

# TIMELY INFORMATION

## Agriculture & Natural Resources

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PP-649

### **APRIL PLANT DISEASES FROM THE AUBURN PLANT DIAGNOSTIC LAB**

### **APRIL PLANT DISEASES FROM THE BIRMINGHAM PLANT DIAGNOSTIC LAB**

### **APRIL INSECT SAMPLES AT THE AUBURN PLANT DIAGNOSTIC LAB**

### **DISEASE POSSIBILITIES FOR MAY**

#### **LAB NOTES**

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#### Auburn Plant Disease Report-April (J. Mullen)

Early April was relatively cold. Cold damage on wheat was seen in many sections of the state including Dallas, Escambia, and Perry counties.

Late April saw warmer temperatures and scattered rain events across the state. Some sections of the state (esp. some southern areas) continued to be dry.

With our relatively cold, and somewhat dry April conditions, our plant sample numbers were on the lower end of our normal range at 92.

Cold damage was seen on corn and wheat. The corn showed poor growth. The wheat showed heads that were curved/twisted over.

Wheat diseases seen in several locations in April included leaf rust, powdery mildew, and Septoria blotch. Loose smut was also noted as a curiosity. Kathy Burch shared the following observations: leaf rust scattered throughout the state; stripe rust at Prattville and small amount at Belle Mina; powdery mildew prevalent at Crossville; Septoria and tan spot present at low incidence throughout the state; a little smut.

One case of large patch (brown patch) was seen on a centipede sample sent from Covington County.

Take-all patch diseases noted on St. Augustine grass samples were probably present last fall.

Bacterial speck (*Pseudomonas syringae* pv. tomato) leaf spots were found on small tomato transplants. Leaf spots were dark and half-way between angular and circular. Control of bacterial leaf spots requires 'strict' sanitation, so damaged plants must be removed. The growing area should be thoroughly cleaned with a solution of household bleach. A mixture of a copper bactericide-fungicide and a mancozeb fungicide is usually applied as a protective treatment. See the AL Pest Management Handbook or the Southeastern Vegetable Extension Workers 2008 Vegetable Crop Handbook.

An unusual leaf ring spot symptom along with some dieback was noted on fringe tree, *Chionanthus virginicus*. The symptomatic leaves were tested at our lab and at Agdia, Inc. for many viruses. All results were negative. But, symptoms were very symptomatic of virus.

Fusarium stem cankers were seen on hydrangea and pansy. Many Fusarium diseases such as cankers and crown rots seem to develop on previously stressed plants. (A recent pathogenicity test with *Fusarium* spp. On lirioppe failed to cause disease – J. Olive, 2007).

In late April, we saw a *Lasiodiplodia theobromae* canker on chestnut. This fungus is often seen on previously stressed trees. I suspect we will see similar canker diseases this summer as drought-stressed trees become susceptible to moderate or 'weak' disease agents.

Table 1. 2008 April Plant Diseases Seen In The Plant Diagnostic Lab at Auburn.

<u>Plant</u>	<u>Disease</u>	<u>County</u>
Blueberry	Botryosphaeria Canker	Coffee
Camellia	Not Phytophthora; Anthracnose Leaf Spot	****
Centipede	Brown Patch ( <i>Rhizoctonia solani</i> )	Covington

<u>Plant</u>	<u>Disease</u>	<u>County</u>
Cleyera	Unknown Fungal Leaf Spot	Houston
Corn	Rhizoctonia Stem Decay	Autauga
	Suspect Cold Damage	Elmore, Geneva
Crape Myrtle	Phytophthora Root Rot	Greene
Elm 'Drake'	Botryosphaeria/Botryodiplodia Canker ( <i>Lasiodiplodia theobromae</i> )	*
Fringe Tree	Suspect Virus (Ring Spots)	Lee
Hydrangea	Fusarium Canker	Lee
Ivy, English	Anthracnose ( <i>Colletotrichum</i> )	Lee
Juniper	Slime Mold	Lee
Pansy	Fusarium Stem Cankers	Houston
St. Augustine	Take-All Patch ( <i>Gaeumannomyces graminis</i> var. <i>graminis</i> )	Elmore, Escambia, Jefferson, Madison, Montgomery (2)
Tea Olive	<i>Phytophthora</i> sp. Leaf Spot	Chambers
Tomato	Bacterial Leaf Spot ( <i>Pseudomonas syringae</i> pv. Tomato)	*
Verbena	Pythium Crown Rot	Jackson
Wheat	Cold Damage	Dallas, Escambia, Perry
	Loose Smut ( <i>Ustilago nuda</i> )	Lee
	Powdery Mildew	Lee
	Rust ( <i>Puccinia recondite</i> )	Dallas, Escambia
	Possible Black Chaff ( <i>Xanthomonas</i> )	Limestone

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

Birmingham Plant Disease Report-April (J. Jacobi)

We received 78 samples for the month of April. Monthly rainfall and rainfall totals for 2008 are near normal and most municipal water sources are finally full pool, many for the first time in over two years. Hopefully, the rains will continue this summer. Some of the problems seen last month included Armillaria root rot on oakleaf hydrangea and holly, rust on French hollyhock, Hosta virus X on Hosta, and downy mildew on rose.

One of the cases of Armillaria root rot was on an oakleaf hydrangea installed last October, after the previous hydrangea in that spot died from the same disease. I was surprised at how quickly the new plant was attacked and killed. But, it reinforces the fact that with a soilborne disease like Armillaria, the best option is to replace with a plant resistant to the disease. For more information on this disease see the following web publication: (<http://www.aces.edu/pubs/docs/A/ANR-1212/>).

Hosta virus X (HVX) was detected in a hosta ('Lakeside Kaleidoscope') from a local landscape. This is a relatively new virus that home gardeners should be aware of. Symptoms included unusual leaf puckering and distortion that didn't appear 'normal' for this cultivar. Symptoms of this virus can be quite variable and only testing with the specific ELISA kit for HVX can determine if the plant is infected with the virus. Once identified, infected plants should be removed and destroyed. The virus is mechanically transmitted during cultural practices (pruning, propagation, etc.) and has not been shown to be transmitted by insects. Hostas are the only known host of this virus. The best prevention is to avoid purchasing infected plants. For images of symptoms and additional information on disease prevention see the following publication (<http://www.oznet.ksu.edu/library/plant2/EP132.pdf>).

Hollyhock rust was also seen last month on French hollyhock or high mallow. Infected plants showed small yellow spots on the top of the leaf and orange-brown pustules about the size of a pinhead on the lower surface. This common disease of hollyhock and its relatives can be controlled by removing infected plant parts during the growing season and cleaning up plants in the fall. Fungicide sprays of products containing chlorothalonil, mancozeb, myclobutanil, and other registered products can also help prevent further problems. For more on this disease see the following publication: <http://www.ext.vt.edu/pubs/plantdiseasefs/450-613/450-613.html>.

Table 2. 2008 April Problems Seen In The Birmingham Plant Diagnostic Lab.

<u>Plant</u>	<u>Problem</u>	<u>County</u>
Bamboo, Giant Leaf	Noxious Bamboo Mealybug	Jefferson
Bamboo, Giant Leaf	Diaspidid Scale	Jefferson

<u>Plant</u>	<u>Problem</u>	<u>County</u>
Bermudagrass	Bipolaris Leaf Spot	Jefferson
	Chinch Bugs	Jefferson
	White Grubs	Jefferson
Boxwood, Common	Boxwood Leafminer	Jefferson
	Phytophthora Root Rot	Jefferson
	Pythium Root Rot	Jefferson
Cabbage	Pythium Damping-Off	Cullman
Camellia	Camellia Flower Blight	Madison
	Gray Leaf Spot	Jefferson
	Sunburn	Jefferson
Centipedegrass	Take-All Root Rot	Mobile
Cleyera	Southern Red Mites	Jefferson
Crape Myrtle	Chemical Injury (Roundup)	Jefferson
Cryptomeria	Deer Damage	Jefferson
Cypress, Leyland	Botryosphaeria Canker	Blount
Euonymus, Japanese	Euonymus Scale	Jefferson
	Powdery Mildew	Jefferson (2)
Hickory	Leaf and Stem Gall Adelgid ( <i>Phylloxera</i> )	Jefferson
Holly, Japanese	Armillaria Root Rot	Shelby
	Pythium Root Rot	Shelby
Holly, Yaupon	Southern Red Mite	Jefferson
Hydrangea, Oakleaf	Armillaria Root Rot	Jefferson (2)

<u>Plant</u>	<u>Problem</u>	<u>County</u>
Hollyhock, French	Rust ( <i>Puccinia</i> )	Jefferson
Hosta	Hosta Virus X	Jefferson
Indian Hawthorn	Insect Damage	Jefferson
Jasmine, Asiatic	Pythium Root Rot	Mobile
	Rhizoctonia Root Rot	Mobile
Loropetalum	False Spider Mites	Jefferson
Magnolia, Southern	Algal Leaf Spot	Jefferson
	Root Girdling	Jefferson
Pansy	Rhizoctonia Root and Stem Rot	Jefferson
Pine, Japanese Black	Brown Spot Needle Blight	Jefferson
Rose	Aphids	Jefferson
	Black Spot	Jefferson
	Downy Mildew	*(2)
Spirea	Botryosphaeria Dieback	Jefferson
Tomato	Ethylene Injury	Walker
Tulip	Pythium Root Rot	Jefferson
Zoysia	White Grubs	Jefferson (2)

