College of Agriculture, Food and Environment

Plant Pathology

Plant Disease Diagnostic Laboratory Summary

2020

by:

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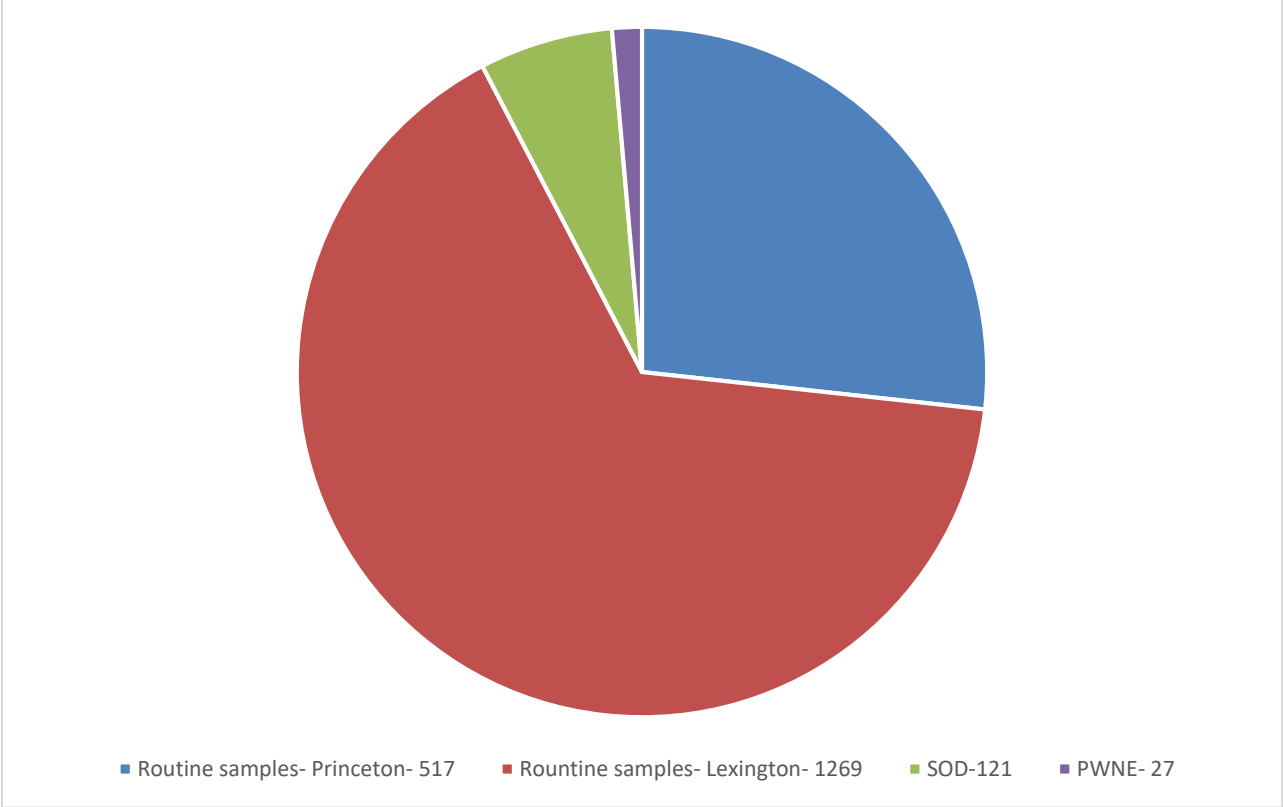
INTRODUCTION

The Plant Disease Diagnostic Laboratory (Lexington and Princeton) processed 1934 plant samples. Many plant samples had more than one problem which added an additional 658 diagnoses, bringing the total number of diagnoses to 2592. The Lexington Laboratory diagnosed 1417 specimens, including 1269 routine plant samples, 121 samples from commercial nurseries surveyed for the Sudden Oak Death (SOD) pathogen, and 27 Eastern red cedar (*Juniperus virginiana*) samples from commercial lumber companies for pinewood nematode extraction (PWNE). The Princeton Laboratory diagnosed 838 routine plant specimens. Sample totals are summarized in Figure 1 below.

Figure 1: Plant Disease Diagnostic Laboratory – 2020



Total Samples	**1934**
+ Additional diagnoses	**658**
	2592

NATURE OF WORK

Plant disease diagnosis is an ongoing educational and research activity of the U.K. Department of Plant Pathology. There are two branches of the Plant Disease Diagnostic Laboratory (PDDL), one on the U.K. campus in Lexington, and one at the U.K. Research and Education Center in Princeton.

Diagnosis of plant diseases requires keen observation and investigation into the possible causes of plant problems. Most visual diagnoses involve microscopy to determine which plant parts are affected and to identify the pathogen(s) involved. In addition, many specimens require special tests such as moist chamber incubation, pathogen isolation from plant tissue, enzyme-linked immunosorbent assay (ELISA), nematode extraction, or soil pH and soluble salts tests. The laboratory uses the polymerase-chain-reaction (PCR) technique for identification of certain pathogens.

A database of laboratory records is maintained to provide information used for conducting plant disease surveys, identifying new disease outbreaks, and formulating educational programs. In addition, information from the laboratory provides the basis for timely news of plant disease problems through the Kentucky Pest News newsletter, social media, radio, television, and plant health care workshops. Both laboratories report diagnoses of plant diseases to USDA-APHIS as part of the National Plant Diagnostic Network.

ACKNOWLEDGMENTS

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Southern Plant Diagnostic Network, Kentucky Integrated Pest Management Program and Altria Leaf Department (Supplemental funding).

EXPLANATORY REMARKS

In 2020 we continued to use the PClinic database system. This system allows us to record all pathogens, insects and other disorders observed on each plant sample. The main body of this report (Table 9) consists of three columns, the first contains the total number of diagnoses, followed by columns for the diagnosis and causal agent.

Referrals and consultations: Insect problems were generally identified or verified by a specialist in the Entomology Department. Chemical injuries on all commercially grown crops were diagnosed by a weed control specialist or crop specialist. Specialists in other departments at UK also may have provided input on diagnoses of abiotic problems.

Table 1. SUMMARY OF DIAGNOSES[a] BY CROP CATEGORY AND CAUSAL AGENT TYPE

Crop Category	Abiotic Problems	Biotic[b] Problems	Chemical Injury	Inadequate Specimen	Insect Injury	Other[c]	Total Diagnoses
Agronomic							
Corn	30	106	3	0	2	4	145
Forages	12	56	0	0	11	1	80
Hemp	7	29	2	0	12	3	53
Small grains	12	12	0	0	0	5	29
Soybeans	23	71	6	0	2	7	109
Tobacco	34	118	12	0	0	7	171
Fruit							
Small fruit	9	43	2	0	2	6	62
Tree fruit	10	51	0	0	17	6	84
Herbs	12	13	1	1	2	1	30
Identifications	0	6	0	0	0	0	7
Ornamentals							
Herbaceous/ Houseplants	37	114	11	5	22	18	207
Turfgrass	9	105	0	4	0	4	122
Woody	233	433[d]	9	13	141	180[d]	1009
Vegetables	94	271	34	20	21	35	475
Miscellaneous	2	5	0	0	1	1	9
Total	**524**	**1433**	**80**	**44**	**233**	**278**	**2592**

[a]Counts and totals include all diagnoses entered into the PDDL database.
[b]Refer to Table 2 for further breakdown of this category.
[c]Includes the causal agent categories: No disease and Unknown.
[d]Totals include 121 SOD survey samples (14 fungal disease diagnoses; 107 samples with no disease) and 27 PWNE juniper with no disease.

Table 2. SUMMARY OF BIOTIC PROBLEMS[a] BY CROP CATEGORY					
Crop Category	**Bacterial**	**Fungal**	**Nematode**	**Virus**	**Other[b]**
Agronomic					
Corn	0	106	0	0	0
Forages	0	56	0	0	0
Hemp	0	29	0	0	0
Small grains	2	3	0	7	0
Soybeans	0	71	0	0	0
Tobacco	17	93	0	8	0
Fruit					
Small fruit	1	40	0	2	0
Tree fruit	2	49	0	0	0
Herbs	2	11	0	0	0
Identifications	0	6	0	0	0
Ornamentals					
Herbaceous/ Houseplants	8	103	1	2	0
Turfgrass	0	103	0	0	2
Woody	35	381[c]	0	4	13
Vegetables	36	226	2	7	0
Miscellaneous	0	5	0	0	0
Total	**103**	**1282**	**3**	**30**	**15**

[a]Counts and totals include all diagnoses entered into the PDDL database.
[b]Includes these categories: Animal (rodent and bird damage), Plant (plant identifications or parasitic plant) and Alga, Lichen and Phytoplasma.
[c]Totals includes 14 Sudden Oak Death (SOD) survey samples with problems caused by fungi.

Table 3. NUMBER OF ROUTINE PLANT SAMPLES AND DIAGNOSES BY CROP				
Crop Category and Crop	**No. of Samples**	**% Total Samples**	**No. of Diagnoses**	**% Total Diagnoses**
Agronomic				
Corn	83	4.29	145	5.59
Forages	49	2.53	80	3.09
Hemp	39	2.02	53	2.04
Small grains	25	1.29	29	1.12
Soybeans	67	3.46	109	4.21
Tobacco	130	6.72	171	6.60
Fruit				
Small fruit	50	2.59	62	2.39
Tree fruit	55	2.84	84	3.24
Herbs	21	1.09	30	1.16
Identifications	7	0.36	7	0.27
Ornamentals				
Herbaceous and Houseplants	162	8.38	207	7.99
Turfgrass	91	4.71	122	4.71
Woody[a]	769	39.76	1009	38.93
Vegetables	377	19.49	475	18.33
Miscellaneous	9	0.47	9	0.35
Total	**1934**	**100**	**2592**	**100**

[a]Includes 121 SOD survey samples and 27 PWNE juniper samples.

Table 4. SUMMARY OF ROUTINE SAMPLES RECEIVED BY GROWER TYPE AND CROP CATEGORY

	Grower Type							
	Commercial		Homeowner		Research		Institution	
Crop Group	**Ext[a]**	**NE[b]**	**Ext[a]**	**NE[b]**	**Ext[a]**	**NE[b]**	**Ext[a]**	**NE[b]**
Agronomic								
Corn	74	7	0	0	2	0	0	0
Forages	47	1	0	0	0	1	0	0
Hemp	16	14	0	0	8	0	0	1
Small grains	18	0	0	0	3	4	0	0
Soybeans	60	6	0	0	0	1	0	0
Tobacco	126	3	0	0	0	1	0	0
Fruit								
Small Fruit	30	0	16	0	2	1	1	0
Tree Fruit	10	1	43	0	1	0	0	0
Herbs	13	0	4	0	1	1	1	1
Identifications	1	0	6	0	0	0	0	0
Ornamental								
Herbaceous/ Houseplants	66	3	57	0	10	3	17	6
Turfgrass	48	3	29	0	1	0	8	2
Woody	183	282	348	14	3	1	9	29
Vegetable	206	6	140	2	19	1	3	0
Miscellaneous	5	0	1	1	0	4	0	0
Total	**903**	**226**	**643**	**16**	**50**	**18**	**39**	**39**
Total Grower Type	**1129**		**659**		**68**		**78**	
Total No. of routine samples received = 1934								

[a]Ext = Extension samples submitted via County Extension Agents or Extension Specialists.
[b]NE = Non-extension samples submitted directly by the grower or other non-extension clients.

