



The Plant Disease Clinic Annual Report 2009



**Department of Plant Pathology, Physiology, and Weed Science
Virginia Polytechnic Institute and State University
Blacksburg, Virginia**

**The Plant Disease Clinic and Weed Identification Laboratory
2009 Annual Report**

Table of Contents

| | |
|---|-----|
| Acknowledgements | ii |
| Introduction | iii |
| Disease Highlights from 2009..... | iv |
| Plant Disease Clinic Summaries | |
| Monthly Submission Report | 1 |
| Crop Category Report | 2 |
| Diagnostic Category Report | 3 |
| Samples by Diagnostic Category | 4 |
| Plant Pathogens, Other Assistance | 4 |
| Other Agents..... | 4 |
| Distribution of Samples by County | 5 |
| Summary of Diagnoses by Plant | |
| Field Crops | 6 |
| Herbaceous Ornamentals and Indoor Plants | 8 |
| Small Fruits | 13 |
| Tree Fruits and Nuts | 15 |
| Trees | 18 |
| Turf | 27 |
| Vegetables and Herbs | 29 |
| Woody Ornamentals | 35 |
| Summary of Plant and Fungal Identifications | 43 |

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The Plant Disease Clinic depends on a industrious staff of both full-time and part-time employees to prepare culture media, isolate pathogens from plant tissue, measure soil pH, extract nematodes from plant tissue, maintain records, answer the telephone, keep track of samples, and send out reports. In 2009, diagnoses in the Plant Disease Clinic in Blacksburg were performed by Mary Ann Hansen and Elizabeth Bush, with valuable assistance from Charlotte Oliver.

Plant Clinic staff consult with many faculty and staff in various departments in order to make complete, accurate diagnoses and recommendations. We would like to thank the following people for their helpful assistance during the past year:

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We would also like to thank Mr. Todd Powell of TSP Software for designing and continuing to support the Plant Clinic database ("PClinic"). The database has given us the ability to keep complete records of Plant Clinic samples and to mail reports to Extension Offices electronically. Information on purchasing PClinic can be obtained from the Clinic at <clinic@vt.edu>. We are also especially grateful to Mr. Dawen Xie for IT support during the year.

Charlotte Oliver painstakingly compiled the annual report. The annual report can be viewed on-line at <<http://oak.ppws.vt.edu/~clinic/>>.

Introduction

The annual report for the Plant Disease Clinic and the Weed Identification Clinic located on the Virginia Tech campus in Blacksburg is presented in the following pages. Plant specimens that were submitted to and diagnosed at the Agricultural Research and Extension Centers throughout the Commonwealth are not included in this report. Note that the number of diagnoses performed was higher than the number of samples received because some samples are diagnosed with more than one problem.

For pathogens that could be identified to species or for which only one species is known to occur on the host plant in question, the species name is listed. For those diseases in which one of several species could have been involved, the epithet is listed as "sp." The Plant Disease Clinic does not routinely identify pathogens to species because species identification can sometimes be a very time-consuming process and often has little bearing on control recommendations. Most pathogens were assumed to be disease incitants if they were cultured in high numbers from the plant tissue, if they were reported in the literature to be pathogens of the particular host plant, and if they were reported to cause the observed symptoms.

Viral problems were, for the most part, either diagnosed by an antibody test involving "immunostrips" or they were sent to a private lab for antibody testing at a cost to the grower. In some cases, identification of the specific virus was not desired by the client. In those cases, if symptoms indicated a virus infection, the diagnosis is listed simply as "virus".

Soil samples for nematode assays were forwarded to the Nematode Assay Laboratory. Nematode diseases were diagnosed by extracting nematodes from soil or plant tissue. Samples must include at least 1 pint of soil for nematode assays. Nematode assays were routinely performed on samples of plant species known to be affected by nematodes, e. g. boxwood. Nematode populations in the sample were compared to damage threshold levels for making a control recommendation. Threshold levels have been developed in research trials for many, but not all, crops grown in Virginia.

The phrase "Cause of Problem Unknown" is used for plant samples from which no pathogen could be isolated and for which no obvious environmental or cultural condition could be associated with the problem. Trees have more samples in this category and in the category "Insufficient Sample" than any other type of plant. Tree problems are more difficult to diagnose in a clinic setting than problems of annual plants for several reasons. First, tree problems often develop over the course of several years and current symptoms may be related to stressful conditions that occurred in previous years. Also, it is difficult for growers to supply an appropriate plant specimen for diagnosis since the causes of many tree diseases are in the trunk or roots.

Some insect problems are also listed in this report. Insect damage is often mistaken for disease, and samples with insect damage are sometimes submitted to the Plant Disease Clinic rather than the Insect Identification Lab. We make a preliminary diagnosis of insect damage on these samples and refer them to Mr. Eric Day in the Insect Identification Lab. The final diagnosis on all samples of insect damage is performed by Mr. Day. Samples with known insect problems should be sent directly to the Insect ID Lab with the appropriate form.

We occasionally receive digital images or email messages regarding plant problems. For the most part, it is difficult to diagnose diseases without a plant sample; however, diseases that cause unique symptoms can sometimes be diagnosed from an image or a description. Images are most useful when submitted in addition to a plant sample. Total numbers of email and digital image inquiries are listed on p.3.

Reports are mailed electronically to the local Extension Office from which the sample originated. Upon request, we will simultaneously send electronic reports to one or more individual Extension personnel. Since implementing electronic mailing, we have discontinued faxing or mailing hard copies of reports. Relevant fact sheets for some diseases are available on the Web at <http://pubs.ext.vt.edu/category/plant-diseases.html>. Images of plant diseases can be found on the Plant Problem Image Gallery (<http://ppwsidlab.contentsrvr.net/plant.vesh>). For information on how to submit samples and complete the appropriate forms, please refer to the audiovisual training presentation on the VCE intranet.

DISEASE HIGHLIGHTS

The most notable disease outbreak in 2009 was the late blight epidemic in tomatoes, which was traced to vegetable transplants at big box stores up and down the East Coast. First reports of the disease came from the Northeast, which had received transplants from southern states. The first positive tomato sample that came to the Virginia Tech Plant Disease Clinic was received in July. The disease became a problem for many growers in Virginia. Many home growers' garden tomato crops were completely lost. Some commercial growers managed to spray protectant fungicides in time due to the relatively late appearance of the disease in Virginia.



Late blight symptoms on a tomato leaf.



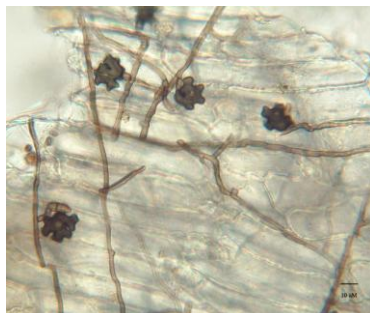
Late blight symptoms on tomato fruit.

Field Crops

The fungal diseases, leaf streak and anthracnose, which cause early senescence, were common in orchardgrass in 2009. These diseases are often associated with heat or drought stress. In soybeans we diagnosed one case of sudden death syndrome (SDS), caused by the fungal pathogen *Fusarium solani* f. sp. *glycines*. This disease is more common in the Midwest and we rarely see it in samples sent to the Virginia Tech Plant Disease Clinic. Symptoms are very dramatic, with leaves in the latter stages of disease showing striking interveinal necrosis. Root rot precedes foliar symptoms. The disease is associated with planting into cool, wet soils and/or heavy mid-summer rains. SDS is typically found in areas of a field in which high soil moisture is prevalent; our samples came from a low spot in the field. The fungus produces thick-walled structures that can survive overwinter in the soil. The fungus can also survive in cysts of the soybean cyst nematode. Chemical control is not effective; however, cultural controls, such as improving drainage, can help to minimize yield loss.

Herbaceous and Woody Ornamentals

Take-all, caused by the fungus *Gaeumannomyces graminis* var. *graminis*, was diagnosed in fountain grass (*Pennisetum setaceum*). This disease has been reported in other species of fountain grass, but we could find no prior reports on this particular species. The plants were being grown in the field and then divided and placed in containers. The fungus is soilborne, so the disease would probably not have become a problem if plants had been started from clean plants in potting medium in the greenhouse.



Crown rot and discoloration caused by take-all. Hyphopodia of the take-all pathogen.

Fusarium crown and leaf rot continues to be a major problem of lirioppe, both in the greenhouse and landscape. Historically, fungicides have given mixed results in controlling this disease. Recently Dr. Chuan Hong at the Hampton Roads Agricultural Research and Extension Center performed trials with different fungicides for controlling this disease. Disarm (fluoxxastrobin) was the only product that provided consistent control of this destructive disease. In his study, application of Disarm at 8.0 fl oz/100 gallon water cut plant losses by 50%; however, a reduced rate of 4.0 fl oz/100 gallon of water provided no control. Other fungicides in the trial that were less effective included Pageant, Veranda, Trinity, Medallion, and the biological control product, Actinovate. Actinovate did provide some control during the first 2 weeks, but its efficacy did not hold at weeks 4 and 6.

In 2009 we diagnosed another case of bacterial spot on peony, caused by *Xanthomonas axonopodis* pv. *carotae*, a disease we first diagnosed in 2008. This is a recently recognized disease and little is known about effective control methods. Leaf spotting led to a severe blighting of the leaves on the samples we received.



Black root rot, a common fungal disease that causes a decline of Japanese holly, also attacks other ornamental plants. In 2009, in addition to Japanese holly (*Ilex crenata*), we diagnosed this disease on the following woody and herbaceous ornamental species: calibrachoa, coral bells, fothergilla, pansy, and viburnum.

Species of the oomycete *Phytophthora* are also common instigators of root rot or foliar blight in Virginia. *Phytophthora* species were found on the following plants in 2009: blueberry, boxwood, cherry laurel, coral bells, English ivy, euphorbia, fir, ginseng, hibiscus, holly, lavender, lima bean, linden, nandina, periwinkle, petunia, rhododendron, snapdragon, tomato (late blight), wax myrtle, and yew.

Fruit Crops

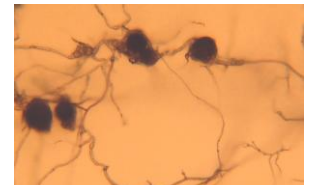
Blueberry leaf rust, caused by the fungus *Naohidemyces vaccinii*, formerly known as *Pucciniastrum vaccinii*, was observed on one sample of blueberry. Although this disease is reported to be common in the Southeast, we rarely see it in our lab. The alternate host of this rust is hemlock, which must be present for the fungus to complete its life cycle. Initial symptoms of the disease on blueberry are chlorotic spots on the upper leaf surface, which later turn reddish brown. With severe infections, leaves may drop prematurely.



Urediniospores of the blueberry leaf rust pathogen.

Two different fungal species were found causing Petri disease (also called “black goo”) in grape: *Phaeoacremonium inflatipes* and *Phaeomoniella chlamydospora*. Plants can be asymptomatic carriers of the disease and typically express symptoms only under stress conditions. Reducing stress by avoiding overcropping; maintaining adequate fertilizer levels; and irrigating new transplants for at least 4 years after transplanting are important for controlling this disease since no chemical controls are available.

Charcoal rot was found causing root and crown rot in several samples of strawberry. This disease, caused by the fungus *Macrophomina phaseolina*, is also stress-related. (We reported on this disease in drought-stressed soybeans last year.) The combination of drought stress and fungal infection causes symptoms of wilting, leaf browning and sometimes death of strawberry plants. The pathogen produces microsclerotia, which can overwinter and are naturally present in many soils in Virginia. The fungus has a very broad host range; therefore, rotation with other crops is not an effective means of control. No fungicides are specifically registered for control of this disease in strawberry. Irrigating during drought is the most important means of control. The plants we received were from sandier areas of the field and were likely under water stress.



