The Plant Disease Clinic and Weed Identification Lab Annual Report 2011

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Virginia Polytechnic Institute and State University
Blacksburg, Virginia

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2011 Annual Report

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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 2010, diagnoses in the Plant Disease Clinic in Blacksburg were performed by Mary Ann Hansen and Elizabeth Bush, with valuable assistance from Charlotte Oliver and Katie Dougherty.

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. Angela Post, 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.

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 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. Total numbers of email and digital image inquiries are listed on p.13.

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).

DISEASE HIGHLIGHTS 2011

The Plant Disease Clinic performed 1456 diagnoses on a total of 1275 samples in 2011. Diseases that were either prevalent in or new to Virginia in 2011, with additional detail on select diseases, are listed below.

Field Crops

- Orchardgrass - leaf streak (*Cercosporidium graminis*)
- Soybean - charcoal rot of soybean (*Macrophomina phaseoli*)
- Soybean - Soybean Vein Necrosis Virus (SVNV)

Leaf streak of orchardgrass is present to some degree every year. It is more prevalent in very dense stands where excessive rates of fertilizers high in quickly available nitrogen have been applied. As in 2010, charcoal rot was a problem in drought-stressed soybeans. The charcoal rot fungus is common in Virginia soils, but rarely causes disease unless plants are drought-stressed.

Soybean Vein Necrosis Virus was diagnosed in Virginia soybeans for the first time in 2011. This virus is transmitted by thrips, although the exact species are unknown. Several VCE agents in the Northern Neck area of Virginia noticed unusually widespread symptoms of leaf necrosis that did not appear to be due to drought stress in late summer. Although the disease had not been confirmed in Virginia before, Dr. Pat Phipps at the Tidewater AREC says he had seen symptoms of SVNV prior to 2011. Symptoms include blotchy chlorotic areas associated with leaf veins that later turn brown. The disease has been present in the Midwest for several years. Research is ongoing to determine more about the virus in order to formulate disease management strategies.

Fruit Crops

- Peach – peach leaf curl (*Taphrina deformans*)
- Pecan - pops (abiotic)
- Blackberry - Cercospora leaf spot (*Cercospora rubi*)
- Strawberry - anthracnose crown rot (*Colletotrichum gloeosporioides*)

Peach leaf curl

Peach leaf curl, caused by the fungus *Taphrina deformans*, was prevalent in 2011. The fungus infects in the early spring, causing reddish or light green blistering, puckering, and thickening of leaves and fruit. One application of lime sulfur or Bordeaux mixture during November or early spring before budbreak will control this disease.

Cercospora leaf spot, a fungal disease, can cause severe damage to certain blackberry cultivars, including ‘Triple Crown’ and ‘Apache’. It can be controlled with regular applications of a registered fungicide.

A condition called “pops”, or poor nut fill, is common in pecan in Virginia. It results from poor pollination, which, in turn, may result from heavy rains during bloom or from lack of receptive female flowers during pollen production. Pecan tress produce both male and female flowers; however, on a particular cultivar the male and female flowers will mostly mature at different times. Planting at least two different cultivars, spaced approximately 60 to 80 feet apart, will increase chances of good pollination. In general, Virginia does not provide an optimum climate for pecan production.

Several cases of anthracnose crown rot were diagnosed on strawberry. This disease usually comes in on transplants and can be traced back to the supplier. Roguing out affected plants, in addition to spring and fall fungicide applications, will help prevent spread of this disease.

Herbaceous Ornamentals

- Pythium root rot on poinsettia and other herbaceous ornamentals (*Pythium* spp.)
- Rhizoctonia root rot on a variety of herbaceous ornamentals (*Rhizoctonia solani*)

Although Phytophthora species can also cause root rot on a variety of herbaceous ornamentals, the main root rot pathogens of herbaceous plants are Pythium and Rhizoctonia. Fungicides are available for control of these pathogens. Avoiding overwatering and over-fertilizing are also important, especially for Pythium control.

Trees

- Beech - Endothia canker (*Endothia gyrosa*)
- Crabapple - Japanese apple rust (*Gymnosporangium yamadae*)
- Oak - bacterial scorch (*Xylella fastidiosa*)
- Oak - Tubakia leaf spot (*Tubakia dryina*)
- Ornamental Cherry - Cercospora leaf spot (*Pseudocercospora* (=*Cercospora*) *circumscissa*)
- Spruce - Rhizosphaera needle blight (*Rhizosphaera kalkhoffii*)
- Sumac - Fusarium wilt (*Fusarium oxysporum* f. sp. *rhois*)
- Walnut - thousand cankers disease (*Geosmithia morbida*)
- Willow - Armillaria root rot (*Armillaria mellea*)

Endothia canker, which is also called "orange hobnail canker" because of the conspicuous orange fruiting bodies of the fungus, was diagnosed on beech. This disease can also affect other tree species, such as pin oak, and attacks when trees are under stress (especially drought stress). The fungus enters the tree through wounds caused by pruning cuts, lawnmowers, etc. There are no controls, other than to prevent predisposing stress factors and wounds and to prune out affected branches well below canker margins. On beech the disease can sometimes be confused with beech bark disease because both are caused by fungi that produce orange fruiting bodies.

Japanese apple rust, caused by the fungus *Gymnosporangium yamadae*, was found in Virginia for the first time in 2011. The disease, which had been found in other Mid-Atlantic states in recent years, was present on crabapples on the Virginia Tech campus and in surrounding residential areas. Symptoms are similar to cedar-apple rust, caused by a different species of *Gymnosporangium*, but spots caused by the Japanese apple rust fungus are usually more spectacular in color and the aecial structures, which protrude from spots on the underside of the leaf during the summer, are more visible.

Bacterial scorch was widespread in oaks again in 2011. No practical control methods are available and trees may gradually die from the disease. Other tree species that are susceptible to the disease include red and sugar maple, elm, sycamore, and gingko. This pathogen also causes a serious disease of grape vines.

Bacterial scorch

Fusarium wilt is a vascular wilt disease of many different plant species. Most Fusarium species are specific to a narrow range of plant hosts. The disease was diagnosed in a sumac sample in 2011. The disease is soil-borne and sumac should not be replanted in infested soil.

Thousand cankers disease of black walnut, a fungal disease that is lethal to the tree, was found for the first time in Virginia in 2011. This disease has been a problem in Colorado and other western states for over a decade, but was not found east of the Mississippi River until 2010, when it was discovered in Knoxville, Tennessee. The first finds in Virginia were in the Richmond area. The disease is caused by a fungus that is vectored by the tiny walnut twig beetle. The fungus causes thousands of shallow cankers that eventually girdle the tree. Infected trees typically show dieback in the upper canopy first. Research is underway to develop effective management procedures. Currently the best recommendation is to avoid moving walnut wood of any kind from infested areas. The Virginia Department of Agriculture has issued a quarantine for infested and nearby counties in Virginia. Details on the quarantine can be found at: http://www.vdacs.virginia.gov/plant&pest/disease-tcd.shtml. A disease alert on thousand cankers disease is posted at: http://www.ppws.vt.edu/~clinic/alerts.php.

Thousand cankers disease of walnut

Shallow cankers, caused by the thousand cankers disease fungus, *Geosmithia morbida,* on black walnut

Turf

- Bermudagrass - spring dead spot (*Ophiosphaerella korrae*)
- St. Augustinegrass - take-all (*Gaeumannomyces graminis*)

The spring dead spot fungus attacks the roots, rhizomes, and stolons of bermudagrass during the fall and winter. It does not directly kill the plants, but it makes the grass more susceptible to freeze injury. Thus, spring dead spot is most severe in the northern range of bermudagrass and is usually more severe after extremely cold winters. Take-all is a difficult-to-control root rot disease of St. Augustinegrass. Fungicide application has not consistently demonstrated control of the disease. The use of slow-release fertilizers and maintaining adequate soil potassium levels are important in reducing disease severity.

Vegetables

- Pepper – charcoal rot (*Macrophomina phaseoli)*
- Tomato – bacterial canker (*Clavibacter michiganense*)
- Tomato – bacterial wilt (*Ralstonia solanacearum*)
- Tomato – chemical injury due to growth regulator herbicides
- Tomato – Tomato Spotted Wilt Virus
- Tomato – late blight (*Phytophthora infestans*)

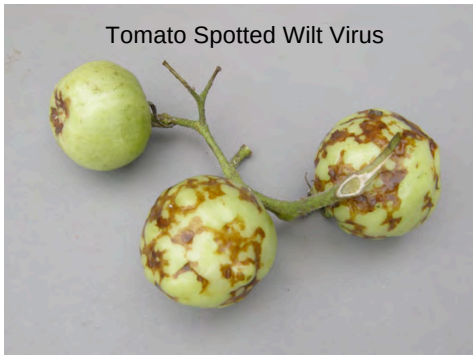
Charcoal rot occurred on pepper, in addition to soybean (see Field Crops above). The pathogen has a very wide host range and attacks plants under drought stress.

Bacterial canker is a contagious and serious problem on greenhouse tomatoes. It can also occur in the field. Symptoms include marginal leaf necrosis, wilt, and spotting of tomato fruit. Once tomatoes are

infected, there is no control. The bacterium can be seed-borne and it can survive on plant debris, stakes, and tools. Seed treatment and sanitation are recommended to prevent the disease.

Bacterial wilt is caused by a different species of bacterium than bacterial canker. Symptoms of bacterial wilt include vascular browning and overall wilt. The bacterium is soil-borne and control options are limited. Bacterial wilt affects many solanaceous crops, including pepper, eggplant and tomato, so rotation should be practiced with plants outside the solanaceous family.

Tomato spotted wilt virus (TSWV), transmitted by thrips, accounted for 13% of the 127 tomato samples received by the Clinic in 2011. Initial infections usually occur in the greenhouse, but symptoms may not be evident until plants have been transplanted to the field. The virus moves systemically in the plants and causes symptoms on both leaves (brown spotting of upper leaves) and fruit (ringspots, distortion). TSWV has a very wide host range and can spread to other plant species, including peppers, peanuts, potatoes and tobacco, in the field. Some tomato cultivars, including 'Amelia', 'Crista', 'Red Defender', and 'Health Kick', have resistance to the virus.