Table 5. NUMBER OF ROUTINE SAMPLES REFERRED TO OTHER DEPARTMENTS, UK LABORATORY FACILITIES OR OUTSIDE AGENCIES FOR DIAGNOSIS OR CONSULTATION

Department, Facility or Outside Agency	Total
Agdia, Inc.	7
Entomology Department	64
Horticulture Department	62
Plant & Soil Sciences Department	133
Purdue University	1
Total no. of sample referrals	**267**
Total no. of plant specimens received	**1934**
% of specimens referred outside Diagnostic Lab for diagnosis	**13.8**

Table 6. SPECIAL LABORATORY TESTS[a] PERFORMED BY PLANT DISEASE DIAGNOSTIC LABORATORY

Test	No. of Tests
Culture	85
Incubation/Lab test	346
Microscope	1441
Molecular (PCR)	42
Nematode extraction	27[b]
Serological (ELISA)	346[c]
Soil tests	204
Visual examination	1225
Total	**3716**

[a]Many samples require more than one test and all tests performed in 2020 are recorded above.
[b]Includes 27 PWNE samples.
[c]Includes 121 samples for the SOD survey.

Table 7. NO. OF ROUTINE PLANT SAMPLES RECEIVED BY COUNTY AND CROP CATEGORY (KY AND OUT-OF-STATE SOURCES)

COUNTY	TOTAL	AGRONOMIC[a]	TOBACCO	FRUIT	ORNAMENTAL	VEGETABLE	OTHER
Adair	8	6	0	0	1	1	0
Allen	14	1	0	2	2	9	0
Anderson	21	9	2	2	6	2	0
Ballard	6	2	0	0	3	0	1
Barren	21	1	0	3	13	4	0
Bath	5	3	0	0	2	0	0
Boone	31	0	0	0	22	8	1
Bourbon	12	1	1	1	1	7	1
Boyd	10	0	0	0	6	3	1
Boyle	14	4	4	1	4	1	0
Bracken	3	1	0	0	1	1	0
Breathitt	9	1	1	0	2	4	1
Breckinridge	57	15	7	12	2	21	0
Bullitt	5	0	0	0	4	1	0
Butler	10	4	0	0	2	4	0
Caldwell	25	9	3	0	10	3	0
Calloway	25	2	6	1	12	3	1
Campbell	14	1	0	3	7	3	0
Carroll	1	0	0	0	1	0	0
Carter	12	2	0	0	3	7	0
Casey	1	0	0	1	0	0	0
Christian	66	12	12	1	23	18	0
Clark	20	4	3	0	12	1	0
Clay	2	0	0	0	1	1	0
Clinton	13	8	0	1	1	3	0
Crittenden	11	1	0	3	4	3	0
Cumberland	7	1	0	0	4	2	0
Daviess	71	10	8	1	41	8	3
Edmonson	1	0	0	0	1	0	0
Elliott	3	0	0	0	0	2	1
Estill	4	0	0	0	1	3	0
Fayette	305	26	3	5	244	18	9
Fleming	11	2	2	4	3	0	0
Floyd	2	0	0	1	0	1	0
Franklin	14	2	0	0	12	0	0
Fulton	2	0	0	1	1	0	0
Gallatin	2	0	0	0	0	2	0
Garrard	1	0	1	0	0	0	0
Grant	9	0	3	2	0	3	1
Graves	19	3	7	1	6	2	0
Grayson	4	1	0	0	1	2	0
Green	7	0	1	0	6	0	0
Greenup	10	1	1	1	6	1	0
Hancock	5	0	4	1	0	0	0

COUNTY	TOTAL	AGRONOMIC[a]	TOBACCO	FRUIT	ORNAMENTAL	VEGETABLE	OTHER
Hardin	20	9	0	0	11	0	0
Harlan	1	0	0	1	0	0	0
Harrison	17	1	10	0	4	2	0
Hart	14	2	0	3	7	2	0
Henderson	15	6	0	0	9	0	0
Henry	6	0	2	0	1	3	0
Hickman	5	2	1	0	1	1	0
Hopkins	16	0	0	1	14	1	0
Jackson	10	0	0	3	4	3	0
Jefferson	90	0	0	0	89	1	0
Jessamine	18	1	0	1	16	0	0
Kenton	30	2	0	0	26	1	1
Knott	1	0	0	0	0	1	0
Knox	4	0	0	0	0	4	0
Larue	9	4	0	1	2	2	0
Laurel	14	2	0	2	1	9	0
Lawrence	3	0	0	1	1	1	0
Letcher	6	0	0	2	1	2	1
Lewis	30	5	2	2	13	8	0
Lincoln	41	4	0	1	33	2	1
Livingston	4	0	0	0	4	0	0
Logan	23	9	2	0	10	2	0
Lyon	13	8	1	1	3	0	0
Madison	16	2	0	0	6	8	0
Magoffin	1	0	0	0	0	1	0
Marion	16	3	4	0	4	5	0
Marshall	48	2	1	2	25	18	0
Martin	1	0	0	0	1	0	0
Mason	29	2	3	0	14	10	0
Mccracken	30	0	0	3	20	7	0
Mccreary	3	0	0	2	1	0	0
Mclean	8	4	1	1	0	2	0
Meade	8	1	0	0	6	1	0
Menifee	9	0	0	0	3	5	1
Mercer	7	1	0	0	5	1	0
Metcalfe	11	2	0	4	1	4	0
Monroe	8	2	2	1	3	0	0
Montgomery	16	0	1	1	7	7	0
Morgan	6	0	1	1	2	2	0
Muhlenberg	14	2	2	2	2	6	0
Nelson	25	2	0	0	19	4	0
Ohio	2	2	0	0	0	0	0
Oldham	15	3	0	0	12	0	0
Owen	5	0	1	0	2	2	0
Owsley	5	1	1	1	0	2	0

COUNTY	TOTAL	AGRONOMIC[a]	TOBACCO	FRUIT	ORNAMENTAL	VEGETABLE	OTHER
Pendelton	4	0	2	0	0	0	2
Perry	1	0	0	0	1	0	0
Pike	12	0	0	2	7	2	1
Pulaski	18	2	1	0	9	5	1
Robertson	2	0	0	0	2	0	0
Rockcastle	3	1	0	1	1	0	0
Rowan	6	0	0	0	5	1	0
Russell	26	5	0	1	14	6	0
Scott	26	1	1	2	13	9	0
Shelby	17	3	2	1	8	3	0
Simpson	19	3	0	1	9	6	0
Spencer	4	1	1	0	1	1	0
Taylor	69	0	3	1	45	20	0
Todd	56	20	11	3	10	11	1
Trigg	20	0	3	1	9	7	0
Trimble	4	0	0	1	0	3	0
Union	2	1	0	1	0	0	0
Warren	13	3	0	2	8	0	0
Washington	5	0	0	0	4	1	0
Wayne	4	1	0	0	1	2	0
Webster	2	2	0	0	0	0	0
Whitley	8	0	0	0	2	6	0
Wolfe	3	0	0	0	0	3	0
Woodford	44	3	2	3	19	9	8
Totals	1934	263	130	105	1022	377	37

[a]Agronomic crops include corn, soybeans, forages, small grains, and hemp.

Table 8. NUMBER OF PRIMARY DIAGNOSES AND CONSULTATIONS MADE BY UK EXTENSION SPECIALISTS AND RESEARCHERS

Specialists/Researchers	Department	Consultations
Bailey, WA	Plant & Soil Sciences	22
Becker, DW	Horticulture	5
Bessin, RT	Entomology	19
Bradley, CA	Plant Pathology	6
Cropper, K	Plant & Soil Sciences	3
Dunwell, WC	Horticulture	1
Dutton, SR	Horticulture	3
Fountain, WM	Horticulture	17
Gauthier, NW	Plant Pathology	15
Green, JD	Plant & Soil Sciences	28
Knott, CA	Plant & Soil Sciences	7
Larson, J	Entomology	38
Lee, CD	Plant & Soil Sciences	5
Legleiter, T	Plant & Soil Sciences	37
Murdock, L	Plant & Soil Sciences	1
Neves, D	Plant Pathology	2
Owen, G	Horticulture	4
Pearce, RC	Plant & Soil Sciences	17
Pfeufer, EE	Plant Pathology	46
Phillips, T	Plant & Soil Sciences	3
Ritchey, EL	Plant & Soil Sciences	9
Rudolph, R	Horticulture	26
Smith, SR	Plant & Soil Sciences	1
Snyder, J	Horticulture	1
Strang, JG	Horticulture	5
Villaneuva, R	Entomology	7
Vincelli, P	Plant Pathology	13
Wise, KA	Plant Pathology	14
Wright, S	Horticulture	1

Table 9. DIAGNOSIS OF INDIVIDUAL SAMPLES BY CROP AND DISEASE/DISORDER

CORN

Corn		
2	Anthracnose stalk rot	*Colletotrichum graminicola*
2	Charcoal rot	*Macrophomina phaseolina*
3	Common corn rust	*Puccinia sorghi*
26	Corn gray leaf spot	*Cercospora zeae-maydis*
3	Cultural/environmental problem	*Abiotic disorder*
3	Curvularia leaf spot	*Curvularia lunata*
2	Diplodia ear rot	*Stenocarpella (Diplodia) maydis*
7	Diplodia leaf streak	*Stenocarpella (Diplodia) macrospora*
2	Diplodia stalk rot	*Stenocarpella (Diplodia) maydis*
3	Environmental stress; problem	*Abiotic disorder*
1	Genetic disorders	*Abiotic disorder*
3	Herbicide injury suspected	*Chemical*
1	Insect damage suspected	*Unidentified insect*
2	Leaf scorch	*Abiotic disorder*
8	Leaf spot-abiotic	*Abiotic disorder*
1	Low pH	*Nutritional disorder*
4	Magnesium deficiency	*Nutritional disorder*
3	No pathogen found	*Undetermined*
1	Non-pathogenic; Saprophyte	*Secondary agents; Saprophytes*
1	Normal plant growth	*Undetermined*
6	Northern corn leaf blight; leaf spot	*Setosphaeria (Exserohilum) turcica (turcicum)*
1	Penicillium ear rot	*Penicillium sp./spp.*
2	Physoderma brown spot	*Physoderma maydis*
2	Planting too shallow	*Abiotic disorder*
4	Pythium root and/or crown rot	*Pythium sp./spp.*
4	Rhizoctonia crown and root rot	*Rhizoctonia solani*
4	Soil compaction	*Abiotic disorder*
40	Southern corn rust	*Puccinia polysora*
1	Thrips	*Order Thysanoptera*
1	Trichoderma ear rot	*Trichoderma viride*
2	Undetermined abiotic injury	*Abiotic disorder*
145	**Total for Corn**	

FORAGES

Alfalfa		
7	Anthracnose	*Colletotrichum trifolii*
1	Black patch suspected	*Rhizoctonia leguminicola*
1	Environmental stress; problem	*Abiotic disorder*
1	Iron deficiency	*Nutritional disorder*
6	Leptosphaerulina leaf spot; blight	*Leptosphaerulina trifolii*
5	Nutritional deficiency	*Nutritional disorder*

