

TIMELY INFORMATION

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FEBRUARY PLANT DISEASES FROM THE AUBURN PLANT DIAGNOSTIC LAB

FEBRUARY PLANT DISEASES FROM THE BIRMINGHAM PLANT DIAGNOSTIC LAB

FEBRUARY INSECT REPORT FROM THE AUBURN PLANT DIAGNOSTIC LAB

DISEASE POSSIBILITIES FOR MARCH

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Auburn Plant Disease Report-February (J. Mullen)

February was a relatively quiet plant sample month with only 19 plant submissions. Botrytis foliar blights and Pythium diseases are often seen in February. Uncommonly warm temperatures allowed for the development of Cercospora blight of Leyland cypress, and Phytophthora root rot of 'Savannah' holly. Also, Ed Sikora found Asian soybean rust (confirmed with PCR) on kudzu in Henry, Houston, and Montgomery counties.

Botrytis usually develops when temperatures are relatively cool (65-75°F) and conditions are moist or humid. Brown irregular spots develop on blossoms, leaves, and herbaceous stems. Dieback may result from girdling stem lesions. When conditions are humid, a light gray, thin mold may cover the lesions. Control involves sanitation of diseased plant parts, increased temperatures if possible, reduced humidity levels (fans or increased plant spacing), and application of protective fungicide sprays. See the AL Pest Management Handbook for fungicides. In February we saw Botrytis blight on begonia.

Pythium may occur as a root decay problem, a cool season turf grass foliage or root decay, or a vegetable (fruit) rot. Most often, we see Pythium as a lower stem and root rot. Generally, Pythium is more of a problem on herbaceous plants. On woody plants, it tends to be a rotter of small feeder roots and often a secondary event after an earlier disease development or injury. The holly sample was found to have Phytophthora and Pythium; we suspect the Phytophthora to be the initial or primary problem. Pythium often occurs after root injury or stress from drought or fertilizer salts injury. Plants damaged by Pythium root rot usually have been kept in wet situations. Pythium is a water mold, and requires excess water for development. Damaged plants should be removed. Water levels should be reduced. In a nursery situation, protective fungicide drenches may be used if the situation is appropriate. Consult the Pest Management Handbook for protective fungicides for root decay and turf diseases. Also see ANR-594 for Pythium turf diseases.

Most everything said about Pythium root rot can be said about Phytophthora root rot of holly. Phytophthora is known as an aggressive root rot disease agent of a variety of woody ornamentals and herbaceous plants.

Cercospora blight of Leyland cypress is often seen in the spring and fall, but our unusually warm temperatures of February were favorable for development of this disease in East Central Alabama. Foliage blight was developing. See ANR-1196 for more information at www.aces.edu/pubs/docs/A/ANR-1196/.

Table 1. February Plant Diseases Received at the Auburn Plant Diagnostic Lab.

<u>Plant</u>	<u>Disease</u>	<u>County</u>
Begonia	Botrytis Stem Canker and Foliage Blight	Lee
Holly, Savannah	Phytophthora Root Rot	Calhoun
	Pythium Root Rot	Calhoun
Kudzu	Asian Soybean Rust (<i>Phakopsora pachyrhizi</i>)	Henry, Houston & Montgomery
Leyland Cypress	Cercospora Blight	Russell
Zoysia, Meyer	Ring Nematode Problem (<i>Criconeoides</i>)	Baldwin

Birmingham Plant Disease Report-February (J. Jacobi)

Some of the plant problems seen last month included Phytophthora root rot on boxwood, Florida red scale on camellia, privet mite damage on azalea, southern red mite on cherrylaurel, aphids on foxglove and pansy, and armillaria root rot on photinia or redbud. Feeding damage by voles was also the suspected cause of problems on boxwood and fatsia samples.

Damaging levels of aphids were on pansy samples received recently. So, monitor for aphids and treat if needed. Registered materials include insecticidal soap, imidacloprid, bifenthrin, neem extracts and other products. Check the specific labels for rates and timing instructions. In addition to aphids, also monitor for cool weather mites (Southern red mite and spruce spider mites) on evergreen woody ornamentals (azalea, arborvitae, camellia, cherrylaurel, etc.). For a complete description of the damage and including control options for these cool weather mites, see the following web page (<http://www.ces.ncsu.edu/depts/ent/notes/O&T/trees/ort077e/ort077e.htm>).

A homeowner also brought in a sample of cyanobacteria or blue-green algae (*Nostoc* sp.) that was infesting his zoysiagrass. We occasionally have seen very similar blue-green algae from wet lawns or sites that are often compacted, poorly drained, and shady. In dry weather they dry up and turn black and after a rain they will swell up in a brownish-green jellylike mass. These blue-green algae do not infect the turfgrass but are invasive and can out-compete the turfgrass, especially in wet or shaded environments. Control requires alleviating the wet soil conditions by improving drainage and air circulation (by selective pruning trees and shrubs) and proper irrigation practices. Chemical options are limited for homeowner, but the following publication lists some options (<http://www.aces.edu/pubs/docs/A/ANR-0908/ANR-0908.pdf>). For an excellent image of this jellylike blue-green algae click on the following link (http://botanika.biologija.org/slike/splbot/img_Nostoc.jpg).

Table 2. 2006 February Problems Seen in the Birmingham Plant Diagnostic Lab.

