

# TIMELY INFORMATION

## Agriculture & Natural Resources

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PP-696

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

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

### **INSECT REPORT**

### **DISEASE POSSIBILITIES FOR MAY**

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### Auburn Plant Disease Report, March (D. Johnson)

We welcome Dr. Lee Zhang to our lab. Dr. Zhang brings his expertise – and equipment – for gene sequencing.

We received 75 plant samples in March, about 40 percent of which were landscape woody ornamentals. About 27 percent were diagnosed to have problems caused by weather, chemical, nutrient, or other non-disease agents. We saw *Phytophthora* root rot on azalea, holly, gardenia, boxwood, cryptomeria, and Satsuma. We began to see Brown Patch and other diseases of turf.

With the onset of hot, humid weather, growers should be on the lookout for Southern Blight. The causal fungus, *Sclerotium rolfsii*, has a wide host range. In recent years our lab has seen it on tomato, pepper, eggplant, peanut, soybean, lupine, clover, crabapple, centipede, Jerusalem artichoke, fig, Vinca, aucuba, hosta, mint, Ageratum, black-eyed Susan, zinnia, and peony. White fungal mats with hard, round, brown, spores may be present on the soil and plant. Sunken stem cankers may lead to plant collapse. Sanitation is crucial to preventing the spread of this serious disease.

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*Botrytis* is another fungus with a wide host range. It grows best in cool, wet conditions. Our lab has seen this on geranium, Gerber daisy, petunia, heuchera, peony, rose, rhododendron, magnolia, holly, pomegranate, lavender, lettuce, okra, pepper, onion, strawberry, blueberry, blackberry, and raspberry. Brown spots or blotches as well as a gray mold might be seen on leaves, blossoms, or fruits of affected plants. Control measures include removal of leaf litter, and it may be necessary to remove diseased plants to prevent its spread to others in the area. Consult the Alabama Pest Management Handbook for specific treatment options.

Historically, our lab has seen a lot of St. Augustinegrass problems in April and May, with Take-All disease the most common followed by Brown Patch and Gray Leaf spot. See below for descriptions of these diseases and for control measures.

Although not a disease, edema was found on some camellias in March. It is not a problem that is limited to camellias. Edema is associated with excessive soil moisture and a cool, moist atmosphere. Symptoms begin as tiny greenish-white bumps on the undersides of leaves; later they appear as rust-colored, corky swellings. This problem can be relieved by pruning to improve air circulation and by avoiding over-watering and crowding of plants.

**Table 1.** March Plant Diseases Received at the Auburn Plant Diagnostic Lab

<u>Plant</u>	<u>Disease</u>	<u>County</u>
Anemone	Anemone rust	Sumter
Arborvitae	Stress-related canker disease	Autauga
Azalea	Phytophthora root rot	Dallas
	Cercospora leaf spot	Lee
Bermudagrass	Bermudagrass decline	Lee
Blueberry	Botrytis	Chilton
	Phomopsis dieback	
Boxwood	Phytophthora root rot	Hillsborough, FL
	Volutella Blight	Dallas
Camellia	Algal leaf spot	Montgomery
Camellia, Sasanqua	Algal leaf spot	Forrest, MS
Centipede	Brown patch	Russell
	Ring nematode	
Cryptomeria	Phytophthora root rot	Jefferson
Cypress, Leyland	Botryosphaeria canker	Tallapoosa, Autauga
Gardenia	Phytophthora root rot	Hillsborough, FL
	Rhizoctonia root rot	Hillsborough, FL

Geranium	Xanthomonas bacterial blight	Bullock
Holly, Compacta	Phytophthora root and crown rot	Lee
Ivy, Algerian	Bacterial leaf spot	Forrest, MS
Satsuma	Phytophthora root rot	Baldwin
St. Augustinegrass	Brown patch	Autauga
Strawberry	Rhizoctonia root decay	Montgomery
Watermelon	Rhizoctonia root rot	Hillsborough, FL
Wheat	Rhizoctonia root rot Soil borne virus complex	Montgomery
Zoysia	Brown patch	Montgomery
Zoysia, Meyer	Ring nematode	Lee

Birmingham Plant Disease Report, March (J. Jacobi)

We received 73 samples in the month of March. About one-third of the samples showed symptoms related to damage from the drought last summer and fall. Some of the more unusual problems seen last month included anthracnose on Southern magnolia and rose rosette disease (RRD) on garden roses. We also found rose rosette disease in an adjacent property to the location of the original sample. So, be on the look-out for the symptoms of rose rosette in Central and North Alabama. For more information on the symptoms and control options for RRD, see the following web site.

<http://pubs.ext.vt.edu/450/450-620/450-620.html>

**Table 2.** 2011 March Problems Seen In the Birmingham Plant Diagnostic Lab

<u>Plant</u>	<u>Problem</u>	<u>County</u>
Apple	San Jose Scale	Limestone
Azalea	Azalea Lace Bug	Jefferson, Shelby
	Cercospora Leaf Spot	Jefferson
	Southern Red Mite	Shelby
Bentgrass	Yellow Patch ( <i>Rhizoctonia</i> )	*
Bermudagrass	Large Patch ( <i>Rhizoctonia</i> )	Jefferson
	Bipolaris Leaf Spot	Jefferson

Boxwood	Boxwood Leaf Miner	Jefferson
	Boxwood Mites	Jefferson
	Phytophthora Root Rot	Jefferson (2)
	Pythium Root Rot	Jefferson
Camellia	Tea Scale	Jefferson (2)
	Cottony Camellia Scale	Jefferson
	Anthracnose	Jefferson
Cherry laurel	Cercospora Leaf Spot	Jefferson
Cleyera	Cercospora Leaf Spot	Shelby
Cypress, Leyland	Seiridium Canker	Jefferson
Gardenia	Citrus Whitefly/Sooty Mold	Shelby
Indian Hawthorn	Entomosporium Leaf Spot	Jefferson, Shelby
Ivy, English	Pythium Root Rot	*
Ligustrum, Japanese	Cercospora Leaf Spot	Jefferson
Magnolia, Southern	Sooty Mold	Jefferson
	Anthracnose ( <i>Colletotrichum</i> )	Jefferson
	Algal Leaf Spot	Jefferson
Pachysandra	False Oleander Scale	Jefferson
Rhododendron	Botryosphaeria Dieback	Shelby
Rose	Rose Rosette Disease	Jefferson
Verbena, Lemon	Twospotted Spider Mite	Blount

**Table 3.** March Insect Report (C. Ray)

<u>County</u>	<u>Host</u>	<u>Category</u>	<u>Identification</u>	<u>Scientific Name</u>
Henry		Miscellaneous	Ground Bees	Andrenidae