Microsclerotia of the charcoal rot fungus.

Trees

Seiridium canker continued to be a problem in Leyland cypress and powdery mildew was present on over a third of the dogwood samples submitted in 2009. Bacterial scorch, caused by the bacterium *Xylella fastidiosa*, which inhabits the xylem of infected trees and causes a marginal leaf scorch easily confused with drought stress, was found in oaks, sycamore, and a new host: ginkgo. *Ginkgo biloba* is generally considered to be disease-resistant, but we now know that it is susceptible to bacterial scorch, a disease that has no practical cure. Bacterial scorch can cause a slow decline of infected trees. Although antibiotic injections can mitigate symptom development, they are expensive and do not eliminate the bacteria from the tree.



Symptoms of bacterial scorch on ginkgo.

Tubakia leaf spot, often a late-season fungal disease of oak, was found on many oak samples from early July through September, and purple-eye leaf spot, caused by the fungus *Phyllosticta minima*, was common on maples during the 2009 season. *Mycosphaerella* needle cast was found causing premature needle drop of larch.

Vegetables

Aside from the late blight epidemic in tomatoes, another interesting disease that occurred in vegetable crops was downy mildew of lima bean, a new disease for Virginia, caused by the oomycete *Phytophthora phaseoli*. The sample came from a garden planting. The disease was subsequently found in commercial fields on the Eastern Shore. This pathogen causes necrosis and abscission of flowers and shepherd's crooking of racemes, shoot tips, and petioles. White sporangia are obvious on affected plant tissues.

In addition to late blight, Septoria leaf spot was very common on tomato and two cases of bacterial canker, caused by *Clavibacter michiganensis subsp. michiganensis*, were found in greenhouse grown tomatoes.



Wilted due to bacterial canker on a greenhouse grown tomato.

Bacterial canker is a contagious and serious problem on greenhouse tomato, causing plant mortality. The pathogen was identified to subspecies using the polymerase chain reaction, a DNA detection technique. Although we did not see typical virus symptoms, we also tested these plants for Pepino Mosaic Virus in response to the grower's request. We were surprised to get a positive result for this virus, which can be latent in symptomless plants. Observation of this disease in the Netherlands suggests that symptoms are more prevalent when light levels and temperatures are lower (i.e. in fall/winter) and plants may not show symptoms when temperatures are warm and light levels are high. This virus can be readily spread from plant to plant mechanically on tools, hands, clothing, crop debris, etc. Recent research (Ling et al., 2008) demonstrated that this virus can be seedborne in tomato. Therefore, planting certified disease-free tomato seed is recommended.

In 2009 there were also many reports of damage to vegetables following application of aged and composted horse and cattle manure to the soil. Some growth regulator herbicides registered to control broadleaf weeds in pastures and hayfields include Grazon,

Surmount, Crossbow, Milestone, Forefront, Redeem, Remedy, Remedy Ultra, PastureGard, and Curtail. Some of these herbicides can persist and remain active in hay, straw, grass clippings and manure even after they are composted, and some have a half-life of 300 days or more. Growers attempting to plant organic gardens may be foiled by unknowingly using straw or manure that contains herbicide residues. Garden plants that are most sensitive to this class of herbicides include tomato, potato, lettuce, spinach, carrot, pea, bean, dahlia and some roses.



Growth regulator injury on squash from herbicide residues in straw mulch.

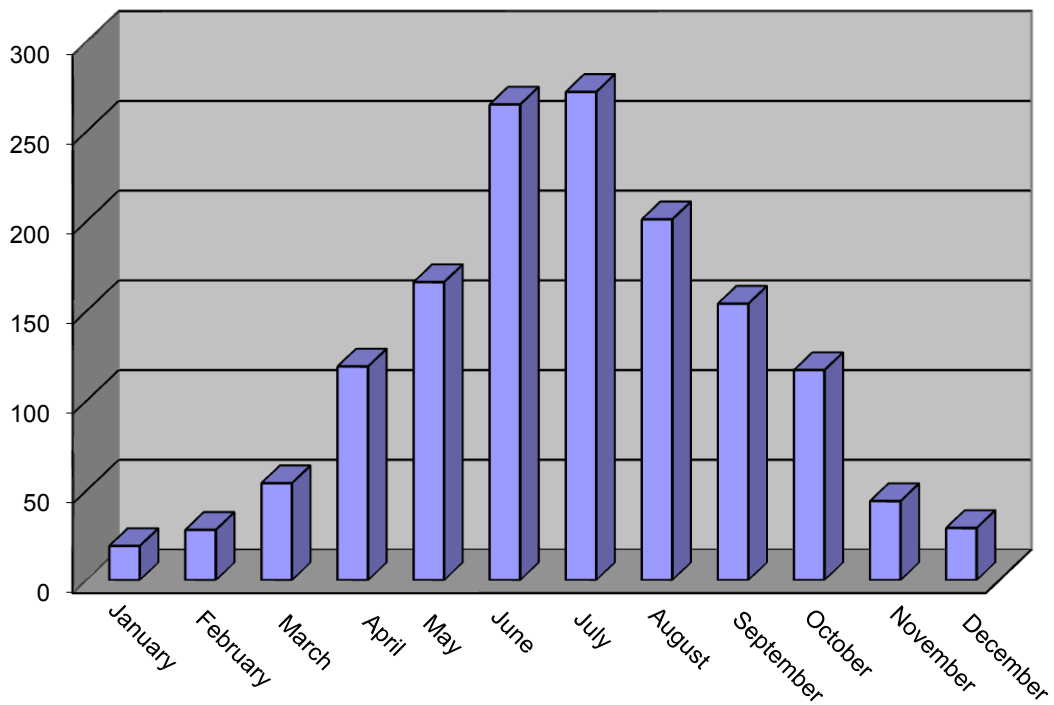
New Clinic Records for 2009:

- Downy mildew of Agastache (*Peronospora* sp.)
- Take-all of fountaingrass (*Gaeumannomyces graminis var. graminis*)
- Bacterial scorch of ginkgo (*Xylella fastidiosa*)
- Downy mildew of lima bean (*Phytophthora phaseoli*)
- Leaf rust of mint (*Naohidemyces vaccinii*)
- Sudden death syndrome of soybean (*Fusarium solani f. sp. glycines*)
- Root and crown rot of strawberry (*Macrophomina phaseolina*)
- Pepino Mosaic Virus of tomato
- Black root rot of calibrachoa, coral bells, fothergilla and viburnum (*Thielaviopsis basicola*)

Monthly Submission Summary 2009

| Month | # Samples |
|--------------------|--------------|
| January | 19 |
| February | 28 |
| March | 54 |
| April | 119 |
| May | 166 |
| June | 265 |
| July | 272 |
| August | 201 |
| September | 154 |
| October | 117 |
| November | 44 |
| December | 29 |
| Grand Total | 1,468 |

Number of Samples by Month

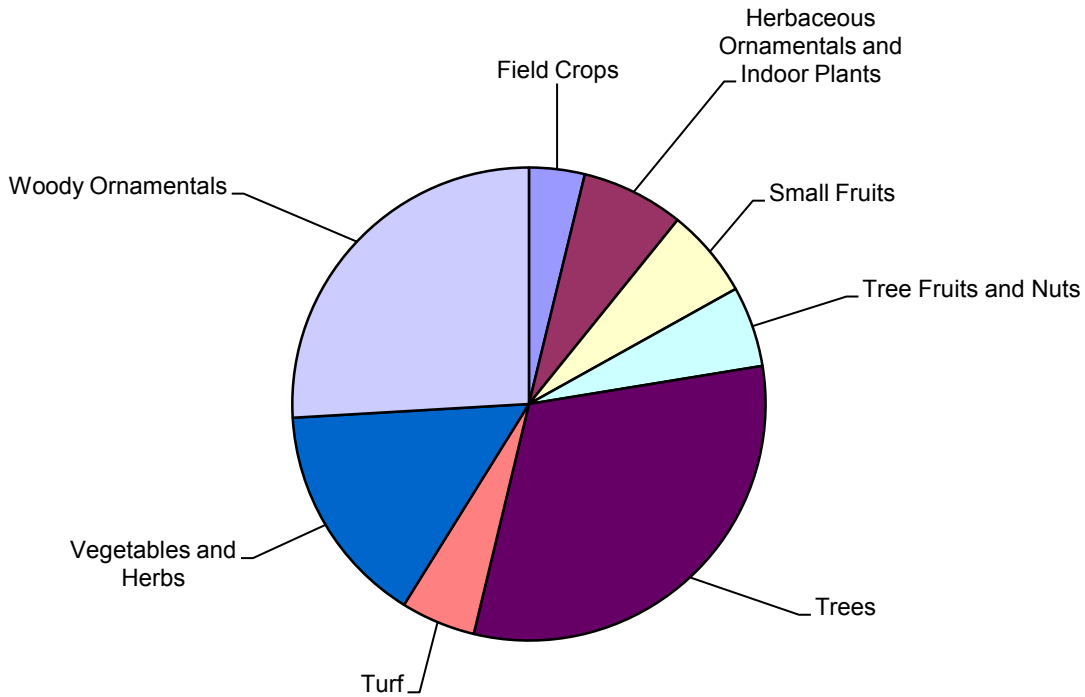


Crop Category Summary for Diagnostic Samples

Sample totals by major crop categories excluding plant identifications

| Crop Category | # of Samples | % of Total |
|--|--------------|------------|
| Field Crops | 54 | 3.8 |
| Herbaceous Ornamentals and Indoor Plants | 99 | 7 |
| Small Fruits | 86 | 6.1 |
| Tree Fruits and Nuts | 78 | 5.5 |
| Trees | 441 | 31.3 |
| Turf | 72 | 5.1 |
| Vegetables and Herbs | 214 | 15.2 |
| Woody Ornamentals | 365 | 25.9 |
| Total | 1,409 | |