<u>Plant</u>	<u>Problem</u>	<u>County</u>
Azalea	Privet Mite (<i>Brevipalpus</i>)	Jefferson
Boxwood, Common	Phytophthora Root Rot	Jefferson
	Suspect Vole Damage	Jefferson
Camellia, Common	Florida Red Scale (<i>Chrysomphalus</i>)	Jefferson
	Suspect Virus	Jefferson
Cherrylaurel	Southern Red Mite	Jefferson
Cypress, Leyland	Seiridium Canker	Jefferson
Fatsia	Suspect Vole Damage	Jefferson

<u>Plant</u>	<u>Problem</u>	<u>County</u>
Foxglove	Aphids	Blount
Holly, Chinese	Sooty Mold	Jefferson
Nandina	Cercospora Leaf Spot	Jefferson
Pansy	Aphids	Jefferson
	Botrytis Blight	Jefferson
Photinia	Armillaria Root Rot	Jefferson
Rhododendron	Pestalotia Leaf Spot	Jefferson
Zoysia	Cyanobacteria (<i>Nostoc</i>)	Jefferson

February Insect Report (C. Ray)

COUNTY	CROP	CATEGORY	SPECIMEN NAME
Jefferson	Home	Household-Miscellaneous	Male Amaurobiid Spider, <i>Coras medicinalis</i>
Jefferson	Home	Household-Miscellaneous	False Wolf Spider, <i>Ctenus hibernalis</i>
Jefferson	Rhodea	Ornamental	Fern Scale, <i>Pinnaspis aspidistrae</i>
DeKalb	Information Not Provided	Information Not Provided	Indian Meal Moth, <i>Plodia interpunctella</i>
New Orleans, Louisiana	FEMA Campsite	Medical	Macrochelid Mites, <i>Macrocheles</i> sp.
New Orleans, Louisiana	FEMA Campsite	Medical	Uropodine Mites
New Orleans, Louisiana	FEMA Campsite	Medical	Acarid Mites
Mobile	Water	Household-Miscellaneous	Rat-tailed Maggot
Calhoun	Savannah Holly	Ornamental	Yellow Mites, Soft Scales, Townsend Scale, <i>Abgrallaspis townsendi</i>

COUNTY	CROP	CATEGORY	SPECIMEN NAME
Baldwin	Arbor Vitae	Ornamental	Maskell Scale, <i>Lepidosaphes pallida</i> , Spruce Spider Mite, <i>Oligonychus ununguis</i> (Jacobi), Spruce Rust Mite, <i>Calepirtrimerus occithujae</i>
Conecuh	American Boxwood	Ornamental	A Tarsonemid Mite, <i>Daedalotarsonemus</i> sp.
Covington	Scuppernong Grape	Fruits & Nuts	Cottony Maple Scale, <i>Pulvinaria innumerabilis</i>

Disease Possibilities For March

Virus symptoms on wheat and other small grains may be more evident in March. Barley yellow dwarf virus (BYDV), an aphid transmitted virus, causes oats to develop a red coloration which begins at leaf tips of older leaves and progresses down to the leaf base. In addition to the reddening symptom (which sometimes can be confused with cold damage or nutrient deficiency), infected plants become stunted with excessive tillering. The developing spikes may be white and sterile. With wheat, BYDV infection will often cause the older leaves to become a bright yellow color. Severe plant damage may be caused by this virus disease. Another virus to think about is soilborne wheat mosaic (SBWMV). Symptoms include a yellow mosaic pattern which appears as short, narrow yellow lines (dashes) on the otherwise green wheat leaves. Infected plants may become severely stunted. This virus is transmitted and maintained in the soil by the fungus *Polymxa graminis*, and disease occurrence appears to be more prevalent in low wet areas. Symptoms of SBWMV infection become diminished as temperatures warm up in the spring.

Other diseases often reported in early spring include Helminthosporium leaf spots on Bermuda and small grains; the beginning of powdery mildews, rusts, and/or Septoria leaf blotch on small grains; some downy mildews; Botrytis blight; and bacterial leaf spots on greenhouse crops. Powdery mildew was observed on miniature rose potted plants in February. See ANR-407 or www.aces.edu/pubs/docs/A/ANR-0407/.

We plan to have the Plant Diagnostic Lab Annual Report ready for distribution in April.