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

Auburn Entomology Report-April (C. Ray)

<b>County</b>	<b>Host</b>	<b>Category</b>	<b>Identification</b>	<b>Scientific Name</b>
Tuscaloosa	Japanese Maple	Ornamental	Rainbow Beetle	<i>Tarpela</i> sp.
Marion	Home	Household-	Eastern	<i>Reticulitermes</i>

County	Host	Category	Identification	Scientific Name
		Structural	Subterranean Termites	<i>flavipes</i>
Russell	Lawn	Household-Miscellaneous	March Flies	Bibionidae
Washington	Home	Household-Structural	Eastern Subterranean Termites	<i>Reticulitermes flavipes</i>
Limestone	Home	Household-Miscellaneous	An Ichneumonid Wasp	Ichneumonidae
Limestone	Home	Household-Stored Product	Indian Meal Moth	<i>Plodia interpunctella</i>
Wilcox	Home	Household-Medical	Juvenile Kissing Bug	<i>Triatoma</i> sp.
Jefferson		Miscellaneous	May Beetle	<i>Phyllophaga</i> sp.
Lee	Home	Household-Miscellaneous	Cockroach Fecal Pellets	
Jefferson	Sago Palm	Ornamental	Cycad Aulacaspis Scale	<i>Aulacaspis yasumatsui</i>
Coffee	Helicopter Base	Miscellaneous	Honey Bees	<i>Apis mellifera</i>
Houston	Leyland Cypress	Ornamental	Maskell Scale	<i>Lepidosaphes pallida</i>
Lawrence		Miscellaneous	Golden Dung Flies	<i>Scathophaga</i> sp.
Clarke		Miscellaneous	A Native Bee	<i>Anthophora abrupta</i>
Baldwin	Grape	Fruits and Nuts	Grape Flea Beetle Larvae	<i>Alticia</i> sp.
Calhoun	Home	Household-Structural	Black Carpenter Ant	<i>Camponotus pennsylvanicus</i>
Shelby		Miscellaneous	May Beetles	<i>Phyllophaga</i> sp.

County	Host	Category	Identification	Scientific Name
DeKalb	Home	Household-Stored Product	A Glycyphagid Mite	<i>Glycyphagus</i> sp.
Butler	Home	Household-Structural	Eastern Subterranean Termite	<i>Reticulitermes flavipes</i>
Jackson	Photinia	Ornamental	Cottony Cushion Scale	<i>Icerya purchasi</i>
Calhoun	Home	Household-Miscellaneous	May Beetle	<i>Phyllophaga</i> sp.
Dallas		Miscellaneous	Trap Door Spider	<i>Myrmeciophila</i> sp.
Chilton		Miscellaneous	Varied Carpet Beetle	<i>Anthrenus verbasci</i>
Chilton		Miscellaneous	Nympha Boxelder Bug	<i>Boisea trivittatus</i>
Chilton		Miscellaneous	Mining Bee	
Tuscaloosa	Lawn	Household-Miscellaneous	Mining Bees	Andrenidae
Calhoun	Home	Household-Structural	Eastern Subterranean Termite	<i>Reticulitermes flavipes</i>
Escambia	Strawberry	Fruits and Nuts	Spider Mites	Tetranychidae

### Disease Possibilities For May

As is usual in May, we are seeing an abundance of turf grass samples. Thus far, many of our turf samples have involved non-infectious situations as is typically the case for turf problems sent to us in April and early May. We recently received a wheat sample with take-all from Limestone County. This root, crown rot, soil-borne disease of wheat was a problem in the 1980's but has not been seen much for many years.

The list below includes some common disease problems received in the lab during May of the past few years. Comments on control practices are brief. Refer to the Alabama Pest Management Handbook or appropriate fact sheet or disease notes publications for details on disease control.

Table 3. Brief Disease Descriptions and Control Recommendations for Diseases Often Seen in May.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Any	Slime Mold	Not actually a disease; gray, black, pink, or yellow slimy or powdery masses on plants or soil; plasmodium or slime stage may be a mass of paper-thin ruffled 'sheets' the consistently of a thinnish layer of 'Jello'; the spore stage is often powdery with the coloration of black, pink, yellow or orange from spore production.	Wash off with a strong stream of water; physical removal.
Apple	Armillaria Root Rot	Dieback; thin, white mycelial layer just under bark, appressed to wood.	Removal of tree and roots; maintain healthy trees.
	Cedar-Apple Rust ( <i>Gymnosporangium</i> )	Bright yellow leaf spots (up to ¼ or ½" diameter).	Protective fungicide sprays; Removal of junipers. See ANR-408.
	Fire Blight ( <i>Erwinia</i> )	Small (⅛-¼" diameter) circular-irregular spots with purple margins and brown centers.	Sanitation in the fall; protective sprays during growing season.
	Powdery Mildew ( <i>Podosphaera</i> )	Whitish powdery dusting on foliage; leaf deformity; blight.	Sanitation in the fall; protective fungicide sprays.
Armaryllis	Stagnospora Leaf Spot	Fairly large (¼-½ inch long) oval or elliptical or irregularly shaped red spots.	Sanitation. Protective sprays of Cleary's 3336 or Domain.
Ash	Anthrachnose ( <i>Discula</i> )	Brown irregular spots blotches.	Sanitation of fallen leaves.
Azalea	Aerial Blight ( <i>Rhizoctonia</i> )	Mostly seen in greenhouse-nursery situations; lower leaves become blighted and fall.	Sanitation; protective fungicide sprays.
	Colletotrichum Leaf Spot	Small, brown, circular leaf spots develop.	Sanitation; See the AL Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Exobasidium Gall	Swollen blossoms, leaf, and shoot galls. From mid April-mid May, galls change from a green to a white or pink-white color.	Sanitation; removal of galls while they are still green. Protective fungicide application may be made.
	Phomopsis Blight & Dieback	Sunken cankers develop on twigs and small branches; twig dieback results.	Prune out cankers. Make cuts at least 2 inches beyond the damage.
	Phytophthora Root Rot	Roots brown and water-soaked.	Sanitation. Protective fungicide drenches in nursery situations.
	Powdery Mildew	White, powdery, dusting on leaf & young twigs, blight.	Pruning; protective fungicide sprays; See the AL Pest Management Handbook.
Bahia Grass	Take-All Patch	Dieback, wilt, crown and root rot	See cultural controls ANR-823.
Bean, Garden	Alternaria Leaf Spot	Dark brown angular-circular spots (about 5 mm diameter) scattered on leaf surfaces.	Bravo 720 should control this problem.
	Anthrachnose ( <i>Colletotrichum</i> )	Circular-irregular, reddish-brown pod, leaf & stem spots develop.	Sanitation. See the AL Pest Management Handbook.
	Bacterial Blight	Greasy, dark green irregular spots $\frac{1}{8}$ - $\frac{1}{4}$ " diameter) become black and papery with wet looking margins sometimes surrounded by a yellow zone.	Protective sprays. See the AL Pest Management Handbook.
	Fusarium Stem Rot	Red-brown sunken lesions on lower stems.	Plant removal, crop rotation away from beans and peas.
	Mosaic Viruses	Distinct pattern of dark green & light green or yellow on leaves.	Control weeds; control beetles and aphids; Do not save seed; remove diseased plants.
	Pythium Root Rot	Roots are soft, brown,	Avoid wet conditions.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
		water soaked.	
	Rhizoctonia Soreshin	Dark reddish-brown sunken lesion(s) on lower stem.	See AL Pest Management Handbook for a before-planting soil treatment.
Bee Balm	Powdery Mildew	Powdery white dusting on leaves; blight; distorted new growth.	Cleary's 3336; sanitation.
Begonia	Bacterial Leaf Spot ( <i>Xanthomonas</i> )	Dark brown angular spots (about 5 mm diameter or less). Outer edges of spots may appear wet (water soaked); centers of spots may dry and crack. Spots may coalesce.	See the AL Pest Management Handbook; Sanitation.
	Phytophthora Root Rot	Dieback, wilt, wet rot of roots.	Remove damaged plants; reduce water levels. See the AL Pest Management Handbook.
	Pythium Root Rot	Dieback, wilt, wet rot of roots.	Remove damaged plants; reduce water levels. See the AL Pest Management Handbook.
	Rhizoctonia Crown & Root Rot	Dieback; wilt, lower leaves yellow; dry, brown lesions on lower stem.	Remove damaged plants; See the AL Pest Management Handbook.
Bentgrass	Anthracnose ( <i>Colletotrichum</i> )	Yellow to brown irregular, elongate spots develop on leaves.	Irrigate in the early morning; collect grass clippings; avoid stress; See the AL Pest Management Handbook.
	<i>Bipolaris cyanodontis</i> Leaf Spot	Small, elliptical brown spots; spots may coalesce into blighted grass blades.	Sanitation of cut grass blades; good fertility practices; see AL Pest Management Handbook for recommended fungicides.
	Pythium Blight	Wet-looking blight of foliage.	See the AL Pest Management Handbook; decrease irrigation.
	Pythium Root Rot	Dieback, wilt, wet rot of roots.	Remove damaged plants; reduce water

