



PLANT PATHOLOGY SERIES

# TIMELY INFORMATION

## Agriculture & Natural Resources

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PP-527

### MARCH PLANT DISEASES FROM THE AUBURN PLANT DIAGNOSTIC LAB

### MARCH PLANT DISEASES FROM THE BIRMINGHAM PLANT DIAGNOSTIC LAB

### DISEASE POSSIBILITIES FOR APRIL

### LAB NOTES

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

Most of our 74 samples were ornamentals and turf grasses. Brown patch (*Rhizoctonia*) was noted on bermuda, centipede, and St. Augustine grass from areas in the southern half of the state. Colletotrichum leaf spot disease was noted on azalea and Carolina Jessamine. Macrophoma and Volutella blights were observed on boxwoods. The Colletotrichum fungus is known to exist as a primary or secondary disease agent. Macrophoma and Volutella are both considered to be stress-related pathogens. These leaf spots and blights often occur on azalea and boxwood in early spring, and I suspect these pathogens may be dependent on stress (in this case winter time stresses) in order for plants to be weakened and thereby more susceptible to infection.

Entomosporium leaf spot was a common disease on photinia and Indian hawthorn. Spots are red with dark black pustules (tiny, cup-shaped bodies containing spores) scattered across the surface of the leaf spots. Spore bodies do not often form on the cleyera, but the red spot symptom is similar to that seen on Indian hawthorn. Cleyera spots may be smaller than spots seen on Indian hawthorn or photinia. Entomosporium leaf spot is a difficult disease to control, even when regular fungicide treatments are applied.

ALABAMA A&M AND AUBURN UNIVERSITIES, AND TUSKEGEE UNIVERSITY, COUNTY GOVERNING BODIES AND USDA COOPERATING

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A crown rot was noted on some cyclamen plants being sold for Valentine's Day in the Auburn area. Culture isolations consistently produced the fungus *Fusarium* which is reported to cause crown rot of cyclamen.

Daylily rust (*Puccinia hemerocallidis*) was observed on a sample from Butler County and reports indicate it was present in other scattered areas of the state in landscapes and greenhouses. Sanitation and protective fungicide sprays are recommended. See the Timely Information PP-506 by A. Hagan.

*Cercospora* blight (formerly called *Cercospora*) of Leyland cypress was observed in a sample from Choctaw County. This disease can cause a serious needle/leaf blight. See the AL Pest Management Handbook for information on controlling this disease with protective fungicide treatments.

A sample of oats from Coffee County was diagnosed as suspect barley yellow dwarf virus. Older leaves were showing a yellow-red discoloration which seemed to have begun at the leaf tips and generally moved downward. Plants were stunted and tillering was reduced.

A rose canker disease from Lawrence County was diagnosed as brown canker caused by the fungus *Diaporthe umbrina*. Spores of the fungus were present on the old cankers which appeared as small whitish lesions on the canes. Sanitation (pruning) and protective fungicide treatments (See fungicides labelled for control of black spot.) are usually recommended for control of rose canker diseases.

A severe bacterial leaf spot disease on strawberry was sent to us from Escambia County. Leaf spots were black and angular. Microscopic study showed the presence of active bacterial streaming. See the AL Pest Management Handbook for control recommendations.

A greenhouse tomato sample arrived in the lab looking like a foliage burn. Leaves of the 3 inch tall plants showed bleached, dried lesions and blotches. After a couple of days, the lower stems developed a glassy water-soaked appearance and some plants developed a crown decay. Moist chamber incubations produced the diagnostic spore structures of *Phytophthora infestans*. This sample was unusual because the typical dark brown, wet, necrotic, foliage lesions did not develop. See the AL Pest Management Handbook for information on control of late blight.

Table 1. 2002 March Diseases Seen In The Auburn Plant Diagnostic Lab.

<u>Plant</u>	<u>Disease</u>	<u>County</u>
Azalea	Colletotrichum Leaf Spot	Covington
Bermuda	Brown Patch ( <i>Rhizoctonia</i> )	Florida

<u>Plant</u>	<u>Disease</u>	<u>County</u>
Blackberry	Anthracnose ( <i>Colletotrichum</i> )	Baldwin, Houston
Boxwood	Macrophoma Blight	Georgia
	Volutella Blight	Georgia
Carolina Jessamine	Colletotrichum Leaf Spot	Limestone
Centipede	Brown Patch ( <i>Rhizoctonia</i> )	Montgomery
Cleyera	Entomosporium Leaf Spot	Houston
Cyclamen	Fusarium Crown Rot	Lee
Daylily	Daylily Rust ( <i>Puccinia hemerocallidis</i> )	Butler
Holly	Too Wet and Pythium Root Rot	*
Indian Hawthorn	Entomosporium Leaf Spot	Houston
Leyland Cypress	Cercospora Blight	Choctaw
Oats	Drechslera Leaf Spot	Covington
	Suspect Barley Yellow Dwarf Virus	Coffee
Pine	Ploioderma Needle Cast	Coffee
	Rhizosphaeria Needle Cast	Coffee
Plum	Black Knot ( <i>Plowrightia morbosum</i> )	Russell
Rose	Brown Canker ( <i>Diaporthe umbrina</i> )	Lawrence
St. Augustine	Brown Patch ( <i>Rhizoctonia</i> )	Montgomery
	Take-All Patch ( <i>Gaeumannomyces graminis</i> pv <i>graminis</i> )	Montgomery
Strawberry	Bacterial Leaf Spot	Escambia

<u>Plant</u>	<u>Disease</u>	<u>County</u>
Tomato	Late Blight ( <i>Phytophthora infestans</i> )	*
Zinnia	Botrytis Canker	Jackson