Tomato Spotted Wilt Virus

Only two cases of late blight (on tomato, from adjacent counties), caused by the water mold, *Phytophthora infestans*, were received by the Clinic in 2011, in contrast to the 2009 outbreak in which late blight was widespread across the Commonwealth. Under cool, moist weather conditions, this disease can spread very rapidly, blighting foliage, stems and fruits of tomato plants. A disease alert on late blight is posted at: http://www.ppws.vt.edu/~clinic/alerts.php.

Chemical injury from residues of growth regulator herbicides in straw mulch and manure has been common on tomatoes and other garden vegetables for the past 4 years. Some of the newer growth regulator herbicides have a longer residual than older growth regulator herbicides and can remain in compost, mulch or manure for over a year, causing damage to broadleaf plants when applied in gardens. With the renewed interest in home gardening stimulated by a down economy, many growers have been experiencing problems when they use mulch or manure of unknown origin.

Woody Ornamentals

- Bluebeard – Bacterial leaf spot (*Xanthomonas campestris*)
- Boxwood – box blight (*Cylindrocladium pseudonaviculatum)* (2)
- Forsythia – Phytophthora blight (*Phytophthora nicotianae*)
- Holly –Black root rot (*Thielaviopsis basicola*) (27/72)
- Photinia _Entomosporium leaf spot (*Entomosporium mespili*)
- Rose – downy mildew (*Peronspora sparsa*)
- Rose – rose rosette disease (5)

Bacterial leaf spot, which we had not seen before, was found on bluebeard. The bacteria are spread by vegetative propagation from infected plants and by splashing water. Cuttings should not be taken from infected plants and overhead irrigation should be avoided.

The Knockout series of roses is touted to be resistant to black spot and powdery mildew, two common and potentially severe diseases of rose. However, Knockout cultivars were not bred for resistance to rose rosette disease, a disease recently shown to be caused by the virus, rose rosette virus. Symptoms of leaf reddening, stunting, witches' brooming, thorn proliferation and abnormal flowers are some of the common symptoms of rose rosette disease, which is transmitted by eriophyid mites. The mites can crawl from plant to plant or be carried on wind currents. Multiflora rose has long been known to be very susceptible to this disease, but the disease has also appeared on many cultivars of cultivated roses in recent years. Currently there are no known resistant varieties, although research is ongoing. Complete removal of infected plants, including roots, is recommended to prevent spread. Note that injury from the herbicide, glyphosate (Roundup), can also cause symptoms of witches' brooming, but would not cause many of the other symptoms listed above.


Rose rosette disease


Downy mildew of rose

Downy mildew is not a common disease of rose in Virginia, but it can easily be misdiagnosed as environmental stress or chemical spray injury. This disease is favored by cool, humid conditions. It often occurs in the greenhouse. Adequate plant spacing and good ventilation to reduce humidity are important for disease control. Symptoms include irregular, purplish or reddish brown leaf lesions, yellowing, and leaf drop. Dark, irregular spots may also appear on stems. Sporangia of the pathogen may be sparse on infected tissue, hence the species name, *Peronospora* "*sparsa*". Because it may be difficult to find evidence of the pathogen on affected plant tissue, symptoms are sometimes mistaken for chemical burn.

Phytophthora species are common root rotters of both woody and herbaceous ornamental plants in Virginia; however, some Phytophthora species can also cause aerial blight, especially if the spores of this water mold are introduced via overhead irrigation water from an infested pond. The pathogen causes dieback and discoloration of scattered stems.


Phytophthora blight on forsythia

Black root rot, which is always the most common disease we find on Japanese hollies and inkberries, was diagnosed in 38% of all holly samples received in 2011. This disease is difficult to control and is so common that it is advisable to replant infested soil with a different plant species. Inkberry holly (*Ilex glabra*), Japanese holly (*I. crenata*), blue or Meserve holly (*I. X meserveae*), American holly (*I. opaca*) and the hybrid holly cultivar 'Robin' are susceptible and should not be used as replacement plants.

Box blight, a disease that causes severe defoliation of boxwood, appeared in Virginia for the first time in 2011 in two different fields belonging to the same nursery. The disease was diagnosed by the Virginia Department of Agriculture and plant samples were sent to the Plant Disease Clinic for confirmation. Infected plants had been purchased from a nursery just across the VA-NC border where the disease had recently been detected for the first time in North Carolina. This disease caused by the fungus *Cylindrocladium pseudonaviculatum*, has been present in Europe, where it has been causing severe damage to boxwoods, since the mid-1990's, but it had never been diagnosed in the United States until 2011. The pathogen causes leaf spots, dieback, and severe leaf drop in boxwoods. No boxwoods are known to have resistance; however, recent trials in North Carolina indicate that some cultivars of *Buxus microphylla*, *B. sempervirens*, and *B. sinica* may be tolerant of the disease. Fungal spores are sticky and, hence, do not spread easily by air currents. Spores can be spread short-distance by splashing water, on tools or in soil, and long-distance by movement of nursery plants. Commercial growers are advised to follow Best Management Practices for growing boxwood, including isolating incoming plants from existing plants and monitoring them for at least 4 weeks to allow any symptoms that may be masked on plants previously treated with a fungicide to appear, avoiding overhead irrigation, separating wreath-making operations from growing areas, and disinfesting pruning tools with a disinfectant, such as rubbing alcohol or a 10% bleach solution. A disease alert on box blight is posted at: http://www.ppws.vt.edu/~clinic/alerts.php.


Dieback due to box blight


White spore masses of *Cylindrocladium pseudonaviculatum*


Leaf spots due to box blight

New Clinic Records for 2011:

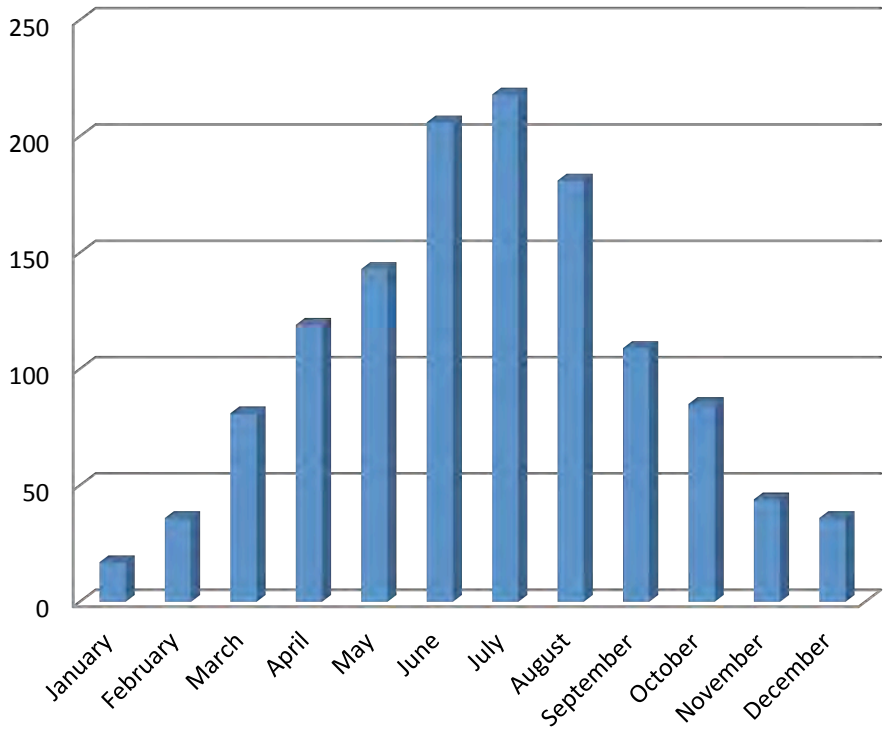
- Bluebeard – Bacterial leaf spot (*Xanthomonas campestris*)
- Boxwood – box blight (*Cylindrocladium pseudonaviculatum)*
- Crabapple - Japanese apple rust (*Gymnosporangium yamadae*)
- Pepper – charcoal rot (*Macrophomina phaseoli)*
- Soybean – Soybean Vein Necrosis Virus
- Sumac - Fusarium wilt of sumac (*Fusarium oxysporum* f. sp. *rhois*)
- Black walnut - thousand cankers disease (*Geosmithia morbida*)

Monthly Submission Summary

Number of samples received by month

Month	# Samples
January	17
February	36
March	81
April	119
May	143
June	206
July	218
August	181
September	109
October	85
November	44
December	36
Total	**1,275**