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

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

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Alfalfa	Spring Black Stem and Leaf Spot (<i>Phoma</i>)	Numerous black spots on lower leaves, petioles, and stems. Leaf spots often coalesce and become medium or light brown. Spotted leaves become yellow and fall. Stem and petiole lesions may completely girdle the area and cause death to the foliage beyond. <i>Phoma</i> may also cause a crown and root rot.	Early cutting; proper fertility management.
	Stemphyllium Leaf Spot	Leaf spots are oval, sunken, dark brown with light brown centers, and usually surrounded by a yellow halo. Older spots may have concentric rings. This fungus may also cause black areas on stems.	Frequent harvesting.
	White Mold (<i>Sclerotinia</i>)	Lower stems become yellow and limp. Eventually, dying stems and crowns become covered with a white fluffy mass of mycelium which may also spread out over the soil near the infected plants. Hard, black, slightly irregularly-shaped bodies (sclerotia).	Deep plow; 2-3 year rotation from forage legumes.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Apple, Pear	Fireblight (<i>Erwinia</i>)	Flowers, pedicels, and leaves become black or dark brown and limp; canker development.	Sanitation; See AL Pest Management Handbook and ANR-542.
Aucuba	Pestalotia Leaf Spot	Usually light gray, irregular spots; often develops after earlier injury or cold damage.	Sanitation.
Azalea	Botryosphaeria Canker	Sunken cracked lesions on branches. Often this canker follows cold injury or some other type of wound. Stressed plants are often involved.	Sanitation.
	Botrytis Petal Blight	Large irregular areas of blossoms turn brown; brown areas are covered with a gray delicate webbing during humid weather.	See AL Pest Management Handbook.
	Cercospora Leaf Spot	Roughly circular-angular brown-black spots (about 0.5 cm diameter); spots are usually associated with stressed plants.	Sanitation of fallen leaves. Maintain proper fertility and watering schedules. Protective sprays of Cleary's 3336 may be applied.
	Colletotrichum Leaf Spot	Roughly circular brown-black leaf spots (about 0.5 cm diameter). Spots often associated with stressed plants.	See Cercospora Leaf Spot.
	Exobasidium Gall	Blossoms & leaves develop green-pink-white fleshy galls.	Sanitation; See AL Pest Management Handbook.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Ovulinia Petal Blight	Small white-brown spots enlarge to become browned areas on the blossoms.	See AL Pest Management Handbook.
	Pestalotia Blight (Secondary)	Gray-white dried blotches on foliage, often along leaf edges.	Sanitation.
	Phytophthora Crown & Root Rot	Crowns & roots become brown and water-soaked, then dried.	Sanitation; See AL Pest Management Handbook.
	Rhizoctonia Aerial Blight	Medium-dark brown spots or blotches on lower leaves may involve 50-100% of leaf area. Dead leaves will fall.	See AL Pest Management Handbook.
Begonia	Pythium Crown Rot, Root Rot	Lower stem and roots become a light brown color; tissues are rotted and water-soaked. Outer root cortex easily separates from inner central root stele tissues.	Remove damaged plants. Replace root-associated soil. Reduce water levels in the soil area.
Bentgrass	Basal Crown Rot (<i>Colletotrichum</i>)	Crown (lower stem) at soil line shows a brown-black decay.	See the AL Pest Management Handbook.
	Pythium Blight	Irregular areas of turf become water-soaked and then pale brown.	See ANR-594.
	Ring Nematode Damage (<i>Criconemoides</i>)	Areas display stunting, yellowing, and dieback.	See ANR-523.
	Yellow Patch (<i>Rhizoctonia cerealis</i>)	Yellow areas or patches in lawn; crown and root decay.	See the AL Pest Management Handbook under Rhizoctonia Brown Patch.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Bermuda	Brown Patch (<i>Rhizoctonia</i>)	Light brown, large, circular patches occur on lawns; grass blades show medium brown lesions and/or crowns show lesions and rot.	See AL Pest Management Handbook. See ANR-492.
	Spring Dead Spot	Yellow patches develop in early spring.	See the AL Pest Management Handbook and ANR-371.
Blackberry	Algal Leaf Spot (<i>Cephaleuros vire-scens</i>)	Initially, red-green or green, slightly raised oval spots on leaves and canes. Older spots become white.	Sanitation. See Ed Sikora.
	Anthracnose (<i>Elsinoe</i>)	Sunken brown-cream colored lesions on canes and foliage.	Sanitation. Liquid Lime Sulfur just prior to bud break or later apply Benlate.
	Cane & Leaf Rust (<i>Kuchneola uredinis</i>)	Yellow or yellow-orange spore masses (uredinia) split floricane bark in late spring. Small yellow or yellow-orange spore masses develop on floricane lower leaf surfaces in early summer. Defoliation may occur.	Sanitation of infected foliage. See the AL Pest Management Handbook.
	Orange Rust (<i>Gymnoconia nitens</i>)	Young shoots, leaves are stunted, misshapen. Lower leaf surfaces become covered with bright orange powdery blisters. Infected leaves wither and drop.	Sanitation. Improve air circulation.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Rosette (<i>Cercospora</i>)	Plants develop an abnormal growth habit with abnormal rosetted shoots developing from vegetative buds. The rosetted or witches broom growths are pale green initially but become bronze later. Infected blossoms are larger than normal with twisted, bunchy petals.	See the AL Pest Management Handbook.
Boxwood	Macrophoma Blight-Stress	During the winter, boxwood may change color and take-on a reddish tint. These discolored plants sometimes develop a more serious yellowing and blight with tiny black dots scattered on yellowed leaves; cankers may develop. This is generally a problem or stressed plants.	Pruning; proper maintenance.
	Phytophthora Root Rot	Roots become brown, decayed, water-soaked; the outer cortex easily pulls away from the inner tissues.	Sanitation. Check soil water relations and fertilizer levels. For chemical control, see the AL Pest Management Handbook.
	Pythium Root Decay	Small feeder roots decay when soil kept continually wet. Dieback.	Remove plants showing dieback. Reduce water levels in soil. Fungicide drenches may be used in nurseries. See AL Pest Management Handbook.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Volutella Blight	Dieback from branch and twig cankers. Leaves also become blighted. Orange spores of the fungus develop in masses on twigs and leaves when conditions are humid.	Pruning and removal of fallen leaves. Maintain healthy plants. See the AL Pest Management Handbook for fungicides.
