The Plant Disease Clinic and Weed Identification Lab Annual Report 2006

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Virginia Polytechnic Institute and State University
Blacksburg, Virginia

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2006 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 soil and plant tissue, maintain records, answer the telephone, keep track of samples, and send out reports. In 2006, diagnoses in the Plant Disease Clinic in Blacksburg were performed by Mary Ann Hansen and Elizabeth Bush, with valuable assistance from Andrea Lowe.

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 Mr. John Willis and Mr. Lloyd Hipkins. 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. Shahrooz Feizabadi and Mr. Dawen Xie for maintaining our computer system and network.

Andrea Lowe 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. Results of the predictive nematode soil assays performed by the Nematode Assay Laboratory are not included, nor are plant specimens that were submitted to and diagnosed at the Agricultural Research and Extension Centers throughout the Commonwealth. Note that the number of diagnoses performed was higher than the number of samples received because some samples have 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 did 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, diagnosed by the ELISA (Enzyme-Linked Immunosorbent Serological Assay) method by Agdia, Inc. or by Agdia's immunostrip testing system. 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 in 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 specimens for which no pathogen could be isolated and for which no obvious environmental or cultural condition could be associated with the problem. Trees have more specimens 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.

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 Extension Office email address. 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://www.ext.vt.edu/pubs/plantdiseasefs/. The new diagnostic form is available on the Web at: http://www.ext.vt.edu/vce/anr/plantpathology/450-097.pdf. Any comments or questions about reports or plant problems can be emailed to us at <clinic@vt.edu>.

For information on how to submit samples and complete the appropriate forms, please refer to the following web site for an audiovisual web presentation: http://www.ext.vt.edu/vce/staffdev/anrtraining/

Some Highlights from 2006

The early part of the 2006 growing season was cold and wet, but July and August were very hot months and the southeastern part of the state was generally dry in the late summer. The total number of samples submitted to the Plant Disease Clinic was lower than in 2005 (1355 samples in 2006 vs. 1567 in 2005). Disease highlights for various crop categories are presented below.

Field Crops
The Plant Disease Clinic began participating in a statewide survey for Asian soybean rust, caused by the fungus *Phakopsora pachyrhizi*, in 2006. Plant Clinic diagnosticians examined soybean leaves from five soybean rust sentinel plots weekly. Sentinel plots are planted to early maturing varieties of soybean that would be likely to show symptoms of the disease earlier than commonly planted varieties. The disease progresses rapidly once plants reach the reproductive stage. Although soybean rust was not found on any of the leaves submitted to the Plant Disease Clinic, the first confirmed case of the disease was found on sentinel plot leaves examined by Dr. Pat Phipps at the Tidewater Agricultural Research and Extension Center in Suffolk, Virginia in September 2006. Because the disease appeared too late in the season to affect yield, no fungicide sprays were necessary.

Another problem that occurred in some soybeans in Virginia in 2006 (and in parts of Kentucky and Ohio) was attributed to waterlogged soils following heavy rains (9" in three days in some parts of Virginia). The outer portions of the root system of affected plants were sloughed off up to the soil line. Factors such as excess crop residue, compaction, etc., that could result in fields remaining saturated for a longer time were associated with variations in symptom severity from field to field. According to colleagues in neighboring states, the soil need not be flooded in order for these symptoms to occur; the problem may occur in fields that are saturated for two days or more.

Downy mildew, caused by the fungus *Peronospora manshurica*, was also prevalent in soybeans in 2006. High humidity and temperatures favor this disease.

Herbaceous Ornamentals
Fusarium crown and leaf rot, caused by the fungus *Fusarium* sp., was diagnosed on liriope for the first time in our lab. The fungus that causes this crown rot is thought to be opportunistic on plants that are stressed by other factors, such as overwatering, overfertilizing, or deep planting. Fungicides have given inconsistent results in controlling this disease; however, thiophanate methyl and chlorothalonil + thiophanate methyl are registered for control of Fusarium.

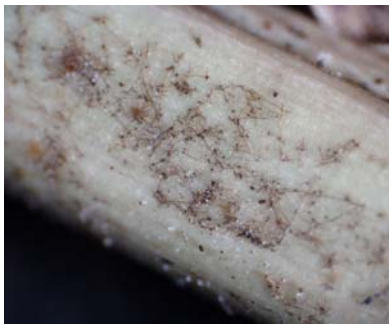
Volutella blight on pachysandra, caused by the fungus *Volutella pachysandrae*, is common on pachysandra in most years, but the Plant Clinic received especially high numbers of samples showing this disease in 2006. The fungus causes leaf spots and stem rot that result in a general dieback of the plants.

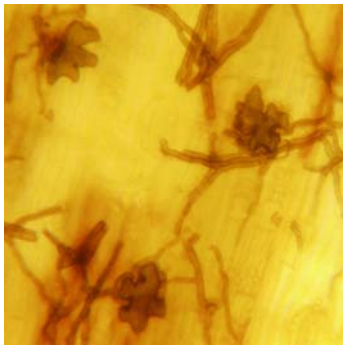
Trees and Woody Ornamentals
Wet soils following heavy rains in many parts of the state favored Phytophthora root rot in woody ornamentals, such as azalea, boxwood, cotoneaster, fir, holly, hydrangea, juniper, andromeda, rhododendron, spruce, and yew. The most common species recovered from woody ornamentals is *Phytophthora cinnamomi*. Anthracnose diseases were common in many tree species during the cool, wet spring (e.g. in ash, beech, birch, maple, oak, and sycamore).

Tree and Small Fruit
Fire blight, caused by the bacterium *Erwinia amylovora*, was common in pome fruits and ornamental pears in 2006. Cedar-apple rust, caused by the fungus *Gymnosporangium juniperi-virginianae*, was also severe in apples.

Turf

Take-all, caused by the fungus *Gaeumannomyces graminis var. graminis*, was diagnosed in several samples of St. Augustinegrass, a warm season turfgrass. The fungus produces dark brown "runner hyphae" on the roots and characteristic lobed "hyphopodia" on the runner hyphae. It causes root rot which results in a circular to irregular patch of thinning turf. The disease is difficult to control. Infections occur in early spring, but aboveground symptoms first appear later in the season.





Vegetables

A widespread outbreak of Fusarium crown and root rot, caused by the fungus *Fusarium oxysporum f. sp. radicis-lycopersici* occurred in Virginia tomato fields in 2006. Symptoms include a discrete, dark brown lesion at the base of the stem, reduced root and top growth, and wilting and discoloration of leaves (photos courtesy of Steve Rideout). Plants also have discolored vascular tissue but healthy pith. According to plant pathologist, Steve Rideout at the Eastern Shore Agricultural Research and Extension Center, this disease is favored by cool and windy weather, which was prevalent in the early part of the 2006 growing season. Soil temperatures of 50-68^{o}F are especially conducive to disease development. The pathogen preferentially attacks plants that are stressed or wounded. High winds or excess fertilizer can cause wounds at the base of the stem that are susceptible to invasion by the fungus. Controls include avoiding overwatering and overfertilization, avoiding fertilization with ammonical nitrogen, and maintaining a soil pH of 6.0-7.0.

Several tomato samples were diagnosed with pith necrosis, caused by the bacterium *Pseudomonas corrugata*. This disease occurs sporadically and may affect only a few plants in the field. Bacteria invade the pith of the stems and cause collapse of the stems. Occurrence of this disease is associated with low night temperatures, high humidity, and high nitrogen fertilization.

Fungal Identifications

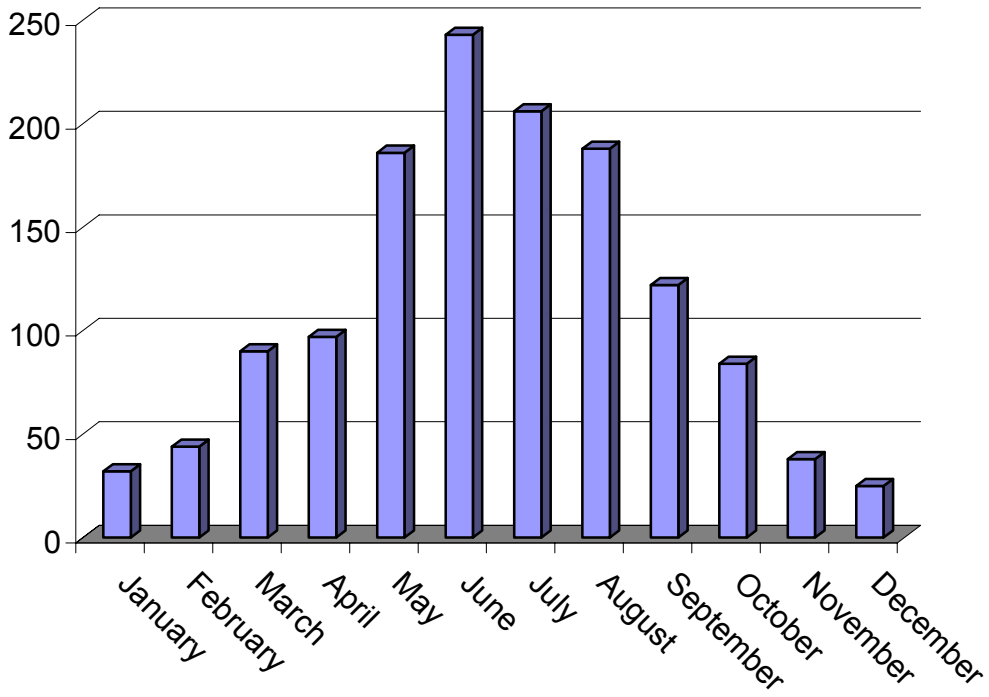
One interesting mushroom received by the lab in 2006 was identified as the fungus *Cordyceps*. These rather rare fungi parasitize beetles. If you look carefully at the base of the fungus, a beetle grub should be visible. *Cordyceps* is an obligate parasite, which means it cannot live or produce fruiting bodies (club-like mushrooms) unless it has colonized its host. The fungus grows and gains nourishment inside the insect body, and kills the insect in the process. When the insect is depleted of nutrients, the fruiting body is produced. If the beetles are controlled, the fungus will also be eliminated.