2	Poor nodulation	*Abiotic disorder*
11	Potato leafhopper	*Empoasca fabae*
1	Rhizoctonia damping-off	*Rhizoctonia sp./spp.*
7	Rhizoctonia foliar/ aerial/ web blight	*Rhizoctonia solani*
4	Rhizoctonia root; crown rot	*Rhizoctonia sp./spp.*
1	Rhizoctonia stem rot	*Rhizoctonia sp./spp.*
3	Sclerotinia stem/ crown or root rot	*Sclerotinia trifoliorum*
3	Soil compaction	*Abiotic disorder*
2	Spring black stem	*Phoma medicaginis*
14	Summer black stem; leaf spot	*Cercospora medicaginis*
69	**Total for Alfalfa**	

Clover		
1	Sclerotinia stem/ crown or root rot	*Sclerotinia trifoliorum*
1	Southern anthracnose	*Colletotrichum trifoliorum*
2	**Total for Clover**	

Fescue		
1	Brown patch	*Rhizoctonia sp./spp.*
1	Leaf rust; rust	*Puccinia sp./spp.*
1	No pathogen found	*Undetermined*
3	**Total for Fescue**	

Orchardgrass		
4	Leaf Streak	*Cercosporidium sp./spp.*
4	**Total for Orchardgrass**	

Sorghum		
1	Anthracnose	*Colletotrichum graminicola*
1	Target spot	*Bipolaris sorghicola*
2	**Total for Sorghum**	

HEMP

Hemp		
1	Aphids	*Family Aphididae*
7	Cercospora leaf spot	*Cercospora sp./spp.*
1	Chemical injury suspected	*Chemical*
1	Cultural/environmental problem	*Abiotic disorder*
2	Fungus gnat	*Mycetophila sp./spp.*
1	Fusarium flower blight	*Fusarium sp./spp.*
7	Hemp russet mite	*Aculops cannibicola*
5	Leaf spot	*Bipolaris gigantea*
3	No pathogen found	*Undetermined*

1	Nutritional deficiency	*Nutritional disorder*
1	Nutritional problem suspected	*Nutritional disorder*
1	Phytotoxicity	*Chemical*
1	Poor root development	*Abiotic disorder*
5	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia foliar/ aerial/ web blight	*Rhizoctonia solani*
1	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*
1	Root and/or pot bound	*Abiotic disorder*
9	Septoria leaf spot	*Septoria cannabis*
2	Soil compaction	*Abiotic disorder*
1	Thrips	*Order Thysanoptera*
1	Twospotted spider mite	*Tetranychus urticae*
53	**Total for Hemp**	

SOYBEAN

Soybean

1	Animal damage	*Abiotic disorder*
3	Charcoal rot	*Macrophomina phaseolina*
1	Chemical injury suspected	*Chemical*
1	Drought stress damage	*Abiotic disorder*
2	Growth regulator effect suspected	*Chemical*
3	Herbicide injury suspected	*Chemical*
1	Japanese beetle	*Popillia japonica*
2	Leaf blight	*Cercospora kikuchii*
1	Nutritional deficiency	*Nutritional disorder*
1	Phomopsis seed decay	*Phomopsis sp./spp.*
1	Physarum slime mold	*Physarum sp./spp.*
8	Potassium deficiency	*Nutritional disorder*
6	Potassium deficiency suspected	*Abiotic disorder*
2	Purple seed-stain; leaf blight	*Cercospora kikuchii*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
4	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*
2	Saprophytes	*Secondary agents; Saprophytes*
5	Soil compaction	*Abiotic disorder*
4	Soybean anthracnose	*Glomerella glycines*
3	Soybean brown spot	*Septoria glycines*
7	Soybean cyst nematode (SCN)	*Heterodera glycines*
9	Soybean downy mildew	*Peronospora manshurica*
2	Soybean frogeye leaf spot	*Cercospora sojina*
11	Soybean Phytophthora root and stem rot	*Phytophthora sojae*
3	Soybean rust	*Phakopsora pachyrhizi*
1	Soybean southern stem canker	*Diaporthe aspalathi*
1	Soybean stem borer	*Dectes texanus*
3	Soybean stem canker	*Diaporthe phaseolorum*
15	Soybean sudden death syndrome	*Fusarium virguliforme*

4	Target spot	*Corynespora cassiicola*
1	Undetermined abiotic injury	*Abiotic disorder*
109	**Total for Soybean**	

SMALL GRAIN

Oats		
1	Undetermined injury	*Undetermined*
1	**Total for Oats**	

Rye		
2	Barley yellow dwarf	*Barley Yellow Dwarf Virus*
4	Freeze; frost; cold damage	*Abiotic disorder*
1	No pathogen found	*Undetermined*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
1	Undetermined abiotic injury	*Abiotic disorder*
10	**Total for Rye**	

Sorghum		
1	Soil compaction	*Abiotic disorder*
1	**Total for Sorghum**	

Wheat		
2	Bacterial streak; black chaff	*Xanthomonas campestris*
1	Cultural/environmental problem	*Abiotic disorder*
1	Environmental stress; problem	*Abiotic disorder*
1	Freeze; frost; cold damage	*Abiotic disorder*
1	High pH	*Nutritional disorder*
2	No pathogen found	*Undetermined*
1	No virus found	*No virus found*
1	Planting too shallow	*Abiotic disorder*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
1	Undetermined injury or wound	*Undetermined*
3	Wheat soil-borne mosaic	*WSBMV*
1	Wheat spindle streak mosaic	*WSSMV*
1	Yeast	*Sporobolomyces roseus*
17	**Total for Wheat**	

TOBACCO

Tobacco		
2	Alfalfa mosaic	*Alfalfa Mosaic Virus (AMV)*
12	Angular leaf spot	*Pseudomonas syringae pv. tabaci*
1	Bacterial soft rot	*Unidentified bacteria*

45	Black shank	*Phytophthora nicotianae*
5	Boron deficiency	*Nutritional disorder*
4	Brown spot	*Alternaria alternata*
2	Chemical injury suspected	*Chemical*
1	Frenching/ High soil moisture	*Abiotic disorder*
17	Frogeye leaf spot	*Cercospora nicotianae*
5	Fusarium wilt	*Fusarium oxysporum*
4	Growth regulator effect suspected	*Chemical*
6	Herbicide injury suspected	*Chemical*
1	Lightning damage	*Abiotic disorder*
3	Low pH damage	*Nutritional disorder*
1	Mechanical damage	*Abiotic disorder*
1	Nitrogen deficiency	*Nutritional disorder*
5	No pathogen found	*Undetermined*
2	Physiological responses (early bloom)	*Abiotic disorder*
3	Potassium deficiency	*Nutritional disorder*
1	Potyvirus Group	*Potyvirus sp./spp.*
7	Pythium root and/or crown rot	*Pythium sp./spp.*
2	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
1	Scald; scorch	*Abiotic disorder*
1	Soil compaction	*Abiotic disorder*
9	Soreshin (Rhizoctonia stem rot)	*Rhizoctonia sp./spp.*
2	Sunscald	*Abiotic disorder*
4	Target spot	*Rhizoctonia sp./spp.*
4	Tobacco hollow stalk; leaf rot	*Erwinia carotovora carotovora*
1	Tobacco streak	*Tobacco streak virus (TSV)*
3	Tomato spotted wilt	*Tomato Spotted Wilt Virus*
6	Transplant shock; stress	*Abiotic disorder*
6	Undetermined injury	*Undetermined*
1	Unspecified viral disease	*Unspecified viral disease*
3	Weather fleck	*Abiotic disorder*
171	**Total for Tobacco**	

SMALL FRUIT

Blackberry

1	Anthracnose	*Elsinoe veneta*
1	Septoria leaf and cane spot	*Sphaerulina westendorpii*
1	White drupelet disorder	*Abiotic disorder*
3	**Total for Blackberry**	

Blueberry

1	Alternaria leaf spot	*Alternaria sp./spp.*
1	Bacterial leaf spot	*Burkholderia andropogonis*
1	Blueberry leaf spot; Phomopsis leaf spot	*Phomopsis vaccinii*

1	Canker; Stem blight; Dieback	*Botryosphaeria dothidea*
1	Chemical injury suspected	*Chemical*
1	Decline; dieback	*Abiotic disorder*
1	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
1	Drought stress damage	*Abiotic disorder*
1	Freeze; frost; cold damage	*Abiotic disorder*
1	Fungal canker	*Various fungi*
2	No pathogen found	*Undetermined*
3	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
2	Transplant shock; stress	*Abiotic disorder*
1	Undetermined injury or wound	*Undetermined*
2	Unspecified viral disease	*Unspecified viral disease*
20	**Total for Blueberry**	

Grape		
1	Black rot	*Guignardia bidwellii*
1	Grape anthracnose; birds-eye rot	*Elsinoe ampelina*
1	Growth regulator effect suspected	*Chemical*
1	High soil moisture	*Abiotic disorder*
2	No pathogen found	*Undetermined*
1	Twospotted spider mite	*Tetranychus urticae*
7	**Total for Grape**	

Raspberry		
1	Anthracnose	*Elsinoe veneta*
2	Cane blight; canker	*Coniothyrium fuckelii*
1	Freeze; frost; cold damage	*Abiotic disorder*
1	Raspberry yellow rust	*Hamaspora rubi-sieboldii*
2	Sphaerulina leaf spot	*Sphaerulina sp./spp.*
7	**Total for Raspberry**	

Strawberry		
1	Anthracnose basal rot; crown rot	*Colletotrichum sp./spp.*
2	Anthracnose fruit rot	*Colletotrichum sp./spp.*
1	Aphids	*Family Aphididae*
1	Botrytis fruit rot	*Botrytis sp./spp.*
1	Crown rot; Root rot; Stem rot	*Phytophthora sp./spp.*
1	Leaf spot	*Cercospora fragariae*
2	Leaf spot; blight	*Mycosphaerella fragariae*
7	Phomopsis leaf blight	*Phomopsis obscurans*
1	Powdery mildew	*Podosphaera macularis*
1	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*
2	Slime mold	*Class Myxomycetes; Myxomycota*
2	Strawberry black root rot complex	*Various fungi*

1	Undetermined abiotic injury	*Abiotic disorder*
1	Undetermined injury or wound	*Undetermined*
1	Various fungi	*Various fungi*
25	**Total for Strawberry**	

TREE FRUIT		
Apple		
2	Apple scab	*Venturia inaequalis*
5	Bitter rot	*Colletotrichum sp./spp.*
1	Burr knot	*Abiotic disorder*
10	Cedar-apple rust	*Gymnosporangium juniperi-virginianae*
1	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
1	Fire blight	*Erwinia amylovora*
7	Frogeye leaf spot	*Botryosphaeria obtusa*
1	Leaf spot	*Unidentified fungus*
1	Mechanical damage	*Abiotic disorder*
1	No pathogen found	*Undetermined*
2	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
5	Plum curculio	*Conotrachelus nenuphar*
4	Sooty blotch flyspeck complex	*Various fungi*
3	Thread blight	*Ceratobasidium (Corticium) ochroleucum (stevensii)*
1	Undetermined abiotic injury	*Abiotic disorder*
1	Woolly apple aphid	*Eriosoma lanigerum*
1	Yellow-bellied sapsucker	*Sphyrapicus varius*
47	**Total for Apple**	

