is affected first.	Sanitation. See the AL Pest Management Handbook.
Rhododendron	Cercospora Leaf Spot	Brown, round leaf spots.	Sanitation. Cleary's 3336 or Halt may be used for protective control.
	Phytophthora Root Rot	Dieback; roots become brown, water-soaked initially then dried, decayed.	Sanitation; correct excess water problem; see AL Pest Management Handbook under azalea.
	Rust ( <i>Puccinastrum</i> )	Golden brown spore pustules on lower surfaces of leaves is followed by leaf blight.	Remove hemlock from the area. Remove infected rhododendron plant parts. See the AL Pest Management Handbook.
Rose	Armillaria Root Rot	Roots become dry rotted. Honey-colored mushrooms may develop. A thin white mold may develop under the bark.	Sanitation. See ANR-907.
	Botrytis Blight	Brown-gray irregular blotches develop on leaves.	Sanitation. See AL Pest Management Handbook.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Phytophthora Root Rot	Dieback; active infections are wet-rotted; old infections are dried.	Sanitation; reduce watering.

Rosemary	Phytophthora Root Rot	Roots become brown, decayed, water-soaked.	Sanitation. Reduce watering.
	Rhizoctonia Web Blight	Lower foliage becomes blighted.	Sanitation. Increase air circulation.
Salvia	Pythium Root Rot	Foliage turns yellow, yellowing on lower foliage first; roots become light brown and rotted.	Sanitation. Reduce soil water levels.
	Rhizoctonia Crown Rot	Crowns become brown & dry-rotted.	Sanitation. Cleary's 3336 or Halt may be used.
Schip Laurel	Bacterial Leaf Spot ( <i>Xanthomonas</i> )	Angular brown spots with water-soaked margins; shot-holes develop.	Sanitation.
Scuppernong	Black Rot ( <i>Guignardia</i> )	Vines & fruit develop black decay/rot. Leaves develop brown, irregular spots with circles of small black specks.	Sanitation. See AL Pest Management Handbook under grapes.
Sequoia, Giant	Cercosporidium Needle Blight	Lower foliage become brown.	Pruning off dying branch areas. Cleary's 3336 or Halt may be applied.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Snapdragon	Cercospora Leaf Spot	Pale brown angular leaf spots of variable size.	Cleary's 3336, Domain, or a benomyl labelled for ornamentals.
Sorghum, Grain	Anthracnose (Red Rot) ( <i>Colletotrichum</i> )	Red spots and lesions on leaves and stalks. Heads may become infected, reddish and rotted.	Sanitation.
	<i>Fusarium</i> Head Blight	Entire seed head may rot and become	covered by cream-pink fungal spore

masses.	Sanitation.		
	Gloeocercospora Blight (Zonate Leaf Spot)	Zonate spots on leaves; red-purple bands alternate with yellow bands.	Sanitation.
Soybean	Aerial Blight ( <i>Rhizoctonia</i> )	Small spots or large areas of leaves, stems, or pods may become brown and blighted; leaves may become tattered; leaf drop; disease favored by high humidity.	See Soybean Spray Guide.
	Anthracnose ( <i>Colletotrichum</i> )	Large, irregular, brown areas on stems, pods, petioles.	Deep plow.
	Brown Spot ( <i>Septoria</i> )	Irregular dark brown spots (1-4 mm diam.) on upper and lower leaf surfaces. Usually spots begin on lower leaves first.	See Soybean Spray Guide.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Cercospora Leaf Spot	Leaf spots are circular, light brown with dark brown edges often called frog eye leaf spot.	---
	Charcoal Rot ( <i>Macrophomina</i> )	A light grey discoloration of tap root and lower stem. Inner stem tissues appear shredded and gray as if sprinkled with finely powdered charcoal. A disease of hot, dry conditions.	Rotation; proper fertilization.
	Pod and Stem Blight ( <i>Diaporthe</i> ,	<i>Phomopsis</i> )	Stems, petioles, pods, seeds become just

slightly discolored. During wet, warm conditions, linearly arranged black dots (fruiting bodies) appear on infected tissues.

See Soybean Spray Guide.

Root-Knot Nematode (*Meloidogyne*)

Irregularly-shaped galls appear on roots. Plants grow poorly.

