

# **The Plant Disease Clinic and Weed Identification Lab Annual Report 2013**



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

**The Plant Disease Clinic and Weed Identification Laboratory  
2013 Annual Report**

**Table of Contents**

Acknowledgements .....	ii
Introduction .....	iii
Highlights from 2013.....	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 .....	7
Small Fruits .....	14
Tree Fruits and Nuts .....	16
Trees .....	18
Turf .....	27
Vegetables and Herbs .....	28
Weeds .....	33
Woody Ornamentals .....	33
Unknown .....	42
Summary of Plant and Fungal Identifications .....	43

## Acknowledgements

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 2013, diagnoses in the Plant Disease Clinic in Blacksburg were performed by Mary Ann Hansen and Elizabeth Bush, with valuable assistance from Katie Dougherty and Mike Fulcher.

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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The Weed Identification Clinic is operated by Dr. Scott Hagood with the assistance of Ms. Kate Venner, Mr. Lloyd Hipkins and Mr. Claude Kenley. Mr. Tom Wieboldt, curator of the Herbarium in the Biology Department, performs many of the plant and weed identifications.

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. Andrew Mike for IT support during the year.

Katie Dougherty 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 or identified by molecular techniques, 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 the use of 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.

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>.

## DISEASE HIGHLIGHTS 2013

The Plant Disease Clinic (PDC) performed 1355 diagnoses on a total of 1225 samples in 2013. Diseases that were either prevalent in or new to Virginia in 2013, with additional detail on select diseases, are listed below.

### Fruit Crops

- Cherry – European brown rot and blossom blight (*Monilinia laxa*)
- Goji berry – anthracnose (*Colletotrichum acutatum*)
- Pear – thread blight (*Ceratodbasidium ochroleucum*)
- Strawberry – Strawberry Mild Yellow Edge Virus

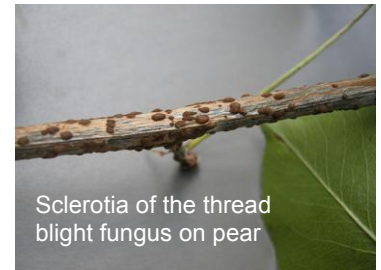


European brown rot on cherry

The fungal disease, brown rot, is a common cause of fruit rot on cherry trees; however, in 2013 a different species of the pathogen, *Monilinia laxa*, appeared in cherry trees. This species has been present in Europe for some time. It causes blossom and twig blight, in addition to fruit rot, in both ornamental and fruiting cherry trees. European brown rot is favored by cool, wet weather and poor air circulation, conditions that were widespread in 2013. Symptoms of shoot collapse, reminiscent of fire blight in pear and apple trees, were widespread.

Goji berry is an emerging fruit crop grown in Virginia that is touted as having many health benefits. However, when fruit is infected by the anthracnose fungus, berries shrivel and rot. The fungus that causes this disease, *Colletotrichum acutatum*, can infect a variety of plant species, including strawberry and grape, so it is not new to Virginia; it has simply found a new host. Wet weather is conducive to disease.

Moist conditions and poor air circulation also favored thread blight on pear trees in one location. Thread blight is mainly a tropical disease and typically appears only in poorly maintained orchards. Our sample came from ornamental pear trees in a community park. The thread blight fungus gets its name from the brown, threadlike mycelium that grows on the surface of the bark. It also produces long-lived, survival structures called “sclerotia”, which appear as brown, irregularly shaped, raised structures on the mycelium.



Sclerotia of the thread blight fungus on pear

Strawberry Mild Yellow Edge Virus was found on infected plants that had overwintered from 2012. This virus is reported to cause symptoms of stunting and marginal leaf yellowing, especially when it is present in combination with another virus, Strawberry Mottle Virus. Symptoms may also include reddening of older leaves and marginal leaf necrosis. The virus is aphid-transmitted. As long as infected plants are destroyed, the virus will not carry over to the following season.

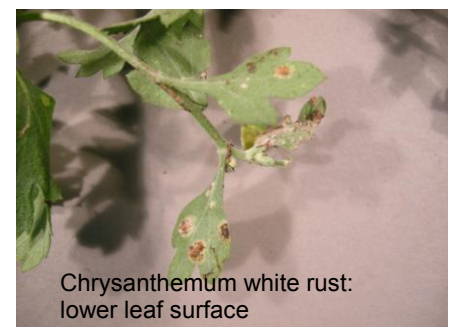
### Herbaceous Ornamentals

- Chrysanthemum -- white rust (*Puccinia horiana*)
- Gaillardia – white smut (*Entyloma* sp.)
- Impatiens Downy Mildew (*Plasmopara obducens*)
- Orchid – black rot (*Phytophthora palmivora*)
- Poinsettia – physiological leaf distortion
- Tradescantia – Ascochyta leaf spot (*Ascochyta* sp.)



Chrysanthemum white rust: upper leaf surface

Chrysanthemum white rust is a serious fungal disease of chrysanthemums. This rust is a quarantine pathogen that leads to state regulatory action to eradicate the disease. Regulatory action usually involves removal and destruction of all affected plants and a border of healthy-appearing plants around the affected plants. The sample in this case was submitted by a Virginia grower, but the plants were actually located in West Virginia. Symptoms are light yellow, depressed spots on the upper leaf surface with raised, fungal fruiting structures on the lower leaf surface. The disease can spread rapidly under favorable environmental conditions (96-100% relative humidity for at least three hours and temperatures of 40-73 degrees F).



Chrysanthemum white rust: lower leaf surface

Gaillardia white smut causes pale, whitish leaf spots that later turn brown and may be bordered by a whitish halo. The smut fungus produces spores on the surface of the lesions and resting spores in the plant tissue later in the season. Closely spaced plants with overhead irrigation tend to be more severely affected than other plants, so this disease is more common in nurseries.



Impatiens downy mildew

Following the 2012 outbreak of impatiens downy mildew in Virginia, very few cases of the disease were seen in 2013, mainly because not much impatiens was planted in 2013. The Plant Clinic received only one sample with this disease, on a plant that had been overwintered in a greenhouse.

*Phytophthora* species cause diseases of roots and in some cases aboveground parts of many plant species. *P. palmivora* was cultured from Dendrobium orchids with black rot on the leaves that started at the stem and moved toward the tip of the leaves. This pathogen is favored by free moisture and can spread to all parts of the plant. It is best to destroy affected plants to prevent spread and avoid

propagating from infected plants.



Physiological leaf disorder on poinsettia

Poinsettias grown in greenhouses are prone to developing leaf distortion in the fall in response to changes in temperature and humidity. Symptoms become apparent in late September or early October after plants have been moved from propagation to the finishing area. Branches that develop after pinching may have 2-3 distorted leaves, but leaves that expand later are normal and usually hide affected leaves. Symptoms were so severe on the plants we received that we wondered if they had been caused by herbicide injury; however, the grower said that there had been a sudden, extreme change in weather conditions prior to symptom appearance. Plants had not been exposed to herbicide.

We diagnosed a fungal leaf spot on *Tradescantia* that has not previously been reported. The fungus *Ascochyta* was consistently associated with leaf spots.



Ascochyta leaf spot on Tradescantia

### Trees

- Chestnut – Phytophthora root rot (*Phytophthora cambivora*, *P. citricola*)
- Crabapple – Japanese apple rust (*Gymnosporangium yamadae*)
- Cypress – Passalora needle blight (*Passalora sequoiae*)
- Fringetree – anthracnose (*Discula fraxinea*)
- Spruce – Rhizosphaera needle blight (*Rhizosphaera kalkhoffii*)
- Growth regulator injury

Several species of *Phytophthora* were recovered from rotting roots of blight-resistant American chestnut trees being grown in a nursery for purposes of reforestation. American chestnut must be grown on well-drained soil to avoid problems with *Phytophthora*. Japanese apple rust, which was found in Virginia for the first time in 2011, was seen again on crabapples and appears to be more widespread in the state. We diagnosed the fungal disease, Passalora needle blight, for the first time on a cypress tree grown on a Christmas tree farm. The tree was an Arizona cypress (*Cupressis arizonica*), which is very susceptible to this disease. This cypress species is not typically grown in Virginia. Because it prefers hot, dry conditions and well-drained soil, it is not adapted to the Southeast and may have been predisposed to the disease by stress. Another disease favored by moist conditions is anthracnose of fringetree, caused by the fungus *Discula fraxinea*. Fringetree is typically a disease-free tree in Virginia landscapes, but when weather conditions favor anthracnose, anthracnose can cause significant leaf browning on this tree species. Rhizosphaera needle blight on spruce, which is present more or less every year, was widespread on spruce in 2013.



Rhizosphaera needle blight on spruce

## Turfgrass

- Bermudagrass – spring dead spot (*Ophiosphaerella herpotricha*)
- Zoysia – melting out (*Cochliobolus spicifer*)

The spring dead spot fungus attacks the roots, rhizomes, and stolons of bermudagrass during the fall and winter. In the spring, circular patches of bermudagrass appear. The patches may be up to 3' in diameter and tend to appear and expand in the same spot for several years in a row. Cultivars with good winter-hardiness are less affected by this disease. Melting out of zoysia was diagnosed on a sample that had overall browning and appeared to be suffering from an abiotic problem; however, leaves were covered with leaf spots. The melting out fungus causes leaf blighting at high temperatures and high humidity, whereas it causes leaf spotting at lower temperatures and high humidity. Prolonged wet weather favors disease.