Samples by Crop Categories

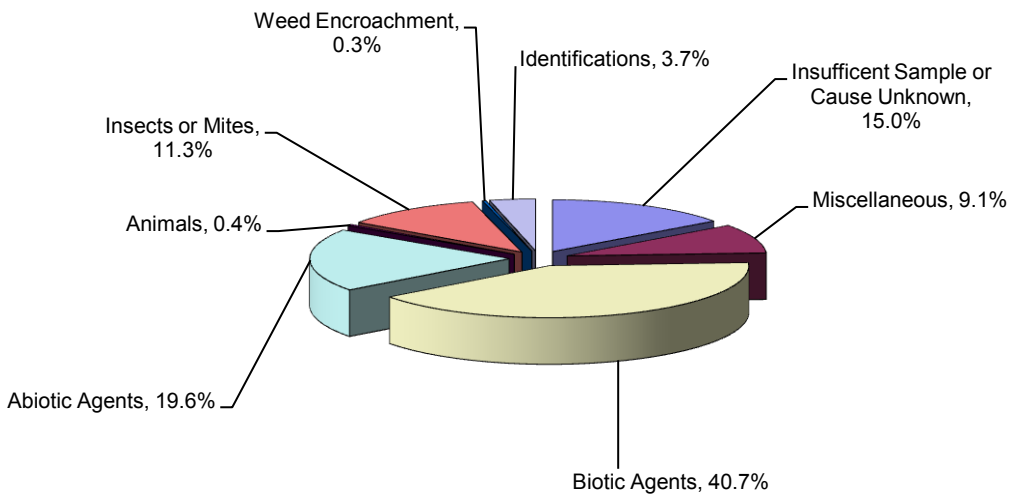


Diagnosis/Identification Category Summary

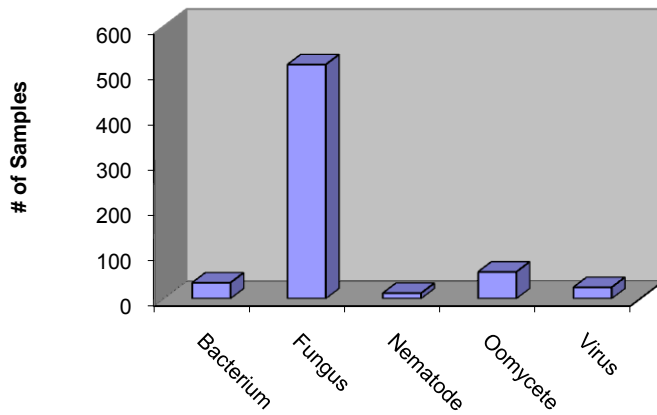
| | # of Diagnoses/IDs | % of Total |
|---|--------------------|-------------|
| Plant Diseases - Biotic Agents | 647 | 40.7 |
| Bacterium | 35 | |
| Fungus | 516 | |
| Nematode | 12 | |
| Oomycete | 59 | |
| Virus | 25 | |
| Plant Injury - Abiotic Agents | 312 | 19.6 |
| Chemical | 77 | |
| Environmental/Cultural | 230 | |
| Mechanical | 5 | |
| Plant Injury - Animals | 6 | 0.4 |
| Birds | 5 | |
| Mammals | 1 | |
| Plant Injury - Insects or Mites | 180 | 11.3 |
| Insects or Mites | 180 | |
| Weed Encroachment | 5 | 0.3 |
| Weed | 5 | |
| Identifications | 59 | 3.7 |
| Fungi | 19 | |
| Lichen | 1 | |
| Other Substance | 1 | |
| Plant | 36 | |
| Unable to Identify | 2 | |
| Insufficient Sample or Cause Unknown | 238 | 15.0 |
| Insufficient Sample | 233 | |
| Unknown | 5 | |
| Miscellaneous | 144 | 9.1 |
| Algae | 1 | |
| Allelopathy | 1 | |
| Lichen | 9 | |
| Normal Condition | 8 | |
| Other | 102 | |
| Physiological | 23 | |
| Total | 1591 | |

| Other Assistance, 2009 | |
|------------------------|---------------|
| Type | # of Inquires |
| Email | 61 |
| Digital Images | 55 |
| Phone Calls | 111 |

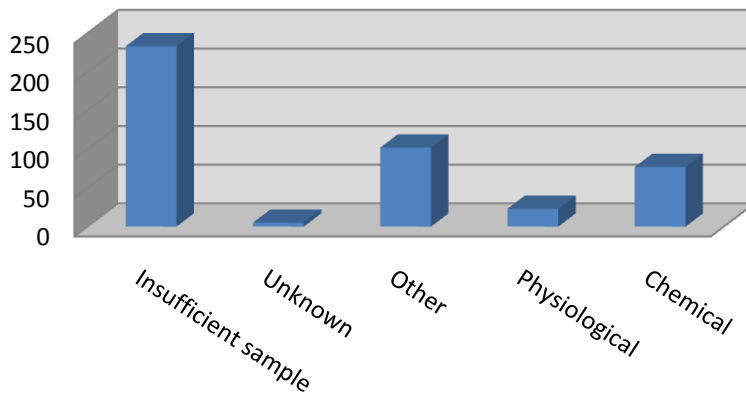
2009 Samples by Diagnosis Category



Plant Pathogens, 2009



Other Agents, 2009



Plant Disease Clinic

| County | # of Samples | County | # of Samples |
|-----------------|--------------|-------------------|--------------|
| Accomack | 8 | Mathews | 5 |
| Albemarle | 71 | Mecklenburg | 5 |
| Alleghany | 11 | Middlesex | 3 |
| Amelia | 4 | Montgomery | 84 |
| Appomattox | 11 | Nelson | 52 |
| Arlington | 8 | New Kent | 6 |
| Augusta | 31 | Newport News City | 19 |
| Bath | 3 | Norfolk City | 11 |
| Bedford | 3 | Northumberland | 24 |
| Bland | 2 | Nottoway | 5 |
| Botetourt | 7 | Orange | 5 |
| Brunswick | 1 | Loudoun | 23 |
| Buckingham | 1 | Louisa | 30 |
| Campbell | 20 | Lynchburg | 32 |
| Caroline | 2 | Madison | 11 |
| Carroll | 5 | Out of State | 1 |
| Chesapeake City | 38 | Page | 7 |
| Clarke | 9 | Patrick | 9 |
| Craig | 1 | Petersburg | 3 |
| Culpepper | 2 | Pittsylvania | 22 |
| Cumberland | 6 | Portsmouth City | 17 |
| Danville City | 13 | Powhattan | 2 |
| Dickenson | 6 | Prince George | 8 |
| Dinwiddie | 4 | Prince William | 8 |
| Essex | 4 | Pulaski | 13 |
| Fairfax | 44 | Rappahanock | 35 |
| Fauquier | 8 | Richmond City | 6 |
| Floyd | 19 | Richmond | 4 |
| Fluvanna | 8 | Roanoke | 45 |
| Franklin | 21 | Rockbridge | 7 |
| Fredrick | 64 | Rockingham | 22 |
| Giles | 6 | Russell | 3 |
| Gloucester | 2 | Scott | 9 |
| Goochland | 7 | Shenandoah | 7 |
| Grayson | 4 | Smyth | 3 |
| Greene | 9 | Southampton | 1 |
| Halifax | 5 | Spotsylvania | 42 |
| Hampton City | 33 | Stafford | 51 |
| Hanover | 58 | Surry | 2 |
| Henrico | 47 | Sussex | 4 |
| Henry | 2 | Tazewell | 15 |
| Highland | 5 | Virginia Beach | 4 |
| Isle of Wight | 3 | Warren | 17 |
| James City | 50 | Washington | 11 |
| King and Queen | 1 | Westmoreland | 27 |
| King George | 13 | Wise | 19 |
| Lancaster | 1 | Wythe | 1 |
| Lee | 17 | York | 30 |
| Total | | Total | 1,468 |

Diagnosis Appendix

Information about diseases/pests diagnosed by the laboratory

| Field Crops | |
|-------------------------------------|-----------------------------------|
| Alfalfa | |
| 1 Insects | |
| 1 Rhizoctonia Crown Rot | <i>Rhizoctonia solani</i> |
| 2 Spring Black Stem and Leaf Spot | <i>Phoma medicaginis</i> |
| 4 Total for Alfalfa | |
| Barley | |
| 1 Low pH | |
| 1 Total for Barley | |
| Clover | |
| 1 Slime Mold | <i>Physarum sp.</i> |
| 1 Total for Clover | |
| Corn | |
| 2 Chemical Injury | |
| 1 Cultural Problem | |
| 2 Diplodia Ear Rot | <i>Stenocarpella maydis</i> |
| 1 Gray Leaf Spot | <i>Cercospora zea-maydis</i> |
| 2 Insufficient Sample | |
| 2 Low pH | |
| 1 Magnesium Deficiency | |
| 1 Normal Condition | |
| 2 Nutrient Deficiency | |
| 14 Total for Corn | |
| Fescue | |
| 1 Anthracnose | <i>Colletotrichum graminicola</i> |
| 1 Brown Patch | <i>Rhizoctonia solani</i> |
| 2 Total for Fescue | |
| Orchardgrass | |
| 5 Anthracnose | <i>Colletotrichum graminicola</i> |
| 2 Billbugs | |
| 1 Drechslera Leaf Spot | <i>Drechslera dactylidis</i> |
| 5 Leaf Streak | <i>Cercosporidium graminis</i> |
| 13 Total for Orchardgrass | |
| Pea | |
| 1 Suspect Chemical Injury | |
| 1 Total for Pea | |
| Reed Canarygrass | |
| 1 Cultural Problem | |
| 1 Total for Reed Canarygrass | |

Soybean

- | | |
|-------------------------|--|
| 1 Anthracnose | <i>Colletotrichum sp.</i> |
| 2 Cyst Nematodes | <i>Heterodera glycines</i> |
| 2 Essex Syndrome | <i>Fusarium oxysporum</i> |
| 1 High pH | |
| 1 Insufficient Sample | |
| 3 Leafhoppers | |
| 1 Root Knot Nematodes | <i>Meloidogyne sp.</i> |
| 1 Sudden Death Syndrome | <i>Fusarium solani f. sp. glycines</i> |
| 1 Sunburn | |
| 1 Thrips | |

14 Total for Soybean

Sudax

- | | |
|-----------------------------|-----------------------------|
| 1 Cultural Problem | |
| 1 Northern Corn Leaf Blight | <i>Exserohilum turcicum</i> |

2 Total for Sudax

Switchgrass

- | | |
|----------------------|-----------------------------------|
| 1 Anthracnose | <i>Colletotrichum graminicola</i> |
| 1 Septoria Leaf Spot | <i>Septoria sp.</i> |

2 Total for Switchgrass

Tall Oat Grass

- | | |
|--------------|--------------------------|
| 1 Crown Rust | <i>Puccinia coronata</i> |
|--------------|--------------------------|

1 Total for Tall Oat Grass

Timothy

- | | |
|-----------|---------------------------|
| 1 Eyespot | <i>Cladosporium phlei</i> |
|-----------|---------------------------|

1 Total for Timothy

Tobacco

- | | |
|-----------|--|
| 1 High pH | |
|-----------|--|

1 Total for Tobacco

Wheat

- | | |
|-------------------------------------|--|
| 1 High pH | |
| 2 Insufficient Sample | |
| 1 Negative for Disease | |
| 1 Suspect Chemical Injury | |
| 1 Suspect Nutrient Deficiency | |
| 1 Wheat Spindle Streak Mosaic Virus | |

7 Total for Wheat

Herbaceous Ornamentals and Indoor Plants

African Violet

- 1 Cultural Problem
- 1 Cyclamen Mites
- 1 Water Spots

3 Total for African Violet

Agastache

- 2 Downy Mildew *Peronospora lophanthi*

2 Total for Agastache

Amaranth

- 1 Pythium Damping-off *Pythium sp.*
- 1 Rhizoctonia Damping-off *Rhizoctonia sp.*

2 Total for Amaranth

Arabidopsis

- 1 Insects
- 1 Powdery Mildew *Golovinomyces orontii*
- 1 Suspect Nutrient Imbalance

3 Total for Arabidopsis

Artemisia

- 1 Web Blight *Rhizoctonia solani*

1 Total for Artemisia

Bird of Paradise

- 1 Cultural Problem

1 Total for Bird of Paradise

Black-eyed Susan

- 1 Scales

1 Total for Black-eyed Susan

Brugmansia

- 1 Cultural Problem

1 Total for Brugmansia

Calibrachoa

- 1 Black Root Rot *Thielaviopsis basicola*
- 1 Botrytis Blight *Botrytis cinerea*
- 1 High pH

3 Total for Calibrachoa

Chrysanthemum

- 1 Cultural Problem
- 1 Environmental Stress
- 1 Fusarium Wilt *Fusarium oxysporum*
- 1 Thrips

4 Total for Chrysanthemum

Coleus

1 Sunscald

1 Total for Coleus

Coral Bells

1 Black Root Rot

Thielaviopsis basicola

1 Negative for Phytophthora Root Rot

3 Phytophthora Crown and Root Rot

Phytophthora sp.

5 Total for Coral Bells

Daisy

1 Rhizoctonia Root and Stem Rot

Rhizoctonia sp.

1 Total for Daisy

Daylily

2 Leaf Streak

Aureobasidium microstictum

2 Total for Daylily

Dracaena

1 Fluoride Toxicity

1 Total for Dracaena

Euphorbia

1 Fusarium Crown Rot

Fusarium sp.

1 Phytophthora Root Rot

Phytophthora nicotianae

1 Pythium Root Rot

Pythium sp.

