



COOPERATIVE EXTENSION SERVICE

UNIVERSITY OF KENTUCKY • COLLEGE OF AGRICULTURE

Plant Diseases in Kentucky

Plant Disease Diagnostic Laboratory

Summary

1996

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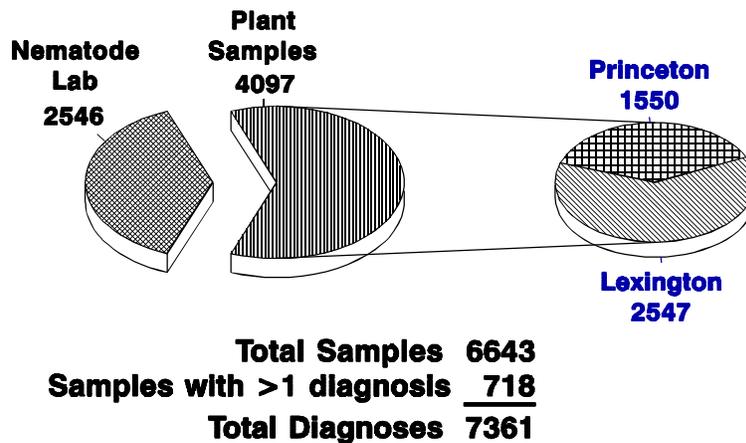
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INTRODUCTION

The Plant Disease Diagnostic Lab (Lexington and Princeton) handled 4097 plant samples and 2546 nematode soil samples during 1996. Samples with more than one problem numbered 718, bringing the total number of actual diagnoses to 4815. The Lexington Lab diagnosed 3229 specimens. The Princeton Lab's specimens totaled 4096; of this number 1550 were plant samples and 2546 were soil samples submitted, exclusively, for soybean cyst nematode analysis. A total of 1794 of the nematode samples were submitted by researchers and 752 were submitted by commercial growers through the county Extension offices, Total Ag Services of KY, Precision Ag Services of KY, or through a program funded by the Kentucky Soybean Association.

These numbers are summarized in Figure 1 below:

PLANT DISEASE DIAGNOSTIC LAB, TOTALS 1996



HIGHLIGHTS

The year of 1996 was generally a wet year with near normal temperatures. The year started with roller coaster temperatures and abundant moisture. In February there were record extreme high and low temperatures and below normal rainfall. March was much below normal temperatures with a major snow storm occurring on the last day of winter/first day of spring. A mixed bag of weather occurred in April with cooler temperatures early in the month and below average rainfall to above average rainfall and tornadoes in central Kentucky in the latter part of the month which caused significant damage. Counties in the Green River Area along the Ohio River received much greater than normal rainfall during this period delaying corn planting. May was extremely wet making it the 9th wettest May since 1895 which delayed planting activities even more so. Tornadoes hit parts of the Central and Bluegrass areas on the 25th damaging over 600 homes south of Louisville and additional damage in Anderson, Fayette, Spencer, Jessamine, and Woodford counties. The early part of June continued the record precipitation events but the latter two weeks were hot and dry. Temperatures for July and August were below to normal and precipitation ranged from above normal for July to below normal in August. Heavy rains returned again in September with that month recording the 3rd wettest since 1897. October weather was mostly normal but temperatures for November dipped dramatically to near winter levels with above normal rainfall. The weather year ended with above average temperatures and normal precipitation.

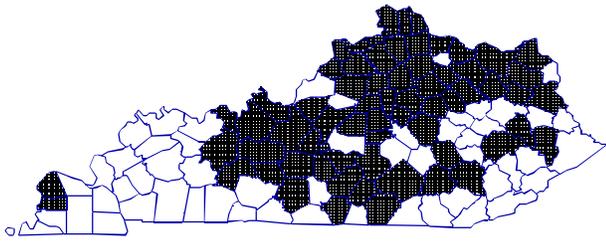


Figure 2. Incidence of Blue Mold from Diagnostic Laboratory samples, 1996.

The big news in tobacco was once again, as in 1995, **Blue Mold** and more specifically, a 'metalaxyl' ("Ridomil") resistant strain of the fungus, *Peronospora tabacina*, that causes the disease. Data from several sources confirmed that Ridomil-resistant Blue Mold was once again moved about the U.S. early in the season on transplants grown in some southeastern states. Kentucky brokers and growers bought infected plants and had them shipped to Kentucky thus bringing the disease directly to Kentucky farms. A Section 18 Specific Emergency Exemption was granted for the field use of the fungicide "Acrobat MZ" on May 31. Many failures in control of the disease in the field were due to the lack of sufficient spray equipment, application technique and timing. **Black Shank** samples

dropped significantly from already reduced numbers in 1995. Diseases caused by the fungus, *Rhizoctonia*, were greatly increased ranging from stem cankers to Frogeye leaf spot. Levels of **Tomato Spotted Wilt** virus dropped to nearly zero after they were up dramatically in 1995.

Corn diseases were relatively few but **Diplodia Ear Rot** was a notable problem in some areas. Soybean diseases were even lower than the very low levels of 1995, but Stem Canker is increasing slowly in its occurrence. **Soybean Cyst Nematode** still remains the major yield-limiting disease factor in the majority of soybean producing acreage. Problems in small grain, primarily wheat, were at low levels, except for **Head Scab** in a few areas of the state. **Septoria Leaf Complex**, and **Glume Blotch** levels were similar to the low levels seen the last three years. Forages, in general, did not suffer from any major disease problems. **Crown Rot Complex** was found in several fields at elevated levels due primarily to winter injury in older stands.

The incidence of diseases on vegetable crops was also light. However, **Bacterial Diseases** on tomato and pepper were once again noteworthy and difficult to control. Incidences of **Late Blight** on potato and tomato were reduced from 1995 levels. Incidences of **Fusarium Fruit Rot** on pumpkins greatly increased with the growth in this industry.

Fire Blight levels were much reduced from 1995 levels but fruit rots were above normal and occurred earlier in the season than normal.

Powdery Mildew on Dogwood was once again seen in many areas of the state as it has been for the last few years. **Tar Spot** of maples and **Needlecast** diseases on pines and spruces were more common than normal in 1996. No new counties were added to the **Dogwood Anthracnose** list keeping the count at 60. Turf diseases were generally up with the cool temperatures in spring and above normal rainfall during the summer. **Red Thread**, **Brown Patch**, **Pythium Cottony Blight** and others caused significant damage in home lawns and golf courses throughout the state.

In addition to the day to day diagnosis of samples, **monitoring** of several organisms and the diseases they cause are conducted by the diagnostic laboratory during the year. In addition to Blue Mold on tobacco and Dogwood Anthracnose, mentioned above, **Bacterial Leaf Scorch** is watched very closely because of its deadly potential to landscape trees. The viruses Tomato Spotted Wilt and Impatiens Necrotic Spot are also monitored to alert tobacco and commercial vegetable growers and the floral greenhouse industry, respectively. The detection of soybean cyst nematodes in new areas of the state and on commercial ornamental stock for export is also conducted. In all, a major activity of the laboratory is to serve as an educational resource to County Extension Agents and Extension Specialists for assistance in the diagnosis of plant diseases, common, complex, and new.

EXPLANATORY REMARKS

As you examine the main body of this report, you will notice three columns of numbers following the diagnosis and causal agent sections. The first column indicates the number of primary diagnoses, the second column the number of secondary diagnoses and the third column is the total of the previous two.

The primary diagnosis is the main, or frequently, the only problem observed on a plant sample. If a second problem of equal or lesser importance was observed, it was entered as the secondary diagnosis. Occasionally, a problem may have only been diagnosed as a secondary problem, and never as a primary problem (e.g. *Lophodermium needlecast* on Pine). In these cases, a zero (0) will appear in the primary diagnosis column to indicate the absence of samples with that particular problem.

No disease: This indicates that no pathogen was observed on the specimen submitted, and that based on the sample and information provided, we were unable to pinpoint an exact abiotic or biotic cause of the problem, if there was one.

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 by the crop specialist in the Agronomy or Horticulture Departments. On a number of occasions we also consulted with crop specialists in other departments to diagnose or verify abiotic problems.

Root problems: Samples designated as having a "root problem" had above ground symptoms suggestive of root disfunction and/or evidence of root degeneration, however, a specific biotic or abiotic cause could not be determined.

ACKNOWLEDGEMENTS

1996 was Ms. Julie Beale's first year as the diagnostician in the Lexington facility. Julie has done an outstanding job, not only in diagnosis, but in seeing to accurate and timely updating of the database records.

Two technicians within the department of Plant Pathology have made significant contributions to the Plant Diagnostic Laboratories. Shari Dutton is working with the specialists in Lexington providing laboratory support for special research projects and demonstrations and was extremely valuable in running the assay for the "Ridomil-resistant" strain of the fungus which causes blue mold. As the technician in charge of performing all soybean cyst nematode extractions and counting, Debbie Morgan has been dutifully carrying out her responsibilities since 1985 in the Nematode Laboratory at Princeton. Debbie was also a big help in preparing the numbers for this summary. In addition, although Jack Doney primarily has research responsibilities, he does contribute in many ways to the performance of the laboratories. Thanks also go to Tom Priddy, Ag. Engineering - Meteorology, for providing the summary of weather conditions for 1996.

We also wish to thank the College of Agriculture's extension specialists and researchers who served as consultants to the diagnostic lab in 1996. Their services ranged from making actual diagnoses to providing answers to plant, insect, weed or pesticide questions. These individuals are too numerous to mention here (see Table 9) but we are grateful nonetheless to each for their valuable assistance.

Table 1.

SUMMARY OF DIAGNOSES¹ BY CROP CATEGORY AND CAUSAL AGENT TYPE.

Crop Category	Abiotic Problems	Biotic² Problems	Chemical Injury	Inadequate Specimen	Insect Injury	Other³	Total Diagnoses
<u>Agronomic</u>							
Corn	63	50	16	7	18	14	168
Forages	16	64	0	0	18	13	111
Rapeseed (Canola)	0	0	0	0	0	0	0
Small grains	12	38	3	0	2	9	64
Soybeans	32	2586*	20	2	1	8	2649
Tobacco	536	928	145	32	17	92	1750
<u>Fruit</u>							
Small fruit	18	54	2	6	8	4	92
Tree fruit	33	97	4	5	47	20	206
<u>Herbs</u>							
	5	6	0	0	4	5	20
<u>Identification</u>							
	0	35	0	0	0	1	36
<u>Ornamentals</u>							
Herbaceous and Houseplants	63	101	13	12	32	38	259
Turfgrass	19	88	1	4	0	14	126
Woody	430	381	38	54	234	254	1391
<u>Vegetables</u>							
	114	238	34	24	15	51	476
<u>Miscellaneous</u>							
	2	3	0	0	1	7	13
<u>Total</u>	1343	4669	276	146	397	530	7361

¹ All counts and totals include primary diagnoses plus secondary diagnoses.