Chilton	Home	Miscellaneous	Southern House Spider female	<i>Kukulcania hibernalis</i>
Chilton		Miscellaneous	Giant Resin Bee	<i>Megachile sculpturalis</i>
Russell	Lawn	Turfgrass	Leather Jackets	Tipulidae
Houston	Lawn	Household - Miscellaneous	Male trap door spiders	<i>Myrmekiaphila</i> sp.
Houston	School	Miscellaneous	male Southern House Spider	<i>Kukulcania hibernalis</i>
Elmore	Sofa	Household - Stored Product	Varied Carpet Beetle	<i>Anthrenus verbasci</i>
Winston	"red" oak	Ornamental	Gouty Oak Gall	<i>Callirhytis quercuspunctata</i>
Calhoun	Human	Medical	Adult male Lone Star Tick	<i>Amblomma americanum</i>
Crenshaw	Home	Household - Structural	a carpenter ant	<i>Camponotus decipiens</i>
Covington	Home	Stored Product	Larger cabinet beetle	<i>Trogoderma inclusum</i>
Elmore	Lawn	Miscellaneous	Eastern Tent Caterpillar	<i>Malacosoma americanum</i>
Jackson	"wood"	Miscellaneous	a darkling beetle larvae	Tenebrionidae
Choctaw	Home	Household - Stored Product	Indian Meal Moth	<i>Plodia interpunctella</i>
Lawrence	Home	Household - Stored Product	Indian Meal Moth	<i>Plodia interpunctella</i>
Forest, MS	Boxwood	Ornamentals	Boxwood Spider Mite	<i>Eurytetranychus buxi</i>
Jefferson	Pachysandra	Ornamental	False Oleander Scale	<i>Pseudaulacaspis cockerelli</i>
Jefferson	Home	Household - Miscellaneous	Varied Carpet Beetle larva	<i>Anthrenus verbasci</i>
Houston	Home	Household - Miscellaneous	Channeled Valgus Beetle	<i>Valgus canaliculatus</i>
Baldwin	Water Oak	Ornamental	"Oak Lecanium"	<i>Parthenolecanium corni</i> complex
Baldwin	Rose	Ornamental	a Two-spotted spider mite	<i>Tetranychus</i> probably <i>tumida</i>

Jefferson	carpenter bee trap	Miscellaneous	Eastern Carpenter Bee and Orchard Mason Bee	<i>Xylocopa virginiana</i> & <i>Osmia</i> sp.
Jefferson	carpenter bee trap	Miscellaneous	Pipe Organ Mud Dauber	<i>Trophoxylon politum</i>
Jefferson	carpenter bee trap	Miscellaneous	Orchard Mason Bee	<i>Osmia</i> sp.
Jefferson	carpenter bee trap	Miscellaneous	Eastern Carpenter Bee	<i>Xylocopa virginiana</i>
Jefferson	carpenter bee trap	Miscellaneous	Orchard Mason Bee and mite hypopus	<i>Osmia</i> sp. & <i>Chaetodactylus</i> sp.

### Disease Possibilities for May

The list below includes some of the disease problems and their symptoms that might be encountered in May and early June. *Refer to the pertinent fact sheets, timely information sheets, spray guides, and the Alabama Pest Management Handbook for detailed control measures.*

**Any Host: Slime Mold:** Black, gray, pink, or yellow slimy, powdery, or crusty layer on plant surfaces. CONTROL: Remove with a strong stream of water or by wiping; lawns can be mowed.

**Acorn Squash Powdery Mildew:** White, powdery dusting on both leaf surfaces, petioles, and stems. Infected leaves usually wither and die. CONTROL: See Alabama Pest Management Handbook; ANR-877.

**Alfalfa Spring Black Stem and Leaf Spot (Phoma):** Numerous small dark brown to black spots develop on the lower leaves, petioles, and stems in early spring. Leaf spots may increase in size and coalesce; becoming light to medium brown, then leaves may turn yellow, wither, and fall. Lesions on stems and petioles may enlarge and blacken large areas, girdling the base of the plant and causing death to foliage. *Phoma* may also cause a crown and root rot. Seed pods may discolor and shrivel in humid conditions. CONTROL: Early cutting; proper fertility management.

**Apple, Pear Bitter Rot:** Brown spots on fruit which enlarge into a brown cone-shaped rot within the fruit. Concentric circles of cream- or salmon-colored spore masses may develop on surface spots. Leaf spots rarely seen. CONTROL: See Alabama Pest Management Handbook; sanitation.

**Apple, Pear Botryosphaeria Canker:** Stem cankers may be small or up to 5 m long, and either superficial or deep, cracking the bark. See Alabama Pest Management Handbook; pruning.

**Apple Cedar-Apple Rust**: Bright yellow leaf spots up to 6 mm. CONTROL: See Alabama Pest Management Handbook for protective sprays. Removal of nearby red cedar if possible. See ANR-408.

**Apple, Pear Fire Blight (*Erwinia*)**: Affected plant parts appear scorched by fire and may have a watery ooze under humid conditions. CONTROL: Sanitation; resistant varieties; see Alabama Pest Management Handbook and ANR-542.

**Apple, Pear Frogeye Leaf Spot (*Botryosphaeria*)**: Dark brown leaf spots up to 5 mm which may develop a lighter center giving it a "frogeye" appearance. CONTROL: Sanitation in the fall, protective sprays in the growing season.

**Apple, Pear Nectria Canker**: Swollen, elliptical, water-soaked, sunken areas on twigs and branches that are darker than surrounding tissue. CONTROL: Prune infected branches 3 inches below canker edges.

**Apple, Pear Powdery Mildew**: White, felt-like patches on leaf surfaces; may also infect blossoms and fruit. CONTROL: See Alabama Pest Management Handbook.

**Arborvitae Phytophthora Root Rot**: Lower foliage yellows, some branches dieback; roots brown rotted and water-soaked. CONTROL: Remove damaged plants and surrounding soil; reduce irrigation, improve soil drainage. Fungicides generally not needed in landscape settings.

**Azalea Cercospora Leaf Spot**: Dark brown, angular spots about 5 mm diameter; usually associated with stressed plants. CONTROL: Remove fallen leaves; maintain proper fertility and watering schedules; Cleary's 3336 may be applied as a protective spray.

**Azalea Colletotrichum Leaf Spot (Anthracnose)**: Olive to dark brown angular spots up to 0.5 cm diameter, usually associated with stressed plants. CONTROL: Remove fallen leaves; maintain proper fertility and watering schedules; Cleary's 3336 may be applied as a protective spray.

**Azalea Exobasidium Gall**: Leaves and blossoms develop often large green-pink-white fleshy galls. CONTROL: See Alabama Pest Management Handbook.