Camellia	Algal Leaf Spot (<i>Cephaleuros</i>)	Green or green-red, slightly raised leaf spots with slightly wavy margins. Old spots have white centers.	See the AL Pest Management Handbook.
	Colletotrichum Leaf Spot	Round, light brown, circular spots which may contain brown-white-orange specks that are the spore bodies.	Sanitation. Cleary's 3336 protective sprays.
	Ringspot Virus	Yellow or brown rings develop on leaves. Plants may be stunted.	Maintain plants with proper fertilization and water schedules.
Cedar, Red (Juniper)	Cedar Apple Rust (<i>Gymnosporangium juniperæ-virginianæ</i>)	Large (1-3 inch diameter), woody galls on stems develop orange, jelly-like projections (one or more inches long) which protrude from the entire surface of the gall.	Remove galls before orange "fingers" develop. Apply protective fungicide sprays to apple and crabapple. See AL Pest Management Handbook.
	Pestalotia Tip Blight	Tips of twigs die-back.	Water & fertilizer to promote vigorous plants. Selective pruning.
Centipede	Brown Patch (<i>Rhizoctonia</i>)	Light brown, large, circular patches occur on lawns; grass blades show medium brown lesions or crowns show lesions & rot.	See AL Pest Management Handbook. See ANR-492.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Fairy Ring	Circles or arcs of dead grass may be associated with mushrooms.	See ANR-372.
	Lesion Nematode (<i>Pratylenchus</i> sp.)	Areas become yellow, thinned with plant dieback.	See ANR-523.
Cherry Laurel	Bacterial Leaf Spot (<i>Xanthomonas</i>)	Medium to dark-brown circular or slightly irregular spots develop. As spots age, they dry and eventually the whole spot may fall out. Small, faint halos present sometimes.	Sanitation; basic copper sulfate may give protective control. See AL Pest Management Handbook.
	Cercospora Leaf Spot	Light brown, circular-irregular spots, sometimes with dark brown border.	Sanitation. Cleary's 3336 or Halt protective sprays may be applied.
Chinese Fringe Tree	Armillaria Root Rot	Dieback; black thread-like fungal structures on or under bark near soil line. White fans of mycelium may be present; honey colored mushrooms may develop.	See ANR-907 for comments.
Clematis, Evergreen	Pythium Root Rot	Roots become rotted, light brown and water-soaked.	Remove damaged plants. Also remove root-associated soil. Reduce water levels in the soil.
Cleyera	Anthrachnose (<i>Colletotrichum</i>)	Reddish, circular-irregularly shaped spots, blotches (about 5 mm diam.) scattered on leaves.	Sanitation. Cleary's 3336 or Domain protective sprays.
	Cercospora Leaf Spot	Pale brown spots, often with dark brown edges.	Sanitation. Cleary's 3336 or Halt may be applied as a protective spray treatment.
	Entomosporium Leaf Spot	Red-black, round-irregularly spots develop. Some spots coalesce.	Sanitation. Cleary's 3336 will help some.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Collard	Black Rot (<i>Xanthomonas</i>)	Yellow-black V-shaped lesions on leaf edges; black leaf veins; black lower stems.	Sanitation; crop rotation.
Coleus	Botrytis Blight	Brown, irregular spots & blotches on foliage. A light gray mold develops when conditions are cool & humid.	Sanitation. Decrease humidity levels. Cleary's 3336 or Halt may be used as protective fungicide spray treatments.
Cryptomeria	Botryosphaeria Canker	Sunken lesions on branches sometimes cracking around the edges.	Pruning. Make cuts 3-4 inches beyond the margin of the lesions. Dip shears into alcohol between cuts.
Cyclamen	Fusarium Crown Rot	Lower stem tissues develop a dry decay.	Remove damaged plants. Do not plant cyclamen in this soil for many years. In a greenhouse, Cleary's 3336 or Banrot may be used as protective drenches.
Daffodil	Fusarium Bulb Rot	Leaves of bulb develop a dry rot.	Remove damaged bulbs and replace some soil in the area. Crop rotation for several years, if possible.
Daylily	Leaf Streak (<i>Aurobasidium</i>)	Elongated yellow streaks develop on leaves. Eventually streaks become brown.	Damaged foliage should be removed. Do not water overhead. Cleary's 3336 may be applied as protective sprays.
	Pythium Root Rot	Roots become rotted, light brown, and water-soaked.	Remove damaged plants. Also remove root-associated soil. Reduce water levels in the soil.
	Rhizoctonia Crown, Root & Tuber Rot	Dry, brown lesions and rot areas on crowns, roots, tubers.	Sanitation; See AL Pest Management Handbook.
	Rust (<i>Puccinia hemerocallidis</i>)	Yellow small spots develop on leaves; eventually yellow spots may develop rusty spore masses; later leaves turn yellow and brown.	Sanitation. Select non rust susceptible cultivars. Protective fungicide sprays. See Timely Information PP-506. For homeowner, Immunox or Fertiloam System Fungicides may be used. For commercial growers, Banner Maxx, Heritage or Eagle may be used.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Euonymus	Anthracnose (<i>Elsinoe</i>)	Brown circular-angular lesions on leaves.	Sanitation. See the Alabama Pest Management Handbook.
Fern	Anthracnose (<i>Colletotrichum</i>)	Brown, irregular spots on frond leaflets.	Sanitation. Cleary's 3336 or Halt may be applied as a protective spray.
Fescue, Tall	Net Blotch (<i>Helminthosporium</i>)	Small, elongated, medium-brown or reddish-brown spots (1-2 mm or 1/16-1/8 inch long). Usually spots are abundantly scattered over leaf blades.	See AL Pest Management Handbook or ANR-621.
	Pythium Blight	Irregular areas of turf become water-soaked and then pale brown.	See the AL Pest Management Handbook.
	Striped Smut	Black, thin stripes of black smut spores along the leaf. Plants may be stunted with yellow streaking of leaves.	Sanitation; fungicide-treated seed; See A. Hagan.
Gardenia	Pestalotia Leaf Spot	Gray, brown leaf spots.	Remove damaged leaves and leaf debris. Leaf spot often secondary after cold damage.
	Phytophthora Crown & Root Rot	Dieback. Roots become brown, wet. And dead. Later roots dry out.	Sanitation. Reduce irrigation and improve drainage. See the AL Pest Management Handbook for nursery use of protective fungicide drenches.
	Pythium Crown & Root Rot	Dieback. Small feeder roots become slightly off color, light brown, and wet decayed.	Sanitation. Reduce irrigation and improve drainage. See the AL Pest Management Handbook for nursery use of protective fungicide drenches for Phytophthora.
Garlicvine (<i>Cydista</i>)	Powdery Mildew (<i>Oidium</i>)	White, powdery coating on leaves; some new growth distortions.	Sanitation. Improve air circulation.