## Vegetables

- Basil – downy mildew (*Plasmopara belbahrii*)
- Pumpkin, Watermelon – suspect cucurbit yellow vine decline (*Serratia marcescens*)
- Tomato, Potato – late blight (*Phytophthora infestans*)
- Watermelon – anthracnose (*Gloeosporium orbiculare*)

Basil downy mildew was found on plants purchased at a big box store. The pathogen causes a general discoloration of basil leaves that can easily be mistaken for water stress or nutrient deficiency. The pathogen sporulates on the lower leaf surface and may be overlooked. For greenhouse-grown basil, controlling environmental conditions is crucial. Avoiding prolonged leaf wetness by watering early in the day and ventilating well are important control measures. There is also mounting evidence that the pathogen can be seed-borne and heat treatment of seed may be an option for control.



Symptoms of a relatively new bacterial disease, called cucurbit yellow vine decline, were seen on commercial pumpkin and watermelon vines. Symptoms of yellowing resemble mild nutrient deficiency, but appear on scattered plants. This would not be a typical pattern for nutrient deficiency. The bacteria are transmitted to the vascular tissue by squash bugs when they feed on plants early in the season, but symptoms typically don't appear until plants begin to produce fruit. Squash bug control early in the season is important for control.

Late blight was widespread on tomatoes again in 2013 due to conducive wet weather conditions, and it also appeared on potato. Anthracnose on watermelon was another fungal disease that was favored by the wet weather.

## Woody Ornamentals

- Boxwood – boxwood blight (*Calonectria pseudonaviculata*)
- Rose – rose rosette disease (*Rose Rosette Virus*)

Boxwood blight, a fungal disease that first appeared in the United States and in southwest Virginia in 2011, was found for the first time in a Fairfax County landscape. Infected plants had been purchased at a retail garden center. The retail center cooperated with the Virginia Department of Agriculture and Consumer Services to destroy the remaining infected plants, but we will likely see this disease continue to spread in Virginia. Rose rosette disease, a viral disease that is transmitted by eriophyid mites, was prevalent in rose samples submitted to the Plant Clinic in 2013. This disease can cause severe disfigurement of cultivated roses. No rose cultivars are known to be resistant to this disease. Knockout roses with resistance to black spot are susceptible to rose rosette disease.



**New Clinic Records for 2013:**

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- Chrysanthemum -- white rust (*Puccinia horiana*)
- Fringetree – anthracnose (*Discula fraxinea*)
- Gaillardia – white smut (*Entyloma* sp.)
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- Zoysia – melting out (*Cochliobolus spicifer*)

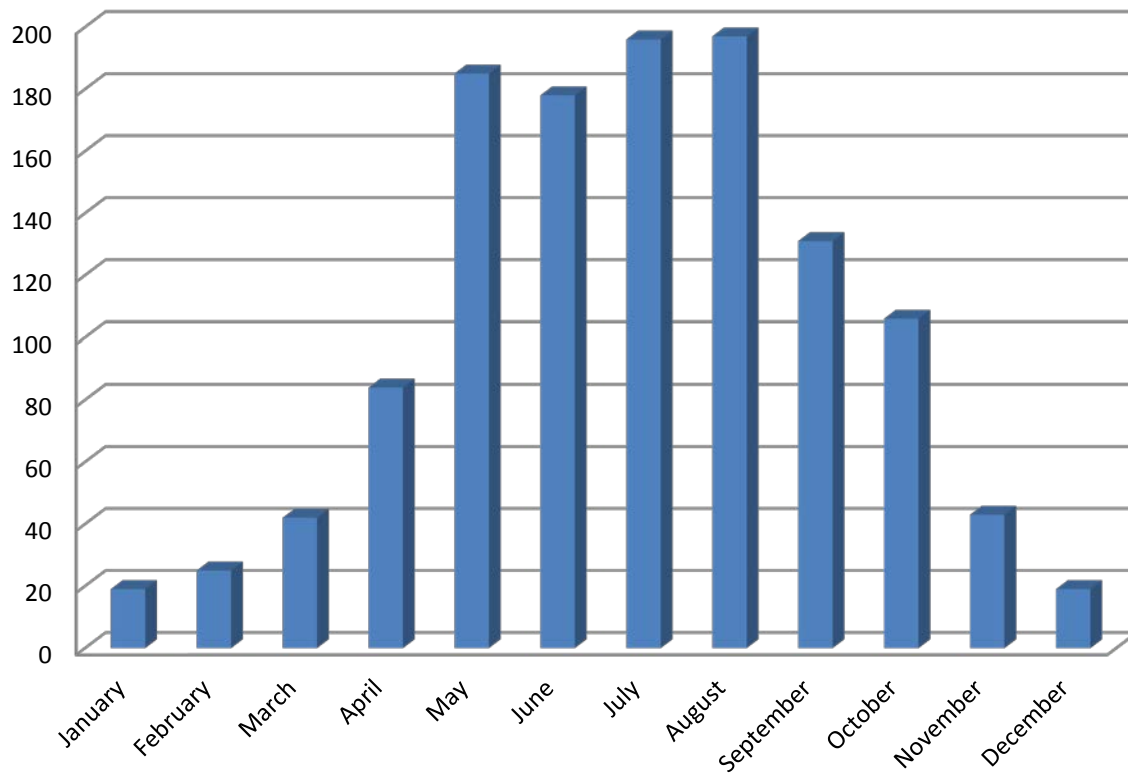


## Monthly Submission Summary

Number of samples received by month

Month	# Samples
January	19
February	25
March	42
April	84
May	185
June	178
July	196
August	197
September	131
October	106
November	43
December	19
<b>Total</b>	<b>1,225</b>