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

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

The lab received 54 samples for the month. Cold injury was a common problem seen on roses and other woody ornamentals after hard freezes in late February and early March. Some of the problems received last month included spruce spider mite damage to arborvitae and juniper, *Phytophthora* root rot on azalea and boxwood, leaf miner on boxwood, *Cercospora* leaf spot on leucothoe, herbicide injury to southern magnolia, rose rust, and daylily leaf streak. Leaf streak is caused by the fungus *Aureobasidium microstictum*. Symptoms include circular to elongate tan to brown spots and yellowing along the central vein. Research by Holcomb (1976) indicated that cultivars vary considerably in their susceptibility to fungus that causes leaf streak. Both of the daylily samples were brought to the lab to check for daylily rust, but it was not observed on these samples. In the early stages of disease development, leaf streak might be confused with the early symptoms of daylily rust (*Puccinia hemerocallidis*). The main difference is that rust produces raised spots or pustules on infected leaves. These pustules will produce yellow-orange powdery spores that can easily be rubbed off. Leaf streak is not considered a serious disease and can be controlled by removing infected leaves, avoiding overhead irrigation and cultivar selection.

*Cercospora* leaf spot was seen on leucothoe. This disease causes small tan leaf spots that may enlarge to cover large areas of the leaf. In severe cases, defoliation may occur. Control can be achieved by raking fallen leaves and application of fungicides to protect new growth in spring. Multiple applications may be needed during periods of extended wet weather.

Leaf miner was a frequent problem seen on common boxwood last month. Infested leaves are often off-color (yellow-orange or brown) and may drop earlier than healthy leaves. The leaf miner overwinters within the leaf as larvae. Adults emerge the following spring just as growth starts on the boxwoods. These small, orangish flies (less than 1/8 inch) can be seen swarming around boxwoods, especially in the morning. The adults have emerged in the Birmingham area and are active at this time. Leafminer can be controlled when damage becomes excessive by the application of insecticides. Insecticides are most effective immediately after the adult emerge and before the eggs are laid. The application of insecticides that contain the active ingredient acephate, or imidocloprid when adults are active is an effective control measure. Follow label instructions carefully.

Table 2. 2002 March Problems Seen In The Birmingham Plant Diagnostic Lab.

<u>Plant</u>	<u>Problem</u>	<u>County</u>
Arborvitae	Spruce Spider Mite	Jefferson
Apple	Woolly Apple Aphid	Jefferson
Aucuba	Vole damage	Jefferson
Azalea	Chemical Injury	Jefferson
	Cold Injury	Jefferson
	Phytophthora root rot	Jefferson
Boxwood, Common	Leaf miner	Jefferson (2)
	Macrophoma Leaf Spot	Jefferson
	Phytophthora Root Rot	*
Cherrylaurel	Cercospora Leaf Spot	Jefferson
Clematis	Cold Injury/Aphids	Jefferson
Cypress, Leyland	Seridium Canker	Jefferson
Daylily	Leaf streak (Aurobasidium)	* (2)
Leucothoe	Cercospora Leaf Spot	Jefferson
Juniper	Spruce Spider Mite	Jefferson
Magnolia, Southern	Herbicide Injury	Jefferson
Plum	Black knot	Jefferson
Rose	Cold Injury	Jefferson
	Rust	*

<u>Plant</u>	<u>Problem</u>	<u>County</u>
Yew, Japanese	Poor Drainage/Pythium root rot	Jefferson

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

### Disease Possibilities For April

The list below includes some common disease problems received in the lab during April of the past few years. Comments on control practices are brief. Refer to fact sheets, timely information sheets, and the Alabama Pest Management Handbook for details.