**Azalea Phomopsis Twig Blight**: Usually small oval, sunken lesions on small branches and twigs. CONTROL: Pruning; improve plant vigor.

**Azalea Phytophthora Crown and Root Rot**: Roots and crown become brown and water-soaked; leaves become chlorotic and wilt. CONTROL: Sanitation; see Alabama Pest Management Handbook.

**Azalea Powdery Mildew**: Individual white, powdery leaf spots may eventually cover the entire leaf surface. CONTROL: Sanitation; Cleary's 3336 or Halt.

**Azalea Rhizoctonia Aerial Blight**: Irregular brown spots on foliage which may involve half or all of the leaf area. Dead leaves will fall. Mostly seen in greenhouse-nursery settings. CONTROL: See Alabama Pest Management Handbook.

**Bahia Dollar Spot**: Bleached, dollar-sized spots; individual blades show pale spots with dark borders. CONTROL: Maintain proper fertility. See ANR-493.

**Begonia Bacterial Leaf Spot**: Dark, water-soaked leaf spots. CONTROL: Strict sanitation; water at soil level.

**Begonia Phytophthora and Pythium Root Rots**: Plants dieback, wilt; wet rot of roots. CONTROL: Remove affected plants; reduce soil water. Fungicidal drenches recommended only in commercial settings. See Alabama Pest Management Handbook.

**Bentgrass Brown Patch (Yellow Patch) (Rhizoctonia)**: Round or irregular patches may become large, light brown areas of turf. Individual blades with tan to dark brown lesions. CONTROL: Reduce nitrogen fertilizer; protective fungicidal treatments.

**Bentgrass Pythium Blight**: Irregular areas of turf become water-soaked, then light brown. CONTROL: See ANR-594.

**Bermuda Bipolaris Leaf Spot/Blight**: Small, elongate, brown leaf spots which may coalesce. CONTROL: See Alabama Pest Management Handbook under Helminthosporium melting-out.

**Bermuda Brown Patch (Rhizoctonia)**: Large circular patches of light brown turf; individual blades show brown lesions and/or crowns show brown lesions, rot. CONTROL: See Alabama Pest Management Handbook, ANR-492.

**Bermuda Dollar Spot**: Pale yellow, dollar-sized spots of turf which may coalesce. Individual blades show cream colored spots with dark borders. CONTROL: Improve fertilization and optimize irrigation; collect clippings. See Alabama Pest Management Handbook and ANR-493.

**Bermuda Dreschlera or Helminthosporium Leaf Spots**: Small oval or rectangular brown spots; blight occurs when spotting heavy. CONTROL: See Alabama Pest Management Handbook.

**Bermuda Nematode Damage**: Various patches of yellowed turf; poor root development, stunted growth. A soil analysis is required for definitive diagnosis. CONTROL: See ANR-523.

**Bermuda Spring Dead Spot**: Yellow patches develop in early spring. CONTROL: See Alabama Pest Management Handbook and ANR-371.

**Blackberry Rosette (Double blossom) (Cercospora)**: Infected blossoms abnormally large with distorted petals and enlarged sepals. Shoots appear rosetted or

witches broom, initially are pale green but become bronze. CONTROL: See Alabama Pest Management Handbook.

**Blueberry Anthracnose Fruit Rot (Ripe Rot)**: Light blue or brown, sunken spots which may have black specks. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Blueberry Botryosphaeria canker**: Elongate, sunken, cracked, lesions. CONTROL: Prune affected stems.

**Blueberry Mummy Berry (Monolinia)**: Twig cankers, fruit rot. Berries shrivel and dry into "mummies." CONTROL: Sanitation; see Alabama Pest Management Handbook.

**Blueberry Phytophthora Root Rot**: Brown, water-soaked lesions on roots become dried. A serious disease that can cause plant death. CONTROL: Ridomil; See Alabama Pest Management Handbook.

**Boxwood Macrophoma Blight-Stress**: Shrub may take on a reddish tint in winter, then develop a more serious yellowing and blight with tiny black dots scattered on yellowed leaves. Cankers may also develop. This is generally a problem of stressed plants. CONTROL: Pruning; proper maintenance.

**Boxwood Phytophthora root rot**: Roots become light brown, rotted, water-soaked. The outer cortex of the root is easily separated from its core. CONTROL: Sanitation; maintain proper water and fertility. See Alabama Pest Management Handbook.

**Boxwood Volutella Blight**: Dieback beyond branch and twig cankers; blighted leaves. Masses of orange spores develop on twigs and leaves in humid conditions. CONTROL: Pruning; remove fallen leaves. See Alabama Pest Management Handbook.

**Cabbage Black Rot (Xanthomonas)**: V-shaped brown to black lesions at leaf edge; veins at lesions become black; eventually stem and vascular system rot. CONTROL: Sanitation; rotation from crucifers for 2 years.

**Cabbage Downy Mildew (Peronospora)**: Yellow spots become dark brown. CONTROL: Sanitation; reduce water levels. See Alabama Pest Management Handbook for protective fungicide treatments.

**Cabbage Pythium Damping Off**: Lower stem becomes light brown and water-soaked; stem collapses. CONTROL: Contact Ed Sikora for commercial recommendations. Replant in drier areas in garden situations.

**Camellia Algal Leaf Spot (Cephaleuros)**: Velvety green, reddish, or brown slightly raised spots develop on upper leaves under wet conditions. Older spots may have white centers and or become grayish green, looking almost lichen-like. CONTROL: See Alabama Pest Management Handbook.

**Camellia Alternaria Leaf Spot**: Small, black felty spots on leaves and petals. Spots may have a chlorotic halo and may coalesce into larger areas. CONTROL: Eliminate water from leaves. Chlorothalonil, Ortho Garden Disease Control, or Immunox.

**Camellia Colletotrichum Leaf Spot (Anthracnose)**: Light brown circular spots; under close inspection orange-pink-white-brown sporulation may be seen on the lesions. CONTROL: Sanitation; Cleary's 3336 protective sprays.

**Camellia Exobasidium Gall**: Leaves and blossoms develop soft green then white fleshy galls. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Camellia Phomopsis Leaf Spot**: Yellow or cream blight at leaf edges. CONTROL: Immunox or Fertilome Systemic Fungicide.

**Camellia Ringspot Virus**: Yellow or brown rings on leaves. Plants may be stunted. CONTROL: Maintain proper fertility and water schedules.

**Cantaloupe Gummy Stem**: Brown, elongate, cracked lesions on stem have a gummy exudate. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Cantaloupe Powdery Mildew**: White dusting on both leaf surfaces, petioles, and stems, especially on older leaves. Leaves may become yellow-brown and papery. CONTROL: Resistant varieties, sanitation; Clorothalonil, sulfur. See ANR-974.