Cherry		
1	Cultural/environmental problem	*Abiotic disorder*
1	Leaf spot; shothole	*Blumeriella jaapii*
1	Termites	*Order Isoptera*
3	**Total for Cherry**	

Pawpaw		
1	Graft failure	*Abiotic disorder*
1	Phyllosticta leaf spot	*Phyllosticta sp./spp.*
2	**Total for Pawpaw**	

Peach		
1	Anthracnose	*Colletotrichum sp./spp.*
3	Brown rot; blossom and twig blight	*Monilia fructicola*
1	Environmental stress; problem	*Abiotic disorder*
2	Freeze; Frost; Cold damage	*Abiotic disorder*
1	Insect damage	*Unidentified insect*

1	No pathogen found	*Undetermined*
1	Oriental fruit moth	*Grapholita molesta*
2	Peach leaf curl	*Taphrina deformans*
2	Sooty mold	*Unidentified fungus*
1	Undetermined injury or wound	*Undetermined*
15	**Total for Peach**	

Pear		
1	Fire blight	*Erwinia amylovora*
1	No pathogen found	*Undetermined*
1	Pear decline	*Abiotic disorder*
1	Phomopsis canker; Rough bark	*Diaporthe perniciosa*
1	Undetermined injury	*Undetermined*
5	**Total for Pear**	

Pecan		
1	American plum borer	*Euzophera semifuneralis*
1	Dieback; canker	*Nectria sp./spp.*
1	Eriophyid mites	*Family Eriophyidae*
2	Insect damage	*Unidentified insect*
1	Pecan; hickory scab	*Cladosporium caryigenum*
2	Pecan phylloxera	*Phylloxera devastatrix*
2	Stink bug damage	*Unidentified stink bug*
10	**Total for Pecan**	

Plum		
1	Black knot	*Apiosporina morbosa*
1	No pathogen found	*Undetermined*
2	**Total for Plum**	

HERBS

Basil		
1	Bacterial leaf spot	*Pseudomonas cichorii*
1	Botrytis blight	*Botrytis sp./spp.*
1	Cultural/environmental problem	*Abiotic disorder*
1	Downy mildew	*Peronospora belbahrii*
1	Fungus gnat	*Mycetophila sp./spp.*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Scald; scorch	*Abiotic disorder*
1	Thrips damage	*Unidentified thrips*
8	**Total for Basil**	

Ginger

1	Bacterial soft rot	*Erwinia sp./spp.*
1	Post harvest handling disorder	*Abiotic disorder*
2	**Total for Ginger**	

Hops		
1	Growth regulator effect suspected	*Chemical*
1	Powdery mildew	*Unidentified fungus*
2	**Total for Hops**	

Lavender		
2	High pH	*Nutritional disorder*
1	High soil moisture	*Abiotic disorder*
1	High soluble salt	*Nutritional disorder*
1	Insufficient sample	*Undetermined*
2	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
7	**Total for Lavender**	

Mint		
1	Fourlined plant bug	*Poecilocapsus lineatus*
1	**Total for Mint**	

Oregano		
1	Cultural/environmental problem	*Abiotic disorder*
1	**Total for Oregano**	

Rosemary		
1	High soil moisture	*Abiotic disorder*
1	High soluble salt	*Nutritional disorder*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
3	**Total for Rosemary**	

Sage		
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
1	**Total for Sage**	

Tarragon		
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
2	**Total for Tarragon**	

Thyme

1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Undetermined abiotic injury	*Abiotic disorder*
2	**Total for Thyme**	

Turmeric		
1	Post harvest handling disorder	*Abiotic disorder*
1	**Total for Turmeric**	

IDENTIFICATIONS

Mushroom		
1	Earth ball	*Scleroderma sp./spp.*
1	Insufficient sample	*Undetermined*
1	Oyster mushroom	*Pleurotus sp./spp.*
1	Purple-spored puffball	*Calvatia cyathiformis*
1	Tricholoma mushroom	*Tricholoma sp./spp.*
1	Tylopilus mushroom	*Tylopilus sp./spp.*
1	Wood rot fungus	*Ganoderma sp./spp.*
7	**Total for Mushroom**	

MISCELLANEOUS

Arabidopsis		
1	High temperature damage	*Abiotic disorder*
1	**Total for Arabidopsis**	

Chia		
1	No pathogen found	*Undetermined*
1	**Total for Chia**	

Kudzu		
1	Cercospora leaf spot	*Cercospora sp./spp.*
1	**Total for Kudzu**	

Nicotiana benthamiana		
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	**Total for Nicotiana benthamiana**	

Not Found On List		
1	Leaf rust; rust	*Puccinia sp./spp.*
1	Powdery mildew	*Oidium sp./spp.*
1	Thrips	*Frankliniella sp./spp.*
1	Winter injury	*Abiotic disorder*

4	**Total for Not Found On List**	

HERBACEOUS ORNAMENTALS

Bachelor's Buttons		
1	No pathogen found	*Undetermined*
1	**Total for Bachelor's Buttons**	

Begonia		
1	Bacterial blight	*Xanthomonas axonopodis pv. begoniae*
1	No pathogen found	*Undetermined*
1	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*
1	Undetermined abiotic injury	*Abiotic disorder*
4	**Total for Begonia**	

Big Bluestem		
3	Covered smut	*Sporisorium sp./spp.*
3	**Total for Big Bluestem**	

Boston Fern		
1	Chemical injury suspected	*Chemical*
1	Cultural/environmental problem	*Abiotic disorder*
2	**Total for Boston Fern**	

Bugle-weed		
1	Insufficient sample	*Undetermined*
1	**Total for Bugle-weed**	

Chrysanthemum		
1	Bacterial leaf spot	*Pseudomonas cichorii*
2	Fungus gnats	*Mycetophilidae fam.*
1	Fusarium wilt	*Fusarium oxysporum f.sp. chrysanthemi*
1	Growth regulator effect suspected	*Chemical*
2	High soil moisture	*Abiotic disorder*
1	Insufficient sample	*Undetermined*
1	Leafminer	*Phyllonorycter sp./spp.*
1	Leafminer fly	*Amauromyza maculosa*
2	Mealybugs	*Family Pseudococcidae*
1	No pathogen found	*Undetermined*
1	Nutritional problem suspected	*Nutritional disorder*
20	Pythium root and/or crown rot	*Pythium sp./spp.*
4	Rhizoctonia foliar/aerial/web blight	*Rhizoctonia solani*
1	Thrips	*Frankliniella sp./spp.*

39	**Total for Chrysanthemum**	

Clematis		
1	Anthracnose	*Colletotrichum sp./spp.*
1	**Total for Clematis**	

Coral Bells		
1	Cercospora leaf spot	*Cercospora sp./spp.*
1	**Total for Coral Bells**	

Cosmos		
1	Powdery mildew	*Erysiphe sp./spp.*
1	**Total for Cosmos**	

Cow-tongue Cactus; Ox-tongue Cactus		
1	Bacterial soft rot	*Erwinia sp./spp.*
1	**Total for Cow-tongue Cactus; Ox-tongue Cactus**	

Dahlia		
1	Alternaria leaf spot	*Alternaria sp./spp.*
1	Cercospora leaf spot	*Cercospora sp./spp.*
1	No pathogen found	*Undetermined*
1	Powdery mildew	*Erysiphe sp./spp.*
4	**Total for Dahlia**	

Daylily		
1	Anthracnose; Colletotrichum leaf spot	*Colletotrichum sp./spp.*
1	**Total for Daylily**	

Euphorbia		
1	No pathogen found	*Undetermined*
1	**Total for Euphorbia**	

Gazania		
1	No pathogen found	*Undetermined*
1	**Total for Gazania**	

Geranium		
1	Chemical injury suspected	*Chemical*
1	Greenhouse whitefly	*Trialeurodes vaporariorum*
2	High soluble salt	*Nutritional disorder*

1	Oedema; edema	*Abiotic disorder*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
1	Thrips	*Frankliniella sp./spp.*
8	**Total for Geranium**	

Groundsels		
1	Mechanical damage	*Abiotic disorder*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
2	**Total for Groundsels**	

Hellebore		
1	Bacterial blight	*Unidentified bacteria*
1	**Total for Hellebore**	

Horsetail		
1	Hemispherical scale	*Saissetia coffeae*
1	**Total for Horsetail**	

Hosta		
1	Bacterial soft rot	*Erwinia sp./spp.*
1	Foliar nematodes	*Aphelenchoides sp./spp.*
2	No pathogen found	*Undetermined*
2	Slug damage	*Unidentified slug*
2	Southern blight	*Althelia (Sclerotium) rolfsii*
1	Undetermined injury	*Undetermined*
9	**Total for Hosta**	

Impatiens		
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	**Total for Impatiens**	

Iris		
1	Insufficient sample; INAD	*Undetermined*
1	**Total for Iris**	

Ivy		
1	Herbicide injury suspected	*Chemical*
2	Ivy bacterial leaf spot	*Xanthomonas campestris pv. hederae*
3	**Total for Ivy**	

Lantana		
1	Cultural/environmental problem	*Abiotic disorder*
1	High soluble salt	*Nutritional disorder*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
3	**Total for Lantana**	
Lily		
1	Sunscald	*Abiotic disorder*
1	Thrips damage	*Unidentified thrips*
2	**Total for Lily**	
Lilyturf		
2	Anthracnose basal rot; crown rot	*Colletotrichum sp./spp.*
1	Crown and root rot	*Phytophthora sp./spp.*
3	**Total for Lilyturf**	
Madagascar periwinkle		
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	**Total for Madagascar periwinkle**	
Milkweed		
3	Black root rot	*Thielaviopsis basicola*
4	Pythium root and/or crown rot	*Pythium sp./spp.*
2	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*
9	**Total for Milkweed**	
Million Bells		
2	Pythium root and/or crown rot	*Pythium sp./spp.*
2	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
1	Undetermined injury	*Undetermined*
1	White mold	*Sclerotinia sp./spp.*
6	**Total for Million Bells**	
New Guinea Impatiens		
2	Botrytis blight	*Botrytis sp./spp.*
1	Cercospora leaf spot	*Cercospora sp./spp.*
2	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*
1	Sunscald	*Abiotic disorder*
2	Undetermined injury	*Undetermined*
9	**Total for New Guinea Impatiens**	

Oriental Poppy		
1	Bacterial blight	*Xanthomonas sp./spp.*
1	**Total for Oriental Poppy**	

Pachysandra		
5	Leaf and stem blight	*Volutella pachysandrae*
1	Oystershell scale	*Lepidosaphes ulmi*
6	**Total for Pachysandra**	

Pansy		
1	Nutritional deficiency	*Nutritional disorder*
1	**Total for Pansy**	

Pentas		
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	**Total for Pentas**	

Peony		
1	Peony leaf blotch	*Cladosporium paeoniae*
1	**Total for Peony**	

Periwinkle		
2	Phoma blight; dieback; rot	*Phoma sp./spp.*
1	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*
3	**Total for Periwinkle**	

Petunia		
1	Botrytis blight	*Botrytis sp./spp.*
1	High soluble salt	*Nutritional disorder*
1	No pathogen found	*Undetermined*
1	Nutritional problem suspected	*Nutritional disorder*
5	Pythium root and/or crown rot	*Pythium sp./spp.*
5	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
2	Thrips	*Frankliniella sp./spp.*
1	Thrips damage	*Unidentified thrips*
1	Turnip Vein-clearing (TVCV)	*Tobamovirus Turnip Vein-clearing Virus*
1	Undetermined injury or wound	*Undetermined*
19	**Total for Petunia**	