3 Total for Euphorbia

False Indigo

1 Negative for Disease

1 Total for False Indigo

Fern

1 Environmental Stress

1 Total for Fern

Ficus

1 Environmental Stress

1 Insufficient Sample

2 Total for Ficus

Foamflower

1 Bacterial Leaf Spot

Pseudomonas syringae

1 Total for Foamflower

Fountain Grass

1 Cultural Problem

1 Take-all

Gaeumannomyces graminis var. graminis

2 Total for Fountain Grass

Gardenia

3 Insufficient Sample

3 Total for Gardenia

Geranium

2 Cultural Problem

2 Total for Geranium

Gloxinia

1 Tobacco Mosaic Virus

1 Water Spots

2 Total for Gloxinia

Goatsbeard

1 Artillery Fungus

Sphaerobolus stellatus

1 Total for Goatsbeard

Hellebore

1 Aphids

1 Black Leaf Spot

Coniothyrium hellebori

1 Negative for Disease

1 Thrips

4 Total for Hellebore

Hops

1 Mites

1 Negative for Disease

2 Total for Hops

Hosta

1 Artillery Fungus

Sphaerobolus stellatus

1 Cold Injury

1 Frost Injury

1 Fusarium Crown Rot

Fusarium sp.

2 Hosta Virus X

1 Negative for Hosta Virus X

7 Total for Hosta

Impatiens

1 Negative for Virus

1 Total for Impatiens

Jack-in-the-pulpit

1 Insufficient Sample

1 Total for Jack-in-the-pulpit

Lavender

1 Phytophthora Root Rot

Phytophthora nicotianae

1 Total for Lavender

Lily

- | | |
|---------------------------|---------------------------|
| 1 Suspect Botrytis Blight | <i>Botrytis elliptica</i> |
| 1 Thrips | |

2 Total for Lily**Liriope**

- | | |
|-------------------------------|---------------------------|
| 1 Anthracnose | <i>Colletotrichum sp.</i> |
| 7 Fusarium Crown and Leaf Rot | <i>Fusarium sp.</i> |
| 1 Scales | |

9 Total for Liriope**Orange**

- | | |
|----------------------------|--|
| 1 Suspect Cultural Problem | |
|----------------------------|--|

1 Total for Orange**Pachysandra**

- | | |
|------------------------|--|
| 1 Negative for Disease | |
|------------------------|--|

1 Total for Pachysandra**Palm**

- | | |
|----------|--|
| 2 Scales | |
|----------|--|

2 Total for Palm**Pansy**

- | | |
|------------------------|-------------------------------|
| 1 Black Root Rot | <i>Thielaviopsis basicola</i> |
| 1 Rhizoctonia Root Rot | <i>Rhizoctonia solani</i> |

2 Total for Pansy**Peony**

- | | |
|-------------------------------------|---|
| 1 Bacterial Leaf Spot | <i>Xanthomonas axonopodis pv. carotae</i> |
| 1 Chemical Injury | |
| 2 Cladosporium Stem and Leaf Blotch | <i>Cladosporium paeoniae</i> |
| 4 Powdery Mildew | <i>Erysiphe polygoni</i> |

8 Total for Peony**Periwinkle**

- | | |
|-----------------------|--------------------------------|
| 1 Phytophthora Blight | <i>Phytophthora nicotianae</i> |
|-----------------------|--------------------------------|

1 Total for Periwinkle**Petunia**

- | | |
|-------------------------|--------------------------------|
| 1 Black Root Rot | <i>Thielaviopsis basicola</i> |
| 1 High pH | |
| 4 Phytophthora Root Rot | <i>Phytophthora nicotianae</i> |

6 Total for Petunia**Phlox**

- | | |
|---------------------------|--|
| 1 Physiological Leaf Spot | |
|---------------------------|--|

1 Total for Phlox

Plants, Miscellaneous

- 2 Chemical Injury
- 1 Cultural Problem

3 Total for Plants, Miscellaneous

Primrose

- 1 Insects

1 Total for Primrose

Rudbeckia

- 1 Borers

1 Total for Rudbeckia

Salvia

- 1 Rhizoctonia Stem Rot *Rhizoctonia solani*

1 Total for Salvia

Sedge

- 1 Rust *Puccinia sp.*

1 Total for Sedge

Sedum

- 1 Botrytis Blight *Botrytis cinerea*

1 Total for Sedum

Snapdragon

- 1 Phytophthora Root Rot *Phytophthora nicotianae*

1 Total for Snapdragon

Spiderwort

- 1 Pythium Root Rot *Pythium sp.*

1 Total for Spiderwort

Sunflower

- 1 Cercospora Leaf Spot *Cercospora sp.*

1 Total for Sunflower

Switchgrass

- 1 Bipolaris Leaf Spot *Bipolaris sp.*

1 Total for Switchgrass

Veronica

- 1 Downy Mildew *Plasmopara halstedii*

1 Total for Veronica

Small Fruits

Blackberry

| | |
|---------------------------|-------------------------------|
| 1 Borers | |
| 3 Cane Blight | <i>Coniothyrium fuckellii</i> |
| 1 Cane Botrytis | <i>Botrytis cinerea</i> |
| 1 Insects | |
| 1 Insufficient Sample | |
| 1 Mites | |
| 1 Psyllids | |
| 1 Spur Blight | <i>Didymella applanata</i> |
| 1 Suspect Chemical Injury | |
| 1 Virus | |

12 Total for Blackberry

Blueberry

| | |
|-------------------------------|-------------------------------|
| 1 Botryosphaeria Dieback | <i>Botryosphaeria sp.</i> |
| 1 Cultural Problem | |
| 7 Insufficient Sample | |
| 1 Leaf Rust | <i>Pucciniastrum vaccinii</i> |
| 1 Negative for Disease | |
| 1 Negative for Root Disease | |
| 2 Phytophthora Root Rot | <i>Phytophthora cinnamomi</i> |
| 1 Scorch | |
| 1 Suspect Cultural Problem | |
| 1 Suspect Nutrient Deficiency | |
| 1 Tip Borers | |

18 Total for Blueberry

Currant

1 Insufficient Sample

1 Total for Currant

Fig

1 Insufficient Sample
 1 Negative for Disease
 1 Sooty Mold

3 Total for Fig

Gooseberry

1 Insufficient Sample

1 Total for Gooseberry

Grape

| | |
|----------------------------------|---------------------------------------|
| 3 Anthracnose | <i>Elsinoe ampelina</i> |
| 9 Black Rot | <i>Guignardia bidwellii</i> |
| 4 Botryosphaeria Canker | <i>Botryosphaeria sp.</i> |
| 1 Botryosphaeria Dieback | <i>Botryosphaeria sp.</i> |
| 1 Cause of Problem Unknown | |
| 1 Chemical Injury | |
| 1 Crown Gall | <i>Agrobacterium vitis</i> |
| 1 Downy Mildew | <i>Plasmopara viticola</i> |
| 1 Environmental Stress | |
| 1 Insects | |
| 2 Insufficient Sample | |
| 1 Petri Disease | <i>Phaeoacremonium inflatipes</i> |
| 1 Petri Disease | <i>Phaeomoniella chlamydospora</i> |
| 2 Phomopsis | <i>Phomopsis sp.</i> |
| 1 Phomopsis Cane and Leaf Blight | <i>Phomopsis viticola</i> |
| 1 Ripe Rot | <i>Colletotrichum gloeosporioides</i> |
| 3 Suspect Chemical Injury | |
| 2 Suspect Cold Injury | |
| 2 Suspect Frost Injury | |
| 1 Thrips | |
| 1 Unable to Diagnose | |

40 Total for Grape**Raspberry**

| | |
|-----------------------|---------------------------------|
| 1 Cane Blight | <i>Coniothyrium fuckellii</i> |
| 1 Dagger Nematode | <i>Xiphinema sp.</i> |
| 1 Insects | |
| 2 Insufficient Sample | |
| 1 Late Leaf Rust | <i>Pucciniastrum americanum</i> |

6 Total for Raspberry**Strawberry**

| | |
|---------------------------|--------------------------------|
| 1 Angular Leaf Spot | <i>Xanthomonas fragariae</i> |
| 1 Anthracnose | <i>Colletotrichum acutatum</i> |
| 2 Charcoal Rot | <i>Macrophomina phaseolina</i> |
| 1 Chemical Injury | |
| 2 Cultural Problem | |
| 2 Dendrophoma Leaf Blight | <i>Dendrophoma obscurans</i> |
| 1 Environmental Stress | |
| 3 Insufficient Sample | |
| 1 Phomopsis Leaf Blight | <i>Phomopsis obscurans</i> |
| 2 Rootworms | |
| 1 Slime Mold | |
| 1 Suspect Chemical Injury | |
| 1 Thrips | |

19 Total for Strawberry

Tree Fruits and Nuts

Apple

| | |
|---------------------------|---|
| 1 Bitter Rot | <i>Glomerella cingulata</i> |
| 2 Botryosphaeria Canker | <i>Botryosphaeria sp.</i> |
| 5 Cedar-Apple Rust | <i>Gymnosporangium juniperi-virginianae</i> |
| 3 Cedar-Quince Rust | <i>Gymnosporangium clavipes</i> |
| 1 Cicadas | |
| 1 Curculios | |
| 1 Entomosporium Leaf Spot | <i>Entomosporium mespili</i> |
| 2 Fire Blight | <i>Erwinia amylovora</i> |
| 2 Fly Speck | <i>Schizothyrium pomi</i> |
| 1 Frogeye Leaf Spot | <i>Physalospora obtusa</i> |
| 1 Insects | |
| 3 Insufficient Sample | |
| 1 Lichens | |
| 1 Mites | |
| 1 Negative for Disease | |
| 2 Phoma Leaf Spot | <i>Phoma sp.</i> |
| 1 Russetting | |
| 2 Rust | <i>Gymnosporansium sp.</i> |
| 3 Scab | <i>Venturia inaequalis</i> |
| 1 Varietal Characteristic | |
| 2 White Rot | <i>Botryosphaeria dothidea</i> |

37 Total for Apple

Asian Pear

- 1 Negative for Disease
- 1 Physiological Problem

2 Total for Asian Pear

Cherry

| | |
|---------------------------|-----------------------------|
| 3 Black Knot | <i>Dibotryon morbosum</i> |
| 1 Blumeriella Leaf Spot | <i>Blumeriella jaapii</i> |
| 1 Brown Rot | <i>Monilinia fructicola</i> |
| 1 Cherry Leaf Spot | <i>Coccomyces hiemalis</i> |
| 2 Insufficient Sample | |
| 2 Negative for Disease | |
| 1 Physiological Leaf Spot | |

11 Total for Cherry

Chestnut

- 2 Insufficient Sample

2 Total for Chestnut

Crabapple

| | |
|--------------------|---|
| 1 Cedar-Apple Rust | <i>Gymnosporangium juniperi-virginianae</i> |
| 1 Scab | <i>Venturia inaequalis</i> |

2 Total for Crabapple

Filbert

1 Physiological Leaf Spot

1 Total for Filbert**Fruit Trees, Misc.**

1 Cicada Injury

1 Total for Fruit Trees, Misc.**Nectarine**

1 Peach Leaf Curl

*Taphrina deformans***1 Total for Nectarine****Peach**

1 Brown Rot

Monilinia fructicola

1 Chemical Injury

2 Curculios

1 Negative for Disease

2 Peach Leaf Curl

Taphrina deformans

3 Scab

Cladosporium carpophilum

1 Suspect Chemical Injury

1 Suspect Nutrient Deficiency

12 Total for Peach**Pear**

1 Bitter Rot

Colletotrichum gloeosporioides

2 Black Rot

Botryosphaeria obtusa

2 Cedar-Quince Rust

Gymnosporangium clavipes

1 Curculios

2 Entomosporium Leaf Spot

Entomosporium mespili

2 Insects

2 Insufficient Sample

1 Suspect Chemical Injury

1 Suspect Fire Blight

*Erwinia amylovora***14 Total for Pear****Pecan**

1 Botryosphaeria Canker

Botryosphaeria sp.