**Cedar, Red (Juniper) Cedar-Apple Rust (Gymnosporangium)**: 1-3 inch round, woody galls on stems which develop orange, jelly-like horns protruding from the entire surface of the gall. CONTROL: Remove galls before protrusions develop. Apply protective fungicides to nearby apple, crabapple, and hawthorn. See Alabama Pest Management Handbook and ANR-468.

**Cedar, Red (Juniper) Pestalotia Tip Blight**: Tips of twigs turn brown to gray. CONTROL: Maintain proper fertility and watering schedules; selective pruning.

**Cedar, Red (Juniper) Phomopsis Dieback**: Brownd twig tips. Dieback extends further down twig with time; cankers. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Cedar, Red (Juniper) Phytophthora Root Rot**: Dieback. Roots become brown, wet, and rotted, later drying out. CONTROL: Sanitation. Reduce irrigation and improve soil drainage. See Alabama Pest Management Handbook for control in nursery settings.

**Centipede Anthracnose**: An uncommon problem which may be stress-related. Yellow or reddish brown leaf spots, dieback. The crown may also be infected; small patches of plants may yellow and die. CONTROL: Contact Austin Hagan.

**Centipede Brown Patch (Rhizoctonia)**: Rapidly developing large circular or irregular patches; individual blades show brown lesions, crowns show lesions and rot. CONTROL: See Alabama Pest Management Handbook. See ANR-492.

**Centipede Fairy Ring**: Circles or arcs of darker green grass and/or an inner band of thin or dead grass. White mycelium may be evident and there may be associated mushrooms. CONTROL: See ANR-372.

**Centipede Gray Leaf Spot**: Tiny brown lesions on leaves and stems enlarge to round or oval, tan to gray spots with purple to brown borders. CONTROL: See Alabama Pest Management Handbook and ANR-492.

**Centipede Lesion or Ring Nematodes**: Yellow, declining growth, thinning, wilting, and sometimes death occurs in patches or uniformly through the turf. CONTROL: See ANR-523.

**Centipede Southern Blight**: Initially, yellow or reddish brown circular patches in turf; green grass may remain in center; white mycelia may develop on periphery of ring with white to brown sclerotia 1-3 mm diameter. CONTROL: Aerification, reduce thatch thickness, vertical cutting. Fungicides such as Teremec may be used.

**Centipede Take-all Patch**: Small circular light or reddish brown patches which may coalesce into large areas of dead or declining turf. CONTROL: See ANR-823. Bayleton; turf replacement may be necessary.

**Cherry Blumeriella Leaf Spot**: Circular or irregular brown leaf spots that develop shot holes. CONTROL: Remove fallen leaves; Cleary's 3336.

**Cherry Botryosphaeria Canker**: Elongate, cracked cankers. CONTROL: Sanitation.

**Cherry Septoria Leaf Spot**: Brown, angular leaf spots up to 1 cm, may lead to defoliation. CONTROL: Sanitation.

**Cherry Laurel Bacterial Leaf Spot (*Xanthomonas*)**: Initially brown to purple spots, sometimes with a light green halo. Older spots dry and fall out leaving a "shot-hole" appearance. CONTROL: Sanitation; basic copper sulfate may provide protective control. See Alabama Pest Management Handbook.

**Cherry Laurel Cercospora Leaf Spot**: Irregular brown spots of variable size. CONTROL: Sanitation of leaves in the fall.

**Cherry Laurel Pestalotia Leaf Spot**: Brown leaf spots or blotches which may have small black specks. CONTROL: None necessary.

**Cherry Laurel Phomopsis Leaf Spot**: Irregular, reddish leaf spots. CONTROL: Sanitation; Cleary's 3336, Immunox, or Fertilome Systemic Fungicide.

**Cherry Laurel Phytophthora sp. Leaf Spot**: Brown, water-soaked leaf spots or blotches. CONTROL: Sanitation.

**Cherry, Yoshina Phytophthora Root Rot:** Older leaves may yellow, branch dieback, wilt; roots brown, water-soaked, decayed. CONTROL: Remove tree, reduce water levels, replant with *Phytophthora*-resistant plant.

**Chestnut, Chinese Lasiodiplodia Canker:** Sunken, elliptical lesions on limbs and trunk. CONTROL: Prune affected branches 3 inches beyond canker edge, dipping shears in alcohol or a 10 percent bleach solution between cuts.

**Chrysanthemum Rhizoctonia Root Rot:** Roots become brown, dried, decayed. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Clematis Phytophthora and Pythium Root Rots:** Dieback, wilt; roots water-soaked and rotted. CONTROL: Remove diseased plants; control soil moisture.

**Cleyera Anthracnose (*Colletotrichum*):** Reddish round or irregular spots about 5 mm diameter scattered on leaves. CONTROL: Sanitation. Cleary's 3336 or Domain protective sprays.

**Cleyera Phytophthora Root Rot:** Dieback, wilt; roots water-soaked and rotted. CONTROL: Remove infected plants, reduce excess soil moisture.

**Coral Bells Thielaviopsis (Black) Root Rot:** Dieback, wilt; roots with black tips and other areas. CONTROL: Remove damaged plants. A protective drench of Cleary's 3336 may be used.

**Corn Bacterial Soft Rot:** Brown lesions on leaves, sheaths, and stem; stalk collapse; often a bad odor. CONTROL: Sanitation, maintain balanced soil fertility and moisture and air circulation between plants.

**Corn Common Rust:** Brown, circular or elongate, pustules on both leaf surfaces; yellowing of sheath; death of leaves and sheaths may occur. CONTROL: Resistant varieties.

**Corn Northern Corn Leaf Blight:** Long, elliptical, tan, brown, or gray spots first develop on lower leaves; disease spreads upward. CONTROL: Resistant varieties.

**Corn Pythium Seedling Disease:** Lower stem turns light brown, becomes water-soaked, and collapses. CONTROL: None.

**Corn Rhizoctonia Stem Rot:** Stems develop dry, brown cankers. CONTROL: Sanitation.

**Cotton Fusarium Lower Stem and Seedling Diseases:** Sunken, reddish brown lesions on stem near soil line. CONTROL: Seed treatment.

**Cotton Pythium Root Rot and Seedling Disease:** Roots brown, water-soaked; foliage yellow, wilted. Seedlings may fall over at the soil line. CONTROL: Seed treatment.

**Cotton Rhizoctonia Stem and Root Rot:** Dry brown, sunken lesions on stem and roots. CONTROL: See Alabama Pest Management Handbook.

**Cotton Root Knot Nematode:** Localized areas of stunted plants; spindle-shaped or rounded root galls. CONTROL: Resistant varieties, crop rotation. See ANR-1012.