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
			levels; See AL Pest Management Handbook for protective fungicides.
Bermuda	Algae ( <i>Cephaleuros</i> )	Dark green, thin, flat 'sheets' of algae develop on grass foliage.	Promote good drainage and drying out of the area; See the AL Pest Management Handbook.
	Bipolaris Leaf Spot/Blight	Smallish (1/8 inch or less) elongated brown spots on grass blades. Spots may coalesce.	See AL Pest Management Handbook for recommendations under Helminthosporium melting-out.
	Brown Patch ( <i>Rhizoctonia</i> )	Circular-irregular patches in lawn become brown. Brown lesions present on individual grass blades.	Reduce nitrogen fertilization. Sanitation. Protective fungicide treatments.
	Dollar Spot ( <i>Sclerotinia homeocarpa</i> )	Small pale yellow spots the size of a silver dollar are characteristic; spots often coalesce; leaves show characteristic cream-colored spots with dark brown borders.	Improve fertilization and provide adequate irrigation. In some situations, protective fungicide treatments are needed. See ANR-493 and the AL Pest Management Handbook.
	Exserohilum Blight	Smallish (1/8 inch or less) elongated brown spots on grass blades. Spots may coalesce.	See AL Pest Management Handbook for recommendations under Helminthosporium melting-out.
	Rust ( <i>Puccinia</i> )	Foliage becomes pale green-brown with an orange tint; orange spores masses will rub off on a finger wiped across leaf surfaces.	See the AL Pest Management Handbook.
	Spring Dead Spot ( <i>Gaeumannomyces graminis</i> pv <i>graminis</i> )	Large circular areas fail to green-up in the spring.	See the AL Pest Management Handbook.
Bermuda, Coastal	Rust ( <i>Puccinia</i> )	Leaf spots, blight; reddish color of blight.	Frequent mowing.
Birch, River	Anthrachnose ( <i>Cryptocline</i> )	Brown leaf spots and blotches develop on leaves.	Clean up & remove all leaf litter this fall.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Blackberry	Anthrachnose ( <i>Colletotrichum</i> )	Irregularly-shaped brown spots & blotches on leaves and canes.	See the AL Pest Management Handbook.
	Botryosphaeria Canker	Dry, cracked sunken lesions.	Pruning.
	Cane Blight ( <i>Leptosphaeria</i> )	Brown, lesions on canes.	Pruning.
	Double Blossom ( <i>Cercospora</i> )	Floral canes develop abnormal flowers with thickened petals. Internodes are shortened. Leaf development at nodes is abnormally abundant.	Sanitation as soon as abnormality is discovered. Protective fungicide treatment.
	Phoma Cane Blight	Large brown lesions on canes; dieback.	Sanitation.
	Septoria Leaf Spot	Small (usually ¼ inch) angular brown spots.	See fungicide recommendations under anthracnose.
Blueberry	Botryosphaeria Blight	Somewhat inconspicuous sunken cankers develop along branches or on lower trunk areas. Dieback results. (Sometimes this condition is associated with soils excessive in phosphorus & calcium.)	Sanitation. Benlate protective sprays.
	Botrytis Blossom Blight and Stem Canker	Blossoms become brown; stems develop sunken lesions.	Sanitation; Benlate protective sprays.
Boxwood	Phytophthora Root Rot	Dieback, yellowing of lower foliage, wet decay of roots.	Remove damaged plants; reduce water levels; see AL Pest Management Handbook.
	Volutella Blight	Sunken cankers on stems and branches. Surface areas of cankers may be covered with orange spore masses of the fungus.	Pruning of cankered stems. After pruning operations are complete, a protective spray treatment of Cleary's 3336 may be helpful. Avoid stressful situations.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Broccoli	Downy Mildew ( <i>Pseudoperonospora</i> )	Light yellow spots/ blotches on upper leaf surfaces; gray spots on corresponding lower leaf areas.	See the AL Pest Management Handbook.
Brussel Sprouts	Black Rot ( <i>Xanthomonas</i> )	Black V-shaped lesions on leaf edges; black leaf veins; black decay of inner stems; wilt.	Sanitation; See AL Pest Management Handbook.
	<i>Sclerotium rolfsii</i> Crown Rot	Brown decay at soil line. Brown, mustard seed- like structures of fungus may be present at soil line.	Sanitation. See A. Hagan.
Butter Beans	Anthrachnose ( <i>Colletotrichum</i> )	Dark brown irregular- circular sunken spots on foliage, pods. Spots become covered with rusty-colored spores.	See AL Pest Management Handbook.
	Cercospora Leaf Spot	Medium-light brown irregular spots.	See AL Pest Management Handbook under Anthracnose.
Camellia	Anthrachnose ( <i>Colletotrichum</i> )	Circular or irregular brown or cream-colored spots.	Sanitation of fallen leaves; Cleary's 3336.
	Exobasidium Gall	See azalea.	Sanitation.
Camellia, Sasanqua	Anthrachnose ( <i>Glomerella</i> spp.)	Sunken branch lesions, often round or oval; dieback.	Pruning of cankered areas.
Cantaloupe	Bacterial Wilt ( <i>Erwinia</i> )	Individual leaves wilt, then lateral shoots also wilt. Eventually whole plant wilts and dies.	Sanitation; use insecticide to control cucumber beetles.
	Cercospora Leaf Spot	Circular-irregular brown leaf spots.	Chlorothalonil protective sprays.
	Gummy Stem ( <i>Mycosphaerella</i> )	Brown, elongated, cracked lesions with a gummy exudate.	See the AL Pest Management Handbook.
Catalpa	Alternaria Leaf Spot	Mostly circular brown spots.	Collect and remove all leaf litter this fall.
Cedar, Eastern Red	Kabatina Tip Blight	Branch tips become brown; necrosis spreads down the branch.	Sanitation of diseased plant parts; Cleary's 3336 may provide some

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
			protection.
Centipede	Anthracnose ( <i>Colletotrichum</i> )	Yellow-brown, irregular-elongate spots; blight.	Keep the area dry; water early in the day; collect grass clippings; see the AL Pest Management Handbook.
	Brown Patch ( <i>Rhizoctonia</i> )	Browning patches or rings of grass. Brown, irregular leaf spots may also occur.	Fungicide sprays; collect clippings; avoid excess nitrogen application.
	Ring Nematode ( <i>Criconeoides</i> )	Dieback; poor growth.	See the AL Pest Management Handbook.
	Take-All Patch ( <i>Gaeumannomyces</i> ) (Possibly a secondary occurrence or weak pathogen.)	Individual plants yellow and thin out. Stolons and roots develop black lesions.	See PP-312. Bayleton is labeled.
Cherry	Armillaria Root Rot	Dieback, lower trunk and root decay. Check for thin layer of white mycelium under the bark, honey-colored mushrooms, and black rhizomorphs.	Tree removal.
	Peach Leaf Curl & Plum Pockets ( <i>Taphrina</i> spp.)	Firm irregular galls or concave-convex gall-swellings on leaves.	Fungicide applications in late winter before bud swell, and at bud break.
	Phomopsis Canker	Gray-brown, sunken elliptical lesions on twigs, small branches.	Sanitation.
	Septoria Leaf Spot	Brown, irregularly shaped spots (1/4-1/2 inch diameter) on leaves.	Sanitation.
Cherry Laurel	Algal Leaf Spot ( <i>Cephaleuros</i> )	Slightly raised, reddish-green circular spots with irregular edges.	Sanitation. Reduce humidity.
Cherry, Yoshino	Cherry Leaf Spot ( <i>Blumerilla</i> )	Brown circular-irregular leaf spots.	Sanitation of fallen leaves.
Christmas Cactus	Rhizoctonia Stem Rot	Dry, brown decay of stem.	Sanitation. Protective sprays of Cleary's 3336 or Halt.
Clematis, Evergreen	Pythium Root Rot	Light brown, decayed roots, dieback; wilt.	Remove damaged plants; Keep the area