1 Insects

1 Phylloxera Galls

3 Total for Pecan**Pistashio**

1 Insufficient Sample

1 Total for Pistashio

Plum

- 2 Black Knot *Dibotryon morbosum*
- 1 Insects
- 1 Lichens
- 1 Negative for Disease
- 1 Physiological Leaf Spot

6 Total for Plum

Walnut

- 1 Anthracnose *Gnomonia leptostyla*
- 1 Insufficient Sample

2 Total for Walnut

Trees

Arborvitae

- 1 Blackened Foliage
- 1 Botryosphaeria Dieback *Botryosphaeria sp.*
- 4 Insufficient Sample
- 1 Leafminers
- 1 Mites

8 Total for Arborvitae

Ash

- 3 Anthracnose *Gnomoniella fraxini*
- 1 Flower Galls
- 1 Rust *Puccinia sp.*

5 Total for Ash

Beech

- 1 Sooty Mold *Scorias spongiosa*

1 Total for Beech

Birch

- 1 Insufficient Sample
- 1 Lichens
- 1 Mites

3 Total for Birch

Black Gum

- 1 Insufficient Sample

1 Total for Black Gum

Boxelder

- 2 Phyllosticta Leaf Spot *Phyllosticta minima*

2 Total for Boxelder

Catalpa

- 1 Suspect Cold Injury

1 Total for Catalpa

Cedar

- 1 Negative for Disease
- 1 Suspect Cold Injury
- 1 Suspect Winter Injury
- 1 Winter Injury

4 Total for Cedar

Cottonwood

- 1 Marssonina Leaf Spot *Marssonina brunnea*

1 Total for Cottonwood

Cryptomeria

- 1 Environmental Stress
- 2 Negative for Disease
- 3 Pestalotiopsis Tip Blight *Pestalotiopsis sp.*
- 1 Scales
- 1 Suspect Chemical Injury
- 1 Suspect Environmental Stress

9 Total for Cryptomeria**Cypress**

- 1 Bagworms
- 1 Botryosphaeria Dieback *Botryosphaeria dothidea*
- 1 Crystalline Residue
- 13 Insufficient Sample
- 3 Male Cones
- 1 Negative for Disease
- 3 Pestalotiopsis Tip Blight *Pestalotiopsis sp.*
- 1 Phomopsis Tip Blight *Phomopsis sp.*
- 1 Seasonal Needle Drop
- 6 Seiridium Canker *Seiridium unicorne*
- 2 Suspect Environmental Stress
- 9 Suspect Seiridium Canker *Seiridium sp.*

42 Total for Cypress**Dawn Redwood**

- 2 Environmental Stress
- 1 Insufficient Sample

3 Total for Dawn Redwood**Dogwood**

- 2 Chemical Injury
- 1 Cultural Problem
- 1 Cylindrocladium Root Rot *Cylindrocladium sp.*
- 2 Discula Anthracnose *Discula destructiva*
- 1 Insects
- 2 Insufficient Sample
- 15 Powdery Mildew *Oidium sp.*
- 3 Scorch
- 4 Septoria Leaf Spot *Septoria cornicola*
- 12 Spot Anthracnose *Elsinoe corni*
- 1 Stem Girdling Roots
- 1 Suspect Cultural Problem
- 1 Suspect Environmental Stress
- 1 Suspect Frost Injury
- 1 Thrips
- 2 Wood Decay

50 Total for Dogwood

Douglasfir

- | | |
|-----------------------|----------------------------------|
| 1 Botrytis Blight | <i>Botrytis cinerea</i> |
| 1 Diplodia Tip Blight | <i>Diplodia pinea</i> |
| 1 Insects | |
| 2 Insufficient Sample | |
| 1 Mechanical Injury | |
| 1 Swiss Needle Cast | <i>Phaeocryptopus gaeumannii</i> |
| 2 Weevils | |

9 Total for Douglasfir**Eastern Red Cedar**

- 1 Cultural Problem
- 2 Mites
- 2 Suspect Environmental Stress

5 Total for Eastern Red Cedar**Elm**

- | | |
|----------------------------------|----------------------|
| 1 Cultural Problem | |
| 1 Cytospora Canker | <i>Cytospora sp.</i> |
| 1 Eriophyid Mites | |
| 2 Insufficient Sample | |
| 1 Negative for Disease | |
| 1 Negative for Dutch Elm Disease | |

7 Total for Elm**Falsecypress**

- 1 Insufficient Sample
- 1 Low pH
- 1 Scales
- 2 Seasonal Needle Drop
- 1 Suspect Cultural Problem

6 Total for Falsecypress**Fir**

- | | |
|-------------------------|-------------------------|
| 1 Insufficient Sample | |
| 1 Mites | |
| 1 Phytophthora Root Rot | <i>Phytophthora sp.</i> |

3 Total for Fir**Fringe Tree**

- | | |
|--------------------|----------------------|
| 1 Phomopsis Canker | <i>Phomopsis sp.</i> |
|--------------------|----------------------|

1 Total for Fringe Tree**Ginkgo**

- | | |
|--------------------|---------------------------|
| 1 Bacterial Scorch | <i>Xylella fastidiosa</i> |
|--------------------|---------------------------|

1 Total for Ginkgo**Hackberry**

- 1 Insufficient Sample

1 Total for Hackberry

Hawthorn

- 2 Cedar-Quince Rust *Gymnosporangium clavipes*
- 2 Insufficient Sample
- 1 Suspect Cultural Problem

5 Total for Hawthorn

Hemlock

- 1 Insufficient Sample
- 1 Scales
- 1 Woolly Adelgids

3 Total for Hemlock

Hickory

- 1 Gnomonia Leaf Spot *Gnomonia caryae*
- 1 Insufficient Sample
- 1 Leaf Stem Gall Insects

3 Total for Hickory

Ironwood

- 1 Suspect Sapsucker Injury

1 Total for Ironwood

Larch

- 1 Mycosphaerella Needle Cast *Mycosphaerella laricina*

1 Total for Larch

Linden

- 1 Botryosphaeria Dieback *Botryosphaeria sp.*
- 1 Negative for Ramorum Blight
- 1 Suspect Environmental Stress
- 1 Wood Decay

4 Total for Linden

Live Oak

- 1 Insects

1 Total for Live Oak

Magnolia

- 2 Cold Injury
- 1 Eriophyid Mites
- 2 Insufficient Sample
- 1 Negative for Disease
- 2 Powdery Mildew *Oidium sp.*
- 1 Scales
- 1 Suspect Cultural Problem
- 2 Winter Injury

12 Total for Magnolia

Maple

| | |
|----------------------------------|-----------------------------------|
| 4 Anthracnose | <i>Kabatiella apocrypta</i> |
| 2 Anthracnose | <i>Kabatiella sp.</i> |
| 2 Bacterial Wetwood | |
| 1 Botryosphaeria Canker | <i>Botryosphaeria dothidea</i> |
| 1 Botryosphaeria Canker | <i>Botryosphaeria sp.</i> |
| 1 Botryosphaeria Canker | <i>Botryosphaeria stevensii</i> |
| 3 Botryosphaeria Dieback | <i>Botryosphaeria sp.</i> |
| 5 Cultural Problem | |
| 2 Eriophyid Mites | |
| 1 Hardpan | |
| 1 Heart Rot | |
| 2 Insects | |
| 14 Insufficient Sample | |
| 4 Leafhoppers | |
| 2 Lichens | |
| 1 Mechanical Injury | |
| 1 Mites | |
| 1 Negative for Bark Pathogens | |
| 1 Negative for Disease | |
| 1 Negative for Root Disease | |
| 2 Negative for Verticillium Wilt | |
| 1 Phomopsis Dieback | <i>Phomopsis sp.</i> |
| 7 Purple-eye Leaf Spot | <i>Phyllosticta minima</i> |
| 1 Sapsucker Injury | |
| 4 Scales | |
| 3 Scorch | |
| 1 Septoria Leaf Spot | <i>Septoria sp.</i> |
| 1 Sooty Mold | |
| 1 Suspect Cultural Problem | |
| 1 Suspect Environmental Stress | |
| 1 Suspect Frost Injury | |
| 1 Suspect Wood Decay | |
| 2 Wood Decay | |
| 2 Zonate Leaf Spot | <i>Cristulariella pyramidalis</i> |

78 Total for Maple**Mimosa**

| | |
|-----------------------|--|
| 1 Suspect Mimosa Wilt | <i>Fusarium oxysporum f. sp. perniciosum</i> |
|-----------------------|--|

1 Total for Mimosa

Oak

| | |
|------------------------------|--------------------------------|
| 3 Anthracnose | <i>Apiognomonia errabunda</i> |
| 3 Bacterial Scorch | <i>Xylella fastidiosa</i> |
| 1 Botryosphaeria Dieback | <i>Botryosphaeria sp.</i> |
| 1 Botryosphaeria Twig Canker | <i>Botryosphaeria quercuum</i> |
| 3 Chemical Injury | |
| 1 Cicada Injury | |
| 2 Cultural Problem | |
| 1 Eriophyid Mites | |
| 2 Gall Insects | |
| 1 Globifomes Heart Rot | <i>Globifomes graveolens</i> |
| 1 Hypoxylon Canker | <i>Hypoxylon atropunctatum</i> |
| 1 Inonotus Root and Butt Rot | <i>Inonotus dryadeus</i> |
| 1 Insect Galls | |
| 2 Insects | |
| 4 Insufficient Sample | |
| 2 Mites | |
| 2 Negative for Oak Wilt | |
| 1 Normal Condition | |
| 3 Oak Leaf Blister | <i>Taphrina caerulescens</i> |
| 1 Oak Leaf Button Galls | |
| 1 Physiological Leaf Spot | |
| 1 Powdery Mildew | <i>Oidium sp.</i> |
| 3 Powdery Mildew | <i>Phyllactinia corylea</i> |
| 1 Scorch | |
| 1 Skeletonizers | |
| 1 Suspect Bacterial Wetwood | |
| 1 Suspect Cultural Problem | |
| 10 Tubakia Leaf Spot | <i>Tubakia dryina</i> |

55 Total for Oak**Ornamental Cherry**

| | |
|---------------------------------|--------------------------------|
| 3 Botryosphaeria Dieback | <i>Botryosphaeria sp.</i> |
| 1 Cercospora Leaf Spot | <i>Cercospora circumscissa</i> |
| 1 Insects | |
| 5 Insufficient Sample | |
| 1 Negative for Disease | |
| 1 Phomopsis Canker | <i>Phomopsis sp.</i> |
| 1 Scales | |
| 1 Suspect Botryosphaeria Canker | <i>Botryosphaeria sp.</i> |
| 1 Suspect Environmental Stress | |

15 Total for Ornamental Cherry**Ornamental Peach**

1 Oriental Fruit Moth

1 Total for Ornamental Peach

Ornamental Pear

| | |
|-------------------------------|---------------------------------|
| 1 Cedar-Hawthorn Rust | <i>Gymnosporangium globosum</i> |
| 2 Cedar-Quince Rust | <i>Gymnosporangium clavipes</i> |
| 1 Cultural Problem | |
| 1 Deep Planting | |
| 1 Insects | |
| 3 Insufficient Sample | |
| 1 Low pH | |
| 1 Mechanical Injury | |
| 1 Negative for Disease | |
| 2 Pear Leaf Blister Mites | |
| 1 Phomopsis Canker | <i>Phomopsis sp.</i> |
| 2 Sapsucker Injury | |
| 1 Scorch | |
| 3 Suspect Cultural Problem | |
| 1 Suspect Nutrient Deficiency | |
| 1 Wood Decay | |
| 1 Xylaria Root Rot | <i>Xylaria polymorpha</i> |

