

# TIMELY INFORMATION

## Agriculture & Natural Resources

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PP-611

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

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

### JUNE INSECT SAMPLES AT THE AUBURN PLANT DIAGNOSTIC LAB

### DISEASE POSSIBILITIES FOR JULY

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

June continued to be dry in most parts of the state, and consequently, our plant problem sample number (165) was about half of our number for last year in June.

In May we received notification from the AL State Department of Agriculture that another shipment of nursery plants from a California nursery was suspected to contain *Phytophthora ramorum* infected plants. As has happened previously, the California nursery stock had been shipped to many locations in the U.S. We have been testing samples brought to us by State Inspectors. Some have been ELISA positive for Phytophthora. All ELISA positive samples have had DNA preparations made, and the DNA has been mailed overnight to the University of Florida Plant Diagnostic Lab which has been approved by USDA as a USDA Provisional Lab for doing regular & real-time PCR testing for *Phytophthora ramorum*. Most of the samples have tested PCR negative for *P. ramorum*. PCR positive samples must be sent on to the Beltsville USDA Lab for PCR confirmation.

So far one sample has been confirmed positive for *P. ramorum*. Please keep this disease in mind as you observe plant problems this summer and fall. The sampling protocol of last year is still in effect. If you suspect *P. ramorum* is possible (See Sudden Oak Death, *P. ramorum* blight information distributed to each county in May 2005), contact the State Department of Agriculture at [tjohnson@agi.state.al.us](mailto:tjohnson@agi.state.al.us). A state inspector will be sent to take the sample and bring it to our lab for testing. During early July a second incidence of a contaminated nursery stock shipment was noted from a California nursery so we are now testing more nursery plants just recently received in Alabama nurseries and garden centers.

Another disease of note received in June was Hosta Virus X. This is a relatively new virus disease. Symptoms are variable on each cultivar of Hosta. The most common symptom is the blue/dark green spots or other mottled-type markings on the light green colored leaf. Leaves appear mottled in coloration. A recent study showed that the incubation period for Hosta Virus X may be as long as one year after infection and before symptom development. Transmission appears to be mechanical by leaves rubbing each other and by other cultivation practices. The best control is not to purchase infected (blotchy-looking) plants or plants near-by. The variety 'Gold Standard' has been found to be infected on several occasions so it appears that this variety is very susceptible. See <http://www.oznet.KSU.edu/path-ext/factSheets/Ornamentals/HostaVirus.asp> for more information.

June 27, Ed Sikora found Asian soybean rust present in a sentinel plot in Baldwin County. See Ed's email on June 29.

Other diseases seen in June include tomato spotted wilt virus on tomato, pepper, and zinnia (The virus is especially common this year on tomato and pepper); *Phytophthora* stem and root rot on okra and pepper; *Phytophthora* sp. root and crown rot on several woody landscape plants in containers, *Phytophthora nicotiana* stem blight and root decay of petunia; bacterial wilt of tomato; *Fusarium oxysporum* vascular wilt on tomato and cotton.

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

| <u>Plant</u> | <u>Disease</u>                          | <u>County</u> |
|--------------|---|---------------|
| Astilbe      | Cercospora Leaf Spot                    | *             |
| Azalea       | Botrytis Blight                         | **            |
|              | Colletotrichum Leaf Spot                | **            |
|              | Phytophthora Root Rot                   | *             |
|              | Pythium (Irregular & Spinosum) Root Rot | Lee           |
| Beans, Green | Fusarium Stem Rot                       | Talladega     |
| Bentgrass    | Leptosphaerulina Blight                 | GA            |
| Bermuda      | Bipolaris Blight                        | Elmore        |
|              | Helminthosporium Crown Rot              | Morgan        |

| <u>Plant</u>       | <u>Disease</u>  | <u>County</u>          |
|--------------------|---|------------------------|
|                    | Rust ( <i>Puccinia</i> )  | Morgan, GA             |
| Boxwood            | Phytophthora Root Rot   | GA                     |
| Buckeye            | Phyllosticta Leaf Spot  | Talladega              |
| Centipede          | Brown Patch ( <i>Rhizoctonia solani</i> )                               | Fayette,<br>Tuscaloosa |
|                    | Ring Nematode Damage<br>( <i>Criconemoides</i> sp.)                     | Mobile                 |
| Cotton             | <i>Botryodiplodia theobromae</i><br>(Suspect Secondary) Crown Rot       | Elmore                 |
|                    | <i>Fusarium oxysporum</i> Wilt  | Autauga                |
| Crabapple          | Cedar-Apple Rust<br>( <i>Gymnosporangium juniperæ-<br/>virginianæ</i> ) | Choctaw                |
| Daylily            | Kabatiella Streak   | Franklin               |
| Dogwood            | Powdery Mildew  | Lee, Mobile            |
| Gardenia           | Phytophthora Crown & Root Decay   | *                      |
| Gladiolus          | Bacterial Leaf Spot   | Lee                    |
| Grape              | Black Rot ( <i>Guignardia bidwellii</i> )                               | Jefferson              |
| Holly              | Phytophthora Root Decay   | *                      |
| Hosta              | Anthracnose ( <i>Colletotrichum</i> )                                   | *                      |
|                    | Hosta Virus X   | *                      |
| Hydrangea, Oakleaf | Bacterial Leaf Spot   | Lee                    |
| Impatiens          | Alternaria Leaf Spot  | Lee                    |
| Iris               | Heterosporium Leaf Spot<br>( <i>Didymella</i> )                         | Lee                    |
| Indian Hawthorne   | Phytophthora Crown & Root Rot   | *                      |
| Lavandula          | Alternaria Leaf Spot & Cankers  | *                      |

| <u>Plant</u>  | <u>Disease</u>                                     | <u>County</u>          |
|---------------|--|------------------------|
| Liriope       | Phytophthora Crown & Root Rot                      |                        |
|               | Pythium Root Rot                                   |                        |
| Loripetalum   | Phytophthora Crown & Root Decay                    | *                      |
| Okra          | Fusarium Root Rot                                  | Cullman                |
|               | Phytophthora Stem & Root Rot                       | Cullman                |
| Pear          | Fire Blight ( <i>Erwinia amylovora</i> )           | GA                     |
| Pepper        | Phytophthora Stem & Root Rot                       | Russell                |
|               | Pythium Root Rot                                   | Washington             |
|               | <i>Sclerotium rolfsii</i> Crown Rot                | Washington             |
|               | Tomato Spotted Wilt Virus                          | Lee, Macon             |
| Petunia       | Phytophthora Stem & Root Decay                     | *                      |
| Pieris        | Botryodiplodia Leaf Spots                          | *                      |
|               | Pestalotia Leaf Spots                              | *                      |
|               | Phytophthora Leaf Spot<br>(Not <i>P. ramorum</i> ) | **                     |
| Pittosporum   | Phytophthora Root Decay                            | *                      |
|               | Pythium Root Decay                                 | *                      |
| Rhododendron  | Colletotrichum Leaf Spots                          | *                      |
|               | Pestalotia Leaf Spots                              | *                      |
|               | Phomopsis Leaf Spots                               | *                      |
| St. Augustine | Take-All Patch                                     | Houston,<br>Montgomery |
| Tomato        | Bacterial Wilt ( <i>Ralstonia solanacearum</i> )   | Mobile                 |
|               | Early Blight ( <i>Alternaria solani</i> )          | Lee                    |
|               | <i>Fusarium oxysporum</i> Wilt                     | Mobile                 |

| <u>Plant</u> | <u>Disease</u>                               | <u>County</u>                           |
|--------------|--|---|
|              | Root-Knot Nematode<br>( <i>Meloidogyne</i> ) | Lee, Mobile                             |
|              | Tomato Spotted Wilt Virus                    | Chambers,<br>Chilton, Macon,<br>Russell |
| Zinnia       | Bacterial Leaf Spot                          | Escambia                                |
|              | Fusarium Crown & Root Rot                    | Chamber                                 |
|              | Tomato Spotted Wilt Virus                    | Escambia                                |

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

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

We received 133 samples during June. Drought conditions have continued to persist over much of the region. In Birmingham, the high temperature was greater than 90°F for twenty-one days last month. The dry weather has resulted in more outdoor watering restrictions in the past few weeks, primarily in the Birmingham area.

Some of the common disease problems included tomato spotted wilt virus on tomato, and root and crown rots of annual flowers caused by *Pythium*, *Phytophthora*, and *Rhizoctonia*. Other diseases included Dutch elm disease on American elm, gray leaf spot on tall fescue, and downy mildew on coleus. In addition, because of the dry conditions dieback, leaf scorch and death of newly installed trees and shrubs was also a common complaint last month.

Besides tomato, tomato spotted wilt virus (TSWV) was also confirmed by ELISA on melampodium and pepper. The incidence of TSWV in one vegetable garden was high with nearly 25% of the plants being affected (15 of 60 plants). On melampodium or butter daisy (summer annual), symptoms included leaf mosaic, leaf distortion and plant stunting. This was the first time we have seen TSWV on melampodium. It was first reported in Louisiana in 2000.

Smut on bermudagrass is a relatively unusual problem that was seen on a forage sample last month. The disease is easily recognized by the dusty black appearance of diseased seed heads. It has been reported from other southern states including Arkansas, Mississippi, North Carolina, Oklahoma and Texas. The following web links provide more information on this disease. The second web link mentions that no control is needed. <http://plantpathology.tamu.edu/Textlab/Lawns/s.html>

<http://plantpathology.tamu.edu/Textlab/Forage/Bermuda/bgs.html>

Downy mildew is a new disease of coleus that was seen for the first time in the spring of 2005. Some of the common symptoms include brown leaf spots or blotches, defoliation and leaf distortion. Under humid conditions a grey-brown fuzz of downy mildew growth can be seen on the lower leaf surfaces. The hot weather has slowed down the disease, although the leaf twisting or distortion can still be seen on infected plants in the landscape. The following two web publications have pictures as well as control information on this disease. <http://www.plantpathology.msu.edu/labs/hausbeck/HausbeckPDFfiles/Downy%20Mildew%20on%20Coleus%205-3-06.pdf>

[http://ipm.ncsu.edu/current\\_ipm/06PestNews/06News3/pestnews.pdf](http://ipm.ncsu.edu/current_ipm/06PestNews/06News3/pestnews.pdf)

Table 2. 2006 June Problems Seen In The Birmingham Plant Diagnostic Lab.