**Crabapple Cedar-Apple Rust:** Pale yellow leaf spots up to 1 cm; leaves fall if spots are numerous. CONTROL: See Alabama Pest Management Handbook.

**Crabapple Fire Blight:** Blossom blight, rapid dieback; cankers form at end of dieback. CONTROL: Prune 12 inches beyond dieback. See ANR-542 and Alabama Pest Management Handbook.

**Crape Myrtle Phytophthora Root Rot:** Wet-rotted, brown roots; foliage dieback. CONTROL: Remove damaged plants; reduce water levels, replant with *Phytophthora*-resistant plant.

**Crape Myrtle Powdery Mildew:** Initially a white dusting on upper leaf surfaces; leaves turn brown, may be curled or distorted. CONTROL: See Alabama Pest Management Handbook.

**Cryptomeria Botryosphaeria Canker:** Sunken branch lesions, sometimes with cracking around the edges. CONTROL: Pruning 3-4 inches beyond lesions, dipping shears in alcohol between cuts.

**Cryptomeria Cercospora Blight:** Sunken, elliptical lesions on limbs; foliage blight. CONTROL: Prune infected branches 3-4 inches beyond cankers.

**Cryptomeria Phytophthora Root Rot:** Lower limbs dieback first; roots brown, water-soaked, rotted. CONTROL: Remove infected plants; improve water levels. Contact Austin Hagan for control in commercial settings.

**Daffodil Fusarium Bulb Rot:** A brown discoloration at the base of the bulb. Leaves of bulb develop a dry rot; occasionally a pink mold can be seen beneath the scales. CONTROL: Remove damaged bulbs and replace soil in the area. Rotate crops for several years.

**Daylily Kabatiella Leaf Spot and Streak:** Numerous 5 mm brown leaf spots surrounded by yellow streaking. CONTROL: Sanitation.

**Daylily Rust:** Orange pustules evident early; elongate yellow-brown leaf spots. CONTROL: Sanitation. See TI PP-506. Immunox or Fertilome Systemic Fungicide.

**Dogwood Powdery Mildew:** White, powdery, dusting on leaves and blossoms. CONTROL: See Alabama Pest Management Handbook.

**Dogwood Spot Anthracnose (*Elsinoe*):** Small reddish brown spots with reddish borders occur on leaves, bracts, and young twigs; spotting may be severe with foliage death. CONTROL: Sanitation; see Alabama Pest Management Handbook.

**Elm Botryosphaeria Canker:** Dry, sunken, brown, possibly cracked cankers. CONTROL: Prune affected branches 3 inches beyond canker edge.

**Euonymus Powdery Mildew:** White dusting on upper leaf surfaces, some leaf deformity. CONTROL: See Alabama Pest Management Handbook.

**Gardenia Phytophthora Root Rot:** Roots become brown, brittle; plants show general decline. The disease may spread to adjacent plants. CONTROL: Remove diseased shrubs and replace with *Phytophthora*-resistant plants. See ANR-571.

**Geranium Botrytis Blight:** Brown leaf spots, blight of blossoms and leaves. Stem blight. CONTROL: See Alabama Pest Management Handbook.

**Geranium Fusarium Root Decay:** Dieback, lower foliage yellows, roots decayed. CONTROL: Sanitation; see Alabama Pest Management Handbook.

**Grape Black Rot:** Circular or irregular brown spots up to 5 mm diameter on leaves or fruit. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Hawthorn Fire Blight:** Blackened leaves, twigs, blossoms; shoot dieback. CONTROL: See ANR-542.

**Hibiscus Rust:** 1 mm orange-brown pustules on leaf undersurfaces; corresponding yellow-orange spots on upper leaf surface may develop; premature defoliation may occur. CONTROL: Sanitation; prune affected branches.

**Holly Colletotrichum Leaf Spot:** Small brown circular leaf spots. CONTROL: Cleary's 3336 may be used as protectant.

**Holly Pestalotia Leaf Spot:** Irregular gray or brown blotches. CONTROL: Sanitation.

**Holly Phytophthora Root Rot:** Roots dark and decayed, outer cortex easily separates from inner core. CONTROL: Sanitation, reduce excess soil moisture. See Alabama Pest Management Handbook.

**Hollyhock Rust:** Orange pustules on leaves, stems, and flowers; dieback. CONTROL: Cut stems back to ground level in fall; remove all plant debris. Remove all weed mallow in area.

**Hosta Anthracnose (*Colletotrichum*) Leaf Spot:** Brown leaf spots. CONTROL: Sanitation; Cleary's 3336 protective spray.

**Hosta Pythium Crown Rot:** Brown water-soaked decay on stem near soil line. CONTROL: Sanitation; improve soil drainage; rotate from Hosta; Subdue 2E after a test treatment.

**Hydrangea Anthracnose:** Brown circular leaf and blossom spots. CONTROL: Sanitation; Cleary's 3336.

**Hydrangea Bacterial Leaf Spot:** Dark, angular leaf spots up to 5 mm, some reddish discoloration. CONTROL: Sanitation; water at soil level; copper protective sprays may help.

**Hydrangea, Oakleaf Armillaria Root Rot:** Black threadlike structure may be present around root or crown areas; thin white fungal mats may appear under bark. CONTROL: Remove affected plants and surrounding soil; replant away from hydrangea.

**Hydrangea, Oakleaf Bacterial Leaf Spot:** Dark, angular leaf spots up to 5 mm. CONTROL: Sanitation; water at soil level.

**Hydrangea, Oakleaf Phytophthora Crown Rot:** Lower trunk brown and wet-rotted. CONTROL: Sanitation; see Alabama Pest Management Handbook.

**Hydrangea, Oakleaf Phytophthora Root Rot:** Primarily a problem in container-grown plants. Initially, a sudden wilting of foliage, also yellowing, stunting, or leaf fall. Feeder roots brittle and brown. CONTROL: Remove all plants with damaged foliage, reduce excess water from area and improve drainage; Subdue, Banrot, or Banol may be applied to adjacent plants as a protectant and may be effective on roots with low level of infection.

**Hydrangea, Oakleaf Pythium Root Rot:** Wilt, dieback; small roots become light brown, wet rotted, deteriorated. CONTROL: Remove infected plants. Reduce soil water levels. See Alabama Pest Management Handbook.

**Impatiens Alternaria Leaf Spot:** Brown to black angular leaf spots. CONTROL: Sanitation; Kocide 101.

**Impatiens Impatiens Necrotic Spot Virus:** Irregularly shaped black spots up to 5 mm, black ring spots may also be present. CONTROL: Control thrips; sanitation.

**Indian Hawthorn Entomosporium Leaf Spot:** Reddish leaf spots with black centers. CONTROL: Sanitation. Protective fungicide sprays.

