

# TIMELY INFORMATION

## Agriculture & Natural Resources

June 29, 2011

PP-703

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

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

### INSECT REPORT

### DISEASE POSSIBILITIES FOR JULY

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

We received 141 plant samples in May, 136 for plant problem diagnosis and 5 for identification. We found **Brown Patch** on 4 bermudagrass samples, 11 centipede, 1 St. Augustine, 12 zoysia, and 2 unidentified turfgrasses. We received 10 tomato samples, 4 of which were diagnosed with **Tomato Spotted Wilt Virus**.

May could only be described as dry and hot. Many times have we Auburnites watched a storm approaching only to see it veer to the north without reaching us. The weather station in the Johnson backyard recorded only 1.28 inches of rain for the entire month, compared to 6.23 for May, 2010 and 8.18 for May, 2009. There were 13 days

this May that topped 90 degrees, whereas there were only 6 and one 90+ day for May of 2010 and 2009, respectively.

The first reports of **Citrus Tristeza Virus (CTV)** in Alabama were made in May from two lemon trees. Citrus trees from Sour Orange or Bittersweet Sour Orange rootstocks are susceptible to this disease. Various strains of the virus cause mild to severe symptoms, from reduced vigor and fruit size to rapid decline and death. Our lab is prepared to test leaf samples using an enzyme-linked immunosorbant assay (ELISA) specially designed for CTV.

August usually brings with it the occurrence of large numbers of **Chinch Bugs** in turfgrasses, but we have already seen large numbers of them – as many as 200 per square foot. Adult chinch bugs are about 5 mm long and black. An X pattern is created by white patches on the wings. Nymphs are slightly smaller and red with a white band across their backs. Turfgrass is made more susceptible to infestation by over-watering and the use of too much water-soluble fertilizers which create rapid growth of succulent tissue. Thatch creates an ideal habitat for chinch bugs. That can be avoided by proper cultural practices such as mowing with a sharp blade and keeping the lawn 3-4 inches high. If chinch bugs are suspected, their presence needs to be verified since the symptoms of infestation – yellow or brown patches of turf - are similar to several disease problems. Heavy infestations of chinch bugs can be found by examining the soil surface near the edge of yellowed areas of the lawn. Alternatively, a solution of 1.5 ounces of liquid soap in 2 gallons of water sprinkled over a 4-square-foot area should cause the chinch bugs to appear on the surface of the grass.

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

| <u>Plant</u>       | <u>Disease</u>        | <u>County</u>  |
|--------------------|-----------------------|--|
| Agapanthus         | Bacterial Soft Rot    | *  |
| Apple              | Fire Blight           | Calhoun  |
| Azalea             | Ovulinia Petal Blight | Forrest (MS)   |
| Bermudagrass       | Bermudagrass Decline  | Tuscaloosa   |
|                    | Bipolaris Leaf Spot   | Tuscaloosa   |
|                    | Brown Patch           | Elmore (2), Montgomery, Tuscaloosa   |
| Blueberry          | Powdery Mildew        | Lee  |
| Camellia           | Exobasidium Gall      | Elmore   |
| Camellia, Sasanqua | Virus                 | Forrest (MS)   |
| Centipede          | Bermudagrass Decline  | Autauga  |
|                    | Brown Patch           | Autauga, Baldwin (2), Calhoun, Elmore, Jefferson (2), Mobile, Montgomery, Shelby (2) |

|                    |                              |                                    |
|--------------------|------------------------------|------------------------------------|
|                    | Gray Leaf Spot               | Baldwin                            |
|                    | Take-All Patch               | Baldwin                            |
| Cherry             | Botrytis Blight              | Lee                                |
| Cleyera            | Armillaria Root Rot          | Macon                              |
| Corn, Sweet        | Bacterial Stalk Rot          | Fayette                            |
| Cotton             | Rhizoctonia Seedling Disease | Henry                              |
| Cypress, Leyland   | Phomopsis Blight             | Lee                                |
| Grass              | Leaf Smut                    | DeKalb                             |
| Ivy, English       | Bacterial Leaf Spot          | Forrest (MS)                       |
| Jasmine, Asiatic   | Rhizoctonia Root Rot         | Lee                                |
| Juniper            | Phomopsis Tip Blight         | Forrest (MS)                       |
| Lemon              | Citrus Tristeza Virus        | Mobile (2)                         |
| Lily               | Phomopsis Leaf Spot          | Henry                              |
| Maple              | Phytophthora Crown Rot       | Montgomery                         |
| Mayhaw             | Cedar-Quince Rust            | Houston                            |
| Muscadine Grape    | Botryosphaeria Dieback       | *                                  |
| Pea                | Pythium Seedling Disease     | Calhoun                            |
|                    | Virus                        | Houston                            |
| Pear               | Fire Blight                  | Chilton                            |
| Pepper, Bell       | Southern Blight              | Henry                              |
| Potato             | Early Blight                 | Lee                                |
| Squash             | Bacterial Leaf Spot          | Elmore                             |
|                    | Choanephora Rot              | Elmore                             |
| Squash, Zucchini   | Blossom End Rot              | Lee                                |
| St. Augustinegrass | Brown Patch                  | Bullock, Montgomery, Russell       |
|                    | Take-All                     | Houston, Montgomery (2)            |
| Stevia             | Bacterial Leaf Spot          | Lee                                |
| Tomato             | Bacteria Wilt                | Elmore, Lee                        |
|                    | Rhizoctonia Crown Rot        | *                                  |
|                    | Tomato Spotted Wilt Virus    | Lee, Mobile, Monroe,<br>Tallapoosa |
| Turf               | Brown Patch                  | Autauga, Calhoun                   |
| Vinca              | Phytophthora Root Rot        | Mobile                             |
| Vinca major        | Phytophthora Root Rot        | Geneva                             |