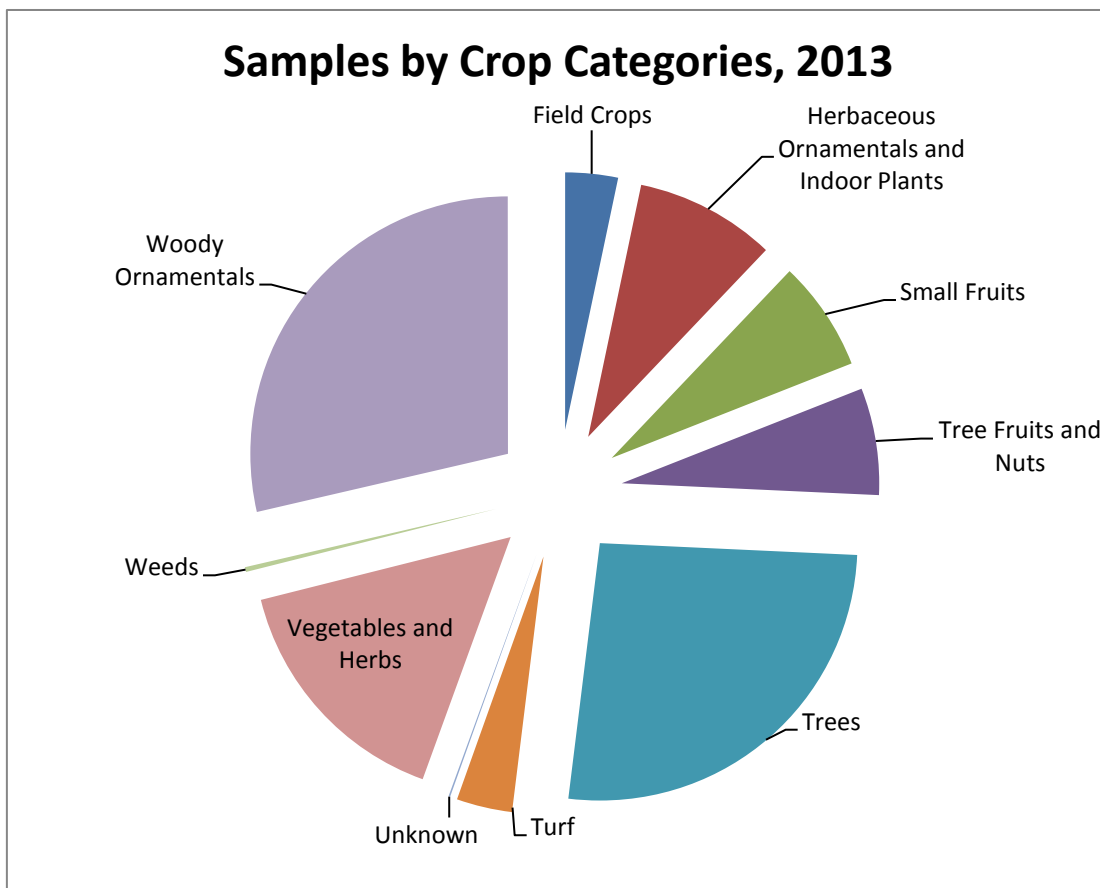
## Number of Samples by Month, 2013



## Crop Category Summary for Diagnostic Samples

Sample totals by major crop categories, excluding plant identifications

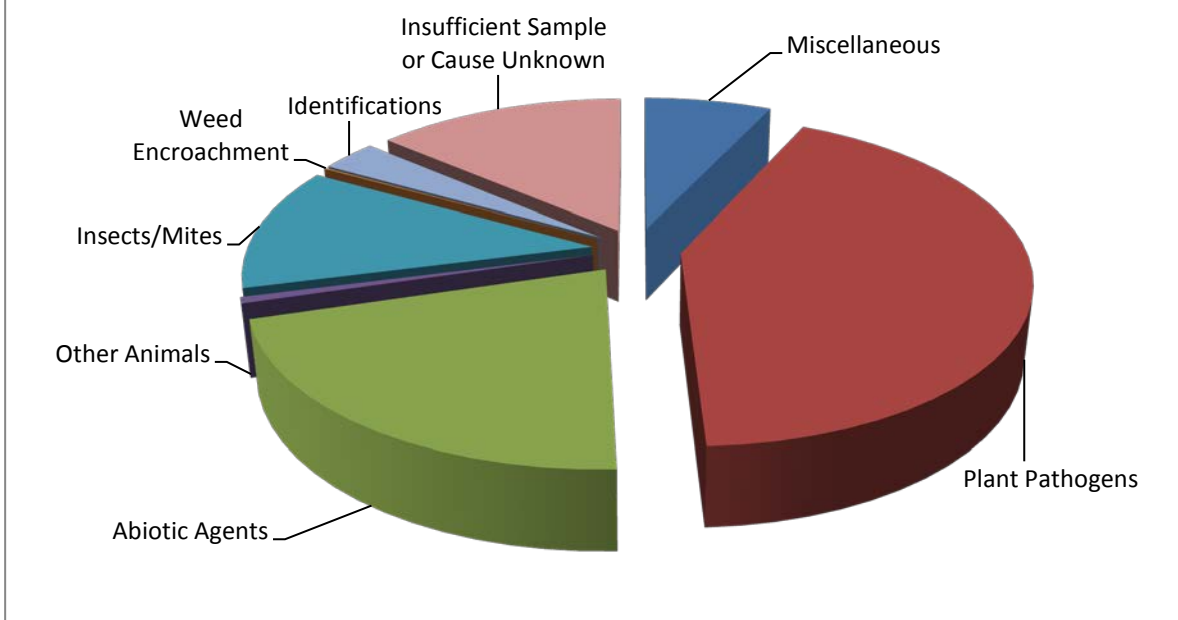
Crop Category	# of Samples	% of Total
Field Crops	39	3.3
Herbaceous Ornamentals & Indoor Plants	106	10
Small Fruits	81	6.9
Tree Fruits and Nuts	79	6.7
Trees	310	26.2
Turf	41	3.5
Unknown	1	0.1
Vegetables and Herbs	183	15.5
Weeds	4	0.3
Woody Ornamentals	338	28.6
<b>Total</b>	<b>1,182</b>	



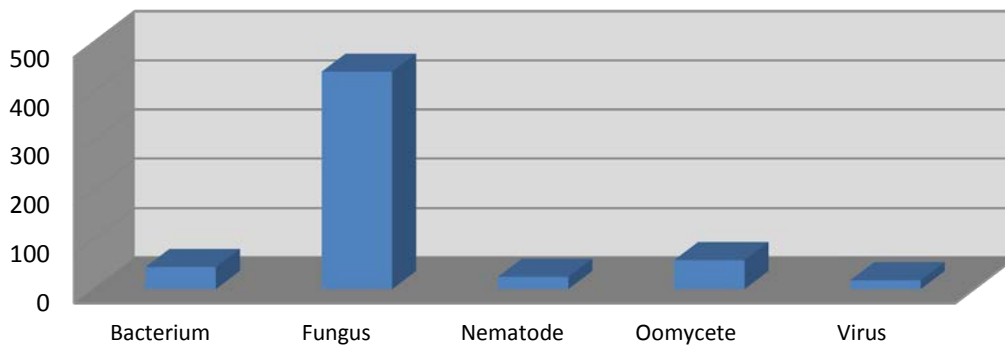
### Diagnosis/ID Category Summary

	# of Diagnoses/IDs	% of Total
<b>Plant Pathogens</b>	<b>589</b>	<b>42.3</b>
Bacterium	45	
Fungus	442	
Nematode	25	
Oomycete	59	
Virus	18	
<b>Abiotic Agents</b>	<b>293</b>	<b>21</b>
Chemical	65	
Environmental/Cultural	219	
Mechanical	9	
<b>Insects or Mites</b>	<b>169</b>	<b>12.1</b>
Insects or Mites	169	
<b>Other Animals</b>	<b>9</b>	<b>0.6</b>
Birds	4	
Mammals	5	
<b>Insufficient Sample or Cause Unknown</b>	<b>191</b>	<b>13.7</b>
Insufficient sample or information	185	
Unknown	6	
<b>Miscellaneous</b>	<b>98</b>	<b>7</b>
Lichen	3	
Normal Condition	13	
Other	55	
Physiological/Genetic	26	
Saprophyte	1	
<b>Weed Encroachment</b>	<b>2</b>	<b>0.1</b>
Weed	2	
<b>Identifications</b>	<b>43</b>	<b>3.1</b>
Algae	1	
Bacterium	1	
Fungi	8	
Lichen	1	
Other Substance	1	
Plant	28	
Unable to Identify	3	
<b>Total</b>	<b>1394</b>	

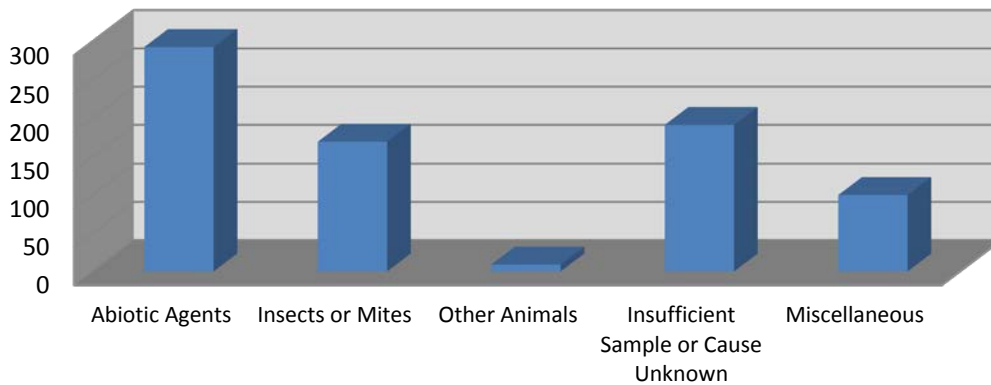
## 2013 Samples by Diagnosis Category



### Plant Pathogens, 2013



### Other Agents, 2013



County	# of Samples	County	# of Samples
Out of State	1	LEE	8
ACCOMACK	25	LOUDOUN	8
ALBEMARLE	31	LOUISA	22
ALEXANDRIA CITY	3	LUNENBURG	3
ALLEGHANY	4	LYNCHBURG CITY	28
AMELIA	1	MADISON	3
AMHERST	4	MATHEWS	5
APPOMATTOX	1	MECKLENBURG	3
ARLINGTON	8	MIDDLESEX	6
AUGUSTA	20	MONTGOMERY	109
BATH	3	NELSON	77
BEDFORD	17	NEW KENT	12
BLAND	2	NEWPORT NEWS CITY	2
BOTETOURT	31	NORFOLK CITY	4
BRUNSWICK	1	NORTHUMBERLAND	25
BUCKINGHAM	5	NOTTOWAY	6
CAMPBELL	9	ORANGE	4
CAROLINE	4	PAGE	5
CARROLL	7	PATRICK	3
CHESAPEAKE CITY	26	PETERSBURG CITY	1
CLARKE	1	PITTSYLVANIA	22
CRAIG	4	PORTSMOUTH CITY	18
CULPEPER	8	POWHATAN	14
DANVILLE CITY	5	PRINCE EDWARD	2
DICKENSON	2	PRINCE GEORGE	1
DINWIDDIE	1	PRINCE WILLIAM	20
ESSEX	8	PULASKI	25
FAIRFAX	21	RAPPAHANNOCK	18
FAUQUIER	8	RICHMOND	2
FLOYD	19	RICHMOND CITY	13
FLUVANNA	18	ROANOKE	23
FRANKLIN	10	ROCKBRIDGE	14
FREDERICK	24	ROCKINGHAM	33
GILES	14	RUSSELL	3
GLOUCESTER	6	SCOTT	6
GOOCHLAND	15	SHENANDOAH	6
GREENE	2	SMYTH	2
GREENSVILLE	1	SOUTHAMPTON	5
HALIFAX	22	SPOTSYLVANIA	19
HAMPTON CITY	12	STAFFORD	21
HANOVER	15	SUFFOLK CITY	1
HENRICO	43	TAZEWELL	6
HENRY	3	VIRGINIA BEACH	15
HIGHLAND	6	WARREN	1
ISLE OF WIGHT	12	WASHINGTON	6
JAMES CITY	5	WESTMORELAND	55
KING AND QUEEN	4	WISE	6
KING GEORGE	4	WYTHE	10
KING WILLIAM	3	YORK	15
LANCASTER	11	<b>Total</b>	<b>1,226</b>

## Diagnosis Appendix

*Information about diseases/pests diagnosed by the laboratory*

Field Crops	
<b>Alfalfa</b>	
1 Alfalfa Mosaic Virus	
1 Environmental Stress	
1 Leafhoppers	
1 Leptosphaerulina Leaf Spot	<i>Leptosphaerulina briosiana</i>
1 Spring Black Stem and Leaf Spot	<i>Phoma medicaginis</i>
1 Stem Nematode	<i>Ditylenchus dipsaci</i>
1 Summer Black Stem	<i>Cercospora medicaginis</i>
1 Summer Black Stem and Leaf Spot	<i>Cercospora medicaginis</i>
<b>8 Total for Alfalfa</b>	
<b>Barley</b>	
2 Scab	<i>Fusarium graminearum</i>
<b>2 Total for Barley</b>	
<b>Chickpea</b>	
1 Suspect Nitrogen Deficiency	
<b>1 Total for Chickpea</b>	
<b>Corn</b>	
1 Anthracnose Stalk Rot	<i>Colletotrichum graminicola</i>
1 Chemical Injury	
1 Cultural Problem	
1 Diplodia Ear Rot	<i>Stenocarpella maydis</i>
1 Fusarium Root and Stalk Rot	<i>Fusarium sp.</i>
1 Low pH	
1 Negative for Disease	
1 Northern Corn Leaf Blight	<i>Setosphaeria turcica</i>
<b>8 Total for Corn</b>	
<b>Millet</b>	
1 Gray Leaf Spot	<i>Pyricularia grisea</i>
<b>1 Total for Millet</b>	
<b>Orchardgrass</b>	
2 Anthracnose	<i>Colletotrichum graminicola</i>
4 Leaf Streak	<i>Cercosporidium graminis</i>
<b>6 Total for Orchardgrass</b>	