24 Total for Ornamental Pear**Persimmon**

| | |
|-----------------------|----------------------|
| 1 Ramularia Leaf Spot | <i>Ramularia sp.</i> |
|-----------------------|----------------------|

1 Total for Persimmon**Pine**

| | |
|--------------------------------|-------------------------------|
| 1 Atropellis Twig Canker | <i>Atropellis sp.</i> |
| 1 Cause of Problem Unknown | |
| 1 Chemical Injury | |
| 1 Deer Damage | |
| 4 Diplodia Tip Blight | <i>Diplodia pinea</i> |
| 4 Dothistroma Needle Blight | <i>Dothistroma pini</i> |
| 1 Environmental Stress | |
| 1 Eriophyid Mites | |
| 7 Insufficient Sample | |
| 2 Needle Rust | <i>Coleosporium sp.</i> |
| 1 Negative for Disease | |
| 2 Procerum Root Disease | <i>Leptographium procerum</i> |
| 1 Rootbound | |
| 1 Sawflies | |
| 1 Scales | |
| 1 Seasonal Needle Drop | |
| 1 Spiders | |
| 1 Suspect Environmental Stress | |
| 1 Suspect Ozone Injury | |
| 1 Weevils | |

34 Total for Pine**Plum**

| | |
|--------------|---------------------------|
| 2 Black Knot | <i>Dibotryon morbosum</i> |
| 1 Cicadas | |

3 Total for Plum

Prunus

- | | |
|-----------------------|---------------------------|
| 1 Black Knot | <i>Dibotryon morbosum</i> |
| 1 Insufficient Sample | |

2 Total for Prunus**Redbud**

- | | |
|----------------------------|--------------------------------|
| 1 Beetles | |
| 1 Botryosphaeria Canker | <i>Botryosphaeria sp.</i> |
| 1 Botryosphaeria Dieback | <i>Botryosphaeria dothidea</i> |
| 1 Cause of Problem Unknown | |
| 1 Cultural Problem | |
| 2 Environmental Stress | |
| 1 Insects | |
| 1 Oedema | |

9 Total for Redbud**Serviceberry**

- | | |
|-----------------------|---------------------------------|
| 1 Cedar-Quince Rust | <i>Gymnosporangium clavipes</i> |
| 1 Insufficient Sample | |

2 Total for Serviceberry**Sourwood**

- | | |
|-------------------------|-----------------------------|
| 1 Cercospora Leaf Spot | <i>Cercospora oxydendri</i> |
| 1 Fusicladium Leaf Spot | <i>Fusicladium sp.</i> |

2 Total for Sourwood**Spruce**

- | | |
|--------------------------------|--------------------------------|
| 1 Cultural Problem | |
| 3 Environmental Stress | |
| 2 Insufficient Sample | |
| 4 Mites | |
| 1 Negative for Disease | |
| 2 Negative for Root Disease | |
| 9 Rhizosphaera Needle Blight | <i>Rhizosphaera kalkhoffii</i> |
| 1 Scales | |
| 5 Stigmina Needle Cast | <i>Stigmina lautii</i> |
| 1 Suspect Chemical Injury | |
| 1 Suspect Cultural Problem | |
| 1 Suspect Environmental Stress | |
| 2 Suspect Frost Injury | |

33 Total for Spruce**Sweet Gum**

- | | |
|-----------------------|--|
| 2 Insufficient Sample | |
|-----------------------|--|

2 Total for Sweet Gum**Sycamore**

- | | |
|-----------------------|---------------------------|
| 1 Bacterial Scorch | <i>Xylella fastidiosa</i> |
| 2 Insufficient Sample | |

3 Total for Sycamore

Tree, Unknown

- 1 Insufficient Sample
- 1 Sooty Mold

2 Total for Tree, Unknown

Trees, Miscellaneous

- 1 Insects
- 1 Insufficient Sample
- 1 Negative for Root Disease

3 Total for Trees, Miscellaneous

Tulip Tree

- | | |
|--------------------------|-----------------------------------|
| 1 Phyllosticta Leaf Spot | <i>Phyllosticta liriodendrica</i> |
| 1 Powdery Mildew | <i>Erysiphe sp.</i> |
| 1 Yellow Poplar Weevils | |

3 Total for Tulip Tree

Willow

- | | |
|--------------------------|-------------------------------|
| 1 Anthracnose | <i>Gloeosporium sp.</i> |
| 3 Black Canker | <i>Physalospora miyabeana</i> |
| 1 Botryosphaeria Dieback | <i>Botryosphaeria sp.</i> |
| 1 Cytospora Canker | <i>Cytospora sp.</i> |
| 1 Insects | |
| 1 Mites | |
| 1 Rust | <i>Melampsora epitea</i> |
| 2 Scab | <i>Venturia saliciperda</i> |
| 1 Stem Girdling Roots | |
| 1 Suspect Wood Decay | |

13 Total for Willow

Yellowwood

- 1 Suspect Chemical Injury

1 Total for Yellowwood

Zelkova

- 1 Cultural Problem
- 1 Insufficient Sample

2 Total for Zelkova

Turf

Bentgrass

| | |
|---------------|-------------------------------|
| 1 Dollar Spot | <i>Sclerotinia homeocarpa</i> |
|---------------|-------------------------------|

| | |
|------------------------------|--|
| 1 Total for Bentgrass | |
|------------------------------|--|

Bluegrass

| | |
|---------------|---------------------------|
| 2 Brown Patch | <i>Rhizoctonia solani</i> |
|---------------|---------------------------|

| | |
|-----------------|--|
| 1 Excess Thatch | |
|-----------------|--|

| | |
|------------------------------|------------------------------|
| 1 Helminthosporium Leaf Spot | <i>Bipolaris sorokiniana</i> |
|------------------------------|------------------------------|

| | |
|-----------------------|--|
| 4 Insufficient Sample | |
|-----------------------|--|

| | |
|---------------|------------------------|
| 1 Melting Out | <i>Drechslera poae</i> |
|---------------|------------------------|

| | |
|------------------------------|--|
| 9 Total for Bluegrass | |
|------------------------------|--|

Fescue

| | |
|---------------|-----------------------------------|
| 1 Anthracnose | <i>Colletotrichum graminicola</i> |
|---------------|-----------------------------------|

| | |
|----------------|---------------------------|
| 10 Brown Patch | <i>Rhizoctonia solani</i> |
|----------------|---------------------------|

| | |
|---------------|-------------------------------|
| 1 Dollar Spot | <i>Sclerotinia homeocarpa</i> |
|---------------|-------------------------------|

| | |
|------------------------|--|
| 3 Environmental Stress | |
|------------------------|--|

| | |
|-----------------|--|
| 1 Excess Thatch | |
|-----------------|--|

| | |
|-------------------|---------------------|
| 1 Fusarium Blight | <i>Fusarium sp.</i> |
|-------------------|---------------------|

| | |
|------------------|---------------------------|
| 1 Gray Leaf Spot | <i>Pyricularia grisea</i> |
|------------------|---------------------------|

| | |
|-----------------------|--|
| 3 Insufficient Sample | |
|-----------------------|--|

| | |
|------------------------|--|
| 3 Negative for Disease | |
|------------------------|--|

| | |
|--------------|------------------------------|
| 1 Red Thread | <i>Laetisaria fuciformis</i> |
|--------------|------------------------------|

| | |
|--------|--------------------------|
| 2 Rust | <i>Puccinia graminis</i> |
|--------|--------------------------|

| | |
|-----------------------|---------------------------|
| 1 Suspect Brown Patch | <i>Rhizoctonia solani</i> |
|-----------------------|---------------------------|

| | |
|----------------------------|--|
| 1 Suspect Cultural Problem | |
|----------------------------|--|

| | |
|---------------------------|--|
| 1 Suspect Fertilizer Burn | |
|---------------------------|--|

| | |
|---------------------|--|
| 1 Weed Encroachment | |
|---------------------|--|

| | |
|----------------------------|--|
| 31 Total for Fescue | |
|----------------------------|--|

St. Augustinegrass

| | |
|--------------------|--|
| 1 Cultural Problem | |
|--------------------|--|

| | |
|---------------|---------------------------|
| 2 Large Patch | <i>Rhizoctonia solani</i> |
|---------------|---------------------------|

| | |
|------------|--|
| 5 Take-All | <i>Gaeumannomyces graminis var. graminis</i> |
|------------|--|

| | |
|---------------------------------------|--|
| 8 Total for St. Augustinegrass | |
|---------------------------------------|--|

Turfgrass

| | | |
|----|-------------------------|-------------------------------|
| 1 | Algae | |
| 11 | Brown Patch | <i>Rhizoctonia solani</i> |
| 2 | Cultural Problem | |
| 1 | Dollar Spot | <i>Sclerotinia homeocarpa</i> |
| 3 | Environmental Stress | |
| 2 | Excess Thatch | |
| 1 | Helminthosporium Blight | <i>Drechslera dictyoides</i> |
| 3 | Insufficient Sample | |
| 1 | Low pH | |
| 1 | Normal Dormancy | |
| 1 | Red Thread | <i>Laetisaria fuciformis</i> |
| 1 | Slime Mold | |
| 3 | Weed Encroachment | |

31 Total for Turfgrass

Zoysia

| | | |
|---|----------------------|---------------------------|
| 1 | Suspect Zoysia Patch | <i>Rhizoctonia solani</i> |
| 2 | Zoysia Patch | <i>Rhizoctonia solani</i> |

3 Total for Zoysia

Vegetables and Herbs

Asparagus

2 Fusarium Crown Rot *Fusarium oxysporum*

2 Total for Asparagus

Basil

2 Downy Mildew *Plasmopara sp.*

1 Environmental Stress

3 Total for Basil

Bean

1 Angular Leaf Spot *Phaeoisariopsis griseola*

1 Bean Beetles

2 Chemical Injury

1 Cultural Problem

1 Fusarium Root Rot *Fusarium solani*

1 Insects

1 Insufficient Sample

1 Leafhoppers

1 Pythium Root and Stem Rot *Pythium spp.*

2 Rhizoctonia Stem and Root Rot *Rhizoctonia solani*

1 Rhizoctonia Stem Rot *Rhizoctonia solani*

1 Suspect Chemical Injury

14 Total for Bean

Bedding Plants, misc. vegetables

1 High pH

1 Total for Bedding Plants, misc. vegetables

Bitter Melon

1 Physiological Leaf Spot

1 Total for Bitter Melon

Broccoli

1 Insects

1 Total for Broccoli

Cabbage

1 Cabbage Maggot

1 Total for Cabbage

Cantaloupe

1 Alternaria Leaf Spot *Alternaria cucumerina*

1 Environmental Stress

1 Oxalis Seeds *Oxalis stricta*

1 Root Knot Nematodes *Meloidogyne incognita*

4 Total for Cantaloupe

Cauliflower

- | | |
|--------------------|-------------------------------|
| 1 Black Rot | <i>Xanthomonas campestris</i> |
| 1 Cultural Problem | |

2 Total for Cauliflower**Celery**

- | | |
|---------------|---------------------------|
| 1 Blackheart | |
| 1 Crater Spot | <i>Rhizoctonia solani</i> |

2 Total for Celery**Cilantro**

- | | |
|-----------|--|
| 1 High pH | |
|-----------|--|

1 Total for Cilantro**Collards**

- | | |
|-----------|--|
| 1 High pH | |
|-----------|--|

1 Total for Collards**Cowpea**

- | | |
|------------------------|---------------------------|
| 1 Insects | |
| 1 Rhizoctonia Stem Rot | <i>Rhizoctonia solani</i> |
| 1 Suspect Virus | |