² Refer to Table 2 for a further breakdown of this category.

³ "Other" includes the causal agent categories: No disease and Unknown.

* Includes 3182 samples sent to the Nematode Analysis Laboratory in Princeton.

Table 2.

SUMMARY OF BIOTIC PROBLEMS BY CROP CATEGORY.

Crop Category	Bacterial	Fungal	Nematode	Virus	Other¹
<u>Agronomic</u>					
Corn	5	41	0	4	0
Forages	3	61	0	0	0
Rapeseed (Canola)	0	0	0	0	0
Small grains	3	20	0	15	0
Soybeans	0	30	2554	2	0
Tobacco	72	796	0	60	0
<u>Fruit</u>					
Small fruit	2	51	0	1	0
Tree fruit	13	84	0	0	0
<u>Herbs</u>					
	0	6	0	0	0
<u>Identification</u>					
	0	22	0	0	13
<u>Ornamentals</u>					
Herbaceous and Houseplants	13	85	1	2	0
Turfgrass	1	85	0	0	2
Woody	34	334	5	0	8
<u>Vegetables</u>					
	50	157	3	28	0
<u>Miscellaneous</u>					
	0	2	0	0	1
Total	196	1774	2563	112	24

¹ Other includes these categories: Animal (rodent and bird damage), Plant (plant identifications), and Algae, Lichen and MLO (mycoplasma-like organism).

Table 3.

NUMBER OF PLANT SPECIMENS BY CROP CATEGORY, EXPRESSED AS PERCENTAGES

Crop Category	Number of Specimens	Percentage of Total Specimens
Agronomic (-Tobacco)	356	8.7
Tobacco	1406	34.3
Fruit	234	5.7
Herbs	20	0.5
Identifications	36	0.9
Ornamentals	1619	39.5
Vegetables	413	10.1
Miscellaneous	13	0.3
Total Specimens	4097	100.0

Table 4.

SUMMARY OF DIAGNOSES BY CROP CATEGORY AND CROP.

Crop Category and Crop	Number of Primary Diagnoses¹	Number of Secondary Diagnoses²	Total Diagnoses³
<u>Agronomic</u>			
Corn	143	25	168
Forages	85	26	111
Rapeseed (Canola)	0	0	0
Small grains	48	16	64
Soybeans	2626	23	2649
Tobacco	1406	344	1750
<u>Fruit</u>			
Small fruit	74	18	92
Tree fruit	160	46	206
<u>Herbs</u>			
	20	0	20
<u>Identification</u>			
	36	0	36
<u>Ornamentals</u>			
Herbaceous and Houseplants	232	27	259
Turfgrass	111	15	126
Woody	1276	115	1391
<u>Vegetables</u>			
	413	63	476
<u>Miscellaneous</u>			
	13	0	13
<u>Total</u>			
	6643	718	7361

¹ The number of primary diagnoses corresponds to the number of different specimens examined.

² If a second problem was evident on the plant specimen it was considered the secondary diagnosis. See "Explanatory Remarks."

³ Total diagnoses equals the number of primary plus the number of secondary diagnoses.

Table 5.

SUMMARY OF SAMPLES RECEIVED BY GROWER TYPE AND CROP GROUP.

Crop Group	Grower Type							
	Commercial		Homeowner		Research		Institution	
	Ext ¹	Non-Ext ²						
<u>Agronomic</u>								
Corn	128	6	0	0	8	0	1	0
Forages	85	0	0	0	0	0	0	0
Small grains	43	3	0	0	1	1	0	0
Soybeans	813	16	0	0	0	1797	0	0
Tobacco	1356	34	0	0	0	16	0	0
<u>Fruit</u>								
Small Fruit	25	0	45	3	0	1	0	0
Tree Fruit	28	2	95	9	25	0	1	0
<u>Herbs</u>								
	11	0	8	1	0	0	0	0
<u>Identification</u>								
	0	2	25	3	0	1	5	0
<u>Ornamental</u>								
Herbaceous and								
Houseplants	84	7	124	1	0	3	12	1
Turfgrass	22	0	48	0	0	2	39	0
Woody	115	2	1081	14	0	2	61	1
<u>Vegetable</u>								
	221	9	159	6	0	14	4	0
<u>Miscellaneous</u>								
	4	0	6	0	0	3	0	0
<u>Total</u>								
	2935	81	1591	37	34	1840	123	2
<u>Total/Grower Type</u>								
	3016		1628		1874		125	

Total number of samples received = 6643

¹ Ext = Extension samples submitted via County Extension Agents or Extension Specialists.

² Non-Ext = Non-extension samples submitted directly by the grower or other non-extension clients.

Table 6.

**NUMBER OF SAMPLES REFERRED TO OTHER DEPARTMENTS,
UK LABORATORY FACILITIES OR OUTSIDE AGENCIES FOR DIAGNOSIS.***

Department, Facility or outside agency	Crop Category					Total
	Agronomic	Fruit	Ornamental	Vegetable	Other	
AgDia, Inc.	14	0	1	9	0	24
Agronomy Department	71	0	1	0	3	75
Entomology Department	21	4	62	5	3	95
Horticulture Department	0	0	4	3	0	7
Kentucky State University	0	0	1	0	0	1
Penn State Univ.	0	0	4	0	0	4
Regulatory Services	0	0	0	0	1	1
					<u>Total</u>	207
					<u>Total number of plant samples</u>	4097
					<u>Percent of plant samples referred outside Diagnostic Lab for diagnosis</u>	5.1

* Numbers do not reflect the total number of diagnoses and/or consultations conducted by other departments (See Table 9).

TABLE 7.**SPECIAL LABORATORY TESTS PERFORMED.**

Test	Number of Cases
Culturing	53
Enzyme-linked Immunosorbent Assay (ELISA)	59
Incubation	361
Metalaxyl susceptible/resistant	50
Nematode extraction (total = 2560)	
Pinewood nematode	14
Soybean cyst nematode	2546
Soil tests (total = 111)	
pH	208
Saturated media extract/pH	6
Soluble salts	9
pH/Soluble Salts	254
soil bioassay	4
Tissue Test (total = 25)	
Quick Nitrate Test	45

Table 8.

**NUMBER OF PLANT SAMPLES RECEIVED BY COUNTY AND CROP CATEGORY
(KY AND OUT-OF-STATE SOURCES).**

COUNTY	Total	Agronomic¹	Tobacco	Fruit	Ornamental	Vegetable	Other
ADAIR	13	3	7	0	2	1	0
ALLEN	44	5	16	1	12	8	2
ANDERSON	12	0	8	0	3	1	0
BALLARD	25	5	13	0	5	2	0
BARREN	36	8	19	1	4	4	0
BATH	26	3	15	0	8	0	0
BELL	17	0	0	0	16	0	1
BOONE	101	0	12	4	77	6	2
BOURBON	49	9	21	2	16	1	0
BOYD	26	0	0	0	21	0	5
BOYLE	36	6	6	0	21	3	0
BRACKEN	11	1	6	0	4	0	0
BREATHITT	14	0	6	2	3	3	0
BRECKINRIDGE	73	5	48	1	15	4	0
BULLITT	52	3	12	4	30	2	1
BUTLER	45	10	24	0	5	5	1
CALDWELL	80	14	21	8	16	18	3
CALLOWAY	72	6	26	11	24	4	1
CAMPBELL	31	0	9	3	15	2	2
CARLISLE	35	7	18	3	6	1	0
CARROLL	15	0	10	0	5	0	0
CARTER	46	0	14	6	21	5	0
CASEY	30	2	11	7	1	9	0
CHRISTIAN	152	12	46	12	69	12	1
CLARK	35	2	18	1	11	2	1
CLAY	7	1	1	0	0	5	0
CLINTON	13	1	8	1	3	0	0
CRITTENDEN	39	4	0	7	10	15	1
CUMBERLAND	14	2	8	1	4	0	0
DAVISS	227	23	41	9	82	69	3
EDMONSON	37	3	18	5	8	3	0
ELLIOTT	7	0	2	0	3	2	0
ESTILL	4	0	0	1	3	0	0
FAYETTE	338	14	50	17	220	28	9
FLEMING	33	4	22	4	1	2	0
FLOYD	7	0	1	1	2	3	0
FRANKLIN	66	5	13	3	38	7	0
FULTON	5	3	0	0	2	0	0
GALLATIN	18	0	16	0	1	1	0
GARRARD	6	1	1	1	3	0	0
GRANT	34	1	17	3	13	0	0
GRAVES	68	5	32	5	17	8	1
GRAYSON	4	0	2	0	1	0	1
GREEN	27	5	13	1	7	1	0
GREENUP	34	0	10	3	21	0	0
HANCOCK	42	1	33	4	2	2	0
HARDIN	37	10	14	2	8	0	3
HARLAN	22	0	1	2	14	4	1
HARRISON	16	2	10	0	4	0	0
HART	19	0	13	0	2	4	0
HENDERSON	44	9	9	1	18	7	0
HENRY	33	3	21	0	7	2	0
HICKMAN	4	1	1	0	0	2	0
HOPKINS	44	5	7	2	25	1	4
JACKSON	29	0	12	1	8	7	1
JEFFERSON	72	0	1	0	62	7	2
JESSAMINE	45	0	22	1	22	0	0
JOHNSON	8	0	3	0	3	2	0
KENTON	47	0	5	0	37	3	2
KNOTT	0	0	0	0	0	0	0
KNOX	5	0	5	0	0	0	0