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

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Many Ornamentals	Powdery Mildew	White-buff colored, raised dots or pads of mycelium.	Fungicides; See Cir. ANR-407.
Aglaonema	Bacterial Leaf Spot	Circular-angular, dark, water-soaked leaf spots.	Sanitation. Water at pot level.
Alfalfa	Spring Black Stem and Leaf Spot ( <i>Phoma</i> )	Small black spots on leaves, petioles, stems. Stems may be girdled.	Early cutting.
	Leptosphaerulina Leaf Spot	Small black spots on leaves and petioles. Lesions may enlarge to oval-round (1-3 mm diam), light brown spots with dark brown borders. Yellow areas may surround the spots. When conditions are humid, spots may coalesce.	Frequent harvest.
	Stemphyllium Leaf Spot	Spots (3-4 mm) are oval, slightly sunken, dark brown with light centers. Usually spots are surrounded by a yellow halo.	Frequent harvesting.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Apple/Pear	Botryosphaeria Canker	Cankers may be small or large (up to 5 m long). Cankers may be superficial with only a slight roughening of the bark or they may be deep, causing considerable cracking.	See Ala. Pesticide Handbook; Pruning.
	Fireblight ( <i>Erwinia</i> )	Blossom blight; leaf and branch dieback. Blossoms become spotted and then completely black or brown. Infection spreads from the blossoms into twigs, leaves and branches with branch canker development.	Pruning; Streptomycin at bloom.
	Frogeye Leaf Spot ( <i>Botryosphaeria</i> )	Small (1/8-1/4 inch diam.) circular-irregular spots with purple margins and brown centers.	Sanitation in the fall; protective sprays during growing season.
Amaryllis	Stagnospora Leaf Spot	Dark red blotches on leaves (5-15 mm long.)	Sanitation; Cleary's 3336 or Domain.
Azalea	Anthracnose ( <i>Colletotrichum</i> )	Small, round, red spots, sometimes with white centers.	Sanitation; see the AL Pest Management Handbook for protective fungicide treatments.
	Botrytis Petal Blight	Large irregular areas of blossoms turn brown; brown areas are covered with a gray delicate webbing during humid weather.	See Ala. Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Exobasidium Gall	Swollen blossom, leaf, and shoot galls. From mid-April to mid-May, galls change from a green to a white or pink-white color.	Sanitation; removal of galls while they are still green; see the Ala. Pest Management Handbook.
	Ovulinia Petal Blight	Small white-brown spots enlarge to become large browned areas on the blossoms.	See Ala. Pest Management Handbook.
	Phomopsis Dieback	Dried, sunken lesions on twigs with resulting dieback.	Sanitation; see the AL Pest Management Handbook for protective fungicide treatment information.
	Phytophthora Crown & Root Rot	Crowns & roots become brown and water-soaked.	Sanitation; See Ala. Pest Management Handbook.
	Phytophthora Foliage Blight	Brown lesions on leaves. Lesions may be small spots or larger blotches. The fungus may sporulate in a thin white webbing on lower leaf surfaces when conditions are wet.	Sanitation; keep area dry; see AL Pest Management for protective fungicide information.
	Powdery Mildew	White, powdery dusting on upper leaf surfaces.	Sanitation of severely diseased areas; apply fungicide treatments of Cleary's 3336 or Halt.
	Rhizoctonia Aerial Blight	Lower leaves become spotted and eventually whole leaves become dark brown and fall.	See Ala. Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Barley	Spot Blotch ( <i>Bipolaris</i> )	Brown, elongated spots (2-25 mm long) on leaf blades.	Rotation with non-grass species; fungicide treated seed; See Ala. Pest Management Handbook or spray guide.
Beans, Butter	Alternaria Leaf Spot	Gray or dark gray irregularly-shaped spots of variable size.	Sanitation; See the Ala. Pest Management Handbook under Anthracnose.
Beans, Garden	Pythium Disease Seedling	Lower stems become water-soaked, flaccid, and slightly discolored. Plants eventually collapse with stems dry and shrivelled.	Do not over-water garden or flower bed. See Ala. Pest Management Handbook.
	Fusarium Blight Seedling	Lower stems and roots become reddish brown and dry rotted.	Sanitation. Crop rotation. Resistant varieties.
	Rhizoctonia Rot Crown	Brown sunken lesions on the lower stem near the soil line.	See the Ala. Pest Management Handbook. Sanitation.
Bee Balm	Powdery Mildew	Leaf distortions; powdery white dusty patches on foliage leaves (upper leaf surfaces) and stems.	Sanitation.
Begonia	Bacterial Leaf Spot	Dark, black, water-soaked spots and blotches.	Strict sanitation. Do not water overhead.
Bentgrass	Brown Patch ( <i>Rhizoctonia</i> )	Circular-irregular patches in lawn become brown. Brown lesions present on individual grass blades.	Reduce nitrogen fertilization. Protective fungicide treatments.
	Pythium Blight	Foliage becomes pale brown and water-soaked.	See Ala. Pest Management Handbook, spray guide.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Bermuda	Drechslera Leaf Spot	See Helminthosporium Leaf Spot.	
	Helminthosporium-type Leaf Spot/Blight ( <i>Exserohilum</i> )	Small brown elongated spots (2-3 mm) which may merge and cause leaf blight.	See Ala. Pest Management Handbook.
	Rhizoctonia Brown Patch	See bentgrass.	See bentgrass comments.
	Spring Dead Spot ( <i>Gaeumannomyces</i> )	Patches of bermuda fail to green up in the spring.	See the AL Pest Management Handbook. See ANR-371.
Blackberry	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; see spray guide.
	Orange Rust ( <i>Gynoconia</i> )	Young shoots are weak and in clusters. Poor growth results from systemic disease. Black specks with chlorotic halos develop on upper surfaces of pale green-yellow leaves. Three weeks later, tiny orange, powdery pustules develop on lower leaf surfaces.	Sanitation.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Blueberry	Botryosphaeria Stem Canker	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. See the Ala. Pest Management Handbook, or spray guide.
Boxwood	Macrophoma Blight (Stress)	Individual branches become yellowed and brown. Tiny black pin-point dots (fruiting bodies of the fungus) appear scattered on yellowed leaf surfaces; sometimes sunken cankers develop on twigs and branches.	Prune out damaged areas. Cleary's 3336 or Domain protective treatments may be applied. Identify and correct other stress problems.
	Phytophthora Root Rot	Small and large roots become brown, rotted, and wet; foliage shows lower leaf yellowing and dieback.	Sanitation; reduce water levels in the area; see AL Pest Management Handbook for protective fungicide treatments.
	Volutella Blight	Branches or the main trunk develops sunken lesions. When conditions are humid, orange spore masses develop on the lesions.	Sanitation; avoid stress situations; see AL Pest Management Handbook for protective fungicide treatments.