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
			well drained. Allow areas to dry out.
Cleyera	Phytophthora Root Rot	Dieback, wilt; roots become water soaked and rotted.	Sanitation. Reduce irrigation and/or improve soil drainage.
Coleus	Phytophthora Root Rot	Roots are brown and water soaked. Tops collapse.	Sanitation. Avoid poorly drained sites.
	Pythium Root Rot	Plants show poor growth, dieback; roots are discolored to a light brown; root cortex separate easily from the central cylinder.	Sanitation; Improve soil drainage.
Collard	Bacterial Leaf Spot	Dark brown-black angular, vein-bound leaf spots.	Sanitation; do not irrigate overhead. See AL Pest Management Handbook.
Corn	Bacterial Stalk Rot	Brown lesions cause collapse of stem.	Sanitation.
	Fusarium Crown Rot	Crown develops dry, reddish-brown rot; tops wilt and dieback.	Sanitation; crop rotation.
	Ring Nematode ( <i>Criconemoides</i> )	Plants become stunted; may appear nutrient deficient.	Crop rotation; consult with Ed Sikora.
	Smut ( <i>Ustilago maydis</i> )	Black powdery galls form on ears, tassels, stalks.	Sanitation; crop rotation, resistant hybrids and varieties.
Cotton	Alternaria Leaf Spot	Medium brown, circular or oval leaf spots, blight.	See Ed Sikora.
	Fusarium Seedling Disease	Red-brown lesions on lower stem near soil line.	Seed Treatment.
	Pythium Root Rot	Roots become brown and water soaked. Foliage becomes yellowed, wilted and browned.	Seed Treatment.
	Rhizoctonia Seedling Disease	Medium-dark brown lesions on lower stem near soil line.	Seed Treatment.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Thielaviopsis Root Rot	Black spots/lesions along roots.	----
Cowpea	Cercospora Leaf Spot	Brown, circular to irregular leaf spots.	Sanitation.
Crabapple	Botryosphaeria Canker and Frogeye Leaf Spot	Brown circular-irregular leaf spots with dark margins; sunken brown lesions on twigs, branches.	Sanitation; Cleary's 3336, Domain, or a benomyl labeled for ornamentals may help.
	Cedar Apple Rust ( <i>Gymnosporangium</i> )	Bright yellow circular spots (1/4-1/2 inch diameter) on leaves; orange spore masses (circular projections) develop on leaves (lower leaf surfaces) and fruit.	Remove junipers or apply protective fungicide sprays to crabapples. See AL Pest Management Handbook.
	Fire Blight ( <i>Erwinia amylovora</i> )	Blossom blight; rapid dieback; cankers form at end of the dieback.	Prune off dieback areas. Make cuts 10-12 inches beyond margin of dieback. Remove cuttings. See ANR-542 and the AL Pest Management Handbook.
	Scab ( <i>Venturia inaequalis</i> )	Olive, slightly raised small spots develop on leaves and fruit.	Sanitation. See the AL Pest Management Handbook for fungicides.
Crape Myrtle	Powdery Mildew	Initially, a white dusting of the fungus appears on upper leaf surfaces. Eventually, infected leaves turn brown. Leaves may be curled and distorted.	Prune branches to help reduce humidity. See the AL Pest Management Handbook.
Cryptomeria	Cercosporidium Blight	Lower limbs develop a browning of needles. Disease usually starts on inner needles where humidity is higher. Disease will spread upward.	In a commercial situation, trees may be sprayed with Kocide for protection.
	Phytophthora Root Rot	Lower limbs dieback first; roots are water-soaked, brown, rotted.	Remove damaged trees. Reduce water in the area. Check with A.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
			Hagan for fungicide use in commercial situation.
Cucumber	Anthrachnose ( <i>Colletotrichum</i> )	Circular, light-medium brown spots.	Sanitation; See the AL Pest Management Handbook.
	Bacterial Wilt ( <i>Erwinia</i> )	Individual leaves become wilted, yellowed and finally brown. Eventually, whole stem sections wilt and die.	Control cucumber beetles.
	Cercospora Leaf Spot	Cream-colored, angular spots.	See the AL Pest Management Handbook.
	Pythium Root Rot	Roots become brown and water-soaked; outer cortex slides easily away from root central cylinder.	Sanitation.
	Rhizoctonia Seedling Soreshin	Dieback, wilt, lower leaf yellowing; lower stem dark brown, dry lesions.	Sanitation.
Daisy, Gerbera	Powdery Mildew	White powdery dusting on leaf and blossom surfaces; blight.	See the AL Pest Management Handbook.
Daylily	Kabatiella Streak	Yellow spots and elongated streaks on leaves.	Sanitation of spotted leaves; Cleary's 3336 or Halt may be used.
	Rust ( <i>Puccinia hemerocallidis</i> )	Elongated yellow-brown spots, blight on leaves. Orange pustules evident at early stages of disease.	Sanitation. See TI PP-506. For homeowners, Immunox or Ferti-loam System Fungicide may be used.
Dogwood	Anthrachnose ( <i>Discula</i> )	Large brown circular-irregular spots (1/4-1/2 inch diameter) with dark brown-purple borders develop first on foliage of lower branches. Leaf spots merge. Dieback will result. Cankers develop.	Sanitation. Protective fungicide sprays.
	Botrytis Blight	Foliage shows grey-brown blotches, spots.	See AL Pest Management Handbook under spot anthracnose.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Phyllosticta Leaf Spot	Small (¼ inch or less) circular brown spots with dark brown margins.	Sanitation of fallen leaves in the fall. See the AL Pest Management Handbook under Septoria.
	Phytophthora Crown & Root Rot	Crown and root rot tissues brown discolored and water soaked.	Sanitation. See the AL Pest Management Handbook for fungicide recommendations.
	Powdery Mildew	White powdery dusting on leaf and blossom surfaces; blight.	See the AL Pest Management Handbook.
	Spot Anthracnose ( <i>Elsinoe</i> )	Small (1/16 inch or less diameter) circular reddish spots develop on bracts; spots on leaves are similar in size but brownish red in color and some leaf spots may be irregular in shape.	Sanitation in the fall. Protective fungicide sprays recommended only for specimen trees.
Elm	Powdery Mildew ( <i>Phyllactinia</i> )	White powdery patches develop on leaves; some leaf deformity.	Sanitation of fallen leaves. See the AL Pest Management Handbook.
Euonymus	Powdery Mildew	See description above for powdery mildew on elm.	See comments for powdery on elm.
Fescue	Net Blotch ( <i>Drechslera</i> )	Brown, irregularly pigmented rectangular shaped blotches (⅛ inch or less diameter) on leaf blades. Spots may merge to cover large areas.	See AL Pest Management Handbook under Helminthosporium melting out.
Forsythia	Crown Gall ( <i>Agrobacterium tumefaciens</i> )	Irregular, rough, somewhat spherical galls on branches and lower trunk.	Sanitation; crop rotation.
	Phomopsis Dieback	Branch dieback; sunken cankers form at end of dieback.	Pruning 3-4 inches beyond dieback margin; Remove cuttings.
Gardenia	Anthracnose	Brown leaf spots and blotches appear.	Remove all fallen leaves from the area. See the

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
			AL Pest Management Handbook.
Geranium	Bacterial Blight ( <i>Xanthomonas</i> )	Black leaf spots and stem rot lesions. Yellow-brown wedges may develop in spotted areas of leaves. Lower leaves may wilt and die due to systemic infections.	Sanitation. Bordeaux Mixture.
Gerbera Daisy	Powdery Mildew	White, powdery dusting on upper leaf surfaces.	Sanitation. See the AL Pest Management Handbook.
Ginger	Rhizoctonia Crown Rot	Lower stem at soil level & upper root ball develops dry, brown decay.	Remove damaged plants; rotate away from ginger.
Ginseng	Fusarium Root Rot	Plants wilt and dieback or show poor growth.	Crop rotation.
Grape	Black Rot ( <i>Guignardia</i> )	Medium-black brown circular spots (1/8-1/4 inch) on leaves and fruit.	Protective fungicide sprays; sanitation.
Greenhouse Crops	Tomato Spotted Wilt Virus	Symptoms are variable but include gray-black leaf spots/blotches, yellow ringspot patterns, stunted growth malformed stunted and/or spotted new growth, and wilt.	Sanitation; control thrips.
Hawthorn	Anthracnose	Circular-irregular shaped, brown/leaf spots.	Remove all fallen leaves; protective sprays of Cleary's 3336, Halt, or OHP 6672 may be used if desired.
	Botryosphaeria Twig Canker	Dry, sunken, cracked lesions on twigs; dieback.	Prune out cankers making cuts at least 2 inches from lesion edge.
Hawthorne, Indian	Entomosporium Leaf Spot	Black, red bordered, circular spots.	See AL Pest Management Handbook.
Hibiscus	Bacterial Leaf Spot	Dark brown, angular, wet spots; yellow halo may be present.	Sanitation of fallen leaves, spotted leaves; See the AL Pest