COUNTY	Total	Agronomic ¹	Tobacco	Fruit	Ornamental	Vegetable	Other
LARUE	28	3	15	1	7	2	0
LAUREL	24	0	6	0	12	6	0
LAWRENCE	10	2	5	0	2	1	0
LEE	7	0	3	2	1	0	1
LESLIE	8	0	1	0	6	1	0
LETCHER	1	0	0	0	1	0	0
LEWIS	17	2	8	2	4	1	0
LINCOLN	9	0	4	0	2	1	2
LIVINGSTON	16	1	5	5	4	1	0
LOGAN	49	5	21	2	19	2	0
LYON	22	4	9	0	9	0	0
McCRACKEN	47	0	6	2	29	9	1
McCREARY	0	0	0	0	0	0	0
McLEAN	16	4	10	0	2	0	0
MADISON	73	4	44	0	24	1	0
MAGOFFIN	3	1	2	0	0	0	0
MARION	24	3	9	0	12	0	0
MARSHALL	62	4	6	2	41	7	2
MARTIN	2	0	1	0	1	0	0
MASON	23	3	11	0	9	0	0
MEADE	35	5	19	1	8	2	0
MENIFEE	6	0	2	3	0	1	0
MERCER	24	5	8	1	7	3	0
METCALFE	8	2	4	0	2	0	0
MONROE	12	1	5	1	4	1	0
MONTGOMERY	68	7	32	1	20	7	1
MORGAN	13	1	4	1	3	3	2
MUHLENBERG	26	4	8	0	12	1	1
NELSON	17	2	8	0	6	1	0
NICHOLAS	21	1	12	1	6	1	0
OHIO	21	2	6	1	5	7	0
OLDHAM	26	3	14	0	7	2	0
OWEN	29	3	18	1	7	0	0
OWSLEY	8	0	5	0	2	1	0
PENDELTON	8	0	5	0	3	0	0
PERRY	8	0	0	0	7	0	1
PIKE	0	0	0	0	0	0	0
POWELL	5	0	2	0	3	0	0
PULASKI	33	3	8	3	17	2	0
ROBERTSON	4	0	1	1	1	0	1
ROCKCASTLE	13	0	7	0	6	0	0
ROWAN	19	0	10	1	8	0	0
RUSSELL	21	1	9	0	5	5	1
SCOTT	42	2	10	17	9	4	0
SHELBY	88	3	30	3	48	4	0
SIMPSON	19	3	10	1	5	0	0
SPENCER	0	0	0	0	0	0	0
TAYLOR	22	4	10	0	4	4	0
TODD	45	8	20	3	11	3	0
TRIGG	44	2	15	3	22	2	0
TRIMBLE	23	0	13	2	0	8	0
UNION	21	10	0	2	6	1	2
WARREN	138	17	11	8	87	15	0
WASHINGTON	23	2	10	2	8	1	0
WAYNE	64	8	35	3	6	12	0
WEBSTER	23	5	8	2	5	3	0
WHITLEY	30	2	9	4	7	7	1
WOLFE	9	0	8	0	1	0	0
WOODFORD	47	7	18	11	10	1	0
Out-of-State	60	1	48	0	5	1	5
TOTALS	4097	356	1406	234	1619	413	69

¹ Agronomic crops include corn, soybeans, forages, and small grains but in this particular case, it excludes tobacco.

Table 9.

THE NUMBER OF CASES IN WHICH EXTENSION SPECIALISTS, DIAGNOSTICIANS OR RESEARCHERS WERE INVOLVED IN MAKING A PRIMARY DIAGNOSIS AND THE NUMBER OF CASES IN WHICH THEY SERVED AS CONSULTANTS.

Specialists, Researchers, Diagnosticians	Department Consultations ²	Number of cases	
		Primary Diagnosis ¹	
LEXINGTON			
Anderson, RG	Horticulture	1	19
Beale, JW (Diagnostician)	Plant Pathology	1887	1
Bessin, RT	Entomology	9	32
Bitzer, MJ	Agronomy	9	1
Fountain, WM	Horticulture	0	12
Green, JD	Agronomy	4	7
Hartman, JR	Plant Pathology	168	55
Henning, JC	Agronomy	0	2
Johnson, MP	Entomology	2	0
McNiel, RE	Horticulture	0	1
Nesmith, WC	Plant Pathology	173	352
Palmer, GK	Agronomy	59	7
Pearce, RC	Agronomy	4	0
Pirone, TP	Plant Pathology	0	1
Powell, AJ	Agronomy	0	2
Potter, MF	Entomology	0	1
Rowell, AB	Horticulture	4	2
Shanklin, DR	Entomology	6	3
Siegel, MR	Plant Pathology	0	2
Strang, JG	Horticulture	5	2
Townsend, LH	Entomology	46	18
Vincelli, PC	Plant Pathology	188	47
Witt, ML	Horticulture	1	0
PRINCETON			
Bachi, PR (Diagnostician)	Plant Pathology	1316	137
Brown, GR	Horticulture	11	3
Dunwell, WC	Horticulture	11	32
Herbek, JH	Agronomy	3	3
Hershman, DE	Plant Pathology	45	15
Johnson, DW	Entomology	4	8
Kirkland, DL	Regulatory Services	1	0
Lacefield, GD	Agronomy	5	1
Martin, JR	Agronomy	38	25
Murdock, LW	Agronomy	17	5
Maksymowicz, WC	Agronomy	77	41
Rasnake, M	Agronomy	2	0

¹ The specialist or diagnostician signing the Plant Diagnostic Form was considered the primary diagnoser.

² In some cases, more than one person was consulted, however, only one name can be entered into the computer database. Therefore, these numbers may indicate fewer consultations than were actually performed.

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
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AGRONOMIC CROPS

CORN (*Zea*)

Anthracnose	- Colletotrichum	1	0	1
Barren stalk	- physiological	1	0	1
Brown spot	- Physoderma	1	1	2
Chemical injury	- herbicide, growth regulator	17	0	17
Ear/Kernel rots	- Diplodia	9	0	9
	- Fusarium	6	1	7
Environmental	- compaction	12	3	15
	- other stresses	5	1	5
Gray leaf spot	- Cercospora	12	2	14
Holcus spot	- Pseudomonas	2	1	3
Inadequate specimen, no disease		21		21
Insect injury		12	6	18
Leaf spot	- Drechslera	1	0	1
Nutritional	- acid soil	8	2	10
	- zinc deficiency	12	2	14
	- others	10	4	14
Physical injury	- unknown	1	0	1
Root rot	- Pythium	1	0	1
	- Rhizoctonia	1	0	1
Rootless	- environmental	1	0	1
Rust, common	- Puccinia	1	0	1
Stalk Rot	- Diplodia	1	0	1
	- Erwinia	1	0	1
	- Gibberella	1	0	1
	- Helminthosporium	1	0	1
Stewart's wilt	- Erwinia	0	1	1
Virus	- complex	2	0	2
	- maize chlorotic dwarf	1	0	1
	- maize dwarf mosaic	1	0	1
Yellow leaf blight	- Phyllosticta	0	1	1

FORAGES

ALFALFA (*Medicago*)

Anthracnose	- Colletotrichum	1	0	1
Bacterial leaf spot	- Xanthomonas	2	0	2
Bacterial wilt	- Clavibacter	1	0	1
Crown/root rot	- complex	5	0	5
	- Fusarium	8	2	8
	- Rhizoctonia	0	1	1
Crown/stem rot	- Sclerotinia	5	1	6
Cultural	- overmature	1	0	1
Downy mildew	- Peronospora	1	0	1
Environmental stresses		6	4	10
Insect injury		9	8	17
Leaf spot	- Leptosphaerulina	11	5	16
	- Pseudopeziza	0	2	2
Nutritional	- boron deficiency	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
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ALFALFA [cont]					
Root rot	- Aphanomyces	4	0	4	
	- Pythium	1	0	1	
	- Phytophthora	1	0	1	
	- Rhizoctonia	2	0	2	
Spring black stem	- Phoma	2	1	3	
Stem canker	- Rhizoctonia	2	0	2	
CLOVER (Trifolium)					
Crown/stem rot	- Sclerotinia	1	0	1	
No disease		3		3	
Nutritional	- acid soil	2	0	2	
Target spot	- Stemphylium	0	1	1	
FESCUE (Fescuta)					
Brown patch	- Rhizoctonia	1	0	1	
Ergot	- Claviceps	2	0	2	
Insect injury		0	1	1	
MILLET (Panicum)					
Leaf spot	- Pyricularia	1	0	1	
ORCHARDGRASS (Dactylis)					
Enironmental	- compaction	1	0	1	
Nutritional	- nitrogen deficiency	1	0	1	
SUDANGRASS (Sorghum)					
Leaf blight	- Exserohilum	1	0	1	

SOYBEAN

SOYBEAN (Glycine)					
Anthracnose	- Colletotrichum	0	2	2	
Brown spot	- Septoria	0	1	1	
Chemical injury	- herbicide, growth reg.	15	1	16	
	- unknown	4	0	4	
Cultural	- planting date	2	0	2	
Damping-off	- Pythium	1	0	1	
Downy mildew	- Peronospora	1	0	1	
Environmental stresses		9	3	12	
Frogeye	- Cercospora	3	0	3	
Inadequate specimen, no disease		9		9	
Insect injury		1	0	1	
Nutritional	- acid soil	3	0	3	
	- general	2	0	2	
	- potassium deficiency	6	5	11	
	- manganese deficiency	1	1	2	
Physical injury	- grazing	1	0	1	
Root problem	- unknown	1	0	1	
Root/stem rot	- Fusarium	0	1	1	
	- Rhizoctonia	3	2	5	

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
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SOYBEAN [cont]

Soybean cyst nematode - on plant samples		8	0	8
Heterodera	* in soil samples	2168		2168
	* absent in soil samples	378		378
(*soil submitted to Nematode Analysis Laboratory)				
Stem canker	- Diaporthe	5	2	7
Sudden death syndrome	- Fusarium	6	3	9
Virus	- bean pod mottle	0	1	1
	- soybean mosaic	1	0	1

SMALL GRAINS**BARLEY (Hordeum)**

Basal glume rot	- Pseudomonas	1	0	1
Head scab	- Fusarium	0	1	1
Scald	- Rhynchosporium	1	0	1

SORGHUM (Sorghum)

Insect injury		0	1	1
No disease		2		2
Virus	- maize dwarf mosaic	1	0	1

WHEAT (Triticum)

Bacterial streak	- Xanthomonas	1	1	2
Chemical injury	- herbicide	2	1	3
Cultural	- deep planting	1	0	1
Environmental stresses		4	2	6
Flecking	- physiological	2	0	2
Head scab	- Fusarium	5	2	7
Insect injury		0	1	1
Leaf blotch	- Septoria	3	1	4
Leaf scorch	- physiological	1	0	1
Loose smut	- Ustilago	0	1	1
No disease		7		7
Nutritional	- acid soil	0	1	1
Rust/leaf	- Puccinia	1	0	1
Take-all	- Gaeumannomyces	6	0	6
Virus	- Barley yellow dwarf	3	0	3
	- Soilborne wheat mosaic	0	3	3
	- Wheat spindle streak mosaic	7	0	7
	- Wheat streak mosaic	0	1	1

TOBACCO

TOBACCO (Nicotiana)