Rotation; Fumigation; See Soybean Spray Guide.

Stem Canker (*Diaporthe*)

Reddish brown, slightly sunken cankers that girdle stems and kill plants.

See the Soybean Control Recommendations ANR-413.

Plant

Disease

Description

Control

Sudden Death Syndrome (*Fusarium solani*)

Leaves become yellowed and then browned in interveinal areas; browned leaves fall from plants; the tap roots and often lateral roots become browned and decayed. Rotting may extend to the crown area at the soil line.

Sanitation and deep plowing of plant residue; rotation; call Ed Sikora if more information is needed.

Squash, Summer

Cercospora Leaf Spot

Irregular medium-brown spots (0.2-0.6 cm diam., usually).

See the AL Pest Management Handbook.

Cucumber Mosaic Virus

Plants develop mosaic, stunting, and abnormal shoestring leaves.

Sanitation. Aphid control may help a little.

	Papaya Ringspot Virus	Plants develop mosaic and stunting.	Sanitation. Aphid control may help a little.
	Watermelon Mosaic Virus II	Pronounced mosaics of green and yellow.	Sanitation. Aphid control may help a little. Virus may be transmitted mechanically. Control weeds. WMV is not seed transmitted.
	Zucchini Yellow Mosaic Virus	Foliage and fruit develops mosaic and may be stunted.	Sanitation. Aphid control may help a little.
St. Augustine	Brown Patch ( <i>Rhizoctonia</i> )	See Bermudagrass.	–
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Grey Leaf Spot ( <i>Piricularia</i> )	Small spots usually develop into large 4-8 mm diam.), brown or gray lesions with purple or brown borders. A yellow halo or general chlorosis may develop around spots. When severe entire foliage may turn gray-brown.	Collect clippings; See AL Pest Management Handbook.
	Take-All Patch ( <i>Gaeumannomyces</i> )	Spots/areas of turf become thinned and yellowed. Eventually plants die and the problem area becomes larger.	See Timely Information PP-312.
St. John's Wart	Pythium Root Decay	Roots are slightly brown, water-soaked, rotted; tissues pull apart easily.	Sanitation; correct excess water problem.
Strawberry	Anthracoise ( <i>Colletotrichum</i> )	Lesions on stolons are brown-black, longitudinal and sunken. During high humidity	cream-pink spore masses may form on lesions. Crown rot appears as reddish-

brown firm rot or streaks of rot; plants wilt and die when crown rot is severe.

Protective fungicide sprays; Sanitation.

Cylindrocladium  
Petiole & Crown Rot

Petioles & lower stems become brown & dry rotted; lower foliage become yellowed and yellowing/dieback spread upward.

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Plant

Disease

Description

Control

Phomopsis Leaf  
Blight

Brown spots/blotches often associated with leaf edges.

See the AL Pest Management Handbook.

Sweet Potato

Fusarium Surface Rot  
on Roots

Lesions are circular, light-dark brown, firm, and dry; rot does not extend beyond vascular ring. In storage lesions eventually become shrunken, cracked; roots dry out.

Avoid wounding.

Scurf (*Monilochaetes*)

A brown patchy discoloration of the root which usually begins as small, brown specks or spots. The discoloration is entirely superficial, but cracks will cause roots to dry out.

See AL Pest Management Handbook.

Thrift

Rhizoctonia Blight

Stem and leaf browning.

Sanitation; Cleary's 3336.

Tomato

Bacterial Leaf Spot  
(*Xanthomonas*)

Dark, water-soaked, irregular and somewhat circular leaf spots (usually 1-3 mm diameter).

Sanitation. See the AL Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Bacterial (Pith Necrosis) Canker ( <i>Pseudomonas</i> )	Sunken, dark-colored, dried or water-soaked cankers appear on (usually) lower stems. When the stem is split lengthwise, the hollow stem shows a network of cross tissue 'threads'. Adventitious root initials may develop on surface areas of cankers.	Sanitation. See AL Pest Management Handbook.
	Bacterial Wilt ( <i>Ralstonia</i> )	Plants wilt rapidly. Lower stem vascular system and surrounding tissues may be brown. Ooze is visible from cut lower stem suspended in water.	Sanitation. Crop rotation away from susceptible crops. See ANR-797.
	Cladosporium Leaf Mold	A dark gray surface mold develops on leaves in blotches areas.	Sanitation. See the AL Pest Management Handbook.
	Cucumber Mosaic Virus	Plants stunted with mosaic, leaf distortions.	Sanitation. Aphid control may help a small amount.
	Double Virus Streak (Combination of Tobacco Mosaic Virus and Potato Virus X)	Leaves first show a light green mottle followed by numerous small (2 mm) gray-brown spots; severely damaged leaves may die. Later, leaves become dwarfed, curled, yellowed with small brown spots. Narrow, dark brown streaks develop on petioles and stems. Shoot tips may die; Plants are stunted. Fruit set reduced; fruits develop greasy,	brown lesions.