**Sesame**

1 Black Root Rot *Thielaviopsis basicola*

**1 Total for Sesame**

**Soybean**

1 Frogeye Leaf Spot *Cercospora sojina*

1 Fusarium Root Rot *Fusarium oxysporum*

1 High Soluble Salts

1 Insufficient Sample

1 Nematodes

1 No Disease Found

1 Suspect Chemical Injury

2 Thrips

**9 Total for Soybean**

**Tobacco**

3 Suspect Cultural Problem

**3 Total for Tobacco**

**Wheat**

1 Barley Yellow Dwarf Virus

1 Cause of Problem Unknown

1 Nutrient Deficiency

1 Nutritional Problem

**4 Total for Wheat**

**Herbaceous Ornamentals and Indoor Plants**

**Ajuga**

1 Southern Blight *Sclerotium rolfsii*

**1 Total for Ajuga**

**Akebia**

1 Negative for Foliar Disease

**1 Total for Akebia**

**Aloe**

1 Fusarium Root Rot *Fusarium sp.*

**1 Total for Aloe**

**Arabidopsis**

1 Negative for Root Disease

1 Powdery Mildew *Golovinomyces orontii*

1 Thrips

**3 Total for Arabidopsis**

### Beardgrass

1 Phoma Leaf Spot *Phoma sp.*

**1 Total for Beardgrass**

### Begonia

1 Abiotic Problem  
1 High Soluble Salts

**2 Total for Begonia**

### Black-eyed Susan

2 Insects

**2 Total for Black-eyed Susan**

### Brunnera

1 Suspect Environmental Stress

**1 Total for Brunnera**

### Calibrachoa

1 Botrytis Blight *Botrytis cinerea*  
1 Fusarium Root Rot *Fusarium sp.*

**2 Total for Calibrachoa**

### Calla Lily

1 Insufficient Sample

**1 Total for Calla Lily**

### Canna Lily

1 Insects

**1 Total for Canna Lily**

### Celosia

1 Fusarium Stem and Root Rot *Fusarium sp.*

**1 Total for Celosia**

### Chrysanthemum

1 Bacterial Leaf Spot *Pseudomonas cichorii*  
1 Chrysanthemum White Rust *Puccinia horiana*  
1 Cultural Problem

**3 Total for Chrysanthemum**

### Chrysogonum

1 Insufficient Sample

**1 Total for Chrysogonum**



## Columbine

1 Insects

**1 Total for Columbine**

## Coneflower

1 Suspect Coneflower Rosette Mite

1 Thrips

**2 Total for Coneflower**

## Coral Bells

1 Botrytis Blight

*Botrytis cinerea*

**1 Total for Coral Bells**

## Coreopsis

1 Negative for Disease

**1 Total for Coreopsis**

## Cup Plant

1 Rust

*Puccinia silphii*

**1 Total for Cup Plant**

## Dahlia

1 Cultural Problem

1 Mites

1 Soft Rot

*Erwinia carotovora*

**3 Total for Dahlia**

## Daisy

1 Environmental Stress

1 Low pH

1 Pythium Root Rot

*Pythium sp.*

**3 Total for Daisy**

## Daylily

1 Leaf Streak

*Aureobasidium microstictum*

**1 Total for Daylily**

## Fern

1 Botrytis Blight

*Botrytis cinerea*

1 Environmental Stress

1 Fern Rust

*Uredinopsis sp.*

1 Foliar Nematodes

*Aphelenchoides sp.*

**4 Total for Fern**

**Ficus**

1 Cultural Problem

**1 Total for Ficus****Foxglove**

1 Phytophthora Root Rot

*Phytophthora nicotianae***1 Total for Foxglove****Gaillardia**

1 White Smut

*Entyloma sp.***1 Total for Gaillardia****Gardenia**

1 Mites

2 Negative for Disease

**3 Total for Gardenia****Geranium**

1 Insufficient Sample

**1 Total for Geranium****Hellebore**

1 Insects

2 Negative for Disease

1 Soft Rot

*Erwinia carotovora***4 Total for Hellebore****Hollyhock**

1 Rust

*Puccinia malvacearum***1 Total for Hollyhock****Hosta**

1 Foliar Nematodes

*Aphelenchoides fragariae*

1 Insufficient Sample

1 Soft Rot

*Erwinia carotovora*

1 Southern Blight

*Sclerotium rolfsii***4 Total for Hosta****Houseplant**

1 Insufficient Sample

**1 Total for Houseplant**

### Impatiens

- 1 Abiotic Problem
- 1 Downy Mildew *Plasmopara obducens*
- 1 No Disease Found

**3 Total for Impatiens**

### Japanese Knotweed

- 1 Chemical Injury

**1 Total for Japanese Knotweed**

### Joe-pye Weed

- 1 Insects

**1 Total for Joe-pye Weed**

### Lavender

- 3 Botrytis Blight *Botrytis cinerea*
- 1 No Disease Found
- 1 Phytophthora Root Rot *Phytophthora nicotianae*
- 1 Suspect Cultural Problem
- 2 Web Blight *Rhizoctonia solani*

**8 Total for Lavender**

### Lily-of-the-valley

- 1 Anthracnose *Colletotrichum sp.*

**1 Total for Lily-of-the-valley**

### Liriope

- 1 Anthracnose *Colletotrichum sp.*

**1 Total for Liriope**

### Lisianthus

- 1 Fusarium Crown and Stem Rot *Fusarium sp.*
- 1 High Soluble Salts
- 1 Negative for Disease
- 1 Suspect Soluble Salts Injury

**4 Total for Lisianthus**

### Madagascar Periwinkle

- 1 Anthracnose *Colletotrichum sp.*
- 1 Phytophthora Blight *Phytophthora nicotianae*

**2 Total for Madagascar Periwinkle**

## Marjoram

- 1 Thrips
- 1 Xanthomonas Leaf Spot *Xanthomonas sp.*

**2 Total for Marjoram**

## Morning Glory

- 1 Rust *Coleosporium ipomoeae*

**1 Total for Morning Glory**

## Muhly Grass

- 1 Negative for Root Disease

**1 Total for Muhly Grass**

## Orchid

- 1 Anthracnose *Collectotrichum gloeosporiodes*
- 1 Black Rot *Phytophthora palmivora*
- 1 Cymbidium Mosaic Virus

**3 Total for Orchid**

## Ornamental Kale

- 1 Black Rot *Xanthomonas campestris pv. campestris*
- 1 Negative for Disease

**2 Total for Ornamental Kale**

## Pachysandra

- 1 Negative for Disease
- 1 Suspect Cultural Problem
- 1 Volutella Blight *Volutella pachysandrae*

**3 Total for Pachysandra**

## Pansy

- 2 Black Root Rot *Thielaviopsis basicola*

**2 Total for Pansy**

## Pentas

- 1 Abiotic Problem

**1 Total for Pentas**

## Peony

- 1 Botrytis Blight *Botrytis cinerea*
- 1 Negative for Disease
- 1 Powdery Mildew *Erysiphe polygoni*

**3 Total for Peony**

## Petunia

1 Phytophthora Root Rot *Phytophthora nicotianae*

**1 Total for Petunia**

## Phlox

1 Abiotic Problem  
1 Insufficient Sample

**2 Total for Phlox**

## Plant, Unknown

1 Insufficient Sample

**1 Total for Plant, Unknown**

## Plants, Miscellaneous

1 Crystalline Residue  
1 Insufficient Sample

**2 Total for Plants, Miscellaneous**

## Poinsettia

1 Physiological Leaf Distortion

**1 Total for Poinsettia**

## Sedge

1 Negative for Disease

**1 Total for Sedge**

## Sedum

1 Anthracnose *Colletotrichum sp.*  
1 Fusarium Stem Rot *Fusarium sp.*  
1 Powdery Mildew *Oidium sp.*

**3 Total for Sedum**

## Spathiphyllum

1 Suspect Cultural Problem

**1 Total for Spathiphyllum**

## Spiderwort

1 Ascochyta Leaf Spot *Ascochyta sp.*

**1 Total for Spiderwort**

## Spurflower

1 Insufficient Sample

**1 Total for Spurflower**

## Zinnia

- 1 Soluble Salts High
- 1 Suspect Cultural Problem

**2 Total for Zinnia**

## Small Fruits

### Blackberry

- 1 Anthracnose *Elsinoe veneta*
- 1 Borers
- 1 Cane and Leaf Rust *Kuehneola uredinis*
- 1 Cane Blight *Coniothyrium fuckellii*
- 1 Chemical Injury
- 1 Environmental Stress
- 2 Gray Mold *Botrytis cinerea*
- 2 Insufficient Sample
- 2 Orange Rust *Arthuriomyces peckianus*
- 1 Suspect Chemical Injury
- 1 Suspect Environmental Stress

**14 Total for Blackberry**

### Blueberry

- 1 Beetles
- 1 Cicada Injury
- 1 Dagger Nematodes *Xiphinema sp.*
- 7 Insufficient Sample
- 1 Negative for Disease
- 4 Phytophthora Root Rot *Phytophthora cinnamomi*
- 1 Suspect Chemical Injury
- 1 Suspect Virus

**17 Total for Blueberry**

### Fig

- 1 Botryosphaeria Dieback *Botryosphaeria sp.*
- 1 Phomopsis Dieback *Phomopsis sp.*