Angular leaf spot	- Pseudomonas	14	7	21
Anthracnose	- Colletotrichum	4	1	5
Bacterial leaf spot	- species	0	1	1
Bacterial soft rot	- Erwinia	7	8	15
	- Pseudomonas	2	0	2
Black root rot	- Thielaviopsis	7	2	9
Black shank	- Phytophthora	129	12	141
Blackleg	- Erwinia	22	9	31
Blue mold	- Peronospora	177	18	195
Brown spot	- Alternaria	0	6	6
Chemical injury	- burn	7	1	8
	- fungicide	4	2	6
	- growth regulator	22	1	23
	- herbicide	69	4	73
	- insecticide	1	0	1
	- sucker agent	7	0	7
	- unknown	25	3	28
Collar rot	- Sclerotinia	7	2	9
Cultural	- various problems	21	4	25
Damping-off	- Rhizoctonia	9	0	9
Early flowering	- environmental	4	1	5
Environmental	- cold injury	37	6	42
	- compaction	4	3	7
	- lightning	17	0	17
	- wet feet	11	5	16
	- weather scald	1	2	3
	- others	40	13	53
False broomrape	- unknown	1	0	1
Frenching	- metabolites	15	0	15
Frogeye	- Cercospora	30	7	37
Gray mold	- Botrytis	1	0	1
Hollow stalk	- Erwinia	3	1	4
Inadequate specimen, no disease, unknown	124		124	
Insect injury		11	6	17
Leaf breakdown	- physiological	1	0	1
Leaf scorch	- unknown	2	0	2
Leaf spot	- Alternaria	2	0	2
	- physiological	7	3	10
Mutation	- genetic	1	1	2
Nutritional	- acid soil	28	14	42
	- alkalinity	3	1	4
	- boron deficiency	3	1	4
	- calcium deficiency	2	1	3
	- fertilizer burn	74	18	92
	- general	4	2	6
	- potassium deficiency	12	5	17
	- manganese toxicity	31	1	32
	- nitrogen deficiency	24	12	36
	- pH high	0	3	3

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
TOBACCO (cont)					
	Nutritional [cont]	- phosphorus deficiency	36	12	38
		- soluble salts	7	7	14
	Oedema	- physiological	4	0	4
	Physical injuries		5	0	5
	Powdery mildew	- Erysiphe	0	1	1
	Root problem	- unknown	8	5	13
	Root rot	- Fusarium	1	0	1
		- Pythium	38	16	54
		- Rhizoctonia	6	2	8
	Soft rot	- Phythium	1	0	1
	Soreshin	- Rhizoctonia	31	30	61
	Stem girdling	- Rhizoctonia	35	1	36
	Stem rot	- Pythium	2	0	2
		- Rhizoctonia	16	8	24
	Storage mold	- fungal	1	0	1
		- Mucor	1	0	1
	Target spot	- Rhizoctonia	126	85	211
	Virus	- Alfalfa mosaic	3	2	5
		- complex	13	2	15
		- Impatiens necrotic spot	4	1	5
		- Potato Virus Y	2	2	4
		- poty virus	2	2	4
		- Tobacco etch	5	4	9
		- Tobacco mosaic	4	1	5
		- Tobacco ringspot	3	0	3
		- Tobacco streak	2	0	2
		- Tomato spotted wilt	3	4	7
		- unknown	1	0	1
	Weather fleck	- ozone	9	4	13
	Wilt	- Fusarium	11	9	20

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
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FRUIT CROPS

SMALL FRUITS

BLUEBERRY (Vaccinium)

Fruit decay	- Alternaria	0	1	1
Inadequate specimen		1		1
Insect injury		1	0	1
Nutritional	- pH high	1	0	1
Oedema	- physiological	0	1	1
Root rot	- Phytophthora	2	0	2

BRAMBLES - BLACKBERRY, and RASPBERRY (Rubus)

Anthracnose	- Elsinoe	3	0	3
Cane blight	- Leptosphaeria	2	0	2
Cane canker	- Botryosphaeria	1	0	1
	- unknown	1	0	1
Chemical injury	- herbicide	1	0	1
Crown gall	- Agrobacterium	0	1	1

BRAMBLES - BLACKBERRY, and RASPBERRY (Rubus) [cont]

Cultural	- pruning	1	0	1
Dieback	- Ascospora	1	0	1
Environmental	- winter injury	7	0	7
Inadequate specimen, no disease		2		2
Insect injury		4	3	7
Leaf spot	- Septoria	0	1	1
	- Sphaerulina	1	0	1
Pollination problem	- unknown	0	1	1
Root problem	- unknown	1	0	1
Root rot	- Phytophthora	2	0	2
Rust, orange	- Gymnoconia	1	0	1
Virus	- sterility	0	1	1

GOOSEBERRY (Ribes)

Environmental	- wet feet	1	0	1
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GRAPE (Vitis)

Anthracnose	- Elsinoe	2	0	2
Bitter rot	- Melanconium	0	1	1
Black rot	- Guignardia	12	2	14
Cane blight/spot	- Phomopsis	2	0	2
Cultural	- transplant shock	1	0	1
Downy mildew	- Plasmopora	0	1	1
Environmental	- cold injury	1	0	1
Inadequate specimen, no disease		4		4

STRAWBERRY (Fragaria)

Angular leaf spot	- Xanthomonas	1	0	1
Anthracnose	- Colletotrichum	0	1	1
Black root	- complex	2	0	2
Chemical	- herbicide	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
STRAWBERRY (Fragaria) [cont]					
	Cultural	- late planting	1	0	1
	Environmental	- cold injury	1	0	1
	Inadequate specimen, no disease		3		3
	Leaf blight	- Phomopsis	2	0	2
	Leaf scorch	- Diplocarpon	0	1	1
	Leaf spot	- Mycosphaerella	4	1	5
		- Septoria	0	1	1
	Leather rot	- Phytophthora	1	0	1
	Nutritional	- general	1	0	1
	Powdery mildew	- Sphaerotheca	1	0	1
	Stem rot	- Rhizoctonia	0	1	1
<u>TREE FRUITS</u>					
APPLE (Malus)					
	Bitter pit	- calcium deficiency	1	0	1
	Bitter rot	- Glomerella	1	1	2
	Black rot	- Botryosphaeria	4	1	5
	Cedar apple rust	- Gymnosporangium	18	8	26
	Chemical injury	- herbicide	1	1	2
	Collar rot	- Phytophthora	2	0	2
	Cultural	- heavy mulch	1	0	1
		- transplant shock	1	0	1
	Dieback	- unknown	1	0	1
	Environmental stresses		3	1	4
	Fire blight	- Erwinia	10	0	10
	Frogeye	- Botryosphaeria	13	5	18
	Inadequate specimen, no disease		12		12
	Insect injury		17	18	35
	Leaf scorch	- environmental	1	0	1
	Leaf spot	- Alternaria	0	1	1
		- Phyllosticta	0	1	1
		- physiological	3	1	4
	Necrotic leaf blotch	- Glomerella	1	0	1
	Physical injury	- pruning	1	0	1
		- unknown	1	0	1
	Powdery mildew	- Podosphaera	3	0	3
	Root problem	- unknown	1	0	1
	Scab	- Venturia	8	1	9
	Sooty blotch	- Gloeodes	0	1	1
	Water core	- physiological	1	0	1
CHERRY (Prunus)					
	Environmental stresses		2	1	3
	Inadequate specimen, no disease		4		4
	Insect injury		2	2	4
	Leaf spot	- Blumeriella	1	0	1
		- Cocomyces	2	0	2
	Physical injury	- girdled trunk	2	0	2

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
KIWI (Actinidia)					
	Inadequate specimen		1		1
	Pollination problem	- unknown	1	0	1
PEACH and APRICOT (Prunus)					
	Brown rot	- Monilinia	1	0	1
	Chemical	- unknown	1	0	1
	Crown gall	- Agrobacterium	2	0	2
	Insect injury		2	0	2
	No disease		5		5
	Nutritional	- nitrogen deficiency	1	0	1
	Sooty mold	- species	0	1	1
PEAR (Pyrus)					
	Chemical injury	- unknown	1	0	1
	Cultural	- transplant shock	1	0	1
	Environmental stresses		3	0	3
	Fire blight	- Erwinia	1	0	1
	Internal breakdown	- physiological	1	0	1
PECAN (Carya)					
	Decline	- unknown	1	0	1
	Insect injury		5	1	6
	Internal breakdown	- physiological	3	0	3
	No disease		2		2
	Powdery mildew	- species	0	1	1
PLUM (Prunus)					
	Black knot	- Apiosporina	7	0	7
	Environmental	- winter injury	1	0	1
	Inadequate specimen		1		1
	Plum pockets	- Taphrina	2	0	2
HERBS					
DILL (Anethum)					
	Stem rot	- Sclerotinia	1	0	1
GARLIC (Allium)					
	No disease		1	0	1
GINSENG (Panax)					
	Leaf blight	- Phytophthora	1	0	1
	No disease		2		2
	Nutritional	- phosphorus deficiency	5	0	5
	Powdery mildew	- Oidium	1	0	1
	Root rot	- Phytophthora	2	0	2
		- Stromatinia	1	0	1
HISSOP (Agastache)					
	No disease		1		1

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HOP (Humulus)					
	Insect injury		1	0	1
MINT (Mentha)					
	Insect injury		3	0	3
WINTERGREEN (Gaultheria)					
	No disease		1		1

IDENTIFICATIONS

FUNGAL IDENTIFICATION

Agaricus	- campestris	1	1
Basidiomycete	- mushroom	2	2
	- Spherobolus	1	1
	- unknown	4	4
Chlorophyllum	- molibdites	1	1
Ganoderma	- applanatum	1	1
	- species	1	1
Gyromitra	- fastigiata	1	1
	- species	1	1
Morchela	- esculenta	1	1
Mutinus	- caninus	1	1
Polyporus	- squamosus	3	3
	- species	1	1
Slime mold	- species	3	3

PLANT IDENTIFICATIONS

Arum	- dracontium	1	1
Colocasia	- esculenta	1	1
Dracaena	- dermensis	1	1
Fraxinus	- pennsylvanica	1	1
Lespedeza	- bicolor	1	1
Nyssa	- sylvatica	1	1
Panicum	- anceps	1	1
Poa	- annua	1	1
Quercus	- prinus	1	1
	- species	1	1
Salix	- discolor	1	1
Vinca	- minor	1	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
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MISCELLANEOUS

CEDAR WOOD					
	No disease		1		1
HAY					
	Moldy	- Aspergillus	1	0	1
	No disease		2		2
LESPEDIZA (Kummerowia)					
	Environmental	- winter injury	1	0	1
MUSHROOM					
	Parasite	- Ascomycete	1	0	1
	Insect injury		1	0	1
ROOT					
	No disease		3		3
SOIL					
	Algae	- green	1	0	1
	No disease		1		1
	Nutritional	- soluble salts	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
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ORNAMENTALS