Another mushroom submitted for identification had been eaten by a 9-year-old boy who ended up in the emergency room after violently throwing up. The fear was that the boy had eaten an *Amanita*; however, the mushroom had the characteristic olive-green spore print of the genus *Chlorophyllum*, a less toxic mushroom that can cause gastrointestinal problems.

Monthly Submission Summary 2006

Month	# Samples
January	32
February	44
March	90
April	97
May	186
June	243
July	206
August	188
September	122
October	84
November	38
December	25
Grand Total	**1,355**

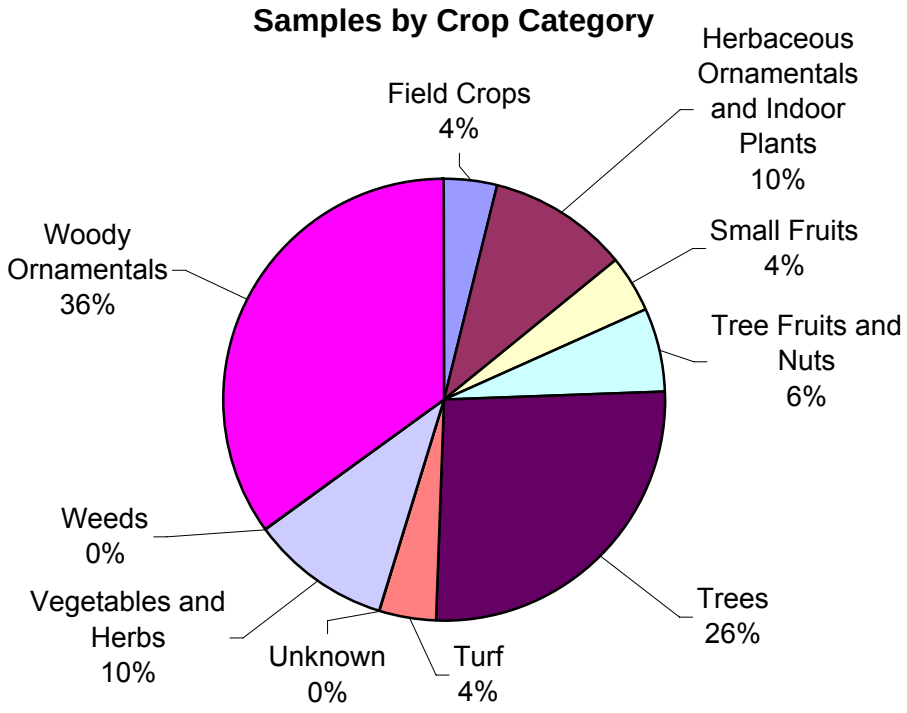
Number of Samples by Month



Crop Category Summary

Sample totals by major crop categories

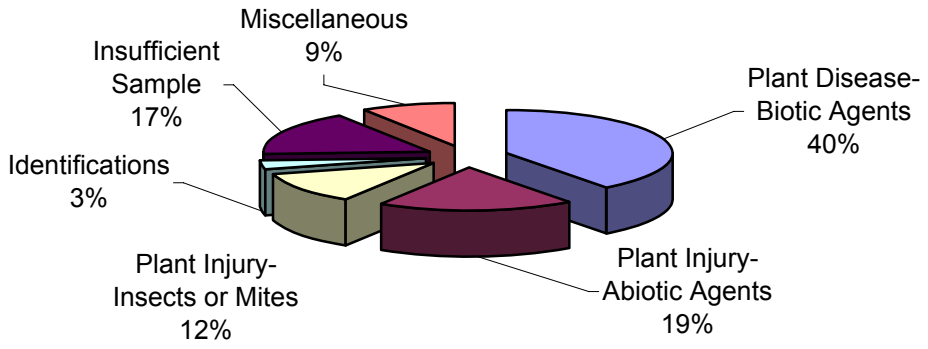
Crop Category	# of Samples	% of Total
Field Crops	49	3.8
Herbaceous Ornamentals and Indoor Plants	134	10.3
Small Fruits	55	4.2
Tree Fruits and Nuts	82	6.3
Trees	340	26.1
Turf	52	4
Unknown	1	0.1
Vegetables and Herbs	134	10.3
Weeds	1	0.1
Woody Ornamentals	457	35
Total	**1,305**	

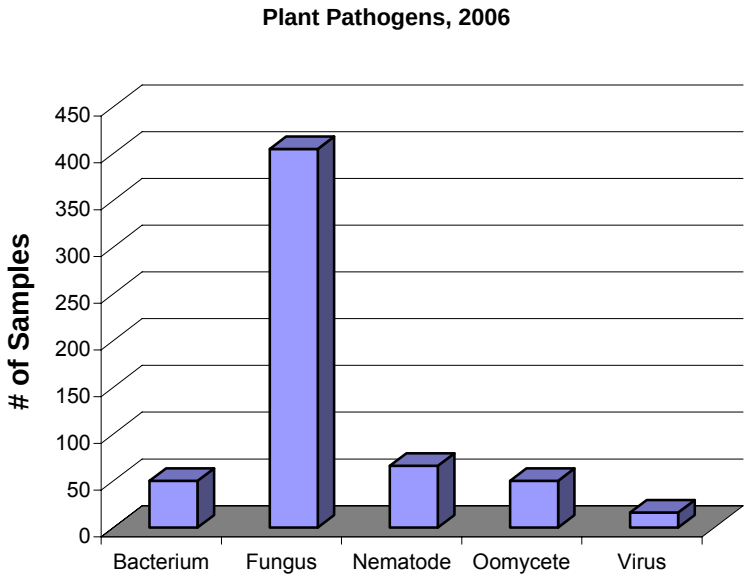


Diagnosis/Identification Category Summary

	# of Diagnoses/IDs	% of Total
Plant Diseases - Biotic Agents	**587**	**39.6%**
Bacterium (50)		
Fungus (405)		
Nematode (66)		
Oomycete (50)		
Virus (16)		
Plant Injury - Abiotic Agents	**275**	**19.0%**
Chemical (47)		
Environmental/Cultural (220)		
Mechanical (8)		
Plant Injury - Animals	**5**	**0.3%**
Birds (1)		
Mammals (4)		
Plant Injury - Insects or Mites	**172**	**11.9%**
Insects or Mites (172)		
Weed Encroachment	**1**	**0.1%**
Weed (1)		
Identifications	**28**	**3.3%**
Plant (28)		
Unable to Identify (4)		
Insufficient Sample or Cause Unknown	**244**	**16.8%**
Insufficient sample or information (231)		
Unknown (13)		
Miscellaneous	**135**	**9.0%**
Algae (1)		
Lichen (7)		
Moss (1)		
Normal Condition (6)		
Other (88)		
Physiological/Genetic (32)		
Total	**1451**	