**Iris Bacterial Soft Rot:** Rhizomes and leaves mushy and have unpleasant odor. Bacteria enters through wounds, often caused by the iris borer. CONTROL: Avoid fresh manure and excess nitrogen; cut off affected plant parts and destroy; if damage is extensive, dig up and destroy diseased rhizomes. Insecticide dust may be used to control borers.

**Iris Heterosporium Leaf Spot:** Brown elliptical spots may be up to 2 cm. Spots may have a halo. CONTROL: Sanitation. Cleary's 3336 protective sprays.

**Iris Fusarium Root Decay:** Yellowing, wilt, dieback. Roots brown, dry, decayed.  
CONTROL: Remove infected plants; rotate from iris and related plants.

**Ivy Anthracnose:** Irregular brown spots often occurring along veins. CONTROL:  
Sanitation; Cleary's 3336 or Domain. See Alabama Pest Management Handbook.

**Ivy Phytophthora Root Rot:** Roots initially brown and water-soaked, then dry. Foliage wilts, dieback. CONTROL: Sanitation, reduce irrigation. See Alabama Pest Management Handbook and ANR-1148.

**Jasmine Phomopsis Leaf Scorch/Twig Dieback:** Twig cankers, dieback. CONTROL:  
Prune affected limbs 3 inches beyond edge of dieback. Protective sprays of Cleary's 3336, Halt, or OHP 6672 may be used.

**Jasmine Pythium Root Rot:** Small roots light brown, wet-rotted; foliage dieback.  
CONTROL: Remove severely infected plants; improve water relations.

**Juniper:** See Cedar, Red.

**Lemon Phytophthora Root Rot:** Foliage dieback, wilt, yellowing; roots become dark, wet-rotted. CONTROL: Remove dying plants and associated soil; control excess water.

**Leyland cypress Botryosphaeria Canker:** Cracked, elongate, sunken lesions or cankers on branches or trunk. CONTROL: Sanitation; prune affected branches 3 inches beyond canker edge.

**Leyland cypress Cercospora/Cercospora Blights:** Blight usually starts on lower inner leaves. CONTROL: Pruning, sanitation. Cleary's 3336 can be used as protective spray. See ANR-1196.

**Leyland cypress Seiridium Canker:** Elongate, sunken cankers with sap flow. CONTROL: Sanitation; see Alabama Pest Management Handbook, ANR-1160.

**Liriope Fusarium Crown Rot:** Dry rot of lower stem. CONTROL: Avoid plant stress. Cleary's 3336 as protective spray.

**Liriope Rhizoctonia Crown Rot:** Lower stems brown and dry. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Loquat Botryosphaeria Canker:** Sunken, elongate cankers with cracked edges. CONTROL: Sanitation; prune out affected branches.

**Magnolia Algal Leaf Spot:** Circular, greenish or reddish brown, slightly raised leaf spots. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Magnolia Alternaria Leaf Spot:** Black leaf spots on either healthy or stressed trees. CONTROL: Removed fallen leaves.

**Magnolia Black Mildew:** Black mold on undersurfaces of leaves. CONTROL: None.

**Maple Anthracnose:** Brown to black blotchy spots may occur along leaf veins or edges; may develop into large areas of leaf. CONTROL: Sanitation; See Alabama Pest Management Handbook for small trees.

**Maple Tar Spot:** Black, irregular leaf spots. CONTROL: Remove fallen leaves. See Alabama Pest Management Handbook.

**Maple, Japanese Phomopsis Canker:** Elliptical, gray-brown, sunken lesions on small branches and twigs. CONTROL: Sanitation; prune affected branches.

**Maple, Red Botryosphaeria Canker:** Dry, cracked, dark branch lesions. CONTROL: Prune out cankers.

**Maple, Red or Japanese Phyllosticta Leaf Spot:** Small, circular, light brown leaf spots with darker brown or purplish borders. CONTROL: Sanitation of fallen leaves. See Alabama Pest Management Handbook.

**Marigold Pythium Root Rot:** Roots become light brown, water-soaked, and easily pulled apart. CONTROL: Sanitation; reduce excess soil moisture. See Alabama Pest Management Handbook.

**Mayhaw Cedar-Quince Rust:** Bright yellow spots on leaves and fruit; corresponding orange pustules may be seen on leaf undersurfaces. CONTROL: If practicle, removal of junipers in area.

**Oak Botryosphaeria Canker:** Sunken lesions with cracked margins. CONTROL: Pruning.

**Oak Fusiform Rust:** Small leaf spots with short, hair-like structures on undersurface. CONTROL: This is not a serious problem for oaks but is very damaging to pines, especially slash and loblolly. Remove either oak or pine from the area.

**Oak Hypoxylon Canker:** Thick, hard, black fungus layer under the bark. CONTROL: Prune out cankers.

**Oak Leaf Blister:** Brown, puckered spots up to 1 cm on leaves. This is usually not a serious problem but leaf drop sometimes occurs. CONTROL: Sanitation; see Alabama Pest Management Handbook.

**Oats Black Loose Smut:** Smutted plants generally shorter; seed heads filled with dark, sooty spore masses. CONTROL: Fungicide seed dressing before planting; no control in field.

**Oats Crown or Leaf Rust:** Bright yellow or orange pustules on leaves, sheathes, panicles, or stem. CONTROL: Deep plowing.

**Oats Helminthosporium Leaf Spot:** Small, elongate, reddish-brown leaf spots. CONTROL: None, damage is usually minimal.

**Okra Rhizoctonia Crown and Root Rot:** Brown dry lesions on crown, decay of crown and roots. CONTROL: Sanitation; rotate crop for 1-2 years.

**Onion Bacterial Soft Rot:** Initial water-soaked tissue disintegrates into slimy mass with a bad odor. Symptoms begin at bulb neck and may only affect outer scales. CONTROL: Harvest only mature bulbs and store under dry conditions; avoid other diseases, insects, and mechanical injuries. Copper-based bactericides may reduce infection and spread.

**Pansy Anthracnose:** Round white to gray leaf spots. CONTROL: See Alabama Pest Management Handbook.

**Pansy Fusarium Stem and Crown Cankers:** Lower stem develops a reddish brown decay. CONTROL: Sanitation.

**Peach Armillaria Trunk/Root Rot:** Trees do not leaf out in spring, or if they do they dieback a few weeks later. Black thread-like structures and/or white mycelial mats may be present under the bark near the soil line. CONTROL: Sanitation of infected plants including roots.

**Peach Bacterial Leaf Spot:** Brown, irregular or circular, leaf spots with wet margins which eventually fall out leaving shot holes which may have yellow halos. CONTROL: Sanitation; protective sprays available for commercial growers.