**2 Total for Fig**

## Grape

1 Anthracnose	<i>Elsinoe ampelina</i>
3 Bitter Rot	<i>Greeneria uvicola</i>
5 Black Rot	<i>Guignardia bidwellii</i>
2 Botryosphaeria Dieback	<i>Botryosphaeria sp.</i>
2 Bunch Stem Necrosis	
1 Downy Mildew	<i>Plasmopara viticola</i>
3 Insects	
1 Insufficient Sample	
1 Leaf Blight	<i>Pseudocercospora vitis</i>
2 Negative for Disease	
4 Negative for Pierce's Disease	
1 No Disease Found	
2 Petri Disease	<i>Phaeoacremonium aleophilum</i>
1 Petri Disease	<i>Phaeoacremonium inflatipes</i>
1 Phomopsis Rot	<i>Phomopsis viticola</i>
1 Physiological Problem	
1 Powdery Mildew	<i>Uncinula necator</i>
1 Ripe Rot	<i>Colletotrichum gloeosporioides</i>
1 Suspect Botryosphaeria Canker	<i>Botryosphaeria sp.</i>
2 Suspect Chemical Injury	
2 Suspect Nutrient Imbalance	
1 Suspect Phomopsis Cane and Leaf Blight	<i>Phomopsis viticola</i>

**39 Total for Grape**

## Raspberry

1 Borers	
1 Botryosphaeria Canker	<i>Botryosphaeria dothidea</i>
2 Cane Borers	
1 Insufficient Sample	
1 Negative for Phytophthora Root Rot	<i>Phytophthora sp.</i>
1 Suspect Environmental Stress	
1 Suspect Mycosphaerella Leaf Blotch	<i>Mycosphaerella confusa</i>

**8 Total for Raspberry**

## Strawberry

1 Abiotic Problem	
1 Anthracnose Crown Rot	<i>Colletotrichum gloeosporioides</i>
1 Chemical Injury	
1 Dagger Nematodes	<i>Xiphinema sp.</i>
1 Environmental Stress	
1 Gray Mold	<i>Botrytis cinerea</i>
1 Rootworms	
1 Strawberry Mild Yellow Edge Virus	
1 Suspect Anthracnose Crown Rot	<i>Colletotrichum sp.</i>
1 Suspect Nutrient Imbalance	

**10 Total for Strawberry**

## Tree Fruits and Nuts

### Apple

1 Black Rot	<i>Physalospora obtusa</i>
1 Botryosphaeria Canker	<i>Botryosphaeria obtusa</i>
7 Cedar-Apple Rust	<i>Gymnosporangium juniperi-virginianae</i>
2 Cicadas	
1 Curculios	
7 Fire Blight	<i>Erwinia amylovora</i>
4 Frogeye Leaf Spot	<i>Physalospora obtusa</i>
1 Insufficient Sample	
1 June Drop	
1 Stinkbugs	
1 Suspect Fire Blight	<i>Erwinia amylovora</i>

**27 Total for Apple**

### Apricot

1 Insufficient Sample

**1 Total for Apricot**

### Cherry

3 Black Knot	<i>Dibotryon morbosum</i>
1 Blumeriella Leaf Spot	<i>Blumeriella jaapii</i>
1 Botryosphaeria Canker	<i>Botryosphaeria dothidea</i>
1 Brown Rot	<i>Monilinia laxa</i>
3 Brown Rot	<i>Monilinia sp.</i>
1 Cicada Injury	
1 Insects	
1 Insufficient Sample	
1 Shothole	
1 Suspect Chemical Injury	
1 Suspect Cultural Problem	
1 Suspect Environmental Stress	

**16 Total for Cherry**



## Chestnut

1 Cicada Injury	
1 Insects	
1 Insufficient Sample	
1 Phytophthora Root Rot	<i>Phytophthora cambivora</i>
1 Phytophthora Root Rot	<i>Phytophthora cinnamomi</i>
1 Phytophthora Root Rot	<i>Phytophthora citricola</i>

**6 Total for Chestnut**

## Common Medlar

1 Insufficient Sample	
1 Pestalotia	<i>Pestalotia sp.</i>
1 Suspect Fire Blight	<i>Erwinia amylovora</i>

**3 Total for Common Medlar**

## Crabapple

1 Insufficient Sample	
1 Japanese Apple Rust	<i>Gymnosporangium yamadae</i>

**2 Total for Crabapple**

## Filbert

1 Eastern Filbert Blight	<i>Anisogramma anomala</i>
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**1 Total for Filbert**

## Goji berry

1 Anthracnose	<i>Colletotrichum acutatum</i>
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**1 Total for Goji berry**

## Peach

2 Brown Rot	<i>Monilinia fructicola</i>
1 Crystalline Residue	
1 Cultural Problem	
5 Curculios	
3 Insects	
2 Insufficient Sample	
1 Mechanical Injury	
1 Peach Leaf Curl	<i>Taphrina deformans</i>
1 Scab	<i>Cladosporium carpophilum</i>
1 Suspect Nutrient Deficiency	

**18 Total for Peach**

**Pear**

- 1 Cicada Injury
- 1 Entomosporium Leaf Spot *Entomosporium mespili*
- 4 Fire Blight *Erwinia amylovora*
- 1 Suspect Fire Blight *Erwinia amylovora*

**7 Total for Pear**

**Pecan**

- 1 Insects
- 1 Poor Pollination
- 1 Pops

**3 Total for Pecan**

**Persimmon**

- 1 Phomopsis Dieback *Phomopsis sp.*

**1 Total for Persimmon**

**Plum**

- 1 Beetles
- 2 Black Knot *Dibotryon morbosum*
- 1 Insufficient Sample

**4 Total for Plum**

**Pomegranate**

- 1 Environmental Stress

**1 Total for Pomegranate**

**Walnut**

- 1 Lichens

**1 Total for Walnut**

**Trees**

**Alder**

- 1 Insects

**1 Total for Alder**

## Arborvitae

- 1 Abiotic Problem
- 1 Bagworms
- 1 Cicada Injury
- 3 Insufficient Sample
- 1 Leafminers
- 1 Mites
- 3 Negative for Disease
- 1 Negative for Foliar Disease
- 2 Negative for Root Disease
- 1 Normal Senescence
- 1 Pestalotiopsis Twig Blight *Pestalotiopsis funerea*
- 1 Seasonal Needle Drop

**17 Total for Arborvitae**

## Ash

- 1 Anthracnose *Discula fraxinea*

**1 Total for Ash**

## Baldcypress

- 1 Mites
- 1 Negative for Root Rot

**2 Total for Baldcypress**

## Beech

- 1 Insufficient Sample
- 1 Negative for Beech Bark Disease
- 2 Sooty Mold *Scorias spongiosa*

**4 Total for Beech**

## Birch

- 1 Cicadas
- 1 Cryptocline Leaf Spot *Cryptocline betularum*
- 1 Insects
- 3 Insufficient Sample
- 1 Negative for Disease
- 1 Nutrient Deficiency
- 1 Physiological Leaf Spot

**9 Total for Birch**

**Black Gum**

- 1 Botryosphaeria Canker *Botryosphaeria sp.*
- 1 Cicadas
- 1 Insects
- 2 Sooty Mold

**5 Total for Black Gum**

**Black Locust**

- 1 Powdery Mildew *Oidium sp.*

**1 Total for Black Locust**

**Cedar**

- 1 Crystalline Residue
- 1 Mites
- 1 Negative for Root Disease
- 1 Vole Damage
- 1 Weevils
- 1 Wood Decay

**6 Total for Cedar**

**Chestnut**

- 1 Abiotic Problem
- 1 Chestnut Blight *Cryphonectria parasitica*
- 1 Vole Injury

**3 Total for Chestnut**

**Cryptomeria**

- 3 Abiotic Problem
- 1 Phyllosticta Needle Blight *Phyllosticta sp.*
- 1 Suspect Chemical Injury
- 2 Suspect Cultural Problem

**7 Total for Cryptomeria**

**Cypress**

- 1 Cultural Problem
- 1 Environmental Stress
- 3 Insufficient Sample
- 1 Mammalian Injury
- 1 Negative for Disease
- 1 Negative for Root Disease
- 1 Normal Condition
- 1 Passalora Needle Blight *Passalora sequoiae*
- 1 Pestalotiopsis Needle Blight *Pestalotiopsis sp.*
- 5 Seiridium Canker *Seiridium sp.*
- 5 Suspect Seiridium Canker *Seiridium sp.*
- 1 Tip Moths

**22 Total for Cypress**

### Dawn Redwood

1 Suspect Abiotic Problem

**1 Total for Dawn Redwood**

### Dogwood

1 Cicada Injury

1 Environmental Stress

6 Insufficient Sample

1 No Disease Found

1 Plant Hairs - Normal Condition

9 Powdery Mildew

*Oidium sp.*

1 Spot Anthracnose

*Elsinoe corni*

1 Suspect Environmental Stress

**21 Total for Dogwood**

### Eastern Red Cedar

1 Cedar-Apple Rust

*Gymnosporangium juniperi-virginianae*

2 Mites

1 Negative for Disease

1 Phomopsis Tip Blight

*Phomopsis juniperovora*

1 Spiders

**6 Total for Eastern Red Cedar**

### Eleagnus

1 Mites

**1 Total for Eleagnus**

### Elm

3 Black Spot

*Stegophora ulmea*

1 Botryosphaeria Dieback

*Botryosphaeria sp.*

1 Normal Condition

1 Suspect Black Spot

*Stegophora ulmea*

1 Suspect Wood Decay

1 Unable to Diagnose

1 White Rot Fungus

**9 Total for Elm**

### Falsecypress

1 Male Cones

**1 Total for Falsecypress**

## Fir

- 1 Eriophyid Mites
- 1 Insufficient Sample
- 1 J-rooted
- 1 Mites
- 1 Negative for Phytophthora Root Rot
- 1 Negative for Root Disease
- 2 Phytophthora Root Rot *Phytophthora cinnamomi*
- 1 Sooty Mold
- 1 Suspect Cold Injury
- 1 Suspect Mechanical Injury