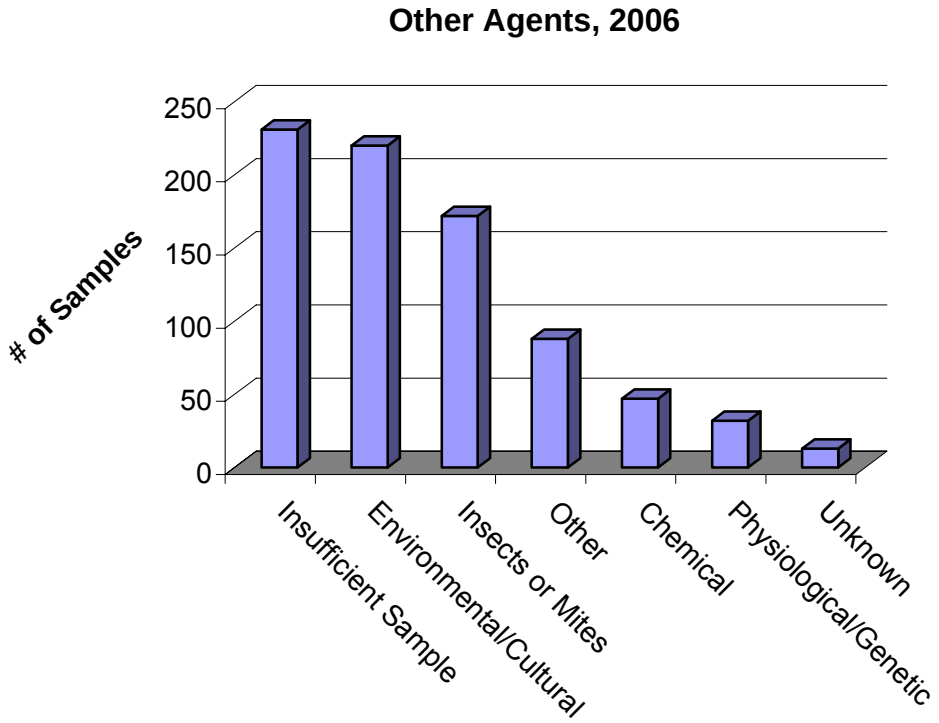
2006 Samples by Diagnostic Category





Other Assistance, 2006

Type	# of Inquiries
E-mail	50
Digital Images	31
Phone Calls	95



Plant Disease Clinic

Distribution of Samples by County, 2006

County	# of Samples
Accomack	2
Albemarle	84
Alleghany	3
Amelia	6
Amherst	2
Appomattox	2
Arlington	5
Augusta	24
Bath	4
Bedford	8
Bland	9
Botetourt	13
Brunswick	11
Buchanan	3
Buckingham	4
Campbell	9
Caroline	2
Carroll	9
Chesapeake City	32
Clarke	10
Craig	2
Culpeper	9
Cumberland	7
Danville City	19
Dickenson	7
Dinwiddie	14
Essex	5
Fairfax	15
Fauquier	21
Floyd	5
Fluvanna	2
Franklin	4
Frederick	33
Giles	8
Gloucester	12
Goochland	16
Grayson	4
Greene	15
Halifax	1
Hampton City	7
Hanover	12
Henrico	26
Henry	2
Highland	5
Isle of Wight	5
James City	38
King and Queen	2
King George	27
King William	3

County	# of Samples
Lancaster	9
Lee	4
Loudoun	22
Louisa	30
Lunenburg	10
Lynchburg City	17
Madison	12
Mathews	5
Mecklenberg	10
Middlesex	5
Montgomery	121
Nelson	39
New Kent	8
Newport News City	7
Norfolk City	10
Northampton	1
Northumberland	23
Nottoway	10
Orange	9
Patrick	13
Pittsylvania	34
Powhatan	17
Prince Edward	1
Prince George	24
Prince William	3
Pulaski	12
Rappahanock	13
Richmond	9
Richmond City	4
Roanoke	35
Rockbridge	10
Rockingham	31
Russell	10
Scott	9
Shenandoah	6
Smyth	3
Spotsylvania	16
Stafford	40
Suffolk City	2
Sussex	4
Tazewell	12
Virginia Beach City	8
Warren	14
Washington	22
Westmoreland	20
Wise	15
Wythe	5
York	43
Total	**1,355**

Monthly Submission Summary 2006

Month	# Samples
January	3
February	6
March	13
April	43
May	43
June	76
July	39
August	54
September	38
October	23
November	20
December	20
Total	**378**

Crop Category Summary 2006

Crop Category	# of Samples
Aquatic	33
Cover Crops	1
English Ivy	1
Fallow/Field	34
Forest Area	2
Fruit	4
Garden	15
Lawn/Landscape	9
Mulched bed	2
N/A or Unknown	37
Natural area	1
Orchardgrass	1
Ornamental	25
Pasture	98
Pond	2
Tree	5
Turf	79
Utility area	23
Vegetables	6
Total	**378**

Weed Identification Lab

Distribution of Samples by County, 2006

County	# of Samples
Albemarle	7
Alleghany	1
Amherst	2
Appomattox	4
Augusta	1
Bath	4
Bedford	1
Bland	4
Botetourt	8
Brunswick	3
Buckingham	3
Campbell	3
Carroll	1
Chesapeake	3
Chesterfield	1
Lynchburg	24
Clarke	4
Craig	4
Culpepper	4
Cumberland	4
Danville City	4
Dickenson	10
Dinwiddie	5
Essex	5
Fauquier	2
Fluvanna	1
Franklin	5
Frederick	3
Giles	6
Goochland	11
Grayson	1
Greene	13
Hanover	2
Henrico	13
Highland	6
James City	7
King George	2
Lancaster	1
Lee	1

County	# of Samples
Leesburg	1
Loudoun	1
Louisa	7
Lunenburg	3
Mecklenburg	1
Montgomery	10
Nelson	3
New Kent	1
Unknown	2
Nottoway	5
Page	6
Patrick	12
Pittsylvania	26
Powhatan	11
Prince Edward	2
Prince George	3
Pulaski	6
Rappahannock	7
Richmond City	3
Roanoke	7
Rockbridge	1
Rockingham	4
Russell	14
Scott	4
Shenandoah	10
Smyth	2
Southhampton	1
Spotsylvania	2
Stafford	2
Suffolk	1
Tazewell	5
Virginia Beach	2
Warren	3
Washington	10
Westmoreland	6
Wise	2
Wythe	2
York	6
Total	**378**

Diagnosis Appendix

Information about diseases/pests diagnosed by the laboratory

Field Crops

Alfalfa

1	Anthracnose	*Colletotrichum trifolii*
1	Insects	
3	Leptosphaerulina Leaf Spot	*Leptosphaerulina briosiana*
1	Low pH	
1	Rhizoctonia Stem and Crown Rot	*Rhizoctonia solani*
1	Rhizoctonia Stem and Leaf Blight	*Rhizoctonia solani*
1	Three-cornered Alfalfa Hoppers	
9	***Total for Alfalfa***	

Barley

1	Leaf and Glume Blotch	*Stagonospora nodorum*
2	Physiological Leaf Spot	
1	Suspect Chemical Injury	
4	***Total for Barley***	

Corn

1	Bird Damage	
1	Cultural Problem	
2	Gray Leaf Spot	*Cercospora zeae-maydis*
1	Low pH	
1	Sunscald	
6	***Total for Corn***	

Fescue

1	Cause of Problem Unknown	
1	Fusarium Blight	*Fusarium sp.*
1	Negative for Disease	
1	Rhizoctonia Blight	*Rhizoctonia solani*
4	***Total for Fescue***	

Millet

1	Gray Leaf Spot	*Pyricularia grisea*
1	***Total for Millet***	

Orchardgrass

1	Billbugs	
1	Brown Stripe	*Scolecotrichum graminis*
1	Cultural Problem	
2	Environmental Stress	
1	Rhizoctonia Blight	*Rhizoctonia solani*
6	***Total for Orchardgrass***	

Rye		
1	Anthracnose	*Colletotrichum graminicola*
1	***Total for Rye***	

Soybean		
1	Cyst Nematodes	*Heterodera glycines*
1	Deer Injury	
4	Downy Mildew	*Peronospora manshurica*
2	Environmental Stress	
1	Essex Syndrome	*Fusarium oxysporum*
3	Insects	
2	Negative for Disease	
1	Slime Mold	*Physarum cinereum*
1	Suspect Bacterial Pustule	*Xanthomonas axonopodis*
1	Wildfire	*Pseudomonas syringae pv. tabaci*
17	***Total for Soybean***	

Timothy		
1	Leaf Spot	*Bipolaris sorokiniana*
1	Physiological Problem	
2	***Total for Timothy***	

Tobacco		
1	Black Shank	*Phytophthora nicotianae*
1	Brown Spot	*Alternaria alternata*
2	***Total for Tobacco***	

Wheat		
1	Cephalosporium Stripe	*Cephalosporium gramineum*
1	Chemical Injury	
1	Cultural Problem	
1	Low pH	
1	Negative for Tan Spot	
1	Wheat Soilborne Mosaic Virus	
6	***Total for Wheat***	

Herbaceous Ornamentals and Indoor Plants

African Violet

1	High pH	
1	Low pH	
2	***Total for African Violet***	

Allium

1	White Rot	*Sclerotium cepivorum*
1	***Total for Allium***	

Aster

1	Suspect Insects	
1	***Total for Aster***	

Balloon Flower

1	Suspect Insects	
1	***Total for Balloon Flower***	

Bee Balm

1	Environmental Stress	
1	***Total for Bee Balm***	

Bleeding Heart

1	Negative for Disease	
1	***Total for Bleeding Heart***	

Cardinal Flower

1	Rhizoctonia Stem and Root Rot	*Rhizoctonia solani*
1	***Total for Cardinal Flower***	

Catmint

1	Environmental Stress	
1	Web Blight	*Rhizoctonia solani*
2	***Total for Catmint***	

Celosia

1	Negative for Disease	
1	***Total for Celosia***	

Chrysanthemum

1	Ascochyta Ray Blight	*Ascochyta chrysanthemi*
1	Chemical Injury	
1	Cultural Problem	
1	Fusarium Stem and Root Rot	*Fusarium sp.*
1	Low Soluble Salts	
2	Negative for Disease	
7	***Total for Chrysanthemum***	