**Peach Black Knot:** Green or black elongated swellings along branches. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Peach Botryosphaeria Canker, Gummosis:** Oval sunken lesions on bark with cracked edges and resin exudate. CONTROL: Sanitation.

**Peach Root Knot Nematode:** Dieback, trees have poor growth, root galls. CONTROL: Sanitation; crop rotation or fumigation. Contact Ed Sikora.

**Pear Cedar-Pear Rust:** Bright yellow leaf spots, light orange tendrils on leaves or fruit; does not affect overall health of tree. CONTROL: Remove nearby junipers if practical. Harvest pears before orange pustules form.

**Pear Entomosporium Leaf Spot:** Small black leaf spots. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Pear, Bradford Fireblight (Erwinia):** Black dieback, blossom blight; twigs may have a shepherd's crook appearance. CONTROL: See Alabama Pest Management Handbook.

**Pear:** See also under Apple.

**Peony Anthracnose**: Round, light brown leaf spots up to 3 mm. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Pepper Bacterial Leaf Spot**: Dark, angular leaf spots up to 5 mm with wet edges. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Pepper Bacterial Wilt**: Wilted leaves, rapid wilt of green plants. CONTROL: Rotate from pepper, tomato, eggplant, Irish potato for 3-5 years.

**Pepper Fusarium Wilt**: Lower foliage yellow, wilted; symptoms spread upward. CONTROL: Rotate from pepper and other solanaceous crops for a decade or more.

**Pepper Tomato Spotted Wilt Virus**: Plants stunted, distorted. Ring spots or bronzing may be present. CONTROL: Sanitation; control thrips.

**Phlox Pythium Root Rot**: Small roots light brown, water-soaked, stunted. Plants yellow, wilted, dieback. CONTROL: Remove damaged plants. Improve soil water conditions.

**Photinia Armillaria Root Rot**: Plant decline. A thin, white mycelial layer may be found under the bark or on roots as well as black thread-like rhizomorphs on roots. Honey-colored mushrooms may be present. CONTROL: Sanitation of plants and roots. Crop rotation. See ANR-907.

**Photinia Entomosporium Leaf Spot**: Dark red spots or blotches on both leaf surfaces. CONTROL: Pruning; fungicide treatment. See Alabama Pest Management Handbook and ANR-392.

**Pine, Loblolly Fusiform Rust (*Cronartium quercuum f. sp. fusiforme*)**: Elliptical swellings on branches and trunks with a rusty, powdery coating. CONTROL: Sanitation. Protective sprays in nursery settings. See Alabama Pest Management Handbook.

**Pine, Loblolly Needle Rust (*Coleosporium*)**: Cream-colored, 2-3 mm pustules along needle edges. CONTROL: Remove asters from area.

**Pine, Virginia Armillaria Root Rot**: Dieback, black thread-like structures in root zone or crown, white mycelial mat may be present under bark, brown or honey-colored mushrooms may be present at base of tree. CONTROL: Removal of infected tree and its root system may be necessary to prevent spread to other trees.

**Pine, Virginia Needle Rust (*Coleosporium*)**: Cream-colored, 2-3 mm pustules along needle edges. CONTROL: none.

**Plum Black Knot**: Green, swollen, elongated galls in spring become black in summer. CONTROL: Pruning; see ANR-1055. Apply Captan at green tip stage.

**Plum Brown Rot**: Gray mold on blossoms, profuse gumming at margin between healthy and diseased twig tissue, circular necrotic lesions on fruit. CONTROL: See Alabama Pest Management Handbook.

**Potato Scab:** Circular, raised or sunken. scabby lesions up to 8 mm on tubers.  
CONTROL: Maintain a slightly acid soil; crop rotation; resistant varieties.

**Privet Cercospora Leaf Spot:** Round or irregular leaf spots up to 1 cm. CONTROL: See Alabama Pest Management Handbook.

**Quince Cedar-Quince Rust:** Orange cups on fruit followed by fruit rot; yellow spots on leaves may occur. CONTROL: Remove affected fruit and fallen leaves as well as nearby red cedars. See Alabama Pest Management Handbook.

**Quince Fireblight (*Erwinia amylovora*):** Blossom blight followed by rapid dieback.  
CONTROL: Severe pruning.

**Rhododendron, Azalea Botryosphaeria Canker:** Elongate sunken brown cankers, often with cracked margins. CONTROL: Sanitation.

**Rhododendron Cercospora Leaf Spot:** Usually round, brown spots up to 1 cm.  
CONTROL: Sanitation; Cleary's 3336 or Domain protective sprays.

**Rhododendron Pestalotia Leaf Spot:** Gray-brown leaf blotches, often occurs on cold-stressed or injured leaves. CONTROL: Sanitation.

**Rhododendron Phytophthora Root Rot:** Dieback; roots become brown, water-soaked, rotted. CONTROL: Remove damaged plants; reduce excess soil moisture. See Alabama Pest Management Handbook.

**Rose Black Spot (*Diplocarpon rosa*):** Round black spots with feathery edges.  
CONTROL: See ANR-505 and Alabama Pest Management Handbook.

**Rose Common Canker:** Red to yellow spots in the bark become light brown cankers with a dark brown margin, becomes shrunken and cracked. CONTROL: Avoid injury to canes; prune the affected canes with sharp tools immediately above the node and at an angle.

**Rose Downy Mildew:** Irregular, water-soaked leaf spots become black with age.  
CONTROL: See Alabama Pest Management Handbook.

**Rose Powdery Mildew:** White powdery coating on leaves and stems. CONTROL: See Alabama Pest Management Handbook and ANR-407.

**Ryegrass Rust:** Small yellow, red, or brown leaf spots. CONTROL: Frequent mowing or harvest.

**Squash Powdery Mildew:** Powdery white growth on leaves, petioles, and stems; yellow spots may form on leaves opposite growth on undersurface; leaves wither and die.  
CONTROL: Resistant varieties; commercial fungicides with the active ingredients benomyl, chlorothalonil, or triadimefon.

**St. Augustinegrass Brown Patch:** Brown blotches on individual blades; whole blade may become brown. CONTROL: See Alabama Pest Management Handbook.

**St. Augustinegrass Gray Leaf Spot:** Gray spots and blotches which may become large, foliage dieback. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**St. Augustinegrass Take-All Patch (*Gaeumannomyces*):** Circular light to reddish-brown patches of turf. CONTROL: Maintain soil pH between 5.5-6.0; use ammonium forms of nitrogen.

**Strawberry Anthracnose Fruit Rot (*Colletotrichum*):** Dark rotting develops on fruit. Older spots may produce orange spores. CONTROL: See Alabama Pest Management Handbook or Spray Guide Bulletin for Small Fruit.