HERBACEOUS ORNAMENTS and INDOOR PLANTS

ABELIA (Abelia)					
	Cultural	- transplant shock	1	0	1
	Insect injury		1	0	1
AFRICAN VIOLET (Saintpaulia)					
	Powdery mildew	- Oidium	1	0	1
AJUGA (Ajuga)					
	Crown rot	- Athelia	1	0	1
	No disease		1		1
ALUM ROOT (Heuchera)					
	No disease		1		1
BEDSTRAW (Galium)					
	Root/crown rot	- Pythium	1	0	1
BEGONIA (Begonia)					
	Chemical injury	- herbicide	0	1	1
	Crown rot	- Rhizoctonia	1	0	1
	Environmental	- wet feet	0	1	1
	Gray mold	- Botrytis	3	0	3
	No disease		2		2
	Nutritional	- fertilizer burn	2	0	2
	Root problem	- unknown	1	0	1
	Root rot	- Pythium	0	1	1
		- Rhizoctonia	1	1	2
BENJAMIN FIG (Ficus)					
	Insect injury		1	0	1
BERGENIA (Bergenia)					
	Leaf spot	- Discosia	1	0	1
BIRD OF PARADISE (Caesalpinia)					
	Cultural	- insufficient water	1	0	1
BOUGAINVILLEA (Bougainvillea)					
	Leaf scorch	- physiological	1	0	1
CANDYTUFT (Iberis)					
	Root/stem rot	- Rhizoctonia	1	0	1
CARNATION (Dianthus)					
	Stem rot	- Alternaria	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
CHRYSANTHEMUM (Chrysanthemum)					
	Bacterial leaf spot	- Pseudomonas	1	0	1
	Chemical injury	- herbicide	1	0	1
	Cultural	- overwatering	1	0	1
	Environmental	- wet feet	1	0	1
	Inadequate specimen, no disease		5		5
	Insect injury		1	1	2
	Nutritional	- general	1	1	2
	Root rot	- Pythium	4	0	4
	Rust	- Puccinia	1	0	1
	Wilt	- Fusarium	2	0	2
CLEMATIS (Clematis)					
	No disease		1		1
COLUMBINE (Aquilegia)					
	No disease		1		1
CONEFLOWER (Dracopis)					
	Foliar nematode	- Aphelenchus	1	0	1
	Inadequate specimen		1		1
	Nutritional	- fertilizer burn	1	0	1
COREOPSIS (Coreopsis)					
	Insect injury		1	0	1
CROTON (Croton)					
	Insect injury		1	0	1
	No disease		1		1
CYCLAMEN (Cyclamen)					
	Wilt	- Fusarium	1	0	1
DAPHNE (Daphne)					
	Rot rot	- Phytophthora	1	0	1
DAYLILY (Hemerocallis)					
	Anthracoze	- Colletotrichum	1	0	1
	No disease		1		1
DELPHINIUM (Delphinium)					
	No disease		1		1
DIANTHUS (Dianthus)					
	Cultural	- overwatering	1	0	1
	Nutritional	- general	0	1	1
DICENTRA (Dicentra)					
	Cultural	- wet feet	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
DRACAENA (Dracaena)					
	Environmental	- cold injury	1	0	1
	Leaf spot	- Glomerella	1	0	1
	No disease		1		1
EVERLASTING (Helichrysum)					
	No disease		1		1
FERN (various)					
	Chemical injury	- unknown	1	0	1
	Cultural	- insufficient water	1	0	1
	No disease		1		1
	Nutritional	- general	0	1	1
FUCHSIA (Fuchsia)					
	Gray mold	- Botrytis	1	0	1
	No disease		1		1
GARDENIA (Gardenia)					
	Nutritional	- soluble salts	1	0	1
	Sooty mold	- species	1	0	1
GERANIUM (Pelargonium)					
	Bacterial blight	- Xanthomonas	5	0	5
	Cultural	- oedema	2	0	2
	Environmental stresses		2	0	2
	Gray mold	- Botrytis	3	0	3
	No disease		1		1
	Nutritional	- fertilizer burn	1	0	1
		- general	2	1	3
	Root rot	- Pythium	1	0	1
	Rust	- Puccinia	1	0	1
GOLDENSEAL (Hydrastis)					
	No disease		1		1
GRAPEFRUIT (Citrus)					
	Insect injury		1	0	1
	Sooty mold	- species	0	1	1
GROUND IVY (Glechoma)					
	Insect injury		1	0	1
HEN AND CHICK (Sempervivum)					
	Buckeye rot	- Phytophthora	1	0	1
HOSTA (Hosta)					
	Chemical injury	- unknown	1	0	1
	Environmental	- stress	1	0	1
	Insect injury		2	0	2
	Slime mold	- species	1	0	1
	Southern blight	- Athelia	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
IMPATIENS (Impatiens)					
	Bacterial leaf spot	- Pseudomonas	3	1	4
	Chemical injury	- herbicide	1	0	1
	Cultural	- overwatering	2	0	2
	Gray mold	- Botrytis	1	0	1
	Inadequate specimen, no disease		4		4
	Insect injury		2	0	2
	Leaf spot	- Alternaria	4	0	4
	Nutritional	- fertilizer burn	1	0	1
	Root/stem rot	- Rhizoctonia	5	0	5
	Virus	- Impatiens necrotic spot	2	0	2
IRIS (Iris)					
	Chemical injury	- herbicide	1	0	1
	Insect injury		1	0	1
	Leaf spot	- Heterosporium	2	0	2
IVY (various)					
	Bacterial spot	- Xanthomonas	2	0	2
	Cultural	- Oedema	1	0	1
	Environmental	- winter injury	2	0	2
	Insect injury		2	1	3
	Leaf spot	- Colletotrichum	1	0	1
		- unknown	1	0	1
	Nutritional	- general	1	0	1
JADEPLANT (Crassula)					
	Insect injury		2	0	2
LEMON (Citrus)					
	Insect injury		1	0	1
LIATRUS (Liatrus)					
	Root/stem rot	- Rhizoctonia	1	0	1
LILY (Lilium)					
	Chemical injury	- fungicide	1	0	1
LOBELIA (Lobelia)					
	No disease		1		1
MARIGOLD (Tagetes)					
	Chemical injury	- growth regulator	1	0	1
		- herbicide	1	0	1
	Environmental	- stress	1	0	1
	Gray mold	- Botrytis	1	0	1
	Insect injury		1	0	1
	Leaf spot	- Alternaria	1	0	1
	No disease		1		1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
MISCANTHUS (Miscanthus)					
	Anthracnose	- Colletotrichum	1	0	1
	Root rot	- Pythium	2	0	2
MONKEY GRASS					
	Inadequate specimen		1		1
ORCHID (various)					
	Insect injury		1	0	1
	No disease		1		1
PACHYSANDRA (Pachysandra)					
	Leaf/stem blight	- Pseudonectria	6	0	6
PALM (various)					
	Insect injury		1	0	1
PANSY (Viola)					
	Crown rot	- Sclerotinia	1	0	1
	No disease		2		2
	Physical injury	- unknown	1	0	1
PEONY (Paeonia)					
	Gray mold	- Botrytis	1	0	1
	Leaf spot	- Septoria	1	0	1
	No disease		2		2
	Stem rot	- Sclerotinia	1	0	1
PERIWINKLE (Vinca)					
	Chemical injury	- herbicide	1	0	1
PETUNIA (Petunia)					
	Cultural	- Oedema	1	0	1
	Nutritional	- fertilizer burn	1	1	2
	Root/stem rot	- Rhizoctonia	2	0	2
	Stem rot	- Sclerotinia	1	0	1
PHLOX (Phlox)					
	Chemical injury	- growth regulator	1	0	1
	Environmental	- stress	0	1	1
	No disease		1		1
	Powdery mildew	- Erysiphe	1	0	1
	Stem rot	- Fusarium	0	1	1
POINSETTIA (Euphorbia)					
	Chemical injury	- burn	1	0	1
	Cultural	- overwatering	1	0	1
	Insect injury		2	0	2
	No disease		1		1
	Nutritional	- fertilizer burn	1	0	1
		- manganese deficiency	0	1	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
POPPY (Papaver)	Environmental	- wet feet	1	0	1
PORTULACA (Portulaca)	Cultural	- overwatering	1	0	1
POTHOS (Pothos)	No disease		1		1
RUBBER PLANT (Ficus)	Environmental	- sunscald	1	0	1
	Insect injury		1	0	1
RUDBECKIA (Rudbeckia)	Inadequate specimen		2		2
	Insect injury		1	0	1
SALVIA (Salvia)	Gray mold	- Botrytis	1	0	1
	Inadequate specimen, no disease		2		2
	Root rot	- Rhizoctonia	1	0	1
SCHEFFLERA (Brassaia)	Cultural	- improper light	1	0	1
		- overwatering	1	1	2
	Environmental	- stress	2	0	2
	Inadequate specimen, no disease		2		2
	Insect injury		5	1	6
	Physical injury	- unknown	1	0	1
SNAPDRAGON (Antirrhinum)	Stem rot	- Fusarium	1	0	1
SPATHIPHYLLUM (Spathiphyllum)	Cultural	- overwatering	1	0	1
	Inadequate specimen		1		1
SPICE PLANT (Chlorophytum)	No disease		1		1
SPIDERWORT (Tradescantia)	Inadequate specimen		1		1
	Insect injury		1	0	1
TULIP (Tulipa)	Blight	- Botrytis	1	0	1
UNKNOWN	Inadequate specimen		1		1
	Insect injury		1	0	1

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VINCA (Vinca)					
	Canker/dieback	- Phomopsis	2	0	2
	Cultural	- overwatering	1	0	1
	Gray mold	- Botrytis	1	0	1
	Leaf spot	- Alternaria	1	0	1
	No disease		1		1
	Nutritional	- fertilizer burn	1	1	2
	Root rot	- Pythium	0	1	1
		- Rhizoctonia	5	1	6
VIOLET (Viola)					
	Crown/root rot	- Sclerotinia	1	0	1
WATER HYACINTH (Eichhornia)					
	Environmental	- heat stress	1	0	1
YUCCA (Yucca)					
	Chemical injury	- burn	1	0	1
	Environmental	- sunscald	0	1	1
	Leaf spot	- Coniothyrium	1	0	1
ZINNIA (Zinnia)					
	Inadequate specimen		1		1

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TURFGRASS

BENTGRASS (Agrostis)