Cabbage	Black Rot ( <i>Xanthomonas</i> )	V-shaped brown-black lesions appear at leaf edges. Veins leading away from lesions become brown-black. Eventually stem vascular system becomes rotted.	Sanitation; rotation away from crucifers for 2 years.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Camellia	Algal Leaf Spot ( <i>Cephaleuros</i> )	Red-green-brown raised circular leaf spots with wavy edges.	Sanitation. See Ala. Pest Management Handbook.
	Armillaria Root Rot	Sudden dieback; roots show thin white mycelial layer and sometimes black thread-like structures (Rhizomorphs); honey-colored mushrooms are also a diagnostic sign.	Remove the plant with associated roots.
	Botryosphaeria Canker	Sunken, cracked stem lesions.	Sanitation.
	Cercospora Leaf Spot	Brown circular or irregular spots of variable size.	Sanitation. Cleary's 3336 or Domain protective sprays.
	Exobasidium Gall	See Azalea.	
	Virus Ringspots	Yellow spots and ring spots; may be a reduction in plant growth.	Sanitation.
Centipede	Brown Patch ( <i>Rhizoctonia</i> )	Light brown, large, circular patches occur on lawns; grass blades show medium brown lesions.	See Ala. Pest Management Handbook.
	Take-All Patch ( <i>Gaeumannomyces graminis</i> pv. <i>graminis</i> )	Patches of turf yellowing and dying.	See ANR-823. Bayleton may help. Turf replacement may be necessary.
Cherry	Septoria Leaf Spot	Medium brown, angular spots (about 1 cm or 3-2 inch long) on leaf surfaces; when severe, defoliation results.	Sanitation.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Chrysanthemum	Rhizoctonia Root Rot	Roots become brown, decayed and dried.	Sanitation. See the Alabama Pest Management Handbook.
Cleyera	Anthracoze ( <i>Colletotrichum</i> )	Reddish, black spots, blotches. Orange pustules develop in spring and summer.	Sanitation; Cleary's 3336 may help.
Corn	Pythium Seedling Disease	Lower stems turn pale brown, become water-soaked, and collapse.	---
Crabapple	Black Rot ( <i>Botryosphaeria obtusa</i> )	Twig cankers are present; frog-eye leaf spot	Prune out cankers; Dithane will provide protective disease control.
	Cedar Apple Rust ( <i>Gymnosporanium</i> )	Light yellow spots (1 cm or 0.5 inch diam.) on leaves; leaf fall when spots are numerous.	See the Ala. Pest Management Handbook.
Daylily	Kabatiella Leaf Spot	Numerous small (5 mm or 3/8 inch long) brown spots; leaf yellowing around spotted areas. The disease is often associated with stress.	Sanitation.
Dianthus	Alternaria Leaf Spot	Medium brown, oval or round leaf spots. Some spots may develop a faint zonation.	For homeowners, Bordeaux mixture is available. In commercial production, Kocide 2000 could be used.
	Fusarium Crown Rot	Brown, dried rotted tissues on lower stems. Top dieback.	Sanitation. Crop rotation.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Dogwood	Anthracnose ( <i>Discula</i> )	This disease is characterized by leaf necrosis, twig and branch cankers and stem dieback which all begin in the lower branches and progress to the upper canopy. The disease generally begins as purple-rimmed brown spots on leaves. Spots soon develop into a general blight of infected leaves. Leaf death is followed by progressive infection and death of associated twigs and then branches.	See ANR-551 or the Ala. Pest Management Handbook.
	Botrytis Blossom Blight	Blossoms develop brown blotches. When conditions are humid, a gray mold may develop.	Sanitation; mancozeb products such as Dithane T/O and Cleary's 3336 or Halt may be used to provide protective disease control.
	Spot Anthracnose ( <i>Elsinoe</i> )	Small (1-2 mm) red-brown spots with reddish borders occur on bracts, leaves, and young twigs. Spotting may be severe and new leaves may appear reduced in size; foliage death may result.	Sanitation; See Ala. Pest Management Handbook.
Euonymus	Powdery Mildew ( <i>Microsphaera</i> )	A white powdery dusting appears on upper leaf surfaces; when disease is severe some leaf distortion occurs.	See the Ala. Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Exacum	Impatiens Necrotic Spot Virus	New growth was stunted. Brown spots and blotches were present on the newly matured foliage.	Sanitation. Control thrips.
Fern, Boston	<i>Colletotrichum</i> Leaf Spot	Brown spots/blotches on fronds.	Sanitation. Protective sprays of Cleary's 3336.
Fescue	Brown Patch ( <i>Rhizoctonia</i> )	Light brown, often large, circular patches occur on lawns; grass blades, show medium brown irregular lesions.	See the Ala. Pest Management Handbook.
	Net Blotch ( <i>Drechslera</i> )	Typically, short, square rectangular or elongated blotches (5-10 mm or larger) with longitudinal or horizontal dark line patterns develop on leaves. Line patterns resemble a net.	See Ala. Pest Management Handbook under Helminthosporium Leaf Spot and Crown rot (melting out).
Forsythia	Crown Gall	Woody Galls on lower stem/trunk near the soil line.	Sanitation; crop rotation to boxwood, holly, redbud or other nonsusceptible plants. See ANR-944.
Geranium	Botrytis Blight	Gray blotches occur on the foliage. Whole leaves may become involved and die. When weather is cool and moist with a high relative humidity, a delicate webbing of spores and hyphae can be seen.	See the Ala. Pest Management Handbook. Sanitation.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Bacterial Leaf Spot/Stem Rot ( <i>Xanthomonas</i> )	Black spots on leaves and stems; total collapse of stem may occur; bacteria may develop in vascular system and become systemic.	Strict sanitation. Bordeaux mixture protective sprays.
Grape	Anthracnose ( <i>Gloeosporium</i> )	Circular-irregular brown blotches/spots (3-5 mm diam.) with brown-black margins. Spot centers may become light colored & dry. Damage may be severe with fruit rot and dieback.	See the Ala. Pest Management Handbook or spray guide; Sanitation.
	Black Rot ( <i>Guignardia</i> )	Medium-dark brown irregular spots (approx. 5 mm diam.) on leaves and fruit.	See Ala. Pest Management Handbook. Sanitation or spray guide.
Hawthorn, Indian	Phytophthora Root Rot	Roots become brown and decayed. Outer tissues easily pull away from the root central core. Foliage wilts and dieback occurs.	See the Ala. Pest Management Handbook.
Holly, Helleri	Phytophthora Root Rot	Roots become brown and decayed. Outer tissues easily pull away from the root central core.	See the Ala. Pest Management Handbook.
Holly	Colletotrichum Leaf Spot	Black circular spots (about 5mm diam.) sometimes with cream-colored spores covering centers of spots.	Sanitation; protective sprays of Cleary's 3336 or Domain may be used.
	Phyllosticta Leaf Spot	Small (1-2mm diam.) black spots sometimes with a whitish center.	Sanitation; protective sprays of Cleary's 3336 or Domain may be used.

