



**COOPERATIVE EXTENSION SERVICE**  
UNIVERSITY OF KENTUCKY • COLLEGE OF AGRICULTURE

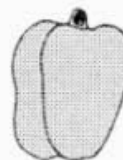
# *PLANT DISEASES*

*in*

*KENTUCKY*

Plant Disease Diagnostic Laboratory Summary

**1994**



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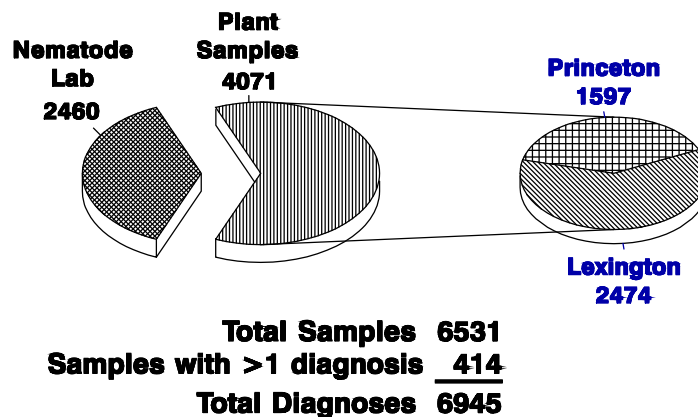
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## INTRODUCTION

The Plant Disease Diagnostic Lab (Lexington and Princeton) handled 4071 plant samples and 2460 nematode soil samples during 1994. Samples with more than one problem numbered 414, bringing the total number of actual diagnoses to 6945. The Lexington Lab diagnosed 2474 specimens. The Princeton Lab's specimens totaled 4057; of this number 1597 were plant samples and 2460 were soil samples submitted, exclusively, for soybean cyst nematode analysis. A total of 1469 of the nematode samples were submitted by researchers and 991 were submitted by commercial growers through the county Extension offices or by Kentucky Seed Improvement Association scouts.

These numbers are summarized in Figure 1 below:

### PLANT DISEASE DIAGNOSTIC LAB, TOTALS 1994



## HIGHLIGHTS

The year of 1994, overall, was a very eventful year for Kentucky weather. Winter snow and ice storms literally shut the state down in February, and near record cold temperatures occurred on January 18/19 which caused extensive injury to landscape ornamentals and loss of yield in fruit tree crops. For the year some western locations recorded 5 to 9 inches below normal precipitation; some eastern locations were 8 to 10 inches above normal precipitation. Yet, timely rainfall during the growing season allowed for high yields in field crops for most of the state.

Rainfall was well above normal for the first 4 months for most locations and then was generally below normal for the duration of the year. For the period January through March, eastern locations received much above normal rainfall and the west was slightly drier with below normal rainfall in February. Spring started off with a very wet April making it difficult to plant corn but this was the last month to see the entire state wet. May was very dry across the state with only 7 to 10 rainfall events. For the year, eastern locations received 20 more rainfall events than did western locations.

Temperatures were above normal for the year. Above average months were February, April, June with much above normal temperatures recorded in November and December. Cool months were January, March, May, August and September. One measure of how stressful summer-time temperatures were is to compare the number of times maximum temperatures were greater than or equal to 90 degrees (F). Weather stations in the western climate zone received 30 to 35 days with temperatures above 90 (F), the Central had 40 to 45, Bluegrass received 20 to 25 and Eastern locations reported 10 to 15 times during the summer months.

The tobacco "float system" was definitely the dominant production method of tobacco transplants, in 1994, based on the number of samples that came from the float system versus the traditional plant bed system. Overall, the number of cultural and managerial problems (e.g. proper filling of trays with soilless mix; use of old, dirty trays; over and under fertilization; general temperature and humidity control; use of plug and transfer plants from out-of-state, etc.) seemed to decline. Growers are probably becoming more familiar with the best management practices to be used in this growing system.

**Blue Mold** cases were down from 1993 levels, which had dropped significantly from 1992 (see Figure 2, left). **Black Shank** was not nearly as severe a problem this year with samples dropping approximately fifty percent. Tobacco infected with viruses such as **Virus Complex** and **Streak** showed a sharp increase but levels of **Tomato Spotted Wilt** were approximately level with the low level in 1993. **Fusarium Wilt** showed a definite increase over 1993 levels. This is due to the use of newer varieties that while they have high levels of resistance to Virus Complex have very little if any resistance to Fusarium Wilt.

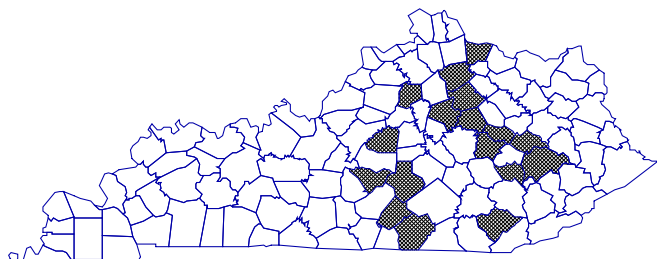


Figure 2. Incidence of Blue Mold in Field sites, 1994.

Corn diseases were relatively few but periods of heavy dews and cloudy weather caused **Gray Leaf Spot** to be a problem with certain varieties and the practice of reduced tillage. **Diplodia Ear Rot** once again was seen later in the year, in some areas of the state.

Certain Soybean diseases took a jump from their characteristically low levels. **Frogeye Leaf Spot** and **Stem Canker** were found to be causing damage, sometimes significant, in fields in

western Kentucky. **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, which included **Barley Yellow Dwarf Virus** which was down significantly from 1993. **Septoria Leaf Complex**, **Glume Blotch** and **Head Scab** levels were similar to the low levels of 1993.

Forages, in general, did not suffer from any major disease problems. **Sclerotinia Crown Rot** was found in several fields of fall-seeded alfalfa, but, overall the incidence was light.

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. **Powdery and Downy Mildews** were also noted on cucurbit and crucifer crops and will continue to be monitored closely.

Two ornamental diseases stood out for 1994, **Anthracnose** on Maples, Ash, Oak and Sycamore and **Powdery Mildew** on Dogwood. Weather conditions at bud break were optimum for the development of Anthracnose. Powdery Mildew on Dogwood, which was seen in limited numbers for the first time in 1993, was prevalent throughout the state in 1994.

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, mentioned above, Dogwood Anthracnose and Bacterial Leaf Scorch are watched very closely because of their deadly potential. As a result, Sweetgum (*Liquidambar styraciflua*) was identified for the first time in the U.S. as a host of the bacterium which causes Bacterial Leaf Scorch. 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

Two technicians within the department of Plant Pathology have made significant contributions to the Plant Diagnostic Laboratories. 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 in Princeton. Rusty Wigglesworth worked at the Lexington Laboratory until September 1994, performing many valuable services such as computer database management, mailing diagnostic responses and other tasks as needed, all of which contribute to the efficiency of the lab. Jack Doney and Diane Perkins are two other technicians, which although have research responsibilities primarily, do contribute in many ways to the performance of the laboratories (Diane has since become County Agent for Agriculture in Hancock County as of January 1, 1995). Thanks also go to Tom Priddy, Ag. Engineering - Meteorology, for providing the summary of weather conditions for 1994.