| <u>Plant</u>    | <u>Problem</u>                        | <u>County</u> |
|-----------------|---------------------------------------|---------------|
| Azalea          | Anthracnose ( <i>Colletotrichum</i> ) | Jefferson     |
|                 | Armillaria Root Rot                   | Jefferson     |
| Bean, Green     | Pythium Root Rot                      | Jefferson     |
| Begonia         | Pythium Root and Crown Rot            | Jefferson     |
|                 | Rhizoctonia Crown Rot                 | Jefferson     |
| Bentgrass       | Dollar Spot                           | *             |
| Bermuda         | Curvularia Blight                     | Jefferson     |
|                 | Smut ( <i>Ustilago</i> )              | DeKalb        |
| Boxwood, Common | Boxwood Leafminer                     | DeKalb        |
|                 | Cottony Cushion Scale                 | DeKalb        |
|                 | Pythium Root Rot                      | Jefferson     |
| Butterfly Bush  | Two-Spotted Spider Mite               | Jefferson     |
| Cast Iron Plant | Spider Mite                           | Jefferson     |
| Cherrylaurel    | Southern Red Mite                     | DeKalb        |
| Cleyera         | Cottony Cushion Scale                 | Marengo       |
| Coleus          | Downy Mildew ( <i>Perenospora</i> )   | Jefferson     |

| <u>Plant</u>       | <u>Disease</u>                          | <u>County</u>       |
|--------------------|---|---------------------|
| Crape Myrtle       | Asian Ambrosia Beetle                   | Jefferson           |
| Daylily            | Daylily Rust                            | Jefferson           |
| Dianthus           | Pythium Crown & Root Rot                | Jefferson           |
| Elm, American      | Dutch Elm Disease                       | St. Clair           |
| Fescue             | Brown Patch ( <i>Rhizoctonia</i> )      | Jefferson/St. Clair |
|                    | Dollar Spot ( <i>Sclerotinia</i> )      | Jefferson           |
|                    | Gray Leaf Spot ( <i>Pyricularia</i> )   | Tuscaloosa          |
| Grape, Wine        | Leaf Blight ( <i>Pseudocercospora</i> ) | Shelby              |
| Holly, Japanese    | Southern Red Mites                      | Jefferson           |
|                    | Two Lined Spittlebug                    | Jefferson           |
| Hawthorn           | Hawthorn Lacebug                        | Jefferson           |
| Hydrangea, Bigleaf | Alternaria Leaf Spot                    | Jefferson           |
|                    | Anthrachnose ( <i>Colletotrichum</i> )  | Jefferson           |
|                    | Cercospora Leaf Spot                    | Jefferson           |
|                    | Powdery Mildew                          | Jefferson(2)        |
| Ivy, English       | Dodder ( <i>Cuscuta</i> )               | Jefferson           |
| Juniper            | Kabatina Tip Blight                     | Shelby              |
| Maple, Japanese    | Armillaria Root Rot                     | Jefferson           |
| Melampodium        | Tomato Spotted Wilt Virus               | Jefferson           |
| Mondograss         | Anthrachnose ( <i>Colletotrichum</i> )  | Shelby              |
| Pepper             | Pythium Root/Stem Rot                   | Jefferson           |
|                    | Tomato Spotted Wilt Virus               | Jefferson           |
| Petunia            | Phytophthora Blight                     | Jefferson(2)        |

| <u>Plant</u>    | <u>Problem</u>                | <u>County</u>     |
|-----------------|-------------------------------|-------------------|
|                 | Phytophthora Root Rot         | Jefferson(2)      |
|                 | Pythium Root Rot              | Jefferson(2)      |
| Plum            | Black Knot                    | Bibb, Jefferson   |
| Rhododendron    | Phytophthora Root Rot         | Jefferson         |
| Rose            | Thrips (Flower Damage)        | Jefferson         |
| Scaveola        | Phytophthora Root Rot         | Jefferson         |
|                 | Pythium Root Rot              | Jefferson         |
| Sedum           | Powdery Mildew                | Jefferson         |
| St. John's Wort | Rust ( <i>Uromyces</i> )      | Jefferson         |
| Tomato          | Aphids                        | Shelby            |
|                 | Blossom End Rot               | Jefferson         |
|                 | Flea Beetle                   | Shelby            |
|                 | Pythium Root/Stem Rot         | Jefferson         |
|                 | Tomato Hornworm               | Shelby            |
|                 | Tomato Spotted Wilt Virus     | Jefferson(5)      |
| Vinca           | Phytophthora Aerial Blight    | Jefferson         |
|                 | Rhizoctonia Stem/Root Rot     | Jefferson         |
| Zoysiagrass     | Dollar Spot                   | Shelby            |
|                 | Leaf Rust ( <i>Puccinia</i> ) | Jefferson, Shelby |
|                 | Spring Dead Spot Suspected    | Blount            |

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

Auburn Entomology Report-June (C. Ray)

| COUNTY    | CROP              | CATEGORY                    | SPECIMEN NAME   |
|-----------|-------------------|-----------------------------|---|
| Choctaw   | None              | Miscellaneous               | Male Dobsonfly,<br><i>Corydalus</i>                                     |
| Jackson   | Japanese Eggplant | Row Crops                   | False Potato Beetle<br>Larvae, <i>Leptinotarsa<br/>juncta</i>           |
| Clarke    | Home              | Household-Store<br>Product  | Drugstore Beetle,<br><i>Stegobium paniceum</i>                          |
| Madison   | None              | Miscellaneous               | Trap Door Spider,<br><i>Ummidia</i> sp.                                 |
| Madison   | None              | Miscellaneous               | White Marked<br>Tussock Moth Larva,<br><i>Orgyia leucostigma</i>        |
| Blount    | Squash            | Row Crop                    | Termites  |
| Baldwin   | Tomato            | Row Crop                    | Juvenile Leaf Footed<br>Bug, <i>Leptoglossus<br/>phyllopus</i>          |
| Baldwin   | Home              | Household-<br>Miscellaneous | Wolf Spider,<br><i>Lycosidae</i>  |
| Pike      | Schefflera        | Ornamental                  | Possible Whiteflies,<br><i>Aleyrodidae</i>                              |
| Lee       | Caladium          | Ornamental                  | Japanese Beetle,<br><i>Popilla japonica</i>                             |
| Madison   | Home              | Household-<br>Miscellaneous | Fungus Gnats  |
| Jefferson | Home              | Household-Structural        | Termite   |
| Russell   | Okra              | Row Crop                    | Tiger Beetle,<br><i>Megacephala carolina</i>                            |
| Lee       | Landscape Tree    | Ornamental                  | A long-horned<br>wood boring beetle,<br><i>Neoclytus scutellaris</i>    |
| Lee       | Home              | Household-Structural        | Eastern Subterranean<br>Termite,<br><i>Reticuloterme flavi-<br/>pes</i> |

| COUNTY     | CROP        | CATEGORY                | SPECIMEN NAME   |
|------------|-------------|-------------------------|---|
| Montgomery | Home        | Household-Miscellaneous | Springtails, <i>Collembola</i>                        |
| Jefferson  | Boxwood     | Ornamental              | Cottony Cushion Scale, <i>Icerya purchasi</i>         |
| Montgomery | Viburnum    | Ornamental              | Greenhouse Thrips, <i>Heliothrips haemorrhoidalis</i> |
| Chilton    | Blueberries | Fruits                  | A Leaf Beetle, <i>Colaspis favosa</i>                 |
| Lee        | Home        | Household-Miscellaneous | Trap Door Spider, <i>Ummidia</i> sp.                  |
| Macon      | Barn        | Household-Miscellaneous | Southern Yellow Jacket, <i>Vespula squamosa</i>       |
| Macon      | Home        | Household-Miscellaneous | Southern Yellow Jacket, <i>Vespula squamosa</i>       |
| Colbert    | Home        | Household-Miscellaneous | White-Margined Burrower Bug, <i>Sehirus cinctus</i>   |
| Macon      | Building    | Household-Miscellaneous | Imported Fire Ant, <i>Solenopsis invicta</i>          |
| Autauga    | Lawn        | Turfgrass               | Wrinkled Grasshopper, <i>Hippiscus ocelote</i>        |
| Limestone  | Home        | Household-Miscellaneous | Red Imported Fire Ant, <i>Solenopsis invicta</i>      |
| Greene     | Home        | Medical                 | Brown Recluse Spider, <i>Loxosceles reclusa</i>       |
| Jefferson  | Home        | Household-Miscellaneous | Blowfly Pupae, <i>Calliphoridae</i>                   |
| Limestone  | Home        | Household-Miscellaneous | A Carpenter Ant, <i>Camponotus decipiens</i>          |
| Houston    | Home        | Household-Miscellaneous | Springtails, <i>Collembola</i>                        |

| COUNTY    | CROP          | CATEGORY                  | SPECIMEN NAME  |
|-----------|---------------|---------------------------|--|
| Houston   | Home          | Household-Miscellaneous   | Dust Mites, <i>Dermatophagus</i> sp.   |
| Covington | Pepper        | Row Crop                  | Tortoise Beetle, <i>Charidotella</i> sp.   |
| Choctaw   |               | Miscellaneous             | A Scoliid Wasp, <i>Campsomeris</i> sp.   |
| Limestone |               | Miscellaneous             | Tiger Beetle, <i>Megacephala carolina</i>  |
| Mobile    | Corn          | Row Crops                 | Corn Earworm, <i>Helicoverpa zea</i> & Fall Armyworm, <i>Spodoptera frugiperda</i> |
| Mobile    | Native Azalea | Ornamental                | Clay-Colored Leaf Beetle, <i>Anomoea laticlavia</i>                                |
| Jefferson | Unknown       | Miscellaneous             | A Stonefly, <i>Plecoptera</i>  |
| Mobile    | Camellia      | Ornamental                | Ribbed Tea Mite, <i>Calacarus carinatus</i>  |
| Russell   | Home          | Household-Miscellaneous   | Flying Ants, <i>Formicidae</i>   |
| Walker    | Home          | Household-Stored Products | Drugstore Beetle, <i>Stegobium paniceum</i>  |

### Disease Possibilities For July

In July we usually continue to see our 'June'-summer diseases. Table 3 lists some of the diseases which arrived in our lab during previous Julys. Brief comments on disease symptoms and control recommendations are included. For specific disease control recommendations, see the Alabama Pest Management Handbook. Also remember that sanitation is a necessary component of most disease control programs.