<u>Plant</u>		<u>Disease</u>		<u>Description</u>	<u>Control</u>
Holly, Compact	Japanese	Black Root Rot ( <i>Thielaviopsis basicola</i> )	Rot	Plants do not grow and roots develop black lesions and root tips. Lower foliage may become yellow. Dieback may occur.	Sanitation; Banrot or Cleary's 3336 (or Halt) may be applied for protective disease control.
Hydrangea		Botrytis Blight	Blossom	Blossoms are brown-gray spotted/blotched.	Sanitation. See ANR-912 for fungicide recommendations.
Hydrangea, Oak Leaf		Bacterial Leaf Spot		Small (2-5mm), dark, angular spots on leaves.	Sanitation; irrigate at soil level.
Impatiens		Alternaria Leaf Spot		Dark brown-black, angular leaf spots.	Sanitation; Kocide 101.
		Colletotrichum Leaf Spot	Leaf	Small, white, circular spots develop.	Sanitation. Cleary's 3336 or Halt will help control this disease.
		Pythium Root Rot	Root	Roots become pale brown and decayed. Outer tissues easily pull away (separate) from the inner central core. Foliage is stunted, wilted.	Sanitation. Reduce water levels in the soil. See the AL Pest Management Handbook under 'Damping-off' or 'Phytophthora Root Rot', for commercial situations.
Indian Hawthorn		Colletotrichum Leaf Spot	Leaf	Brown, circular-irregular shaped leaf spots.	Sanitation. Protective sprays of Cleary's 3336.
		Entomosporium Leaf Spot	Leaf	Small, round, red spots develop.	Sanitation. See the AL Pest Management Handbook.
Iris		Heterosporium Leaf Spot	Leaf	Small-large (3-2 inch long), elliptical or oval shaped medium brown leaf spots.	Sanitation. See Ala. Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Borers/Soft Rot ( <i>Erwinia</i> )	Leaves and rhizomes become decayed with a wet, foul-smelling rot; wounds are often evident in the rhizome rotted areas. Wounds are often caused by the iris borer, but other insects may be involved.	Sanitation. Especially in the fall, all diseased rhizomes should be destroyed. To further prevent & control borers, an insecticide dust may be applied weekly in the spring from new growth initiation to the beginning of June.
Ivy, English	Botryosphaeria Canker	Elongated, sunken, cracked stem lesions.	Pruning. Protective sprays of Cleary's 3336.
	Anthracnose ( <i>Colletotrichum</i> )	Brown irregular spots (3 mm diam. & larger) that sometimes occur along veins.	Sanitation. See the Ala. Pesticide Handbook. Use Cleary's 3336 or Domain.
	Bacterial Leaf Spot	Small (2-4mm diam.), angular, dark leaf spots with wet looking edges on leaves.	Sanitation. See the Ala. Pest Management Handbook.
	Edema	Small, brown, corky spots on lower leaf surfaces.	Reduce irrigation.
	Fusarium/Pythium Root Decay	Roots become brown decayed, dried and also wet rotted.	Sanitation. Banrot protective treatments.
Japanese Pagoda Tree	<i>Nectria</i> Canker	Sunken canker with tiny orange raised specks scattered over lesion.	Sanitation.
Juniper	Phomopsis Tip Blight	Dieback.	Pruning; Fungicide application. See the Ala. Pesticide Handbook.
	Cedar-Apple Rust ( <i>Gymnosporangium</i> )	Large woody spherical galls (2-5 cm diam.) become covered with orange, jelly-like finger-like projections.	See ANR-468.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Cedar-Quince or Hawthorn Rust ( <i>Gymnosporangium</i> )	Orange powdery sunken cankers.	See ANR-468.
Juniper, Blue Pacific	Phytophthora Root Rot	Plants do not grow; roots become brown and water-soaked; dieback and yellowing develops.	Sanitation; reduce water levels in the area; see the AL Pest Management Handbook for protective fungicide treatments.
Leyland Cypress	Cercospora Needle Blight	Beginning with lower branches and inner needles, blight develops and spreads upward & outward.	Sanitation; protective sprays of Cleary's 3336.
	Seiridium Canker	Elongated sunken lesions on trunk usually with sap oozing around lesion edge.	Pruning. See Ala. Pest Management Handbook.
Ligustrum	Macrophoma Leaf Spot	Brown circular or oval leaf spots.	Sanitation; Cleary's 3336 or Domain protective sprays.
Lilac	Bacterial Leaf Spot	Dark angular spots.	Sanitation. Do not water overhead.
Lupin	Rhizoctonia Lower Stem Decay	Dark brown, black lower stem dry rot.	---
Magnolia, Southern	Algal Leaf Spot ( <i>Cephaleuros</i> )	Green or red-brown, slightly raised, circular spots (1 cm diam.) with slightly wavy margins.	Usually none. Sanitation.
	Phyllosticta Leaf Spot	Brown irregular spots (3 mm diam. and larger) which often become brown bordered with lighter centers as spots age.	Sanitation. Protective sprays of Cleary's 3336 or Domain.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Magnolia	Stress	Many older leaves become yellow and then brown; excessive leaf drop. (Some leaf senescence is normal during April-June.)	Water when conditions are droughty.
Maple, Japanese	Anthracnose ( <i>Kabatella</i> )	Brown, irregularly-circular spots which often follow along leaf veins. Spots begin small, but may develop to involve larger portions of leaves.	See Ala. Pest Management Handbook.
	Phomopsis Canker	Brown-gray elliptical sunken lesions on smaller branches, twigs.	Sanitation.
Maple, Red	Phyllosticta Leaf Spot	Circular pale brown spots with darker brown borders (about 3 inch diam.).	--
	Pythium Root Rot (Seedlings)	Roots brown, water-soaked, rotted.	Sanitation. Reduce watering schedules.
Marigold	Alternaria Leaf Spot	Black circular or irregular leaf spots (1-3 mm diam.).	See Ala. Pest Management Handbook.
Mayhaw (Hawthorn)	Cedar-Quince Rust ( <i>Gymnosporangium</i> )	Yellow irregular spots with tiny white-orange aecial cups (spore masses) developing on lower leaf surfaces opposite upper leaf yellow spots.	Removal of cedar cankers. See ANR-468.
Mondograss	Root Knot Nematode ( <i>Meloidogyne</i> )	Poor growth; root galls.	Sanitation. See ANR-689 and ANR-856.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Monkey Grass ( <i>Liriope</i> )	Anthracnose ( <i>Colletotrichum</i> )	Pale brown blotches and spots on foliage. Blotch margins are sometimes dark brown or red-brown. Spots may involve large sections of leaves. Often leaf tips are involved.	Sanitation; Protective sprays of Cleary's 3336 or Halt may be used.
	Fusarium Root Rot	Roots become dry and necrotic, brown; foliage dieback, wilt and yellowing usually develops.	Sanitation; Banrot, or Cleary's 3336 (or Halt) will provide some protective disease control.
Oak	Anthracnose ( <i>Apiognomonia</i> )	Brown-black spots and irregular blotches which often develop along leaf edges and/or leaf veins.	Sanitation. See Ala. Pest Management Handbook.
	Algal Leaf Spot ( <i>Cephaleuros</i> )	Gray-green or brown-red spots with irregular margins (1 cm or 3 inch diam.) on leaves; spots may coalesce.	See Ala. Pest Management Handbook.