Phlox		
1	Anthracnose basal rot; crown rot	*Colletotrichum sp./spp.*
1	Chemical injury suspected	*Chemical*

1	Growth regulator effect suspected	*Chemical*
1	Phlox plant bug	*Lopidea davisi*
4	**Total for Phlox**	

Poinsettia		
1	Poinsettia mosaic virus (PnMV)	*Unassigned/Poinsettia Mosaic Virus*
3	Pythium root and/or crown rot	*Pythium sp./spp.*
3	Undetermined abiotic injury	*Abiotic disorder*
7	**Total for Poinsettia**	

Rudbeckia		
1	Growth regulator effect suspected	*Chemical*
1	No pathogen found	*Undetermined*
2	**Total for Rudbeckia**	

Sedges		
1	Anthracnose basal rot; crown rot	*Colletotrichum sp./spp.*
1	**Total for Sedges**	

Sedum		
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	**Total for Sedum**	

Solomon's Seal		
1	No pathogen found	*Undetermined*
1	**Total for Solomon's Seal**	

Strawflower		
1	Abnormal plant growth	*Abiotic disorder*
2	Animal damage	*Abiotic disorder*
3	**Total for Strawflower**	

Sunflower		
1	Growth regulator effect suspected	*Chemical*
1	Insufficient sample	*Undetermined*
1	No pathogen found	*Undetermined*
1	Sunflower leaf blight; Stem spot	*Alternariaster helianthi*
1	Undetermined injury	*Undetermined*
5	**Total for Sunflower**	

Velvet Rose; Pinwheel

1	Cultural/environmental problem	*Abiotic disorder*
1	**Total for Velvet Rose; Pinwheel**	

Verbena		
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Thrips	*Frankliniella sp./spp.*
2	**Total for Verbena**	

Zinnia		
1	Chemical injury suspected	*Chemical*
1	Growth regulator effect suspected	*Chemical*
1	Powdery mildew	*Oidium sp./spp.*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
4	**Total for Zinnia**	

INDOOR PLANTS

African Violet		
1	Low pH; high soluble salt damage	*Nutritional disorder*
1	**Total for African Violet**	

Areca Palm; Butterfly Palm		
1	Scale insects	*Order homoptera*
1	**Total for Areca Palm; Butterfly Palm**	

Bougainvillea		
1	No pathogen found	*Undetermined*
1	**Total for Bougainvillea**	

Camellia		
1	Cranberry rootworm	*Rhabdopterus picipes*
1	No pathogen found	*Undetermined*
1	Nutritional deficiency	*Nutritional disorder*
3	**Total for Camellia**	

Cast Iron Plant		
2	Twospotted spider mite	*Tetranychus urticae*
2	**Total for Cast Iron Plant**	

Cereus Cactus		
1	Cultural/environmental problem	*Abiotic disorder*
1	**Total for Cereus Cactus**	

Dracaena		
1	Scald; scorch	*Abiotic disorder*
1	**Total for Dracaena**	

Fig		
1	Cercospora leaf spot	*Cercospora sp./spp.*
1	Rhizoctonia foliar/ aerial/ web blight	*Rhizoctonia solani*
2	**Total for Fig**	

Hibiscus		
1	Air pollution	*Abiotic disorder*
1	**Total for Hibiscus**	

Lemon		
1	Insufficient sample	*Undetermined*
1	**Total for Lemon**	

Peacelily		
1	Undetermined abiotic injury	*Abiotic disorder*
1	**Total for Peacelily**	

Philodendron		
1	Chemical injury suspected	*Chemical*
1	Leaf spot- abiotic	*Abiotic disorder*
1	Scald; scorch	*Abiotic disorder*
3	**Total for Philodendron**	

Polka Dot Plant		
1	High soluble salt	*Nutritional disorder*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
3	**Total for Polka Dot Plant**	

Succulent		
1	Fungus gnat	*Mycetophila sp./spp.*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
2	**Total for Succulent**	

Zz Plant		
1	Scald; scorch	*Abiotic disorder*

1	**Total for Zz Plant**

TURFGRASS

Bentgrass		
4	Black layer of turfgrass	*Abiotic disorder*
1	Cultural/environmental problem	*Abiotic disorder*
2	Curvularia blight; Leaf spot	*Curvularia sp./spp.*
1	Environmental stress; problem	*Abiotic disorder*
1	Normal plant growth	*Undetermined*
29	Pythium root dysfunction	*Pythium sp./spp.*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
26	Take-all	*Gaeumannomyces graminis var. avenae*
1	Undetermined injury	*Undetermined*
66	**Total for Bentgrass**	

Bermudagrass		
1	Helminthosporium leaf spot	*Bipolaris cynodontis*
2	Large patch	*Rhizoctonia solani*
1	Smut	*Ustilago sp./spp.*
1	Take-all	*Gaeumannomyces graminis*
5	**Total for Bermudagrass**	

Bluegrass		
1	Crabgrass	*Digitaria sp./spp.*
1	Curvularia blight; Leaf spot	*Curvularia sp./spp.*
1	No pathogen found	*Undetermined*
1	Pythium root dysfunction	*Pythium sp./spp.*
1	Southern blight	*Althelia (Sclerotium) rolfsii*
2	Summer patch	*Magnaporthe poae*
1	Unidentified fungus	*Unidentified fungus*
8	**Total for Bluegrass**	

Fescue		
1	Anthracnose	*Colletotrichum graminicola*
10	Brown patch	*Rhizoctonia sp./spp.*
1	Crabgrass	*Digitaria sp./spp.*
1	Cultural/environmental problem	*Abiotic disorder*
3	Curvularia blight; Leaf spot	*Curvularia sp./spp.*
2	Insufficient sample; INAD	*Undetermined*
2	Gray leaf spot	*Pyricularia grisea*
1	Moisture stress	*Abiotic disorder*
2	No pathogen found	*Undetermined*
1	Pythium root rot	*Pythium sp./spp.*

2	Red thread	*Laetisaria fuciformis*
3	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
29	**Total for Fescue**	

Ryegrass		
1	Brown patch	*Rhizoctonia sp./spp.*
1	Curvularia blight; Leaf spot	*Curvularia sp./spp.*
1	Melting out (Turfgrass)	*Drechslera sp./spp.*
3	**Total for Ryegrass**	

Turfgrass		
3	Brown patch	*Rhizoctonia sp./spp.*
1	Gray leaf spot	*Pyricularia grisea*
1	Insufficient sample	*Undetermined*
4	Pythium root and/or crown rot	*Pythium sp./spp.*
9	**Total for Turfgrass**	

Zoysia Grass		
1	Insufficient sample	*Undetermined*
1	Root decline of warm season grasses	*Gaeumannomyces graminis var. graminis*
2	**Total for Zoysia Grass**	

WOODY ORNAMENTALS

Arborvitae		
1	Arborvitae leafminer	*Argyresthia thuiella*
6	Arborvitae needle blight	*Phyllosticta thujae*
11	Decline; dieback	*Abiotic disorder*
4	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
1	Fungal canker	*Various fungi*
1	Herbicide injury suspected	*Chemical*
1	Juniper scale	*Carulaspis juniperi*
1	Mechanical damage	*Abiotic disorder*
2	Mites	*Order acari*
2	Natural senescence	*Abiotic disorder*
2	No pathogen found	*Undetermined*
9	Pestalotiopsis needle blight; tip blight	*Pestalotiopsis sp./spp.*
2	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
6	Spider mite injury	*Unidentified spider mite*
5	Transplant shock; stress	*Abiotic disorder*
3	Winter injury	*Abiotic disorder*
58	**Total for Arborvitae**	

Azalea		
2	Azalea lace bug	*Stephanitis pyriodes*
1	Azalea leaf spot	*Pseudocercospora handelii*
1	Decline; dieback	*Abiotic disorder*
2	Lichens	*Lichenes*
1	No pathogen found	*Undetermined*
1	Undetermined injury	*Undetermined*
8	**Total for Azalea**	

Beech		
1	Aphids	*Family Aphididae*
1	Asiatic oak weevil	*Cyrtepistomus castaneus*
1	Decline; dieback	*Abiotic disorder*
1	Phoma leaf spot	*Phoma sp./spp.*
4	**Total for Beech**	

Birch		
2	No pathogen found	*Undetermined*
2	**Total for Birch**	

Black Gum		
1	Insect damage	*Unidentified insect*
1	Insect gall	*Insect gall*
2	**Total for Black Gum**	

Boxwood		
2	Black root rot	*Thielaviopsis basicola*
9	Boxwood blight; leaf and stem blight	*Calonectria pseudonaviculatum*
25	Boxwood leafminer	*Monarthropalpus flavus (buxi)*
40	Boxwood Volutella canker	*Volutella buxi*
1	Cottony cushion scale	*Icerya purchasi*
1	Cultural/environmental problem	*Abiotic disorder*
2	Freeze; frost; cold damage	*Abiotic disorder*
1	Lichens	*Lichenes*
15	Macrophoma dieback	*Macrophoma sp./spp.*
6	No pathogen found	*Undetermined*
4	Oedema; edema	*Abiotic disorder*
1	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
1	Poor growing conditions	*Abiotic disorder*
2	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
1	Sooty mold	*Unidentified fungus*
1	Spider mite injury	*Unidentified spider mite*

2	Transplant shock; stress	*Abiotic disorder*
6	Winter injury; winter desiccation	*Abiotic disorder*
121	**Total for Boxwood**	

Butterfly Bush		
1	Algae	*General*
1	Growth regulator effect suspected	*Chemical*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Saprophyte	*Secondary agents; Saprophyte*
1	Spider mites	*Family Tetranychidae*
5	**Total for Butterfly Bush**	

Cedar		
1	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
1	**Total for Cedar**	

Cherry		
1	Black knot	*Apiosporina morbosa*
3	Cercospora leaf spot	*Cercospora sp./spp.*
1	Cicada egg-laying injury	*Unidentified cicada*
1	Cold injury suspected	*Abiotic disorder*
1	Cultural/environmental problem	*Abiotic disorder*
1	Freeze; frost; cold damage	*Abiotic disorder*
1	Gummosis	*Abiotic disorder*
1	Insufficient sample; INAD	*Undetermined*
1	Leaf spot	*Pseudocercospora sp./spp.*
1	Leaf spot; shothole	*Blumeriella jaapii*
3	Mycosphaerella leaf spot	*Mycosphaerella sp./spp.*
1	Phomopsis dieback; tip blight; canker	*Phomopsis sp./spp.*
1	Root rot	*Unidentified agent*
2	Stonefruit bacterial spot	*Xanthomonas campestris pv. Pruni*
2	Transplant shock; stress	*Abiotic disorder*
1	Wood decay fungus	*Unidentified fungus*
1	Wood rot; white rot	*Irpex lacteus*
23	**Total for Cherry**	

Cherry laurel		
3	Bacterial leaf spot	*Xanthomonas campestris pv. pruni*
1	Cytospora canker; Dieback	*Cytospora sp./spp.*
1	Decline; dieback	*Abiotic disorder*
1	Dieback; canker	*Diplodia sp./spp.*
3	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
2	Transplant shock; stress	*Abiotic disorder*