|            |                            |  |
|------------|----------------------------|--|
| Watermelon | Fusarium Wilt              | Mobile   |
| Wheat      | Septoria Glume Blotch      | DeKalb   |
| Wisteria   | Wisteria Vein Mosaic Virus | Forrest, MS  |
| Zoysia     | Brown Patch                | Autauga, Calhoun (2), Lee (2),<br>Montgomery (5), Shelby (2) |
|            | Rust                       | Calhoun, Montgomery  |
|            | Take-All Patch             | Jefferson, Montgomery  |

\* Counties are not reported for commercial samples.

### Birmingham Plant Disease Report, May (J. Jacobi)

The big news for May and early June is the dry weather. Rainfall was below normal over much of the state during the month with many areas receiving less than half of their normal monthly rainfall. Drought conditions have worsened across the state with nearly 55% of the state in moderate to severe drought. Most of the rest of the state is classified as abnormally dry.

Even with the dry weather we had 120 samples during the month of May. Common plant problems included fire blight on apple, spring dead spot on Bermudagrass, pecan Phylloxera, and large patch on zoysiagrass.

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

| <u>Plant</u>       | <u>Problem</u>          | <u>County</u> |
|--------------------|-------------------------|---------------|
| Apple              | Fire Blight             | Jefferson (2) |
| Arborvitae         | Armillaria Root Rot     | Jefferson     |
| Azalea             | Azalea Lacebug          | Jefferson     |
|                    | Iron Chlorosis          | Jefferson     |
|                    | Phomopsis Dieback       | Jefferson     |
| Barberry, Japanese | Powdery Mildew          | Jefferson     |
|                    | Phytophthora Root Rot   | Shelby        |
| Basil, Sweet       | Four-lined Plant Bug    | Shelby        |
| Bermudagrass       | Ground Pearls           | Shelby        |
|                    | Spring Dead Spot        | Jefferson (3) |
| Boxwood            | Volutella Blight/Canker | Jefferson     |
|                    | Macrophoma Stem Canker  | Jefferson     |

|                       |  |                              |
|-----------------------|--|------------------------------|
| Camellia, Sasanqua    | Leaf Gall ( <i>Exobasidium</i> )                     | Jefferson                    |
|                       | Dieback/Canker of Camellia ( <i>Colletotrichum</i> ) | Shelby                       |
| Cedar, Eastern Red    | Phomopsis Twig Blight                                | Jefferson                    |
| Centipedegrass        | Large Patch  | Jefferson                    |
| Crape Myrtle          | Armillaria Root Rot                                  | Shelby                       |
| Cypress, Leyland      | Seirdium Canker                                      | Jefferson                    |
| Forsythia             | Four-lined Plant Bug                                 | Jefferson                    |
| Hydrangea, Big Leaf   | Cercospora Leaf Spot                                 | Jefferson                    |
| Hydrangea, Panicle    | Four-lined Plant Bug                                 | Blount                       |
| Hydrangea, Oak Leaf   | Armillaria Root Rot                                  | Jefferson (2)                |
| Indian Hawthorn       | Entomosporium Leaf Spot                              | Jefferson                    |
| Juniper, Blue Pacific | Phytophthora Root Rot                                | Lauderdale                   |
| Magnolia, Southern    | Hail Damage  | Jefferson                    |
|                       | False Oleander Scale                                 | Jefferson                    |
| Oak, White            | Wool Sower Gall                                      | Cullman                      |
| Oak, Willow           | Camphor Shoot Beetle                                 | Shelby                       |
| Oregano               | Four-lined Plant Bug                                 | Jefferson                    |
| Pecan                 | Pecan Phylloxera                                     | Jefferson (2),<br>Shelby (2) |
| Peony                 | Botrytis Blight                                      | Jefferson                    |
| Persimmon, Japanese   | Persimmon Psylla                                     | Jefferson                    |
| Rhododendron          | Botryosphaeria Dieback                               | Jefferson                    |
| Rose                  | Black Spot   | Jefferson                    |
|                       | Rose Sawfly  | Jefferson (2)                |
| Squash, Summer        | Squash Vine Borer                                    | Jefferson                    |
| St. Augustine Grass   | Fairy Ring   | Jefferson                    |
| Tomato                | Bacterial Speck ( <i>Pseudomonas</i> )               | Jefferson                    |
|                       | Glyphosate Injury                                    | Jefferson                    |
|                       | Physiological Leaf Roll                              | Shelby                       |
|                       | Timber Rot ( <i>Sclerotinia</i> )                    | Cullman                      |
|                       | Tomato Spotted Wilt Virus                            | Jefferson                    |
| Willow, Corkscrew     | Imported Willow Leaf Beetle                          | Jefferson                    |