We also wish to thank the College of Agriculture's extension specialists and researchers who served as consultants to the diagnostic lab in 1994. 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 DIAGNOSES<sup>1</sup> BY CROP CATEGORY AND CAUSAL AGENT TYPE.**

<b>Crop Category</b>	<b>Abiotic Problems</b>	<b>Biotic<sup>2</sup> Problems</b>	<b>Chemical Injury</b>	<b>Inadequate Specimen</b>	<b>Insect Injury</b>	<b>Other<sup>3</sup></b>	<b>Total Diagnoses</b>
<u>Agronomic</u>							
Corn	73	37	28	11	20	27	196
Forages	19	36	1	4	11	16	87
Rapeseed (Canola)	0	0	0	0	0	0	0
Small grains	12	52	15	4	3	21	107
Soybeans	42	2535*	15	3	4	23	2622
Tobacco	412	559	121	26	32	167	1317
<u>Fruit</u>							
Small fruit	22	20	6	3	8	13	72
Tree fruit	24	66	7	11	30	10	148
<u>Herbs</u>	2	9	0	0	7	6	24
<u>Identification</u>	0	50	0	4	0	1	55
<u>Ornamentals</u>							
Herbaceous and Houseplants	51	121	4	6	38	74	294
Turfgrass	24	66	0	6	0	36	132
Woody	316	353	48	45	248	306	1316
<u>Vegetables</u>	122	248	35	18	40	102	565
<u>Miscellaneous</u>	1	3	0	1	0	5	10
<u>Total</u>	1120	4155	280	142	441	807	6945

<sup>1</sup> All counts and totals include primary diagnoses plus secondary diagnoses.

<sup>2</sup> Refer to Table 2 for a further breakdown of this category.

<sup>3</sup> "Other" includes the causal agent categories: No disease and Unknown.

\* Includes 2460 samples sent to the Nematode Analysis Laboratory in Princeton.

Table 2.

**SUMMARY OF BIOTIC PROBLEMS BY CROP CATEGORY.**

<b>Crop Category</b>	<b>Bacterial</b>	<b>Fungal</b>	<b>Nematode</b>	<b>Virus</b>	<b>Other<sup>1</sup></b>
<u>Agronomic</u>					
Corn	7	29	0	1	0
Forages	1	34	0	1	0
Rapeseed (Canola)	0	0	0	0	0
Small grains	2	34	0	16	0
Soybeans	0	50	2482	3	0
Tobacco	71	384	1	102	1
<u>Fruit</u>					
Small fruit	0	19	0	0	1
Tree fruit	12	53	0	0	1
<u>Herbs</u>					
	0	9	0	0	0
<u>Identification</u>					
	0	23	0	0	27
<u>Ornamentals</u>					
Herbaceous and Houseplants	21	85	0	15	0
Turfgrass	0	65	1	0	0
Woody	32	314	3	0	4
<u>Vegetables</u>					
	76	136	3	33	0
<u>Miscellaneous</u>					
	1	2	0	0	0
<u>Total</u>	223	1237	2490	171	34

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

Table 3. NUMBER OF SPECIMENS BY CROP CATEGORY, EXPRESSED AS PERCENTAGES

<b>Crop Category</b>	<b>Number of Specimens</b>	<b>Percentage of Total Specimens</b>
Agronomic (-Tobacco)	471	11.5
Tobacco	1165	28.6
Fruit 199	4.9	
Herbs	24	0.6
Identifications	54	1.3
Ornamentals	1633	40.2
Vegetables	515	12.7
Miscellaneous	10	0.2
<b>Total Specimens</b>	<b>4071</b>	<b>100.0</b>

Table 4.

**SUMMARY OF DIAGNOSES BY CROP CATEGORY AND CROP.**

<b>Crop Category and Crop</b>	<b>Number of Primary Diagnoses<sup>1</sup></b>	<b>Number of Secondary Diagnoses<sup>2</sup></b>	<b>Total</b>
<u>Agronomic</u>			
Corn	178	18	196
Forages	67	19	86
Rapeseed (Canola)	0	0	0
Small grains	93	14	107
Soybeans	2592	30	2622
Tobacco	1165	152	1317
<u>Fruit</u>			
Small fruit	67	5	72
Tree fruit	131	16	147
<u>Herbs</u>			
	24	0	24
<u>Identification</u>			
	54	1	55
<u>Ornamentals</u>			
Herbaceous and Houseplants	280	14	294
Turfgrass	126	7	133
Woody	1229	88	1317
<u>Vegetables</u>			
	515	50	565
<u>Miscellaneous</u>			
	10	0	10
<u>Total</u>	6531	414	6945

<sup>1</sup> The number of primary diagnoses corresponds to the number of different specimens examined.

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

<sup>3</sup> 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 <sup>1</sup>	Non-Ext <sup>2</sup>	Ext <sup>1</sup>	Non-Ext <sup>2</sup>	Ext <sup>1</sup>	Non-Ext <sup>2</sup>	Ext <sup>1</sup>	Non-Ext <sup>2</sup>
<u>Agronomic</u>								
Corn	172	4	0	0	0	0	2	0
Forages	63	1	1	0	0	3	0	0
Small grains	85	2	0	0	5	1	0	0
Soybeans	760	360	0	0	1469	1	2	0
Tobacco	1114	37	0	0	12	0	2	0
<u>Fruit</u>								
Small Fruit	18	0	46	2	0	1	0	0
Tree Fruit	20	0	109	2	0	0	1	0
<u>Herbs</u>	15	0	7	1	0	1	0	0
<u>Identification</u>	2	0	51	0	0	0	1	0
<u>Ornamental</u>								
Herbaceous and Houseplants	129	19	104	15	0	1	10	2
Turfgrass	62	2	47	4	0	2	8	0
Woody	56	7	1092	24	11	7	29	2
<u>Vegetable</u>	273	9	214	6	3	8	1	1
<u>Miscellaneous</u>	4	1	3	0	0	0	2	0
<u>Total</u>	2773	442	1674	54	1500	25	58	5
<u>Total/Grower Type</u>	3215		1728		1525		63	

Total number of samples received = 6531

<sup>1</sup> Ext = Extension samples submitted via County Extension Agents or Extension Specialists.

<sup>2</sup> 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	
Agronomy Department	16	0	0	1	3	20
Entomology Department	13	5	68	6	6	98
Horticulture Department	0	2	4	9	1	16
Regulatory Services	1	0	0	0	0	1
					<u>Total</u>	135
					<u>Total number of plant samples</u>	4071
					<u>Percent of plant samples referred outside Diagnostic Lab for diagnosis</u>	3.3

\* 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.**


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<b>Test Number of Cases</b>	
Culturing	72
Incubation	205
Nematode extraction (total = 2482)	
Pinewood nematode	15
Soybean cyst nematode	2467
Soil tests (total = 171)	
pH	147
Saturated media extract/pH	3
Soluble salts	2
pH/Soluble Salts	18
Soil bioassays	1
Tissue Test (total = 9)	
Quick Nitrate Test	6
pH/Quick Nitrate Test	3
Virus assays (total = 43)	
Electron Microscope	10
ELISA	28
Indicator plants	5

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Table 8. NUMBER OF PLANT SAMPLES RECEIVED BY COUNTY AND CROP CATEGORY  
(KY AND OUT-OF-STATE SOURCES).