2	Wood boring insect damage	*Unidentified insect*
13	**Total for Cherry laurel**	

Chestnut		
1	Actinopelte leaf spot	*Dicarpella dryina*
1	Chestnut blight	*Cryphonectria parasitica*
1	No pathogen found	*Undetermined*
1	Potato leafhopper	*Empoasca fabae*
4	**Total for Chestnut**	

Crabapple		
1	Apple scab	*Venturia inaequalis*
1	Frogeye leaf spot; black rot	*Botryosphaeria obtusa*
1	Insect damage	*Unidentified insect*
1	No pathogen found	*Undetermined*
1	Thread blight	*Ceratobasidium (Corticium) ochroleucum (stevensii)*
5	**Total for Crabapple**	

Crape Myrtle		
1	Crapemyrtle aphid	*Sarucallis (Tinocallis) kahawaluokalani*
1	Sooty mold	*Unidentified fungus*
2	**Total for Crape Myrtle**	

Cryptomeria		
2	Decline; dieback	*Abiotic disorder*
1	Pestalotiopsis needle blight; tip blight	*Pestalotiopsis sp./spp.*
1	Winter injury	*Abiotic disorder*
4	**Total for Cryptomeria**	

Dogwood		
1	Canker	*Cryptodiaporthe sp./spp.*
1	Cicada egg-laying injury	*Unidentified cicada*
3	Cultural/environmental problem	*Abiotic disorder*
4	Decline; dieback	*Abiotic disorder*
2	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
1	Dogwood anthracnose	*Discula destructiva*
2	Dogwood leaf spot	*Septoria cornicola*
2	Dogwood powdery mildew	*Erysiphe pulchra*
3	Environmental stress; problem	*Abiotic disorder*
1	Insect damage	*Unidentified insect*
1	Leaf scorch	*Abiotic disorder*
1	Oystershell scale	*Lepidosaphes ulmi*
3	Spot anthracnose	*Elsinoe corni*

1	Transplant shock; stress	*Abiotic disorder*
26	**Total for Dogwood**	

Douglas-fir		
1	Drought stress damage	*Abiotic disorder*
1	Rhizosphaera needle cast	*Rhizosphaera kalkhoffii*
2	**Total for Douglas-fir**	

Elaeagnus		
1	Sooty mold	*Unidentified fungus*
1	Winter injury	*Abiotic disorder*
2	**Total for Elaeagnus**	

Elderberry		
1	Cultural/environmental problem	*Abiotic disorder*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
2	**Total for Elderberry**	

Elm		
2	Anthracnose; black spot	*Stegophora ulmea*
1	Bacterial leaf scorch	*Xylella fastidiosa*
1	Black spot	*Stegophora ulmea*
2	Cultural/environmental problem	*Abiotic disorder*
1	Insect damage	*Unidentified insect*
2	No pathogen found	*Undetermined*
9	**Total for Elm**	

Euonymus		
1	Cultural/environmental problem	*Abiotic disorder*
2	Euonymus powdery mildew	*Erysiphe (Oidium) euonymi-japonici*
2	Euonymus scale	*Unaspis euonymi*
5	**Total for Euonymus**	

Falsecypress		
1	Arborvitae leafminer	*Argyresthia thuiella*
1	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
1	Kabatina twig blight	*Kabatina thujae*
1	Pestalotiopsis needle blight; tip blight	*Pestalotiopsis sp./spp.*
4	Phomopsis dieback; tip blight; canker	*Phomopsis sp./spp.*
1	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
2	Spider mite injury	*Unidentified spider mite*

1	Spruce spider mite	*Oligonychus ununguis*
2	Transplant shock; stress	*Abiotic disorder*
15	**Total for Falsecypress**	

Filbert		
1	Thread blight	*Ceratobasidium (Corticium) ochroleucum (stevensii)*
1	**Total for Filbert**	

Fir		
1	Cultural/environmental problem	*Abiotic disorder*
2	Decline; dieback	*Abiotic disorder*
4	Elongate hemlock scale	*Fiorinia externa*
1	Environmental stress; problem	*Abiotic disorder*
1	Freeze; frost; cold damage	*Abiotic disorder*
1	Insufficient sample	*Undetermined*
10	**Total for Fir**	

Giant Sequoia		
1	Low pH damage	*Nutritional disorder*
1	**Total for Giant Sequoia**	

Ginkgo		
1	Leaf scorch	*Abiotic disorder*
2	No pathogen found	*Undetermined*
3	**Total for Ginkgo**	

Hackberry		
1	Bacterial leaf scorch	*Xylella fastidiosa*
1	**Total for Hackberry**	

Heavenly Bamboo		
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
2	**Total for Heavenly Bamboo**	

Hemlock		
1	Elongate hemlock scale	*Fiorinia externa*
3	Hemlock decline; dieback	*Abiotic disorder*
1	Spider mite injury	*Unidentified spider mite*
5	**Total for Hemlock**	

Hickory		
1	No pathogen found	*Undetermined*
1	**Total for Hickory**	

Holly		
5	Black root rot	*Thielaviopsis basicola*
1	Cicada egg-laying injury	*Unidentified cicada*
1	Cold injury suspected	*Abiotic disorder*
2	Cultural/environmental problem	*Abiotic disorder*
7	Decline; dieback	*Abiotic disorder*
1	Environmental stress; problem	*Abiotic disorder*
3	Freeze; frost; cold damage	*Abiotic disorder*
1	Fungal canker	*Various fungi*
1	High soil moisture	*Abiotic disorder*
2	Holly scale	*Dynaspidiotus britannicus*
2	No pathogen found	*Undetermined*
1	Oedema; edema	*Abiotic disorder*
1	Oleander scale	*Aspidiotus nerii*
2	Phomopsis dieback; tip blight; canker	*Phomopsis sp./spp.*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
1	Transplant shock; stress	*Abiotic disorder*
2	Whiteflies	*Family Aleyrodidae*
1	Winter injury	*Abiotic disorder*
35	**Total for Holly**	

Honeysuckle		
1	Phoma blight; dieback; rot	*Phoma sp./spp.*
1	Powdery mildew	*Oidium sp./spp.*
2	**Total for Honeysuckle**	

Hydrangea		
1	Bacterial leaf spot	*Xanthomonas campestris*
1	Chemical injury suspected	*Chemical*
2	Freeze; frost; cold damage	*Abiotic disorder*
7	Fungal leaf spot	*Cercospora hydrangeae*
1	Growth regulator effect suspected	*Chemical*
1	Leaf scorch	*Abiotic disorder*
1	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
1	Scorch	*Abiotic disorder*
1	Twospotted spider mite	*Tetranychus urticae*
1	Undetermined injury	*Undetermined*

1	Unidentified virus	*Unidentified virus*
20	**Total for Hydrangea**	

Juniper		
2	Decline; dieback	*Abiotic disorder*
1	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
1	Juniper scale	*Carulaspis juniperi*
1	Needle blight	*Phyllosticta sp./spp.*
1	Phomopsis tip blight; needle blight	*Phomopsis juniperovora*
2	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
1	Spider mite injury	*Unidentified spider mite*
1	Transplant shock; stress	*Abiotic disorder*
1	Undetermined abiotic injury	*Abiotic disorder*
11	**Total for Juniper**	

Leyland Cypress		
2	Seiridium canker	*Seiridium unicorne*
1	Spider mite injury	*Unidentified spider mite*
3	**Total for Leyland Cypress**	

Lilac		
1	Cercospora leaf spot	*Cercospora sp./spp.*
1	Chemical injury suspected	*Chemical*
1	Decline; dieback	*Abiotic disorder*
1	Insufficient sample; INAD	*Undetermined*
1	Leaf spot	*Pseudocercospora sp./spp.*
1	Oystershell scale	*Lepidosaphes ulmi*
1	Powdery mildew	*Unidentified fungus*
7	**Total for Lilac**	

Magnolia		
1	Anthracnose; Colletotrichum leaf spot	*Colletotrichum sp./spp.*
1	Cicada egg-laying injury	*Unidentified cicada*
2	Cultural/environmental problem	*Abiotic disorder*
1	Environmental stress; problem	*Abiotic disorder*
1	False oleander scale	*Pseudaulacaspis cockerelli*
2	Freeze; frost; cold damage	*Abiotic disorder*
2	Iron deficiency	*Nutritional disorder*
1	Magnolia leafminer	*Phyllocnistis magnoliella*
1	Magnolia scale	*Neolecanium cornuparvum*
1	Phomopsis dieback; tip blight; canker	*Phomopsis sp./spp.*
1	Sooty mold	*Unidentified fungus*
1	Undetermined abiotic injury	*Abiotic disorder*

1	Yellow-poplar weevil	*Odontopus calceatus*
16	**Total for Magnolia**	

Maple		
9	Anthracnose (Monostichella leaf spot)	*Monostichella hysteroidea*
1	Canker	*Biscogniauxia sp./spp.*
1	Chemical injury suspected	*Chemical*
1	Cicada egg-laying injury	*Unidentified cicada*
1	Cold injury suspected	*Abiotic disorder*
1	Cultural/environmental problem	*Abiotic disorder*
1	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
2	Freeze; frost; cold damage	*Abiotic disorder*
2	Fungal wood rot	*Schizophyllum commune*
1	Fusarium canker	*Fusarium sp./spp.*
2	Gloomy scale	*Melanaspis tenebricosa*
1	Insect damage	*Unidentified insect*
2	Insufficient sample	*Undetermined*
1	Leaf scorch	*Abiotic disorder*
3	Lichens	*Lichenes*
1	Manganese deficiency suspected	*Abiotic disorder*
14	Maple anthracnose	*Aureobasidium apocryptum*
19	Maple decline	*Complex*
2	Maple leaf blister	*Taphrina carveri*
1	Mechanical damage	*Abiotic disorder*
3	No pathogen found	*Undetermined*
1	Obscure scale	*Melanaspis obscura*
1	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
2	Potato leafhopper	*Empoasca fabae*
1	Scald; scorch	*Abiotic disorder*
3	Sooty mold	*Unidentified fungus*
5	Transplant shock; stress	*Abiotic disorder*
1	Undetermined injury	*Undetermined*
4	Verticillium wilt	*Verticillium sp./spp.*
1	Whiteflies	*Family Aleyrodidae*
2	Wood decay fungus	*Unidentified fungus*
90	**Total for Maple**	