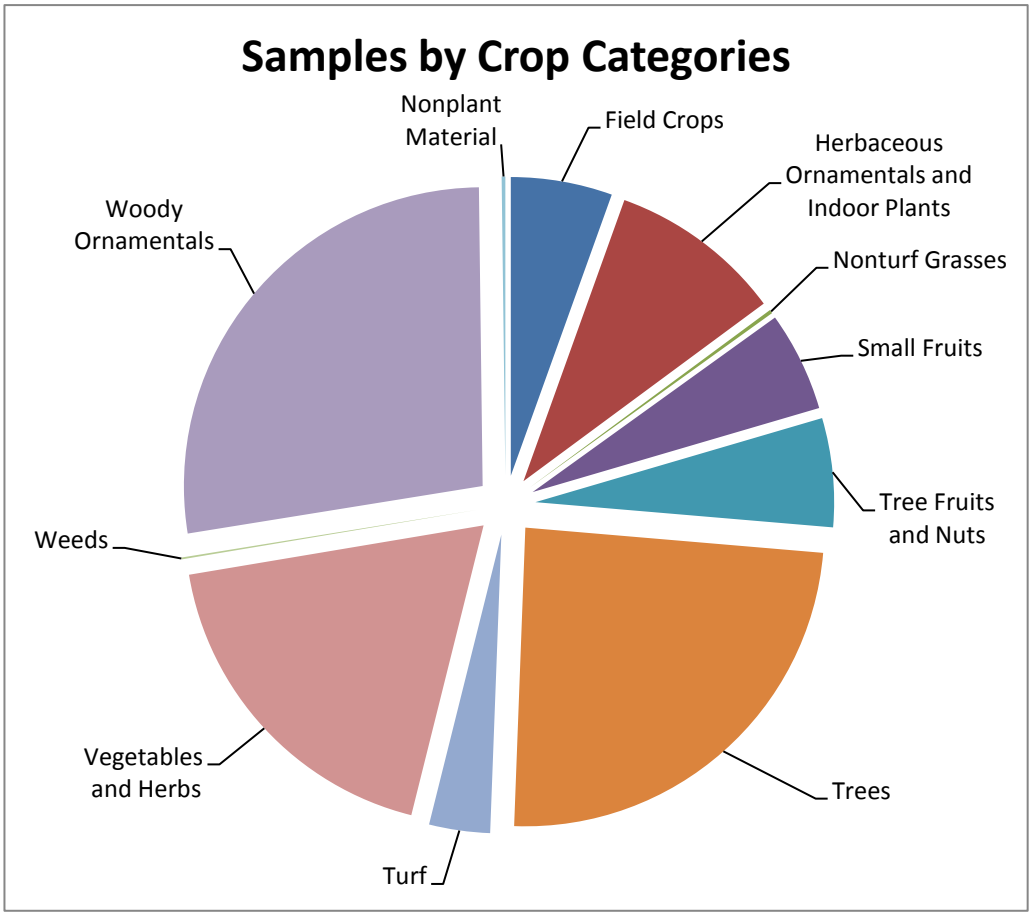
Number of Samples by Month



Crop Category Summary for Diagnostic Samples

Sample totals by major crop categories excluding plant identifications

Crop Category	# of Samples	% of Total
Field Crops	67	5.5
Herbaceous Ornamentals and Indoor Plants	115	9.4
Nonturf Grasses	2	0.2
Small Fruits	66	5.4
Tree Fruits and Nuts	72	5.9
Trees	298	24.3
Turf	40	3.3
Vegetables and Herbs	227	18.5
Weeds	1	0.1
Woody Ornamentals	337	27.4
Nonplant Material	3	0.2
Total	**1,228**	

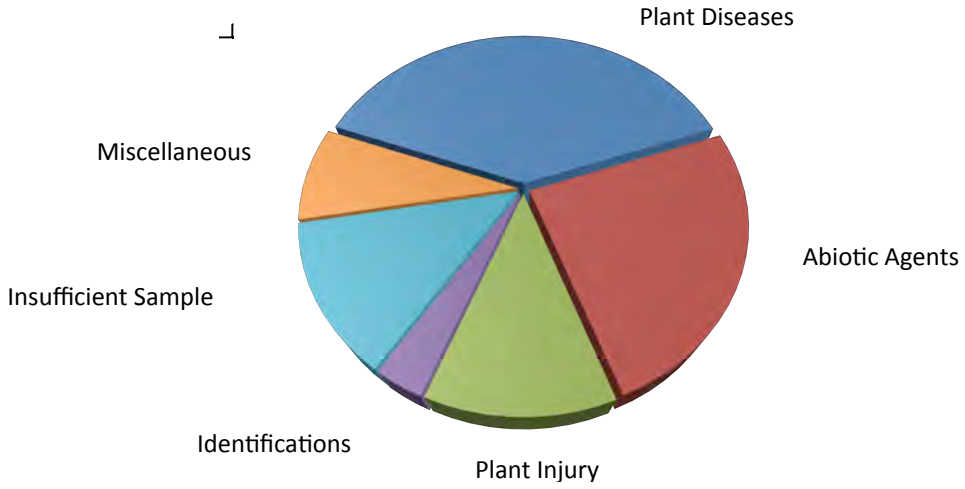


Diagnosis/ID Category Summary

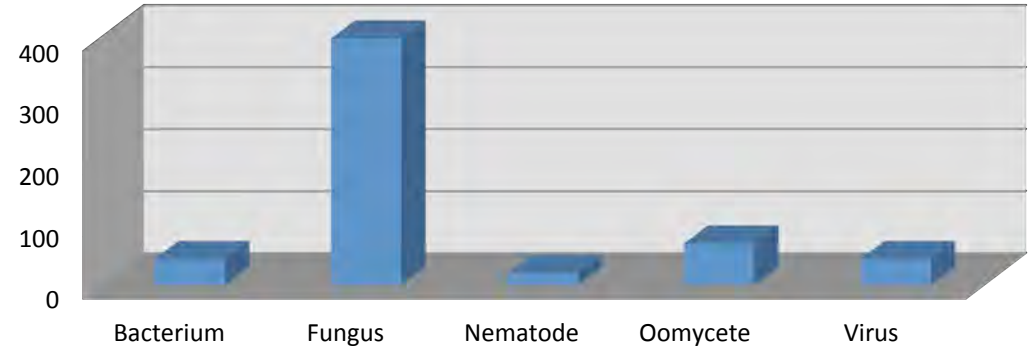
	# of Diagnoses/IDs	% of Total
Plant Diseases - Biotic Agents	**568**	**39.10**
Bacterium	42	
Fungus	398	
Nematode	19	
Oomycete	67	
Virus	42	
Plant Injury - Abiotic Agents	**358**	**24.60**
Chemical	71	
Environmental/Cultural	284	
Mechanical	3	
Plant Injury - Animals	**174**	**11.90**
Birds	4	
Mammals	2	
Insects or Mites	168	
Identifications	**48**	**3.20**
Fungi	18	
Other Substance	1	
Plant	24	
Unable to Identify	5	
Insufficient Sample or Cause Unknown	**188**	**12.90**
Insufficient sample or information	184	
Unknown	4	
Miscellaneous	**120**	**8.30**
Lichen	6	
Normal Condition	11	
Other	67	
Physiological	33	
Phytoplasma	3	
Total	**1456**	

Other Assistance, 2011	
Type	**# of Inquires**
Email	67
Digital Images	89
Phone Calls	114

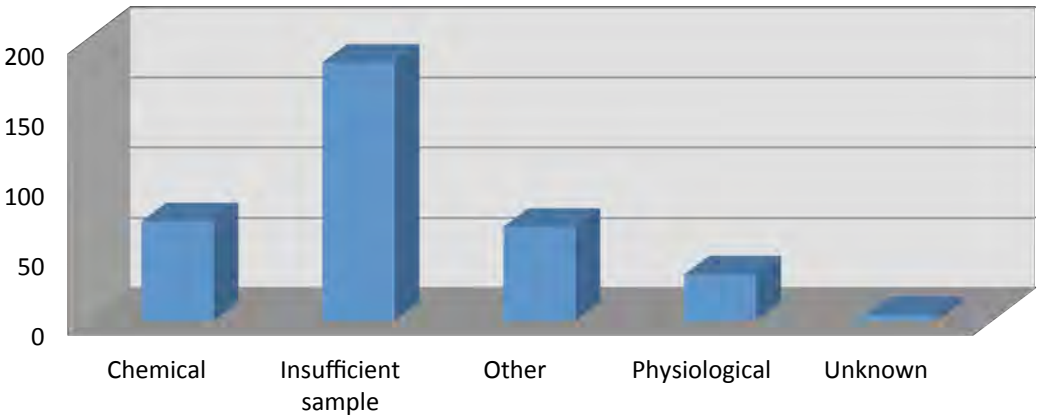
2011 Samples by Diagnosis Category



Plant Pathogens, 2011



Other Agents, 2011



County	# of Samples	County	# of Samples
Accomack	2	Lynchburg City	51
Albemarle	38	Madison	8
Alexandria	1	Mathews	3
Alleghany	10	Mecklenburg	2
Amelia	4	Middlesex	15
Amherst	10	Montgomery	73
Appomattox	6	Nelson	86
Arlington	11	New Kent	18
Augusta	13	Newport News City	7
Bath	2	Norfolk City	5
Bedford	17	Northumberland	17
Botetourt	14	Nottoway	3
Brunswick	4	Orange	9
Campbell	13	Out of State	1
Caroline	3	Page	4
Carroll	3	Patrick	5
Chesapeake	26	Petersburg City	13
Chesterfield	1	Pittsylvania	10
Clarke	7	Portsmouth City	8
Craig	5	Powhatan	3
Culpeper	4	Prince William	15
Cumberland	4	Pulaski	10
Danville	14	Rappahannock	20
Dickenson	3	Richmond	2
Essex	12	Richmond City	5
Fairfax	17	Roanoke	39
Fauquier	15	Rockbridge	18
Floyd	13	Rockingham	26
Fluvanna	8	Russell	2
Franklin	31	Scott	2
Frederick	68	Shenandoah	5
Giles	5	Smyth	1
Goochland	14	Southampton	1
Grayson	1	Spotsylvania	30
Greene	17	Stafford	36
Halifax	3	Suffolk City	1
Hampton City	30	Sussex	7
Hanover	40	Tazewell	8
Henrico	39	Virginia Beach	6
Henry	2	Warren	2
Highland	3	Washington	7
James City	22	Westmoreland	12
King George	1	Wise	15
Lancaster	13	Wythe	4
Loudoun	20	York	45
Louisa	26	**Total**	**1,275**

Diagnosis Appendix

Information about diseases/pests diagnosed by the laboratory

Field Crops		
Alfalfa		
	1 Clover Root Curculio	*Sitona hispidulus*
	1 Leptosphaerulina Leaf Spot	*Leptosphaerulina briosiana*
	1 Spring Black Stem and Leaf Spot	*Phoma medicaginis*
	1 Summer Black Stem	*Cercospora medicaginis*
	1 Suspect Environmental Stress	
	5 Total for Alfalfa	
Barley		
	2 Ascochyta Leaf Spot	*Ascochyta hordei*
	1 Scald	*Rhynchosporium secalis*
	1 Spot Blotch	*Bipolaris sorokiniana*
	1 Suspect Chemical Injury	
	5 Total for Barley	
Corn		
	1 Chemical Injury	
	1 Fusarium Root Rot	*Fusarium sp.*
	2 Gray Leaf Spot	*Cercospora zeae-maydis*
	1 Northern Corn Leaf Blight	*Setosphaeria turcica*
	1 Suspect Cultural Problem	
	1 Suspect Low pH	
	7 Total for Corn	
False Brome		
	1 Thrips	
	1 Total for False Brome	
Fescue		
	1 Brown Patch	*Rhizoctonia solani*
	1 Pythium Blight	*Pythium sp.*
	1 Suspect Cultural Problem	
	3 Total for Fescue	
Forage, Miscellaneous		
	1 Referred	
	1 Total for Forage, Miscellaneous	