Geranium	Bacterial Wilt (<i>Ralstonia solanacearum</i>)	Initially lower leaves turn yellow; some leaf edge scorch; eventually plant wilts and dies.	Sanitation.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Bacterial Blight (<i>Xanthomonas campestris</i> pv. <i>pelargonii</i>)	Black, angular, water-soaked spots on leaves and stems; wilt; dieback.	Sanitation; See the AL Pest Management Handbook.
	Botrytis Blight	Brown leaf spots & blight of blossoms and leaves. Stem cankers may develop as brown stem lesions.	See AL Pest Management Handbook.
	Pythium Stem & Root Rot	Lower stems become black and rotted; roots also become brown or black and decayed.	See the AL Pest Management Handbook.
Gomphrena	Tomato Spotted Wilt Virus	New growth is stunted; dark brown/black leaf spots and upper leaf surface bronzing present.	Remove damaged plants. Control thrips.
Greenhouse Crops	Bacterial Leaf Spots	Small-large, irregular, dark, wet-looking spots which often become dry in their centers and may have yellow zones or borders at their outer edges.	Strict sanitation; eliminate overhead irrigation if possible; copper sprays help some. See AL Pest Management Handbook.
	Botrytis Blight	See Azalea.	See AL Pest Management Handbook. Decrease humidity.
	Downy Mildew	Diffuse yellow spots on upper leaf surfaces with corresponding areas on lower leaf surfaces showing darker color, often with tan-gray fungal growth.	See AL Pest Management Handbook for specific controls.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Phytophthora Root Rot	Roots become, brown, decayed, water-soaked; the outer cortex easily pulls away from the inner tissues.	Sanitation. Check soil water relations and fertilizer levels. Chemical control depends on plant type.
Holly	Botryosphaeria Leaf Spot	Black, circular spots; cankers may develop.	Remove damaged and fallen leaves, if practical. Cleary's 3336 may be used to give protective disease control.
	Colletotrichum Leaf Spot	Brown, circular, small spots.	Sanitation. Cleary's 3336 may help.
	Pestalotia (& Pestalotiopsis) Leaf Spot	Gray, brown irregular blotches.	Sanitation.
	Stunt Nematode (<i>Tylenchorhynchus</i>)	Plants are stunted; lower leaves may be yellow; roots are stunted.	Sanitation; crop rotation. See ANR-689.
Holly, Japanese	Black Root Rot (<i>Thielaviopsis</i>)	Lower branch dieback that progresses upward in the plant; roots develop black tips and lesions.	Sanitation. Cleary's 3336 or Halt.
Holly, Savannah	Botrytis Leaf Blight	Small-large, irregular, gray or brown leaf spots/blotches.	Sanitation. Cleary's 3336.
Hosta	Pythium Crown Rot	Brown, wet, water-soaked decay at lower stem near the soil line.	Sanitation; improve soil drainage; rotate away from Hosta; Subdue 2E after test treatment.
Impatiens	Bacterial Leaf Edge Spots	Wet, water-soaked black spots on leaf edges.	Sanitation; water at ground level.
Indian Hawthorne	Cercospora Leaf Spot	Brown, irregular or roughly circular spots.	Sanitation; Cleary's 3336 or Halt could be used to provide protective treatment.
	Entomosporium Leaf Spot	Reddish spots with black centers.	Sanitation. Protective fungicide sprays.
Iris, Bearded	Heterosporium Leaf Spot	Brown, usually elliptical, sometimes large (1-2 cm) spots.	Sanitation. Protective sprays of Cleary's 3336.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Ivy, English	Anthrachnose (<i>Colletotrichum</i> sp.)	Circular-irregularly shaped brown, dry spots.	Sanitation. See the AL Pest Management Handbook.
Jerusalem Artichoke	Crown Gall (<i>Agrobacterium tumefaciens</i>)	Hard, woody spherical gall develops at base of stem.	Removal and destruction of plant(s). Rotate area into crown gall resistant plant. See Disease Note ANR-944.
Juniper	Botryosphaeria Canker	Elongated, elliptical sunken, often cracked, brown lesions on stems.	Sanitation. Protective sprays of Cleary's 3336 or Halt.
	Cedar Apple Rust (<i>Gymnosporangium juniperae-virginiana</i>)	Spherical woody galls develop on twigs and branches; with warm wet weather, orange, jelly-like projections or fingers extend from the galls.	Remove galls before they develop orange spore projections; See ANR-468.
	Cedar Quince Rust (<i>Gymnosporangium claviceps</i>)	Junipers develop cankers with orange, wet, spore masses. Apples, hawthorns, cedars & quince develop yellow leaf spots & fruit develops orange spore tendrils.	See the AL Pest Management Handbook & ANR-468.
	Pestalotia Twig Cankers	Small, sunken, lesions on twigs. Dieback.	Remove stresses or other problems.
	Phytophthora Root Rot	Dieback. Roots become brown & wet rotted. Later roots dry out.	Sanitation. Reduce irrigation. Improve soil drainage. For nurseries, see the AL Pest Management Handbook.
	Pythium Root Rot	Dieback of small plants. Small feeder roots become slightly off color, light brown, and wet rotted.	Sanitation. Reduce irrigation. Improve soil drainage. For nurseries, see the AL Pest Management Handbook.
Kumquat	Anthrachnose	Leaf spots brown and sometimes zonate.	Sanitation of all fallen leaves. Water at soil level.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Lavender	Botrytis Blight	Brown leaf spots and foliage blight. Blossoms may also become spotted or blighted.	Remove damaged plant parts. Reduce humidity and water levels if possible.
Leucothoe	Cercospora Leaf Spot	Brown, round or irregular spots on leaves.	Sanitation. Cleary's 3336 could be used to provide protective treatment.
Leyland Cypress	Phomopsis Twig Canker	Sunken circular or elliptical brown lesions on twigs.	Sanitation; protective spray of Cleary's 3336.
	Cercosporidium (Cercospora) Blight	Blight usually starts on lower inner needles.	Pruning, sanitation, protective sprays of Cleary's 3336.
	Macrophoma, Pestalotia Needle Blight-Secondary	Brown needles with tiny black specks that are the spore bodies of these fungi. Usually occurs on stressed or weakened plants.	Sanitation.
	Macrophoma, Phomopsis Cankers, Maybe Secondary or Weak Pathogens	Small, sunken, brown lesions on twigs and small stems; black specks of spore bodies present on lesion surfaces sometimes.	Sanitation. Cleary's 3336 protective sprays.
	Seiridium Canker	Sunken lesions on twigs and branches; usually sap oozes around the cankers.	Sanitation. Maintain healthy trees. See the AL Pest Management Handbook under Phomopsis.
Ligustrum	Cercospora Leaf Spot	Brown circular or irregularly shaped leaf spots.	Sanitation. Improve air circulation. Apply Cleary's 3336 spray. See AL Pest Management Handbook.