|             |  |                              |
|-------------|--|------------------------------|
| Zoysiagrass | Large Patch ( <i>Rhizoctonia</i> )         | Jefferson (2),<br>Lauderdale |
|             | Take All Root Rot ( <i>Gaumannomyces</i> ) | Lauderdale                   |

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

| <u>County</u> | <u>Host</u>              | <u>Category</u>              | <u>Identification</u>           | <u>Scientific Name</u>                     |
|---------------|--------------------------|------------------------------|---------------------------------|--|
| Jefferson     | Home                     | Household -<br>Miscellaneous | White-margined<br>Burrower Bug  | <i>Sehirus cinctus</i>                     |
| Escambia      | Lawn                     | Miscellaneous                | Jadera bug                      | <i>Jadera<br/>haematoloma</i>              |
| Forrest, MS   | Hypericum                | Ornamental                   | greenhouse thrips<br>damage     | <i>Heliethrips<br/>haemorrhoidalis</i>     |
| Russell       | Weedy Plot               | Miscellaneous                | a burrowing bug                 | Cydnidae                                   |
| Russell       | Weedy Plot               | Miscellaneous                | a ground beetle                 | Carabidae                                  |
| Hale          | Lawn                     | Turfgrass                    | May Beetle                      | <i>Phyllophaga</i> sp.                     |
| Marshall      | Pine                     | Ornamental                   | Eastern Subterranean<br>Termite | <i>Reticulitermes<br/>flavipes</i>         |
| Marshall      | Pine                     | Ornamental                   | a Rainbow Beetle                | <i>Tarpela micans</i>                      |
| Lee           | decomposed<br>deer skull | Miscellaneous                | a dermestid beetle<br>larva     | <i>Dermestes</i> prob.<br><i>maculatus</i> |
| Barbour       | a white oak              | Ornamental                   | a gall wasp                     | possible <i>Neuroterus</i>                 |
| Jefferson     | Home                     | Household -<br>Miscellaneous | a grass spider                  | Agelenidae                                 |
| Jefferson     | Home                     | Household -<br>Miscellaneous | a hunting spider                |  |
| Madison       | Human                    | Medical                      | Tropical Fowl Mite              | <i>Ornithonyssus<br/>bursa</i>             |
| Marengo       | Wisteria                 | Ornamental                   | Clay-colored Leaf<br>Beetle     | <i>Anomoea laticlava</i>                   |
| Marengo       | Corn                     | Row Crops                    | Chinch Bugs                     | <i>Blissus</i> sp                          |
| Marengo       | Corn                     | Row Crops                    | Black Cutworm                   | <i>Agrotis ipsilon</i>                     |
| Marengo       | Corn                     | Row Crops                    | Fall Armyworm                   | <i>Spodoptera<br/>frugiperda</i>           |
| Marengo       | Corn                     | Row Crops                    | Sugar Cane Beetle               | <i>Euethola humilis</i>                    |
| Marengo       | Corn                     | Row Crops                    | Southern Corn Leaf<br>Beetle    | <i>Myochrous<br/>denticollis</i>           |
| Marengo       | Corn                     | Row Crops                    | Small Dung Beetle               | Aphodiinae                                 |