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
			Management Handbook.
Holly	Phytophthora Root Rot	Dieback; roots become water soaked and rotted.	Sanitation. Reduce irrigation and/or improve soil drainage. See the AL Pest Management Handbook.
Holly, Inkberry	Phytophthora Root Rot	Dieback; lower leaves yellowing; wilt; wet, brown rot of roots.	Remove dying plants; reduce water levels; See the AL Pest Management Handbook.
Holly, Japanese 'Compacta'	Botryosphaeria Canker	Small-large sunken lesions with cracking at lesion edges; dieback.	Pruning.
Holly, Yaupon	Armillaria Root Rot	Dieback of lower branches first; brown mushrooms may develop at plant base. See ANR-907.	Remove plant. See ANR-907.
Honeysuckle	Anthrachnose ( <i>Colletotrichum</i> )	Circular-irregularly shaped brown leaf spots.	Sanitation.
Horse Chestnut	Leaf Blotch ( <i>Guignardia</i> )	Angular, brown leaf spots.	Collect and remove all fallen leaves this fall.
Hosta	Anthrachnose ( <i>Colletotrichum</i> ) Leaf Spot	Brown, irregularly-shaped leaf spots.	Sanitation; Cleary's 3336 or Domain protective sprays.
Hydrangea	Alternaria Leaf Spot	Circular to oval to irregular brown leaf spots.	Sanitation of fallen leaves; Daconil.
	Botrytis Blossom Blight	Irregular brown spots and blotches on flowers.	Sanitation; Cleary's 3336, Domain or benomyl product.
	Colletotrichum Blossom Blight	Irregular brown spots blotches on flowers, sometimes orange patches of spores are present.	Sanitation; Cleary's 3336 or Domain, or benomyl.
	Phyllosticta Leaf Spot	Brown circular spots, sometimes with dark border.	Sanitation; Cleary's 3336 or Domain or benomyl product.
Hydrangea, Oakleaf	Armillaria Root Rot	Dieback; thin, white mycelial layer just under	Removal of tree and roots; maintain healthy

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
		bark, appressed to wood. Black, thread-like structures may be present above or below surface of root or crown; brown mushrooms may be present.	trees.
	Bacterial Leaf Spot	Black, angular spots that sometimes show water-soaked edges or a yellow halo.	Remove all spotted foliage. Do not water over-head.
Impatiens	Botrytis Foliage Blight	Blight.	Sanitation; See the AL Pest Management Handbook.
	Impatiens Necrotic Spot Virus	Irregularly shaped black spots/blotches ( $\frac{1}{8}$ - $\frac{1}{4}$ inch diameter-usually) which may be confused with bacterial infection. Black ring spots may be present.	Control thrips. Sanitation.
	Rhizoctonia Stem Rot	Lower stems develop brown sunken lesions; plants dieback.	Sanitation; Cleary's protective sprays; crop rotation.
Iris	Fusarium Root Rot	Dieback, wilt, yellowing; dry, brown decay of roots.	Removal of dying plants; rotation away from iris and related plants.
	Heterosporium Leaf Spot	Small-large ( $\frac{1}{4}$ - $\frac{1}{2}$ inch long), elliptical or oval shaped medium brown leaf spots.	Sanitation. See AL Pest Management Handbook.
	Rust ( <i>Puccinia</i> )	Small, red-orange, powdery, raised spots.	Sanitation.
Ivy, English	Anthrachnose ( <i>Colletotrichum</i> )	Irregularly-shaped brown leaf spots.	Sanitation; See the AL Pest Management Handbook.
	Bacterial Leaf Spot	Dark, brown, wet, angular leaf spots.	Sanitation. See the AL Pest Management Handbook.
Jacobinia	Impatiens Necrotic Spot Virus	Stunting, wilt, leaf spots.	Sanitation; thrips control.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Juniper	Cedar Apple Rust ( <i>Gymnosporangium</i> )	Hard, spherical twig or branch galls; some galls produce gelatinous, orange, finger-like projections of spore masses.	Remove galls before spore production. Remove cedar or apple trees; protective fungicide sprays. See ANR-468.
	Kabatinia Tip Blight	Juniper twigs dieback; appears similar to Phomopsis tip blight.	Sanitation; refer to fungicides listed for control of Phomopsis tip blight.
	Pestalotiopsis Blight	Blight of inner foliage of stressed plants.	Sanitation. See the AL Pest Management Handbook under Phomopsis Twig Blight for protective fungicides.
	Phomopsis Blight	Tips of twigs on lower branches become brown. The blight spreads down the twig and upward in the plant.	Sanitation. See the AL Pest Management Handbook.
	Phytophthora Root Rot	Roots brown, water soaked.	See AL Pest Management Handbook.
Kiwi	Anthracoese ( <i>Colletotrichum</i> )	Circular-irregular, light to medium brown spots.	Sanitation.
Kudzu	Bacterial Leaf Spot ( <i>Pseudomonas</i> )	Small black circular spots with a yellow halo.	---
Leyland Cypress	Botryosphaeria Canker	Elongate sunken trunk and branch brown lesions.	Sanitation.
	Cercosporidium Blight	Lower, inner limbs develop blight which gradually spreads up and outward on foliage.	Pruning of damaged limbs; See the AL Pest Management Handbook.
	Pestalotiopsis Canker	Elongate sunken trunk and branch brown lesions.	Sanitation.
	Seiridium Canker	Elongate sunken trunk and branch brown lesions.	Sanitation.
Ligustrum	Cercospora Leaf Spot	Medium brown, irregularly shaped spots	Sanitation. See the AL Pest Management

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Liriope	Fusarium Crown Rot	(1/4-1/2 inch long). Dry rot of lower stem at the soil line. May follow after stress.	Handbook. Avoid stress; Cleary's 3336 may provide some protection.
Loropetalum	Botrytis Leaf Spot	Brown-gray irregular leaf spots.	Sanitation of fallen leaves; Cleary's 3336 protective sprays.
Lupin	Rhizoctonia Crown Rot	Brown dried lesions on stems near the soil line.	---
Magnolia, Southern	Algal Leaf Spot ( <i>Cephaleuros</i> )	Usually circular, greenish, slightly raised spots. Spot edges slightly more raised than spot center. Edges are irregular.	Sanitation. See the AL Pest Management Handbook.
	Bacterial Leaf Spot ( <i>Pseudomonas cichorii</i> )	Small, angular, water soaked spots.	Sanitation. Kocide 101 or Bordeaux mixture.
	Black Mildew ( <i>Meliola</i> )	Black surface mold on lower leaf surface.	-----
Mahonia, Chinese	Powdery Mildew	White dusting on foliage; affected area later turns brown.	Prune to reduce humidity; Cleary's 3336 would provide protective disease control.
Mahonia, Leatherleaf	Leaf Spot ( <i>Phyllosticta</i> )	Brown, angular leaf spots.	Sanitation of fallen leaves; Cleary's 3336 protective sprays.
Maple	Anthrachnose ( <i>Kabatiella</i> )	Brown-black spots/blotches which often follow along leaf veins; sometimes blotchy areas occur along leaf edges.	Sanitation. See AL Pest Management Handbook for small trees.
	Purple Eye Spot ( <i>Phyllosticta</i> )	Purple circular spots (about 1/4 inch diameter) with dark purple, black border.	Sanitation. See the AL Pest Management Handbook.
	Tar Spot ( <i>Rhytisma</i> )	Black irregularly-shaped spots.	Sanitation of fallen leaves this fall. See the AL Pest Management Handbook.
Maple, Japanese	Botryosphaeria Canker	Sunken, elliptical cracked, dry lesions on trunk or branches.	Pruning. Make cuts 3-4 inches from lesion edges.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Phyllosticta Leaf Spot	Cream-light brown circular spots with dark brown or purple margins.	Sanitation of fallen leaves this fall. See the AL Pest Management Handbook.
	Phytophthora Crown & Root Rot	Initially roots become brown and water-soaked. Later, dead roots dry out. Dieback.	Remove tree. Improve drainage. Plant resistant plant selection, if possible.
Marigold	Anthracnose ( <i>Colletotrichum</i> )	Circular, cream-colored spots (1-3 mm diameter) on leaves.	Sanitation. Cleary's 3336 would control anthracnose and it is labeled on marigold.
	Botrytis Flower/Foliage Blight	A brown-gray foliage blight.	Sanitation; See the AL Pest Management Handbook.
	Fusarium Wilt	Lower leaves wilt and turn yellow. Yellowing and wilt slowly progress up the plant. Vascular tissues turn brown.	Sanitation. Rotate away from marigolds for 10-16 years.
	Pythium Root Rot	Roots become light brown, water-soaked, and tissues pull apart easily.	Sanitation. Reduce soil water content. See the AL Pest Management Handbook.
Mayapple	Rust ( <i>Puccinia</i> )	Yellow angular spots may develop; eventually, orange powdery dots of spore pustules appear; leaf blight follows.	Sanitation. Mayapple is only host for this rust.
Mayhaw	Cedar Quince Rust ( <i>Gymnosporangium claviceps</i> )	Bright yellow spots may occur on fruit and leaves; tiny black spots may be seen in spots upper leaf surface; orange powdery specks may be seen on lower leaf spots.	If practical, remove junipers in the immediate area.
Million-Bells	Pythium Root Rot	Dieback, wilt, roots are light brown and decayed.	Sanitation. Reduce water in the area.
Mondograss	Anthracnose ( <i>Colletotrichum</i> )	Gray-brown spots, blotches, often at leaf	Sanitation. Cleary's or Domain.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
		tips, margins.	
Mulberry	Cylindrosporium Leaf Spot	Brown circular-irregular leaf spots.	Sanitation.
Muscadine	Black Rot ( <i>Guignardia</i> )	See Grape.	See AL Pest Management Handbook.
Nandina	Cercospora Leaf Spot	Circular to irregular, brown spots.	Sanitation of fallen leaves; See the AL Pest Management Handbook.
Nectarine	Brown Rot	See Peach.	
Oak	Anthrachnose ( <i>Apiognomonina</i> )	Medium-brown blotches along leaf veins, in interveinal areas and along leaf margins.	Sanitation. See AL Pest Management Handbook for small trees.
	Oak Leaf Blister ( <i>Taphrina</i> )	Concave-convex spot areas that are slightly swollen and slightly discolored.	Sanitation. See AL Pest Management Handbook.
Oak, Red	Fusiform Rust ( <i>Cronartium querauum</i> f. sp. Fusiforme)	Very small yellow to dark brown leaf spot; thin, short, dark brown hair-like structures on lower leaf spots.	Damage to oak is not significant. Remove pines (loblolly & slash) in the area.
Oak, Shumard	Fusiform Rust ( <i>Cronartium querauum</i> f. sp. Fusiforme)	Very small yellow to dark brown leaf spots; thin, short, dark brown hair-like structures on lower leaf spots.	Damage to oak is not significant. Remove pines (loblolly & slash) in the area.
Oats	Loose Smut ( <i>Ustilago avenae</i> )	Plants shorter than normal; the grain is replaced by dark-brown to black powdery masses of smut spores. Usually all the grain on an infected plant is smutted.	Treated seed with fungicide.
	Rust (Crown or Leaf) [ <i>Puccinia coronata</i> ]	Bright orange-yellow round or oblong powdery pustules on leaves, sheaths, stems, panicles. Plants are weakened when infection is severe.	Deep plow.
Okra	Rhizoctonia Crown &	A brown, dry decay of	Sanitation. Crop