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

| <u>Plant</u> | <u>Disease</u>       | <u>Description</u>                       | <u>Control</u> |
|--------------|----------------------|--|----------------|
| Ajuga        | Cercospora Leaf Spot | Brown, circular or irregular leaf spots. | Cleary's 3336. |

| <u>Plant</u>   | <u>Disease</u>                                      | <u>Description</u>   | <u>Control</u>  |
|----------------|---|--|---|
|                | Rhizoctonia Aerial Blight                           | Leaves/stems turn brown. Mycelial webbing may be present.  | Cleary's 3336.  |
|                | <i>Sclerotium rolfsii</i>                           | Plant wilt and collapse. Decay of the lower stems with the appearance of a white mold at the soil level when conditions are wet and hot. Small, round, mustard seed sized white-brown-black sclerotia may develop. | Sanitation. Deep turn soil or soil removal if practical. Solarization will help.  |
| Aloe           | Fusarium Stem Rot                                   | A dry decay of stem sections.  | Cleary's 3336.  |
| Alfalfa        | Common ( <i>Pseudopeziza</i> ) Leaf Spot            | Small (1-3 mm diameter), circular, brown-black spots with ragged margins; defoliation.   | Early harvest.  |
|                | Leptosphaerulina Leaf Spot                          | Small black "pepper" spots or 1-3 mm "eyespot" which have light brown centers and dark brown borders.  | ---   |
|                | Rust ( <i>Uromyces</i> )                            | Red-brown powdery pustules on leaves, petioles, stems, defoliation.  | Regular harvesting.   |
|                | Summer Black Stem & Leaf Spot ( <i>Cercospora</i> ) | Circular-irregular red-brown or brown spots (2-6 mm diameter). When humidity high, spots become gray; defoliation.   | Regular harvesting.   |
| Anise, Florida | Phytophthora Root Rot                               | Plant wilt and dieback. Roots become brown, and water-soaked and easily pull apart.  | Remove diseased plants. Deep turn or replace root area soil. See AL Pest Management Handbook for nursery disease control. |
| Apple          | Apple Blotch ( <i>Alternaria mali</i> )             | Brown circular or oval spots which sometimes appear slightly zonate.   | See AL Pest Management Handbook.  |

| <u>Plant</u> | <u>Disease</u>  | <u>Description</u>   | <u>Control</u>   |
|--------------|---|--|--|
|              | Bitter Rot on Fruit<br>( <i>Gloemerella-Gloeosporium</i> )          | Small, circular, light-brown spots on the fruit. Spots enlarge and become sunken in the center. Concentric rings of pink pustules may occur. Rotted flesh is watery but not mushy.   | Regular fungicide sprays.                                |
|              | Black Rot<br>( <i>Botryosphaeria</i> )                              | <u>Fruit</u> : a brown spot on fruit that enlarges and usually becomes black; rotted flesh is firm. <u>Leaf</u> : brown or yellowish-brown spots (¼-½ inch diameter) with purple margins and irregular shape. <u>Canker</u> : lesions on branches or trunk are slightly sunken, reddish-brown and show concentric rings of cracked bark. | Sanitation; recommend fungicide treatments.              |
|              | Cedar Apple Rust<br>( <i>Gymnosporangium juniperae-virginiana</i> ) | Bright yellow spots on apple leaves. Orange (aecial) cups on lower leaf surfaces in yellow spots; defoliation.   | See ANR-468.   |
|              | Fly Speck on Fruit<br>( <i>Microthyriella</i> )                     | Numerous, tiny, circular, black spots appear grouped together on a section of the apple skin.  | Regular fungicide sprays.                                |
|              | Scab ( <i>Venturia inaequalis</i> )                                 | Olive-green to brown, slightly raised circular or slightly irregular spots (which may coalesce) on leaves and fruits; tissue distortion may result; early leaf, fruit drop may result from severe infection.   | Follow spray recommendations in spray guide; sanitation. |
|              | Sooty Blotch<br>( <i>Gloeodes pomigena</i> )                        | Superficial infection which appears as though someone placed a sooty fingerprint on apple fruit surface.   | Regular fungicide sprays.                                |
|              | White Rot<br>( <i>Botryosphaeria dothidea</i> )                     | White or light brown, water rot of fruit.  | Sanitation; recommended fungicide treatments.            |

| <u>Plant</u>  | <u>Disease</u>  | <u>Description</u>  | <u>Control</u>   |
|---------------|---|---|--|
| Ash           | Anthraco­nose<br>( <i>Apiognomonia</i> )                      | Irregular brown blotches of variable sizes occur along leaf edges and along leaf veins mostly.  | Sanitation.  |
| Aster         | Pythium Root Rot  | Roots light brown and water-soaked, pull apart easily.  | Sanitation; reduce water levels.   |
|               | Southern Blight<br>( <i>Sclerotium</i> )                      | Decay of stem at soil line; white mycelium (sometimes with brown-black mustard-seed-sized sclerotia may be present) often at soil line. | Soil solarization.   |
| Aster, Stokes | Tomato Spotted Wilt Virus                                     | Stunting of new growth; ring spots.   | Sanitation; thrips control.  |
| Aucuba        | Botryodiplodia<br>( <i>Botryosphaeria</i> )<br>Canker/Dieback | Black cankers on stems.   | Pruning; Cleary's 3336.  |
|               | Phytophthora Root Rot   | Roots become water-soaked and a brown color during early stages of disease.   | Sanitation. Reduce water in the area. See ANR-571 and the AL Pest Management Handbook. |
| Azalea        | Anthraco­nose   | Small, circular, brown spots.   | Sanitation. See the AL Pest Management Handbook.                                       |
|               | Bacterial Leaf Spot   | Black irregular spots; water-soaked spot edges.   | Strict sanitation. Do not water over-head.   |
|               | Colletotrichum Leaf Spot                                      | Small, circular brown leaf spots.   | Sanitation; protective sprays of Cleary's 3336.  |
|               | Phomopsis Dieback<br>(Stress-Related)                         | Sunken cankers that cause dieback of individual branches.   | Pruning; eliminate stress.   |
|               | Phytophthora Root Crown/Rot                                   | Brown, water-soaked areas on crown and roots; outer root cortex slips easily away from inner tissues.                                   | Sanitation; Good drainage; Fungicide drenches.   |
|               | Powdery Mildew  | White powdery dusting on leaf surfaces; some leaf distortion; some necrosis.  | Sanitation; See AL Pest Management Handbook.   |

| <u>Plant</u> | <u>Disease</u>                        | <u>Description</u>   | <u>Control</u>  |
|--------------|---------------------------------------|--|---|
| Bahiagrass   | Dollarspot ( <i>Sclerotinia</i> )     | Bleached-out lesions with dark borders develop on grass blades; disease begins in small patches which can enlarge.   | Maintain adequate fertility.  |
| Bean, Garden | Alternaria Leaf Spot                  | Oval-circular brown (sometimes zonate) leaf spots.   | Chlorothalonil or maneb product.                                      |
|              | Anthracnose ( <i>Colletotrichum</i> ) | Black, sunken lesions (½ inch diameter) on pods, cotyledons and stems. When spores are produced, the lesions are orange-colored. On leaves, spots are small and reddish-brown. Veins on lower leaf surfaces may be discolored red-brown in sections. | Protective fungicide sprays. Rotation.                                |
|              | Cercospora Leaf Spot                  | Irregular, gray-brown spots with red-brown margins; leaf drop.   | Regular fungicide sprays.   |
|              | Charcoal Rot ( <i>Macrophomina</i> )  | Lower stem near soil line becomes weakened/ shredded. Split stem has tiny black dots sprinkled throughout.   | Regular fungicide sprays.   |
|              | Cucumber Mosaic Virus                 | Green-yellow mottle; abnormally shaped leaves; abnormally small leaves.  | Control aphids and cucumber beetles; do not save seed; control weeds. |
|              | Fusarium Crown Rot                    | Stem at the soil line becomes decayed with a dry-type rot.   | A long rotation or soil solarization.                                 |
|              | Fusarium Wilt                         | Lower leaves turn yellow; plants wilt and grow poorly; brown streaks in vascular system in lower stem.   | Rotate out of beans for 6-10 years. Plant resistant varieties.        |
|              | Pythium Crown Rot                     | Lower stem develops a soft, wet, brown rot.  | Sanitation; decrease irrigation practices.                            |

| <u>Plant</u> | <u>Disease</u>                        | <u>Description</u>  | <u>Control</u>  |
|--------------|---------------------------------------|---|---|
|              | Rhizoctonia Aerial Blight             | Brown, necrotic blotches on leaves.   | See AL Pest Management Handbook.  |
|              | Rhizoctonia Sore Shin                 | Lower stem develops a dry, brown rot lesions.   | Sanitation; See AL Pest Management Handbook.  |
|              | Southern Blight ( <i>Sclerotium</i> ) | See Aster.  | Soil solarization. Crop rotation or deep plowing.   |
| Begonia      | Phytophthora Crown & Root Rot         | Plant wilt and dieback. Roots become brown and water-soaked.  | Sanitation. Improve drainage. Remove root area soil if practical. See the AL Pest Management Handbook for control in greenhouses. |
|              | Pythium Root Rot                      | Roots become soft, brown and water-soaked.  | Sanitation; See the AL Pest Management Handbook.  |
|              | Rhizoctonia Aerial Blight             | Leaves become brown spotted, blighted and shredded.   | Cleary's 3336. Domain, benomyl products labeled for ornamentals; sanitation.  |
| Bentgrass    | Anthracoise ( <i>Colletotrichum</i> ) | Leaf spot/blight often secondary.   | See control recommendations for brown patch.  |
|              | Black Layer                           | Leaves turn yellow and plants dieback; a black soil layer is present about one inch below the soil surface. | Soil renovation is required.  |
|              | Brown Patch ( <i>Rhizoctonia</i> )    | Foliage Blight  | See the AL Pest Management Handbook.  |
|              | Curvularia Blight                     | Yellow spotting of leaves; typically seen during hot, stressful conditions. Usually a minor problem.        | Fungicides usually not needed. Remove stressful conditions. Fungicides labeled for control of brown patch may help.               |

| <u>Plant</u> | <u>Disease</u>                                     | <u>Description</u>   | <u>Control</u>                                   |
|--------------|--|--|--|
|              | Dollar Spot  | Silver dollar-sized pale yellow or white circular areas in lawn. Individual grass blades usually have white leaf spots that develop as bands across the whole leaf blade. Spots have dark borders. | See ANR-493 and the AL Pest Management Handbook. |
|              | Fairy Ring   | Yellow or brown areas that occur in ring-like patterns. Mushrooms may develop at outer sides of ring areas.  | See ANR-372.                                     |
|              | Nematodes, Stunt, Ring & Sheath                    | Plants grow poorly, yellow, dieback.   | See ANR-523.                                     |
|              | Pythium Root Rot                                   | Plants yellow and dieback. Infected areas may appear wet, water-soaked. In wet conditions, a white fluffy mold may develop.  | See ANR-594.                                     |
| Bermuda      | Brown Patch ( <i>Rhizoctonia</i> )                 | Foliage Blight.  | See AL Pest Management Handbook.                 |
|              | Dollar Spot ( <i>Sclerotinia</i> )                 | Irregularly shaped bleached patches of grass; white spots with dark borders on grass blades.   | Collect grass clippings; Fungicides.             |
|              | “Helminthosporium” Leaf Spot & Bipolaris Leaf Spot | Leaf lesions are irregularly shaped and brownish-green. Old lesions become tan or white with dark brown borders.   | Sanitation; fungicide treatments.                |
|              | Pythium Blight                                     | Foliage develops brown, wet-looking blotches; necrosis.  | See ANR-594 and the AL Pest Management Handbook. |