Millet		
	1 Gray Leaf Spot	*Pyricularia grisea*
	1 Total for Millet	
Orchardgrass		
	1 Environmental Stress	
	1 Insufficient Sample	
	9 Leaf Streak	*Cercosporidium graminis*
	11 Total for Orchardgrass	
Pea		
	1 Insufficient Sample	
	1 Total for Pea	
Sorghum		
	1 Environmental Stress	
	1 Total for Sorghum	
Soybean		
	3 Charcoal Rot	*Macrophomina phaseolina*
	1 Cyst Nematodes	*Heterodera glycines*
	1 Deer Injury	
	1 Environmental Stress	
	1 Essex Syndrome	*Fusarium oxysporum*
	1 Fusarium Damping-off	*Fusarium sp.*
	1 Low pH	
	1 Magenesium Deficiency	
	1 Mechanical Injury	
	1 Physiological Leaf Spot	
	1 Pod and Stem Blight	*Phomopsis sp.*
	8 Soybean Vein Necrosis Virus	
	1 Suspect Chemical Injury	
	22 Total for Soybean	
Tobacco		
	1 Cultural Problem	
	1 Suspect Cultural Problem	
	2 Total for Tobacco	

Wheat		
2	Ascochyta Leaf Spot	*Ascochyta sp.*
1	Insufficient Sample	
3	Low pH	
1	Negative for Disease	
1	Negative for Root Disease	
2	Powdery Mildew	*Erysiphe graminis*
2	Suspect Chemical Injury	
1	Suspect Environmental Stress	
1	Suspect Manganese Deficiency	
2	Wheat Spindle Streak Mosaic Virus	
16	**Total for Wheat**	

Herbaceous Ornamentals and Indoor Plants		
Aeonium		
	1 Fusarium Stem Rot	*Fusarium sp.*
	1 Pythium Root Rot	*Pythium sp.*
	2 Total for Aeonium	
Aloe		
	1 Soft Rot	*Pseudomonas aeruginosa*
	1 Total for Aloe	
Amaranth		
	1 Pythium Damping-off	*Pythium sp.*
	1 Total for Amaranth	
Anemone		
	1 Rhizoctonia Stem Rot	*Rhizoctonia sp.*
	1 Total for Anemone	
Arabidopsis		
	1 Cultural Problem	
	1 Total for Arabidopsis	
Aster		
	1 Environmental Stress	
	1 Total for Aster	
Astilbe		
	1 Four-lined Plant Bugs	
	1 Total for Astilbe	
Bedding Plants, Miscellaneous		
	1 Insufficient Sample	
	1 Total for Bedding Plants, Miscellaneous	
Begonia		
	1 Phytophthora Stem Rot	*Phytophthora nicotianae*
	1 Rhizoctonia Stem Rot	*Rhizoctonia solani*
	2 Total for Begonia	
Brunnera		
	1 Abiotic Problem	
	1 Suspect Insects	
	2 Total for Brunnera	

Calendula	
1 Insufficient Sample	
1 Total for Calendula	

Calibrachoa	
1 Botrytis Blight	*Botrytis cinerea*
1 Total for Calibrachoa	

Chasmanthe	
1 Insufficient Sample	
1 Low pH	
2 Total for Chasmanthe	

Chrysanthemum	
1 Pythium Root Rot	*Pythium sp.*
1 Total for Chrysanthemum	

Coneflower	
1 Cause of Problem Unknown	
2 Pythium Root Rot	*Pythium sp.*
1 Suspect Aster Yellows	*Candidatus Phytoplasma asteris*
4 Total for Coneflower	

Coral Bells	
1 Bacterial Leaf Spot	*Xanthomonas campestris*
1 Total for Coral Bells	

Dahlia	
1 Alternaria Leaf Spot	*Alternaria sp.*
2 Mites	
1 Powdery Mildew	*Oidium sp.*
1 Suspect Aster Yellows	*Candidatus Phytoplasma asteris*
5 Total for Dahlia	

Daisy	
1 Fusarium Stem Rot	*Fusarium oxysporum*
1 Insufficient Sample	
2 Total for Daisy	

Daylily	
1 Abiotic Problem	
1 Leaf Streak	*Aureobasidium microstictum*
2 Total for Daylily	

Delosperma		
	1 Pythium Blight	*Pythium sp.*
	1 Total for Delosperma	

Dianthus		
	1 Suspect Environmental Stress	
	1 Total for Dianthus	

Dicentra		
	1 Rhizoctonia Crown Rot	*Rhizoctonia sp.*
	1 Total for Dicentra	

Dracaena		
	1 Suspect Environmental Stress	
	1 Total for Dracaena	

Euphorbia		
	1 Chemical Injury	
	1 Insufficient Sample	
	1 Pythium Root Rot	*Pythium sp.*
	1 Slime Mold	
	4 Total for Euphorbia	

False Indigo		
	1 Pythium Root Rot	*Pythium sp.*
	1 Total for False Indigo	

Gardenia		
	1 Environmental Stress	
	1 Insufficient Sample	
	1 Negative for Disease	
	1 Whiteflies	
	4 Total for Gardenia	

Geranium		
	1 Bacterial Blight	*Xanthomonas campestris pv. pelargonii*
	1 Total for Geranium	

Hellebore	
2 Black Leaf Spot	*Coniothyrium hellebori*
1 Chemical Injury	
1 Environmental Stress	
2 Negative for Disease	
1 Phytophthora Crown and Root Rot	*Phytophthora sp.*
1 Suspect Cultural Problem	
8 Total for Hellebore	

Hen and Chickens	
1 Natural Leaf Senescence	
1 Total for Hen and Chickens	

Hollyhock	
2 Rust	*Puccinia malvacearum*
2 Total for Hollyhock	

Hops	
1 Insufficient Sample	
1 Total for Hops	

Hosta	
1 Chemical Injury	
1 Hosta Virus X	
1 Rhizoctonia Root and Stem Rot	*Rhizoctonia sp.*
1 Sooty Mold	*Scorias spongiosa*
1 Sunscorch	
5 Total for Hosta	

Impatiens	
1 Low pH	
1 Pythium Root Rot	*Pythium sp.*
1 Rhizoctonia Stem Rot	*Rhizoctonia solani*
3 Total for Impatiens	

Iris	
1 Heterosporium Leaf Spot	*Heterosporium iridis*
1 Rhizoctonia Root Rot	*Rhizoctonia solani*
2 Total for Iris	

Liriope	
1 Anthracnose	*Colletotrichum sp.*
1 Fusarium Crown and Leaf Rot	*Fusarium sp.*
2 Total for Liriope	

Lithodora		
	1 Botrytis Blight	*Botrytis cinerea*
	1 Phytophthora Root Rot	*Phytophthora sp.*
	2 Total for Lithodora	
Marigold		
	1 Rhizoctonia Root Rot	*Rhizoctonia solani*
	1 Total for Marigold	
Montauk Daisy		
	1 Fusarium Stem Rot	*Fusarium oxysporum*
	1 Total for Montauk Daisy	
Orchid		
	1 Anthracnose	*Colletotrichum sp.*
	4 Cymbidium Mosaic Virus	
	1 Negative for Virus	
	1 Odontoglossum Ringspot Virus	
	7 Total for Orchid	
Pachysandra		
	3 Volutella Blight	*Volutella pachysandrae*
	3 Total for Pachysandra	
Pansy		
	1 Anthracnose	*Colletotrichum sp.*
	1 Black Root Rot	*Thielaviopsis basicola*
	1 Negative for Disease	
	3 Total for Pansy	
Passionflower		
	1 Thrips	
	1 Total for Passionflower	
Peony		
	1 Anthracnose	*Gloeosporium sp.*
	1 Cladosporium Stem and Leaf Blotch	*Cladosporium paeoniae*
	1 Genetic Trait	
	1 Physiological Leaf Spot	
	1 Powdery Mildew	*Erisyphe polygoni*
	5 Total for Peony	

Periwinkle		
	1 Environmental Stress	
	1 Phoma Dieback	*Phoma sp.*
	2 Total for Periwinkle	
Petunia		
	1 Infested Soil	*Phytophthora nicotianae*
	1 Insufficient Sample	
	1 Phythophthora Crown Rot	*Phytophthora nicotianae*
	1 Pythium Root Rot	*Pythium sp.*
	4 Total for Petunia	
Phlox		
	1 Anthracnose	*Colletotrichum sp.*
	1 Thrips	
	2 Total for Phlox	
Plant, Unknown		
	1 Four-lined Plant Bugs	
	1 Total for Plant, Unknown	
Plants, Miscellaneous		
	1 Negative for Root Disease	
	1 Nutrient Deficiency	
	2 Total for Plants, Miscellaneous	
Poinsettia		
	1 Chemical Injury	
	4 Pythium Root Rot	*Pythium sp.*
	5 Total for Poinsettia	
Rudbeckia		
	1 Suspect Aster Yellows	*Candidatus Phytoplasma asteris*
	1 Total for Rudbeckia	
Sedum		
	1 Anthracnose	*Colletotrichum sp.*
	1 Phytophthora Root and Stem Rot	*Phytophthora nicotianae*
	1 Rhizoctonia Stem and Root Rot	*Rhizoctonia solani*
	3 Total for Sedum	

Senecio		
	1 Fusarium Crown Rot	*Fusarium sp.*
	1 Insects	
	2 Total for Senecio	

Snapdragon		
	1 Phytophthora Root Rot	*Phytophthora nicotianae*
	1 Rhizoctonia Root Rot	*Rhizoctonia solani*
	2 Total for Snapdragon	