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Root Rot	crown & roots.	rotation.
Oxalis	Kuehneola Rust	Orange powdery pustules on leaves.	Sanitation. Crop rotation.
Peach	Bacterial Leaf Spot ( <i>Xanthomonas</i> )	Small (2-6 mm diameter) circular, brown-black spots with wet-looking margins and dry-sometimes shot-hole centers. Older spots often have reddish margins. Spots may be surrounded with a yellow zone or halo.	Sanitation; protective bactericide sprays for commercial growers.
	Brown Rot ( <i>Monilinia</i> )	Twig blight; canker; fruit rot develops as fruits mature.	Protective fungicide sprays. Sanitation.
	Peach Tree Short Life	Dieback of limbs. Poor growth.	Tree removal. Fumigation.
	Root-Knot Nematode ( <i>Meloidogyne</i> )	Trees, unthrifty, poor growth; roots have galls.	See AL Pest Management Handbook.
	Twig Blight ( <i>Phomopsis</i> )	Twig dieback with brown-black cankers (Some cankers have a zonate pattern.)	Sanitation.
Pear	Entomosporium Leaf Spot ( <i>Fabraea</i> )	Roughly circular brownish-black spots (1/8 inch wide).	Sanitation. Spray schedule as described in the AL Pest Management Handbook.
	Fire blight ( <i>Erwinia amylovora</i> )	Black discoloration dieback; often infection begins in the blossoms and moves down into the branch. Blighted branch tips often curve downward. Sunken cankers develop on branches.	Sanitation. See ANR-542 or AL Pest Management Handbook.
	Frogeye Leaf Spot ( <i>Botryosphaeria</i> )	Brown, circular spots with dark borders.	Sanitation. See the AL Pest Management Handbook.
	Rust ( <i>Gymnosporangium</i> spp.)	Bright yellow spots may occur on pear leaves. Tiny black specks may be seen in upper leaf surface spots; orange/white powdery	If practical, remove nearby junipers.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
		'cups' may be seen in spots on lower leaf surface.	
Pear, Callery	Fireblight ( <i>Erwinia amylovora</i> )	Flower blight, leaf blight dieback, cankers.	Pruning 10-16" beyond canker edges.
Peanut	Rhizoctonia Seedling Disease & Root Rot	Dry, brown lesions on roots and stems.	Soil or seed treatment before planting.
Pea, Southern	Anthrachnose ( <i>Colletotrichum</i> )	Gray, brown circular-oval spots on leaves and stems.	See the Alabama Pest Management Handbook.
	Fusarium Crown Rot	Lower stems & crowns become reddish-brown and dry rotted.	Sanitation; crop rotation.
	Rhizoctonia Seedling Disease; Lower Stem Rot	Medium-dark brown blotches or elongated lesions on lower stem near the soil line.	Fungicide treatment prior to planting.
Pecan	Scab ( <i>Cladosporium</i> )	Dark olive-green to brown to dark brown slightly raised spots on leaves and nut shucks. Defoliation where disease is severe.	See the AL Pest management Handbook. Sanitation.
Peony	Anthrachnose ( <i>Colletotrichum</i> )	Circular, light brown spots (2-3mm diameter) on leaves.	Sanitation. See the AL Pest Management Handbook.
Pepper	Bacterial Leaf Spot ( <i>Xanthomonas</i> )	Dark, angular green-black, water-soaked spots (1/8-1/4 inch diameter); older spots become dry and white; leaf drop.	Sanitation; protective sprays.
	Bacterial Wilt ( <i>Ralstonia solanacearum</i> )	Lower leaves wilt, whole plant wilts.	Sanitation; rotate away from tomato, pepper, eggplant, & Irish potato.
	Cucumber Mosaic Virus	Leaves are malformed and distorted, sometimes shoestring-shaped. Leaves sometimes show yellow patterns.	Sanitation. Control aphids.
	Fusarium Crown Rot	Dry decay of stem at soil line.	Remove and destroy damaged plants. See Ed Sikora for questions.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Fusarium Wilt	Yellowing and wilt of lower foliage which slowly progresses upward.	Crop rotation away from pepper and other solanaceous crops.
	<i>Phytophthora capsici</i> Crown/Root Rot	Brown lesions on lower stems, crowns mostly; some root rot.	Sanitation; Ridomil.
	Pythium Root Rot	Brown, water-soaked lesions.	Sanitation; Improved soil drainage; See AL Pest Management Handbook.
Persimmon	Phomopsis Dieback	Branch dieback. Cankers form at end of dieback.	Prune out dieback. Make cuts 3-4 inches beyond dieback area.
Persimmon, Japanese	Anthrachnose ( <i>Colletotrichum</i> )	Circular or irregularly shaped brown leaf spots.	Clean up all fallen leaves in fall; Cleary's 3336 or Halt may be applied as a protective treatment.
	Botryosphaeria Twig Canker	Small twigs develop sunken, cracked spots.	Prune out dieback. Make cuts 3-4 inches beyond end of dieback area.
Petunia	Phytophthora Aerial Blight	Brown lesions on leaves and stems; dieback.	See the AL Pest Management Handbook.
	Phytophthora Root Rot	Roots brown, wet, easily pulled apart.	Sanitation. Avoid wet soils.
	Pythium Root Rot	Wilt, lower leaves turn yellow, plant collapse; a wet, light brown root rot.	Remove dying plants; See the AL Pest Management Handbook.
Phlox	Alternaria Leaf Spot	Dark brown irregularly-shaped spots.	Sanitation; Cleary's 3336 or Domain or an ornamental benomyl product.
Photinia	Entomosporium Leaf Spot	Red-black circular-irregularly shaped spots which often coalesce; leaf drop.	Sanitation. Protective fungicide sprays.
Pine	Needlecast Diseases	Older needles turn brown, drop.	See AL Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Needle Rust ( <i>Coleosporium</i> )	Cream-orange-colored pustules up to 1/8" or 2-3 mm in size occur on needles only of pine.	Remove asters from the area.
	Pitch Canker ( <i>Fusarium</i> )	Sunken, cracked lesions on branches, trunks where resin is common.	Sanitation. See the AL Pest Management Handbook for comments.
Pine, Japanese Black Pine	Needlecast ( <i>Ploioderma</i> spp.)	Older needles turn brown, drop.	See AL Pesticide Handbook.
Pine, Loblolly	Coleosporium Needle Blight	Needles develop white blisters.	Remove alternate host - asters from the area.
	Rhizosphaeria Needle Blight	Needle blight and drop occurs. Needles develop tiny brown spots in a row.	See the AL Pest Management Handbook.
Plum	Bacterial Leaf Spot ( <i>Xanthomonas</i> )	See Peach Bacterial Leaf Spot.	See Peach.
	Black Knot ( <i>Plowrightia</i> )	Rough elongated branch galls which begin as greenish swellings but soon develop into hard black elongated branch swellings or galls.	Sanitation; protective sprays of Captan in early spring.
	Botryosphaeria Canker	Dry, sunken, brown lesions that are often cracked around the edges; dieback.	Sanitation.
Potato, Irish	Bacterial Wilt ( <i>Ralstonia solanacearum</i> )	Green plants wilt suddenly. Vascular system is brown in the lower stem area. Outer vascular ring of tubers may be discolored.	Rotation away from potato, peppers, tomato, and eggplant for several (4-5 years) years or fumigation.
	Bacterial Soft Rot ( <i>Pectobacterium carotovora</i> pv. <i>carotovora</i> )	Irregular, surface, black, wet rot areas on tuber.	Sanitation; avoid wounds/injuries.
	Blackleg ( <i>Erwinia</i> )	Large areas of stems become black and water soaked. Plants wilt and die. Tubers are also rotted.	Use disease-free seed pieces; treat seed pieces; clean equipment with solutions of bleach or formaldehyde or allow for good suberization