**11 Total for Fir**

## Fringe Tree

- 1 Anthracnose *Discula fraxinea*
- 1 Lacebugs
- 1 Sooty Mold
- 1 Suspect Nutrient Deficiency

**4 Total for Fringe Tree**

## Giant Sequoia

- 1 Insufficient Sample

**1 Total for Giant Sequoia**

## Hemlock

- 3 Insufficient Sample
- 1 Mites
- 1 Negative for Foliar Disease
- 1 Pestalotiopsis Tip Blight *Pestalotiopsis sp.*
- 1 Suspect Cold Injury

**7 Total for Hemlock**

## Hickory

- 1 Chemical Injury
- 1 Insect Galls
- 2 Leaf Stem Gall Insects

**4 Total for Hickory**

## Incense Cedar

- 1 Insufficient Sample

**1 Total for Incense Cedar**

**Katsuratree**

1 Abiotic Problem

**1 Total for Katsuratree**

**Larch**

1 Mycosphaerella Needle Cast

*Mycosphaerella laricina*

**1 Total for Larch**

**London Planetree**

2 Cicada Injury

2 No Disease Found

1 Suspect Nutrient Imbalance

**5 Total for London Planetree**

**Magnolia**

3 Insufficient Sample

2 Sooty Mold

1 Wood Decay

**6 Total for Magnolia**

**Maple**

1 Abiotic Problem

1 Anthracnose

1 Artillery Fungus

1 Botryosphaeria Dieback

1 Cicada Injury

3 Environmental Stress

2 Insects

14 Insufficient Sample

1 Leafhoppers

1 Lichens

2 Mycosphaerella Leaf Spot

*Discula sp.*

*Sphaerobolus stellatus*

*Botryosphaeria sp.*

1 Negative for Verticillium Wilt

4 Phomopsis Dieback

*Phomopsis sp.*

1 Possible Chemical Injury

3 Purple-eye Leaf Spot

*Phyllosticta minima*

2 Sapsucker Injury

5 Scorch

3 Sooty Mold

1 Suspect Abiotic Problem

1 Suspect Purple-eye Leaf Spot

*Phyllosticta minima*

1 Suspect Wood Decay

1 Suspect Zonate Leaf Spot

*Cristulariella pyramidalis*

1 Verticillium Wilt

*Verticillium dahliae*

3 Zonate Leaf Spot

*Cristulariella pyramidalis*

**55 Total for Maple**

## Oak

3 Anthracnose	<i>Apiognomonia errabunda</i>
6 Bacterial Scorch	<i>Xylella fastidiosa</i>
1 Carpenter Worms	
1 Cicada Injury	
1 Cytospora Canker	<i>Cytospora sp.</i>
1 Endothia Canker	<i>Endothia gyrosa</i>
1 Gall Insects	
1 Healthy	
1 Heart Rot	
1 Inconclusive for Bacterial Leaf Scorch	<i>Xylella fastidiosa</i>
2 Insects	
5 Insufficient Sample	
1 Iron Chlorosis	
1 Mites	
3 Negative for Bacterial Scorch	
1 Negative for Disease	
1 Normal Condition	
3 Oak Leaf Blister	<i>Taphrina caerulescens</i>
1 Suspect Cultural Problem	
1 Suspect Strumella Canker	<i>Strumella sp.</i>
1 Suspect Wood Decay	
1 Wood Decay	

**38 Total for Oak**

## Ornamental Cherry

2 Blossom Blight	<i>Monilinia laxa</i>
1 Brown Rot	<i>Monilinia sp.</i>
1 Cercospora Leaf Spot	<i>Pseudocercospora (Cercospora) circumscissura</i>
1 Cicadas	
1 Cultural Problem	
1 Girdled Stem	
4 Insufficient Sample	
1 Negative for Root Disease	
1 Seimatosporium Leaf Spot	<i>Seimatosporium sp.</i>
1 Shothole	
1 Wood Decay	<i>Schizophyllum commune</i>

**13 Total for Ornamental Cherry**

## Ornamental Peach

1 Peach Leaf Curl	<i>Taphrina deformans</i>
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**1 Total for Ornamental Peach**



## Ornamental Pear

1 Cultural Problem	
1 Eriophyid Mites	
2 Fire Blight	<i>Erwinia amylovora</i>
1 No Disease Found	
2 Pear Leaf Blister Mites	
1 Phoma Leaf Spot	<i>Phoma pomorum</i>
1 Powdery Mildew	<i>Oidium sp.</i>
1 Thread Blight	<i>Corticium stevensii</i>

**10 Total for Ornamental Pear**

## Ornamental Plum

1 Insects	
1 Insufficient Sample	
1 Physiological Shothole	
1 Suspect Nutrient Imbalance	

**4 Total for Ornamental Plum**

## Pine

1 Adelgids	
1 Diplodia Tip Blight	<i>Diplodia pinea</i>
2 Dothistroma Needle Blight	<i>Dothistroma pini</i>
3 Insufficient Sample	
1 Ploioaderma Needle Cast	<i>Ploioaderma lethale</i>
1 Sooty Mold	
1 Tip Moths	

**10 Total for Pine**

## Prunus

1 Borers	
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**1 Total for Prunus**

## Red Buckeye

1 Insects	
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**1 Total for Red Buckeye**

## Redbud

1 Botrytis Blight	<i>Botrytis cinerea</i>
2 Insects	
1 Physiological Leaf Spot	
1 Pseudocercospora Leaf Spot	<i>Pseudocercospora vitis</i>
1 Suspect Cold Injury	

**6 Total for Redbud**

### Serviceberry

- 1 Cedar-Hawthorn Rust *Gymnosporangium globosum*
- 1 Environmental Stress

**2 Total for Serviceberry**

### Spruce

- 2 Environmental Stress
- 2 Insufficient Sample
- 3 Mites
- 14 Rhizosphaera Needle Blight *Rhizosphaera kalkhoffii*
- 1 Sapsucker Injury
- 1 Scales
- 4 Stigmata Needle Cast *Stigmata lautii*
- 1 Suspect Dog Damage
- 1 Suspect Rhizosphaera Needle Blight *Rhizosphaera kalkhoffii*

**29 Total for Spruce**

### Sweet Gum

- 1 Insects
- 1 Normal Condition
- 1 Wood Decay

**3 Total for Sweet Gum**

### Sycamore

- 1 Anthracnose *Gnomonia platani*
- 1 Plant Hairs - Normal Condition

**2 Total for Sycamore**

### Tree, Unknown

- 1 Mites
- 1 Pestalotiopsis Needle Blight *Pestalotiopsis sp.*
- 1 Sapsucker Injury