	Hypoxylon Canker	Environmental stressed oak may develop a dieback where Hypoxylon acts to hasten the dieback problems. The fungus causes decay of inner bark and sapwood and silver gray or coal black stroma develops in the decay area, causing the bark to crack and fall away.	Pruning and tree removal.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Oak Leaf Blister ( <i>Taphrina</i> )	Concave-convex spots (10-15 mm or 3-2 inch diam.) on leaves. As spots age, they change from a light green-brown color to a medium-dark brown.	See Ala. Pest Management Handbook.
	Powdery Mildew	White powdery dusting on leaves; infected new growth may be deformed.	Sanitation of leaves in the fall.
Oats	Barley Yellow Dwarf Virus	Leaves are yellowish red; stunting; excessive tillering.	---
	Loose Smut ( <i>Ustilago</i> )	The seed heads of oats become filled with the black sooty masses of fungal spores.	Seed treatment.
Pansy	Cercospora Leaf Spot	Black superficial, slightly raised spots with ropey appearance and irregular feathery spot edges.	Sanitation. See Ala. Pest Management Handbook.
	Colletotrichum Leaf Spot	Circular gray spots with dark borders.	See the Ala. Pest Management Handbook.
	Myrothecium Crown Rot	Lower stems become light brown and develop a wet rot. Black bodies of the fungus are just barely visible.	Sanitation. See the AL Pest Management Handbook.
	Pythium Root & Crown Rot	Tissues become light brown and wet, pull apart easily; plants wilt, become yellow and die.	Sanitation; reduce water levels in the area; see AL Pest Management Handbook for protective fungicide treatments.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	<i>Thielaviopsis</i> Black Root Rot	Black lesions on roots. Plants are stunted.	Sanitation. See the Ala. Pest Management Handbook.
Peach	Bacterial Canker-Gummosis ( <i>Pseudomonas</i> )	Sunken, wet blackened areas on trunk/branches. There is usually excessive gum production associated with the canker. A characteristic sour-foul smell is often present when the canker is cut.	Sanitation.
	Bacterial Leaf Spot ( <i>Xanthomonas</i> )	Circular black spots (2-5 mm) develop on leaves. As spots age, they dry out and fall out, leaving circular 'shot holes' in the leaves.	See the Peach Spray Guide, ANR-8.
	Brown Rot ( <i>Monilinia</i> )	A gray-brown blossom blight with subsequent twig blight and canker development. Fruit rot follows. Spore production gives rotted tissues a gray powdery covering.	See Ala. Pest Management Handbook or spray guide.
	Peach Leaf Curl ( <i>Taphrina</i> )	Concave-convex spots develop on leaves. Often, early 'spots' are the color of normal leaf tissue. Severe disease causes leaves to be excessively puckered and deformed and curled and somewhat thickened.	Sanitation. See the Ala. Pest Management Handbook or spray guide.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Phomopsis Canker	Twig Gray, sunken, elliptical or oval cankers (lesions) (4 mm long or longer) on twigs and small branches.	Sanitation.
	Ring Nematode ( <i>Criconeoides</i> )	Roots poorly developed; top growth is reduced.	Sanitation; crop rotation or fumigation. See Ed Sikora.
Peanut	Tomato Spotted Wilt Virus	Poor growth; new growth stunted and mottled, sometimes with ring spots or/and mosaic.	Thrips control.
Pear	Botryosphaeria Canker	Sunken, elliptical or oval cracked cankers on branches and trunks.	Sanitation.
	Entomosporium Leaf Spot	Red-black circular spots (5-10 mm diam.).	Sanitation. See the Ala. Pest Management Handbook.
	Fireblight ( <i>Erwinia</i> )	Black blotches beginning at leaf edges; leaf blight; longitudinal, sunken, cracked cankers with droplets of bacterial ooze during humid, wet weather; twig blight; limb blight.	Sanitation. See the Ala. Pest Management Handbook.
	Frogeye Leaf Spot ( <i>Botryosphaeria</i> )	Small purple flecks usually enlarge to circular brown lesions 4-5 mm in diam. Lesion margins are purple; centers are tan or brown.	See Ala. Pest Management Handbook.
Peas, Field	Pythium Disease	Seedling Lower stems become soft, water-soaked and pale brown. Plants fall over.	See Ala. Pest Management Handbook or spray guide.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Rhizoctonia Stem/Root Rot	Lower stems develop reddish-brown or brown dried lesions. Dieback may result.	Sanitation; crop rotation. See the Pest Management Handbook.
Pepper	Bacterial Leaf Spot	Dark, small (2-5mm), angular leaf spots with wet looking edges.	Sanitation. See the Ala. Pest Management Handbook.
Periwinkle	Botrytis Blight	Brown gray spot/blight.	Sanitation. Increase air circulation. Increase temperature. See the Ala. Pest Management Handbook.
	Phyllosticta Leaf Spot	Medium-brown, circular-oval spots (5 mm diam.).	Sanitation; Protective sprays of Cleary's 3336 or Domain.
	Phytophthora Blight	Brown lesions on leaves and stems.	Sanitation. See Ala. Pest Management Handbook.
	Thielaviopsis Root Rot	Plants grow poorly. Roots have black lesions, sections, and tips.	Sanitation. Cleary's 3336 protective drenches.
Petunia	Thielaviopsis Root Rot	Plants grow poorly. Roots have black lesions, sections, and tips.	Sanitation; Cleary's 3336 protective drenches.
Photinia	Anthracnose ( <i>Colletotrichum</i> )	Light-brown, zonate spots (10-15 mm or a 1/2 inch long) sometimes associated with leaf margins.	Sanitation; See Ala. Pest Management Handbook under Entomosporium Leaf Spot.
	Entomosporium Leaf Spot	Red-black spots (5-10 mm diam.) on upper & lower leaf surfaces. Spots generally have dark red-black borders. Spots may coalesce.	Pruning; Fungicide treatment; See Cir. ANR-392.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Armillaria Trunk Rot	Sudden wilt and dieback; thin white mycelial layer beneath bark; sometimes black thread-like rhizomorphs and/or honey-colored mushroom present.	Sanitation--removal of plants.
Pine, Loblolly	Fusiforme Rust ( <i>Cronartium quercuum</i> <i>f. sp. fusiforme</i> )	Spindle-shaped (fusiform) swellings (galls) develop on branches and trunks. In March-April the orange spore masses (aecia) of the fungus develop on the bark surface. The powdery spores cover the whole gall area. (Oaks are the alternate host for this fungus.)	Sanitation; removal of galled branches and/or trees when galls occur on trunks. See the Ala. Pest Management Handbook.
	Lophodermium ( <i>Ploioerma</i> ) Needle Cast	Last year's needles become spotted, blighted, and fall off. Tiny, black football-shaped fungal fruiting bodies can be seen on needles with hand lens.	Fungicide applied in spring and fall. See Ala. Pest Management Handbook.
	Rhizosphaeria Needle Blight, Twig Blight	Needles and small twigs turn brown, die.	Sanitation. See spray recommendations for needle cast; may need to continue in summer.
Pine, Slash	Rhizosphaeria Needle Blight	See Pine, Loblolly.	