Spathiphyllum		
	1 Negative for Disease	
	1 Total for Spathiphyllum	

Spiderwort		
	1 Anthracnose	*Colletotrichum sp.*
	1 Cause of Problem Unknown	
	2 Total for Spiderwort	

Tarragon		
	1 Abiotic Problem	
	1 Total for Tarragon	

Tulip		
	1 Blue Mold	*Penicillium sp.*
	1 Total for Tulip	

Unknown Indoor Plant		
	1 Insufficient Sample	
	1 Total for Unknown Indoor Plant	

Zinnia		
	1 Alternaria Blight	*Alternaria sp.*
	2 Insufficient Sample	
	1 Pythium Root Rot	*Pythium sp.*
	4 Total for Zinnia	

Nonplant Material

Soil		
	1 Abiotic Problem	
	2 Insufficient Sample	
	3 Total for Soil	

Small Fruits		
Blackberry		
1	Abiotic Problem	
1	Cause of Problem Unknown	
1	Cercospora Leaf Spot	*Cercospora rubi*
1	Environmental Stress	
1	Gray Mold	*Botrytis cinerea*
2	Insufficient Sample	
2	Mites	
1	Negative for Disease	
1	Psyllids	
1	Rosette Disease	*Cercosporella rubi*
1	Suspect Virus	
1	Thrips	
14	**Total for Blackberry**	
Blueberry		
1	Cause of Problem Unknown	
3	Cultural Problem	
1	Deep Planting	
2	Environmental Stress	
1	Girdling Roots	
4	Insufficient Sample	
1	Negative for Bacterial Leaf Scorch	
1	Negative for Disease	
1	Negative for Root Disease	
1	Negative for Root Pathogens	
1	Pestalotia	*Pestalotia sp.*
17	**Total for Blueberry**	
Fig		
1	Botryosphaeria Canker	*Botryosphaeria sp.*
1	**Total for Fig**	

Grape		
3	Black Rot	*Guignardia bidwellii*
2	Botryosphaeria Dieback	*Botryosphaeria sp.*
2	Chemical Injury	
1	Cultural Problem	
2	Downy Mildew	*Plasmopara viticola*
1	Insect Galls	
1	Insect Leaf Galls	
1	Lightning Injury	
1	Negative for Disease	
3	Negative for Pierce's Disease	*Xylella fastidiosa*
1	Petri Disease	*Phaeoacremonium spp.*
1	Pierce's Disease	*Xylella fastidiosa*
1	Powdery Mildew	*Uncinula necator*
1	Sour Bunch Rot	
1	Suspect Nutrient Deficiency	
22	**Total for Grape**	

Raspberry		
2	Cane Borers	
1	Insufficient Sample	
1	Mites	
1	Negative for Disease	
1	Orange Rust	*Arthuriomyces peckianus*
2	Raspberry Leaf Spot	*Sphaerulina rubi*
1	Spur Blight	*Didymella applanata*
1	Suspect Virus	
1	Thrips	
11	**Total for Raspberry**	

Strawberry		
1	Abiotic Problem	
4	Anthracnose Crown Rot	*Colletotrichum gloeosporioides*
1	Chemical Injury	
1	Environmental Stress	
4	Negative for Disease	
1	Nutrient Deficiency	
1	Phomopsis Leaf Blight	*Phomopsis obscurans*
1	Pythium Root Rot	*Pythium sp.*
1	Root Knot Nematodes	*Meloidogyne sp.*
1	Suspect Nutrient Deficiency	
16	**Total for Strawberry**	

Tree Fruits and Nuts

Apple

1 Bird Damage	
2 Bitter Rot	*Glomerella cingulata*
6 Cedar-Apple Rust	*Gymnosporangium juniperi-virginianae*
2 Cedar-Quince Rust	*Gymnosporangium clavipes*
1 Coniothyrium Leaf Spot	*Coniothyrium sp.*
2 Curculios	
1 Environmental Stress	
2 Fire Blight	*Erwinia amylovora*
2 Insects	
2 Insufficient Sample	
1 Lichens	
1 Physiological Problem	
2 Stinkbugs	
1 Suspect Apple Mosaic Virus	
1 Suspect Perennial Canker	*Gloeosporium perennans*
1 Woolly Apple Aphids	
28 Total for Apple	

Asian Pear

1 Insects	
1 Sooty Mold	
2 Total for Asian Pear	

Cherry

2 Brown Rot	*Monilinia fructicola*
1 Cherry Leaf Spot	*Coccomyces hiemalis*
2 Insufficient Sample	
1 Suspect Cold Injury	
1 Suspect Root Problem	
7 Total for Cherry	

Chestnut

1 Borers	
1 Phytophthora Root Rot	*Phytophthora cinnamomi*
1 Turkey Tail Fungus	*Trametes versicolor*
3 Total for Chestnut	

Fruit Trees, Misc.

1 Cicadas	
1 Total for Fruit Trees, Misc.	

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

Peach		
1	Brown Rot	*Monilinia fructicola*
1	Curculios	
1	Girdled Stem	
2	Insects	
2	Insufficient Sample	
3	Oriental Fruit Moth	
4	Peach Leaf Curl	*Taphrina deformans*
1	Physiological Leaf Spot	
1	Suspect Brown Rot	*Monilinia fructicola*
16	**Total for Peach**	

Pear		
1	Abiotic Problem	
1	Insects	
1	Insufficient Sample	
1	Stinkbugs	
1	Suspect Cultural Problem	
1	Suspect Fire Blight	*Erwinia amylovora*
6	**Total for Pear**	

Pecan		
3	Pops	
3	**Total for Pecan**	

Plum		
1	Black Knot	*Dibotryon morbosum*
1	Insects	
1	Physiological Leaf Spot	
3	**Total for Plum**	

Pomegranate		
1	Suspect Cultural Problem	
1	**Total for Pomegranate**	

Walnut		
1	Anthracnose	*Colletotrichum sp.*
2	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	Negative for Thousand Cankers Disease	*Geosmithia morbida*
1	Poor Pollination	
1	Thousand Cankers Disease	*Geosmithia morbida*
6	**Total for Walnut**	

Trees		
Arborvitae		
1	Abiotic Problem	
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	Cultural Problem	
1	Diplodia Tip Blight	*Diplodia sp.*
2	Environmental Stress	
1	Insects	
1	Insufficient Sample	
1	Male Cones	
3	Mites	
3	Negative for Disease	
1	Normal Condition	
2	Pestalotiopsis Needle Blight	*Pestalotiopsis sp.*
2	Pestalotiopsis Twig Blight	*Pestalotiopsis funerea*
1	Seasonal Needle Drop	
1	Suspect Environmental Stress	
22	**Total for Arborvitae**	

Ash		
2	Anthracnose	*Gnomoniella fraxini*
1	Botryosphaeria Dieback	*Botryosphaeria obtusa*
1	Insufficient Sample	
4	**Total for Ash**	

Beech		
1	Aphids	
2	Endothia Canker	*Endothia gyrosa*
1	Hedgehog Fungus	*Hericium erinaceus*
1	Insects	
1	Insufficient Sample	
1	Phoma Leaf Spot	*Phoma sp.*
1	Sooty Mold	*Scorias spongiosa*
1	Suspect Cultural Problem	
9	**Total for Beech**	

Birch	
1 Aphids	
1 Cryptocline Leaf Spot	*Cryptocline betularum*
1 Environmental Stress	
1 Insects	
4 Total for Birch	

Black Locust	
1 Suspect Nutrient Deficiency	
1 Total for Black Locust	

Crabapple	
1 Fire Blight	*Erwinia amylovora*
1 Insufficient Sample	
2 Japanese Apple Rust	*Gymnosporangium yamadae*
1 Scab	*Venturia inaequalis*
5 Total for Crabapple	

Cherry	
1 Borers	
1 Suspect Nectria Canker	*Neonectria galligena*
2 Total for Cherry	

Cryptomeria	
1 Botryosphaeria Canker	*Botryosphaeria sp.*
1 Negative for Root Disease	
1 Pestalotiopsis Tip Blight	*Pestalotiopsis sp.*
1 Sphaeropsis Dieback	*Sphaeropsis sp.*
4 Total for Cryptomeria	

Cypress	
2 Botryosphaeria Canker	*Botryosphaeria stevensii*
1 Diplodia Dieback	*Diplodia sp.*
2 Environmental Stress	
1 Insects	
5 Insufficient Sample	
1 Mechanical Injury	
4 Negative for Disease	
2 Scales	
2 Seiridium Canker	*Seiridium unicorne*
6 Suspect Seiridium Canker	*Seiridium sp.*
26 Total for Cypress	

Dogwood	
1 Botryosphaeria Canker	*Botryosphaeria sp.*
1 Environmental Stress	
3 Insufficient Sample	
1 Lichens	
3 Powdery Mildew	*Oidium sp.*
1 Scorch	
3 Spot Anthracnose	*Elsinoe corni*
1 Suspect Cultural Problem	
1 Suspect Phythophthora Canker	*Phytophthora cactorum*
1 Suspect Wood Decay	
16 Total for Dogwood	

Douglasfir	
1 Abiotic Problem	
1 Total for Douglasfir	

Eastern Hophornbeam	
1 Zygomycete	
1 Total for Eastern Hophornbeam	

Eastern Red Cedar	
1 Bacterial Wetwood	
1 Botryosphaeria Canker	*Botryosphaeria sp.*
2 Cedar-Quince Rust	*Gymnosporangium clavipes*
1 Insufficient Sample	
1 Low pH	
1 Mechanical Injury	
3 Mites	
1 Normal Condition	
1 Scales	
12 Total for Eastern Red Cedar	

Eleagnus	
1 Negative for Disease	
1 Normal Condition	
2 Total for Eleagnus	

Elm	
1 Botryosphaeria Dieback	*Botryosphaeria sp.*
1 Coniothyrium Leaf Spot	*Coniothyrium sp.*
1 Elm Bark Beetles	
2 Gall Insects	
2 Insects	
1 Insufficient Sample	
2 Negative for Dutch Elm Disease	
1 Suspect Environmental Stress	
11 Total for Elm	

Falsecypress	
2 Insufficient Sample	
1 Normal Interior Needle Browning	
1 Phyllosticta Needle Blight	*Phyllosticta sp.*
1 Suspect Chemical Injury	
5 Total for Falsecypress	