Anthracnose	- Colletotrichum	7	1	8
Blight	- Pythium	2	0	2
Brown patch	- Rhizoctonia	2	0	2
Chemical injury	- growth regulator	1	0	1
Cultural	- heavy thatch	0	1	1
Environmental stresses		2	0	2
Inadequate specimen, no disease		4		4
Leaf blight	- unknown	1	0	1
Leaf spot	- Curvularia	0	1	1
Pink snow mold	- Microdochium	3	2	5
Root rot	- Pythium	3	0	3
Summer patch	- Magnaporthe	2	0	2
Yellow patch	- Rhizoctonia	2	0	2

BERMUDA (Cynodon)

Blight	- Pythium	1	0	1
Brown patch	- Rhizoctonia	1	0	1
Pink patch	- Laetisaria			

BLUEGRASS (Poa)

Anthracnose	- Colletotrichum	1	0	1
Brown patch	- Rhizoctonia	3	0	3
Cultural	- heavy thatch	3	0	3
Dollar spot	- Lanzia/Moell.	1	0	1
Environmental	- wet feet	0	1	1
Leaf spot	- Rhizoctonia	1	0	1
No disease		3		3
Necrotic ring spot	- Leptosphaeria	3	0	3
Red leaf spot	- Drechslera	0	1	1
Summer patch	- Magnaporthe	4	0	4

FESCUE (Festuca)

Anthracnose	- Colletotrichum	1	0	1
Brown patch	- Rhizoctonia	11	2	13
Cultural	- heavy thatch	1	0	1
	- overwatering	1	0	1
	- poor establishment	1	0	1
Environmental	- stress	2	2	4
Gray leaf spot	- Pyricularia	1	0	1
Inadequate specimen, no disease		5		5
Nutritional	- fertilizer burn	1	0	1
	- pH high	2	0	2
Red thread	- Laetisaria	2	0	2
Slime mold	- species	2	1	3
Weed	- Nimblewill	1	0	1

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RYEGRASS (Lolium)					
	Brown patch	- Rhizoctonia	3	1	4
	Gray leaf spot	- Pyricularia	1	0	1
	Leaf blight	- Leptosphaerulina	1	0	1
		- unknown	1	0	1
	Leaf spot	- Bipolaris	1	0	1
		- Drechslera	1	1	2
		- Rhizoctonia	0	1	1
	Pink snow mold	- Microdochium	1	0	1
	Root rot	- unknown	1	0	1
TURF (various)					
	Blight	- Pythium	1	0	1
	Brown patch	- Rhizoctonia	2	0	2
	Chemical injury	- unknown	1	0	1
	Environmental	- stress	1	0	1
	Inadequate specimen, no disease		5	0	5
	Necrotic ring spot	- Leptosphaeria	1	0	1
	Red thread	- Laetisaria	1	0	1
	Slime mold	- species	4	0	4
	Smut	- Ustilago	1	0	1
	Take-all patch	- Gaeumannomyces	1	0	1
	Weed	- Nimblewill	1	0	1
ZOYSIA (Zoysia)					
	No disease		1		1
<u>WOODY ORNAMENTALS</u>					
ARBORVITAE (Thuja)					
	Cultural	- transplant shock	1	0	1
	Environmental	- winter injury	4	0	4
		- other stresses	5	0	5
	Insect injury		3	0	3
	No disease		1		1
	Twig blight	- Phomopsis	3	0	3
ASH (Fraxinus)					
	Anthracnose	- Apiognomonia	3	0	3
	Bacterial leaf spot	- bacterium	1	0	1
	Canker	- Valsa	1	0	1
	Chemical injury	- herbicide	1	0	1
		- unknown	1	0	1
	Insect injury		2	1	3
	Leaf scorch	- unknown	1	0	1
	Leaf spot	- Mycosphaerella	1	0	1
	Powdery mildew	- species	1	0	1
	Wood decay	- fungal	1	0	1

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AZALEA - See listing under RHODODENDRON					
BALDCYPRESS (Taxodium)					
	Cultural	- transplant shock	1	0	1
	Insect injury		0	1	1
BARBERRY (Berberis)					
	Cultural	- transplant shock	1	0	1
	Environmental	- stress	1	0	1
	Inadequate specimen		1		1
	Insect injury		1	0	1
BAY (Persea)					
	Insect injury		1	0	1
BAYBERRY (Myrica)					
	Root rot	- Phytophthora	1	0	1
BEECH (Fagus)					
	Canker	- Endothia	1	0	1
	Insect injury		1	0	1
	No disease		2		2
BIRCH (Betula)					
	Cultural	- transplant shock	1	0	1
	Environmental	- stress	3	0	3
	Inadequate specimen, no disease		5		5
	Insect injury		5	0	5
	Leaf spot	- Gloeosporium	1	0	1
		- Monostichella	1	0	1
		- Septoria	1	0	1
	Nutritional	- general	1	0	1
	Root rot	- unknown	1	0	1
	Sooty mold	- species	1	0	1
BOXWOOD (Buxus)					
	Canker	- Pseudonectria	4	0	4
	Environmental	- cold injury	4	0	4
	Inadequate specimen, no disease		3		3
	Insect injury		4	0	4
	No disease		1		1
CEDAR (Cedrus)					
	Cultural	- transplant shock	1	0	1
	Insect injury		0	1	1
	No disease		1		1
	Root problem	- unknown	1	0	1
CHAMAECYPARIS and FLASECYPRESS (Chamaecyparis)					
	Cultural	- girdling root	1	0	1
	No disease		3		3

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CHERRY (Prunus)					
	Bacterial spot	- Xanthomonas	1	0	1
	Brown rot	- Monilinia	1	0	1
	Environmental stresses		3	0	3
	Inadequate specimen, no disease		9		9
	Leaf scorch	- unknown	3	0	3
	Leaf spot	- Cocomyces	0	1	1
CHERRYLAUREL (Prunus)					
	No disease		1		1
CHESTNUT (Castenea)					
	Inadequate specimen		1		1
CHINESE EVERGREEN (Aglaonema)					
	Environmental	- sunscald	1	0	1
COTONEASTER (Cotoneaster)					
	Fire blight	- Erwinia	1	0	1
	Insect injury		1	1	2
	No disease		1		1
CRABAPPLE (Malus)					
	Chemical injury	- herbicide	1	0	1
	Collar rot	- Phytophthora	1	0	1
	Cultural	- transplant shock	1	0	1
	Environmental	- stress	2	0	2
	Fire blight	- Erwinia	2	0	2
	Insect injury		1	1	1
	Leaf spot	- Cocomyces	0	1	1
	Leaf scorch	- unknown	3	0	3
	No disease		2		2
	Scab	- Venturia	12	0	12
CRAPEMYRTLE (Lagerstroemia)					
	Insect injury		1	0	1
	Powdery mildew	- Erysiphe	1	0	1
	Sooty mold	- species	1	0	1
CYPRESS (Cupressocyparis)					
	Environmental	- stress	1	0	1
	Insect injury		1	0	1
	Root problem	- unknown	1	0	1
DAPHNE (Daphne)					
	Wilt	- Verticillium	1	0	1

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DOGWOOD (Cornus)					
	Anthracnose	- Discula	9	0	9
		- unknown	1	0	1
	Chemical injury	- growth regulator	1	0	1
		- unknown	1	0	1
	Cultural	- poor planting	1	0	1
		- transplant shock	5	0	5
	Environmental stresses		18	2	20
	Inadequate specimen, no disease		10		10
	Insect injury		1	1	2
	Leaf scorch	- environmental	3	3	6
		- physiological	1	0	1
		- unknown	3	0	3
	Leaf spot	- Alternaria	1	0	1
		- Septoria	1	1	2
	Nutritional	- general	0	1	1
	Powdery mildew	- species	27	2	29
	Root problem	- unknown	1	1	2
	Spot anthracnose	- Elsinoe	8	0	8
DOUGLAS FIR (Pseudotsuga)					
	Cultural	- transplant shock	1	0	1
ELM (Ulmus)					
	Anthracnose	- Gloeosporium	1	0	1
	Dutch elm disease	- Ceratocystis	2	0	2
	Environmental stresses		3	0	3
	Inadequate specimen, no disease		6		6
	Insect injury		3	1	4
	Root problem	- unknown	2	0	2
EUONYMUS (Euonymus)					
	Crown gall	- Agrobacterium	1	0	1
	Cultural	- transplant shock	1	0	1
	Environmental stresses		3	1	4
	Inadequate specimen, no disease		2		2
	Insect injury		9	0	9
	Powdery mildew	- Microsphaera	2	0	2
FIG (Ficus)					
	Insect injury		1	0	1
FIR (Abies)					
	Cultural	- wet feet	1	0	1
	Environmental	- stress	1	0	1
	Insect injury		1	0	1
	No disease		4		4
	Root rot	- Phytophthora	1	0	1
FORSYTHIA (Forsythia)					
	Environmental	- stress	1	0	1
	Inadequate specimen, no disease		6		6

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GINKO (Ginko)					
	Cultural	- transplant shock	1	0	1
	Leaf scorch	- environmental	1	0	1
	No disease		5		5
HACKBERRY (Celtis)					
	No disease		1		1
	Wood decay	- general	2	0	2
HAWTHORN (Crataegus)					
	Cedar-apple rust	- Gymnosporangium	1	0	1
	Cedar-quince rust	- Gymnosporangium	1	0	1
	Insect injury		1	0	1
	Leaf blight	- Entomosporium	1	0	1
	Leaf spot	- Cercospora	1	1	2
	Licen	- species	1	0	1
	No disease		1		1
HEMLOCK (Tsuga)					
	Cultural	- transplant shock	1	0	1
	Environmental stresses		3	0	3
	Inadequate specimen, no disease		8		8
	Insect injury		3	0	3
HIBISCUS (Hibiscus)					
	Cultural	- drying	1	0	1
	Sooty mold	- species	2	0	2
	Wilt	- Fusarium	1	0	1
HICKORY (Carya)					
	Insect injury		3	2	5
	No disease		1		1
HOLLY and INKBERRY (Ilex)					
	Black root rot	- Thielaviopsis	11	1	12
	Canker	- Botryosphaeria	1	0	1
	Cultural	- transplant shock	3	0	3
	Environmental stresses		2	1	3
	Inadequate specimen, no disease		13		13
	Insect injury		1	1	2
	Leaf spot	- fungal	2	0	2
		- Phyllosticta	2	0	2
	Nutritional	- general	1	0	1
	Root rot	- Phytophthora	1	0	1
	Spine spot	- leaf spine injury	1	0	1
HONEYLOCUST (Gleditsia)					
	Environmental	- cold injury	1	0	1
	Insect injury		4	0	4