COUNTY	Total	Agronomic <sup>1</sup>	Tobacco	Fruit	Ornamental	Vegetable	Other
ADAIR	26	4	16	0	4	2	0
ALLEN	33	2	13	2	10	5	1
ANDERSON	8	2	2	0	4	0	0
BALLARD	22	10	6	1	4	1	0
BARREN	40	3	24	0	8	3	2
BATH	28	0	12	4	6	5	1
BELL	8	0	0	1	5	2	0
BOONE	80	3	3	2	63	9	0
BOURBON	44	4	15	2	18	4	1
BOYD	20	3	0	1	13	0	3
BOYLE	50	13	7	0	28	2	0
BRACKEN	14	1	10	0	3	0	0
BREATHITT	17	1	7	0	4	5	0
BRECKINRIDGE	80	13	52	0	5	9	1
BULLITT	36	0	1	9	18	2	6
BUTLER	17	3	12	1	1	0	0
CALDWELL	104	22	24	4	33	17	4
CALLOWAY	93	10	29	7	42	5	0
CAMPBELL	38	0	4	1	28	4	1
CARLISLE	53	19	14	3	16	0	1
CARROLL	9	0	8	0	1	0	0
CARTER	28	1	13	1	5	7	1
CASEY	26	3	13	0	5	5	0
CHRISTIAN	110	8	34	11	41	13	3
CLARK	18	1	5	1	7	4	0
CLAY	9	0	3	0	0	5	1
CLINTON	6	0	3	0	2	1	0
CRITTENDEN	13	3	0	1	7	2	0
CUMBERLAND	13	1	9	1	1	1	0
DAVISS	297	34	34	10	78	140	1
EDMONSON	40	2	18	2	12	3	3
ELLIOTT	5	1	1	0	2	1	0
ESTILL	24	0	8	1	13	1	1
FAYETTE	369	10	65	10	253	22	9
FLEMING	37	3	22	3	8	1	0
FLOYD	13	1	0	0	12	0	0
FRANKLIN	50	1	7	3	31	7	1
FULTON	5	4	0	1	0	0	0
GALLATIN	8	0	8	0	0	0	0
GARRARD	11	1	6	0	3	1	0
GRANT	36	0	20	1	13	2	0
GRAVES	74	15	29	3	21	5	1
GRAYSON	15	6	5	0	2	2	0
GREEN	8	0	3	1	2	2	0
GREENUP	18	0	1	2	15	0	0
HANCOCK	2	0	1	0	1	0	0
HARDIN	98	1	10	8	65	10	4
HARLAN	4	0	0	1	2	0	1
HARRISON	23	6	15	0	2	0	0
HART	25	1	19	1	3	1	0
HENDERSON	40	16	7	2	10	5	0
HENRY	28	3	13	0	8	2	2
HICKMAN	11	6	0	0	5	0	0
HOPKINS	54	10	4	4	22	11	3
JACKSON	28	0	12	5	6	4	1
JEFFERSON	58	1	2	0	48	4	3
JESSAMINE	28	1	14	1	12	0	0
JOHNSON	11	0	7	0	2	2	0
KENTON	27	0	3	2	19	3	0
KNOTT	0	0	0	0	0	0	0
KNOX	12	0	4	1	6	1	0

COUNTY	Total	Agronomic <sup>1</sup>	Tobacco	Fruit	Ornamental	Vegetable	Other
LARUE	23	2	13	0	5	3	0
LAUREL	23	1	11	2	8	1	0
LAWRENCE	11	0	7	0	4	0	0
LEE	9	0	0	0	2	2	5
LESLIE	4	0	0	0	4	0	0
LETCHER	3	0	0	0	0	3	0
LEWIS	7	0	5	0	2	0	0
LINCOLN	17	2	3	0	7	5	0
LIVINGSTON	18	14	0	0	3	1	0
LOGAN	52	13	8	2	18	11	0
LYON	19	6	3	3	5	2	0
McCRACKEN	76	8	2	11	44	11	0
McCREARY	0	0	0	0	0	0	0
McLEAN	17	6	5	0	5	1	0
MADISON	105	4	55	2	34	7	3
MAGOFFIN	3	0	3	0	0	0	0
MARION	22	4	3	1	13	0	1
MARSHALL	64	2	11	4	33	14	0
MARTIN	2	0	0	0	1	0	1
MASON	17	4	9	0	4	0	0
MEADE	22	1	9	3	6	3	0
MENIFEE	15	0	3	1	2	9	0
MERCER	40	4	19	1	10	5	1
METCALFE	22	5	12	0	4	1	0
MONROE	9	1	6	0	2	0	0
MONTGOMERY	50	2	28	3	11	6	0
MORGAN	18	0	5	3	3	7	0
MUHLENBERG	38	4	7	1	22	4	0
NELSON	21	5	7	0	8	1	0
NICHOLAS	10	1	6	0	2	0	1
OHIO	15	1	5	1	4	4	0
OLDHAM	35	3	2	0	25	1	4
OWEN	25	1	17	0	7	0	0
OWSLEY	6	0	3	1	2	0	0
PENDELTON	5	0	3	0	1	1	0
PERRY	5	0	1	0	2	2	0
PIKE	2	0	0	0	1	1	0
POWELL	7	0	4	0	3	0	0
PULASKI	23	4	0	2	13	2	2
ROBERTSON	9	0	5	1	2	1	0
ROCKCASTLE	4	0	0	0	3	1	0
ROWAN	12	0	0	3	8	0	1
RUSSELL	40	1	3	5	21	7	3
SCOTT	32	0	7	2	15	8	0
SHELBY	59	10	20	2	24	3	0
SIMPSON	30	6	19	1	4	0	0
SPENCER	8	0	1	2	5	0	0
TAYLOR	39	8	16	2	8	4	1
TODD	50	15	27	3	3	1	1
TRIGG	45	15	11	0	14	3	2
TRIMBLE	10	2	5	1	0	2	0
UNION	25	16	0	0	7	1	1
WARREN	118	18	19	8	64	8	1
WASHINGTON	39	1	12	0	24	1	1
WAYNE	61	17	10	2	15	17	0
WEBSTER	25	6	7	5	4	3	0
WHITLEY	12	0	3	3	4	2	0
WOLFE	5	0	2	0	0	0	3
WOODFORD	21	3	5	2	9	2	0
Out-of-State	65	1	41	0	23	0	0
<b>TOTALS</b>	<b>4071</b>	<b>470</b>	<b>1165</b>	<b>198</b>	<b>1635</b>	<b>515</b>	<b>88</b>

<sup>1</sup> 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	Number of cases	
		Primary Diagnosis <sup>1</sup>	Consultations <sup>2</sup>
<b>LEXINGTON</b>			
Anderson, RG	Horticulture	4	9
Bitzer, MJ	Agronomy	12	5
Bessin, RT	Entomology	49	10
Doney, JC	Plant Pathology	2	0
Eshenaur, BC (Diagnostician)	Plant Pathology	1630	68
Fountain, WM	Horticulture	6	0
Ghabrial, SA	Plant Pathology	1	0
Green, JD	Agronomy	8	3
Hartman, JR	Plant Pathology	105	6
Henning, JC	Agronomy	4	1
Jarlors, UE	Plant Pathology	0	10
Kennedy, BS	Agronomy	1	1
Nesmith, WC	Plant Pathology	294	18
Palmer, GK	Agronomy	141	11
Pearce, RC	Agronomy	5	1
Powell, AJ	Agronomy	0	1
Rowell, BA	Horticulture	5	2
Strang, JG	Horticulture	6	2
Townsend, LH	Entomology	76	15
Vincelli, PC	Plant Pathology	116	19
Weston, LA	Horticulture	3	0
Witt, ML	Horticulture	0	1
Witt, WW	Agronomy	11	9
<b>PRINCETON</b>			
Bachi, PR (Diagnostician)	Plant Pathology	1342	155
Brown, GR	Horticulture	5	10
Dunwell, WC	Horticulture	21	66
Herbek, JH	Agronomy	5	10
Hershman, DE	Plant Pathology	102	22
Johnson, DW	Entomology	4	7
Lacefield, GD	Agronomy	4	3
Martin, JR	Agronomy	22	34
Murdock, LW	Agronomy	18	22
Maksymowicz, WC	Agronomy	69	55
Rasnake, M	Agronomy	0	5

<sup>1</sup> The specialist or diagnostician signing the Plant Diagnostic Form was considered the primary diagnoser.