|            |                        |                               |                                       |                                      |
|------------|------------------------|-------------------------------|---------------------------------------|--------------------------------------|
| Marengo    | Peas                   | Row Crops                     | Bean Leaf Beetle                      | <i>Cerotoma trifurcata</i>           |
| Montgomery | Bermuda                | Turfgrass                     | Chinch Bugs                           | <i>Blissus</i> sp.                   |
| Covington  | Home                   | Household -<br>Miscellaneous  | Ring-legged earwig                    | <i>Euborellia annulipes</i>          |
| Houston    | St. Augustine<br>grass | Turfgrass                     | Chinch Bug                            | <i>Blissus</i> sp.                   |
| Talladega  | Pecan                  | Fruits and Nuts               | Pecan Stem<br>Phylloxera              | <i>Phylloxera<br/>devastatrix</i>    |
| Jefferson  |                        | Miscellaneous                 | Tree Bug                              | Pentatomidae                         |
| Winston    | Home                   | Household -<br>Stored Product | Lesser Mealworm<br>Beetle             | <i>Alphitobius<br/>diaperinus</i>    |
| Chilton    | Lawn                   | Miscellaneous                 | Periodical Cicadas                    | <i>Magicicada</i> sp.                |
| Mobile     | Squash                 | Row Crops                     | Squash Bug eggs                       | <i>Anasa tristis</i>                 |
| Randolph   | Human                  | Medical                       | Gulf Coast Tick                       | <i>Amblyomma<br/>maculatum</i>       |
| Limestone  | Russian Sage           | Ornamental                    | Four-lined Plant Bug                  | <i>Poecilocapsus<br/>lineatus</i>    |
| Houston    |                        | Miscellaneous                 | White-margined<br>Burrower Bug        | <i>Sehirus cinctus</i>               |
| Mobile     | Azaleas                | Ornamental                    | Clay-colored Leaf<br>Beetle           | <i>Anomoea laticlavia</i>            |
| Houston    | Home                   | Household -<br>Miscellaneous  | a flesh fly                           | poss. <i>Sarcodexia</i><br>sp.       |
| Elmore     | Bermuda-<br>grass      | Turfgrass                     | Chinch Bugs                           | <i>Blissus</i> sp.                   |
| Marshall   |                        |                               | Dark Southern<br>Subterranean Termite | <i>Reticulitermes<br/>virginicus</i> |

#### Disease Possibilities for July (D. Johnson)

The Plant Diagnostic Lab often sees plants that have been planted too deep. Whereas tomatoes can be planted deep to increase root development, deep planting woody shrubs and trees weakens the plants, making them more susceptible to root diseases such as **Phytophthora Root Rot**. Mulch that is piled too high at the base of a plant may cause problems as well. Holes should be dug only as deep as the root ball but twice as wide. ANR-958 describes the proper steps for planting landscape plants.

Cucurbits get both **Downy and Powdery Mildews** during the summer months. **Downy Mildew** is favored by wet, warm conditions. Symptoms are generally confined to leaves and vary among the different crops. Generally, yellow leaf spots are evident on the upper leaf surfaces, appearing on older leaves first then progressing upward. As

the lesions expand they may become brown and necrotic. These lesions tend to be angular on cucumber leaves, whereas other cucurbits show irregular spots. The undersides of leaves may develop a light to deep purple downy growth. Lesions may spread over enough leaf area to cause leaf death, resulting in reduced and poorer quality yields. **Powdery Mildew** is most common in hot, dry conditions and favors crowded plantings. Symptoms include a light-colored powdery dusting or felt-like patches on leaf surfaces or other plant parts. Leaves may become dry, crusty, distorted, or withered and may fall prematurely. See the Alabama Pest Management Handbook for individual control measures for these diseases.

**Southern Blight (White Mold)** may continue to affect a wide range of vegetable, legume, and ornamental hosts. Look for sunken stem lesions and white mycelial mats with hard, round, brown spores on the plant as well as surrounding soil. Sanitation and soil solarization should help control this problem.

Herbicides often cause plant distortions that mimic those caused by viruses, such as **2,4-D** damage on tomato which resembles **Cucumber Mosaic Virus** symptoms. Since one plant may carry more than one virus, it makes it even more confusing. Growers should be aware not only of what is sprayed directly on their crops but what might drift from adjacent fields. Our lab is able to test for several viruses. Scouting for aphids, thrips, stinkbugs, and other vectors may also help determine the cause of plant problems.

The list below includes some of the disease problems and their symptoms that might be encountered in July and early August. *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 which appear after wet, humid weather. CONTROL: This will usually turn black and die within a few days. It can be removed with a strong stream of water, but during dry conditions that will only spread the fungus. It can be wiped or raked; 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 Black Rot (Frogeye Leaf Spot)**: Initially, small purple leaf spots enlarge up to 5 mm and may develop a lighter center giving it a “frogeye” appearance. Minute red specks develop on sepals; these grow and become purple with a red border. This results in blossom end rot in fruit. Limb cankers may also develop. CONTROL: Sanitation in the fall, protective sprays in the growing season.

**Apple, Pear Botryosphaeria Canker**: Stem cankers may be small or up to 5 m long, and either superficial or deep, cracking the bark. CONTROL: Prune 3-4 inches beyond canker edge. See Alabama Pest Management Handbook.

**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 Flyspeck**: Often numerous small, shiny black spots on fruit. Often occurs alongside sooty blotch. CONTROL: Regular protective fungicide sprays; pruning; thinning of fruit.

**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 Phytophthora Root and Crown Rots**: Yellowing of foliage and dieback; roots become brown, rotted, and water-soaked. CONTROL: Remove damaged plants; improve soil drainage.