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
			before planting in well-drained areas; crop rotation 2-3 years; control seed corn maggots with insecticides. See the AL Pest Management Handbook.
	Early Blight ( <i>Alternaria</i> )	Black, zonate, roughly circular or oval spots (4-10 mm or ¼-½ inch diameter). Spots may also develop on stems & tubers.	Follow spray schedule recommended.
	Fusarium Surface Rot	Dry, dark brown, irregular rot areas on tuber surface.	Sanitation; avoid wounds/injuries.
	Late Blight ( <i>Phytophthora infestans</i> )	Brown blotches on leaves and stems; eventually whole leaves and stem sections become severely decayed.	See the AL Pest Management Handbook. See Ed Sikora for commercial plantings.
	Rhizoctonia Stem Rot	Lower stem shows sunken, brown rotted areas.	Sanitation; See AL Pest Management Handbook.
	Scab ( <i>Streptomyces scabies</i> )	Slightly raised, scabby circular or circular-irregular lesions on surface of tubers.	It may help to keep soil slightly acid; crop rotation; see Ed Sikora.
	Silver Scurf ( <i>Helminthosporium</i> )	Light gray, hard, irregular bodies on tuber surface.	Sanitation.
Rhododendron	Cercospora Leaf Spot	Circular-irregular brown leaf spots.	Sanitation. See the AL Pest Management Handbook.
	Exobasidium Gall	Fleshy, swellings of leaves, flowers. Swellings initially are green but become white or pink when spore production occurs.	Sanitation; Bayleton in some circumstances. See AL Pest Management Handbook.
	Phytophthora Root Rot	Dieback; roots become water-soaked, rotted, brown.	Remove damaged plants; in a commercial situation, a protective

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
			drench treatment may be applied. Reduce water levels in the area.
Rose	Black Spot ( <i>Diplocarpon</i> )	Black spots (1/8-1/4 inch diameter, 4-8 mm) with feathery margins.	Follow a regular spray schedule; sanitation.
	Botrytis Blossom Blight	Blossoms develop small-large brown blotches. A gray delicate webbing of the fungal mycelium and spores may develop over blotches.	Sanitation. Protective fungicide sprays.
	Brand Canker ( <i>Coniothyrium</i> )	Gray, cracked, irregular canker on canes.	Sanitation; fungicides that are recommended for black spot will help.
	Mosaic	Distinct pattern of dark green & light green or yellow on leaves.	Control weeds; control insects; remove diseased plants.
	Powdery Mildew ( <i>Sphaerotheca</i> )	White powdery patches on foliage; some leaf deformity may occur on new growth.	See the AL Pest Management Handbook.
	Tobacco Ringspot Virus	Plant stunted, mottled.	Sanitation; Control nematodes.
Rosemary	Bacterial Leaf Spot & Blight	Black, wet, angular spots.	Sanitation.
Ryegrass, Perennial	Foliar Anthracnose ( <i>Colletotrichum</i> )	Light brown/medium brown spots/blotches.	----
	Rust ( <i>Puccinia</i> )	Small yellow to red to brown spots/blotches.	Frequent mowing or harvest.
Sedum	Colletotrichum Leaf Spot	Circular-oval, brown leaf spots.	Sanitation; Cleary's 3336 or Halt.
Snapdragon	Pythium Root Rot	Roots become light brown and wet rotted. Eventually, roots become dry. Dieback occurs.	Sanitation. Reduce water levels in the area. See the AL Pest Management Handbook.
Spirea	Cylindrosporium Leaf Spot	Brown, irregular-circular spots.	Sanitation.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Powdery Mildew	White, powdery dusting on surface of leaves; some leaf distortion; leaf blight.	Sanitation; Cleary's 3336.
Spirea, Bridle Wreath	Armillaria Root Rot	Dieback; thin, white mycelial layer just under bark, appressed to wood. Black, thread-like structures may be present above or below surface of root or crown. Brown mushrooms may be present.	Removal of shrub and roots; maintain healthy shrubs.
Squash	Choanephora Wet Rot	Large sections of fruit become wet rotted sometimes with black spore structures covering the fruit surface.	Decrease humidity.
	Mosaic Virus	Distinct pattern of dark green and light green or yellow on leaves.	Control weeds; control insects; remove diseased plants; do not save seed.
	Pythium Seeding Disease	Roots become brown and water soaked.	----
Squash, Yellow	Watermelon Mosaic Virus	Patterned patches of light and darker green or yellow pigmentation on leaves.	Sanitation; control aphids.
St. Augustine	Brown Patch ( <i>Rhizoctonia</i> )	Leaf blades develop brown blotches; whole leaves become browned.	See the AL Pest Management Handbook.
	Gray Leaf Spot	Gray-brown spots on foliage. Disease may be severe.	See ANR-492 or Pest Management Handbook.
	Take-All ( <i>Gaeumannomyces</i> )	Individual plants yellow and areas thin out. Black lesions occurs on roots, stolons.	See PP-312 or AL Pest Management Handbook.
Strawberry	Angular Leaf Spot ( <i>Xanthomonas</i> )	Angular, black spots in interveinal areas. Spotting may be severe.	See the AL Pest Management Handbook.
	Anthrachnose-Crown Rot ( <i>Colletotrichum</i> )	Lower stems and crowns become brown, and	Use healthy transplants. Sanitation. See Ed

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
		rotted.	Sikora.
	Mycosphaerella Leaf Spot	Small (1/8 inch) red-brown circular spots.	See the AL Pest Management Handbook.
	Phytophthora Crown & Root Rot	Wilt, yellowing of lower leaves; dieback; wet, brown rot or crown and roots.	Sanitation; See the AL Pest Management Handbook.
Sweet Potato	Black Rot ( <i>Ceratocystis fimbriata</i> )	Black lesions on root surface which extend to but not beyond the vascular ring. Secondary bacteria will sometimes invade tissues and cause rotting beyond the vascular system.	Sanitation. See the AL Pest Management Handbook.
Sycamore	Anthracnose ( <i>Apiognomonia</i> )	Gray-brown blotches on leaves; sometimes blotches follow leaf veins or leaf margins.	Sanitation. Protective fungicide sprays for small trees.
	Scorch ( <i>Xylella</i> )	Leaves become brown and dried at the margins; dieback during summer months.	Tree pruning or removal.
Tomato	Bacterial Canker ( <i>Clavibacter</i> )	Dark brown, black, slightly sunken, large lesions (1-4 cm or larger) develop on stems.	See the AL Pest Management Handbook.
	Bacterial Spot ( <i>Xanthomonas</i> )	Small, dark green or black, wet-looking, angular spots.	Sanitation. Protective sprays.
	Bacterial Wilt ( <i>Ralstonia solanacearum</i> )	Plants wilt suddenly while still green. Lower stem areas are black (decayed) beneath the green outer layers.	Rotate the area away from tomato, potato, eggplant and pepper for 4-5 years or fumigate the soil.
	Blossom End Rot	Black, hard, circular, slightly sunken spots at stem end of fruit.	See AL Pest Management Handbook.
	Buckeye Rot ( <i>Phytophthora</i> )	On fruit, spots are pale brown with concentric	Keep fruit off the soil. See AL Pest