<sup>2</sup> 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>
<u>AGRONOMIC CROPS</u>					
<b>CORN (Zea)</b>					
	Bacterial stalk rot	- Erwinia	5	0	5
	Chemical injury	- herbicide, growth regulator	26	2	28
	Crazy top	- Sclerophthora	2	0	2
	Ear/Kernel rots	- Diplodia	5	0	5
		- Fusarium	1	0	1
	Environmental	- compaction	16	2	18
		- other stresses	7	1	8
	Gray leaf spot	- Cercospora	16	0	16
	Holcus spot	- Pseudomonas	1	0	1
	Inadequate specimen, no disease		38		38
	Insect injury		19	2	21
	Nutritional	- acid soil	9	5	14
		- zinc deficiency	12	0	12
		- others	15	5	20
	Root rot	- Fusarium	2	0	2
		Pythium	1	0	1
	Rust, southern	- Puccinia	0	1	1
	Stalk	- Gibberella	1	0	1
	Variegation	- genetic	1	0	1
	Virus	- maize dwarf mosaic	1	0	1
<u>FORAGES</u>					
<b>ALFALFA (Medicago)</b>					
	Bacterial leaf spot	- Xanthomonas	1	0	1
	Crown/stem rot	- Sclerotinia	3	0	3
	Downy mildew	- Peronospora	1	0	1
	Environmental stresses		4	4	8
	Inadequate specimen, no disease		14		14
	Insect injury		6	3	9
	Leaf spot	- Cercospora	0	1	1
		- Leptosphaerulina	3	2	5
	Nutritional	- boron deficiency	1	1	2
		- others	5	0	5
	Root rot	- Aphanomyces	6	0	6
		Pythium	1	6	7
	Rust	- Uromyces	0	1	1
	Stem canker	- Rhizoctonia	1	0	1
	Virus	- alfalfa mosaic	1	0	1
<b>CASSIA (Cassia)</b>					
	Anthracnose	- Colletotrichum	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>CLOVER (Trifolium)</b>					
	Crown/stem rot	- Sclerotinia	2	0	2
	Environmental stresses		1	1	2
	Insect injury		1	0	1
	No disease		4		4
	Nutritional	- acid soil	2	0	2
<b>FESCUE (Fescuta)</b>					
	Insect injury		1	0	1
	Root/stem rot	- Fusarium	1	0	1
<b>MILLET and SWITCHGRASS (Panicum)</b>					
	Blast	- Pyricularia	2	0	2
	Chemical injury	- herbicide	1	0	1
	Leaf spot	- fungal	1	0	1
<b>ORCHARDGRASS (Dactylis)</b>					
	Anthraxnose	- Colletotrichum	1	0	1
	No disease		2		2
<u><b>SOYBEAN</b></u>					
<b>SOYBEAN (Glycine)</b>					
	Blight	- Fusarium	0	2	2
	Brown spot	- Septoria	0	1	1
	Brown stem rot	- Phialophora	2	1	3
	Charcoal rot	- Macrophomina	1	1	2
	Chemical injury	- herbicide, growth reg.	6	5	11
		- unknown	1	3	4
	Cultural	- poor seed quality	1	0	1
	Downy mildew	- Peronospora	0	1	1
	Environmental stresses		9	4	13
	Frogeye	- Cercospora	6	2	8
	Inadequate specimen, no disease		26		26
	Insect injury		4	0	4
	Nutritional	- acid soil	5	0	5
		- potassium deficiency	9	2	11
		- manganese deficiency	9	2	11
	Powdery mildew	- Microsphaera	1	0	1
	Root rot	- Pythium	1	0	1
		- Rhizoctonia	1	0	1
	Root/stem rot	- Phytophthora	6	0	6
		- Rhizoctonia	3	3	6
	Soybean cyst nematode - on plant samples		19	3	21
	heterodera	* in soil samples	2028		2028
		* absent in soil samples	432		432
		(*soil submitted to Nematode Analysis Laboratory)			
	Stem canker	- Diaporthe	3	0	3
	Sudden death syndrome	- Fusarium	10	0	10
	Virus	- soybean mosaic	1	0	1
		- tobacco ringspot	1	0	1
		- unknown	1	0	1



<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<u>SMALL GRAINS</u>					
<b>OAT (Avena)</b>					
	No disease		1		1
	Nutritional	- nitrogen deficiency	1	0	1
<b>RYE (Secale)</b>					
	No disease		1		1
<b>SORGHUM (Sorghum)</b>					
	Chemical injury	- herbicide	1	0	1
	Nutritional	- acid soil	1	0	1
		- nitrogen deficiency	1	0	1
	Root rot	- Pythium	1	0	1
<b>WHEAT (Triticum)</b>					
	Black chaff	- Xanthomonas	0	2	2
	Black head mold	- Alternaria	1	1	2
	Chemical injury	- herbicide	10	3	13
		- unknown	1	0	1
	Downy mildew	- Sclerophthora	1	0	1
	Environmental	- cold injury	1	0	1
		- other stresses	2	0	2
	Glume blotch	- Septoria	9	1	10
	Head scab	- Fusarium	5	1	6
	Inadequate specimen, no disease		23		23
	Insect injury		2	1	3
	Leaf blotch	- Septoria	4	1	5
	Leaf spot	- fungal	3	0	3
		- physiological	1	2	3
		- Septoria	1	1	2
	Nutritional	- general	2	0	2
	Physical injury	- bird	0	1	1
	Sharp eyespot	- Rhizoctonia	1	0	1
	Stem rust	- Puccinia	1	0	1
	Take-all	- Gaeumannomyces	1	0	1
	Tan spot	- Pyrenophora	1	0	1
	Virus	- barley yellow dwarf	11	0	11
		- soilborne mosaic	2	0	2
		- spindle streak mosaic	2	0	2
		- unknown	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<u>TOBACCO</u>					
<b>TOBACCO (Nicotiana)</b>					
	Angular leaf spot	- Pseudomonas	30	5	35
	Anthracnose	- Colletotrichum	13	2	15
	Bacterial soft rot	- Erwinia	12	2	13
	Blackleg	- Erwinia	8	11	19
	Black root rot	- Thielaviopsis	5	0	5
	Black shank	- Phytophthora	154	1	155
	Blue mold	- Peronospora	9	0	9
	Brown spot	- Alternaria	2	0	2
	Chemical injury	- bactericide	2	0	2
		- fungicide	5	1	6
		- growth regulator	20	2	22
		- herbicide	37	6	43
		- petroleum	2	0	2
		- sucker agent	12	0	12
		- unknown	33	1	34
	Crown/stem rot	- Sclerotinia	29	1	30
		- Rhizoctonia	29	0	29
	Cultural	- transplant shock	3	0	3
		- others	15	0	15
	Damping-off	- Rhizoctonia	13	1	14
	Early flowering	- environmental	1	0	1
		- unknown	1	0	1
	Environmental	- cold injury	51	6	57
		- compaction	6	6	12
		- lightning	14	0	14
		- wet feet	13	1	14
		- weather scald	25	4	29
		- others	42	18	60
	False broomrape	- unknown	3	1	4
	Frenching	- metabolites	3	1	4
	Frogeye	- Cercospora	19	0	19
	Gray mold	- Botrytis	2	0	2
	Hollow stalk	- Erwinia	2	0	2
	Improper curing	- greening	2	0	2
		- yellowing	2	0	2
	Inadequate specimen, no disease, unknown		193		193
	Insect injury		20	11	31
	Leaf blight	- Sclerotinia	1	1	2
	Leaf spot	- physiological	1	1	2
		- Xanthomonas	1	0	1
	Nutritional	- acid soil	20	4	24
		- fertilizer burn	36	8	44
		- potassium deficiency	10	3	13
		- manganese toxicity	29	4	33
		- nitrogen deficiency	19	7	26
		- phosphorus deficiency	22	3	25
		- others	10	1	11
	Physical injuries		7	3	10
	Root knot nematode	- Meloidogyne	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>TOBACCO (cont)</b>					
Root rot		- Pythium	27	2	29
		- Rhizoctonia	2	0	2
Soreshin		- Rhizoctonia	0	14	0
Storage mold		- Aspergillus	2	0	2
		- multiple species	1	0	1
Target spot		- Rhizoctonia	23	2	25
Variegation		- genetic	1	0	1
Virus		- Alfalfa mosaic	5	1	6
		- complex	49	4	53
		- Potato Virus Y	1	0	1
		- Tobacco etch	5	2	9
		- Tobacco mosaic	7	1	8
		- Tobacco ringspot	5	0	5
		- Tobacco streak	7	0	7
		- Tobacco vein mottling	1	0	1
		- Tomato spotted wilt	9	2	11
		- unknown	2	0	2
		- Wound Tumor	1	0	1
	Weather fleck		- ozone	2	1
Wilt		- Fusarium	25	3	28