| <u>Plant</u> | <u>Disease</u>                                | <u>Description</u>  | <u>Control</u>  |
|--------------|---|---|---|
|              | Root-Knot Nematode<br>( <i>Meloidogyne</i> )  | Plant grow poorly.  | Culture practices to eliminate root stress. Plant nematode resistant crops; solarization. See AL Pest Management Handbook if golf course or commercial situation. |
|              | Ring Nematode<br>( <i>Criconemoides</i> )     | Plants grow poorly. Yellowing, dead patches may develop in scattered areas.               | See AL Pest Management Handbook for commercial or golf course situation.  |
|              | Rust ( <i>Puccinia</i> )                      | Leaves become reddish-orange and eventually die.  | See ANR-621 or the AL Pest Management Handbook.   |
|              | Spring Dead Spot<br>( <i>Gaeumannomyces</i> ) | Dead areas in spring.   | See AL Pest Management Handbook.  |
|              | Sting Nematode<br>( <i>Belonolaimus</i> )     | Plants grow poorly. Yellowing dead patches may develop in scattered areas.                | See AL Pest Management Handbook for commercial or golf course situation.  |
|              | Take-All Patch<br>( <i>Gaeumannomyces</i> )   | Patchy areas thin out with individual plants becoming yellow and then dieback follows.    | See ANR-823.  |
| Blackberry   | Orange Rust<br>( <i>Gymnoconia nitens</i> )   | Stunted plants; orange pustules develop on lower leaf surfaces.                           | Removal of plants.  |
|              | Cane Blight<br>( <i>Leptosphaeria</i> )       | Dark red or purple cankers develop around wounds. Old lesions become gray.                | Sanitation. Pruning.  |
|              | Rosette<br>( <i>Cercospora</i> )              | Shoot proliferation or witches brooms develop. Blossoms become distorted and look double. | Sanitation. See the AL Pest Management Handbook.  |
| Blueberry    | Botryosphaeria<br>Canker                      | Sunken, cracked, lesions on branches.   | Sanitation.   |

| <u>Plant</u>  | <u>Disease</u>                           | <u>Description</u>  | <u>Control</u>  |
|---------------|--|---|---|
| Bougainvillea | Anthracnose<br>( <i>Colletotrichum</i> ) | Light brown, circular leaf spots.   | Sanitation. Protective sprays of Cleary's 3336 or Halt may be applied.  |
| Boxwood       | Macrophoma Leaf Spot                     | Brown leaf spots with small black specks in spots. This fungus often develops on weakened plants.   | Sanitation of fallen leaves; remove stress situations; Cleary's 3336 may be applied as a protective treatment if desired. |
|               | Phomopsis Leaf Blight                    | Brown, leaf blotches & brown leaves.  | Sanitation; alleviate stresses; Cleary's 3336, if desired as a protective treatment.                                      |
|               | Phytophthora Root Rot                    | Root decay which appears water-soaked and brown. Plants develop yellowing that begins with older growth. Dieback also occurs.             | Reduce water levels in the area. Remove damage plants. See ANR-571 and the AL Pest Management Handbook.                   |
|               | Pythium Root Rot                         | Feeder roots decay when conditions are kept continually wet. Plants develop yellowing that begins with older growth. Dieback also occurs. | Reduce water levels in the area. Remove damaged plants. See AL Pest Management Handbook.                                  |
|               | Volutella Blight                         | Leaves and branches dieback from canker lesions on branches; orange masses of spores may be present on cankers.                           | Sanitation; alleviate stresses; Cleary's 3336, if desired as a protective treatment.                                      |
| Calla Lilly   | Southern Blight<br>( <i>Sclerotium</i> ) | Crown rot, white mold.  | Sanitation. Solarization or deep turn soil may help.  |
| Camellia      | <i>Sclerotium rolfsii</i><br>Crown Rot   | Dieback. Decay of lower trunk at the soil level. A white mold with small, round white-brown-black sclerotia may develop.                  | Sanitation. Deep turn soil. See the AL Pest Management Handbook.  |
| Cantaloupe    | Alternaria Leaf Spot                     | Circular-oval, sometimes zonate spots.  | See the AL Pest Management Handbook.  |

| <u>Plant</u>      | <u>Disease</u>                           | <u>Description</u>  | <u>Control</u>   |
|-------------------|--|---|--|
|                   | Anthracnose<br>( <i>Colletotrichum</i> ) | Circular brown leaf spots.  | See the AL Pest Management Handbook.                     |
|                   | Bacterial Wilt ( <i>Erwinia</i> )        | Individual leaves become wilted and die; gradually the whole stem section dies.   | Control cucumber beetles.                                |
|                   | Cucumber Mosaic Virus                    | Plants are stunted. New growth is stunted. Leaves show abnormal shape (shoestring) mosaic, and puckering. Symptoms may be mild or severe. | Remove damaged plants. Controlling aphids may help some. |
|                   | Fusarium Melon Rot                       | Melon develop a soft rot; eventually a white fluffy mold develops.  | Avoid wounds.  |
|                   | Fusarium Wilt                            | Lower leaves yellow and plant gradually wilts from the bottom up.   | Rotation or fumigation.                                  |
|                   | Papaya Ringspot Virus                    | See symptoms for CMV.   | See CMV control comments.                                |
|                   | Phytophthora Root Rot                    | Roots become brown and water-soaked.  | Ridomil 2E. See Handbook.                                |
|                   | Powdery Mildew                           | White, powdery layer on upper leaf surface of plants; necrosis follows.   | See the AL Pest Management Handbook.                     |
|                   | Watermelon Mosaic Virus                  | See symptoms for CMV.   | See CMV control comments.                                |
| Centipede         | Brown Patch<br>( <i>Rhizoctonia</i> )    | Irregular or circular patches of grass develop brown blotches on leaf blades or possibly on stolons. Usually a foliage blight.            | See AL Pest Management Handbook or ANR-492.              |
|                   | Dollar Spot<br>( <i>Sclerotinia</i> )    | Small, circular areas the size of a silver dollar become yellowed.  | See ANR-493 and the AL Pest Management Handbook.         |
| Cherry, Flowering | Armillaria Root Rot                      | Dieback; mushrooms may develop.   | See ANR-907.   |
| Cherry Laurel     | Botryosphaeria Dieback                   | Sunken, cracked lesions on branches.  | Sanitation.  |

| <u>Plant</u>  | <u>Disease</u>                                     | <u>Description</u>  | <u>Control</u>  |
|---------------|--|---|---|
|               | Shot Hole<br>( <i>Xanthomonas</i> )                | Reddish, angular spots develop; centers fall out.   | See AL Pest Management Handbook.  |
| Chrysanthemum | Bacterial Leaf Spot                                | Angular, small, black leaf spots.   | See AL Pest Management Handbook.  |
|               | Fusarium Crown Rot                                 | Lower stem becomes brown and dried; plants wilt and die.  | Rotate area out of mums for 6-10 years.   |
|               | Phoma Leaf Spot/<br>Blight                         | Brown spots/blotches.   | Sanitation. Cleary's 3336 of Halt may help.   |
|               | Phytophthora &<br>Pythium Root Rot                 | Roots become brown with water-soaked decay.   | See AL Pest Management Handbook.  |
|               | Pythium Stem Rot                                   | Dark brown soft stem rot.   | Sanitation. See the AL Pest Management Handbook.  |
| Cloeme        | Rhizoctonia Root Rot                               | Roots develop a brown, dried decay. Foliage wilts, yellows and dies back.   | Sanitation; crop rotation; deep turn soil.  |
| Collard       | Alternaria Leaf Spot                               | Round or oval brown spots.  | Sanitation. See the AL Pest Management Handbook.  |
|               | Black Rot<br>( <i>Xanthomonas campestris</i> )     | Black v-shaped lesions start at leaf edges. Stem becomes black & wet rotted.  | See ANR-859. See AL Pest Management Handbook.   |
| Coreopsis     | Bacterial Leaf Spot                                | Angular, black, water-soaked leaf spots.  | Sanitation. Do not water overhead.  |
| Corn          | Aspergillus Ear Rot                                | Brown, decay of kernels. Yellow-green spore masses may be present.  | Avoid stress. Maintain soil moisture.   |
|               | Bacterial Stalk Rot<br>( <i>Erwinia</i> )          | Brown, wet, often foul-smelling areas on stalk.   | Maintain balanced fertility; avoid drought stresses early in the growing season.                          |
|               | Charcoal Rot<br>( <i>Macrophominia phaeolina</i> ) | A dry decay of lower stalks. Inner tissues of lower stalks are gray from the presence of masses of tiny black fungal sclerotia. | Usually this is not a severe problem; hot and dry conditions favor disease; some hybrids show resistance. |

| <u>Plant</u> | <u>Disease</u>  | <u>Description</u>  | <u>Control</u>  |
|--------------|---|---|---|
|              | Common Rust<br>( <i>Puccinia sorghi</i> )             | Yellow-orange brown-black dusty pustules scattered over upper and lower leaf surfaces. When disease is severe, leaves yellow and turn brown.                              | Resistant hybrids.  |
|              | Downy Mildew<br>( <i>Sclerophthora macrospora</i> )   | Yellow streaks in leaves; crazy top.  | Rotation.   |
|              | Fusarium Ear Rot                                      | A brown, dry rot of kernels. A pink coloration from spore masses may help.  | Sanitation; avoid stress.   |
|              | Gray Leaf Spot<br>( <i>Cercospora</i> )               | Gray-colored, elongated leaf spots.   | Resistant varieties.  |
|              | Smut ( <i>Ustilago</i> )                              | A thin, white layer of plant-tissue covers a ball of black, greasy or powdery spores. Abnormal balls (smut balls) (4-5 inches diameter) occur on ears, tassels and nodes. | Resistant varieties; maintain balanced fertility; avoid wounds; destroy galls before they break open. |
|              | Southern Corn Leaf Blight ( <i>Bipolaris maydis</i> ) | Small, brown, elongated leaf spots; spots may coalesce to cause a blight.   | See Austin Hagan.   |
|              | Southern Rust<br>( <i>Puccinia polysora</i> )         | Yellow-golden and light brown pustules are scattered mostly over the upper leaf surfaces. Infected leaves turn yellow and dry out.  | Resistant hybrids.  |
| Cotton       | Alternaria Leaf Spot                                  | Light or medium brown, irregular-shaped leaf spots develop.   | Disease usually not severe enough to require control measures; sanitation.                            |
|              | Fusarium Root Rot                                     | Lower stems show a brown or red-brown discoloration and decay. Plants wilt and dieback.   | Refer to Ed Sikora.   |
|              | Phoma, Phomopsis Leaf Spot                            | Brown, circular-irregular leaf spots.   | Refer to Bill Gazaway.  |
|              | Pythium Root Rot                                      | Plants collapse. Roots become slightly brown and wet rotted.  | See AL Pest Management Handbook.  |