Clematis		
1	Botrytis Blight	*Botrytis cinerea*
1	Insufficient Sample	
2	***Total for Clematis***	

Clementine Mandarin		
1	Scorch	
1	***Total for Clementine Mandarin***	

Coleus		
1	Downy Mildew	*Peronospora lamii*
1	***Total for Coleus***	

Coneflower		
1	Aureobasidium Leaf Spot	*Aureobasidium sp.*
1	Insects	
2	***Total for Coneflower***	

Coral Bells		
1	Negative for Disease	
1	***Total for Coral Bells***	

Coreopsis		
1	Environmental Stress	
1	Negative for Disease	
2	***Total for Coreopsis***	

Dahlia		
1	Thrips	
1	***Total for Dahlia***	

Daylily		
1	Botrytis Blight	*Botrytis cinerea*
1	Insufficient Sample	
3	Leaf Streak	*Aureobasidium microstictum*
5	***Total for Daylily***	

Elderberry		
1	Insufficient Sample	
1	Physiological Problem	
2	***Total for Elderberry***	

Fern		
1	Negative for Foliar Nematodes	
1	***Total for Fern***	

Ficus		
1	Insects	
1	***Total for Ficus***	

Foxglove		
1	Negative for Disease	
1	***Total for Foxglove***	

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

Gardenia		
1	Environmental Stress	
1	Root Knot Nematodes	*Meloidogyne sp.*
2	***Total for Gardenia***	

Gasteria		
1	Suspect Cultural Problem	
1	***Total for Gasteria***	

Geranium		
1	Bacterial Leaf Spot	*Xanthomonas campestris pv. pelargonii*
1	Cause of Problem Unknown	
1	Low pH	
1	Low Soluble Salts	
1	Mites	
1	Nutrient Deficiency	
2	Oedema	
1	Rhizoctonia Stem and Root Rot	*Rhizoctonia sp.*
9	***Total for Geranium***	

Gladiolus		
1	Bulb Mites	
1	Fusarium Yellows	*Fusarium oxysporum*
2	***Total for Gladiolus***	

Hellebore		
1	Black Leaf Spot	*Coniothyrium hellebori*
1	***Total for Hellebore***	

Hollyhock		
1	Mites	
1	Rust	*Puccinia malvacearum*
2	***Total for Hollyhock***	

Hosta		
2	Environmental Stress	
2	***Total for Hosta***	

Impatiens

1	Chemical Injury	
1	Low pH	
1	Negative for Impatiens Necrotic Spot Virus	
1	Negative for Tomato Spotted Wilt Virus	
1	Physiological Leaf Spot	
1	Physiological Problem	
1	Rhizoctonia Stem and Root Rot	*Rhizoctonia solani*
1	Soluble Salts High	
1	Suspect Physiological Problem	
9	***Total for Impatiens***	

Iris

2	Bulb Mites	
2	***Total for Iris***	

Jade

1	Suspect Cultural Problem	
1	***Total for Jade***	

Lavender

1	Phytophthora Root Rot	*Phytophthora sp.*
1	***Total for Lavender***	

Lemon

1	Scales	
1	***Total for Lemon***	

Lemon, Meyer

1	Mites	
1	***Total for Lemon, Meyer***	

Lily

1	Botrytis Blight	*Botrytis elliptica*
1	Cucumber Mosaic Virus	
2	***Total for Lily***	

Lily-of-the-valley

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

Liriope

2	Anthracnose	*Colletotrichum sp.*
2	Fusarium Crown and Leaf Rot	*Fusarium sp.*
1	Insufficient Sample	
1	Rhizoctonia Crown and Leaf Rot	*Rhizoctonia sp.*
1	Suspect Chemical Injury	
7	***Total for Liriope***	

Lobelia		
1	Suspect Air Pollution Injury	
1	***Total for Lobelia***	

Madagascar Periwinkle		
2	Phytophthora Blight	*Phytophthora nicotianae*
1	Root Knot Nematodes	*Meloidogyne sp.*
3	***Total for Madagascar Periwinkle***	

Marigold		
1	Botrytis Blight	*Botrytis cinerea*
1	Insects	
1	Rhizoctonia Stem Rot	*Rhizoctonia solani*
3	***Total for Marigold***	

Orchid		
1	Insufficient Sample	
1	Suspect Mesophyll Cell Collapse	
2	***Total for Orchid***	

Osteospermum		
1	Botrytis Blight	*Botrytis cinerea*
1	***Total for Osteospermum***	

Pachysandra		
5	Volutella Blight	*Volutella pachysandrae*
5	***Total for Pachysandra***	

Palm		
1	Insects	
1	***Total for Palm***	

Pansy		
1	Insufficient Sample	
1	Negative for Root Disease	
1	Pythium Root and Stem Rot	*Pythium sp.*
1	Pythium Root Rot	*Pythium sp.*
4	***Total for Pansy***	

Passionflower		
1	Thrips	
1	***Total for Passionflower***	

Peony		
1	Cause of Problem Unknown	
1	Cladosporium Stem and Leaf Blotch	*Cladosporium paeoniae*
2	***Total for Peony***	

Periwinkle		
1	Insufficient Sample	
1	Negative for Disease	
1	Phoma Dieback	*Phoma sp.*
1	Phyllosticta Stem Rot	*Phyllosticta sp.*
4	***Total for Periwinkle***	

Petunia		
1	Cultural Problem	
2	Phytophthora Crown Rot	*Phytophthora nicotianae*
1	Phytophthora Root and Stem Rot	*Phytophthora nicotianae*
2	Suspect Chemical Injury	
6	***Total for Petunia***	

Philodendron		
1	Cultural Problem	
1	***Total for Philodendron***	

Phlox		
1	Black Root Rot	*Thielaviopsis basicola*
2	Environmental Stress	
1	Insufficient Sample	
1	Physiological Leaf Spot	
5	***Total for Phlox***	

Poinsettia		
2	Cultural Problem	
1	Insufficient Sample	
2	Suspect Chemical Injury	
5	***Total for Poinsettia***	

Primrose		
1	Suspect Cultural Problem	
1	***Total for Primrose***	

Rudbeckia		
1	Septoria Leaf Spot	*Septoria rudbeckiae*
1	***Total for Rudbeckia***	

Sedum		
1	Cladosporium Blight	*Cladosporium sp.*
1	Powdery Mildew	*Oidium sp.*
2	***Total for Sedum***	

Statice		
1	Anthracnose	*Colletotrichum dematium*
1	***Total for Statice***	

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

Veronica		
2	Environmental Stress	
1	Phytophthora Root Rot	*Phytophthora nicotianae*
1	Rhizoctonia Stem Rot	*Rhizoctonia sp.*
4	***Total for Veronica***	

Wishbone Flower		
1	Rhizoctonia Root Rot	*Rhizoctonia solani*
1	***Total for Wishbone Flower***	

Zinnia		
1	Bacterial Leaf Spot	*Xanthomonas campestris pv. zinneae*
1	***Total for Zinnia***	

Small Fruits

Blackberry

2	Cane Blight	*Leptosphaeria coniothyrium*
1	Crown Gall	*Agrobacterium tumefaciens*
1	Cultural Problem	
1	Girdling Roots	
1	Insufficient Sample	
1	Spur Blight	*Didymella applanata*
7	***Total for Blackberry***	

Blueberry

2	Insufficient Sample	
1	Low pH	
1	Physiological Leaf Spot	
1	Phytophthora Root Rot	*Phytophthora cinnamomi*
5	***Total for Blueberry***	

Dewberry

1	Insects	
1	***Total for Dewberry***	

Grape

1	Anthracnose	*Elsinoe ampelina*
4	Black Rot	*Guignardia bidwellii*
1	Borers	
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
4	Chemical Injury	
1	Cold Injury	
2	Crown Gall	*Agrobacterium vitis*
1	Dagger Nematode	*Xiphinema sp.*
2	Downy Mildew	*Plasmopara viticola*
1	Environmental Stress	
1	Insect Galls	
4	Insufficient Sample	
2	Negative for Disease	
2	Petri Disease	*Phaeoacremonium aleophilum*
1	Ring Nematode	*Mesocriconema sp.*
1	Suspect Petri Disease	*Phaeomoniella sp.*
29	***Total for Grape***	

Raspberry

1	Anthracnose	*Elsinoe veneta*
2	Insufficient Sample	
1	Negative for Phytophthora Root Rot	
1	Orange Rust	*Gymnoconia peckiana*
1	Scorch	
1	Suspect Raspberry Leaf Curl Virus	
7	***Total for Raspberry***	

Strawberry		
1	Cause of Problem Unknown	
3	Dendrophoma Leaf Blight	*Dendrophoma obscurans*
1	Gray Mold	*Botrytis cinerea*
1	Insufficient Sample	
2	Lesion Nematodes	*Pratylenchus sp.*
1	Low pH	
1	Mites	
1	Negative for Disease	
1	Negative for Nematodes	
1	Negative for Root Rot	
1	Phytophthora Crown and Root Rot	*Phytophthora cactorum*
1	Pythium Root Rot	*Pythium sp.*
2	Rhizoctonia Root Rot	*Rhizoctonia solani*
17	***Total for Strawberry***	