Pine, Virginia	Ploioerma Needle Cast	See Loblolly Pine.	
Pine	Needle Rust ( <i>Coleosporium</i> )	Needles covered with numerous cream-color pustules (2-3 mm).	Remove asters and other composite plants/weeds in the area.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Plum	Bacterial Canker ( <i>Pseudomonas</i> )	See Peach.	
	Bacterial Leaf Spot ( <i>Xanthomonas</i> )	Small (2-5 mm diam.) 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.
	Black Knot ( <i>Dibotryon</i> )	Sections of branches become swollen and covered with black, swollen, hard, fungal growth.	Prune; fungicide treatment. See Cir. ANR-217 or the Ala. Pest Management Handbook.
Potato, Irish	Bacterial Soft Rot ( <i>Erwinia spp.</i> )	Cream-tan colored, wet rot of tubers. As rot ages, secondary bacteria cause foul smell.	Sanitation; avoid wounds.
	Early Blight ( <i>Alternaria</i> )	Small (1-2 mm) brown spots develop into larger (10-15 mm long) irregular spots which are brown-black and often have a target pattern. Spots occur on leaves and stems.	See Ala. Pest Management Handbook.
	Fusarium Tuber Rot	A black wet rot or a drier, brown rot of tuber; sometimes center of rot area is hollow, sometimes with white mycelium.	Sanitation. Avoid wounds.
	Late Blight ( <i>Phytophthora infestans</i> )	Foliage becomes brown spotted, blotched. Dead areas may spread to cause death of the whole plant.	See Alabama Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Red Cedar	Armillaria Root Rot	Dieback and total death of tree. Mushrooms or black thread-like structures may develop at base of tree and just under the bark, respectively.	Sanitation.
Rose	Botrytis Blight	Gray-brown irregular areas on flowers and leaves; gray mycelium and spores give spots/blotches a gray, cloudy appearance.	Lower humidity levels; increase temperatures; prune out diseased plant parts; fungicides.
	Black Spot ( <i>Diplocarpon</i> )	Black spots (C-3 inch diam. or 4-8 mm) with feathery margins.	Follow a regular spray schedule; sanitation.
	Downy Mildew ( <i>Pernospora</i> )	Irregular pale yellow spots on upper leaf surfaces; grayish-sometimes with thread-like growth-spots on lower leaf surfaces. Leaves eventually become brown, withered and drop.	Sanitation. See Ala. Pest Management Handbook. Decrease humidity.
	Powdery Mildew ( <i>Sphaerotheca</i> )	Whitish powdery growth on leaf surfaces; new growth may be distorted; leaves dry & turn yellow then brown; leaf drop.	See Ala. Pest Management Handbook.
Ryegrass	Helminthosporium ( <i>Bipolaris</i> ) Leaf Spot	Small, brown, elliptical spots which may coalesce.	See ANR-621 or the Alabama Pest Management Handbook.
Shasta Daisy	Alternaria Leaf Spot	Gray-brown, roughly circular spots.	Sanitation. Cleary's 3336 or a benomyl fungicide should give some protective control.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Snapdragon	Pythium Root Rot	Foliage wilt; roots brown and water-soaked.	Sanitation. See Ala. Pest Management Handbook.
St. Augustine	Brown Patch ( <i>Rhizoctonia</i> )	See Centipede.	--
	Take-All Patch ( <i>Gaeumannomyces</i> )	Sections of turf thin out. Lesions (black) develop on stolons and roots; plants yellow and die.	Soil pH and fertilizer management. See ANR-823. Bayleton may help.
Strawberry	Angular Leaf Spot ( <i>Xanthomonas</i> )	Small black, water-soaked, angular spots.	Sanitation. Kocide protective sprays.
	Anthracnose-Crown Rot ( <i>Colletotrichum</i> )	Lower stems (crowns) become brown and rotted. Leaf edges turn brown; plants wither and die.	Use healthy transplants.
	Anthracnose Fruit Rot ( <i>Colletotrichum</i> )	Fruit develops dark brown, irregular surface spots/rot areas which extend into the inner flesh. When humidity is high, orange spore masses form on the fruit.	See Ala. Pest Management Handbook.
	Botrytis Gray Mold	Light-brown irregular spots, blotches on blossoms, leaves, petioles, stems, fruit. In humid weather, fungus produces a gray powdery growth over lesions.	See Ala. Pest Management Handbook.
	Mycosphaerella Leaf Spot (Common)	Deep purple small spots become 3-6 mm diam. with white centers and reddish edges.	See Ala. Pest Management Handbook.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Sycamore	Anthracnose ( <i>Colletotrichum</i> )	Large brown blotches develop, sometimes along veins.	Collect and remove all fallen leaves in the autumn; for a small tree, protective fungicide may be applied. See the AL Pest Management Handbook.
Tomato	Bacterial Leaf Spot ( <i>Xanthomonas</i> )	Small black circular or angular spots that become cream-colored with age.	See Ala. Pest Management Handbook.
	Early Blight	See Irish Potato.	
	Late Blight	See Irish Potato.	
	Pythium Root Rot	Roots slightly off-color (brown); cortex may easily pull away from root central cylinder.	Sanitation; See the Alabama Pest Management Handbook. Improve soil drainage.
	Tomato Spotted Wilt Virus	Plants stunted, wilted with yellow or brown spots or blotch.	Sanitation. Control thrips.
Tulip Poplar	Alternaria Leaf Spot	Medium-brown, circular-irregular spots (1-2 cm or 3/8-1 inch long).	Sanitation.
Turnips	Cercospora Leaf Spot	White-light gray, circular-irregular, small-large (1 cm) spots on foliage.	Sanitation. See the Ala. Pest Management Handbook.
Watermelon	Fusarium Root Rot	Lower leaves yellowed; yellowing and wilt spreads upward in plant.	Crop rotation or plant resistant varieties.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
Wheat	Barley Yellow Dwarf Virus	Foliage yellows, becomes stunted and root systems are abnormally shallow. Leaves may become distorted.	Delay planting date in the fall; some varieties show moderate resistance.
	Bipolaris Leaf Spot	Brown irregular spots.	Fungicides in some situations; Refer to A. Hagan.
	Fusarium Head Scab	Seed heads bleached, shriveled and covered with a pink-orange mold.	Crop rotation for at least one year.
	Loose Smut ( <i>Ustilago</i> )	Spikelets become filled with brown-black masses of spores.	Seed treatment; resistant varieties.
	Powdery Mildew ( <i>Erysiphe</i> )	Leaves become covered with a white-buff colored powdery coating. Infected leaves eventually yellow and die.	See Ala. Pest Management Handbook.
	Puccinia Leaf Rust	Orange-red, powdery, raised pustules (1-5 mm diam.) scattered over leaf blades.	See Ala. Pest Management Handbook or spray guide.
	Puccinia Stem Rust ( <i>Puccinia graminis f. sp. tritici</i> )	Yellow flecks and orange elongated pustules on leaves and stems; leaf blight.	Resistant varieties; fungicide protective sprays; See Ala. Pest Management Handbook.
	Septoria Leaf Spot	Yellow flecks on lower leaves become irregular (1-5 - 4-15 mm), lens-shaped, brown spots.	Use disease-free seed. See Ala. Pest Management Handbook or spray guide.