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

**Apple, Pear Sooty Blotch**: Green, sooty blotches on mature fruit. Often occurs alongside flyspeck. CONTROL: Regular protective fungicide sprays; pruning; thinning of fruit.

**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.

**Aucuba Botryodiplodia Leaf and Stem Blotches**: Large, irregular black leaf blotches; black cankers on stems; dieback. CONTROL: Pruning, sanitation; Cleary's 3336.

**Aucuba Phytophthora Root Rot**: Roots become brown and brittle; girdling may occur in the stem near the soil line; yellowing, dieback. CONTROL: Remove damaged plants and surrounding soil; reduce irrigation, improve soil drainage.

**Azalea Botryosphaeria Canker:** Sunken, cracked stem lesions. CONTROL: Prune affected limbs; remove debris.

**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; dieback. CONTROL: Pruning; improve plant vigor.

**Azalea Phytophthora Crown and Root Rots:** 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.

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

**Bean Alternaria Leaf Spot:** Brown, often zonate, leaf spots. CONTROL: Sanitation; protective sprays of Maneb or Chlorothalonil.

**Bean Ashy Stem Blight:** Seedling stems have small, black, sunken lesions at soil line; infection grows upward, cankers may girdle plant. CONTROL: Remove damaged plants; rotate from beans. Resistance; pathogen-free seeds.

**Bean Anthracnose:** Black or reddish-brown spots on leaves and pods; lesions may have orange spores. CONTROL: See Alabama Pest Management Handbook or Vegetable Spray Guide.

**Bean Fusarium Stem and Root Rots:** Lower stem and roots become reddish-brown, dry rotted. CONTROL: Soil solarization; rotate crop at least 7 years.

**Bean Rhizoctonia Stem Rot:** Dry, brown, sunken lesions develop on lower stem. CONTROL: Remove damaged plants; rotate crop; Terrachlor.

**Bean Root Knot Nematode:** Plants stunted, lower foliage yellows, wilt; roots have galls. CONTROL: Remove plants; use resistant varieties; solarization. See ANR-1024.

**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; stem blight. 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 (Melting Out):** Small oval or rectangular brown spots may occur on all plant parts; 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 Rust:** Rusty or brown-colored leaves. CONTROL: Generally not required unless in heavy shade. See Alabama Pest Management Handbook and ANR-621.

**Bermuda Spring Dead Spot (Bermudagrass Decline):** 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 Botrytis:** Grey or brown blotches on leaves and fruit; fruit rot. CONTROL: Sanitation; Benlate protective sprays.

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

**Blueberry Gloeosporium Leaf Spot**: Brown leaf spots with purple border; lesions on succulent stems. CONTROL: Resistance; reduce humidity in canopy.

**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 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.

**Calla Lily Anthracnose**: Leaf spots. CONTROL: If possible, remove spotted leaves as well as fallen leaves; an all-purpose fungicide labeled for general use on ornamentals may be used.

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

**Cantaloupe Anthracnose**: Round, brown leaf spots; dark lesions on stems and petioles, possibly with red exudate. CONTROL: Deep plowing, rotation; See Alabama Pest Management Handbook.

**Cantaloupe Downy Mildew**: Small yellow areas on upper leaf surface which expand and may become brown and necrotic; undersurface may develop a light gray to dark purple downy growth. CONTROL: See Alabama Pest Management Handbook.

**Cantaloupe Fusarium Wilt**: Lower leaves yellow; wilting from bottom up. CONTROL: Rotation; fumigation.

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

**Cedar, Red (Juniper) Phomopsis Dieback:** Browning of 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 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 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 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 Bacterial Canker:** Sunken stem cankers often with a foul-smelling exudate. CONTROL: Remove cankered limbs, using alcohol to clean tools between each cut.

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

**Chrysanthemum Fusarium Wilt or Crown Rot:** Leaves yellow and wilt; lower stem brown, wilted; plant death. CONTROL: Damaged plants must be removed and destroyed; sanitation, solarization, reduce irrigation; rotate from mums several years. See Alabama Pest Management Handbook.

**Chrysanthemum Phytophthora and Pythium Root Rots:** Dieback; roots brown, water-soaked. CONTROL: Reduce irrigation, sanitation, rotation, protective drenches. See Alabama Pest Management Handbook.

**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 Common Smut:** Galls may be present on all above-ground plant parts, first with shiny pale green to silvery covering, then interior becomes powdery, dark masses. Leaf galls tend to remain small, becoming hard and dry. Few or small ears may be produced. CONTROL: Resistance is key. Seed treatment, sanitation, rotation, balanced fertility, fungicides may be used but are less effective.

**Corn Gray Leaf Spot:** Elongate gray leaf spots. CONTROL: Resistance.

**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.

**Corn Southern Corn Leaf Blight**: Elongate, tan leaf spots which may coalesce, may have yellow to brown halos. Seedlings may wilt and die. CONTROL: Resistance.