FRUIT CROPS

SMALL FRUITS

**BLUEBERRY (Vaccinium)**

Environmental stresses			3	0	3
Fruit decay		- Phoma	1	0	1
Insect injury			1	0	1
No disease			2		2
Physical injury		- rodent	1	0	1

**BRAMBLES - BLACKBERRY, and RASPBERRY (Rubus)**

Cultural		- propagation problem	1	0	1
Environmental stresses			8	0	8
Inadequate specimen, no disease			7		7
Insect injury			3	0	3
Nutritional		- Manganese toxicity	1	0	1

**CURRENT (Ribes)**

No disease			1		1
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**GRAPE (Vitis)**

Bitter rot		- Melanconium	1	0	1
Black rot		- Guignardia	4	1	5
Chemical injury		- growth regulator	4	0	4
		- unknown	1	0	1
Environmental		- frost injury	1	0	1
Inadequate specimen, no disease			3	0	3

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>GRAPE (cont)</b>					
	Insect injury		3	1	4
	Physiological	- speckle	1	0	1
<b>STRAWBERRY (Fragaria)</b>					
	Chemical injury	- herbicide	1	0	1
	Cultural	- under watered	1	0	1
	Environmental stresses		3	1	4
	Inadequate specimen, no disease		3		3
	Leaf blight	- Phomopsis	1	1	2
	Leaf spot	- Mycosphaerella	8	1	9
	Nutritional	- acid soil	1	0	1
		- fertilizer burn	1	0	1
	Red stele	- Phytophthora	1	0	1
<u>TREE FRUITS</u>					
<b>APPLE (Malus)</b>					
	Bitter rot	- Glomerella	1	0	1
	Black rot	- Botryosphaeria	1	0	1
	Canker	- Botryosphaeria	1	0	1
	Cedar apple rust	- Gymnosporangium	0	1	1
	Cedar hawthorn rust	- Gymnosporangium	12	0	12
	Chemical injury	- growth regulator	3	0	3
		- unknown	1	0	1
	Collar rot	- Phytophthora	1	0	1
	Cork spot	- calcium deficiency	2	1	3
	Cultural	- transplant shock	1	0	1
	Environmental stresses		3	0	3
	Fire blight	- Erwinia	5	1	6
	Frogeye	- Botryosphaeria	7	1	8
	Fruit crack	- environmental	1	0	1
	Inadequate specimen, no disease		11		11
	Insect injury		11	2	13
	Necrotic leaf blotch	- Glomerella	3	0	3
	Nutritional	- acid soil	1	0	1
		- nitrogen deficiency	0	1	1
	Scab	- Venturia	2	0	2
	Wood decay	- basidiomycete	1	0	1
<b>CHERRY (Prunus)</b>					
	Environmental stresses		4	0	4
	Inadequate specimen, no disease		2		2
	Insect injury		0	2	2
	Leaf scorch	- environmental	1	0	1
	Leaf spot	- Blumeriella	1	0	1
	Powdery mildew	- Podosphaera	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>PEACH and APRICOT (Prunus)</b>					
	Chemical injury	- herbicide	1	0	1
	Environmental stresses		2	0	2
	Inadequate specimen, no disease		2		2
	Insect injury		3	1	4
	Leaf curl	- Taphrina	3	0	3
	Nutritional	- nitrogen deficiency	1	0	1
<b>PEAR (Pyrus)</b>					
	Chemical injury	- growth regulator	1	0	1
	Cultural	- transplant shock	1	0	1
	Environmental stresses		1	1	2
	Fire blight	- Erwinia	5	0	5
	Inadequate specimen, no disease		4		4
	Insect injury		0	1	1
	Leaf spot	- Cercospora	1	0	1
		- Gloeosporium	0	1	1
<b>PECAN (Carya)</b>					
	Chemical injury	- growth regulator	1	0	1
	Insect injury		7	0	7
	Internal breakdown	- physiological	1	0	1
	No disease		1		1
<b>PLUM (Prunus)</b>					
	Black knot	- Apiosporina	10	0	10
	Crown gall	- Agrobacterium	1	0	1
	Inadequate specimen		1		1
	Insect injury		2	1	3
	Oedema	- physiological	1	0	1
	Plum pockets	- Taphrina	5	0	5
<b>HERBS</b>					
<b>BASIL (Ocimum)</b>					
	Insect injury		1	0	1
<b>GARLIC (Allium)</b>					
	Insect injury		3	0	3
<b>GINSENG (Panax)</b>					
	Blight	- Alternaria	2	0	2
	No disease		4		4
	Papery spot	- environmental	1	0	1
	Powdery mildew	- species	1	0	1
	Root rot	- Phytophthora	2	0	2
		- Pythium	2	0	2
	White mold	- Sclerotinia	1	0	1
<b>GOLDENSEAL (Hydrastis)</b>					
	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>
<b>OREGANO (Oregano)</b>					
	Insect injury		2	0	2
<b>SAGE (Salvia)</b>					
	Environmental	- wet feet	1	0	1
	Insect injury		1	0	1
<b>TARRAGON (Artemesia)</b>					
	No disease		1		1
<b>THYME (Thyme)</b>					
	Root/stem rot	- Rhizoctonia	1	0	1