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HYDRANGEA (Hydrangea)					
	Chemical injury	- burn	1	0	1
	Leaf spot	- Xanthomonas	1	0	1
	No disease		1		1
	Root rot	- Pythium	1	0	1
JUNIPER and RED CEDAR (Juniperus)					
	Cedar/apple rust	- Gymnosporangium	2	0	2
	Chemical injury	- burn	2	0	2
	Cultural	- transplant shock	1	1	2
	Environmental stresses		9	2	11
	Insect injury		11	5	16
	No disease		13		13
	Nutritional	- fertilizer burn	1	0	1
	Physical injury	- rodent	1	0	1
		- unknown	1	0	1
	Root rot	- Rhizoctonia	1	0	1
	Twig blight	- Kabatina	6	0	6
		- Phomopsis	3	0	3
LEUCOTHOE (Leucothoe)					
	Environmental	- stress	0	1	1
	Leaf spot	- Guignardia	1	0	1
LILAC (Syringa)					
	Bacterial blight	- Pseudomonas	1	0	1
	Chemical injury	- herbicide	1	0	1
		- unknown	1	0	1
	Crown rot	- Phytophthora	1	0	1
	Cultural	- transplant shock	1	0	1
	Inadequate specimen, no disease		5		5
	Insect injury		2	0	2
	Powdery mildew	- Microsphaera	1	0	1
	Root problem	- unknown	1	0	1
LINDEN (Tilia)					
	Environmental	- stress	1	0	1
LOCUST (Robinia)					
	Insect injury		1	0	1
MAGNOLIA (Magnolia)					
	Cultural	- transplant shock	2	0	2
	Environmental stresses		6	0	6
	Inadequate specimen, no disease		3		3
	Insect injury		2	0	2
	Nutritional	- iron deficiency	1	0	1
	Powdery mildew	- species	1	0	1
	Root rot	- Rhizoctonia	0	1	1
MAHONIA (Mahonia)					
	Black root rot	- Thielaviopsis	1	0	1

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MAPLE and BOXELDER (Acer)					
Anthracnose	- Apiognomonia		0	1	1
	- Discula		1	0	1
Bacterial scorch	- Kabatiella		10	1	11
	- Xylella		2	0	2
	- Botryosphaeria		0	1	1
Canker	- unknown		1	0	1
	- growth regulator		1	0	1
Chemical injury	- herbicide		6	0	6
	- unknown		2	0	2
	- transplant shock		9	0	9
Cultural	- unknown		5	0	5
Decline			26	1	27
Environmental stresses	- cultural		1	0	1
Girdling root			41		41
Inadequate specimen, no disease			13	6	19
Insect injury	- environmental		3	1	4
	- unknown		6	0	6
Leaf scorch	- Phyllosticta		13	1	14
Leaf spot	- topping		0	2	2
Physical injury	- unknown		5	0	5
Root problem	- Rhytisma		5	2	7
Tar spot	- Verticillium		3	0	3
Wilt					
MOUNTAIN ASH (Sorbus)					
Canker	- Botryosphaeria		1	0	1
MOUNTAIN LAUREL (Kalmia)					
Cultural	- transplant shock		1	0	1
Inadequate specimen			1		1
Leaf spot	- Phyllosticta		1	0	1
MULBERRY (Morus)					
Cultural	- transplant shock		1	1	2
Leaf spot	- Cercospora		5	0	5
Popcorn disease	- Ciboria		1	0	1
NANDINA (Nandina)					
Environmental	- cold injury		1	0	1
Inadequate specimen			1		1
OAK (Quercus)					
Air pollution	- ozone		1	0	1
Anthracnose	- Apiognomonia		8	0	8
Bacterial scorch	- Xylella		12	0	12
Canker	- Botryosphaeria		1	0	1
Chemical injury	- growth regulator		2	0	2
	- herbicide		2	0	2
	- unknown		1	0	1
Decline	- environmental		3	0	3
Environmental stresses			3	2	5
Insect injury			21	2	23

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
OAK [cont]					
	Leaf blister	- Taphrina	3	2	5
	Leaf scorch	- unknown	2	0	2
	Leaf spot	- Cylindrosporium	1	0	1
		- Elsinoe	1	1	2
		- Phyllosticta	2	0	2
		- Tubakia	13	3	16
		- unknown	1	0	1
	No disease		8		8
	Nutritional	- iron deficiency	5	2	7
	Physical injury	- rodent	1	0	1
	Powdery mildew	- species	2	5	7
	Root problem	- unknown	1	0	1
	Wilt	- Ceratocystis	1	0	1
PAGODA TREE (Sophora)					
	Cultural	- transplant shock	1	0	1
PAULOWNIA (Paulownia)					
	Inadequate specimen		1		1
PEAR (Pyrus)					
	Anthracnose	- Discula	0	1	1
	Chemical injury	- growth regulator	2	0	2
		- herbicide	1	0	1
		- unknown	1	0	1
	Cultural	- transplant shock	0	1	1
	Environmental	- stress	2	0	2
	Fire blight	- Erwinia	9	0	9
	Leaf scorch	- unknown	1	0	1
	No disease		3		3
PERSIMMON (Diospyros)					
	Wilt	- Verticillium	1	0	1
PHOTINIA (Photinia)					
	Inadequate specimen		1		1
PIERIS (Pieris)					
	Environmental	- cold injury	1	0	1
	Insect injury		1	0	1
	Nutritional	- fertilizer burn	1	0	1
		- pH high	0	1	1
	Twig blight	- Pestalotia	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
PINE (Pinus)					
	Air pollution	- ozone	2	1	3
	Brown spot	- <i>Mycosphaerella</i>	4	0	4
	Canker	- fungal	1	0	1
		- <i>Fusarium</i>	1	0	1
	Chemical injury	- burn	1	0	1
		- herbicide	3	1	4
	Cultural	- transplant shock	10	0	10
	Environmental stresses		27	4	31
	Inadequate specimen, no disease		57		57
	Insect injury		26	8	34
	Needle cast	- <i>Cyclaneusma</i>	1	0	1
		- <i>Lophodermium</i>	2	0	2
		- <i>Rhizosphaera</i>	1	0	1
	Needle drop	- normal	4	0	4
	Needle tip burn	- environmental	1	0	1
	Nutritional	- pH high	2	1	3
		- soluble salts	1	0	1
	Physical injury	- mower	1	0	1
		- woodpecker	1	0	1
		- <i>Bursaphelenchus</i>	3	2	5
	Pinewood nematode	- unknown	6	0	6
	Root problem	- <i>Pythium</i>	1	0	1
	Root rot	- species	2	1	3
	Sooty mold	- <i>Sphaeropsis</i>	23	2	25
	White pine decline	- environmental	29	0	29
	White pine root decline	- <i>Verticicladiella</i>	1	0	1
PLUM (Prunus)					
	Black knot	- <i>Apiosporina</i>	3	0	3
	No disease		2		2
POPLAR, ASPEN, and COTTONWOOD (Populus)					
	Canker	- <i>Mycosphaerella</i>	1	0	1
	Decline	- environmental	1	0	1
	Inadequate specimen, no disease		3		3
	Leaf spot	- <i>Marssonina</i>	1	0	1
		- <i>Phyllosticta</i>	1	0	1
PRIVET (Ligustrum)					
	Anthracnose	- <i>Colletotrichum</i>	1	0	1
PYRACANTHA (Pyracantha)					
	Environmental	- cold injury	1	0	1
	Scab	- <i>Spilocaea</i>	1	0	1
REDBUD (Cercis)					
	Anthracnose	- <i>Kabatiella</i>	1	0	1
	Inadequate specimen, no disease		5		5
	Leaf scorch	- environmental	1	0	1
	Root rot	- <i>Rhizoctonia</i>	1	0	1
	Wilt	- <i>Verticillium</i>	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
RHODODENDRON and AZALEA (Rhododendron)					
	Canker	- Cylindrocarpon	1	0	1
	Chemical injury	- herbicide	1	0	1
	Crown rot	- Phytophthora	2	0	2
	Cultural	- transplant shock	7	0	7
	Dieback	- Botryosphaeria	1	0	1
	Environmental stresses		18	0	18
	Gray blight	- Pestalotiopsis	1	0	1
	Inadequate specimen, no disease		18		18
	Insect injury		15	2	17
	Leaf/flower gall	- Exobasidium	4	0	4
	Leaf spot	- physiological	0	1	1
	Nutritional	- pH high	3	0	3
	Root problem	- unknown	2	0	2
	Root rot	- Phytophthora	4	0	4
		- Rhizoctonia	0	1	1
ROSE (Rosa)					
	Black spot	- Diplocarpon	1	0	1
	Bud/twig blight	- Botrytis	1	0	1
	Chemical injury	- growth regulator	1	0	1
	Downy mildew	- Peronospora	1	0	1
	Environmental stresses		3	0	3
	Inadequate specimen, no disease		6		6
	Insect injury		3	0	3
	Nutritional	- zinc deficiency	1	0	1
	Powdery mildew	- Sphaerotheca	3	0	3
	Rosette	- unknown	3	1	4
SASSAFRAS (Sassafras)					
	Leaf scorch	- unknown	1	0	1
SERVICEBERRY (Amelanchier)					
	Insect injury		1	0	1
SMOKETREE (Cotinus)					
	Decline	- environmental	1	0	1
	No disease		1		1
	Wilt	- Verticillium	2	0	2
SPIREA (Spirea)					
	Leaf spot	- Phoma	1	0	1
SPRUCE (Picea)					
	Chemical injury	- burn	1	0	1
	Cultural	- transplant shock	6	1	7
	Environmental stresses		7	3	10
	Inadequate specimen, no disease		27		27
	Insect injury		39	2	41
	Needle cast	- Rhizosphaera	5	2	7
	Nutritional	- acid soil	2	0	2
	Root rot	- Rhizoctonia	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
SWEETGUM (Liquidambar)					
	Inadequate specimen, no disease		5		5
	Leaf spot	- physiological	1	0	1
SWEET SHRUB (Calycanthus)					
	Inadequate specimen		1		1
SYCAMORE and PLANETREE (Platanus)					
	No disease		1		1
	Root problem	- unknown	1	0	1
TAXUS (Taxus)					
	Chemical	- salt injury	0	1	1
	Cultural	- transplant shock	3	1	4
	Environmental stresses		19	0	19
	Inadequate specimen, no disease		10		10
	Insect injury		5	1	6
	Nutritional	- acid soil	1	0	1
		- pH high	0	1	1
	Physical injury	- pruning	1	0	1
	Root problem	- unknown	1	0	1
	Root rot	- Phytophthora	1	0	1
TULIPTREE (Liriodendron)					
	Anthracnose	- Gloeosporium	1	0	1
	Cultural	- transplant shock	1	0	1
	Inadequate specimen		1		1
	Insect injury		4	0	4
	Physical injury	- unknown	1	0	1
	Sooty mold	- species	1	2	3
VIBURNUM (Viburnum)					
	Chemical injury	- growth regulator	1	0	1
	Environmental	- winter injury	1	0	1
	Inadequate specimen		1		1
	Insect injury		1	0	1
	Leaf spot	- Alternaria	1	0	1
WALNUT (Juglans)					
	Chemical injury	- herbicide	1	0	1
	Environmental	- stress	1	0	1
	Insect injury		3	0	3
	No disease		2		2
	Root problem	- unknown	1	0	1
	White mold	- Microstroma	0	1	1
WEIGELA (Weigela)					
	Root problem	- unknown	1	0	1