**Corn Southern Rust**: Cinnamon-brown to orange pustules on upper leaf surfaces, stalks, and sheaths. CONTROL: Resistance.

**Corn Stubby-Root Nematodes**: Roots, especially on seedlings, become stunted, stubby. CONTROL: See IPM-0428.

**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 Reniform Nematode**: Light green or yellow foliage, mottling; stunted, irregular growth; root necrosis. CONTROL: See Alabama Pest Management Handbook.

**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.

**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.

**Cucumber Anthracnose**: Brown, water-soaked, angular or round leaf and stem spots. CONTROL: See Alabama Pest Management Handbook.

**Cucumber Downy Mildew**: Small yellow areas on upper leaf surface which expand and are bound by the veins; undersurface may develop a light gray to dark purple downy growth. CONTROL: See Alabama Pest Management Handbook.

**Cucumber Powdery Mildew**: White, powdery dusting on leaves, petioles, and stems. CONTROL: Resistance; see Alabama Pest Management Handbook.

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

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

**Cypress, Leyland Phomopsis Dieback:** Tips of branches dieback. CONTROL: See Alabama Pest Management Handbook.

**Cypress, Leyland Phytophthora Root Rot:** Generally occurs in wet, poorly drained soils. Dieback, yellow foliage; roots dark, decayed. Rarely a problem on large, landscape trees. CONTROL: Not recommended in landscapes; Subdue Maxx in nursery plants.

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

**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.

**Dianthus Pythium Root and Crown Rot:** Yellow foliage, dieback, wilt. Roots brown, wet, decayed. CONTROL: Improve soil water conditions. Rotate from susceptible plants for 2-3 years.

**Dogwood Cercospora and Septoria Leaf Spots:** Brown, circular or angular leaf spots. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**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.

**Fig Rhizoctonia Foliage Blight:** Large necrotic leaf spots. CONTROL: Prune out heavily affected limbs. Remove leaf debris.

**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.

**Gourd Cucumber Mosaic Virus:** Dark green, light green, and yellow tissue forming a mosaic pattern on the youngest leaves; leaves may be distorted, stunted; vines may appear bunched. CONTROL: Remove diseased plants; aphid control may provide limited protection.

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

**Grape Downy Mildew**: Yellow, angular leaf spots become dark brown. CONTROL: See The Southeast Regional Integrated Pest Management Guide for Grape.

**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.

**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.

**Hosta Southern Blight**: White mold on lower stem; stem soft and limp. CONTROL: Sanitation; See Alabama Pest Management Handbook.

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

**Hydrangea 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 Bacterial Leaf Spot**: Especially severe on **Oakleaf Hydrangea**. Dark, angular, reddish-purple leaf spots; symptoms begin on lower foliage and move upward. CONTROL: Sanitation; water at soil level; copper protective sprays may help.

**Hydrangea Cercospora Leaf Spot**: Variable brown leaf spots. Control: Remove all damaged leaves. See Alabama Pest Management Handbook.

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

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

**Impatiens Phytophthora Root and Crown Rots:** Wet, brown lesions on crown and roots. CONTROL: Sanitation; see Alabama Pest Management Handbook; see ANR-571.

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

**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.

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

**Ivy Phyllosticta Leaf Spot:** Round to oval, brown leaf spots. CONTROL: ????

**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.

**Juniper:** See Cedar, Red.

**Liriope Colletotrichum Rot:** Dieback, brown rot of lower stem. CONTROL: Cut back plants, sanitation; eliminate stress factors. Protective sprays such as Heritage, Cleary's 3336, Duosan, Zyban, or Sys Star WDG in commercial settings.

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

**Liriope Phytophthora Crown Rot:** Crowns brown, wet-rotted; plants wilt, yellow, die. CONTROL: Remove plants and associated soil; improve drainage. Fungicides not recommended in landscapes.

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

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

**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 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.

**Maple Phytophthora Root Rot:** Roots brown to reddish-brown and brittle. Leaf yellowing and drop. The fungus may girdle stem near soil line. Symptoms often show on one plant then spread to nearby plants. CONTROL: See ANR-571.

**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.

**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.

**Morning Glory Rust:** Yellow leaf spots; powdery orange masses on leaf surfaces. CONTROL: Sanitation.

**Mulberry, Weeping Cyindrosporium Leaf Spot:** Small, angular, reddish brown leaf spots. CONTROL: Sanitation.

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

**Oak Armillaria Root Rot:** Small or discolored leaves, reduced shoot growth, white mycelial mats under bark, black threadlike growths on roots. Honey-colored mushrooms may be present at base of tree. CONTROL: If caught early, remove dead bark from cankers; remove stumps and roots from diseased trees. See ANR-907.

**Oak Bacterial Scorch:** Scattered leaves with brown edges; dieback over 2-3 years. CONTROL: Remove tree to prevent spread.