#### IDENTIFICATIONS

#### **FUNGAL IDENTIFICATION**

Agaricus	- campestris	1	0	1
Aspergillus	- species	0	1	1
Calvatia	- species	4	0	4
Conocybe	- tenera	1	0	1
Coprinus	- micaceus	1	0	1
Cyathus	- striatus	1	0	1
Gasteromycete	- species	1	0	1
Gyromitra	- brunnea	1	0	1
	- caroliniana	1	0	1
Inadequate specimen		2		2
Mutinus	- caninus	2	0	2

#### **LICHEN IDENTIFICATION**

Lichen	- species	11	0	11
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#### **PLANT IDENTIFICATIONS**

Acer	- negundo	1	0	1
Agropyron	- repens	1	0	1
Algae	- blue-green, green	2	0	2
Buxus	- microphylla	1	0	1
Cardamine	- hirsuta	1	0	1
Cucurbita	- species	2	0	2
Elaeagnus	- angustifolia	1	0	1
Fraxinus	- species	1	0	1
Hordeum	- pucillum	1	0	1
Inadequate specimen, no identification		3		3
Juniperus	- virginiana	1	0	1
Kalmia	- latifolia	1	0	1
Liverwort	- species	2	0	2
Muhlenbergia	- schreberi	2	0	2
Prunus	- serotina	1	0	1
	- species	3	0	3
Quercus	- macrocarpa	1	0	1
	- marilandica	1	0	1
Viburnum	- opulus	1	0	1
Yucca	- filamentosa	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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MISCELLANEOUS

<b>FOXTAIL (various)</b>					
No disease			2		2
<b>MULCH</b>					
No disease			2		2
<b>PRICKLY LETTUCE (Lactuca)</b>					
Powdery mildew	- species		1	0	1
<b>ROOTS</b>					
Crown gall	- Agrobacterium		1	0	1
No disease			1		1
<b>SOIL</b>					
Nutritional	- excess		1	0	1
<b>UNKNOWN</b>					
Inadequate specimen			1		1
<b>WOOD</b>					
Wood decay	- basidiomycete		1	0	1

ORNAMENTALS

HERBACEOUS ORNAMENTALS and INDOOR PLANTS

<b>AFRICAN VIOLET (Saintpaulia)</b>					
Cultural	- overwatering		1	0	1
Insect injury			1	0	1
Leaf spot	- Gloeosporium		1	0	1
No disease			1		1
<b>AGERATUM (Ageratum)</b>					
Chemical	- growth regulator		1	0	1
Insect injury			0	1	1
Nutritional	- acid soil		0	1	1
	- nitrogen deficiency		1	0	1
<b>AJUGA (Ajuga)</b>					
Southern blight	- Athelia		2	0	2
<b>ALYSSUM (Lobularia)</b>					
Cultural	- overwatering		0	1	1
Root rot	- Pythium		1	0	1
<b>ALOE (Aloe)</b>					
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>
<b>BABYS BREATH (Gypsophila)</b>					
	No disease		2		2
<b>BALLOON FLOWER (Platycodon)</b>					
	Root/stem rot	- Rhizoctonia	1	0	1
<b>BEAUCARNIA (Beaucarnia)</b>					
	Bacterial blight	- Erwinia	1	0	1
<b>BEGONIA (Begonia)</b>					
	Cultural	- oedema	1	0	1
		- overwatering	1	0	1
	Gray mold	- Botrytis	1	0	1
	Insect injury		1	0	1
	No disease		4		4
	Southern blight	- Athelia	1	0	1
<b>BENJAMIN FIG (Ficus)</b>					
	Inadequate specimen, no disease		3		3
	Sooty mold	- species	1	0	1
<b>BUTTERFLY WEED (Asclepias)</b>					
	Insect injury		1	1	2
<b>CACTUS (various)</b>					
	No disease		1		1
	Nutritional	- general	1	0	1
<b>CALADIUM (Caladium)</b>					
	Tuber rot	- Erwinia	1	0	1
<b>CANNA (Canna)</b>					
	Environmental	- cold injury	2	0	2
<b>CELOSIA (Celosia)</b>					
	Chemical injury	- unknown	1	0	1
	Flower blight	- Alternaria	1	0	1
<b>CITRUS (Citrus) Grapefruit and Orange</b>					
	Fruit rot	- Alternaria	1	0	1
	Insect injury		2	1	2
<b>CHRYSANTHEMUM (Chrysanthemum)</b>					
	Bacterial leaf spot	- Pseudomonas	1	0	1
	Basal stem rot	- Fusarium	1	0	1
	Insect injury		2	0	2
	No disease		2		2
	Nutritional	- calcium deficiency	1	0	1
		- nitrogen deficiency	1	0	1
	Slime mold	- Stemonitis	1	0	1
	Stem rot	- Rhizoctonia	1	0	1
	Wilt	- Fusarium	1	0	1