Tree Fruits and Nuts

Apple

1	Bitter Pit	
2	Bitter Rot	*Glomerella cingulata*
1	Black Rot	*Physalospora obtusa*
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
12	Cedar-Apple Rust	*Gymnosporangium juniperi-virginianae*
1	Cedar-Quince Rust	*Gymnosporangium clavipes*
8	Fire Blight	*Erwinia amylovora*
5	Insects	
1	Insufficient Sample	
1	Lichens	
1	Mites	
1	Plant Hairs - Normal Condition	
1	Plum Curculios	
2	Scab	*Venturia inaequalis*
1	Sooty Blotch	*Gloeodes pomigena*
1	Suspect Fire Blight	*Erwinia amylovora*
40	***Total for Apple***	

Asian Pear

1	Fire Blight	*Erwinia amylovora*
1	Insects	
1	Stinkbugs	
1	Suspect Mechanical Injury	
4	***Total for Asian Pear***	

Cherry

1	Black Knot	*Dibotryon morbosum*
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	Brown Rot	*Monilinia fructicola*
2	Insufficient Sample	
1	Scales	
6	***Total for Cherry***	

Chestnut

1	Bacterial Wetwood	
1	Insufficient Sample	
2	***Total for Chestnut***	

Crabapple

1	Cultural Problem	
2	Scab	*Venturia inaequalis*
3	***Total for Crabapple***	

Filbert

1	Slime Mold	
1	***Total for Filbert***	

Nectarine		
1	Brown Rot	*Monilinia fructicola*
1	***Total for Nectarine***	

Peach		
1	Brown Rot	*Monilinia fructicola*
1	Crown Gall	*Agrobacterium tumefaciens*
1	Cultural Problem	
1	Curculios	
1	Eriophyid Mites	
1	Insects	
2	Insufficient Sample	
1	Lichens	
1	Low pH	
2	Oriental Fruit Moths	
1	Peach Leaf Curl	*Taphrina deformans*
1	Scales	
1	Suspect Chemical Injury	
1	Suspect Cultural Problem	
1	Suspect Environmental Stress	
17	***Total for Peach***	

Pear		
1	Blister Mites	
1	Cause of Problem Unknown	
3	Fire Blight	*Erwinia amylovora*
1	Insects	
2	Insufficient Sample	
8	***Total for Pear***	

Persimmon		
1	Persimmon Wilt	*Nalanthamala diospyri*
1	Suspect Biscogniauxia Canker	*Biscogniauxia sp.*
2	***Total for Persimmon***	

Plum		
3	Black Knot	*Dibotryon morbosum*
1	Curculios	
1	Insufficient Sample	
1	Suspect Black Knot	*Dibotryon morbosum*
6	***Total for Plum***	

Walnut		
1	Insufficient Sample	
1	Lichens	
2	***Total for Walnut***	

Trees

Arborvitae

1	Bagworms	
1	Insects	
2	Insufficient Sample	
3	Mites	
3	Negative for Disease	
1	Negative for Root Disease	
2	Physiological Problem	
1	Suspect Environmental Stress	
14	***Total for Arborvitae***	

Ash

2	Anthracnose	*Discula sp.*
1	Botryosphaeria Canker	*Botryosphaeria sp.*
1	Rust	*Puccinia sp.*
4	***Total for Ash***	

Beech

1	Anthracnose	*Gloeosporium sp.*
1	***Total for Beech***	

Birch

1	Anthracnose	*Discula betulina*
1	Cryptocline Leaf Spot	*Cryptocline betularum*
1	Cultural Problem	
2	Insufficient Sample	
5	***Total for Birch***	

Buckeye

1	Suspect Chemical Injury	
1	***Total for Buckeye***	

Cedar

1	Diplodia Canker	*Diplodia pinea*
2	Insufficient Sample	
3	***Total for Cedar***	

Cherry

1	Scales	
1	***Total for Cherry***	

Chinkapin

1	Phytophthora Root Rot	*Phytophthora cinnamomi*
1	***Total for Chinkapin***	

Cryptomeria	
1 Mites	
1 Pestalotiopsis Tip Blight	*Pestalotiopsis sp.*
1 Phyllosticta Needle Blight	*Phyllosticta sp.*
1 Scales	
4 Total for Cryptomeria	

Cypress	
1 Bagworms	
1 Botryosphaeria Dieback	*Botryosphaeria sp.*
1 Environmental Stress	
1 Insects	
14 Insufficient Sample	
1 Macrophomina Root Rot	*Macrophomina phaseolina*
2 Male Cones	
1 Mites	
1 Negative for Seiridium Canker	
1 Pestalotiopsis Tip Blight	*Pestalotiopsis sp.*
4 Seiridium Canker	*Seiridium unicorne*
1 Suspect Cultural Problem	
1 Suspect Winter Injury	
30 Total for Cypress	

Dogwood	
1 Botryosphaeria Dieback	*Botryosphaeria sp.*
1 Cold Injury	
1 Cultural Problem	
2 Environmental Stress	
6 Insufficient Sample	
1 Japanese Beetles	
2 Negative for Disease	
1 Negative for Root Disease	
1 Physiological Problem	
5 Powdery Mildew	*Oidium sp.*
3 Scorch	
4 Spot Anthracnose	*Elsinoe corni*
28 Total for Dogwood	

Douglasfir	
2 Environmental Stress	
1 Rhizosphaera Needle Cast	*Rhizosphaera sp.*
1 Winter Injury	
4 Total for Douglasfir	

Eastern Red Cedar
1 Cause of Problem Unknown
1 Total for Eastern Red Cedar

Elder	
1 Insufficient Sample	
1 Total for Elder	

Elm	
3 Dutch Elm Disease	*Ophiostoma ulmi*
1 Insects	
1 Insufficient Sample	
1 Negative for Dutch Elm Disease	
1 Scales	
1 Suspect Cultural Problem	
8 Total for Elm	

Falsecypress	
1 Insufficient Sample	
1 Negative for Disease	
2 Negative for Root Disease	
4 Total for Falsecypress	

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

Fir	
3 Environmental Stress	
4 Girdling Roots	
1 Insects	
2 Insufficient Sample	
1 Negative for Disease	
1 Negative for Foliar Pathogens	
1 Negative for Phytophthora	
1 Negative for Root Disease	
1 Phytophthora Root Rot	*Phytophthora cinnamomi*
3 Suspect Environmental Stress	
18 Total for Fir	

Fringe Tree	
1 Negative for Disease	
1 Suspect Environmental Stress	
2 Total for Fringe Tree	

Golden-rain-tree	
1 Insects	
1 Total for Golden-rain-tree	

Hackberry	
1 Bacterial Wetwood	
1 Insufficient Sample	
1 Leaf Gall Insects	
3 Total for Hackberry	

Hawthorn		
1	Cedar-Hawthorn Rust	*Gymnosporangium globosum*
4	Cedar-Quince Rust	*Gymnosporangium clavipes*
5	***Total for Hawthorn***	

Hemlock	
1	Low pH
1	Mites
1	Negative for Root Disease
1	Suspect Chemical Injury
3	Woolly Adelgids
7	***Total for Hemlock***

Hornbeam	
1	Insufficient Sample
1	***Total for Hornbeam***

Japanese White Pine	
1	Insufficient Sample
1	***Total for Japanese White Pine***

Lagerstroemia	
1	Chemical Injury
1	***Total for Lagerstroemia***

London Planetree	
1	Suspect Bacterial Wetwood
1	***Total for London Planetree***

Magnolia		
1	Cause of Problem Unknown	
1	Environmental Stress	
1	Frost Injury	
2	Insects	
1	Insufficient Sample	
1	Normal Condition	
1	Phomopsis Leaf Spot	*Phomopsis sp.*
1	Physiological Leaf Spot	
3	Powdery Mildew	*Oidium sp.*
1	Scales	
1	Suspect Chemical Injury	
1	Winter Injury	
15	***Total for Magnolia***	

Maple		
2	Anthracnose	*Kabatiella sp.*
1	Bladder Galls	
2	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	Cicada Injury	
1	Cultural Problem	
7	Environmental Stress	

1	Eyespot Galls	
2	Insect Galls	
3	Insects	
15	Insufficient Sample	
1	Mites	
1	Negative for Root Pathogens	
3	Negative for Verticillium Wilt	
1	Phomopsis Dieback	*Phomopsis sp.*
1	Purple-eye Leaf Spot	*Phyllosticta minima*
1	Sapsucker Injury	
3	Scales	
2	Scorch	
1	Sooty Mold	
1	Suspect Cultural Problem	
1	Suspect Virus	
1	Verticillium Wilt	*Verticillium dahliae*
1	Wood Decay	
53	***Total for Maple***	