Mockorange		
1	No pathogen found	*Undetermined*
1	**Total for Mockorange**	

Mulberry		
1	Leaf spot	*Phloeospora multimaculans*

1	**Total for Mulberry**	

Ninebark		
1	No pathogen found	*Undetermined*
1	**Total for Ninebark**	

Oak		
1	Abnormal plant growth	*Abiotic disorder*
19	Actinopelte leaf spot	*Tubakia dryina*
20	Anthracnose	*Apiognomonia sp./spp.*
27	Bacterial leaf scorch	*Xylella fastidiosa*
3	Canker	*Biscogniauxia sp./spp.*
2	Decline; dieback	*Abiotic disorder*
5	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
1	Environmental stress; problem	*Abiotic disorder*
3	Gall wasps	*Family Cynipidae*
1	Gouty oak gall wasp	*Callirhytis quercus*
1	Growth regulator effect suspected	*Chemical*
3	Insect damage	*Unidentified insect*
1	Insect gall	*Insect gall*
9	Iron deficiency	*Nutritional disorder*
4	Jumping oak gall wasp	*Neuroterus saltatorius*
2	Lace bugs	*Family Tingidae*
3	Leaf scorch	*Abiotic disorder*
3	Leaf spot	*Monochaetia sp./spp.*
2	Lecanium scales	*Lecanium sp./spp.*
3	Lichens	*Lichenes*
8	No pathogen found	*Undetermined*
1	Oak lace bug	*Corythucha arcuata*
5	Oak leaf blister	*Taphrina caerulescens*
1	Oak leafminer	*Japanagromyza viridula*
1	Oak powdery mildew	*Erysiphe (Oidium) alphitoides*
5	Oak shothole leafminer	*Agromyza viridula*
1	Oak twig canker and dieback	*Botryosphaeria quercuum*
1	Phomopsis dieback; tip blight; canker	*Phomopsis sp./spp.*
1	Squirrel damage	*Abiotic disorder*
1	Unidentified fungus	*Unidentified fungus*
138	**Total for Oak**	

Pear		
1	Cedar-quince rust	*Gymnosporangium clavipes*
1	Fire blight	*Erwinia amylovora*
1	High soil moisture	*Abiotic disorder*
1	Lichens	*Lichenes*

1	No pathogen found	*Undetermined*
2	Pear decline	*Abiotic disorder*
1	Transplant shock; stress	*Abiotic disorder*
2	Undetermined abiotic injury	*Abiotic disorder*
10	**Total for Pear**	

Persimmon		
1	Insufficient sample	*Undetermined*
1	**Total for Persimmon**	

Pieris		
1	Decline; dieback	*Abiotic disorder*
1	**Total for Pieris**	

Pine		
2	Bark beetle	*Ips sp./spp.*
2	Bark beetles; Ambrosia beetles	*Family Scolytidae*
1	Blue stain	*Ophiostoma sp./spp.*
1	Brown spot; needle blight	*Mycosphaerella dearnessii*
1	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
1	Diplodia tip blight; canker	*Diplodia sapinea*
2	Fall needle drop	*Abiotic disorder*
1	Insufficient sample	*Undetermined*
1	Leptographium root disease	*Leptographium procerum*
2	No pathogen found	*Undetermined*
1	Pine needle scale	*Chionaspis pinifoliae*
1	Pine sawflies	*Family Diprionidae*
2	Transplant shock; stress	*Abiotic disorder*
1	Undetermined injury	*Undetermined*
8	White pine decline	*Abiotic disorder*
1	Wood decay fungus	*Unidentified fungus*
28	**Total for Pine**	

Podocarpus; Plum Pine		
1	Twospotted spider mite	*Tetranychus urticae*
1	**Total for Podocarpus; Plum Pine**	

Prunus		
1	Insufficient information	*Undetermined*
1	Insufficient sample	*Undetermined*
2	**Total for Prunus**	

Pussy Willow		
1	Environmental stress; problem	*Abiotic disorder*
1	**Total for Pussy Willow**	

Redbud		
1	Anthracnose	*Kabatiella sp./spp.*
1	Growth regulator effect suspected	*Chemical*
1	Nutritional deficiency	*Nutritional disorder*
1	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
1	Stink bug damage	*Unidentified Stink Bug*
1	Transplant shock; stress	*Abiotic disorder*
1	Undetermined injury	*Undetermined*
1	Verticillium wilt	*Verticillium sp./spp.*
8	**Total for Redbud**	

Rhododendron		
1	Decline; dieback	*Abiotic disorder*
1	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
2	No pathogen found	*Undetermined*
1	Transplant shock; stress	*Abiotic disorder*
5	**Total for Rhododendron**	

Rose		
1	Chemical injury suspected	*Chemical*
1	Insect damage	*Unidentified insect*
1	Leaf spot	*Unidentified fungus*
1	No pathogen found	*Undetermined*
1	Powdery mildew	*Sphaerotheca sp./spp.*
3	Rose rosette disease	*Rose rosette-associated*
3	Roseslug (sawfly)	*Endelomyia sp./spp.*
1	Spider mite injury	*Unidentified spider mite*
3	Twospotted spider mite	*Tetranychus urticae*
1	Zonate leaf spot	*Monochaetia sp./spp.*
16	**Total for Rose**	

Sassafras		
1	Insufficient sample	*Undetermined*
15	Laurel wilt	*Raffaelea lauricola*
1	Leaf spot	*Pestalotiopsis sp./spp.*
5	No pathogen found	*Undetermined*
22	**Total for Sassafras**	

Smoke Tree		

1	Smoke-tree rust	*Pileolaria cotini-coggyriae*
1	**Total for Smoke Tree**	

Spice Bush		
1	Laurel wilt	*Raffaelea lauricola*
1	No pathogen found	*Undetermined*
2	Undetermined abiotic injury	*Abiotic disorder*
4	**Total for Spice Bush**	

Spruce		
2	Bagworm	*Thyridopteryx ephemeraeformis*
1	Cytospora canker	*Cytospora kunzei*
12	Decline; dieback	*Abiotic disorder*
2	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
5	Dothistroma needle blight	*Dothistroma sp./spp.*
8	Freeze; frost; cold damage	*Abiotic disorder*
1	Insufficient sample	*Undetermined*
2	Lichens	*Lichenes*
4	Needle burn (leaf scorch)	*Abiotic disorder*
1	No pathogen found	*Undetermined*
2	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
23	Rhizosphaera needle cast	*Rhizosphaera kalkhoffii*
8	Spider mite injury	*Unidentified spider mite*
3	Stigmina needle blight	*Stigmina lautii*
3	Transplant shock; stress	*Abiotic disorder*
77	**Total for Spruce**	

Taxus		
1	Phytophthora crown rot; root rot; stem rot	*Phytophthora sp./spp.*
1	Poor growing conditions	*Abiotic disorder*
7	Taxus decline; dieback	*Abiotic disorder*
1	Taxus mealybug	*Dysmicoccus wistariae*
10	**Total for Taxus**	

Tulip Tree		
1	Root damage	*Abiotic disorder*
1	**Total for Tulip Tree**	

Viburnum		
1	Decline; dieback	*Abiotic disorder*
1	Insufficient sample	*Undetermined*
1	Mycosphaerella leaf spot	*Mycosphaerella sp./spp.*
3	**Total for Viburnum**	

Walnut		
2	Mycosphaerella leaf spot	*Mycosphaerella juglandis*
2	**Total for Walnut**	

Weigela		
1	No pathogen found	*Undetermined*
1	Redheaded flea beetle	*Systena sp./spp.*
2	**Total for Weigela**	

Willow		
1	Dieback; canker; twig blight	*Botryosphaeria sp./spp.*
1	Willow leaf blight; scab	*Venturia (Pollaccia) (Fusiclad saliciperda*
2	**Total for Willow**	

Woody Ornamental		
1	Leaf spot	*Pseudocercospora sp./spp.*
1	**Total for Woody Ornamental**	

Yellowwood		
1	Anthracnose	*Gloeosporium sp./spp.*
1	Verticillium wilt	*Verticillium sp./spp.*
2	**Total for Yellowwood**	

PINEWOOD NEMATODE EXTRACTION		
Juniper		
1	Insufficient sample	*Undetermined*
26	PWNE-no pathogen found	*Undetermined*
27	**Total for Juniper**	

P. RAMORUM NURSERY SURVEY		
Azalea		
34	No pathogen found	*Undetermined*
1	Phytophthora dieback; blight	*Phytophthora sp./spp.*
35	**Total for Azalea**	

Camellia		
1	No pathogen found	*Undetermined*
1	**Total for Camellia**	

Cherry laurel		
1	No pathogen found	*Undetermined*
1	**Total for Cherry laurel**	

Lilac		
1	No pathogen found	*Undetermined*
1	**Total for Lilac**	

Pieris		
1	No pathogen found	*Undetermined*
1	Phytophthora dieback; blight	*Phytophthora sp./spp.*
2	**Total for Pieris**	

Rhododendron		
12	No pathogen found	*Undetermined*
7	Phytophthora dieback; blight	*Phytophthora sp./spp.*
19	**Total for Rhododendron**	

Viburnum		
57	No pathogen found	*Undetermined*
5	Phytophthora dieback; blight	*Phytophthora sp./spp.*
62	**Total for Viburnum**	

VEGETABLES

Asparagus		
1	Freeze; frost; cold damage	*Abiotic disorder*
1	**Total for Asparagus**	

Bean		
1	Bean anthracnose	*Colletotrichum lindemuthianum*
1	Cercospora leaf spot	*Cercospora canescens*
1	Common bacterial blight	*Xanthomonas campestris pv. phaseoli*
1	Fusarium seed rot (decay)	*Fusarium sp./spp.*
3	Growth regulator effect suspected	*Chemical*
3	Insufficient sample	*Undetermined*
1	Low pH	*Nutritional disorder*
1	Mexican bean beetle	*Epilachna varivestis*
4	No pathogen found	*Undetermined*
2	Pythium blight; cottony blight	*Pythium sp./spp.*
1	Rhizoctonia foliar/ aerial/ web blight	*Rhizoctonia solani*
7	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*

3	Scald; scorch	*Abiotic disorder*
1	Southern Blight	*Althelia (Sclerotium) rolfsii*
30	**Total for Bean**	

Beet		
1	Cercospora beet leaf spot	*Cercospora beticola*
1	**Total for Beet**	

Bok Choy; Chinese Cabbage		
1	Rhizoctonia stem rot	*Rhizoctonia sp./spp.*
1	**Total for Bok Choy; Chinese Cabbage**	

Broccoli		
1	Bacterial soft rot	*Erwinia sp./spp.*
2	Black leaf spot	*Alternaria brassicicola*
1	Fertilizer injury	*Nutritional disorder*
4	**Total for Broccoli**	

Cabbage		
1	Alternaria leaf spot	*Alternaria sp./spp.*
1	Freeze; frost; cold damage	*Abiotic disorder*
1	Insect damage	*Unidentified insect*
2	Nutritional deficiency	*Nutritional disorder*
1	Poor root development	*Abiotic disorder*
2	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*
1	White mold (stem rot)	*Sclerotinia sclerotiorum*
10	**Total for Cabbage**	

Cantaloupe		
1	Physiological responses (fruit cracking)	*Abiotic disorder*
1	**Total for Cantaloupe**	

Cauliflower		
1	Bacterial soft rot	*Erwinia sp./spp.*
2	Black leaf spot	*Alternaria brassicicola*
1	Insect damage	*Unidentified insect*
4	**Total for Cauliflower**	

Celery		
1	Bacterial soft rot	*Unidentified bacterium*
1	Early blight	*Cercospora apii*

1	Leaf spot	*Unidentified fungus*
1	No pathogen found	*Undetermined*
4	**Total for Celery**	

Corn		
1	Bacterial stalk rot	*Erwinia sp./spp.*
1	Corn (common) smut	*Ustilago maydis*
2	Corn gray leaf spot	*Cercospora zeae-maydis*
1	Magnesium deficiency	*Nutritional disorder*
1	No pathogen found	*Undetermined*
2	Northern corn leaf blight; leaf spot	*Setosphaeria (Exserohilum) turcica (turcicum)*
1	Nutritional deficiency	*Nutritional disorder*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
1	Soil compaction	*Abiotic disorder*
3	Southern corn rust	*Puccinia polysora*
1	Wireworm	*Family Elateridae*
16	**Total for Corn**	