Fir	
1 Abiotic Problem	
1 Balsam Woolly Adelgids	
1 Canker-Cause Unknown	
1 Environmental Stress	
2 Insufficient Sample	
3 Mites	
1 Suspect Root Problem	
1 Weevils	
11 Total for Fir	

Franklinia	
1 Insufficient Sample	
1 Total for Franklinia	

Fringe Tree	
1 Lacebugs	
1 Negative for Foliar Disease	
2 Total for Fringe Tree	

Goldenrain Tree	
1 Insufficient Sample	
1 Total for Goldenrain Tree	

Hackberry		
1	Leaf Gall Insects	
1	**Total for Hackberry**	

Hawthorn		
1	Lacebugs	
1	**Total for Hawthorn**	

Hemlock		
1	Mites	
1	Suspect Chemical Injury	
1	Suspect Environmental Stress	
1	Woolly Adelgids	
4	**Total for Hemlock**	

Hickory		
1	Gnomonia Leaf Spot	*Gnomonia caryae*
1	Insect Galls	
2	**Total for Hickory**	

Larch		
1	Mycosphaerella Needle Cast	*Mycosphaerella laricina*
1	**Total for Larch**	

Linden		
1	Wood Decay	
1	**Total for Linden**	

London Planetree		
1	Borers	
1	Chemical Injury	
1	Southwest Injury	
3	**Total for London Planetree**	

Magnolia	
1 Abiotic Problem	
1 Bacterial Wetwood	
1 Cultural Problem	
1 Environmental Stress	
3 Insufficient Sample	
1 Scorch	
1 Squirrel Injury	
1 Suspect Botryosphaeria Canker	*Botryosphaeria sp.*
1 Suspect Winter Injury	
1 Wood Decay	
12 Total for Magnolia	

Maple	
2 Anthracnose	*Colletotrichum acutatum*
1 Bark Knots	
1 Botryosphaeria Dieback	*Botryosphaeria sp.*
1 Brown Rot	
1 Chemical Injury	
1 Cultural Problem	
1 European Hornet	
1 Girdling Roots	
3 Insects	
11 Insufficient Sample	
1 Lichens	
2 Negative for Disease	
1 Negative for Root Disease	
1 Nutrient Deficiency	
1 Phomopsis Dieback	*Phomopsis sp.*
4 Purple-eye Leaf Spot	*Phyllosticta minima*
1 Sapsucker Injury	
2 Scales	
1 Stem Girdling Roots	
1 Tar Spot	*Rhytisma acerinum*
1 Venturia Leaf Blight	*Venturia acerina*
1 Verticillium in Soil	*Verticillium dahliae*
4 Wood Decay	
44 Total for Maple	

Mimosa	
1 Suspect Mimosa Wilt	*Fusarium oxysporum f. sp. perniciosum*
1 Total for Mimosa	

Oak	
1 Anthracnose	*Apiognomonia errabunda*
6 Bacterial Scorch	*Xylella fastidiosa*
1 Botryosphaeria Canker	*Botryosphaeria sp.*
1 Botryosphaeria Twig Canker	*Botryosphaeria quercuum*
1 Botryosphaeria Twig Canker	*Botryosphaeria sp.*
3 Chemical Injury	
1 Freeze injury	
1 Inonotus Root and Butt Rot	*Inonotus dryadeus*
3 Insect Galls	
1 Insects	
4 Insufficient Sample	
2 Negative for Bacterial Scorch	
1 Negative for Bacterial Scorch	*Xylella fastidiosa*
1 Normal Condition	
2 Oak Leaf Blister	*Taphrina caerulescens*
1 Pine-Oak Gall Rust	*Cronartium quercuum*
1 Powdery Mildew	*Oidium sp.*
1 Powdery Mildew	*Phyllactinia corylea*
1 Suspect Bacterial Wetwood	
1 Suspect Lightning Injury	
1 Suspect Nutrient Deficiency	
6 Tubakia Leaf Spot	*Tubakia dryina*
1 Vein Pocket Galls	
42 Total for Oak	

Ornamental Cherry	
3 Cercospora Leaf Spot	*Pseudocercospora (Cercospora) circumscis*
1 Cherry Leaf Spot	*Coccomyces hiemalis*
1 Cytospora Canker	*Cytospora sp.*
1 Environmental Stress	
4 Insufficient Sample	
1 Lichens	
1 Negative for Disease	
1 Physiological Leaf Spot	
1 Scales	
1 Suspect Nutrient Deficiency	
15 Total for Ornamental Cherry	

Ornamental Pear		
1	Botryosphaeria Canker	*Botryosphaeria dothidea*
1	Cultural Problem	
1	Insufficient Sample	
1	Sapsucker Injury	
1	Suspect Wood Decay	
5	**Total for Ornamental Pear**	
Pine		
1	Brown Spot	*Mycosphaerella dearnessii*
1	Cultural Problem	
1	Diplodia Tip Blight	*Diplodia pinea*
1	Dothistroma Needle Blight	*Dothistroma pini*
6	Insufficient Sample	
1	Negative for Disease	
1	Ozone Injury	
1	Procerum Root Disease	*Leptographium procerum*
1	Seasonal Needle Drop	
1	Tip Moths	
1	Weevils	
16	**Total for Pine**	
Plum		
1	Negative for Root Disease	
1	**Total for Plum**	
Poplar		
1	Marssonina Leaf Spot	*Marssonina (Drepanopeziza) brunnea (pur*
1	**Total for Poplar**	
Prunus		
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	**Total for Prunus**	
Redbud		
1	Botryosphaeria Dieback	*Botryosphaeria dothidea*
2	Insects	
1	Sapsucker Injury	
3	Suspect Botryosphaeria Dieback	*Botryosphaeria dothidea*
7	**Total for Redbud**	

Spruce		
1	Abiotic Problem	
1	Crystalline Residue	
2	Cultural Problem	
1	Diplodia Blight	*Diplodia pinea*
4	Environmental Stress	
1	Gall Adelgids	
1	Insects	
5	Insufficient Sample	
1	Lichens	
4	Mites	
2	Negative for Foliar Disease	
1	Phytophthora Root Rot	*Phytophthora cinnamomi*
13	Rhizosphaera Needle Blight	*Rhizosphaera kalkhoffii*
2	Stigmina Needle Cast	*Stigmina lautii*
4	Suspect Chemical Injury	
1	Suspect Environmental Stress	
3	Suspect Rhizosphaera Needle Blight	*Rhizosphaera kalkhoffii*
47	**Total for Spruce**	

Sycamore		
1	Insufficient Sample	
1	**Total for Sycamore**	

Trees, Miscellaneous		
1	Insects	
1	Insufficient Sample	
1	Suspect Chemical Injury	
3	**Total for Trees, Miscellaneous**	

Umbrella Pine		
1	Environmental Stress	
1	**Total for Umbrella Pine**	

Willow		
1	Armillaria Root Rot	*Armillaria tabescens*
1	Cercospora Leaf Spot	*Cercospora salicina*
1	Cultural Problem	
1	Insects	
3	Insufficient Sample	
7	**Total for Willow**	

Turf		
Bentgrass		
	1 Suspect Environmental Stress	
	1 Total for Bentgrass	
Bermudagrass		
	1 Spring Dead Spot	*Ophiosphaerella korrae*
	1 Total for Bermudagrass	
Fescue		
	7 Brown Patch	*Rhizoctonia solani*
	4 Environmental Stress	
	1 Excess Thatch	
	2 Helminthosporium Blight	*Drechslera dictyoides*
	1 High pH	
	1 Insufficient Sample	
	1 Low pH	
	4 Negative for Disease	
	1 Red Thread	*Laetisaria fuciformis*
	1 Suspect Cultural Problem	
	1 Suspect Microdochium Patch	*Microdochium sp.*
	24 Total for Fescue	
St. Augustinegrass		
	1 Gray Leaf Spot	*Pyricularia grisea*
	3 Take-All	*Gaeumannomyces graminis var. graminis*
	4 Total for St. Augustinegrass	
Turfgrass		
	3 Brown Patch	*Rhizoctonia solani*
	2 Environmental Stress	
	2 Excess Thatch	
	1 Helminthosporium Blight	*Drechslera dictyoides*
	2 Negative for Disease	
	1 Pythium Blight	*Pythium sp.*
	2 Suspect Cultural Problem	
	1 Suspect Environmental Stress	
	14 Total for Turfgrass	

Zoysia	
1 Cultural Problem	
1 Environmental Stress	
1 Excess Thatch	
1 Low pH	
1 Suspect Cultural Problem	
1 Suspect Environmental Stress	
2 Suspect Zoysia Patch (Large Patch)	*Rhizoctonia solani*
1 Zoysia Patch	*Rhizoctonia solani*
9 Total for Zoysia	

Vegetables and Herbs

Arugula	
1 Rhizoctonia Root and Stem Rot	*Rhizoctonia sp.*
1 Total for Arugula	

Basil	
1 Abiotic Problem	
1 Damping-off	*Rhizoctonia sp.*
1 Negative for Downy Mildew	*Plasmopara belbahrii*
1 Pythium Root Rot	*Pythium sp.*
1 Spiral Nematodes	*Helicotylenchus sp.*
1 Stunt Nematodes	*Tylenchorhynchus sp.*
1 Thrips	
7 Total for Basil	

Bean	
1 Anthracnose	*Colletotrichum lindemuthianum*
1 Chemical Injury	
1 Pythium Stem and Root Rot	*Pythium sp.*
1 Rhizoctonia Root Rot	*Rhizoctonia solani*
1 Rhizoctonia Stem and Root Rot	*Rhizoctonia solani*
1 Suspect Chemical Injury	
2 Web Blight	*Rhizoctonia solani*
8 Total for Bean	

Broccoli	
1 Black Rot	*Xanthomonas campestris pv. campestris*
1 Freeze injury	
2 Total for Broccoli	