Lilac	Bacterial Leaf Spot	Black, angular, water-soaked spots.	Sanitation. See AL Pest Management Handbook.
	Pythium Root Rot	Roots are off-color, decayed, & water-soaked.	Sanitation; Improve soil drainage; crop rotation.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Lupin	Fusarium Seedling Disease	Seedlings typically collapse at the soil level, wither, and die.	Replant. Consult with Ed Sikora.
	Pythium Seedling Disease	Seedlings typically collapse at the soil level, wither, and die.	Replant. Consult with Ed Sikora.
Magnolia	Phyllosticta Leaf Spot	Small-large (0.5-1 cm) light brown usually circular spots.	See the AL Pest Management Handbook under 'Leaf Spot'.
Maple, Red	Botryosphaeria Canker	Dry, cracked, dark brown-black branch lesions.	Prune out cankers.
Million Belles	Pythium Root Rot	Roots become light brown and wet-rotted.	Remove damaged plants. Reduce soil water content. Some soil replacement in the landscape could be helpful.
Mondograss	Anthrachnose (<i>Colletotrichum</i>)	Brown or reddish-brown blotches on leaf blades. Often blotches are along leaf edges or tips.	See the AL Pest Management Handbook.
Mountain Laurel	Anthrachnose	Brown circular-irregular leaf spots.	Sanitation. Protective sprays of Cleary's 3336 or Halt may be used.
	Cercospora Leaf Spot	Brown, circular-irregular leaf spots.	Sanitation. Protective sprays of Cleary's 3336 or Halt may be used.
Nandina, Dwarf	Phytophthora Root Rot	Roots become water-soaked, brown and eventually dried. Foliage shows, dieback, wilt, poor growth.	Sanitation.
Oak	Botryosphaeria Canker	Lesions are usually sunken with cracked margins.	Pruning.
	Hypoxyton Canker	A thick, black, hard fungus layer develops just under bark.	Prune out cankers.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Oats	Barley Yellow Dwarf Virus	Older foliage becomes yellow-red in color; plants become stunted with excess tillering.	---
	Drechslera Leaf Spot	Small brown, elongated leaf spots. Sometimes spots may appear rectangular in shape.	--
Pachysandra	Volutella Blight	Brown, sunken, shriveled lesions on stems. Orange dots (fruiting bodies with spores) may be seen on surface of lesions.	Prune out damaged areas.
Palm	Pestalotia Leaf Spot	Circular-irregular, brown leaf spots.	Sanitation. Eliminate stress problems.
Peach	Armillaria Trunk/Root Rot	Trees do not leaf out in the spring or they leaf out and dieback a few weeks later. Black thread-like structures +/- or white thin fungal mats may be present under the bark of trunk near soil line.	Sanitation of infected plants including roots.
	Black Knot (<i>Plowrightia morbosum</i>)	Green or black elongated swellings along branches.	Sanitation. See the AL Pest Management Handbook.
	Botryosphaeria Canker, Gummosis	Usually oval-shaped sunken lesions with cracked edges and oozing of vascular gummy fluid.	Sanitation.
	Crown Gall (<i>Agrobacterium tumefaciens</i>)	Irregular brown, woody swellings at the lower trunk or upper roots.	Sanitation. Crop rotation. See Ed Sikora.
	Leaf Curl (<i>Taphrina</i>)	Leaves become thickened, puckered and sometimes reddish-green.	Sanitation; See the AL Pest Management Handbook.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Phomopsis Twig Blight	Branches show wilt and dieback resulting from branch cankers; cankers are oval elliptical and sunken; wood discoloration is evident when outer bark is removed.	Sanitation. See Ed Sikora.
Pear	Entomosporium Leaf Spot	Small (-¼ inch) black spots on leaves.	Sanitation.
Pear, Bradford	Fireblight (<i>Erwinia</i>)	Black-colored dieback, blossom blight, twig-tips may have a shepherd's crook.	Sanitation; See AL Pest Management Handbook.
Pecan	Crown Gall (<i>Agrobacterium tumefaciens</i>)	Woody swellings (galls) on lower trunk usually near ground level.	Sanitation; remove tree, including roots, replace with a non-susceptible plant. See ANR-944 or www.aces.edu/pubs/docs/A/ANR-0944/ANR-0944 .
Peony	Botrytis Blight	Brown-gray, irregular leaf spots & blotches.	Sanitation. See the AL Pest Management Handbook.
Periwinkle	Pythium Root Rot	Roots brown and water-soaked.	Sanitation. See AL Pest Management Handbook.
Petunia	Black Root Rot (<i>Thielaviopsis basicola</i>)	Plants stunted; lower leaves may be yellow; roots have black spots, areas.	Sanitation. Protective drenches of Cleary's 3336 or Halt; crop rotation for 3-4 years.
	<i>Phytophthora parasitica</i> Crown Rot	Cankers and blight areas develop on foliage.	Sanitation. Daconil, Echo, Thalonil, and Aliette are labeled.
	Pythium Root Rot	See Periwinkle.	
Phlox (and Other Ornamentals)	Powdery Mildews	Buff or white powdery patches on leaves and stems; some distortion of new growth.	Sanitation. Cleary's 3336 may be used.
	Rhizoctonia Blight	Lower leaves become brown blotched with whole leaves and stems sometimes affected.	Sanitation. Cleary's 3336 may be used.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Photinia	Armillaria Root Rot	Decline of plant. Check the lower trunk or roots for a thin, white mycelial layer under the bark. Also look for honey-colored mushrooms.	Sanitation of plant and roots. Crop rotation. See ANR-907.
	Entomosporium Leaf Spot	Dark red spots (usually 3-4 mm or inch diameter) on upper and lower leaf surfaces. Spots often coalesce.	Pruning; Fungicide treatment; See Circular ANR-392 or AL Pest Management Handbook.
Pine, Loblolly	Fusiforme Rust (<i>Cronartium quercuum</i> f. <i>sp. fusiforme</i>)	Rusty, powdery coating appears on the surface of fusiform (elliptical-shaped) swellings on branches and trunks. (Near-by oaks will develop small black leaf spots in late spring).	Sanitation in landscape settings; protective fungicide sprays available for nursery situations. See the AL Pest Management Handbook.
	Needle Rust (<i>Coleosporium</i>)	Cream-colored pustules (2-3 mm or inch wide and high) develop along the edges of needles.	Sanitation.
Pine Seedlings, Long Leaf	Rhizoctonia Root Rot	Brown lesions, often shriveled, on roots.	Sanitation.
Pine, Virginia	Fusarium Pitch Canker	Sunken, elliptical lesions on branches and trunks covered with pine resin.	Sanitation.
	Needle Rust (<i>Coleosporium</i>)	Cream-colored pustules (2-3 mm or inch wide and high) develop along the edges of needles.	Sanitation.
	Rhizosphaeria Needle Cast (<i>Coleosporium</i>)	Small brown spots on needles. Needles fall when disease severe.	Sanitation of fallen needles if possible. See the AL Pest Management Handbook for fungicides under "Needlecast and Other Needle Diseases".