Sanitation.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Late Blight ( <i>Phytophthora infestans</i> )	Dark brown-black blotches/spots on leaves/stem.	See the AL Pest Management Handbook.
	Phytophthora (Buckeye) Fruit Rot	Medium-brown, slightly sunken, zonate patterned with concentric rings, small to large spots develop on fruit. Brown discoloration may extend to fruit center.	Keep fruit away from the ground; See AL Pest Management Handbook.
	Potato Virus Y	Plants stunted with some mosaic patterns, vein clearing.	Sanitation. Aphid control may help a small amount.
	Root Knot Nematode ( <i>Meloidogyne</i> )	Plants are stunted. Roots are galled.	Sanitation. Resistant varieties or solarization.
	Septoria Leaf Spot	Small gray circular-angular spots.	See the AL Pest Management Handbook.
	Tobacco Etch Virus	Plants stunted with some mosaic patterns, vein clearing, yellowing, sometimes necrotic rings.	Sanitation. Aphid control may help a small amount.
	Tobacco Mosaic Virus	Plants grow poorly. Leaves develop a mottle or mosaic of green and light green.	Remove damaged plants. Wash hands well before handling healthy plants.
	Tomato Spotted Wilt Virus	New growth stunted, leaves spotted and/or with ring spots; whole plant stunting and wilting; ringspots on fruit.	Sanitation. Thrips control will help in some situations.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>

Turnip	Black Rot ( <i>Xanthomonas</i> )	See Collards.	Sanitation; crop rotation; See the AL Pest Management Handbook.
	<i>Cercospora</i> Leaf Spot	Irregular gray-brown leaf spots with whitish centers and brown margins.	See AL Pest Management Handbook.
Verbena	Anthracnose ( <i>Colletotrichum</i> )	Circular black spots on foliage.	Sanitation; Cleary's 3336.
	Pythium Lower Stem Rot	Brown water-soaked lesions.	Sanitation; reduce irrigation.
Vinca (Annual Periwinkle)	Anthracnose ( <i>Colletotrichum</i> )	Brown irregular areas, blotches develop on leaves and stems.	Sanitation. Protective sprays of Cleary's or Domain or a WP benomyl labelled on ornamentals may help.
	Phytophthora Stem Rot and/or Crown/Root Rot	Stems and/or lower stems near soil line and roots become browned and water-soaked.	Sanitation; improve soil drainage.
	Pythium Root Rot	Roots become brown decayed and water-soaked.	Sanitation. Reduce watering schedule. Rotate to different crop.
	Rhizoctonia Aerial Blight	Lower leaves become blighted; a thin mycelial webbing may develop.	Sanitation; Cleary's, Domain or a WP benomyl labelled on ornamentals may help.
Watercress	<i>Cercospora</i> Leaf Spot	Brown, circular-irregular leaf spots.	Sanitation.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Pythium Stem & Root Rot	Stems and roots develop brown, water-soaked lesions.	Sanitation.