**3 Total for Tree, Unknown**

### Tulip Tree

- 1 Suspect Fusarium Canker *Fusarium solani*
- 1 Yellow Poplar Weevil

**2 Total for Tulip Tree**

### Willow

- 4 Insufficient Sample

**4 Total for Willow**

## Turf

### Bentgrass

1 Lance Nematodes *Hoplolaimus sp.*

**1 Total for Bentgrass**

### Bermudagrass

1 Spring Dead Spot *Ophiosphaerella herpotricha*

1 Suspect Spring Dead Spot *Ophiosphaerella korrae*

**2 Total for Bermudagrass**

### Fescue

7 Brown Patch *Rhizoctonia solani*

4 Insufficient Sample

1 Negative for Disease

1 Suspect Nitrogen Deficiency

**13 Total for Fescue**

### St. Augustinegrass

1 Large Patch *Rhizoctonia solani*

**1 Total for St. Augustinegrass**

### Turfgrass

2 Abiotic Problem

6 Brown Patch *Rhizoctonia solani*

1 Crabgrass Encroachment *Digitaria ischaemum*

1 Dollar Spot *Sclerotinia homeocarpa*

1 Fairy Ring

1 Gray Leaf Spot *Pyricularia grisea*

4 Insufficient Sample

1 Negative for Disease

1 Slime Mold

1 Suspect Environmental Stress

1 Weed Encroachment

**20 Total for Turfgrass**

### Zoysia

1 Brown Patch *Rhizoctonia solani*

1 Insufficient Sample

1 Melting Out *Cochliobolus spicifer*

1 Suspect Fairy Ring

1 Weed Encroachment

**5 Total for Zoysia**

## Vegetables and Herbs

### Arugula

1 Suspect Cultural Problem

**1 Total for Arugula**

### Basil

1 Downy Mildew

*Plasmopara belbahrii*

1 Negative for Downy Mildew

**2 Total for Basil**

### Bean

1 Alternaria Leaf and Pod Spot

*Alternaria alternata*

1 Environmental Stress

1 Fusarium Root Rot

*Fusarium solani*

1 Insects

1 Rhizoctonia Root Rot

*Rhizoctonia solani*

**5 Total for Bean**

### Beet

1 Low Soluble Salts

**1 Total for Beet**

### Broccoli

1 Chemical Injury

1 Environmental Stress

1 Hollow Stem

**3 Total for Broccoli**

### Cabbage

1 Black Rot

*Xanthomonas campestris*

1 Suspect Nutrient Imbalance

**2 Total for Cabbage**

### Cantaloupe

1 Abiotic Problem

1 Alternaria Leaf Blight

*Alternaria cucumerina*

1 Chemical Injury

1 Downy Mildew

*Pseudoperonospora cubensis*

1 No Disease Found

**5 Total for Cantaloupe**

### Chives

1 Purple Blotch

*Alternaria porri*

**1 Total for Chives**

## Cole Crops

1 Abiotic Problem

**1 Total for Cole Crops**

## Cucumber

1 Cucumber Beetles

3 Downy Mildew

*Pseudoperonospora cubensis*

1 Genetic Trait

2 Insufficient Sample

1 Powdery Mildew

*Sphaerotheca fuliginea*

1 Sunscald

1 Suspect Nutrient Imbalance

1 Whiteflies

**11 Total for Cucumber**

## Garlic

2 Fusarium Basal Plate Rot

*Fusarium oxysporum*

1 Insects

1 Mites

1 Nutrient Deficiency

1 Stemphylium Leaf Blight

*Stemphylium vesicarium*

**6 Total for Garlic**

## Kale

1 Wirestem

*Rhizoctonia solani*

**1 Total for Kale**

## Lettuce

1 Insufficient Sample

1 Septoria Leaf Spot

*Septoria lactucae*

**2 Total for Lettuce**

## Melon

1 Cucumber Beetles

1 Suspect Nutrient Deficiency

**2 Total for Melon**

## Nasturtium

1 Bacterial Leaf Spot

*Xanthomonas sp.*

**1 Total for Nasturtium**

## Okra

1 Fusarium Wilt

*Fusarium oxysporum*

**1 Total for Okra**

## Parsley

- 1 Septoria Leaf Spot *Septoria petroselini*
- 1 Thrips

**2 Total for Parsley**

## Pea

- 1 Ascochyta Blight *Ascochyta pinodes*
- 1 Damping-off *Rhizoctonia solani*
- 1 Insects
- 1 Insufficient Sample
- 1 Nutrient Deficiency
- 1 Suspect Environmental Stress

**6 Total for Pea**

## Pepper

- 3 Insufficient Sample
- 1 Phytophthora Blight *Phytophthora capsici*
- 1 Suspect Chemical Injury

**5 Total for Pepper**

## Plants, Miscellaneous

- 1 Insects
- 1 Insufficient Sample

**2 Total for Plants, Miscellaneous**

## Potato

- 2 Common Scab *Streptomyces scabies*
- 1 Early Blight *Alternaria solani*
- 1 Enlarged Lenticels
- 1 Insufficient Sample
- 1 Late Blight *Phytophthora infestans*
- 1 Negative for Disease
- 1 Wireworms

**8 Total for Potato**

## Pumpkin

- 3 Downy Mildew *Pseudoperonospora cubensis*
- 1 Frost Injury
- 1 Thrips
- 1 Yellow Vine Decline *Serratia marcescens*

**6 Total for Pumpkin**

## Rosemary

3 Adventitious Roots

**3 Total for Rosemary**

## Spinach

1 Abiotic Problem

1 Negative for Disease

1 Suspect Abiotic Problem

**3 Total for Spinach**

## Squash

3 Downy Mildew

*Pseudoperonospora cubensis*

1 Fusarium Foot Rot

*Fusarium solani*

1 No Disease Found

1 Plectosporium Blight

*Plectosporium tabacinum*

2 Powdery Mildew

*Sphaerotheca fuliginea*

1 Sooty Mold

2 Squash Bugs

1 Squash Vine Borers

1 Suspect Nutrient Deficiency

**13 Total for Squash**

## Sweet Potato

1 Growth Cracks

1 Grubs

1 Insufficient Sample

1 Scurf

*Monilochaetes infuscans*

**4 Total for Sweet Potato**

## Tomato

2	Abiotic Problem	
1	Bacterial Canker	<i>Clavibacter michiganensis</i>
1	Bacterial Spot	<i>Xanthomonas campestris pv. vesicatoria</i>
4	Bacterial Wilt	<i>Ralstonia solanacearum</i>
2	Blossom End Rot	
17	Chemical Injury	
1	Cucumber Mosaic Virus	
2	Cultural Problem	
1	Early Blight	<i>Alternaria solani</i>
1	Fertilizer Burn	
3	Fusarium Crown and Root Rot	<i>Fusarium oxysporum</i>
1	Fusarium Wilt	<i>Fusarium oxysporum</i>
1	High Soluble Salts	
10	Insufficient Sample	
10	Late Blight	<i>Phytophthora infestans</i>
1	Leaf Mold	<i>Fulvia fulva</i>
2	Low Soluble Salts	
1	Mites	
2	Negative for Disease	
1	No Disease Found	
1	Phomopsis Fruit Rot	<i>Phomopsis sp.</i>
2	Physiological Leaf Roll	
1	Physiological Problem	
1	Physiological Spotting	
1	Powdery Mildew	<i>Oidium sp.</i>
1	Pythium Fruit Rot	<i>Pythium sp.</i>
10	Septoria Leaf Spot	<i>Septoria lycopersici</i>
1	Excess Soluble Salts	
1	Southern Root Knot Nematodes	<i>Meloidogyne incognita</i>
3	Suspect Chemical Injury	
4	Suspect Cultural Problem	
1	Suspect Nutrient Deficiency	
1	Suspect Nutrient Imbalance	
1	Suspect Walnut Wilt	
1	Thrips	
2	Tobacco Mosaic Virus	
3	Walnut Wilt	
1	Whiteflies	
1	Yellow Shoulder	

**101 Total for Tomato**



### Vegetables, miscellaneous

1 Abiotic Problem

**1 Total for Vegetables, miscellaneous**

### Watermelon

1 Anthracnose

*Colletotrichum orbiculare*

1 Borers

1 Insects

1 Insufficient Sample

1 Negative for Bacterial Fruit Blotch

*Acidovorax avenae subsp citrulli*

1 Negative for Disease

1 Powdery Mildew

*Sphaerotheca fuliginea*

1 Suspect Chemical Injury

1 Suspect Cultural Problem

1 Yellow Vine Decline

*Serratia marcescens*

**10 Total for Watermelon**

### Zucchini

1 Root Knot Nematodes

*Meloidogyne sp.*

**1 Total for Zucchini**

## Weeds

### Dead Nettle

1 Abiotic Problem

1 Healthy

**2 Total for Dead Nettle**

### Milkweed

1 Abiotic Problem

**1 Total for Milkweed**

### Weed

1 Insufficient Sample

**1 Total for Weed**

## Woody Ornamentals

### Abelia

1 Phytophthora Root Rot

*Phytophthora sp.*

**1 Total for Abelia**

## Aucuba

2 Suspect Cold Injury

**2 Total for Aucuba**

## Azalea

1 Abiotic Problem

1 Anthracnose

*Colletotrichum sp.*

1 Cicada Injury

1 Cultural Problem

1 Cylindrocladium Blight

*Cylindrocladium sp.*

1 Insects

4 Insufficient Sample

3 Lacebugs

1 Leaf and Flower Gall

*Exobasidium vaccinii*

1 Lichens

2 Negative for Disease

3 Negative for Root Disease

1 Nutrient Deficiency

1 Phomopsis Dieback

*Phomopsis sp.*

1 Physiological Leaf Spot

1 Suspect Vole Injury

**24 Total for Azalea**

## Barberry

3 Insufficient Sample

2 Negative for Root Disease

1 Phytophthora Root Rot

*Phytophthora sp.*

1 Webworms

**7 Total for Barberry**

## Bearberry

2 Suspect Cultural Problem

**2 Total for Bearberry**

## Beautyberry

1 Suspect Cultural Problem

**1 Total for Beautyberry**

## Bluebeard

1 Adventitious Roots

1 Bacterial Blight

*Xanthomonas campestris*

**2 Total for Bluebeard**

**Bottlebrush**

1 Insufficient Sample

**1 Total for Bottlebrush****Boxwood**

3 Boxwood Blight

*Cylindrocladium pseudonaviculatum*

1 Cultural Problem

1 Deep Planting

1 English Boxwood Decline

*Paecilomyces buxi*

1 Environmental Stress

13 Insufficient Sample

7 Leafminers

3 Lesion Nematodes

*Pratylenchus sp.*

4 Macrophoma Leaf Spot

*Macrophoma candollei*

1 Mechanical Injury

7 Mites

7 Negative for Boxwood Blight

2 Negative for Disease

7 Negative for Nematodes

3 Negative for Phytophthora Root Rot

28 Negative for Root Rot Fungi

5 Nematodes

7 Phytophthora Root Rot

*Phytophthora nicotianae*

4 Possible Nematode Problem

1 Psyllids

1 Scales

1 Sooty Mold

4 Spiral Nematodes

*Rotylenchus buxophilus*

1 Suspect Environmental Stress

1 Suspect Vole Injury

26 Volutella Blight

*Volutella buxi*

3 Winter Injury

**143 Total for Boxwood****Burning Bush**

1 Anthracnose

*Gloeosporium gloeosporioides***1 Total for Burning Bush****Butterfly Bush**

1 Downy Mildew

*Peronospora sp.***1 Total for Butterfly Bush**

## Camellia

- 1 Cicada Injury
- 1 Insufficient Sample
- 1 Leaf and Flower Gall
- 2 Scales
- 1 Sooty Mold
- 1 Virus
- 1 Winter Injury

*Exobasidium camelliae*

**8 Total for Camellia**

## Candytuft

- 1 Suspect Cultural Problem

**1 Total for Candytuft**

## Cherrylaurel

- 1 Black Vine Weevils
- 1 Cultural Problem
- 3 Insufficient Sample
- 1 Mammalian Injury
- 1 Mites
- 1 Negative for Disease
- 1 Negative for Root Disease
- 1 Scales
- 2 Shothole

**12 Total for Cherrylaurel**

## Cotoneaster

- 1 Insects

**1 Total for Cotoneaster**

## Crape Myrtle

- 1 Environmental Stress
- 2 Insufficient Sample
- 1 Pestalotia
- 1 Scales
- 1 Suspect Chemical Injury