| <u>Plant</u>     | <u>Disease</u>                                 | <u>Description</u>  | <u>Control</u>  |
|------------------|--|---|---|
|                  | Root-Knot Nematode<br>( <i>Meloidogyne</i> )   | Roots develop small-large irregular galls. Plants are stressed.   | Refer to Ed Sikora.   |
| Crabapple        | Cedar-Apple Rust<br>( <i>Gymnosporangium</i> ) | Large (3-5 mm), bright yellow spots; on underside of leaf spots, orange pustules may be present.                  | See AL Pesticide Handbook.  |
|                  | Fireblight ( <i>Erwinia amylovora</i> )        | Rapid dieback.  | See ANR-542.  |
| Crape Myrtle     | Cercospora Leaf Spot                           | Red-brown colored, circular leaf spots.   | Sanitation; See AL Pest Management Handbook.                            |
|                  | Powdery Mildew                                 | White, powdery coating on upper leaf surfaces mostly; new growth may become distorted; leaf necrosis will follow. | Sanitation; See AL Pest Management Handbook.                            |
| Cucumber         | Anthracnose<br>( <i>Colletotrichum</i> )       | Round or irregularly round brown leaf spots.  | See the AL Pest Management Handbook.                                    |
|                  | Bacterial Wilt ( <i>Erwinia</i> )              | Leaf and petiole wilting and eventual death.  | Control the cucumber beetle.  |
|                  | Cercospora Leaf Spot                           | Irregular, light-brown spots.   | See AL Pest Management Handbook.  |
|                  | Mosaic Viruses                                 | Mosaic pattern of alternating green and yellow patches on foliage and fruit. Reduced growth.                      | Control aphids; Do not save seed; control weeds.                        |
|                  | Powdery Mildew                                 | White, powdery dusting on leaves, stems.  | See AL Pest Management Handbook.  |
| Cypress, Arizona | Kabatina Blight                                | Inner needles turn brown and drop.  | ---   |
| Daylily          | Anthracnose<br>( <i>Colletotrichum</i> )       | Irregular brown blotches that occur throughout leaf area.   | Sanitation; Cleary's 3336 would give protective disease control.        |
|                  | Kabatiella Streak                              | Yellow spots and streaks.   | Sanitation. Cleary's 3336 will provide some protective disease control. |
|                  | Pythium & Phytophthora Crown Rot               | Crowns become wet, brown, and water-soaked.   | Sanitation. Protective treatments of Subdue may be applied.             |

| <u>Plant</u> | <u>Disease</u>                                | <u>Description</u>  | <u>Control</u>   |
|--------------|---|---|--|
|              | Rust ( <i>Puccinia hemerocallidis</i> )       | Reddish brown leaf spots. When severe, entire leaves become blighted. | Sanitation. Protective sprays of Heritage, Banner Maxx or Fertilome System Fungicide.                          |
|              | Rhizoctonia Crown Rot                         | Crowns become dried, brown, decayed.                                  | Sanitation. Cleary's 3336 may help give protective disease control.  |
|              | Southern Blight ( <i>Sclerotium rolfsii</i> ) | Crown rot; white mold at crown.                                       | Sanitation; rotation to turf; solarization.  |
| Delphinium   | Fusarium Root Rot                             | Roots become brown and dried.   | Crop rotate away from Delphinium, Zinnia.  |
| Dithanus     | Fusarium Crown & Root Rot                     | Roots become brown and dry rotted.                                    | Sanitation. Crop rotation or deep turn soil.   |
|              | Pythium Root Rot                              | Roots become brown with water-soaked decay.                           | Keep area well drained.  |
| Dogwood      | Botrytis Leaf Spot/ Blight                    | Brown-gray leaf spots/ blotches.                                      | Cleary's, Domain.  |
|              | Cercospora & Septoria Leaf Spots              | Round-angular, brown spots (2-4 mm).                                  | Sanitation; See AL Pest Management Handbook.   |
|              | Powdery Mildew                                | White powdery coating on leaves, both upper and lower leaf surfaces.  | Sanitation of leaves in the fall. Cleary's 3336 sprays may be applied as protective sprays if trees are small. |
|              | Pythium/Phytophthora Root Rot                 | Root infection begins as water-soaked root decay. Dead roots dry out. | Sanitation. See the AL Pest Management Handbook.   |
|              | Septoria Leaf Spot                            | Brown, small, angular spots.  | Sanitation. See the AL Pest Management Handbook.   |
|              | Spot Anthracnose ( <i>Elsinoe</i> )           | Tiny red spots on bracts & leaves.                                    | See AL Pest Management Handbook.   |

| <u>Plant</u>      | <u>Disease</u>                                | <u>Description</u>   | <u>Control</u>   |
|-------------------|---|--|--|
|                   | Powdery Mildew                                | White powdery coating on leaves, both upper and lower leaf surfaces. Yellowing and blight follows. New growth may be distorted.  | Sanitation of leaves in the fall. Cleary's 3336 sprays may be applied as protective sprays if trees are small. |
| Fatsia            | <i>Sclerotium rolfsii</i><br>Crown Rot        | Plant wilt and collapse. Decay of the lower stems with the appearance of a white mold at the soil level when conditions are wet and hot. Small, round, mustard seed sized white-brown-black sclerotia may develop. | Sanitation. Deep turn soil or soil removal if practical. Solarization will help.                               |
| Fern              | Pythium Root Rot                              | Brown, water-soaked roots.   | See Pest Management Handbook.  |
| Fescue            | Anthracnose<br>( <i>Colletotrichum</i> )      | Brown spotting of leaves.  | Sanitation. Do not water in the evening. See the AL Pest Management Handbook.                                  |
|                   | Brown Patch<br>( <i>Rhizoctonia</i> )         | Brown blight of foliage.   | See AL Pest Management Handbook.   |
|                   | Dollar Spot                                   | See Centipede.   | See Centipede.   |
| Fig               | Limb Blight ( <i>Corticium salmonicolor</i> ) | A pink-white mold develops on branches; dieback.   | Sanitation.  |
|                   | Rhizoctonia Blight                            | Large necrotic blotches on leaves.   | Sanitation.  |
| Florida Jessamine | Botryodiplodia Dieback                        | Elongated, sunken cankers cause dieback. Canker edges are often cracked.   | Prune out cankers. Make cuts 4-5 inches from edges of damage.  |
| Gardenia          | Phytophthora Root Rot                         | Roots become wet, brown, and rotted. Dieback begins with lower foliage usually.  | Sanitation. Reduce irrigation. See AL Pest Management Handbook.  |
| Geranium          | Botrytis Blight                               | Blossoms become gray-brown and limp.   | Sanitation; See the AL Pest Management Handbook.   |

| <u>Plant</u>     | <u>Disease</u>                                      | <u>Description</u>   | <u>Control</u>   |
|------------------|---|--|--|
|                  | Phytophthora Root Rot                               | Roots become brown, water-soaked.  | See AL Pest Management Handbook.   |
|                  | <i>Xanthomonas campestris</i> pv. <i>pelargonii</i> | Leaves develop black spots. Stems develop black rot areas. The bacterial infection will become systemic and eventually plants will wilt. | Sanitation.  |
| Grape            | Black Rot ( <i>Guignardia</i> )                     | Medium-dark brown circular spots with darker brown borders on leaves and fruit.  | Protective fungicide sprays; Sanitation.   |
| Hawthorn         | Cedar-Hawthorn Rust ( <i>Gymnosporangium</i> )      | Bright yellow spots on leaves and fruit of apple, crabapple, hawthorne. Aecial orange cups develop in spots (Cedars develop cankers.)    | See ANR-468.   |
| Hawthorn, Indian | Entomosporium Leaf Spot                             | Red, black circular leaf spots.  | See the AL Pest Management Handbook.   |
| Hibiscus         | Fusarium Stem/Root Rot                              | Dark brown, dry stem decay lesion.   | Sanitation. Protective treatment spray of Cleary's 3336.                                 |
| Holly            | Phytophthora Root Rot                               | Dieback. Roots become brown and wet rotted.  | See the AL Pest Management Handbook.   |
| Holly, Foster    | Botryosphaeria Canker                               | Sunken, cracked lesions; dieback often results.  | Sanitation. Avoid stress.  |
| Holly, Helleri   | Pythium Root Rot                                    | Feeder roots develop a wet, light brown rot.   | See AL Pest Management Handbook. Keep area well drained.                                 |
|                  | Thielaviopsis Root Rot                              | Roots show black lesions and often black root tips. Plants grow poorly.  | ---  |
| Hosta            | Pythium Root Rot                                    | Roots become light brown and wet-rotted; pull apart easily.  | Sanitation. Reduce water levels in the area; crop rotation; deep turning soil will help. |

| <u>Plant</u>  | <u>Disease</u>                | <u>Description</u>  | <u>Control</u>  |
|---------------|-------------------------------|---|---|
| Hydrangea     | Bacterial Leaf Spot           | Dark, angular leaf spots.   | Sanitation.   |
|               | Cercospora Leaf Spot          | Irregular brown lesions of variable sizes develop on leaves.  | Sanitation; Cleary's 3336 or Domain protective sprays.                                |
|               | Fusarium Wilt                 | Lower foliage wilts and yellows. Yellowing and dieback progresses up the plant. Vascular browning is present. | Sanitation. Long crop rotation. Resistant varieties.                                  |
|               | Phytophthora Crown Rot        | Dieback, wilt. Roots become brown and wet rotted.   | Sanitation. Deep turn or soil removal, if practical. See AL Pest Management Handbook. |
|               | Pythium Crown & Root Rot      | Feeder roots become light brown and soft-rotted.  | See AL Pest Management Handbook. Improve soil drainage.                               |
| Impatiens     | Impatiens Necrotic Spot Virus | New growth is dwarfed and stunted; foliage may show yellowing spots/pattern or black spots/patterns.          | Sanitation; Thrips control with insecticides.   |
|               | Phytophthora Crown & Root Rot | Medium brown, wet, soft rot of lower stem and roots.  | Sanitation; See AL Pest Management Handbook.  |
|               | Pythium Root Rot              | Medium brown, wet, soft rot of lower stem and roots.  | Sanitation; See AL Pest Management Handbook.  |
|               | Rhizoctonia Crown Rot         | Dark brown, dried crown/rot.  | Sanitation. See the AL Pest Management Handbook.                                      |
| Ivy, Algerian | Phytophthora Root Rot         | Roots become brown and wet-rotted; tissues pull apart easily.   | Sanitation. Reduce water levels in the area; crop rotation; deep turn soil may help.  |
| Ivy, English  | Alternaria Leaf Spot          | Large, brown-black, sometimes zonate, circular-oval spots (3-5 mm diameter).                                  | See AL Pesticide Handbook.  |

| <u>Plant</u>    | <u>Disease</u>                           | <u>Description</u>  | <u>Control</u>   |
|-----------------|--|---|--|
|                 | Anthracnose<br>( <i>Colletotrichum</i> ) | Circular or roughly circular, brown leaf spots.   | Sanitation. See the AL Pest Management Handbook.                                   |
|                 | Bacterial Leaf Spot                      | Angular, black, water-soaked spots (2-3 mm diameter).                                   | Sanitation; See AL Pest Management Handbook.                                       |
|                 | Phyllosticta Leaf Spot                   | Brown, Circular to oval leaf spots.   | See recommendations for Alternaria.  |
|                 | Phytophthora Root Rot                    | Brown, water-soaked root decay.   | Sanitation. See AL Pest Management Handbook.                                       |
| Juniper         | Pestalotia Blight                        | Needles become brown.   | Sanitation. Locate and correct stress condition.                                   |
|                 | Phytophthora Root Rot                    | Roots become brown, soft, and water-soaked.   | Sanitation; See the AL Pest Management Handbook.                                   |
|                 | Twig Blight<br>( <i>Phomopsis</i> )      | Brown twig tips; small cankers at base of small twigs.                                  | Sanitation; Cleary's 3336, Domain, or a benomyl fungicide labeled for ornamentals. |
| Juniper, Shore  | Phytophthora Root Rot                    | Roots develop a brown, wet decay.   | See AL Pest Management Handbook. Improve soil drainage.                            |
|                 | Pythium Root Rot                         | Small roots become water-soaked and decayed. Infected roots may be only slightly brown. | See AL Pest Management Handbook. Improve soil drainage.                            |
| Leyland Cypress | Cercosporidium Blight                    | Needles (usually lower limbs affected first) become brown.                              | Sanitation. See the AL Pest Management Handbook.                                   |
|                 | Pestalotia Tip Blight                    | Tips of branches turn brown. Discoloration progresses from the tip.                     | Maintain healthy trees.  |
|                 | Sphaeropsis Dieback                      | Sunken cankers develop. Dieback of branch occurs from tip to the canker.                | Pruning.   |
| Ligustrum       | Colletotrichum Leaf Spot                 | Medium brown circular-irregular leaf spots.   | Sanitation. See AL Pest Management Handbook.                                       |