3 Total for Cowpea**Cucumber**

- | | |
|-------------------------------|-----------------------------------|
| 1 Anthracnose | <i>Colletotrichum sp.</i> |
| 2 Bacterial Wilt | <i>Erwinia tracheiphila</i> |
| 6 Cucumber Beetles | |
| 1 Cultural Problem | |
| 3 Downy Mildew | <i>Pseudoperonospora cubensis</i> |
| 3 Insufficient Sample | |
| 1 Negative for Bacterial Wilt | <i>Erwinia tracheiphila</i> |
| 2 Negative for Disease | |
| 1 Physiological Problem | |
| 1 Suspect Bacterial Wilt | <i>Erwinia tracheiphila</i> |
| 1 Suspect Chemical Injury | |

22 Total for Cucumber**Eggplant**

- | | |
|-----------|--|
| 1 Insects | |
|-----------|--|

1 Total for Eggplant**Ginseng**

- | | |
|---|------------------------------|
| 1 Phytophthora Root Rot and Leaf Blight | <i>Phytophthora cactorum</i> |
|---|------------------------------|

1 Total for Ginseng**Greens**

- | | |
|---------------|------------------------------------|
| 1 Anthracnose | <i>Colletotrichum higginsianum</i> |
|---------------|------------------------------------|

1 Total for Greens

Herbs, Miscellaneous

1 Damping-off *Pythium ultimum var. ultimum*

1 Total for Herbs, Miscellaneous

Jerusalem Artichoke

1 Powdery Mildew *Golovinomyces cichoracearum*

1 Rust *Coleosporium helianthi*

2 Total for Jerusalem Artichoke

Kale

1 Insects

1 Nutrient Deficiency

2 Total for Kale

Lettuce

1 Cold Injury

1 Total for Lettuce

Lima Bean

1 Downy Mildew *Phytophthora phaseoli*

1 Total for Lima Bean

Melon

1 Anthracnose *Colletotrichum orbiculare*

1 Bacterial Wilt *Erwinia tracheiphila*

1 Cucumber Beetles

3 Total for Melon

Mint

1 Rust *Puccinia menthae*

1 Total for Mint

Okra

1 Phoma Leaf Spot *Phoma sp.*

1 Verticillium Wilt *Verticillium dahliae*

2 Total for Okra

Oregano

1 Nutrient Deficiency

1 Total for Oregano

Pea

1 Damping-off

1 Root Knot Nematodes *Meloidogyne incognita*

2 Total for Pea

Pepper

| | |
|-------------------------------------|--------------------------------|
| 1 Aphids | |
| 2 Bacterial Spot | <i>Xanthomonas vesicatoria</i> |
| 1 Blossom End Rot | |
| 1 Excess Soluble Salts | |
| 1 Negative for Tobacco Mosaic Virus | |
| 2 Southern Blight | <i>Sclerotium rolfsii</i> |
| 1 Stinkbugs | |
| 2 Sunscald | |
| 1 Suspect Chemical Injury | |

12 Total for Pepper**Plants, Miscellaneous**

| | |
|---------------------------|--|
| 3 Chemical Injury | |
| 1 Mites | |
| 1 Suspect Chemical Injury | |

5 Total for Plants, Miscellaneous**Potato**

| | |
|---------------------------|--------------------------------|
| 1 Black Dot | <i>Colletotrichum coccodes</i> |
| 1 Black Scurf | <i>Rhizoctonia solani</i> |
| 1 Chemical Injury | |
| 1 Enlarged Lenticels | |
| 2 Fusarium Dry Rot | <i>Fusarium solani</i> |
| 1 Growth Cracks | |
| 1 Insects | |
| 2 Insufficient Sample | |
| 1 Oedema | |
| 2 Root Knot Nematode | <i>Meloidogyne incognita</i> |
| 1 Soft Rot | <i>Erwinia carotovora</i> |
| 1 Suspect Chemical Injury | |
| 1 Thrips | |
| 1 Walnut Wilt | |

17 Total for Potato**Pumpkin**

| | |
|-------------------------------|-----------------------------------|
| 1 Black Rot | <i>Didymella bryoniae</i> |
| 1 Chemical Injury | |
| 1 Cucumber Beetles | |
| 2 Downy Mildew | <i>Pseudoperonospora cubensis</i> |
| 1 Fertilizer Burn | |
| 1 Fusarium Crown and Foot Rot | <i>Fusarium solani</i> |
| 1 Fusarium Foot Rot | <i>Fusarium solani</i> |
| 1 Negative for Disease | |

9 Total for Pumpkin**Rhubarb**

| | |
|-----------------------|--|
| 1 Insufficient Sample | |
|-----------------------|--|

1 Total for Rhubarb

Rosemary

- 1 Adventitious Roots
 - 1 Environmental Stress
 - 1 Hairy Root
 - 1 Powdery Mildew
- Agrobacterium rhizogenes*
Sphaerotheca fuliginea

4 Total for Rosemary

Schisandra

- 1 Insufficient Sample

1 Total for Schisandra

Spinach

- 1 Cold Injury

1 Total for Spinach

Squash

- 1 Aphids
 - 1 Borers
 - 1 Environmental Stress
 - 1 Gummy Stem Blight
 - 1 Potyvirus Group
 - 1 Powdery Mildew
 - 1 Suspect Environmental Stress
- Didymella sp.*
Sphaerotheca fuliginea

7 Total for Squash

Sweet Corn

- 1 Anthracnose
 - 1 Common Rust
 - 2 Sunscald
 - 1 Suspect Chemical Injury
- Colletotrichum graminicola*
Puccinia sorghi

5 Total for Sweet Corn

Sweet Potato

- 1 Growth Cracks
 - 1 Soil Rot
- Streptomyces ipomoea*

2 Total for Sweet Potato

Thyme

- 1 Web Blight
- Rhizoctonia solani*

1 Total for Thyme

Tomato

| | |
|-------------------------------|--|
| 2 Bacterial Canker | <i>Clavibacter michiganensis</i> |
| 2 Bacterial Speck | <i>Pseudomonas syringae pv. tomato</i> |
| 3 Bacterial Wilt | <i>Ralstonia solanacearum</i> |
| 1 Black Mold Rot | <i>Alternaria alternata</i> |
| 1 Blossom End Rot | |
| 1 Borers | |
| 15 Chemical Injury | |
| 1 Cucumber Mosaic Virus | |
| 4 Cultural Problem | |
| 2 Early Blight | <i>Alternaria solani</i> |
| 1 Excess Soluble Salts | |
| 2 Fusarium Crown and Root Rot | <i>Fusarium oxysporum</i> |
| 14 Insufficient Sample | |
| 6 Late Blight | <i>Phytophthora infestans</i> |
| 2 Negative for Disease | |
| 1 Pepino Mosaic Virus | |
| 1 Phoma Rot | <i>Phoma destructiva</i> |
| 1 Physiological Leaf Roll | |
| 1 Physiological Problem | |
| 12 Septoria Leaf Spot | <i>Septoria lycopersici</i> |
| 1 Stinkbugs | |
| 1 Sunscald | |
| 5 Suspect Chemical Injury | |
| 4 Suspect Cultural Problem | |
| 2 Suspect Nutrient Deficiency | |
| 2 Tobacco Mosaic Virus | |
| 4 Tomato Spotted Wilt Virus | |
| 1 Walnut Wilt | |

93 Total for Tomato**Watermelon**

| | |
|-----------------------|-----------------------------|
| 1 Fusarium Foot Rot | <i>Fusarium solani</i> |
| 1 Root Knot Nematodes | <i>Meloidogyne arenaria</i> |
| 1 Virus | |

3 Total for Watermelon**Zucchini**

| | |
|------------------------|--------------------------------|
| 1 Chemical Injury | |
| 1 Genetic Condition | |
| 1 Plectosporium Blight | <i>Plectosporium tabacinum</i> |

3 Total for Zucchini

Woody Ornamentals

Abelia

1 Insufficient Sample

1 Total for Abelia

Aucuba

1 Environmental Stress

1 Negative for Disease

2 Total for Aucuba

Azalea

2 Botryosphaeria Dieback

Botryosphaeria sp.

1 Environmental Stress

2 Insects

5 Insufficient Sample

6 Lacebugs

1 Leaf and Flower Gall

Exobasidium vaccinii

3 Lichens

1 Low pH

3 Mites

1 Negative for Disease

2 Phomopsis Dieback

Phomopsis sp.

1 Phytophthora Root Rot

Phytophthora cinnamomi

1 Sooty Mold

29 Total for Azalea

Barberry

1 Insufficient Sample

1 Total for Barberry

Boxwood

| | | |
|----|------------------------------------|--------------------------------|
| 1 | Deep Planting | |
| 3 | English Boxwood Decline | <i>Paecilomyces buxi</i> |
| 1 | High pH | |
| 1 | Insufficient Information | |
| 12 | Insufficient Sample | |
| 7 | Leafminers | |
| 3 | Mites | |
| 1 | Negative for Disease | |
| 1 | Negative for Nematodes | |
| 1 | Negative for Phytophthora Root Rot | |
| 1 | Negative for Root Disease | |
| 1 | Negative for Root Rot | |
| 18 | Negative for Root Rot Fungi | |
| 1 | Nematodes | |
| 8 | Phytophthora Root Rot | <i>Phytophthora nicotianae</i> |
| 1 | Poor Drainage | |
| 1 | Spiral Nematodes | <i>Rotylenchus buxophilus</i> |
| 1 | Suspect Chemical Injury | |
| 1 | Suspect Environmental Stress | |
| 2 | Volutella Blight | <i>Volutella buxi</i> |
| 1 | Winter Injury | |

67 Total for Boxwood**Butterfly Bush**

| | | |
|---|------------------|---------------------------|
| 1 | Foliar Nematodes | <i>Aphelenchoides sp.</i> |
|---|------------------|---------------------------|

1 Total for Butterfly Bush**Camellia**

| | | |
|---|------------------------------|----------------------------------|
| 1 | Crown Gall | <i>Agrobacterium tumefaciens</i> |
| 1 | Eriophyid Mites | |
| 6 | Insufficient Sample | |
| 1 | Leaf and Flower Gall | <i>Exobasidium camelliae</i> |
| 1 | Negative for Disease | |
| 1 | Suspect Cold Injury | |
| 1 | Suspect Environmental Stress | |
| 1 | Suspect Virus | |

13 Total for Camellia**Chaste Tree**

| | | |
|---|-------------------------|--|
| 1 | Suspect Chemical Injury | |
|---|-------------------------|--|

1 Total for Chaste Tree

Cherrylaurel

- 1 Borers
- 1 Chemical Injury
- 1 Cultural Problem
- 1 Environmental Stress
- 7 Insufficient Sample
- 1 Mites
- 1 Mycosphaerella Leaf Spot *Mycosphaerella sp.*
- 1 Negative for Disease
- 4 Negative for Root Disease
- 2 Phytophthora Root Rot *Phytophthora nicotianae*
- 1 Unable to identify

21 Total for Cherrylaurel**Cleyera**

- 1 Environmental Stress
- 1 Insufficient Sample
- 1 Rootbound

3 Total for Cleyera**Cotoneaster**

- 2 Insufficient Sample
- 1 Suspect Environmental Stress

3 Total for Cotoneaster**Crape Myrtle**

- 1 Environmental Stress
- 1 Insufficient Sample
- 1 Lichens

3 Total for Crape Myrtle**Daphne**

- 1 Insufficient Sample
- 1 Negative for Disease
- 1 Suspect Cold Injury

3 Total for Daphne**English Ivy**

- 3 Anthracnose *Colletotrichum trichellum*
- 1 Bacterial Leaf Spot *Xanthomonas hederae*
- 1 Environmental Stress
- 2 Insufficient Sample
- 1 Phytophthora Root Rot *Phytophthora nicotianae*