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Plum	Black Knot (<i>Plowrightia</i>)	In early spring, green swollen, elongated galls & cankers develop. As spring and summer progresses, galls become black.	Pruning; See ANR-1055 (Disease Note) for more information. In late winter, apply a dormant spray of liquid lime sulfur. At green tip stage, apply Captan.
	Botryosphaeria Canker	Sunken, dried lesions on branches & twigs. Often lesions are cracked around the edges.	Pruning. Make cuts 3-4 inches beyond the lesion edge.
<i>Poa trivialis</i>	Pythium Blight	Irregular or circular areas become yellow and brown; dieback.	See the AL Pest Management Handbook; also see ANR-594.
Privet	Cercospora Leaf Spot	Large (¼-½ inch diameter), medium brown circular or irregular spots.	See AL Pest Management Handbook; Sanitation.
Quince	Fireblight (<i>Erwinia amylovora</i>)	Blossom blight followed by rapid dieback.	Severe pruning.
Red Cedar	Phomopsis Dieback	Tips of twigs are brown. The dieback will extend further down the twigs as time progresses; canker.	Sanitation; See AL Pest Management Handbook.
Rhododendron Azalea	Botryosphaeria Canker	Elongated, elliptical, sunken, brown cankers with margins that are often cracked.	Sanitation.
Rhododendron	Ascochyta Leaf Spot	Brown circular-irregular spots of varying sizes.	Sanitation.
	Cercospora Leaf Spot	Brown spots (5-10 mm or ¼-½ inch diameter) usually circular.	Protective sprays of Cleary's 3336 or Domain. Sanitation.
	Pestalotia Leaf Spot	Gray-brown blotches on leaves, often develop on winter stressed or injured leaves.	Sanitation.
Rose	Black Spot (<i>Diplocarpon rosa</i>)	Black, circular spots with feathery edges.	See ANR-505 & AL Pest Management Handbook.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Brown Canker (<i>Diaporthe umbrina</i>)	Elongated, brown, sunken lesions (cankers) on canes.	Sanitation - pruning. Apply protective fungicides labeled for black spot control.
	Coniothyrium Canker	A brown oval or roughly oval sunken lesion on rose canes. Microscopic exam usually required to distinguish this canker from some others.	Sanitation. Apply protective fungicides labeled for black spot control.
	Crown Gall (<i>Agrobacterium tumefaciens</i>)	Soft green-white galls at or near the soil line become brown and hard. Plants show poor growth.	Sanitation. See ANR-505 and the AL Pest Management Handbook.
	Phytophthora Root Rot	Plants grow poorly; lower foliage may become yellow; wilt; plant death.	Sanitation. See ANR-505 and the AL Pest Management Handbook.
	Powdery Mildew (<i>Sphaerotheca</i> spp.)	White powdery coating on leaves/ stems.	See ANR-407 & AL Pest Management Handbook.
Rose, Hybrid Tea	Nectria Canker	Sunken cane lesions with some callus production around lesion edges.	Sanitation. Protective fungicides labeled for black spot.
	Rust (<i>Phragmidium</i>)	Yellow spots first develop; later orange, powdery spore masses cover leaf spots; eventually spots become brown and leaves fall.	Sanitation; Dithane, Fore, Protect, Eagle, Systhane may be used for protection.
Rosemary	Botrytis Blight	Brown-gray blight areas and leaf spots.	Sanitation. Reduce humidity.
	Root Knot Nematode (<i>Meloidogyne</i> sp.)	Plants are stunted with lower foliage becoming yellow. Roots develop irregular galls.	Sanitation. See ANR-689.
Ryegrass	Pythium Blight	Leaves develop large, brown, water-soaked spots/lesions.	See ANR-594 & the AL Pest Management Handbook.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
Ryegrass, Perennial	Brown Patch (<i>Rhizoctonia</i>)	Light brown, large, circular patches occur; grass blades and/or crowns show medium brown lesions and/or rot areas.	See the AL Pest Management Handbook.
Satsuma	Anthrachnose (<i>Colletotrichum</i> sp.)	Brown circular leaf spots, sometimes zonate.	Sanitation. Improve air circulation.
Snapdragon	Anthrachnose	Small, brown, round leaf spots.	Sanitation. See AL Pest Management Handbook.
	Pythium Irregular Crown & Root Rot	Roots become light-brown and water-soaked. Foliage may become yellow (especially lower foliage) with wilt and dieback.	Remove damaged plants. Reduce water levels of soil. Replacement of some soil may be helpful. Improve soil drainage.
St. Augustinegrass	Brown Patch (<i>Rhizoctonia solani</i>)	Light brown, large, circular patches occur on lawns; grass blades show medium brown lesions and/or crowns show lesions and rot.	See AL Pest Management Handbook. See ANR-492.
	Take-All Patch (<i>Gaeumannomyces</i>)	Patch areas thin out with individual plants dying out.	Keep the soil pH about 5.5-6.0 and use ammonium (not nitrate) forms of nitrogen.
Strawberry	Anthrachnose Fruit Rot (<i>Colletotrichum</i>)	Brown-black rotting develops on fruit. Spots initially are circular. Older spots may become orange due to spore production.	See the AL Pest Management Handbook or Spray Guide Bulletin for Small Fruit.
	Bacterial Leaf Spot	Black, angular, water-soaked edged leaf spots.	Sanitation; do not water overhead; copper protective sprays. See the AL Pest Management Handbook.
	Botrytis Crown Rot	Foliage collapses.	Crown tissues become decayed and dry. A gray mold may develop on the tissue surfaces.
	Botrytis Fruit Rot	Gray-brown rotted area often covered with gray fluffy mycelium.	Sanitation. See AL Pest Management Handbook or Spray Guide Bulletin for Small Fruit.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Mycosphaerella Leaf Spot	Symptoms vary with temperature and strawberry species. In many situations, leaf spots appear as small, circular spots (2-3 mm or inch diameter) with light centers and purple margins. Numerous spots may coalesce and cause total leaf death. On some cultivars, spots become very large, involving a good portion of the leaf area.	See AL Pest Management Handbook or the Spray Guide Bulletin for Small Fruit.
	Phytophthora Crown & Petiole Rot	Reddish discoloration of inner crown section of plant. Petioles become brown and decayed.	Sanitation. Reduce irrigation and/or improve soil drainage. See AL Pest Management Handbook.
Sweet Potato	Black Rot (<i>Ceratocystis fimbriata</i>)	Black, firm rot on root surface does not extend beyond the vascular system, about 1/2 inch.	Sanitation. See AL Pest Management Handbook for a commercial crop.
	Fusarium Crown Rot	Lower stems develop a reddish-brown decay.	Long crop rotations (10 years or more) away from sweet potatoes.
Thrift (<i>Phlox subulata</i>)	Anthracnose (<i>Colletotrichum</i>)	Brown or reddish-brown spots, blotches (1-3 mm diameter) develop. Spot coalescence.	Sanitation; protective sprays of Cleary's 3336 or Domain may help.
Tomato	Bacterial Leaf Spot & Fruit Spot (<i>Xanthomonas axonopodis</i>)	Black, circular, water-soaked spots.	See ANR-71 and the AL Pest Management Handbook.
	Early Blight (<i>Alternaria</i>)	Brown-dark gray, sometimes zonate, usually oval leaf spots and cankers develop, beginning in the lower foliage. Girdling stem cankers result in dieback.	Sanitation. See the AL Pest Management Handbook and ANR-71.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Late Blight (<i>Phytophthora infestans</i>)	Brown, wet-looking blight, spots, and cankers develop, dieback.	Sanitation; protective fungicides. See AL Pest Management Handbook; crop rotation.
	Pythium Root Rot	Roots slightly discolored, water-soaked.	Sanitation. See AL Pest Management Handbook.
	Rhizoctonia Crown Rot	The stem (crown) at the soil-line becomes brown, dried, and rotted.	Crop rotation; possibly soil solarization.
	Septoria Leaf Spot	Gray circular leaf spots; leaf spots may coalesce.	Sanitation. See AL Pest Management Handbook.
Torenia	Pythium Blight	Roots become light brown and show a wet rot. Foliage wilts and shows dieback. Lower foliage may become yellow, then wilt with dieback.	Remove damaged plants. Reduce water levels of soil. Replacement of some soil may be helpful. Improve soil drainage.
Tulip	Fusarium and Penicillium Bulb Rots	Bulbs develop sunken brown-gray dried lesions. Penicillium sporulation may occur as blue-gray-mold on the surface of the sunken rotted area.	Sanitation. Bulb dips. See the AL Pest Management Handbook.
Turnip	Cercospora Leaf Spot	Brown or tan or cream-colored irregular spots (.2-1 cm diameter) develop on foliage.	Sanitation; See the AL Pest Management Handbook or Spray Guide Bulletin for Vegetables.
Verbena	Fusarium Root Rot	Plants become stunted; lower leaves may become yellow; roots become dry and brown decayed.	Sanitation. Long crop rotation.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Pythium Root Rot	Plants become stunted; lower leaves may become yellow; roots become water-soaked and slightly discolored to a light brown. Roots pull apart easily.	Sanitation. Long crop rotation.
Vinca, Annual	Rhizoctonia Stem Rot	Dark brown, dried, sunken lesion(s) on stems. Dieback of affected stems.	Sanitation; remove damaged plants; Chipco 26019, Cleary's 3336, or Domain protective sprays; See AL Pest Management Handbook.
Wax Myrtle	Anthracnose	Circular-irregular brown leaf spots.	Sanitation; Cleary's 3336 or Halt if desired as protective treatment.
	Botryosphaeria Canker	Dark, cracked, slightly sunken lesions on branches. Often follows cold injury.	Pruning.
	Septoria Leaf Spot	Circular to angular brown leaf spots.	Sanitation.
Wheat	Bacterial Blight (Black Chaff) (<i>Xanthomonas</i>)	Early in the season blackish elongated lesions may develop on foliage. Later, glumes will become spotted with brown-black lesions which may be confused with Septoria glume blotch.	No control except to deep plow or crop rotation.
	Barley Yellow Dwarf Virus	Yellowing and reddening of older leaves; excessive tillering; stunting.	No control except to control aphids, if possible.
	Leaf Rust (<i>Puccinia</i>)	Orange-red dots and patches of spore masses on leaves.	See AL Spray Guide.
	Powdery Mildew (<i>Erysiphe</i>)	Gray-white or buff colored powdery blotches usually on leaf blades.	See AL Spray Guide.