| <u>Plant</u>       | <u>Disease</u>                            | <u>Description</u>   | <u>Control</u>  |
|--------------------|---|--|---|
| Lilac              | Phytophthora Root Rot                     | Roots become brown and water-soaked.   | Subdue 2E may be used as a protective treatment. First test a few plants to be sure phytotoxicity is not a problem. |
| Liriope            | Colletotrichum Leaf Spot                  | Brown, circular-irregular leaf spots (2-10 mm diameter). When spots coalesce, a large portion of leaf may turn brown and die. Often leaf tips are affected.              | Sanitation; Cleary's 3336, Domain, or a benomyl fungicide labeled for ornamentals.                                  |
|                    | Rhizoctonia Crown Rot                     | Lower stems become dry rotted and brown.   | Sanitation. Cleary's 3336 may be applied as a protective spray treatment.   |
|                    | Root-Knot Nematode ( <i>Meloidogyne</i> ) | Plants grow poorly. Roots exhibit irregularly-shaped galls.  | Leaves soil fallow for a few years; plant nematode-resistant plants or solarize area (ANR-713).                     |
| Magnolia, Japanese | Bacterial Leaf Spot                       | Brown, irregular leaf spots with water-soaked margins.   | Strict sanitation.  |
|                    | Hypoxylon Canker                          | Circular or elongated areas on trunk/branches where bark falls off and gray or black fungal growth (stroma) develops in a hard thick layer; dieback eventually develops. | Prune out the infected area. Make cut 5 inches beyond the damage.   |
|                    | Powdery Mildew                            | White powdery dusting on twigs and upper surfaces of leaves; infected areas die.   | Cleary's 3336 would provide protective control.   |
| Maple              | Anthrachnose ( <i>Kabatella</i> )         | Large, light-brown irregular spots and blotches may kill whole leaves; spots often follow leaf veins.  | Sanitation; fungicide sprays.   |
|                    | Botryosphaeria Canker                     | Sunken lesions on branches/trunk; cracking at lesion edges may occur.  | Sanitation.   |

| <u>Plant</u>    | <u>Disease</u>                         | <u>Description</u>  | <u>Control</u>   |
|-----------------|--|---|--|
|                 | Ganoderma Wood/<br>Root Rot            | Dieback; brown wood rot.  | Sanitation.  |
|                 | Phyllosticta Leaf Spot                 | Spots are circular-irregular, and have brown centers with purple margins (□"-½" diameter).                | Sanitation; fungicide sprays.  |
| Maple, Japanese | Anthrachnose                           | Brown, circular or roughly circular leaf spots; some irregular blotches that may expand along leaf veins. | Sanitation of leaves in the fall.  |
|                 | Phomopsis Dieback                      | Usually small, sunken, oval cankers on branches, twigs.   | Prune out cankers. Make cuts about 4 inches beyond the edge of cankers.    |
| Marigold        | Botrytis Blight                        | Flowers & leaves develop brown or gray spots/blotches.  | Sanitation. Increased air circulation. Cleary's 3336 protective sprays.    |
|                 | Phytophthora & Pythium Root Rot        | Roots become brown with a wet rot.  | See AL Pest Management Handbook.   |
| Mint            | Colletotrichum Leaf Spot               | Brown circular leaf spots.  | Sanitation.  |
| Mondo Grass     | Anthrachnose ( <i>Colletotrichum</i> ) | Brown irregular lesions on leaves.  | Sanitation. See AL Pest Management Handbook.                               |
|                 | Web Blight ( <i>Rhizoctonia</i> )      | Brown blotches and spots develop; when conditions are humid, a light brown webbing will occur.            | Sanitation. Cleary's 3336 or Halt will provide protective disease control. |
| Morningglory    | Rust ( <i>Puccinia</i> )               | Orange powdery patches on leaf surfaces; infected areas die.  | Sanitation.  |
|                 | White Rot ( <i>Albugo</i> )            | White raised patches form on leaves; infected areas die.  | Sanitation; reduce irrigation.   |
| Muscadine       | Black Rot ( <i>Guignardia</i> )        | Reddish-brown irregular leaf spots with tiny black specks often scattered over surface of spots.          | Protective fungicide sprays. See the AL Pest Management Handbook.          |

| <u>Plant</u> | <u>Disease</u>                       | <u>Description</u>  | <u>Control</u>  |
|--------------|--------------------------------------|---|---|
| Nandina      | Virus                                | Leaves develop red discoloration and/or dark red spots and/or a red and/or yellow mosaic develops.  | Sanitation.   |
| Nectarine    | Botryosphaeria Dieback               | Sunken, elongated cankers with cracked edges.   | Prune out cankers making cut 4-5 inches from damage.                              |
| Oak          | Anthracnose ( <i>Apiognomonina</i> ) | Brown blotches often along leaf veins or leaf edges.  | Sanitation; See AL Pest Management Handbook for small oak trees.                  |
|              | Hypoxylon Canker                     | Areas on trunk will develop a gray or black hard layer just under the bark; bark will become cracked and fall off.  | Sanitation.   |
|              | Monochaetia Leaf Spot                | White, rough-surfaced irregular leaf spots.   | Sanitation of leaves in the fall.   |
|              | Oak Leaf Blister ( <i>Taphrina</i> ) | Round, slightly, convex-concave light brown leaf spots (4-5 mm diameter).   | Sanitation; See AL Pest Management Handbook.                                      |
|              | Phyllosticta Leaf Spot               | Circular, brown spots (2-4 mm diameter).  | Sanitation.   |
|              | Powdery Mildew                       | Leaves and young twigs develop white coating on surfaces. Leaves and twigs may be deformed. Some yellowing and dieback may result. Not usually a serious problem. | Sanitation of leaves in the fall. Protective sprays of Cleary's 3336 may be used. |
|              | Slime Flux                           | A foul smelling ooze runs down trunk surface. Initially, infection of fungi, bacteria, and yeast develops in wound area.  | Sanitation of infection area when it is still localized.                          |
| Okra         | Botrytis Fruit Rot                   | Brown-gray blotches on fruit surface.   | Sanitation.   |
|              | Choanephora Fruit Rot                | A wet rot with tiny black hair like structures.   | Sanitation.   |

| <u>Plant</u> | <u>Disease</u>                                       | <u>Description</u>   | <u>Control</u>   |
|--------------|--|--|--|
|              | Cucumber Mosaic Virus                                | Plants become stunted. Leaves may be abnormal in shape (shoe-string), puckered, with mosaic.   | Remove plants. Control of aphid may help some.   |
|              | Fusarium Wilt  | Wilting, yellowing, stunting of whole plant; vascular system darkened.   | Rotation away from okra for 6-10 years.  |
|              | Rhizoctonia Seedling Disease                         | Lower stems and roots develop brown, dry lesions.  | Sanitation.  |
|              | Southern Blight ( <i>Sclerotium rolfsii</i> )        | Lower stem at soil line become brown-black; a white fungal mat present when conditions hot & humid.  | Crop rotation; Solarization; Sanitation.   |
| Pampas Grass | Piricularia Leaf Spot                                | Gray-brown circular leaf spots.  | Cleary's 3336.   |
| Pea, Field   | Anthracnose ( <i>Colletotrichum</i> sp.)             | Brown-orange spots on leaves, pods.  | See the AL Pest Management Handbook.   |
|              | Fusarium Crown Rot                                   | Lower stem at soil line develops a brown, dry rot.   | Long crop rotation or soil solarization.   |
|              | Fusarium Wilt  | Lower leaves turn yellow; plants wilt; vascular system discolored in lower stem.   | Rotate area out of peas for 6-10 years; or solarization.   |
|              | Mosaic Virus; Possibly Black Eye Cowpea Mosaic Virus | Green and yellow spots or blotches in a regular pattern on leaves.   | Do not save seed; control weeds and insects. Plant resistant varieties--'Mississippi Cream' or 'Pink Eye Purple Hull BVR'. |
|              | Rhizoctonia Stem Rot                                 | Dark brown or brown-red dry lesions develop on lower stems.  | See AL Pest Management Handbook.   |
|              | Southern Blight ( <i>Sclerotium rolfsii</i> )        | Dark brown lesion on stem at the soil surface; coarse white fungal threads at soil line plus white, tan or black, tiny "balls" (½" mm diameter). | Rotation; solarization.  |

| <u>Plant</u>           | <u>Disease</u>                                     | <u>Description</u>   | <u>Control</u>  |
|------------------------|--|--|---|
| Peach                  | Brown Rot ( <i>Monilinia</i> )                     | While blossom blight, twig blight and branch cankers occur earlier in the season, brown spots/ areas on the fruit are noticed in July. Grey-brown tufts of spores develop over the rotted areas. | Sanitation; fungicide sprays.                                       |
|                        | Bacterial Leaf Spot ( <i>Xanthomonas</i> )         | Brown-black circular spots which fall out leaving shot holes; may be yellowing around spots.   | Sanitation; sprays for commercial growers.                          |
|                        | Botryosphaeria Dieback; Gummosis                   | Elongated, sunken canker with cracked edges.   | Sanitation. Make pruning cuts 4-5 inches from the edges of cankers. |
|                        | Phomopsis Canker                                   | Dieback. Brown elliptical cankers.   | Sanitation.   |
|                        | Phytophthora Crown/ Root Rot                       | Trunk at the soil level and roots become decayed with a wet-looking characteristic.  | Sanitation.   |
| Peanuts                | Aspergillus Crown Rot                              | A dark brown decay develops at soil line. Sometimes black spore structures are seen as tiny black aerial specks.   | ----  |
|                        | Cylindrocladium Black Root Rot                     | Black lesions on lower stems (near soil line) and roots. Orange spore masses may cover lesions.  | ---   |
|                        | Early Leaf Spot ( <i>Cercospora</i> )              | Dark brown, circular leaf spots (3-4 mm) on upper leaf surfaces.   | Regular fungicide spray program.                                    |
|                        | Late Leaf Spot ( <i>Cercosporidium</i> )           | Black circular leaf spots (3-4 mm) on lower leaf surfaces.   | Regular fungicide spray program.                                    |
|                        | Phoma Leaf Blotch                                  | Oval brown spots.  | ---   |
| Phytophthora Crown Rot | Lower stems become dark and water-soaked, decayed. | Sanitation. Reduce irrigation. Check with A. Hagan.  |   |