Oak

1	Anthracnose	*Discula sp.*
1	Bacterial Wetwood	
1	Botryosphaeria Twig Canker	*Botryosphaeria sp.*
1	Cause of Problem Unknown	
1	Chemical Injury	
1	Cicadas	
3	Cultural Problem	
1	Endothia Canker	*Endothia gyrosa*
2	Environmental Stress	
1	Gall Insects	
4	Insects	
3	Insufficient Sample	
1	Iron Chlorosis	
2	Leaf Gall Insects	
1	Leafminers	
1	Oak Leaf Blister	*Taphrina caerulescens*
1	Physiological Leaf Spot	
1	Phytophthora Canker	*Phytophthora sp.*
1	Pruners	
1	Suspect Environmental Stress	
3	Tubakia Leaf Spot	*Tubakia dryina*
32	***Total for Oak***	

Ornamental Cherry		
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
2	Cultural Problem	
1	Gummosis	*Botryosphaeria sp.*
2	Insufficient Sample	
1	Nectria Canker	*Nectria sp.*
1	Physiological Leaf Spot	
1	Scorch	
1	Suspect Cultural Problem	
1	Wood Decay	
11	***Total for Ornamental Cherry***	

Ornamental Pear		
1	Cause of Problem Unknown	
3	Fire Blight	*Erwinia amylovora*
3	Insufficient Sample	
1	Pear Leaf Blister Mites	
8	***Total for Ornamental Pear***	

Ornamental Plum		
1	Wood Decay	
1	***Total for Ornamental Plum***	

Pine		
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	Chemical Injury	
1	Cyclaneusma Needle Cast	*Cyclaneusma minor*
2	Diplodia Tip Blight	*Diplodia pinea*
2	Dothistroma Needle Blight	*Dothistroma pini*
2	Insects	
1	Insufficient Information	
6	Insufficient Sample	
1	Mechanical Injury	
1	Needle Rust	*Coleosporium sp.*
1	Pestalotiopsis Twig Blight	*Pestalotiopsis sp.*
1	Pine Sawyers	
3	Pinewood Nematodes	*Bursaphelenchus xylophilus*
1	Ploioderma Needle Cast	*Ploioderma lethale*
2	Procerum Root Disease	*Leptographium procerum*
1	Sheath Mites	
1	Sooty Mold	
1	Suspect Mechanical Injury	
2	Weevils	
31	***Total for Pine***	

Redbud		
2	Botrytis Blight	*Botrytis cinerea*
1	Mites	
3	***Total for Redbud***	

Serviceberry	
1 Cultural Problem	
1 Scorch	
2 Total for Serviceberry	

Silverbell	
1 Cultural Problem	
1 Total for Silverbell	

Snowbell	
1 Insufficient Sample	
1 Total for Snowbell	

Spruce	
1 Bagworms	
2 Chemical Injury	
1 Frost Injury	
1 Girdling Roots	
1 Insects	
10 Insufficient Sample	
1 Mechanical Injury	
4 Mites	
2 Negative for Disease	
2 Negative for Root Disease	
1 Phytophthora Root Rot	*Phytophthora cinnamomi*
1 Phytophthora Root Rot	*Phytophthora sp.*
1 Rhizosphaera Needle Blight	*Rhizosphaera kalkhoffii*
2 Stigmina Needle Cast	*Stigmina lautii*
1 Web Blight	*Rhizoctonia solani*
31 Total for Spruce	

Sweet Gum	
1 Healthy	
1 Winged Bark	
2 Total for Sweet Gum	

Sycamore	
1 Anthracnose	*Gnomonia platani*
1 Total for Sycamore	

Trees, Miscellaneous	
1 Chemical Injury	
1 Hail Injury	
1 Suspect Hail Injury	
3 Total for Trees, Miscellaneous	

Tulip Tree		
1	Environmental Stress	
1	Powdery Mildew	*Erysiphe sp.*
1	Slime Flux	
3	***Total for Tulip Tree***	

Willow		
1	Black Canker	*Glomerella miyabeana*
1	Mites	
1	Phomopsis Canker	*Phomopsis sp.*
1	Scorch	
1	Suspect Black Canker	*Glomerella miyabeana*
5	***Total for Willow***	

Yellowwood		
1	Negative for Verticillium Wilt	*Verticillium sp.*
1	***Total for Yellowwood***	

Zelkova		
2	Insufficient Sample	
1	Phomopsis Dieback	*Phomopsis sp.*
3	***Total for Zelkova***	

Turf

Bentgrass

1	Environmental Stress	
1	Pythium	*Pythium sp.*
1	Pythium Blight	*Pythium sp.*
2	Pythium Root Rot	*Pythium sp.*
5	***Total for Bentgrass***	

Bermudagrass

2	Leaf Blotch	*Bipolaris cynodontis*
1	Ring Nematodes	*Criconemella sp.*
1	Stubby Root Nematodes	*Trichodorus sp.*
4	***Total for Bermudagrass***	

Bluegrass

1	Anthracnose	*Colletotrichum graminicola*
1	Environmental Stress	
1	Fusarium Blight	*Fusarium sp.*
1	Red Thread	*Laetisaria fuciformis*
1	Summer Patch	*Magnaporthe poae*
1	Suspect Cultural Problem	
1	Weed Encroachment	
7	***Total for Bluegrass***	

Fescue

1	Algae	
11	Brown Patch	*Rhizoctonia solani*
3	Environmental Stress	
1	Fairy Ring	
2	Helminthosporium Blight	*Drechslera dictyoides*
2	Insufficient Sample	
1	Negative for Disease	
1	Red Thread	*Laetisaria fuciformis*
2	Rhizoctonia Blight	*Rhizoctonia solani*
24	***Total for Fescue***	

St. Augustinegrass

1	Cultural Problem	
1	Insufficient Sample	
3	Take-All	*Gaeumannomyces graminis var. graminis*
5	***Total for St. Augustinegrass***	

Turfgrass		
1	Anthracnose	*Colletotrichum graminicola*
3	Brown Patch	*Rhizoctonia solani*
1	Excess Thatch	
1	Fairy Ring	*Scleroderma bovista*
1	Insufficient Sample	
1	Moss	
1	Suspect Environmental Stress	
9	***Total for Turfgrass***	

Zoysia	
1	Environmental Stress
1	Excess Thatch
1	Suspect Fairy Ring
3	***Total for Zoysia***

Unknown	
Unknown Outdoor Plant	
1	Insufficient Information
1	***Total for Unknown Outdoor Plant***

Plant, Unknown	
1	Insufficient Sample
1	***Total for Plant, Unknown***

Plant, Miscellaneous	
1	Powdery Mildew
1	***Plant, Miscellaneous***

Vegetables and Herbs

Basil

1	Chemical Injury	
1	***Total for Basil***	

Bay Laurel

1	Rootbound	
1	***Total for Bay Laurel***	

Bean

1	Common Blight	*Xanthomonas phaseoli*
1	Cultural Problem	
2	Insects	
1	Insufficient Sample	
5	***Total for Bean***	

Broccoli

1	Environmental Stress	
1	***Total for Broccoli***	

Cantaloupe

2	Cucumber Beetles	
1	Cultural Problem	
1	Downy Mildew	*Pseudoperonospora cubensis*
1	Insufficient Sample	
5	***Total for Cantaloupe***	

Cucumber

1	Anthracnose	*Colletotrichum sp.*
1	Beetles	
2	Downy Mildew	*Pseudoperonospora cubensis*
3	Insufficient Sample	
1	Mites	
1	Pythium Root and Stem Rot	*Pythium spp.*
9	***Total for Cucumber***	

Fava Bean

1	Suspect False Anthracnose	*Aureobasidium sp.*
1	***Total for Fava Bean***	

Kale

1	Insufficient Sample	
1	***Total for Kale***	

Lettuce

1	Insects	
1	Negative for Disease	
1	Sclerotinia Blight	*Sclerotinia sclerotiorum*
1	Suspect Cultural Problem	
4	***Total for Lettuce***	

Okra

1	Environmental Stress	
1	***Total for Okra***	

Onion

1	Chemical Injury	
1	Onion Maggots	
1	Soft Rot	*Erwinia carotovora*
1	Suspect Slippery Skin	*Burkholderia gladioli*
4	***Total for Onion***	

Oregano

1	Negative for Root Disease	
1	***Total for Oregano***	

Pepper

1	Bacterial Spot	*Xanthomonas vesicatoria*
1	Blossom End Rot	
1	Cause of Problem Unknown	
2	Cultural Problem	
1	Insects	
1	Insufficient Sample	
1	Negative for Disease	
1	Pythium Root Rot	*Pythium sp.*
2	Suspect Bacterial Spot	*Xanthomonas vesicatoria*
11	***Total for Pepper***	

Potato

1	Blackleg	*Erwinia carotovora*
3	Chemical Injury	
2	Common Scab	*Streptomyces scabies*
1	Growth Cracks	
3	Insufficient Sample	
1	Negative for Disease	
1	Physiological Leafroll	
2	Soft Rot	*Erwinia carotovora*
14	***Total for Potato***	

Pumpkin

1	Angular Leaf Spot	*Pseudomonas lachrymans*
2	Fusarium Fruit Rot	*Fusarium sp.*
1	Insufficient Sample	
1	Physiological Problem	
5	***Total for Pumpkin***	