<u>PLANT</u>	<u>DISEASE</u>	<u>DESCRIPTION</u>	<u>CONTROL</u>
	Septoria Blotch	Yellow flecks on lower leaves enlarge into irregular, elongated lesions (1-5 x 4-15 mm or 1/16- x 1/2 inches) that become brownish with some spots developing gray centers.	Generally no control needed.
	Take-all (<i>Gaeumannomyces</i>)	Lower stem and roots at the soil line become blackened and decayed.	Crop rotation to oats, corn, or legumes for 1 year.
	Wheat Soilborne Mosaic Virus	Older leaves show a yellow-green mosaic of short, thin, yellow lesions (usually about inch long). Plants become stunted.	Crop rotation.
Zinnia	Botrytis Canker	Brown, dry, sunken lesions; a gray, thin, mold may develop on the surface when conditions humid and in 70s.	Sanitation. See the AL Pest Management Handbook.
Zoysia	Brown Patch (<i>Rhizoctonia</i>)	Small or large circular brown patches on lawn; grass blades show medium brown lesions or crowns show lesions and rot.	See ANR-492; see AL Pest Management Handbook.
	Ring Nematode (<i>Criconeoides</i>)	Stunted, yellowed plants; dieback.	See ANR-523.
	Take-All Patch (<i>Gaeumannomyces graminis</i> pv <i>graminis</i>)	Patch areas thin. Individual plants in a patch die.	See ANR-823.