| <u>Plant</u> | <u>Disease</u>                               | <u>Description</u>   | <u>Control</u>   |
|--------------|--|--|--|
|              | Rhizoctonia Stem Rot                         | Dark brown, sunken, dried lesions on stems.  | See the AL Pest Management Handbook.   |
|              | Tomato Spotted Wilt Virus                    | Stunted plants; leaves show ring spot patterns; new leaves small and abnormally shortened internodes.  | Control thrips.  |
|              | White Mold ( <i>Sclerotium</i> )             | White fungal strands with tiny white, tan or black associated ball structures (sclerotia) on stems, pegs or pods.  | Fungicide treatment; Rotation.   |
| Pear         | Entomosporium Leaf Spot ( <i>Fabraea</i> )   | Purple or dark-brown spots (1/4" diameter) on leaves and fruit. Cankers on current season growth are purple or black.  | Sanitation; Pruning; Regular fungicide treatments.                                     |
|              | Fireblight ( <i>Erwinia</i> )                | In July, black spots/ areas begin at leaf edges. Gradually black leaf areas enlarge until black discoloration moves into the twig and branch.                                    | Sanitation.  |
|              | Juniper-Pear rust ( <i>Gymnosporangium</i> ) | Orange aecial 'cups' develop on lower leaf surface of pear. Junipers develop a witches-broom in sections of plant with cankers and orange spore pustules.                        | Sanitation. Removal of alternate host if possible.                                     |
|              | Nectria Canker                               | Sunken lesions are usually surrounded by swollen callus tissues.   | Sanitation. Cut out the canker, making cuts 3-4 inches beyond the edge of the cankers. |
| Pecan        | Scab ( <i>Cladosporium</i> )                 | Leaf lesions are dark green-brown-black and sometimes slightly raised. Some leaf deformity may occur. Similar irregular spots develop on nut shucks. Spot coalescence is common. | See the AL Pest Management Handbook.   |
| Peony        | Botrytis Blight                              | Brown blotches and spots develop on leaves and possibly blossoms.  | Sanitation. See the AL Pest Management Handbook.                                       |

| <u>Plant</u>                          | <u>Disease</u>  | <u>Description</u>   | <u>Control</u>  |
|---------------------------------------|---|--|---|
| Pepper                                | Anthracnose<br>( <i>Colletotrichum</i> )                  | Translucent sunken spots develop on fruit. Eventually spots may develop tiny black or orange specks.               | See AL Pest Management Handbook.                              |
|                                       | Bacterial Spot<br>( <i>Xanthomonas</i> )                  | Irregular, black, greasy spots (2-5 mm diameter) on leaves and stems; some yellow halos around spots; defoliation. | Bactericide sprays; Sanitation.                               |
|                                       | Bacterial Wilt<br>( <i>Ralstonia</i> )                    | Rapid wilt and death.  | Sanitation. Crop rotation from solanaceous plants.            |
|                                       | Cucumber Mosaic Virus                                     | Plants become stunted. Leaves may show abnormal shape, mosaic, puckering. Disease may be mild or severe.           | Sanitation. Control of aphids may help some.                  |
|                                       | Fusarium Crown/Root Rot                                   | The lower stem and roots become dried with a brown decay.  | Sanitation. Crop rotation or deep plow.                       |
|                                       | Pythium Crown/Root Rot                                    | The lower stem and roots become rotted with a wet, brown decay.  | Sanitation. Improve soil drainage; decrease irrigation.       |
|                                       | Southern Blight<br>( <i>Sclerotium rolfsii</i> )          | Crown rot; white mold.   | Deep plow; rotate to cotton, sorghum, or grass; solarization. |
| Tomato Spotted Wilt Virus             | Plants showed stunted new growth; a faint mosaic pattern. | Control thrips.  |   |
| Periwinkle<br>( <i>Catharanthus</i> ) | Anthracnose<br>( <i>Colletotrichum</i> )                  | Brown, sunken cankers on stem sections.  | Cleary's 3336, Domain, or WP benomyl; Sanitation.             |
|                                       | Phomopsis Blight  | Brown, sunken cankers on stem sections.  | Cleary's, Domain or WP benomyl; Sanitation.                   |
|                                       | Phytophthora Aerial Blight                                | Dark brown, black cankers encircle stems and cause wilt and dieback.   | Sanitation. See AL Pest Management Handbook.                  |
|                                       | Rhizoctonia Aerial Blight/Crown Rot                       | Lower leaves and lower stem near the soil line become browned and decayed.   | See the AL Pest Management Handbook; Sanitation.              |

| <u>Plant</u>     | <u>Disease</u>                             | <u>Description</u>   | <u>Control</u>                       |
|------------------|--|--|--------------------------------------|
| Persimmon, Asian | Botryosphaeria Canker                      | Sunken, cracked lesions on branches and trunks; dieback.   | Sanitation.                          |
| Petunia          | Phytophthora Foliage Blight/Root Rot       | Foliage develops spots, blight, & collapse.  | Sanitation.                          |
|                  | Entomosporium Leaf Spot                    | Red-black circular leaf spots.   | See AL Pest Management Handbook.     |
| Pine, Loblolly   | Pythium Root Rot                           | Brown, water-soaked roots.   | See AL Pest Management.              |
| Pine, Virginia   | Pitch Canker ( <i>Fusarium</i> )           | Sunken lesions on branches/trunk with resin flow.  | Sanitation.                          |
| Plum             | Bacterial Scorch Disease                   | Leaf edges turn brown; often the browned leaf edge area is zonate. Trees dieback and eventually die.             | Sanitation; tree removal.            |
|                  | Black Knot ( <i>Flowrightia morbosum</i> ) | Black swollen, elongate galls on branches.   | See AL Pest Management Handbook.     |
| Poinsettia       | Pythium Root Rot                           | Roots become soft, brown, & water-soaked.  | See the AL Pest Management Handbook. |
| Privet           | Anthraco-nose                              | Circular or irregular brown (sometimes large) spots.   | See AL Pest Management Handbook.     |
| Privet, Japanese | Cercospora Leaf Spot                       | Circular or irregular brown (sometimes large) spots.   | See AL Pest Management Handbook.     |
| Potato, Irish    | Fusarium Dry Rot (Tuber)                   | Dry, brown rot areas develop in tubers. Often rot areas develop cavities in the tuber containing white mycelium. | Avoid wounding tubers at harvest.    |
|                  | Erwinia Soft Rot                           | Soft, dark irregular areas of rotted, watery, foul-smelling tissue.  | Avoid wounds and wet conditions.     |
| Pumpkin          | Watermelon Mosaic Virus                    | Green-yellow mosaic; reduced growth.   | Sanitation. Control aphids.          |
| Pyracantha       | Southern Blight ( <i>Sclerotium</i> )      | See Aster.   | Solarization.                        |

| <u>Plant</u>  | <u>Disease</u>                             | <u>Description</u>  | <u>Control</u>  |
|---------------|--|---|---|
| Rhododendron  | Botryosphaeria Canker                      | Sunken, brown, dried, cracked, elliptical lesions develop on branches.  | Sanitation. Protective spray of Cleary's 3336 or Domain.                |
| Raspberry     | Botrytis Blossom Blight                    | Blossoms become brown and limp.   | Sanitation. See AL Pest Management Handbook.                            |
| Rose          | Black Spot ( <i>Diplocarpon rosae</i> )    | Black circular leaf spots with irregular, feathery edges.   | See AL Pest Management Handbook.  |
|               | <i>Cercospora rasicola</i> Leaf Spot       | Circular brown spots.   | See AL Pest Management Handbook for black spot.                         |
|               | Common Canker ( <i>Coniothyrium</i> )      | Brown, irregular lesions on canes.  | See control comments for black spot in the AL Pest Management Handbook. |
| Satsuma       | Fusarium Crown Rot                         | A dry brown decay develops at soil line.  | Sanitation.   |
| Snapdragon    | Phytophthora Root Rot                      | Roots become brown and water-soaked.  | See AL Pest Management Handbook.  |
| Sorghum-Sudan | Exserohilum Leaf Spot                      | Brown, elongated leaf spot (0.2 cm-1 cm).   | ---   |
| Soybean       | Bacterial Leaf Spot ( <i>Pseudomonas</i> ) | Small, angular brown-black spots, sometimes with a halo.  | ---   |
|               | Charcoal Rot ( <i>Macrophomina</i> )       | Lower stem near soil line becomes weakened and shredded. Split stem has tiny black dots sprinkled throughout. | ---   |
|               | Cyst Nematode ( <i>Heterodera</i> )        | Poor plant growth; small, undeveloped root system; white or yellow or brown spherical bodies (½ mm) on roots. | Rotation; Fumigation; Resistant varieties.                              |

| <u>Plant</u>   | <u>Disease</u>                                    | <u>Description</u>   | <u>Control</u>  |
|----------------|---|--|---|
|                | Downy Mildew<br>( <i>Peronospora manshurica</i> ) | Yellow, angular spots on upper leaf surfaces. Older spots become brown-black. A gray mold may develop on lower leaf surfaces when humidity high. | See the AL Pest Management Handbook.  |
|                | Frogeye Leaf Spot<br>( <i>Cercospora</i> )        | Circular-irregular spots (1-5 mm) with dark red borders and gray centers; spot coalescence; leaf drop.   | Healthy seed; Rotate 2 years.   |
|                | Fusarium Root Rot<br>(Sudden Death Syndrome)      | Usually a problem only on small plants. The tap root and lateral root system becomes rotted. Plants wilt and die.                                | Delay cultivation until soil moisture is adequate. Ridge soil around the base of plants to promote adventitious root development. Rotation. |
|                | Rhizoctonia Stem and Root Rot                     | Lesions on lower stems and roots may be brown or reddish depending on the fungus isolate and soil conditions. Plants may wither and die.         | Use fungicide seed protectants. Provide good soil drainage.   |
|                | Root-Knot Nematode<br>( <i>Meloidogyne</i> )      | Plants grow poorly, are yellowed and/or stunted. Roots have irregularly-shaped galls.  | See Soybean Spray Guide.  |
|                | Septoria Leaf Spot                                | Irregular, dark brown spots (1-4 mm diameter) typically on older leaves; leaves turn yellow & fall.  | Plow under crop residue; disease free seed; rotation.   |
|                | Sudden Death Syndrome ( <i>Fusarium</i> )         | Plants rapidly wilt and collapse; tap root becomes dry rotted.   | See Ed Sikora.  |
| Squash, Summer | Bacterial Wilt ( <i>Erwinia tracheiphila</i> )    | Wilt, dieback.   | Control cucumber beetles.   |
|                | Fusarium Root Decay and/or Crown Rot              | Roots and crowns develop a brown, dry rotting. Plant wilt and dieback.   | Sanitation. Crop rotation.  |
|                | Mosaic Viruses                                    | See comments on cucumber.  | See comments on cucumber.   |