Cabbage		
	1 Negative for Disease	
	1 Oedema	
	2 Total for Cabbage	

Cantaloupe		
	1 Angular Leaf Spot	*Pseudomonas syringae pv. lachrymans*
	1 Cultural Problem	
	1 Negative for Disease	
	1 Pythium Damping-off	*Pythium sp.*
	4 Total for Cantaloupe	

Celeriac		
	1 Soft Rot	*Erwinia carotovora*
	1 Total for Celeriac	

Collards		
	1 Nutrient Deficiency	
	1 Total for Collards	

Cowpea		
	1 Negative for Disease	
	1 Total for Cowpea	

Cucumber		
	1 Anthracnose	*Colletotrichum sp.*
	1 Cucumber Beetles	
	2 Insufficient Sample	
	1 Powdery Mildew	*Sphaerotheca fuliginea*
	1 Root Knot Nematodes	*Meloidogyne incognita*
	6 Total for Cucumber	

Cucurbits, miscellaneous		
	1 Root Knot Nematodes	*Meloidogyne sp.*
	1 Total for Cucurbits, miscellaneous	

Eggplant		
	1 Rhizoctonia Root Rot	*Rhizoctonia solani*
	1 Total for Eggplant	

Greens	
1 Cercosporella Leaf Spot	*Cercosporella brassicicola*
1 Insufficient Sample	
1 Suspect Nutrient Deficiency	
3 Total for Greens	

Horseradish	
1 Insects	
1 Total for Horseradish	

Lettuce	
1 Bottom Rot	*Rhizoctonia solani*
2 Insufficient Sample	
1 Rhizoctonia Root Rot	*Rhizoctonia solani*
4 Total for Lettuce	

Lima Bean	
1 Poor Pollination	
1 Root Knot Nematodes	*Meloidogyne sp.*
1 Thrips	
1 Yeast Spot	*Nematospora coryli*
4 Total for Lima Bean	

Mizuna	
1 Anthracnose	*Colletotrichum sp.*
1 Rhizoctonia Root Rot	*Rhizoctonia solani*
2 Total for Mizuna	

Mustard	
1 Rhizoctonia Root Rot	*Rhizoctonia solani*
1 Total for Mustard	

Okra	
1 Insufficient Information	
1 Total for Okra	

Onion	
1 Thrips	
1 Total for Onion	

Pea	
1 Damping-off	*Pythium sp.*
1 Insects	
1 Insufficient Sample	
3 Total for Pea	

Pepper	
1 Abiotic Problem	
1 Bacterial Spot	*Xanthomonas campestris pv. vesicatoria*
1 Charcoal Rot	*Macrophomina phaseolina*
1 Chemical Injury	
1 Insects	
1 Insufficient Sample	
1 Negative for Bacterial Spot	*Xanthomonas campestris pv. ves*
1 Negative for Disease	
1 Southern Blight	*Sclerotium rolfsii*
2 Sunscald	
1 Suspect Chemical Injury	
1 Suspect Sunscald	
2 Thrips	
15 Total for Pepper	

Potato	
1 Abiotic Problem	
1 Blackleg	*Erwinia carotovora*
1 Borers	
3 Common Scab	*Streptomyces scabies*
1 Environmental Stress	
1 Flea Beetles	
1 Insufficient Sample	
1 Negative for Nematodes	
1 Rhizoctonia Root Canker	*Rhizoctonia solani*
1 Suspect Walnut Wilt	
2 Wireworms	
14 Total for Potato	

Pumpkin	
1 Cultural Problem	
1 Damping-off	*Rhizoctonia sp.*
1 Downy Mildew	*Pseudoperonospora cubensis*
1 Nutrient Deficiency	
1 Phytophthora Fruit Rot	*Phytophthora capsici*
1 Suspect Bird Injury	
1 Suspect Chemical Injury	
1 Thrips	
8 Total for Pumpkin	

Rosemary	
1 Adventitious Roots	
1 Suspect Environmental Stress	
2 Total for Rosemary	

Spinach	
1 Root Knot Nematodes	*Meloidogyne arenaria*
1 Total for Spinach	

Squash	
1 Blossom End Rot	
1 Fusarium Fruit Rot	*Fusarium crookwellense*
3 Insufficient Sample	
1 Negative for Disease	
1 Pythium Root Rot	*Pythium sp.*
3 Squash Bugs	
10 Total for Squash	

Sweet Potato	
2 Root Knot Nematodes	*Meloidogyne sp.*
2 Total for Sweet Potato	

Swiss Chard	
1 Environmental Stress	
2 Insufficient Sample	
1 Suspect Insects	
1 Web Blight	*Rhizoctonia solani*
5 Total for Swiss Chard	

Thyme		
1	Web Blight	*Rhizoctonia solani*
1	**Total for Thyme**	

Tomatillo		
1	Insects	
1	**Total for Tomatillo**	

Tomato		
5	Abiotic Problem	
1	Aphids	
3	Bacterial Canker	*Clavibacter michiganensis*
1	Bacterial Soft Rot	*Erwinia carotovora*
1	Bacterial Stem Rot	*Erwinia carotovora*
5	Bacterial Wilt	*Ralstonia solanacearum*
2	Blossom Drop	
6	Blossom End Rot	
1	Catfacing	
16	Chemical Injury	
2	Chemical Residue Injury	
1	Cracking	
3	Cultural Problem	
1	Ethylene Injury	
1	Fusarium Crown and Root Rot	*Fusarium oxysporum*
4	Fusarium Wilt	*Fusarium oxysporum*
1	Growth Cracks	
1	Insufficient Information	
14	Insufficient Sample	
2	Late Blight	*Phytophthora infestans*
1	Low pH	
1	Negative for Cucumber Mosaic Virus	
3	Negative for Disease	
1	Negative for Late Blight	*Phytophthora infestans*
1	Negative for Tomato Spotted Wilt	
2	Nutrient Deficiency	
1	Physiological Leaf Roll	
1	Physiological Leaf Spot	
1	Pythium Root Rot	*Pythium sp.*
2	Root Knot Nematodes	*Meloidogyne sp.*
8	Septoria Leaf Spot	*Septoria lycopersici*
4	Stinkbugs	
7	Suspect Cultural Problem	
1	Suspect Ethylene Toxicity	
1	Suspect Nutrient Imbalance	

3	Suspect Walnut Wilt	
3	Thrips	
1	Tobacco Mosaic Virus	
14	Tomato Spotted Wilt Virus	
127	**Total for Tomato**	

Vegetable Garden		
1	Root Knot Nematodes	*Meloidogyne sp.*
1	**Total for Vegetable Garden**	

Vegetables, miscellaneous		
2	Chemical Injury	
2	Chemical Residue Injury	
3	Cultural Problem	
2	Insects	
1	Insufficient Sample	
2	Negative for Disease	
1	Suspect Chemical Injury	
13	**Total for Vegetables, miscellaneous**	

Watermelon		
1	Insects	
1	Negative for Disease	
1	Pythium Damping-off	*Pythium sp.*
1	Pythium Root Rot	*Pythium sp.*
4	**Total for Watermelon**	

Wormwood		
1	Web Blight	*Rhizoctonia solani*
1	**Total for Wormwood**	

Zucchini		
1	Insufficient Sample	
1	Squash Bugs	
2	**Total for Zucchini**	

Weeds		
Cockleburr		
1	Powdery Mildew	*Oidium sp.*
1	**Total for Cockleburr**	

Woody Ornamentals		
Aralia		
	1 Phytophthora Root Rot	*Phytophthora nicotianae*
	1 Total for Aralia	
Aucuba		
	1 Abiotic Problem	
	2 Botryosphaeria Dieback	*Botryosphaeria sp.*
	1 Negative for Root Disease	
	4 Total for Aucuba	
Azalea		
	1 Adventitious Roots	
	2 Insufficient Sample	
	6 Lacebugs	
	1 Lichens	
	2 Mites	
	2 Negative for Disease	
	1 Negative for Foliar Disease	
	4 Phomopsis Dieback	*Phomopsis sp.*
	1 Suspect Cultural Problem	
	20 Total for Azalea	
Barberry		
	1 Abiotic Problem	
	1 Insufficient Sample	
	1 Negative for Disease	
	3 Total for Barberry	
Bayberry		
	1 Negative for Disease	
	1 Phyllosticta Leaf Spot	*Phyllosticta sp.*
	2 Total for Bayberry	
Bluebeard		
	1 Bacterial Leaf Spot	*Xanthomonas campestris*
	1 Total for Bluebeard	

Boxwood		
2	Abiotic Problem	
1	Ants	
2	Boxwood Blight	*Cylindrocladium pseudonaviculatum*
2	Cold Injury	
1	Cultural Problem	
4	English Boxwood Decline	*Paecilomyces buxi*
1	Environmental Stress	
12	Insufficient Sample	
2	Leafminers	
1	Lesion Nematodes	*Pratylenchus sp.*
13	Mites	
1	Negative for Disease	
1	Negative for Nematodes	
3	Negative for Root Disease	
14	Negative for Root Rot Fungi	
2	Nematodes	
5	Phytophthora Root Rot	*Phytophthora nicotianae*
1	Possible Nematode Problem	
1	Scales	
1	Spiral Nematodes	*Rotylenchus buxophilus*
1	Suspect Cold Injury	
1	Suspect Environmental Stress	
1	Volutella Blight	*Volutella buxi*
2	Winter Injury	
75	**Total for Boxwood**	

Butterfly Bush		
1	Chemical Injury	
2	Negative for Disease	
3	**Total for Butterfly Bush**	

Camellia		
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
2	Environmental Stress	
2	Eriophyid Mites	
1	Fruit	
1	Genetic Abnormality	
4	Insufficient Sample	
2	Negative for Disease	
1	Negative for Ramorum Blight	
3	Scales	
1	Sooty Mold	
1	Suspect Environmental Stress	
1	Suspect Winter Injury	
20	**Total for Camellia**	

Cherrylaurel		
3	Cultural Problem	
5	Insufficient Sample	
3	Mites	
1	Negative for Disease	
1	Negative for Foliar Disease	
1	Negative for Ramorum Blight	
1	Negative for Root Disease	
1	Phoma Leaf Spot	*Phoma sp.*
5	Physiological Shothole	
1	Suspect Chemical Injury	
1	Suspect Environmental Stress	
1	Suspect Insects	
1	Winter Injury	
25	**Total for Cherrylaurel**	