**Strawberry Botrytis Fruit Rot:** Gray-brown rotted areas often with fluffy mycelial growth. CONTROL: Sanitation. See Alabama Pest Management Handbook or Spray Guide Bulletin for Small Fruit.

**Strawberry Mycosphaerella (Common) Leaf Spot:** Symptoms vary by variety and temperature. 2-3 mm round leaf spots may have light centers and purple margins. Spots may coalesce causing leaf death. CONTROL: See Alabama Pest Management Handbook.

**Strawberry Phytophthora Crown, Root, and Petiole Rots:** Inner crown may be reddish. Crown and roots may be wet, brown, rotted. Petioles become brown and decayed. CONTROL: Sanitation; reduce irrigation and/or improve drainage. See Alabama Pest Management Handbook.

**Sweet Potato Black Rot (*Ceratocystic fimbriata*):** Initially small dark spots appear on roots. The rot tends to remain firm and shallow. CONTROL: Sanitation. See Alabama Pest Management Handbook for a commercial crop.

**Tomato Bacterial Leaf Speck:** Small, angular, black leaf spots, sometimes with a halo. CONTROL: See Alabama Pest Management Handbook.

**Tomato Bacterial Leaf Spot (*Xanthomonas axonopodis*):** Round black, water-soaked leaf spots. CONTROL: See Alabama Pest Management Handbook and ANR-71.

**Tomato Bacterial Wilt:** Green plants suddenly wilt; vascular tissue yellow to light brown, darker as disease progresses. CONTROL: Rotate away from solanaceous crops or fumigate soil.

**Tomato Colletotrichum (Anthracnose) Fruit Rot:** Colorless, water-soaked fruit rot. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Tomato Early Blight:** Brown or black spots up to 1 cm on leaves, stems, or fruit. Spots may form in concentric circles. CONTROL: Fungicide sprays; sanitation.

**Tomato Fusarium Wilt:** Lower leaves yellow, wilted; this progresses up stem. Lower stem vascular tissue develops brown color. CONTROL: Sanitation; rotate away from tomatoes 10 or more years. Some resistant tomato varieties are only resistant to 2 of the 3 common races of this fungus.

**Tomato Leaf Mold:** Gray to pale green leaf blotches; leaves may curl and fall. CONTROL: See Alabama Pest Management Handbook.

**Tomato Southern Blight:** Stem decays at soil line; a white fungal mat with hard, brown spherical bodies may be present on surrounding soil. CONTROL: Sanitation; crop rotation; Terrachlor. See ANR-863.

**Tomato Tomato Spotted Wilt Virus:** Yellow to brown leaf spots, plants wilted stunted. CONTROL: Sanitation. Control thrips.

**Tulip Poplar Cristulariella Leaf Spot:** Large, often zonate, leaf spots. CONTROL: Not a problem unless widespread. Remove fallen leaves.

**Verbena Phytophthora and Pythium Crown Rots:** Lower stems brown and wet-rotted. CONTROL: Sanitation. Subdue may be used in commercial settings.

**Vinca, Annual (Madagascar Periwinkle) Phytophthora Foliage Blight:** Dark brown lesions on leaves and stems; dieback. CONTROL: Sanitation; avoid excess moisture. See Alabama Pest Management Handbook.

**Vinca, Annual Rhizoctonia Stem Rot:** Dried, dark brown sunken stem lesions; dieback of affected stems. CONTROL: Sanitation; remove damaged plants. Protective sprays of Domain, Chipco 26019, or Cleary's 3336. See Alabama Pest Management Handbook.

**Vinca minor and V. major (Common and Big Periwinkle) Anthracnose:** Small or large brown leaf spots. CONTROL: See Alabama Pest Management Handbook under Perennial Vinca.

**Watermelon Anthracnose:** Brown to black leaf spots which may coalesce and cover most of the leaf; small water-soaked spots on fruit become black, sunken spots which may have orange gelatinous spore masses; elongate tan lesions on stems and petioles. CONTROL: See Alabama Pest Management Handbook.

**Watermelon Cucurbit Yellow Vine Disease:** Bright yellowing and wilting followed by death of plant. Pumpkin and squash likely to show disease before watermelon or cantaloupe due to their preference by the squash bug which carries the bacterium. No vascular discoloration as in **Fusarium Wilt**. CONTROL: Control squash bugs early; sanitation after harvest.

**Watermelon Fusarium Crown Rot:** Dry, brown lesions on crown. CONTROL: Crop rotation for 6-12 years or more; plant resistant varieties.

**Watermelon Fusarium Root Rot**: Roots become dry and rotted; wilt, dieback.  
CONTROL: Rotate crops for 10-16 years.

**Watermelon Fusarium Wilt**: Vines and leaves become yellow and wilted beginning with the oldest foliage. CONTROL: Resistant varieties; rotate from watermelon for 6-12 years.

**Watermelon Gummy Stem**: Brown spots which may cause leaf blight; round tan to black spots may appear on stems; brown exudates may come from stem lesions. CONTROL: See Alabama Pest Management Handbook or Southeastern Vegetable Crop Handbook.

**Wheat Bacterial Blight (Black Chaff) (Xanthomonas)**: Elongated blackish lesions may develop on foliage early in the season. Glumes later become spotted with brown to black lesions; these may be confused with Septoria glume blotch. CONTROL: None, except deep plow or crop rotation.

**Wheat Barley Yellow Dwarf Virus**: Yellowing and reddening of older leaves; excessive tillering, stunting. CONTROL: None except aphid control.

**Wheat Take-All (Gaeumannomyces)**: Stem and root at soil line become decayed and blackened. CONTROL: Crop rotation for 1-2 years to oats, corn, or legumes.

**Zinnia Bacterial Leaf Spot** Small, dark, water-soaked, angular leaf spots which may have a yellow halo. CONTROL: Remove all affected plants; water at soil level; See Alabama Pest Management Handbook.

**Zinnia Fusarium Root Rot**: Roots dried and brown; dieback. CONTROL: Since this is a soil-borne fungus and difficult to control, plant in a new location.

**Zoysia Brown Patch (Rhizoctonia)**: Rapidly developing large circular or irregular patches; individual blades show brown lesions, crowns show lesions and rot. CONTROL: See ANR-492.

**Zoysia Dollar Spot**: White or yellow silver dollar-sized spots in turf. Spots may coalesce. CONTROL: See ANR-493.

**Zoysia Nematode Damage**: Areas of thinning turf, dieback, poor root system. CONTROL: See Alabama Pest Management Handbook.

**Zoysia Rust**: Orange-brown, powdery spots on leaves. CONTROL: See Alabama Pest Management Handbook or ANR-621.

**Zoysia Take-All**: Individual plants yellow and die, brown or black lesions on roots. CONTROL: See Alabama Pest Management Handbook and ANR-312.