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
	Septoria Leaf & Glume Blotch ( <i>S. nodorum</i> )	Yellow, tan, or brown, oval or lens-shaped spots (about 1 cm long) on leaves. On glumes, a general gray-brown dis-coloration begins at glume tip and moves downward. Tiny black fruiting bodies may be sprinkled on browned glume areas.	See Ala. Pest Management Handbook or spray guide.
	Soilborne Wheat Mosaic Virus	Stunting; leaves develop yellow streaks and a 'short line' or 'dash' type of mosaic pattern.	Crop rotation.
	Take-All ( <i>Gaeumannomyces</i> )	Plants are stunted and yellow with few tillers. Roots and lower stems become black, rotted and brittle.	Crop rotation.
	Wheat Spindle Streak Mosaic Virus	Elongated yellow streaks, mosaic on leaves.	Rotate wheat out of area as it is soilborne by Polymyxa fungus.
Zoysia	Brown Patch ( <i>Rhizoctonia</i> )	See Bentgrass.	
	<i>Exserohilum rostratum</i> Leaf Spot and Crown Rot	Small brown, elliptical leaf spots which may coalesce.	See ANR-621 or the Alabama Pest Management Handbook.
	Rust ( <i>Puccinia</i> )	Grass blades become covered with orange-brown dusty pustules of spores.	See the Ala. Pest Management Handbook or ANR-621.
	Take-All ( <i>Gaeumannomyces</i> )	See St. Augustine.	

<u>Plant</u>	<u>Disease</u>	<u>Description</u>	<u>Control</u>
All	Slime Mold	Wet-looking thin sheets of fungus material which may be green, reddish or brown in color. When the spore stage is present, plant material may be covered with a powdery coating of black, brown, red or yellow spores.	Fungal sheets or masses may be physically removed; spore masses may be washed off with a strong stream of water; when conditions become dry, slime molds will disappear. These fungi do not cause damage to plants except for a shading effect.

### Lab Notes

As we begin to move into our busy season, please remember to check off whether you want the lab service charge applied to the client or to the central ACES budget (Educational). Thanks!