<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>CLEMATIS (Clematis)</b>					
	Environmental stress		1	0	1
	No disease		3	0	3
<b>CLIVIA (Clivia)</b>					
	Cultural	- oedema	1	0	1
<b>COLEUS (Coleus)</b>					
	Root/stem rot	- fungal	1	0	1
<b>COREOPSIS (Coreopsis)</b>					
	Insect injury		1	0	1
<b>DAFFODIL (Narcissus)</b>					
	No disease		2	0	2
<b>DAHLIA (Dahlia)</b>					
	Insect injury		1	0	1
<b>DAISY (Chrysanthemum)</b>					
	Environmental	- stress	1	0	1
	No disease		1	0	1
<b>DAYLILY (Hemerocallis)</b>					
	Leaf scorch	- Colletotrichum	1	0	1
	No disease		1	0	1
<b>DIANTHUS (Dianthus)</b>					
	Southern blight	- Athelia	1	0	1
<b>DIEFFENBACHIA (Dieffenbachia)</b>					
	Anthraxnose	- Colletotrichum	1	0	1
	Environmental	- sunscald	1	0	1
	Leaf spot	- Erwinia	1	1	2
<b>ELEPHANT EAR (Caladium)</b>					
	No disease		2	0	2
<b>FERN (various)</b>					
	Inadequate specimen, no disease		3	0	3
	Nutritional	- soluble salts	1	0	1
<b>FIG (Ficus)</b>					
	Environmental	- stress	1	0	1
	Insect injury		1	0	1
<b>FUCHSIA (Fuchsia)</b>					
	Black root rot	- Thielaviopsis	1	0	1
	Insect injury		0	1	1
	No disease		1	0	1
	Nutritional	- fertilizer burn	1	0	1
	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>
<b>GERANIUM (Pelargonium)</b>					
	Bacterial blight	- Xanthomonas	14	0	14
	Cultural	- oedema	3	0	3
		- overwatering	2	0	2
	Environmental stresses		2	0	2
	Gray mold	- Botrytis	5	0	5
	No disease		14		14
	Nutritional	- Iron toxicity	2	0	2
		- others	5	0	5
	Sooty mold	- species	1	0	1
<b>HEATHER (Calluna)</b>					
	No disease		1		1
<b>HOLLYHOCK (Althaea)</b>					
	Insect injury		2	0	2
<b>HOSTA (Hosta)</b>					
	Environmental	- sunscald	1	0	1
	Leaf spot	- Colletotrichum	1	0	1
<b>IMPATIENS (Impatiens)</b>					
	Chemical injury	- pesticide	1	0	1
	Cultural	- overwatering	2	0	2
	Environmental stresses		1	1	2
	Gray mold	- Botrytis	1	0	1
	Insect injury		6	1	7
	No disease		10		10
	Nutritional	- nitrogen deficiency	1	0	1
		- soluble salts	1	1	2
	Root rot	- Pythium	2	0	2
		- Rhizoctonia	2	0	2
	Slime mold	- species	1	0	1
	Virus	- Impatiens necrotic spot	5	0	5
<b>IRIS (Iris)</b>					
	Rust	- Puccinia	1	0	1
<b>IVY (various)</b>					
	Bacterial spot	- Xanthomonas	1	0	1
	Leaf spot	- Colletotrichum	1	0	1
		- Guignardia	1	0	1
		- Phyllosticta	1	0	1
<b>JADE PLANT (Crassula)</b>					
	No disease		2		2
<b>LARKSPUR (Delphinium)</b>					
	Insect injury		1	0	1
<b>LEUCOTHOE (Leucothoe)</b>					
	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>
<b>LILY (Lilium)</b>					
	Insect injury		1	0	1
	No disease		1		1
<b>MANDEVILLA (Mandevilla)</b>					
	Anthraxnose	- Colletotrichum	1	0	1
<b>MARIGOLD (Tagetes)</b>					
	Insect injury		3	0	3
	Leaf spot	- Alternaria	1	0	1
	Nutritional	- nitrogen deficiency	1	0	1
	Root/stem rot	- Rhizoctonia	1	0	1
<b>ORCHID (various)</b>					
	Brown spot	- Pseudomonas	1	0	1
<b>PANSY (Viola)</b>					
	No disease		1		1
	Nutritional	- high pH	1	0	1
<b>PEONY (Paeonia)</b>					
	Bud blast	- environmental	1	0	1
	Inadequate specimen		1		1
	Red spot	- Cladosporium	2	0	2
	Southern blight	- Athelia	1	0	1
	Virus	- peony ringspot	1	0	1
<b>PETUNIA (Petunia)</b>					
	Leaf spot	- Alternaria	3	0	3
	No disease		2		2
	Root/stem rot	- Rhizoctonia	2	0	2
	Stem rot	- Sclerotinia	4	0	4
<b>PHLOX (Phlox)</b>					
	Black root rot	- Thielaviopsis	1	0	1
	Inadequate specimen, no disease		2		2
	Powdery mildew	- Erysiphe	1	1	2
<b>POINSETTIA (Euphorbia)</b>					
	Chemical injury	- fungicide	1	0	1
	Insect injury		2	0	2
	No disease		4		4
	Root rot	- Pythium	2	0	2
<b>PORTULACA (Portulaca)</b>					
	No disease		1		1
	Virus	- Impatiens necrotic spot	1	0	1
		- unknown	5	0	5
<b>PRIMULA (Primula)</b>					
	Insect injury		1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>RUDBECKIA (Rudbeckia)</b>					
	Root rot	- Fusarium	1	0	1
		- Phytophthora	1	0	1
<b>SALVIA (Salvia)</b>					
	Chemical injury	- growth regulator	1	0	1
	No disease		1		1
<b>SCHEFFLERA (Brassaia)</b>					
	Insect injury		2	1	3
	No disease		1		1
	Physiological	- oedema	1	0	1
<b>SEDUM (Sedum)</b>					
	Environmental	- stress	1	0	1
<b>SNAPDRAGON (Antirrhinum)</b>					
	Cultural	- overwatering	2	0	2
	Damping-off	- Rhizoctonia	1	0	1
	Gray mold	- Botrytis	2	0	2
	Insect injury		1	0	1
	No disease		2		2
	Root rot	- Pythium	1	0	1
	Root/stem rot	- Rhizoctonia	2	0	2
	Virus	- Impatiens necrotic spot	2	0	2
<b>SOLIDAGO (Solidago)</b>					
	Leaf spot	- Cercospora	1	0	1
<b>SPIDERWORT (Tradescantia)</b>					
	Southern blight	- Athelia	2	0	2
<b>TEA OLIVE (Osmanthus)</b>					
	No disease		3		3
	Nutritional	- soluble salts	1	0	1
<b>THUNBERGIA (Thunbergia)</b>					
	Insect injury		1	0	1
<b>VERBENA (Verbena)</b>					
	Powdery mildew	- species	2	0	2
<b>VINCA (Vinca)</b>					
	Anthracoese	- Colletotrichum	1	0	1
	Canker/dieback	- Phomopsis	2	0	2
	Gray mold	- Botrytis	1	0	1
	No disease		2		2
	Nutritional	- nitrogen deficiency	0	1	1
		- soluble salts	1	0	1
	Root rot	- Pythium	0	1	1
	Root/stem rot	- Rhizoctonia	4	0	4
	Stem blight	- Fusarium	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>VIOLET (Viola)</b>					
	Insect injury		1	0	1
	Southern blight	- Athelia	1	0	1
<b>WANDERING JEW (Zebrina)</b>					
	Virus	- unknown	1	0	1
<b>WATER LILLY (Nymphaea)</b>					
	Leaf spot	- Septoria	1	0	1
<u><b>TURFGRASS</b></u>					
<b>BENTGRASS (Agrostis)</b>					
	Anthracnose	- Colletotrichum	3	1	4
	Brown patch	- Rhizoctonia	2	0	2
	Cultural	- poor drainage	1	0	1
	Dollar spot	- Lanzia./Moell.	1	0	1
	Environmental	- ice damage	3	0	3
		- other stresses	4	2	6
	Gray snow mold	- Typhula	1	0	1
	Inadequate specimen, no disease		15		15
	Leaf spot	- Drechslera	2	0	2
	Pink snow mold	- Fusarium	2	0	2
	Root knot nematode	- Meloidogyne	0	1	1
	Root rot	- Pythium	5	2	7
		- Phytophthora	1	0	1
	Summer patch	- Magnaporthe	3	0	3
	Take-all	- Gaeumannomyces	2	0	2
	Yellow patch	- Rhizoctonia	1	0	1
<b>BERMUDAGRASS (Cynodon)</b>					
	Environmental	- stress	4	0	4
	No disease		2		2
<b>BLUEGRASS (Poa)</b>					
	Brown patch	- Rhizoctonia	1	0	1
	Cultural	- heavy thatch	1	0	1
	Dollar spot	- Lanzia./Moell.	3	0	3
	Necrotic ring spot	- Leptosphaeria	3	0	3
	No disease		3		3
	Summer patch	- Magnaporthe	1	0	1
<b>FESCUE (Festuca)</b>					
	Brown patch	- Rhizoctonia	9	0	9
	Crown/root rot	- Fusarium	1	0	1
	Environmental	- stress	3	0	3
	Inadequate specimen, no disease		6		6
	Local dry spot	- environmental	1	0	1
	Slime mold	- species	1	0	1