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

**Oak Ganoderma Root Rot:** Dieback, root rot; a poroid conk with a brown leathery surface may appear. CONTROL: Sanitation, root removal.

**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.

**Oak Phomopsis Canker:** Woody twig and branch galls. CONTROL: Sanitation.

**Oak Slime Flux:** A foul-smelling sap flows down trunk. CONTROL: Not necessary.

**Okra Fusarium Wilt**: Whole plant yellowed, stunted, wilted; darkened vascular system. CONTROL: Rotate from okra 6-10 years.

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

**Okra Root Knot Nematode**: Large, irregular root swellings; poor development. CONTROL: Rotation, sanitation; see ANR-856.

**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 Brown Rot**: Brown rot on fruit which may develop fluffy gray fungal masses. CONTROL: Sanitation; See Alabama Pest Management Handbook.

**Peach Phomopsis Canker**: Dieback; elongate, brown stem cankers. CONTROL: Sanitation.

**Peach Scab**: Small, olive-colored, velvety spots or blotches on fruit surface; slightly raised green to brown spots on leaf undersides. CONTROL: Sanitation; protective fungicide sprays.

**Peanut Diplodia Collar Rot**: Wilt, dieback; root and crown rot. CONTROL: See Austin Hagan.

**Peanut Late Leaf Spot**: Initially, small yellow to brown spots become dark brown to black, 7-8 mm round spots with feathery edges. CONTROL: 3-4 year rotations, resistance, deep turning. See ANR-369.

**Peanut Tomato Spotted Wilt Virus**: Yellow ring spots on leaves, new leaves small, plants stunted. CONTROL: Control thrips; sanitation.

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

**Pear 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 Botrytis Blight**: Brown blotches on leaves, stems, blossoms. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Pepper Anthracnose Fruit Rot**: Sunken, black blotches on fruit which may develop orange pustules. CONTROL: 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.

**Periwinkle** See Vinca.

**Petunia Phytophthora Foliage Blight/Root and Crown Rots**: Leaf spots, dieback, blight; roots and crown brown, wet rotted. CONTROL: Remove damaged plants. See Alabama Pest Management Handbook.

**Petunia Pythium Crown and Root Rots**: Lower stems and roots brown and wet-rotted.  
CONTROL: Remove damaged plants and associated soil; correct soil water levels.

**Plum Bacterial Leaf Spot**: Reddish-brown leaf spots which may fall out leaving shot-hole appearance, may have yellow halo. CONTROL: Sanitation; sprays for commercial growers.

**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.

**Pumpkin Downy Mildew**: Initially, leaf mottling, then yellow, angular spot. Light gray to purple fluffy spots on leaf undersides; eventual leaf death. CONTROL: See Alabama Pest Management Handbook.

**Pumpkin Powdery Mildew**: White powdery growth on leaves. CONTROL: Resistance; 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.

**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 Botrytis Blight:** Brown-gray spots or blotches on leaves, blossoms, or peduncles. Stem cankers may also result. CONTROL: Pruning, sanitation; see Alabama Pest Management Handbook for Black Spot.

**Rose Brown Canker:** Elongate brown cankers. CONTROL: Remove cankered limbs, cutting 3 inches beyond canker edge; plant removal if trunk is affected. Protective sprays on nearby roses using fungicides labeled for black spot.

**Rose Cercospora Leaf Spot:** Circular brown leaf spots. CONTROL: See Alabama Pest Management Handbook for Black Spot.

**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 Phytophthora Root Rot:** Dieback; roots brown and wet-rotted, later dried out. CONTROL: Remove and destroy all plants with dieback; improve soil drainage, water levels. Protective drenches may prevent spread to nearby healthy plants. See Alabama Pest Management Handbook.

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

**Sage Phytophthora Root and Crown Rot:** Lower stem and roots brown and wet-rotted; plant wilts. CONTROL: Remove diseased plants; reduce irrigation.

**Sorghum Anthracnose:** Yellowish round leaf spots with red, brown, or black edges; spots may coalesce; bleached lesions with reddish edges on stalks; head rot may occur. CONTROL: Rotation; plow under crop residues.

**Sorghum Gray Leaf Spot:** Small red leaf spots enlarge to angular red to purple spots; these may coalesce into elongate stripes. Under moist conditions sporulation gives spots a gray cast. CONTROL: This is a common disease but rarely causes significant damage.

**Sorghum Rough Spot:** Oval, reddish leaf spots that are rough to the touch. CONTROL: This is common but rarely serious.

**Sorghum Target Spot:** Round or oval leaf and stem spots. CONTROL: 2-year rotation; contact Austin Hagan.

**Sorghum Zonate Leaf Spot:** Zonate leaf spots of red-purple and yellow bands.  
CONTROL: Sanitation.

**Soybean Asian Soybean Rust:** Initially tiny yellow leaf spots which darken, become angular; pustules may form on leaf undersurfaces. CONTROL: *Early detection*; see ANR-1310.