*Pestalotia sp.*

**6 Total for Crape Myrtle**

## Daphne

- 1 Insufficient Sample
- 1 Negative for Disease

**2 Total for Daphne**

**Deutzia**

1 Scorch

**1 Total for Deutzia**

**Dogwood**

1 Suspect Environmental Stress

**1 Total for Dogwood**

**English Ivy**

1 Anthracnose

*Colletotrichum trichellum*

1 Low pH

1 Negative for Root Disease

**3 Total for English Ivy**

**Euonymus**

1 Abiotic Problem

1 Anthracnose

*Colletotrichum gloeosporioides*

1 Powdery Mildew

*Oidium sp.*

3 Scales

**6 Total for Euonymus**

**Filbert**

1 Eastern Filbert Blight

*Anisogramma anomala*

**1 Total for Filbert**

**Forsythia**

1 Insufficient Sample

**1 Total for Forsythia**

**Holly**

2 Abiotic Problem

1 Anthracnose Fruit Rot

*Colletotrichum sp.*

14 Black Root Rot

*Thielaviopsis basicola*

1 Cultural Problem

1 Hail Injury

2 Insects

8 Insufficient Sample

1 Mammalian Injury

1 Mites

2 Negative for Disease

1 Negative for Root Disease

1 Phomopsis Canker

*Phomopsis sp.*

3 Physiological Leaf Spot

1 Phytophthora Root Rot

*Phytophthora sp.*

1 Scales

1 Suspect Cold Injury

1 Suspect Winter Injury

1 Winter Injury

**43 Total for Holly**

**Hydrangea**

- 3 Chemical Injury
- 1 Insufficient Sample
- 2 Phytophthora Root Rot *Phytophthora nicotianae*
- 1 Pythium Root Rot *Pythium sp.*
- 1 Suspect Anthracnose *Colletotrichum sp.*

**8 Total for Hydrangea**

**Hypericum**

- 1 Negative for Disease
- 1 Phytophthora Root Rot *Phytophthora cinnamomi*

**2 Total for Hypericum**

**Indian Hawthorn**

- 1 Entomosporium Leaf Spot *Entomosporium mespili*

**1 Total for Indian Hawthorn**

**Juniper**

- 7 Insufficient Sample
- 2 Kabatina Tip Blight *Kabatina juniperi*
- 2 Mites
- 3 Negative for Foliar Disease
- 1 Negative for Root Disease
- 1 No Disease Found
- 3 Pestalotiopsis Twig Blight *Pestalotiopsis sp.*
- 1 Rootbound
- 1 Suspect Cultural Problem
- 1 Webworms
- 1 Adequate, Sample and Information

**23 Total for Juniper**

**Laurel**

- 1 Scales

**1 Total for Laurel**

**Leucothoe**

- 1 Suspect Cold Injury

**1 Total for Leucothoe**

**Lilac**

- 1 Anthracnose *Colletotrichum gloeosporioides*
- 1 Borers
- 1 Botryosphaeria Dieback *Botryosphaeria sp.*
- 3 Insufficient Sample
- 1 Phomopsis Dieback *Phomopsis sp.*
- 1 Phytophthora Root Rot *Phytophthora nicotianae*
- 2 Powdery Mildew *Microsphaera pencillata*
- 1 Scales

**11 Total for Lilac**

### Loropetalum

1 Abiotic Problem

**1 Total for Loropetalum**

### Mountain Laurel

1 Negative for Root Pathogens

1 Pseudocercospora Leaf Spot

*Pseudocercospora kalmiae*

**2 Total for Mountain Laurel**

### Nandina

1 Cercospora Leaf Spot

*Cercospora nandinae*

1 Chemical Injury

1 Negative for Root Disease

**3 Total for Nandina**

### Ninebark

1 Insufficient Sample

**1 Total for Ninebark**

### Pieris

1 Insufficient Sample

1 Weevils

**2 Total for Pieris**

### Plants, Miscellaneous

1 Chemical Injury

**1 Total for Plants, Miscellaneous**

### Privet

1 Chemical Injury

1 Mycosphaerella Leaf Spot

*Pseudocercospora ligustri*

1 Suspect Chemical Injury

1 Winter Injury

**4 Total for Privet**

## Rhododendron

1 Aphids	
2 Botryosphaeria Dieback	<i>Botryosphaeria sp.</i>
1 Cercospora Leaf Spot	<i>Cercospora handelii</i>
1 Environmental Stress	
1 Negative for Disease	
1 Negative for Ramorum Blight	
1 Oedema	
1 Physiological Leaf Spot	
1 Phytophthora Root Rot	<i>Phytophthora cinnamomi</i>
1 Scorch	
3 Suspect Botryosphaeria Dieback	<i>Botryosphaeria sp.</i>
1 Suspect Chemical Injury	
1 Suspect Genetic Abnormality	
1 Winter Injury	

**17 Total for Rhododendron**

## Rose

3 Abiotic Problem	
1 Black Spot	<i>Diplocarpon rosae</i>
1 Cercospora Leaf Spot	<i>Cercospora rosicola</i>
3 Chemical Injury	
2 Insects	
8 Insufficient Sample	
1 Mites	
1 Negative for Disease	
1 Negative for Downy Mildew	
1 Rose Mosaic Virus	
8 Rose Rosette Disease	
1 Suspect Botrytis Blight	<i>Botrytis cinerea</i>
2 Suspect Chemical Injury	

**33 Total for Rose**

## Sarcococca

1 Suspect Cultural Problem	
1 Volutella Blight	<i>Volutella sp.</i>

**2 Total for Sarcococca**

## Shrub, Unknown

1 Insufficient Sample	
1 Scales	

**2 Total for Shrub, Unknown**



**Shrubs, Miscellaneous**

1 Chemical Injury

**1 Total for Shrubs, Miscellaneous**

**Skimmia**

1 Suspect Environmental Stress

**1 Total for Skimmia**

**Smoke Tree**

1 Physiological Leaf Spot

**1 Total for Smoke Tree**

**Snowbell**

1 Crystalline Residue

**1 Total for Snowbell**

**Spirea**

1 Insufficient Sample

**1 Total for Spirea**

**Stewartia**

1 Suspect Chemical Injury

**1 Total for Stewartia**

**Summersweet**

1 Chemical Injury

**1 Total for Summersweet**

**Viburnum**

4 Insufficient Sample

1 Mites

3 Negative for Root Disease

1 Phomopsis Dieback

*Phomopsis sp.*

1 Suspect Cultural Problem

**10 Total for Viburnum**

**Wax Myrtle**

1 Septoria Leaf Spot

*Septoria sp.*

**1 Total for Wax Myrtle**

**Weigela**

1 No Disease Found

**1 Total for Weigela**

**White Baneberry**

1 Powdery Mildew *Oidium sp.*

**1 Total for White Baneberry**

**White Forsythia**

1 Cultural Problem

**1 Total for White Forsythia**

**Winterberry**

1 Physiological Leaf Spot

**1 Total for Winterberry**

**Yew**

1 Environmental Stress

2 Insufficient Sample

1 Mammalian Injury

2 Negative for Root Disease

1 Phytophthora Root Rot

*Phytophthora cinnamomi*

1 Suspect Chemical Injury

**8 Total for Yew**

**Unknown**

**Substance, Unknown**

1 Crystalline Residue

**1 Total for Substance, Unknown**

## Identification Appendix

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### 1. Higher Plants

Family: Adoxaceae Viburnum plicatum f. tomentosum	Doublefile Viburnum
Family: Asteraceae Solidago altissima	Tad Goldenrod
Family: Bignoniaceae Chitalpa tashkentensis	Pink Dawn
Family: Brassicaceae Brassica sp.	Brassica
Family: Caprifoliaceae Viburnum prunifolium	Blackhaw Viburnum
Family: Celastraceae Euonymus fortunei Euonymus japonicus	Wintercreeper Euonymus Japanese Euonymus
Family: Cupressaceae Thuja occidentalis	American Arborvitae
Family: Ebenaceae Diospyros virginiana	Persimmon
Family: Fabaceae Lespedeza cuneata	Sericea Lespedeza
Family: Fagaceae Castanea mollissima	Chinese Chestnut
Family: Geraniaceae Geranium maculatum	Wild Geranium
Family: Hydrangeaceae Hydrangea paniculata	Panicle Hydrangea
Family: Lamiaceae Nepeta cataria Origanum sp.	Catnip Oregano

Family: Liliaceae	
<i>Galanthus nivalis</i>	Common Snowdrop
<i>Nothoscordum gracile</i>	False Garlic
Family: Moraceae	
<i>Broussonetia papyrifera</i>	Paper Mulberry
Family: Oleaceae	
<i>Fraxinus</i> sp.	Ash
Family: Orobanchaceae	
<i>Conopholis americana</i>	Squawroot
Family: Polygonaceae	
<i>Persicaria virginiana</i>	Jumpseed
Family: Rosaceae	
<i>Aronia melanocarpa</i>	Chokeberry
<i>Photinia serratifolia</i>	Chinese Photinia
<i>Pyrus calleryana</i>	Bradford Pear Hybrid
Family: Solanaceae	
<i>Datura wrightii</i>	Indian Apple
Family: Vitaceae	
<i>Vitis</i> sp.	Grape
<b>2. Fungi</b>	
Family: Clavariaceae	
	Coral Fungi
Family: Geastraceae	
<i>Sphaerobolus stellatus</i>	Artillery Fungus
Family: Sclerodermataceae	
<i>Scleroderma</i> sp.	Earthball
Family: Tricholomataceae	
<i>Lentinus</i> sp.	Lentinus
Family: Unable to Identify	
	Mold
	Slime Mold
	Unknown Basidiomycete

### 3. Other

Family: Nostocaceae

Nostoc sp.

Nostoc

Family: Unable to Identify

Algae

Lichens

Insufficient Sample (2)

Other Substance

Water Retention Polymer