Watermelon	Fusarium Wilt	Plants show wilt & leaf yellowing beginning at base of plant.	Sanitation. Resistant varieties.
	Gummy Stem ( <i>Mycosphaerella</i> )	Leaves develop black spots at leaf edges. Stem develop oozing, gummy cankers.	See AL Pest Management Handbook.
	Papaya Ringspot Virus	Leaves develop a mosaic (yellow-green); stunting.	Sanitation. Control of aphids may help a small amount.
Wax Myrtle	Anthracnose ( <i>Colletotrichum</i> )	Brown, irregular spots, blotches develop on leaves.	Sanitation; if disease is severe, protective sprays of Cleary's 3336 or Domain or a WP benomyl may help.
	Gummy Stem Blight ( <i>Mycosphaerella</i> )	Black lesions/spots at leaf edges; elongate cracking on stem with amber-colored ooze.	See AL Pest Management Handbook.
Willow	Cercospora Leaf Spot	Irregularly shaped brown spots.	Sanitation of leaves in the fall.
Yaupon	Volutella Blight	Cankered, sunken stem areas, dieback, sometimes orange spore masses give the sunken areas an orange color.	Sanitation. Cleary's 3336 or Halt protective sprays.
Zoysia	Brown Patch ( <i>Rhizoctonia</i> )	See Bermudagrass.	See the AL Pest Management Handbook.
<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Dollar Spot ( <i>Sclerotinia</i> )	Small spots in lawn (silver-dollar sized) become a white-gray colored. Individual grass blades develop dark water-soaked irregular spots which become whitish-gray with dark borders.	See the AL Pest Management Handbook or ANR-493.

Rust ( <i>Puccinia</i> )	Small (1-3 mm), yellow-orange-red flecks on grass blades; yellow-orange-red powder will wipe off on fingers. When severe, leaf blades will yellow and eventually die.	This is usually only a problem in shaded areas; fungicides may be applied when disease is severe; See the AL Pest Management Handbook or ANR-621.
Take-All Patch ( <i>Gaeumannomyces</i> )	Individual plants yellow, wither, die; black lesions on roots and stolons.	Keep soil pH at 5.5-6.0; use only ammonium-based fertilizer; avoid frequent irrigation.

### Notes on Sudden Oak Death (SOD)

You have been hearing about the fungus *Phytophthora ramorum* as the cause of the federally regulated disease called SOD (Sudden Oak Death). We mentioned it at our ‘First Detector Educator In-Service Training’ last spring. This disease is of major concern because of the canker/tree mortality effects on oaks. The other many plants susceptible to *P. ramorum* develop a foliage blight. The major concern is that the disease will be spread from the infected azaleas, camellias, etc. to the oaks which may develop cankers and subsequently die.

Since it’s appearance in the Monrovia Nursery in California last spring, all state departments of agriculture-in states known to have received plant material from this nursery– have conducted investigations to determine if their specific state had nurseries with the pathogen. Alabama nurseries did receive plant material from Monrovia last spring and those nurseries have been visited by State Department of Agriculture Inspectors who surveyed the plants for disease. Any suspect plants were brought to the Plant Diagnostic Lab designated for SOD testing. This lab in Alabama is our Plant Diagnostic Lab located at Auburn. We found that a few plants did test positive for *P. ramorum*. This finding had to be confirmed by the USDA lab in Beltsville, and confirmations were made. The Alabama Department of Agriculture officials then were contacted by USDA and instructed to have the nursery plants destroyed. Subsequent to this event, another nursery (Mean’s Nursery in OR) was found to have the pathogen present in some of its plant material. This nursery had shipped plant material to retail garden shops in many states. Again, the state department of agriculture officials visited those sites where records showed plants were received from Mean’s Nursery. Suspect plants were sent to our lab at Auburn. Even though we did not confirm the presence of *P. ramorum* in any retail garden shops, it is known that many of these plants have been sold. USDA, CSREES, the U.S. Forestry Service in conjunction with individual state’s State Department of Agriculture Regulatory Officials, State Plant Health Directors (APHIS), and land grant university Extension pathologists along with university specialists in related fields of pest management and pesticide safety in the individual state are working on a plan for sampling and testing landscape plants suspected to

possibly have *P. ramorum*. There will be a set of criteria questions developed to help separate the possible *P. ramorum* plants from the other problems plants. State officials and specialists in each state will fine-tune the program to fit their state's situation. This is still a federally regulated disease so the Alabama State Department of Agriculture must do the sample collecting at the plant site. Only plants purchased in the last 3 years are suspect. Plans are currently being developed. Training materials are being formulated by the National Plant Diagnostic Network (NPDN) and other federal agencies. Extension will be involved with education. Training efforts will be directed at Extension faculty, Master Gardeners, and all client groups working in the ornamentals/landscape arena. You will be hearing more about this effort to prevent *P. ramorum* from becoming established in landscapes and natural forested areas.