8 Total for English Ivy**Euonymus**

- 1 Insufficient Sample
- 1 Negative for Disease
- 2 Scales
- 1 Adequate, Sample and Information

5 Total for Euonymus

Fothergilla1 Black Root Rot *Thielaviopsis basicola***1 Total for Fothergilla****Hibiscus**1 Chemical Injury
1 Phytophthora Root Rot *Phytophthora sp.***2 Total for Hibiscus****Holly**2 Anthracnose *Gloeosporium sp.*
1 Anthracnose Fruit Rot *Colletotrichum sp.*
17 Black Root Rot *Thielaviopsis basicola*
1 Botryosphaeria Dieback *Botryosphaeria sp.*
1 Chemical Injury
1 Cold Injury
1 Cultural Problem
1 Environmental Stress
1 Healthy
2 Insects
9 Insufficient Sample
1 Male Plant
2 Mites
3 Negative for Disease
3 Negative for Root Disease
2 Phoma Stem Canker *Phoma sp.*
1 Physiological Leaf Spot
1 Physiological Problem
1 Phytophthora Crown and Root Rot *Phytophthora cinnamomi*
2 Phytophthora Root Rot *Phytophthora cinnamomi*
1 Phytophthora Root Rot *Phytophthora nicotianae*
1 Rootbound
3 Scales
2 Sooty Mold
2 Spine Spot
1 Suspect Chemical Injury
1 Suspect Cultural Problem
2 Suspect Environmental Stress
1 Suspect Nutrient Deficiency
1 Winter Injury**68 Total for Holly****Hydrangea**1 Bacterial Leaf Spot *Xanthomonas campestris*
2 Insufficient Sample
1 Negative for Disease
1 Powdery Mildew *Erysiphe polygoni*
1 Suspect Cultural Problem**6 Total for Hydrangea**

Hypericum

- 1 Cultural Problem
- 1 Environmental Stress
- 1 Pythium Root Rot *Pythium sp.*

3 Total for Hypericum**Inkberry**

- 1 Black Root Rot *Thielaviopsis basicola*
- 1 Botryosphaeria Dieback *Botryosphaeria sp.*
- 1 Insufficient Sample
- 1 Physiological Leaf Spot

4 Total for Inkberry**Japanese Kerria**

- 1 Suspect Chemical Injury

1 Total for Japanese Kerria**Juniper**

- 2 Cultural Problem
- 2 Environmental Stress
- 6 Insufficient Sample
- 1 Kabatina Tip Blight *Kabatina juniperi*
- 9 Mites
- 5 Negative for Disease
- 1 Negative for Root Disease
- 2 Pestalotiopsis Twig Blight *Pestalotiopsis sp.*
- 1 Rootbound
- 3 Suspect Cultural Problem
- 2 Suspect Environmental Stress
- 1 Vole Injury

35 Total for Juniper**Lilac**

- 1 Alternaria Leaf Spot *Alternaria sp.*
- 1 Botryosphaeria Dieback *Botryosphaeria sp.*
- 1 Insufficient Sample
- 1 Powdery Mildew *Microsphaera pencillata*

4 Total for Lilac**Mountain Laurel**

- 1 Cultural Problem

1 Total for Mountain Laurel**Nandina**

- 1 Insufficient Sample
- 1 Phytophthora Root Rot *Phytophthora cinnamomi*

2 Total for Nandina**Osmanthus**

- 1 Cold Injury
- 1 Cultural Problem
- 1 Negative for Disease

3 Total for Osmanthus

Photinia

6 Entomosporium Leaf Spot *Entomosporium mespili*
 1 Winter Injury

7 Total for Photinia

Pieris

3 Insufficient Sample

3 Total for Pieris

Pittosporum

2 Insufficient Sample

2 Total for Pittosporum

Plants, Miscellaneous

1 Insufficient Information
 1 Negative for Disease
 1 Negative for Root Disease
 1 Suspect Environmental Stress

4 Total for Plants, Miscellaneous

Privet

1 Scorch
 1 Suspect Chemical Injury
 1 Suspect Environmental Stress
 1 Winter Injury

4 Total for Privet

Pyracantha

1 Insufficient Sample

1 Total for Pyracantha

Rhododendron

2 Botryosphaeria Dieback *Botryosphaeria sp.*
 1 Cultural Problem
 1 Environmental Stress
 5 Insufficient Sample
 1 Lacebugs
 4 Negative for Disease
 4 Negative for Ramorum Blight
 4 Negative for Root Disease
 1 Plant Hairs
 1 Suspect Environmental Stress

24 Total for Rhododendron

Rose

| | |
|-----------------------------|------------------------------|
| 1 Black Spot | <i>Diplocarpon rosae</i> |
| 1 Botryosphaeria Canker | <i>Botryosphaeria sp.</i> |
| 1 Botryosphaeria Dieback | <i>Botryosphaeria ribis</i> |
| 1 Botrytis Blight | <i>Botrytis cinerea</i> |
| 2 Chemical Injury | |
| 2 Common Canker | <i>Coniothyrium fuckelii</i> |
| 1 Environmental Stress | |
| 1 Insects | |
| 3 Insufficient Sample | |
| 2 Mites | |
| 1 Negative for Disease | |
| 1 Negative for Root Disease | |
| 1 Phomopsis Cane Canker | <i>Phomopsis sp.</i> |
| 1 Powdery Mildew | <i>Sphaerotheca pannosa</i> |
| 1 Pythium Root Rot | <i>Pythium sp.</i> |
| 1 Rose Mosaic Virus | |
| 3 Rose Rosette | |
| 1 Scorch | |
| 1 Suspect Chemical Injury | |
| 3 Suspect Rose Rosette | |

29 Total for Rose**Rose-of-Sharon**

1 Chemical Injury

1 Total for Rose-of-Sharon**Shrub, Unknown**1 Septoria Leaf Spot *Septoria sp.***1 Total for Shrub, Unknown****Shrubs, Miscellaneous**

1 Suspect Environmental Stress

1 Total for Shrubs, Miscellaneous**Stewartia**

1 Rootbound

1 Total for Stewartia

Viburnum

| | |
|----------------------------|-------------------------------|
| 1 Black Root Rot | <i>Thielaviopsis basicola</i> |
| 1 Cause of Problem Unknown | |
| 1 Chemical Injury | |
| 1 Cold Injury | |
| 1 Insects | |
| 2 Insufficient Sample | |
| 1 Negative for Disease | |
| 1 Phomopsis Dieback | <i>Phomopsis sp.</i> |
| 1 Sapsucker Injury | |
| 1 Suspect Cold Injury | |
| 1 Suspect Cultural Problem | |
| 1 Vole Injury | <i>Microtus pinetorum</i> |
| 1 Wood Decay | |

14 Total for Viburnum**Wax Myrtle**

| | |
|----------------------------|-------------------------------|
| 1 Botryosphaeria Dieback | <i>Botryosphaeria sp.</i> |
| 1 Insects | |
| 1 Insufficient Sample | |
| 1 Mites | |
| 1 Phytophthora Root Rot | <i>Phytophthora cinnamomi</i> |
| 1 Suspect Cultural Problem | |

6 Total for Wax Myrtle**Willow**

| | |
|-------------------------|---------------------------|
| 1 Botryosphaeria Canker | <i>Botryosphaeria sp.</i> |
|-------------------------|---------------------------|

1 Total for Willow**Witchhazel**

| | |
|----------------------------|---------------------------------|
| 1 Phyllosticta Leaf Blight | <i>Phyllosticta hamamelidis</i> |
|----------------------------|---------------------------------|

1 Total for Witchhazel**Yew**

| | |
|-------------------------|-------------------------------|
| 1 Cultural Problem | |
| 1 Environmental Stress | |
| 1 Eriophyid Mites | |
| 4 Insufficient Sample | |
| 1 Phytophthora Root Rot | <i>Phytophthora cinnamomi</i> |

8 Total for Yew

Identification Appendix

Information about samples submitted to the laboratory for identification

Higher Plants (32)

| | |
|--|--------------------------------|
| Family: Adoxaceae Sambucus canadensis | Common Elderberry |
| Family: Apocynaceae Apocynum cannabinum | Hemp Dogbane |
| Family: Aquifoliaceae Ilex crenata | Japanese Holly |
| Family: Araceae Arisaema triphyllum | Jack-in the -pulpit |
| Family: Araliaceae Aralia spinosa | Devil's Walking Stick |
| Family: Balsaminaceae Impatiens capensis | Common Jewelweed |
| Family: Buxaceae Buxus sempervirens | American Boxwood |
| Family: Calycanthaceae Calycanthus floridus var. floridus | Sweet-shrub |
| Family: Cannabaceae Humulus japonicus | Japanese hops |
| Family: Caprifoliaceae Viburnum suspensum Viburnum sp. | Sandankwa Viburnum Viburnum |
| Family: Celastraceae Euonymus fortunei | Winter Creeper |
| Family: Ericaceae Leucothoe fontanesiana | Highland Doghobble |
| Family: Fabaceae Senna obtusifolia | Chinese Senna |
| Family: Fagaceae Castanea mollissima | Chinese Chestnut |
| Family: Gramineae Poa pratensis | Kentucky Bluegrass |

| | | |
|-------------------------|-------------|------------------|
| Family: Lamiaceae | | |
| Glechoma hederaceae | | Creeping Charlie |
| Vitex rotundifolia | | Beach Vitex |
| Family: Martyniaceae | | |
| Proboscidea louisianica | | Devil's Claw |
| Family: Nyssaceae | | |
| Nyssa sylvatica | | Black Gum |
| Family: Poaceae | | |
| Cinna arundinacea | Common Wood | Reedgrass |
| Festuca arundinacea | | Tall Fescue |
| Zoysia matrella | | Zoysia Grass |
| Family: Polygonaceae | | |
| Rumex obtusifolius | | Bitter dock |
| Family: Rosaceae | | |
| Malus sp. | | Apple |
| Prunus sp. | | Cherry |
| Rubus phoenicolasius | | Wine Raspberry |
| Family: Sapindaceae | | |
| Koelreuteria paniculata | | Golden-rain-tree |
| Family: Smilacaceae | | |
| Smilax herbacea | Common | Carrionflower |
| Family: Solanaceae | | |
| Solanum melanocerasum | Garden | Huckleberry |
| Family: Passifloraceae | | |
| Passiflora sp. | | Passionflower |

Fungus (15)

| | | |
|------------------------|--|------------------|
| Family: Amanitaceae | | |
| Amanita sp. | | Amanita |
| Family: Agaricaceae | | |
| Unknown | | Fungus |
| Family: Boletaceae | | |
| Suillus sp. | | Slippery Jack |
| Family: Gasteromycetes | | |
| G. sp. | | Puffball |
| Family: Geastraceae | | |
| Sphaerobolus stellatus | | Artillery Fungus |

| | |
|---|------------------------------|
| Family: Heterobasidiomycetes | Jelly Fungus |
| Family: Lycoperdaceae Geastrum sp | Earthstar |
| Family: Meripilaceae Grifola frondosa | Hen of the Woods |
| Family: Morchellaceae Morchella elata | Black Morel |
| Family: Myxomycetes Fuligo septica | Slime Mold |
| Family: Nidulariaceae Cyathus sp. | Bird's Nest Fungus |
| Family: Phallaceae | Stinkhorn |
| Family: Sclerodermataceae Scleroderma geaster Scleroderma sp. | Dead Man's Hand Earthstar |
| Order: Helotiales Trichoglossum hirsutum | Velvety Black Earth Tongue |
| Family: Unknown | Lichen |

Other (5)

Unable to Identify (3)
Nonliving material
Insufficient sample