**Soybean Anthracnose:** Irregular brown lesions on stems, pods, and petioles; lesions may develop minute black spines in later stages. CONTROL: Rotation; plow under crop residues.

**Soybean Charcoal Rot:** Lower stem becomes weak and shredded; pith may develop salt-and-pepper appearance. CONTROL: Rotation; deep plow.

**Soybean Downy Mildew:** Yellow leaf spots with corresponding gray to purple spots on undersurface. CONTROL: See Alabama Pest Management Handbook or Soybean Pest Management, ANR-413.

**Soybean Frogeye Leaf Spot:** Gray spots with dark red borders on leaves, stems, and pods; coalesced spots may lead to leaf drop. CONTROL: Healthy seed; 2-year rotation; see Alabama Pest Management Handbook, ANR-413.

**Soybean Pythium Seedling Disease:** Lower stem or roots become brown, translucent, water-soaked. CONTROL: Seed treatment.

**Soybean Rhizoctonia Stem and Root Rots:** Reddish or brown lesions on lower stem. CONTROL: Seed treatment; provide good soil drainage.

**Soybean Root Knot Nematode:** Poor growth, plants yellow or stunted; galls on roots. CONTROL: Resistance, rotation. See Alabama Pest Management Handbook.

**Soybean Southern Blight:** Crown becomes wet and rotted; white mold may develop at soil line. CONTROL: Deep plow.

**Soybean Sudden Death Syndrome (Fusarium Root Rot):** Generally affects small plants only. Tap and lateral roots rotted; leaves develop interveinal browning; plants wilt and die. CONTROL: Rotation; plant when soil is moist; promote adventitious root development by ridging soil around plant base.

**Squash Anthracnose:** Round, light brown leaf spots. CONTROL: See The Southeastern Vegetable Extension Workers Handbook.

**Squash Downy Mildew:** Small yellow areas on upper leaf surface which expand and are bound by the veins; undersurface may develop a light gray to dark purple downy growth. CONTROL: See Alabama Pest Management Handbook.

**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.

**Sunflower Alternaria Leaf Spot:** Circular to oval leaf spots. CONTROL: Rotation.

**Sycamore Powdery Mildew:** White powdery dusting on leaves. CONTROL: Sanitation. See Alabama Pest Management Handbook.

**Tomato Bacterial Canker:** Elongate, brown, water-soaked stem lesions with dry, white centers. CONTROL: Remove damaged plants. See Alabama Pest Management Handbook.

**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 Blossom End Rot:** A nutrient problem characterized by a hard black lesion at blossom end of fruit. CONTROL: Optimize water levels and fertilization. See Alabama Pest Management Handbook.

**Tomato Buckeye Fruit Rot:** Light brown, zonate spots on fruit; flesh decomposes. CONTROL: Keep fruit off soil; Ridomil 2E.

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

**Tomato Cucumber Mosaic Virus:** Leaves mottled, curled, narrowed; plants stunted, bushy. CONTROL: Sanitation; control aphids and weeds.

**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 Root Knot Nematode:** Poor growth; galls on roots. CONTROL: Rotation; fumigation; solarization.

**Tomato Septoria Leaf Spot:** Gray, round or irregular, leaf spots. CONTROL: See Alabama Pest Management Handbook.

**Tomato Southern Blight (White Mold):** 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, new growth stunted. CONTROL: Sanitation; resistance. Reflective mulch is most effective for thrips control.

**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 Aerial Blight:** Dark brown lesions on leaves and stems; dieback, wilt. 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; brown, sunken stem lesions. CONTROL: Sanitation; Cleary's 3336, Benomyl WP, Domain.

**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 Cercospora Leaf Spot:** Light brown, round or irregular, leaf spots with black margins, up to 1 cm. CONTROL: Sanitation; fungicidal sprays.

**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.

**Watermelon Powdery Mildew**: White powdery dusting on leaf surfaces. Leaves may wilt and die. CONTROL: See Alabama Pest Management Handbook.

**Willow Botryosphaeria Canker**: Elongate, sunken, cracked branch lesions which may ooze sap. CONTROL: Sanitation; prune affected limbs 3 inches beyond canker, dipping shears in alcohol or 10% bleach between cuts.

**Zinnia Alternaria Leaf Spot**: Dark gray, round or irregular leaf spots; may also affect blossoms. CONTROL: Sanitation; see Alabama Pest Management Handbook.

**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.

**Zinnia Tomato Spotted Wilt Virus**: Yellow-green mosaic leaf spots. CONTROL: Sanitation; rotation.

**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 Fairy Ring**: Yellow then brown circular or semi-circular areas in the turf. CONTROL: See Alabama Pest Management Handbook and ANR-372.

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

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