Chokeberry		
1	Negative for Disease	
1	**Total for Chokeberry**	

Cotoneaster		
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	**Total for Cotoneaster**	

Crape Myrtle	
1 Insects	
1 Powdery Mildew	*Erysiphe lagerstroemiae*
1 Slime Mold	
1 Suspect Chemical Injury	
4 Total for Crape Myrtle	

English Ivy	
1 Anthracnose	*Colletotrichum trichellum*
1 Environmental Stress	
1 Suspect Environmental Stress	
3 Total for English Ivy	

Euonymus	
2 Anthracnose	*Colletotrichum gloeosporioides*
2 Negative for Disease	
4 Total for Euonymus	

Filbert	
1 Insufficient Sample	
1 Total for Filbert	

Forsythia	
2 Insufficient Sample	
1 Phytophthora Blight	*Phytophthora nicotianae*
3 Total for Forsythia	

Hibiscus	
1 Insects	
1 Phytophthora Root Rot	*Phytophthora nicotianae*
2 Total for Hibiscus	

Holly		
27	Black Root Rot	*Thielaviopsis basicola*
2	Cultural Problem	
1	Environmental Stress	
1	Girdled Stem	
1	Insects	
15	Insufficient Sample	
1	Mites	
2	Negative for Black Root Rot	*Thielaviopsis basicola*
3	Negative for Disease	
3	Negative for Root Disease	
1	Normal Condition	
3	Physiological Leaf Spot	
4	Phytophthora Root Rot	*Phytophthora cinnamomi*
1	Rust	*Chrysomyxa ilicina*
2	Scales	
1	Sooty Mold	
1	Stem Girdling Roots	
2	Suspect Black Root Rot	*Thielaviopsis basicola*
1	Suspect Cultural Problem	
72	**Total for Holly**	

Hydrangea		
1	Abiotic Problem	
1	Bacterial Leaf Spot	*Xanthomonas campestris*
2	Cercospora Leaf Spot	*Cercospora hydrangeae*
1	Chemical Injury	
1	Environmental Stress	
2	Insufficient Sample	
1	Negative for Disease	
1	Physiological Leaf Spot	
1	Rhizoctonia Root Rot	*Rhizoctonia solani*
2	Suspect Chemical Injury	
1	Suspect Corynespora Leaf Spot	*Corynespora sp.*
1	Suspect Cultural Problem	
15	**Total for Hydrangea**	

Hypericum		
1	Root Knot Nematode	*Meloidogyne hapla*
1	**Total for Hypericum**	

Jasmine		
1	Insufficient Sample	
1	**Total for Jasmine**	

Juniper	
2 Cultural Problem	
2 Environmental Stress	
1 Freeze injury	
4 Insufficient Sample	
3 Kabatina Tip Blight	*Kabatina juniperi*
1 Low pH	
3 Mites	
4 Negative for Disease	
1 Negative for Root Pathogens	
1 Negative for Tip Blight	
2 Suspect Winter Injury	
1 Winter Injury	
25 Total for Juniper	

Lilac	
2 Insufficient Sample	
1 Phytophthora Root and Stem Rot	*Phytophthora nicotianae*
1 Scorch	
4 Total for Lilac	

Mountain Laurel	
1 Phomopsis Canker and Dieback	*Phomopsis kalmiae*
1 Pseudocercospora Leaf Spot	*Pseudocercospora kalmiae*
2 Total for Mountain Laurel	

Nandina	
1 Abiotic Problem	
1 Cercospora Leaf Spot	*Cercospora nandinae*
1 Cylindrocladium Crown and Root Rot	*Cylindrocladium sp.*
1 Insects	
1 Insufficient Sample	
1 Negative for Cucumber Mosaic Virus	
1 Pythium Root Rot	*Pythium sp.*
1 Stem Girdling Roots	
8 Total for Nandina	

Ninebark	
1 Cercospora Leaf Spot	*Cercospora sp.*
1 Total for Ninebark	

Osmanthus	
1 Cultural Problem	
1 Total for Osmanthus	

Photinia	
7 Entomosporium Leaf Spot	*Entomosporium mespili*
1 Insufficient Sample	
8 Total for Photinia	

Pieris
1 Insufficient Sample
1 Lacebugs
1 Negative for Disease
2 Rootbound
1 Stem Girdling Roots
6 Total for Pieris

Pittosporum
1 Insufficient Sample
1 Scales
2 Total for Pittosporum

Plants, Miscellaneous
1 Cultural Problem
1 High Soluble Salts
1 Insects
1 Low pH
1 Mites
1 Negative for Disease
1 Winter Injury
7 Total for Plants, Miscellaneous

Privet	
1 Negative for Disease	
1 Pseudocercospora Leaf Spot	*Pseudocercospora sp.*
3 Suspect Chemical Injury	
5 Total for Privet	

Rhododendron		
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	Cercospora Leaf Spot	*Cercospora handelii*
1	Cultural Problem	
2	Environmental Stress	
2	Insufficient Sample	
1	Negative for Disease	
3	Negative for Ramorum Blight	
2	Negative for Root Disease	
1	No Disease Found	
1	Pestalotia Leaf Spot	*Pestalotia rhododendri*
1	Phyllosticta Leaf Spot	*Phyllosticta sp.*
1	Phytophthora Dieback	*Phytophthora sp.*
1	Phytophthora Root Rot	*Phytophthora cinnamomi*
1	Rootbound	
1	Scorch	
1	Sooty Mold	
4	Suspect Botryosphaeria Dieback	*Botryosphaeria sp.*
1	Suspect Chemical Injury	
1	Suspect Winter Injury	
1	Winter Injury	
28	**Total for Rhododendron**	

Rose		
1	Chemical Injury	
1	Common Canker	*Coniothyrium fuckelii*
2	Downy Mildew	*Peronospora sparsa*
1	Insufficient Information	
1	Insufficient Sample	
1	Negative for Root Disease	
1	Pythium Root Rot	*Pythium sp.*
5	Rose Rosette	
1	Suspect Cultural Problem	
1	Suspect Downy Mildew	*Peronospora sparsa*
1	Suspect Rose Rosette	
16	**Total for Rose**	

Sarcococca		
1	Volutella Blight	*Volutella sp.*
1	**Total for Sarcococca**	

Shrubs, Miscellaneous		
2	Insufficient Sample	
2	**Total for Shrubs, Miscellaneous**	

Smoke Tree	
1 Phoma Dieback	*Phoma sp.*
1 Total for Smoke Tree	

Spiraea	
1 Fasciation	
1 Total for Spiraea	

Spirea	
1 Cylindrocladium Blight	*Cylindrocladium sp.*
1 Rhizoctonia Root Rot	*Rhizoctonia solani*
2 Total for Spirea	

Sumac	
1 Fusarium Wilt	*Fusarium oxysporum f. sp. rhois*
1 Total for Sumac	

Trumpetvine	
1 Negative for Disease	
1 Suspect Chemical Injury	
2 Total for Trumpetvine	

Viburnum	
1 Insufficient Sample	
1 Negative for Ramorum Blight	
1 Negative for Root Disease	
1 Septoria Leaf Spot	*Septoria sp.*
1 Suspect Botryosphaeria Dieback	*Botryosphaeria sp.*
1 Suspect Environmental Stress	
6 Total for Viburnum	

Wax Myrtle	
1 Physiological Leaf Spot	
1 Total for Wax Myrtle	

Weigela	
1 Negative for Foliar Disease	
1 Total for Weigela	

Wisteria	
1 Chemical Injury	
1 Suspect Environmental Stress	
2 Total for Wisteria	

Identification Appendix

1. Higher Plants

Family: Aceraceae	
Acer rubrum	Red Maple
Family: Amaranthaceae	
Amaranthus cruentus	Purple Amaranth
Family: Asteraceae	
Artemisia vulgaris	Mugwort
Family: Berberidaceae	Oregon Grapeholly
Mahonia aquifolium	
Family: Cupressaceae	
Chamaecyparis obtusa	Falsecypress
Cupressus arizonica	Cypress
Metasequoia glyptostroboides	Dawn Redwood
Family: Elaeagnaceae	
Elaeagnus umbellata	Autumn Olive
Family: Euphorbiaceae	
Chamaesyce nutans	Nodding Spurge
Family: Fagaceae	
Castanea mollissima	Chinese Chestnut
Fagus grandifolia	American Beech
Quercus marilandica	Blackjack Oak
Quercus michauxii	Swamp Chestnut Oak
Family: Malvaceae	
Hibiscus syriacus	Rose-of-sharon
Family: Moraceae	
Broussonetia papyrifera	Paper Mulberry
Family: Oleaceae	
Fraxinus americana	White Ash
Fraxinus pennsylvanica	Green Ash
Ligustrum japonicum	Privet
Family: Rosaceae	
Malus sp.	Apple

Pyrus communis	Common Pear
Pyrus sp.	Pear
Family: Ulmaceae	
Celtis occidentalis	Common Hackberry
Family: Unable to Identify	
	Weed
	Insufficient Sample

2. Fungi

Family: Agaricaceae	
Coprinus sp.	Inky Cap
Lycoperdon umbrinum	Puffball
Family: Hericiaceae	
Hericium erinaceum	Lion's Mane Hericium
Family: Lepiotaceae	
Chlorophyllum molybdites	Green-gilled Lepiota
Lepiota cristata	Brown-Eyed Parasol
Family: Pleurotaceae	
Pleurotus ostreatus	Oyster Mushroom
Family: Polyporaceae	
Laetiporus sulphureus	Chicken of the Woods
Polyporus sp.	Polypore
Unknown	Polypore
Family: Sclerodermataceae	
Scleroderma cepa group	Smooth Earthball
Family: Tricholomataceae	
Schizophyllum commune	Split Gill Mushroom
Order: Tremellales	Jelly Fungus
Unable to Identify	Decay Fungus

3. Bacteria

Family: Nostocaceae	
Nostoc sp.	Nostoc

4. Other Water Retention Polymer