Cucumber		
1	Anthracnose	*Colletotrichum orbiculare*
1	Aphids	*Family Aphididae*
3	Cercospora leaf spot	*Cercospora citrullina*
1	Cucumber beetle	*Acalymma sp./spp.*
9	Cucurbit bacterial wilt	*Erwinia tracheiphila*
4	Cucurbit downy mildew	*Pseudoperonospora cubensis*
3	Cucurbit powdery mildew	*Golovinomyces cichoracearum*
1	Growth regulator effect suspected	*Chemical*
2	Insufficient sample	*Undetermined*
1	No pathogen found	*Undetermined*
2	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Twospotted spider mite	*Tetranychus urticae*
29	**Total for Cucumber**	

Gourd		
1	Phytophthora fruit rot	*Phytophthora capsici*
1	**Total for Gourd**	

Kale		
1	Black rot	*Xanthomonas campestris*
1	Pythium damping off	*Pythium sp./spp.*
2	**Total for Kale**	

Lettuce		
1	Botrytis blight	*Botrytis sp./spp.*
2	Drop (Sclerotinia rot)	*Sclerotinia sp./spp.*
2	No pathogen found	*Undetermined*
1	Powdery mildew	*Golovinomyces cichoracearum*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia foliar/ aerial/ web blight	*Rhizoctonia solani*
1	Scald; scorch	*Abiotic disorder*
9	**Total for Lettuce**	

Melon		
2	Cucurbit bacterial wilt	*Erwinia tracheiphila*
1	No pathogen found	*Undetermined*
3	**Total for Melon**	

Okra		
1	Cultural/environmental problem	*Abiotic disorder*
1	Insufficient sample	*Undetermined*
1	Phoma leaf spot	*Phoma sp./spp.*
3	**Total for Okra**	

Onion		
2	Cultural/environmental problem	*Abiotic disorder*
1	Onion purple (Brown) blotch	*Alternaria porri*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Stemphylium leaf blight	*Stemphylium vesicarium*
5	**Total for Onion**	

Pea		
1	Herbicide injury suspected	*Chemical*
1	Insufficient sample	*Undetermined*
1	Root rot	*Various Fungi*
3	**Total for Pea**	

Pepper		
1	Blossom end rot	*Abiotic disorder*
2	Broad mite	*Polyphagotarsonemus latus*
1	Cold injury suspected	*Abiotic disorder*
3	Fertilizer injury	*Nutritional disorder*
1	Freeze; frost; cold damage	*Abiotic disorder*
1	Fusarium crown rot	*Fusarium sp./spp.*
3	Growth regulator effect suspected	*Chemical*
1	High soluble salt	*Nutritional disorder*

1	High temperature damage	*Abiotic disorder*
1	Impatiens necrotic spot	*Impatiens Necrotic Spot Virus*
1	Mites	*Order Acari*
2	No pathogen found	*Undetermined*
1	Nutritional deficiency	*Nutritional disorder*
5	Pepper bacterial spot	*Xanthomonas campestris pv. vesicatoria*
6	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*
1	Scald; scorch	*Abiotic disorder*
1	Soil compaction	*Abiotic disorder*
2	Southern Blight	*Althelia (Sclerotium) rolfsii*
2	Thrips damage	*Unidentified thrips*
1	Tomato spotted wilt	*Tomato Spotted Wilt Virus (TSWV)*
1	Undetermined injury	*Undetermined*
39	**Total for Pepper**	

Potato		
2	Bacterial soft rot	*Unidentified bacterium*
1	Early blight; Leaf spot	*Alternaria solani*
1	Flea beetles	*Subfamily Alticinae*
2	Fusarium dry rot	*Fusarium solani f.sp. caeruleum*
2	Growth regulator effect suspected	*Chemical*
1	Hollow heart	*Abiotic disorder*
1	No pathogen found	*Undetermined*
1	Physiological responses (enlarged lenticels)	*Abiotic disorder*
2	Physiological responses (internal sprouts)	*Abiotic disorder*
1	Potato bacterial ring rot	*Clavibacter michiganensis*
1	Potato canker and black scurf	*Rhizoctonia solani*
1	Scab	*Streptomyces sp./spp.*
16	**Total for Potato**	

Pumpkin		
1	Alternaria leaf spot	*Alternaria sp./spp.*
1	Anthracnose	*Colletotrichum orbiculare*
1	Aphids	*Family Aphididae*
1	Cercospora leaf spot	*Cercospora citrullina*
1	Cucumber beetles	*Subfamily Galerucinae*
1	Cucurbit angular leaf spot	*Pseudomonas syringae pv. lachrymans*
9	Cucurbit downy mildew	*Pseudoperonospora cubensis*
1	Fusarium crown rot; foot rot	*Fusarium solani f.sp. cucurbitae*
1	Mechanical damage	*Abiotic disorder*
1	Oedema; edema	*Abiotic disorder*
1	Physiological silvering	*Abiotic disorder*
1	Phytophthora fruit rot; blight	*Phytophthora capsici*

3	Phytophthora root/ stem/ crown rot	*Phytophthora capsici*
2	Powdery mildew	*Podosphaera sp./spp.*
1	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*
27	**Total for Pumpkin**	

Rhubarb		
1	Alfalfa mosaic	*Alfalfa Mosaic Virus (AMV)*
1	**Total for Rhubarb**	

Spinach		
1	Pythium damping off	*Pythium sp./spp.*
1	Rhizoctonia foliar/ aerial/ web blight	*Rhizoctonia solani*
1	Twospotted spider mite	*Tetranychus urticae*
3	**Total for Spinach**	

Squash		
3	Alternaria fruit rot and spot	*Alternaria sp./spp.*
2	Aphids	*Family Aphididae*
1	Blossom end rot	*Abiotic disorder*
2	Cercospora leaf spot	*Cercospora citrullina*
1	Cucurbit angular leaf spot	*Pseudomonas syringae pv. Lachrymans*
1	Cucurbit bacterial wilt	*Erwinia tracheiphila*
3	Cucurbit downy mildew	*Pseudoperonospora cubensis*
3	Cucurbit powdery mildew	*Golovinomyces cichoracearum*
1	Fusarium crown; foot rot	*Fusarium solani f.sp. cucurbitae*
3	Fusarium fruit rot	*Fusarium sp./spp.*
1	High pH	*Nutritional disorder*
1	Insufficient sample	*Undetermined*
1	Mechanical damage	*Abiotic disorder*
1	Microdochium blight	*Plectosphaerella cucumerina*
1	No pathogen found	*Undetermined*
1	Phytophthora fruit rot; blight	*Phytophthora capsici*
2	Phytophthora root/ stem/ crown rot	*Phytophthora capsici*
1	Scald; scorch	*Abiotic disorder*
1	Squash bug	*Anasa tristis*
1	Unknown abiotic disorder	*Abiotic disorder*
31	**Total for Squash**	

Sweetpotato		
1	Fusarium root rot	*Fusarium oxysporum*
1	No pathogen found	*Undetermined*
1	Rhizopus soft rot	*Rhizopus sp./spp.*

1	Sweetpotato scurf	*Monilochaetes infuscans*
1	Thrips	*Frankliniella sp./spp.*
1	Undetermined injury or wound	*Undetermined*
1	Wireworm; Click beetle	*Conoderus sp./spp.*
7	**Total for Sweetpotato**	

Tomatillo		
1	Oedema; edema	*Abiotic disorder*
1	**Total for Tomatillo**	

Tomato		
3	Abnormal plant growth	*Abiotic disorder*
3	Air pollution	*Abiotic disorder*
1	Anthracnose fruit rot	*Colletotrichum sp./spp.*
6	Bacterial canker	*Clavibacter michiganensis*
1	Bacterial stem rot	*Erwinia carotovora*
3	Blossom end rot	*Abiotic disorder*
4	Botrytis blight	*Botrytis sp./spp.*
5	Chemical injury suspected	*Chemical*
1	Cultural/environmental problem	*Abiotic disorder*
6	Early blight; leaf spot	*Alternaria solani*
4	Fertilizer injury	*Nutritional disorder*
1	Flea beetles	*Subfamily Alticinae*
2	Freeze; frost; cold damage	*Abiotic disorder*
6	Fusarium wilt	*Fusarium oxysporum*
1	Glyphosate injury suspected	*Chemical*
15	Growth regulator effect suspected	*Chemical*
3	Herbicide injury suspected	*Chemical*
1	High pH damage	*Nutritional disorder*
1	High pH; low soluble salt damage	*Nutritional disorder*
6	High soluble salt	*Nutritional disorder*
1	Insect damage	*Unidentified insect*
9	Insufficient sample	*Undetermined*
1	Leaf damage	*Abiotic disorder*
6	Leaf mold	*Fulvia fulva*
2	Leaf scorch	*Abiotic disorder*
1	Leaf spot- abiotic	*Abiotic disorder*
1	Low pH	*Nutritional disorder*
4	Magnesium deficiency	*Nutritional disorder*
2	Mechanical damage	*Abiotic disorder*
13	No pathogen found	*Undetermined*
2	Nutrient imbalance	*Nutritional disorder*
1	Nutritional deficiency	*Nutritional disorder*
2	Phoma leaf spot	*Phoma sp./spp.*

2	Physiological leaf roll	*Abiotic disorder*
1	Physiological responses	*Abiotic disorder*
31	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Rhizoctonia foliar/ aerial/ web blight	*Rhizoctonia solani*
4	Rhizoctonia root rot	*Rhizoctonia sp./spp.*
9	Rhizoctonia stem and root rot	*Rhizoctonia sp./spp.*
1	Ripe rot	*Colletotrichum sp./spp.*
2	Root-knot nematodes	*Meloidogyne sp./spp.*
5	Scald; scorch	*Abiotic disorder*
1	Slime mold	*Class Myxomycetes; Myxomycota*
7	Septoria leaf spot	*Septoria lycopersici*
7	Southern Blight	*Althelia (Sclerotium) rolfsii*
3	Target spot	*Corynespora cassiicola*
1	Tobacco mosaic	*Tobacco Mosaic Virus (TMV)*
1	Tomato pith necrosis	*Pseudomonas sp./spp.*
3	Tomato spotted wilt	*Tomato Spotted Wilt Virus (TSWV)*
1	Transplant shock; stress	*Abiotic disorder*
4	Undetermined injury	*Undetermined*
1	Walnut wilt/ juglone toxicity suspected	*Abiotic disorder*
8	White mold (stem rot); timber rot	*Sclerotinia sclerotiorum*
211	**Total for Tomato**	

Watermelon		
1	Blossom end rot	*Abiotic disorder*
1	Cold injury suspected	*Abiotic disorder*
3	Insufficient sample	*Undetermined*
1	Pythium fruit rot;Cottony leak	*Pythium sp./spp.*
3	Pythium root and/or crown rot	*Pythium sp./spp.*
1	Nutritional deficiency	*Nutritional disorder*
1	Rhizoctonia foliar/ aerial/ web blight	*Rhizoctonia solani*
11	**Total for Watermelon**	

Yardlong Cowpea		
1	Septoria leaf spot	*Septoria sp./spp.*
1	**Total for Yardlong Cowpea**	