| <u>Plant</u>  | <u>Disease</u>                                | <u>Description</u>   | <u>Control</u>  |
|---------------|---|--|---|
| St. Augustine | Brown Patch<br>( <i>Rhizoctonia</i> )         | Irregular areas or patches become blighted. Individual brown lesions on leaves may be evident.   | See ANR-492 & the AL Pest Management Handbook.              |
|               | Gray Leaf Spot<br>( <i>Piricularia</i> )      | Gray-brown oval or irregular spots on grass blades; spots may merge.   | Protective fungicide sprays; Sanitation.                    |
|               | Take-All Patch<br>( <i>Gaeumannomyces</i> )   | Patches or areas become yellowed and thinned as individual plants develop root/stolon lesions and plant foliage dies back.                   | See ANR-823 and the AL Pest Management Handbook.            |
| Strawberry    | Common Leaf Spot<br>( <i>Mycosphaerella</i> ) | Red-brown round or oval spots on leaves, stems. Spots may have light brown centers.  | See AL Pest Management Handbook.                            |
| Sweet Potato  | Fusarium Wilt                                 | Plant wilts with wilt and yellowing beginning at lower foliage and progressing upward. Vascular tissues under the cortex are brown streaked. | Sanitation; long crop rotations (10-16 yrs.).               |
|               | Scurf ( <i>Monilochaetes infuscans</i> )      | Raised or sunken scabby, rough lesions on roots.   | See AL Pest Management Handbook.                            |
| Sycamore      | Alternaria Leaf Spot                          | Irregular brown leaf spots.  | Sanitation. Collect and remove all fallen leaves this fall. |
|               | Powdery Mildew                                | White powdery substance on leaves.   | See AL Pest Management Handbook.                            |
|               | Scorch ( <i>Xylella</i> )                     | Leaves become brown and dried at the margins.  | Tree pruning; tree removal.                                 |
| Syngonium     | Phytophthora Root Rot                         | Roots become brown with a wet decay.   | Improve soil drainage. See AL Pest Management Handbook.     |

| <u>Plant</u> | <u>Disease</u>  | <u>Description</u>  | <u>Control</u>   |
|--------------|---|---|--|
| Tomato       | Bacterial Canker<br>( <i>Clavibacter</i> )              | Elongate, brown, wet-looking lesions or cankers on stems; center of cankers dry and look white.   | Protective sprays; Sanitation.                                       |
|              | Bacterial Canker<br>( <i>Pseudomonas</i> )              | Elongate, dark brown, wet looking lesions or cankers on stems; when stems are cut open with a lengthwise cut, inner tissues are seen to be hollow with tissues arranged in a ladder-like structure.   | Protective sprays; Sanitation.                                       |
|              | Bacterial Speck<br>( <i>Pseudomonas</i> )               | Gray spots with black centers, sometimes surrounded by wide borders of yellow or white tissue. Spots on upper leaf surfaces may be raised. Fruit spots are small, dark, slightly raised & scabby spots which may be surrounded by an extensive yellow-white halo. | See Vegetable Spray Guide or AL Pest Management Handbook and ANR-71. |
|              | Bacterial Spot<br>( <i>Xanthomonas</i> )                | Small, black, almost circular or angular spots on leaves, often with no halo development. Fruit spots are small, black, and slightly raised.  | See Vegetable Spray Guide or AL Pest Management Handbook and ANR-71. |
|              | Bacterial Wilt<br>( <i>Ralstonia</i> )                  | Plants wilt rapidly; foliage green when wilt occurs.  | Rotation; solarization of soil.                                      |
|              | Buckeye Fruit Rot<br>( <i>Phytophthora parasitica</i> ) | Brown, water-soaked spots with dark zonate rings and an indefinite margin.  | Ridomil 2E. See Vegetable Spray Guide.                               |
|              | Cucumber Mosaic Virus                                   | Leaves show deformity, mosaic, stunted growth.  | Sanitation. Control aphids.  |
|              | Early Blight<br>( <i>Alternaria</i> )                   | Black or brown spots (¼-½ inch diameter) on leaves, stems, fruit. Spots often have a concentric pattern.  | Fungicide sprays; Sanitation; See Vegetable Spray Guide.             |

| <u>Plant</u> | <u>Disease</u>                                    | <u>Description</u>   | <u>Control</u>  |
|--------------|---|--|---|
|              | Fusarium Wilt                                     | Plant foliage turns yellow and die. Often yellowing begins at lower sections of the plant or on one side of the plant. Gradually the whole plant dies. Vascular system is brown.                   | Resistant varieties; Rotation.  |
|              | Gray Wall   | Blotchy ripening.  | Avoid excess soil moisture, soil compaction, high nitrogen and low potassium.   |
|              | Late Blight<br>( <i>Phytophthora infestans</i> )  | Large spreading brown lesions, cankers.  | See AL Pest Management Handbook.  |
|              | Pith Necrosis<br>( <i>Pseudomonas corrugata</i> ) | Stems may develop adventitious roots and become hollow inside the stem with scattered horizontal tissue strands present.   | Sanitation. Copper combination protective sprays may help. See AL Pest Management Handbook under tomato bacterial spot, speck & canker. |
|              | Root-Knot Nematode<br>( <i>Meloidogyne</i> )      | Knotty galls on roots; plants show poor growth.  | Rotation; Fumigation; Solarization.   |
|              | Septoria Leaf Spot                                | Gray-brown, circular-irregular leaf spots.   | See AL Pest Management Handbook.  |
|              | Southern Blight<br>( <i>Sclerotium</i> )          | White fungal mat occurs at soil line; plants die due to death of lower stem.   | Solarization; rotation; fumigation, Terraclor. See AL Pest Management Handbook.   |
|              | Tobacco Etch Virus                                | Plants become stunted; leaves develop mosaic and puckering.  | Sanitation. Control of aphids may help some.  |
|              | Tomato Spotted Wilt Virus                         | New growth becomes abnormally small, small yellow spots appear. Young leaves become bronzed in spots, patches or whole leaf areas involved. Fruit spotted or with ring spots. Plants wilt and die. | Sanitation; Control thrips.   |

| <u>Plant</u>        | <u>Disease</u>                                   | <u>Description</u>  | <u>Control</u>  |
|---------------------|--|---|---|
| St. Augustine Grass | Brown Patch<br>( <i>Rhizoctonia</i> )            | Dark brown irregular lesions on leaves, generally. Dead patches (1 or more feet diameter) in lawn.                          | See ANR-492 or AL Pest Management Handbook.   |
|                     | Gray Leaf Spot                                   | Gray spots and blotches on grass blades.  | See the AL Pest Management Handbook.  |
|                     | Take-All Patch<br>( <i>Gaeumannomyces</i> )      | Patch areas thin and individual plants turn yellow and die; affected plants show dark brown/black lesions on roots/stolons. | Adjust soil pH to 5.5-6.0; Use only ammonium-based nitrogen in fertilizers.           |
| Verbena             | Fusarium Crown Rot                               | Brown lower stem rot.   | Cleary's drenches may help.   |
| Vinca Minor         | Anthrachnose<br>( <i>Colletotrichum</i> )        | Brown, irregular spots develop leaves.  | Sanitation. Cleary's 3336, Domain or a benomyl product labeled for ornamentals.       |
|                     | Phyllosticta Leaf Spot                           | Brown leaf spots with darker brown border.  | Cleary's 3336 protective sprays.  |
|                     | Pythium Root Rot                                 | Roots become brown and water-soaked.  | Aliette protective treatments or Subdue 2E. (Test a few plants for phytotoxicity.)    |
|                     | Rhizoctonia Stem Blight                          | Brown lesions near soil line.   | Sanitation; Cleary's 3336 or benomyl protective sprays.                               |
| Watermelon          | Cercospora Leaf Spot                             | Circular-irregular pale brown leaf spots with black margins (2-10 mm diameter).   | Sanitation; fungicide sprays.   |
|                     | Cucumber Mosaic Virus or Watermelon Mosaic Virus | Leaves become mottled green-yellow, distorted, wrinkled with curled edges; abnormally shortened internodes.                 | Control weeds; Control aphids and cucumber beetles; Do not save seed.                 |
|                     | Fusarium Wilt                                    | Lower leaves turn yellow; whole plant wilts; lower stem vascular system is brown.   | Rotate 6-7 years and then plant a resistant variety such as Crimson Sweet or Jubilee. |

| <u>Plant</u> | <u>Disease</u>                                | <u>Description</u>   | <u>Control</u>   |
|--------------|---|--|--|
|              | Gummy Stem<br>( <i>Mycosphaerella</i> )       | Elongate, brown, wet and sometimes cracked lesions; black leaf spots may develop on leaf edges; plant sections beyond cankers die back.        | Protective fungicide sprays; Sanitation in the fall.         |
|              | Root-Knot Nematode<br>( <i>Meloidogyne</i> )  | Roots develop irregular swellings (galls) plants are stunted.  | Solarization. Fumigation sometimes for commercial plantings. |
| Wisteria     | Bacterial Leaf Spot                           | Dark brown, angular spots.   | Sanitation. Do not water overhead.                           |
| Zinnia       | Bacterial Leaf Spot<br>( <i>Xanthomonas</i> ) | Dark brown, angular spots.   | Sanitation. Do not water overhead.                           |
| Zoysia       | Bipolaris Leaf Spot                           | Small, brown, elongated spots which may coalesce to cause large area of blight on leaves.  | Sanitation. See the AL Pest Management Handbook.             |
|              | Brown Patch<br>( <i>Rhizoctonia</i> )         | Irregular areas or patches become blighted. Individual brown lesions on leaves may be evident.   | See ANR-492 & the AL Pest Management Handbook.               |
|              | Dollar Spot<br>( <i>Sclerotinia</i> )         | Bleached-out, silver-dollar-sized spots in lawn; spots may merge. Individual grass blade show whitish spots, blotches with dark brown borders. | See AL Pest Management Handbook.                             |
|              | Fairy Ring                                    | Yellow and later brown areas develop in a ring like pattern. Mushrooms may develop in the fall at the outer edges of the rings.                | See ANR-372 and the AL Pest Management Handbook.             |
|              | Helminthosporium Leaf Spot                    | Small, elongated brown spots on leaf blades. Numerous spots cause leaf blight.   | See AL Pest Management Handbook.                             |
|              | Ring Nematode<br>( <i>Criconemoides</i> )     | Yellow-dead patches scattered in lawn.   | See AL Pest Management Handbook.                             |

| <u>Plant</u> | <u>Disease</u>                           | <u>Description</u>  | <u>Control</u>                                   |
|--------------|--|---|--|
|              | Rust ( <i>Puccinia zoysia</i> )          | Rusty spots on leaves; leaves later dry out and turn brown.       | See AL Pest Management Handbook.                 |
|              | Take-All Patch ( <i>Gaeumannomyces</i> ) | Black lesions on roots cause plants to become yellow and dieback. | See ANR-823 and the AL Pest Management Handbook. |