Rhubarb

1	Ascochyta Leaf Spot	*Ascochyta sp.*
1	Negative for Root Disease	
2	***Total for Rhubarb***	

Rosemary	
2 Adventitious Roots	
1 Negative for Disease	
3 Total for Rosemary	

Squash	
1 Blossom End Rot	
1 Cultural Problem	
2 Insufficient Sample	
1 Physiological Problem	
1 Powdery Mildew	*Sphaerotheca fuliginea*
6 Total for Squash	

Sweet Corn	
1 Insufficient Sample	
1 Sunscald	
2 Total for Sweet Corn	

Sweet Potato	
1 Fusarium Surface Rot	*Fusarium solani*
1 Total for Sweet Potato	

Tomato	
1 Anthracnose	*Colletotrichum sp.*
1 Bacterial Stem Rot	*Erwinia carotovora*
1 Bacterial Wilt	*Ralstonia solanacearum*
2 Blossom End Rot	
1 Botrytis Blight	*Botrytis cinerea*
7 Chemical Injury	
2 Cucumber Mosaic Virus	
5 Cultural Problem	
4 Fusarium Crown and Root Rot	*Fusarium oxysporum*
1 Fusarium Crown and Root Rot	*Fusarium sp.*
1 High Soluble Salts	
1 Insects	
9 Insufficient Sample	
1 Mites	
1 Negative for Disease	
1 Normal Condition	
1 Physiological Leaf Roll	
1 Physiological Problem	
1 Physiological Spotting	
3 Pith Necrosis	*Pseudomonas corrugata*
1 Root Knot Nematodes	*Meloidogyne sp.*
8 Septoria Leaf Spot	*Septoria lycopersici*
1 Southern Blight	*Sclerotium rolfsii*
1 Suspect Cultural Problem	
1 Suspect Fusarium Crown Rot	*Fusarium sp.*
1 Suspect Septoria Leaf Spot	*Septoria lycopersici*
1 Tobacco Mosaic Virus	

2	Tomato Spotted Wilt Virus	
2	Walnut Wilt	
63	***Total for Tomato***	

Turnip

1	Cercosporella Leaf Spot	*Cercosporella brassicae*
1	Low pH	
2	***Total for Turnip***	

Watermelon

2	Cultural Problem	
2	***Total for Watermelon***	

Zucchini

1	Insufficient Sample	
1	Plectosporium Blight	*Plectosporium tabacinum*
2	***Total for Zucchini***	

Weeds

Kudzu

1	Bacterial Leafspot	*Ralstonia pickettii*
1	***Total for Kudzu***	

Woody Ornamentals

Abelia

1	Phytophthora Root Rot	*Phytophthora sp.*
1	***Total for Abelia***	

Aucuba

1	Cold Injury	
1	Negative for Root Disease	
1	Suspect Environmental Stress	
3	***Total for Aucuba***	

Azalea

1	Artillery Fungus	*Sphaerobolus stellatus*
1	Borers	
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	Cause of Problem Unknown	
1	Cercospora Leaf Spot	*Cercospora sp.*
1	Chemical Residue	
2	Cultural Problem	
1	Deep Planting	
1	Environmental Stress	
1	Girdling Roots	
2	High pH	
2	Insects	
1	Insufficient Information	
10	Insufficient Sample	
3	Lacebugs	
3	Lichens	
1	Low pH	
1	Negative for Disease	
1	Negative for Root Disease	
2	Phomopsis Dieback	*Phomopsis sp.*
3	Phytophthora Root Rot	*Phytophthora cinnamomi*
2	Rootbound	
2	Suspect Cultural Problem	
1	Suspect Environmental Stress	
1	Vole Injury	
1	Wood Decay	
47	***Total for Azalea***	

Bamboo

1	Anthracnose	*Gloeosporium sp.*
1	***Total for Bamboo***	

Barberry

1	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	Insects	
2	***Total for Barberry***	

Bluebeard

1	Suspect Chemical Injury	
1	***Total for Bluebeard***	

Boxwood

3	Cold Injury	
4	Cultural Problem	
2	Dagger Nematodes	*Xiphinema sp.*
1	Deep Planting	
24	English Boxwood Decline	*Paecilomyces buxi*
1	Environmental Stress	
1	Giant European Hornets	
2	Insects	
24	Insufficient Sample	
3	Lance Nematodes	*Hoplolaimus sp.*
10	Leafminers	
10	Lesion Nematodes	*Pratylenchus sp.*
20	Mites	
1	Negative for Disease	
1	Negative for Nematodes	
4	Negative for Root Disease	
16	Negative for Root Rot Fungi	
10	Nematodes	
7	Phytophthora Root Rot	*Phytophthora nicotianae*
1	Possible Nematode Problem	
5	Ring Nematodes	*Mesocriconema sp.*
8	Rotylenchus Nematodes	*Rotylenchus sp.*
1	Sheath Nematodes	*Hemicycliophora sp.*
1	Slime Mold	
1	Spiral Nematodes	*Helicotylenchus sp.*
6	Spiral Nematodes	*Rotylenchus buxophilus*
3	Stubby Root Nematodes	*Trichodorus sp.*
2	Stunt Nematodes	*Tylenchorhynchus sp.*
1	Suspect Chemical Injury	
3	Suspect Cultural Problem	
1	Suspect Dog Damage	
1	Suspect Frost Injury	
6	Volutella Blight	*Volutella buxi*
1	Winter Injury	
185	***Total for Boxwood***	

Burning Bush

1	Environmental Stress	
1	Sooty Mold	
2	***Total for Burning Bush***	

Butterfly Bush	
1 Foliar Nematodes	*Aphelenchoides sp.*
1 Insufficient Sample	
1 Negative for Disease	
3 Total for Butterfly Bush	

Camellia	
3 Insufficient Sample	
2 Mites	
1 Suspect Virus	
2 Winter Injury	
8 Total for Camellia	

Candytuft	
1 Pseudomonas Tip Blight	*Pseudomonas viridiflava*
1 Total for Candytuft	

Cherry	
1 Insufficient Sample	
1 Phomopsis Canker	*Phomopsis mali*
2 Total for Cherry	

Cherrylaurel	
2 Borers	
1 Cercospora Leaf Spot	*Cercospora sp.*
1 Insects	
3 Insufficient Sample	
1 Mammalian Injury	
3 Mycosphaerella Leaf Spot	*Mycosphaerella sp.*
1 Negative for Disease	
1 Suspect Winter Injury	
13 Total for Cherrylaurel	

Cleyera	
2 Insufficient Sample	
1 Rhizoctonia Root Rot	*Rhizoctonia solani*
3 Total for Cleyera	

Cotoneaster	
1 Phytophthora Root Rot	*Phytophthora cinnamomi*
1 Scales	
2 Total for Cotoneaster	

Crape Myrtle	
1 Crystalline Residue	
1 Environmental Stress	
1 Exfoliating Bark	
1 Sooty Mold	
4 Total for Crape Myrtle	

English Ivy		
2	Anthracnose	*Colletotrichum trichellum*
1	Bacterial Leaf Spot	*Xanthomonas hederae*
3	Insufficient Sample	
1	Mites	
1	Phyllosticta Leaf Spot	*Phyllosticta sp.*
1	Pythium Root Rot	*Pythium sp.*
1	Suspect Environmental Stress	
1	Suspect Winter Injury	
11	***Total for English Ivy***	

Euonymus		
1	Anthracnose	*Colletotrichum gloeosporioides*
1	Chemical Injury	
1	Insufficient Sample	
1	Oedema	
1	Powdery Mildew	*Microsphaera euonymi-japonici*
5	***Total for Euonymus***	

Filbert		
1	Eastern Filbert Blight	*Anisogramma anomala*
1	***Total for Filbert***	

Forsythia		
1	Environmental Stress	
1	Phomopsis Gall	*Phomopsis sp.*
2	***Total for Forsythia***	

Frangipani		
1	Insufficient Sample	
1	***Total for Frangipani***	

Hibiscus		
1	Cultural Problem	
1	***Total for Hibiscus***	

Holly		
1	Anthracnose	*Gloeosporium sp.*
1	Anthracnose	*Glomerella sp.*
20	Black Root Rot	*Thielaviopsis basicola*
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
2	Cold Injury	
2	Cultural Problem	
1	Deep Planting	
1	Girdling Roots	
1	Insects	
15	Insufficient Sample	
1	Mechanical Injury	
1	Mites	
5	Negative for Disease	

1	Negative for Phytophthora Root Rot	
3	Negative for Root Disease	
3	Phytophthora Root Rot	*Phytophthora cinnamomi*
3	Rootbound	
1	Scales	
2	Sooty Mold	
1	Suspect Environmental Stress	
1	Suspect Mechanical Injury	
1	Suspect Phythophthora Canker	*Phytophthora sp.*
1	Webworms	
1	Winter Injury	
70	***Total for Holly***	