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WILLOW (Salix)					
	Black canker	- Glomerella	1	0	1
	Crown gall	- Agrobacterium	3	0	3
	Cultural	- transplant shock	2	0	2
	Environmental	- stress	2	0	2
	Inadequate specimen		2	0	2
	Insect injury		3	0	3
	Leaf spot	- fungal	1	0	1
XANTHOCERAS (Xanthoceras)					
	Environmental	- cold injury	1	0	1
ZELKOVA (Zelkova)					
	Cultural	- wet feet	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1° DIAGs</i>	<i>#2° DIAGs</i>	<i>TOTAL</i>
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VEGETABLES

ASPARAGUS (Asparagus)

Crown rot	- Fusarium	1	0	1
Leaf spot	- Cercospora	1	0	1

BEAN (Phaseolus)

Air pollution	- ozone	1	1	2
Angular leaf spot	- Phaeosariopsis	1	0	1
Anthracnose	- Colletotrichum	2	0	2
Damping-off	- Pythium	2	0	2
Environmental stresses		3	0	3
Inadequate specimen, no disease		3	0	3
Insect injury		1	0	1
Leaf spot	- Cercospora	1	0	1
	- Phyllosticta	1	0	1
Root/stem rot	- Fusarium	5	1	6
	- Rhizoctonia	7	2	9
Virus	- Bean common mosaic	1	0	1
Wilt	- Fusarium	1	0	1

BEET (Beta)

No disease		1	0	1
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BROCCOLI - See listing under CRUCIFERS

CABBAGE - See listing under CRUCIFERS

CANTALOUPE - See listing under CUCURBITS

CAULIFLOWER - See listing under CRUCIFERS

CELERY (Apium)

Bacterial soft rot	- Erwinia	1	0	1
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CORN, SWEET (Zea)

Chemical injury	- burn	1	0	1
	- growth regulator	1	0	1
Holcus leaf spot	- Pseudomonas	1	0	1
Insect injury		1	1	2
No disease		1	0	1
No ear	- physiological	1	0	1
Nutritional	- general	1	0	1
	- phosphorus deficiency	0	1	1
	- zinc deficiency	5	0	5
Physical injury	- burn	1	0	1
Stewart's wilt	- Erwinia	1	1	2
Virus	- complex	1	0	1

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CRUCIFERS - BROCCOLI, CABBAGE, CAULIFLOWER, and TURNIP (Brassica)					
	Bacterial soft rot	- Erwinia	1	0	1
	Black rot	- Xanthomonas	4	0	4
	Chemical injury	- growth regulator	1	0	1
	Cultural	- improper light	1	0	1
	Environmental stresses		1	1	2
	Insect injury		1	0	1
	No disease		3		3
	No fruit	- nitrogen excess	1	0	1
	Nutritional	- boron deficiency	1	0	1
		- calcium deficiency	1	0	1
		- fertilizer burn	1	0	1
		- nitrogen deficiency	1	0	1
		- phosphorus deficiency	1	0	1
		- potassium deficiency	1	0	1
	Root rot	- Pythium	1	0	1
	Stem rot	- Sclerotinia	1	0	1
	Wire stem	- Rhizoctonia	1	0	1
CUCUMBER - See listing under CUCURBITS					
CUCURBITS - CANTALOUPE, CUCUMBER (Cucumis), PUMPKIN, SQUASH, GOURD (Cucurbita) and WATERMELON (Citrulis)					
	Air pollution	- ozone	1	0	1
	Anthracnose	- Colletotrichum	4	0	4
	Bacterial spot	- Xanthomonas	1	0	1
	Bacterial wilt	- Erwinia	4	0	4
	Blossom-end-rot	- calcium deficiency/dry	2	0	2
	Chemical injury	- growth regulator	1	0	1
		- herbicide	1	0	1
	Downy mildew	- Peronospora	1	0	1
	Environmental stresses		3	1	4
	Fruit blight	- Microdochium	1	0	1
	Fruit decay	- Fusarium	5	0	5
		- Xanthomonas	0	1	1
	Gummy stem blight	- Didymella	1	0	1
	Inadequate specimen, no disease		16		16
	Insect injury		1	0	1
	Leaf spot	- Alternaria	3	1	4
		- phosphorus deficiency	1	0	1
	Powdery mildew	- Erysiphe	0	1	1
		- Sphaerotheca	3	0	3
		- Fusarium	3	1	4
	Root/stem rot	- Rhizoctonia	1	1	2
	Scab	- Cladosporium	1	0	1
	Virus	- cucumber mosaic	1	0	1
		- potyvirus	4	0	4
		- unknown	1	0	1
		- watermelon mosaic II	1	4	5
		- zucchini yellow mosaic	1	0	1
	Wilt	- Fusarium	2	1	3

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EGGPLANT (Solanum)	Inadequate specimen		1		1
LETTUCE (Lactuca)	Leaf spot	- Cercospora	1	0	1
PEANUT (Arachis)	Environmental	- sunscald	1	0	1
OKRA (Hibiscus)	Leaf spot	- bacterial	1	0	1
	No disease		1		1
	Root knot nematode	- Meloidogyne	1	0	1
PEPPER (Capsicum)	Bacterial spot	- Xanthomonas	4	0	4
	Blossom end rot	- calcium deficiency/dry	1	0	1
	Chemical injury	- burn	2	0	2
		- growth regulator	1	0	1
	Cultural	- black plastic	1	0	1
	Environmental stresses		6	0	6
	Fruit rot	- Alternaria	1	0	1
	Leaf spot	- Septoria	1	0	1
	No disease		4		4
	Nutritional	- acid soil	0	1	1
		- fertilizer burn	3	0	3
		- nitrogen deficiency	1	0	1
		- soluble salts	0	1	1
	Physical injury	- unknown	1	0	1
	Root rot	- Pythium	1	0	1
	Root/stem rot	- Fusarium	3	0	3
	Southern blight	- Sclerotium	4	0	4
	Virus	- cucumber mosaic	1	0	1
		- tomato spotted wilt	1	0	1
	Wilt	- Fusarium	1	0	1
POTATO (Solanum)	Black heart	- oxygen deficiency	1	0	1
	Environmental	- wet feet	1	0	1
	Inadequate specimen, no disease		2		2
	Insect injury		2	0	2
	Southern blight	- Sclerotium	1	0	1
PUMPKIN - See listing under CUCURBITS					
RHUBARB (Rheum)	Crown rot	- Erwinia	1	0	1
	Inadequate specimen, no disease		3		3
	Leaf spot	- Cercospora	0	1	1
SQUASH - See listing under CUCURBITS					

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SWEET POTATO (Ipomoea)					
	Mottle necrosis	- Pythium	0	1	1
	Physiological	- fasciation	1	0	1
	Scurf	- Monilochaete	2	0	2
	Soft rot	- Rhizopus	1	0	1
TOMATO (Lycopersicon)					
	Anthracnose	- Colletotrichum	1	0	1
	Bacterial canker	- Clavibacter	7	0	7
	Bacterial soft rot	- Erwinia	3	1	4
	Bacterial speck	- Pseudomonas	2	1	3
	Bacterial spot	- Xanthomonas	6	6	12
	Blossom end rot	- calcium deficiency/dry	2	1	3
	Buckeye rot	- Phytophthora	1	0	1
	Catfacing	- environmental	2	1	3
	Charcoal rot	- Macrophomina	1	0	1
	Chemical injury	- growth regulator	9	1	10
		- herbicide	10	2	12
		- unknown	1	0	1
	Cultural	- stress	2	0	2
	Early blight	- Alternaria	19	3	22
	Environmental stresses		11	3	14
	Fruit decay	- Alternaria	1	1	2
		- Fusarium	0	1	1
		- Geotrichum	1	0	1
		- Rhizoctonia	1	0	1
	Fruit mold	- Penicillium	1	0	1
	Growth crack	- environmental	4	0	4
	Inadequate specimen, no disease		40		40
	Insect injury		8	0	8
	Internal white tissue	- potassium deficiency	1	0	1
	Late blight	- Phytophthora	2	0	2
	Leaf mold	- Cladosporium	2	0	2
	Leaf roll	- environmental	1	0	1
	Leaf scorch	- physiological	0	1	1
	Leaf spot	- Septoria	21	4	25
		- unknown	1	0	1
	Nutritional	- fertilizer burn	3	0	3
		- general	5	1	6
		- iron deficiency	1	0	1
		- maganesium deficiency	5	1	6
		- nitrogen deficiency	4	0	4
		- nitrogen excess	1	0	1
		- pH high	1	0	1
		- phosphorus deficiency	0	2	2
		- potassium deficiency	0	1	1
		- soluble salts	0	1	1
	Oedema	- physiological	0	2	2
	Physical injury	- spray	1	0	1
	Pith necrosis	- Pseudomonas	4	1	5
	Root knot nematode	- Meloidogyne	2	0	2

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TOMATO [cont]					
	Root problem	- unknown	2	0	2
	Root rot	- Pythium	2	0	2
	Root/stem rot	- Fusarium	4	1	5
		- Rhizoctonia	1	0	1
	Southern blight	- Sclerotium	1	0	1
	Stem rot	- Sclerotinia	6	1	7
	Virus	- cucumber mosaic	2	0	2
		- pepper mild mottle	0	1	1
		- potato leaf roll	1	0	1
		- tomato/tobacco ringspot	0	1	1
		- tomato mosaic	1	0	1
		- tomato spotted wilt	12	0	12
	Walnut wilt	- juglone	3	0	3
	Wilt	- Fusarium	2	0	2
	Zippering	- environmental	0	1	1
TURNIP - See listing under CRUCIFERS					
WATERMELON - See listing under CUCURBITS					
TOTALS			6643	718	7361