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	<i>nicotiana</i> )	rings.	Management Handbook.
	Cucumber Mosaic Virus	Plants become stunted with misshaped leaves (often strap shaped) that may be puckered and show a mosaic pattern.	Sanitation; Aphid control.
	Early Blight ( <i>Alternaria</i> )	Black or brown spots (¼-½ inch diameter or 4-10 mm diameter) on leaves, stems, fruit. Spots often have a concentric pattern.	Fungicide sprays; sanitation.
	Fusarium Crown Rot	Lower stem becomes reddish-brown and dry rotted; plant wilts; yellowing of lower leaves; dieback.	Sanitation; rotate away from tomato; resistant varieties.
	Fusarium Wilt	Lower leaves turn yellow and wilt. Yellowing progresses up the plant.	Crop rotate away from tomatoes 10-16 years on resistant varieties.
	Late Blight ( <i>Phytophthora infestans</i> )	See Irish Potato.	See the AL Pest Management Handbook.
	Leaf Mold ( <i>Fulvia fulva</i> )	Gray fungal growth in blotches on leaves.	See AL Pest Management Handbook.
	Pythium Root Rot	Roots develop brown-colored, soft rot.	Sanitation. Do not irrigate excessively; provide well-drained soil area. See AL Pest Management Handbook
	Rhizoctonia Collar Rot	A dry, brown rot develops on lower stem at soil line.	Plant removal. See Ed Sikora.
	Root-Knot Nematode ( <i>Meloidogyne</i> )	Irregular root galls which involve the whole root circumference. Gall size varies from small (2-3 mm diameter) to large (1-1.5 cm diameter).	Soil fumigation (commercial) or rotation to dwarf French marigold or pasture grasses.
	Septoria Leaf Spot	Small (¼ inch diameter) roughly circular gray-brown spots.	Protective fungicide sprays. See AL Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Southern Blight ( <i>Sclerotium rolfsii</i> )	A wet, brown rot develops at the soil line; with humid conditions, a thick white mold may develop, often with hard, brown, spherical sclerotia (over-wintering bodies) present.	Sanitation; see Disease Note ANR-863.
	Timber Rot ( <i>Sclerotinia</i> )	Lower stem near soil (crown) becomes brown and decayed. Plant wilts and eventually collapses.	Remove damaged plants. Consult Ed Sikora.
	Tomato Pith Necrosis ( <i>Pseudomonas corrugate</i> )	Sections of stem may show a black discoloration; plant parts above the lesion wilt and die; inside the stem, hollow 'chambers' are delimited by 'strands' of pith tissue.	Sanitation.
	Tomato Spotted Wilt Virus	Wilt, ring spots, bronzed leaf surface areas, and wilt may develop. Fruit & new growth is stunted.	Remove plants. Control thrips.
Torenia	Powdery Mildew	A white, powdery dusting develops on leaves and stems; blight follows.	Sanitation; Cleary's 3336.
Tulip Poplar	Cristulariella Leaf Spot	Leaf spots are often large and zonate.	Collect fallen leaves in the fall.
Vegetables	Seedling Diseases ( <i>Fusarium</i> , <i>Rhizoctonia</i> , <i>Pythium</i> )	Seedlings fall over at the soil line; small stems are weak and limp; brown discoloration may be evident.	Soil treatments (in some situations) or seed treatments before planting. See Ed Sikora.
Vinca, Annual Periwinkle ( <i>Catharanthus</i> )	Alternaria Leaf Spot	Circular-angular dark brown-black spots.	Sanitation. Cleary's 3336 or Domain should give protection control.
	Botrytis Blight	Brown-gray leaf spots & blight	Sanitation. Make adjustments to decrease humidity levels. Cleary's 3336 or Domain should give protective control.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Phytophthora Stem Rot	Sections of stems become brown, wet, and collapsed, shriveled.	Sanitation. In some cases Aliette WDG may be used as a protective treatment. See AL Pest Management Handbook.
	Rhizoctonia Aerial Blight	Dark brown dried cankers on stems. Tops dieback.	Sanitation. Cleary's 3336 may be used in some situations. See the AL Pest Management Handbook.
Violet	Cercospora Leaf Spot	Irregularly shaped brown-black spots.	Sanitation. Cleary's 3336 or Halt may be applied as protective treatments.
Watermelon	Anthracnose ( <i>Colletotrichum</i> )	Foliage spots begin as small yellow or water soaked irregular areas which become larger and eventually black. Whole leaf areas may become covered with the coalesced spotting/blotches. On the fruit, small water soaked spots become dark green and then brown-black sunken spots (1/4-2 inches x 1/3 inch deep). With high humidity the spots may become covered with gelatinous masses of orange spores.	See the AL Pest Management Handbook.
	Fusarium Root Rot	Roots become dry, rotted; wilt, dieback.	Crop rotate for 10-16 years.
	Fusarium Wilt ( <i>F. oxysporum</i> )	Lower leaves turn yellow and wilt slowly develops.	Rotation; resistant varieties.
	Gummy Stem ( <i>Mycosphaerella</i> )	Brown, black spots occur interveinally in the lobes of leaves. Usually older leaves near the center of the bill are affected initially. As the season progresses, elongated, water soaked, light-brown to gray lesions	See the Alabama Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
		occur on vines, often near the crown of the plant. As lesions age, cracking occurs and a reddish-yellow gummy substance oozes around the crack. Plants gradually yellow and turn brown.	
	Pythium Root Rot	Roots become brown-colored and soft rotted.	Sanitation. Avoid wet conditions, especially with poorly draining soil. Contact Ed Sikora if you have questions.
	Rhizoctonia Seedling Blight	Brown lesions on lower stems; seedlings collapse.	Sanitation. Crop rotation.
	Suspect Ozone Damage	Older leaves with whitish, nitted interveinal areas of upper leaf surfaces. Old damage may become black.	---
Wheat	Bipolaris Leaf Spot	Brown irregular spots.	Fungicides in some situations; refer to Bill Gazaway.
	Black Chaff ( <i>Xanthomonas</i> )	Gray-brown-black discoloration of seed heads and leaves. Discoloration starts at tip of seed.	Use healthy seed.
	Fusarium Scab (Head Blight)	Head blight with a pinkish cast due to presence of spores.	Use healthy seed. Deep plowing, crop rotation of one year. Some cultivar differences in disease susceptibility have been noted.
	Leaf Rust ( <i>Puccinia</i> sp.)	Orange powdery spots.	Fungicides in some situations; refer to Bill Gazaway.
	Powdery Mildew ( <i>Erysiphe</i> sp.)	Buff-colored spots and patches.	Fungicides in some situations; refer to Bill Gazaway.
	Septoria Glume Blotch/Leaf Spot	Gray-brown patches of discoloration on glumes;	---

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
		gray-brown leaf spots ( $\frac{1}{4}$ - $\frac{1}{3}$ inch diameter).	
	Take-All ( <i>Gaeumannomyces</i> sp.)	Stem at the soil-line become black. Plants die.	Rotation.
	Tan Spot ( <i>Drechslera tritrici-repentis</i> )	Circular to oval brown leaf spots.	---
Wild Rocket (Rugula)	Anthrachnose ( <i>Colletotrichum</i> )	Round to angular, brown leaf spots.	Sanitation.
	Bacterial Leaf Spot ( <i>Pseudomonad syringae</i> pv. <i>syringae</i> & <i>P. cichorii</i> )	Angular, black, wet leaf spots.	Sanitation.
Willow	Leaf Rust ( <i>Melampsora</i> )	Yellow orange pustules on leaves. (See weeping willow below.)	Sanitation.
Willow, Weeping	Armillaria Root Rot	Dieback; thin, white mycelial layer just under bark, appressed to wood. Black, thread-like structures may be present above or below surface of root or crown. Brown mushrooms may be present.	Removal of tree and roots; maintain healthy trees.
	Leaf Rust ( <i>Melampsora</i> )	Small yellow spots that become orange with powdery rust spores and then later become brown spots.	Sanitation of fallen leaves. Alternate hosts may be fir, saxifrage, hemlock, current, or gooseberry.
Zinnia	Bacterial Leaf Spot	Small, angular, dark gray or black leaf spots. Spot edges may appear wet.	Remove all damaged plants. Do not water over-head. Phyton 27 may be used, if desired. See the AL Pest Management Handbook.
Zoysia	Brown Patch [Large Patch] ( <i>Rhizoctonia</i> )	See Centipede.	See Centipede.
	Dollar Spot ( <i>Sclerotinia</i> )	Yellow or white spots the size of a silver dollar	See ANR-493.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
		develop. Spots may coalesce.	
	Ring Nematode ( <i>Criconemoides</i> sp.)	Areas thin; dieback; poor root system.	See AL Pest Management Handbook.
	Rust ( <i>Puccinia</i> )	Areas of turf become yellow-brown with tiny spots of orange powdery spores.	See the AL Pest Management Handbook or ANR-621.
	Suspect Winter Damage	Large turf areas do not green up in the spring.	---
	Take-All Patch ( <i>Gaeumannomyces</i> sp.)	Individual plants turn yellow and die. Roots show dark brown or black lesions.	See PP-312 and the AL Pest Management Handbook.

### Lab Notes

As we move into our busiest time of year, please take care when filling out the diagnostic sheet or when advising clients in filling out the information. Soil analysis (pH, minerals) results will come back to the client more quickly if sent directly. If the client would like us to forward soil to Soil Test Lab--if we believe a soil problem exists--he/she must indicate yes on the form. We will not forward soil when a charge is involved unless the client gives approval. Also, please indicate whether the sample is a client charge or an educational (ACES) charge by checking the appropriate blank in the box at the top of the form. (It would save us time if you give your area code with your phone number!) Thanks!

### Soil Samples For Nematode Analysis

Please be sure you are using the current soil nematode sample submission form which indicates a service charge of \$10.

### Insects

Usually insects for identification should be sent in isopropyl alcohol. If you send live insects, please clearly indicate this on your paperwork.