Hydrangea

1	Anthracnose	*Colletotrichum sp.*
3	Bacterial Leaf Spot	*Xanthomonas campestris*
1	Botrytis Blight	*Botrytis cinerea*
1	Cercospora Leaf Spot	*Cercospora hydrangeae*
1	Chemical Injury	
1	Environmental Stress	
1	Girdling Roots	
1	Low pH	
1	Phoma Leaf Spot	*Phoma sp.*
1	Physiological Leaf Spot	
1	Phytophthora Root Rot	*Phytophthora cinnamomi*
1	Powdery Mildew	*Erisyphe polygoni*
1	Wood Decay	
15	***Total for Hydrangea***	

Hypericum

1	Rust	*Uromyces triquestrus*
1	***Total for Hypericum***	

Indian Hawthorn

1	Cercospora Leaf Spot	*Cercospora sp.*
1	***Total for Indian Hawthorn***	

Inkberry

1	Cicada Injury	
1	Cultural Problem	
1	Insufficient Sample	
3	***Total for Inkberry***	

Japanese Plum Yew

1	Insufficient Sample	
1	***Total for Japanese Plum Yew***	

Juniper	
3 Cultural Problem	
4 Environmental Stress	
1 Insects	
8 Insufficient Sample	
3 Kabatina Tip Blight	*Kabatina juniperi*
4 Mites	
5 Negative for Disease	
1 Negative for Root Disease	
1 Negative for Tip Blight	
1 Phytophthora Root Rot	*Phytophthora sp.*
1 Scales	
1 Suspect Environmental Stress	
1 Suspect Excess Soil Moisture	
34 Total for Juniper	

Laurel	
1 Botryosphaeria Dieback	*Botryosphaeria sp.*
1 Deep Planting	
1 Insufficient Sample	
3 Total for Laurel	

Leucothoe	
1 Negative for Root Disease	
1 Phyllosticta Leaf Spot	*Phyllosticta sp.*
2 Total for Leucothoe	

Lilac	
1 Insufficient Sample	
1 Scales	
2 Total for Lilac	

Linden	
1 Insects	
1 Total for Linden	

Mahonia	
1 Insects	
1 Spine Spot	
1 Winter Injury	
3 Total for Mahonia	

Mountain Laurel	
1 Cercospora Leaf Spot	*Cercospora kalmiae*
1 Insufficient Sample	
1 Pseudocercospora Leaf Spot	*Pseudocercospora kalmiae*
1 Vole Injury	
4 Total for Mountain Laurel	

Nandina

1	Insufficient Sample	
1	***Total for Nandina***	

Photinia

1	Botryosphaeria Dieback	*Botryosphaeria sp.*
2	Entomosporium Leaf Spot	*Entomosporium mespili*
1	Phyllosticta Leaf Spot	*Phyllosticta sp.*
4	***Total for Photinia***	

Pieris

1	Anthracnose	*Colletotrichum sp.*
1	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	Cultural Problem	
2	Insufficient Sample	
1	Lacebugs	
1	Phyllosticta Leaf Spot	*Phyllosticta andromedae*
1	Phytophthora Root Rot	*Phytophthora cinnamomi*
8	***Total for Pieris***	

Pittosporum

1	Scales	
1	***Total for Pittosporum***	

Plants, Miscellaneous

1	Chemical Injury	
1	Environmental Stress	
1	Insufficient Sample	
1	Iron-Induced Iridescence	
1	Suspect Insects	
1	Winter Injury	
6	***Total for Plants, Miscellaneous***	

Privet

1	Oedema	
1	***Total for Privet***	

Pyracantha

1	Cause of Problem Unknown	
1	***Total for Pyracantha***	

Red Cedar

1	Environmental Stress	
1	***Total for Red Cedar***	

Rhododendron

1	Borers	
6	Botryosphaeria Dieback	*Botryosphaeria sp.*
1	Cultural Problem	
1	Gall Midges	

6	Insufficient Sample	
1	Lacebugs	
1	Mites	
1	Mycosphaerella Leaf Spot	*Mycosphaerella sp.*
1	Negative for Root Disease	
2	Phytophthora Root Rot	*Phytophthora cinnamomi*
1	Suspect Cultural Problem	
1	Suspect Environmental Stress	
1	Vole Injury	*Microtus sp.*
1	Winter Injury	
25	***Total for Rhododendron***	

Rose

2	Black Spot	*Diplocarpon rosae*
1	Botrytis Blight	*Botrytis cinerea*
1	Cause of Problem Unknown	
1	Mechanical Injury	
1	Mites	
1	Normal Condition	
1	Phomopsis Cane Canker	*Phomopsis sp.*
1	Powdery Mildew	*Sphaerotheca pannosa*
4	Rose Rosette	
1	Suspect Chemical Injury	
1	Suspect Rose Rosette	
1	Thrips	
16	***Total for Rose***	

Rose-of-Sharon

1	Insufficient Sample	
1	Physiological Leaf Spot	
2	***Total for Rose-of-Sharon***	

Russian Olive

1	Negative for Root Disease	
1	***Total for Russian Olive***	

Serviceberry

1	Suspect Nutrient Deficiency	
1	***Total for Serviceberry***	

Snowbell

1	Fusarium Canker	*Fusarium lateritium*
1	***Total for Snowbell***	

Spicebush

1	Insects	
1	***Total for Spicebush***	

Spirea

1	Sooty Mold	
1	***Total for Spirea***	

Summersweet	
1 Negative for Phytophthora Root Rot	
1 Total for Summersweet	

Sweetspire	
1 Physiological Leaf Spot	
1 Total for Sweetspire	

Viburnum	
2 Environmental Stress	
1 Giant European Hornets	
1 Girdling Roots	
1 Insufficient Sample	
2 Negative for Disease	
1 Negative for Root Disease	
1 Sunburn	
1 Suspect Chemical Injury	
1 Suspect Frost Injury	
11 Total for Viburnum	

Wax Myrtle	
1 Botryosphaeria Dieback	*Botryosphaeria sp.*
1 Septoria Leaf Spot	*Septoria sp.*
2 Total for Wax Myrtle	

Weigela	
1 Wood Decay	*Stereum hirsutum*
1 Total for Weigela	

Witchhazel	
1 Insufficient Sample	
2 Phyllosticta Leaf Blight	*Phyllosticta hamamelidis*
3 Total for Witchhazel	

Yew	
1 Environmental Stress	
1 Frost Injury	
2 Insufficient Sample	
2 Phytophthora Root Rot	*Phytophthora cinnamomi*
1 Sooty Mold	
7 Total for Yew	

Identification Appendix

Samples submitted to the laboratory for identification

Higher Plants (25)

Family: Aquifoliaceae	
Ilex crenata	Japanese Holly
Family: Berberidaceae	
Berberis thunbergii	Asian Barberry
Family: Caprifoliceae	
Viburnum carlesii	Koreanspice Viburnum
Family: Compositae	
Xanthium strumarium	Common Cocklebur
Family: Elaeagnaceae	
Elaeagnus umbellata	Autumn -olive
Family: Ericaceae	
Vaccinium stamineum	Deerberry
Family: Fabaceae	
Desmodium paniculatum	Narrowleaf Tick-Trefoil
Kummerowia striata	Japanese Bushclover
Family: Gramineae	
Panicum anceps	Flat-stemmed Panic-Grass
Poa trivialis	Rough-stalk Bluegrass
Family: Hippocastanaceae	
Aesculus hippocastanum	Common Horsechestnut
Family: Hypericaceae	
Hypericum calycinum	Aaron's Beard
Family: Lamiaceae	
Salvia coccinea	Scarlet Sage
Family: Leguminosae	
Lablab purpureus	Hyacinth Bean
Sophora japonica	Japanese Pagodatree
Family: Poaceae	
Anthoxanthum odoratum	Sweet Vernal Grass
Family: Primulaceae	
Lysimachia clethroides	Loosestrife
Family: Rhamnaceae	
Ziziphus jujuba	Common Jujube

Family: Rosaceae	
Duchesnea indica	Indian Strawberry
Malus sp.	Crabapple
Pyrus pyrifolia	Asian Pear
Family: Rubiaceae	
Diodia virginiana	Virginia Buttonweed
Family: Rutaceae	
Poncirus trifoliata	Trifoliate Orange
Family: Santalaceae	
Pyrularia pubera	Buffalo-Nut
Family: Violaceae	
Viola sororia	Common Blue Violet

Fungi (10)

Family: Clavicipitaceae	
Cordyceps melolanthae	Cordyceps
Family: Lycoperdaceae	
Calvatia cyathiformis	Puffball
Lycoperdon candidum	Puffball
Family: Meripilaceae	
Grifola frondosa	Hen of the Woods
Family: Nidulariaceae	
Cyathus sp.	Bird's Nest Fungus
Family: Oleaceae	
Ligustrum sp.	Privet
Family: Phallaceae	
Mutinus caninus	Yellow Stinkhorn
Family: Sclerodermataceae	
Scleroderma geaster (2)	Earthball
Family: Unknown	Lichen
Family: Xylariaceae	
Xylaria sp.	Dead Man's Fingers

Unknown (6)

Crystalline Substance
Gel
Insulation Material
Insufficient Sample
Unable to Identify (2)