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<b>RYEGRASS (<i>Lolium</i>)</b>					
	Brown patch	- Rhizoctonia	3	0	3
	Dollar spot	- Lanzia./Moell.	1	0	1
	Leaf spot	- Drechslera	1	0	1
	No disease		6		6
	Pink snow mold	- Fusarium	3	0	3
<b>TURF (various)</b>					
	Brown patch	- Rhizoctonia	5	0	5
	Cultural	- heavy thatch	1	0	1
	Dollar spot	- Lanzia./Moell.	1	0	1
	Environmental stresses		2	0	2
	Necrotic ring spot	- Leptosphaeria	1	0	1
	No disease		9		9
	Nutritional	- acid soil	0	1	1
	Root rot	- unknown	1	0	1
	Smut	- species	1	0	1
	Summer patch	- Magnaporthe	3	0	3
<b>ZOYSIA (<i>Zoysia</i>)</b>					
	Environmental	- winter injury	1	0	1
	Inadequate specimen		1		1
<u><b>WOODY ORNAMENTALS</b></u>					
<b>ARAUCARIA (<i>Araucaria</i>)</b>					
	Dieback	- Pestalotia	1	0	1
<b>ARBORVITAE (<i>Thuja</i>)</b>					
	Cultural	- overwatering	1	0	1
		- transplant shock	1	0	1
	Inadequate specimen, no disease		4		4
	Insect injury		2	0	2
<b>ASH (<i>Fraxinus</i>)</b>					
	Anthracnose	- Apiognomonina	3	0	3
		- Discula	3	0	3
	Cultural	- transplant shock	0	1	1
	Environmental stresses		1	1	2
	Inadequate specimen, no disease		6		6
	Insect injury		6	0	6
	Leaf spot	- Phyllosticta	1	0	1
<b>AZALEA - See listing under RHODODENDRON</b>					
<b>BALDCYPRESS (<i>Taxodium</i>)</b>					
	Physical injury	- mower	1	0	1
<b>BARBERRY (<i>Berberis</i>)</b>					
	Bacterial spot	- Pseudomonas	1	0	1
	Environmental	- winter injury	3	0	3

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<b>BEECH (Fagus)</b>					
	Anthracnose	- Gloeosporium	1	0	1
	Cultural	- transplant shock	1	0	1
	Environmental	- winter injury	1	0	1
	No disease		1		1
<b>BIRCH (Betula)</b>					
	Chemical injury	- herbicide	1	0	1
	Environmental	- stress	3	0	3
	Inadequate specimen, no disease		7		7
	Insect injury		6	0	6
	Leaf spot	- Marssonina	1	0	1
<b>BOXELDER (Acer)</b>					
	Environmental	- decline	1	0	1
	Leaf spot	- Phyllosticta	1	0	1
	Physical injury	- topping	1	0	1
<b>BOXWOOD (Buxus)</b>					
	Cultural	- poor drainage	1	0	1
	Environmental stresses		8	0	8
	Girdling	- unknown	1	0	1
	Insect injury		1	1	1
<b>BUCKEYE (Aesculus)</b>					
	No disease		5		5
<b>BUDDLEIA (Buddleia)</b>					
	Insect injury		1	0	1
<b>BUTTONBUSH (Cephalanthus)</b>					
	No disease		1		1
<b>CATALPA (Catalpa)</b>					
	Chemical injury	- herbicide	1	0	1
<b>CEDAR (Cedrus)</b>					
	Environmental	- winter injury	1	0	1
<b>CHAMAECYPARIS (Chamecyparis)</b>					
	No disease		1		1
<b>CHERRY (Prunus)</b>					
	Environmental stresses		3	0	3
	Inadequate specimen, no disease		4		4
	Leaf spot	- Coccomyces	1	0	1
<b>CHESTNUT (Castanea)</b>					
	Environmental	- stress	1	0	1
	Inadequate specimen, no disease		3		3
	Insect injury		1	0	1

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<b>CRABAPPLE (Malus)</b>					
	Black root rot	- Xylaria	1	0	1
	Cultural	- transplant shock	1	0	1
	Inadequate specimen, no disease		3		3
	Insect injury		2	0	2
	Scab	- Venturia	9	0	9
<b>CRAPEMYRTLE (Lagerstroemia)</b>					
	Nutritional	- nitrogen deficiency	1	0	1
	Powdery mildew	- Erysiphe	1	0	1
<b>CYPRUS (Cupressocyparis)</b>					
	Insect injury		3	0	3
<b>DOGWOOD (Cornus)</b>					
	Anthracnose	- Discula	9	0	9
	Chemical injury	- growth regulator	1	0	1
		- herbicide	1	0	1
		- unknown	2	0	2
	Cultural	- transplant shock	11	1	12
	Environmental stresses		12	2	14
	Inadequate specimen, no disease		31		31
	Insect injury		2	0	2
	Leaf scorch	- environmental	12	0	12
		- unknown	5	0	5
	Leaf spot	- Septoria	1	0	1
	Physical injury	- mower	0	2	2
	Powdery mildew	- species	41	0	41
	Root rot	- Phytophthora	1	0	1
	Spot anthracnose	- Elsinoe	8	1	9
<b>ELM (Ulmus)</b>					
	Black spot	- Stegaphora	1	0	1
	Canker	- Tubercularia	1	0	1
	Chemical injury	- herbicide	1	0	1
	Dutch elm disease	- Ceratocystis	4	0	4
	Environmental	- stress	0	1	1
	Inadequate specimen, no disease		4		4
	Insect injury		2	0	2
	Physical injury	- construction	0	1	1
<b>EUONYMUS (Euonymus)</b>					
	Chemical injury	- unknown	2	0	2
	Crown gall	- Agrobacterium	7	1	8
	Environmental stresses		3	0	3
	Insect injury		11	0	11
	No disease		3		3
	Physiological	- oedema	1	0	1



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<b>FIR (Abies)</b>					
	Cultural	- transplant shock	2	0	2
	Environmental	- stress	1	0	1
	No disease		3		3
<b>FORSYTHIA (Forsythia)</b>					
	Chemical injury	- growth regulator	1	0	1
	Cultural	- transplant shock	1	0	1
	Environmental	- winter injury	2	0	2
	Gall	- fungal	1	0	1
		- Phomopsis	1	0	1
	No disease		2		2
	Physical injury	- unknown	2	0	2
<b>GINKO (Ginko)</b>					
	No disease		3		3
<b>GOLDENRAINTREE (Koelreuteria)</b>					
	Environmental	- winter injury	1	0	1
<b>HACKBERRY (Celtis)</b>					
	No disease		3		3
	Witches broom	- mite	1	0	1
<b>HAWTHORN (Crataegus)</b>					
	Cedar-apple rust	- Gymnosporangium	1	0	1
	Cultural	- transplant shock	1	0	1
	Fire blight	- Erwinia	1	0	1
	Insect injury		2	0	2
<b>HEMLOCK (Tsuga)</b>					
	Cultural	- improper depth	1	0	1
		- transplant shock	1	0	1
	Environmental	- stress	3	0	3
	Insect injury		4	0	4
	No disease		1		1
	Physical injury	- unknown	1	0	1
<b>HIBISCUS (Hibiscus)</b>					
	Chemical injury	- growth regulator	1	0	1
		- insecticide	1	0	1
	Insect injury		5	0	5
	No disease		2		2
<b>HICKORY (Carya)</b>					
	Insect injury		4	0	4
	Leaf spot	- Gnomonia	1	0	1

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<b>HOLLY (Ilex)</b>					
	Cultural	- transplant shock	3	0	3
	Environmental stresses		8	0	8
	Inadequate specimen, no disease		9		9
	Insect injury		1	1	2
	Spine spot	- spine injury	1	0	1
<b>HONEYLOCUST (Gleditsia)</b>					
	Canker	- unknown	1	0	1
	Insect injury		4	1	5
	Leaf spot	- Cercospora	1	0	1
	No disease		1		1
<b>HONEYSUCKLE (Lonicera)</b>					
	Cultural	- transplant shock	1	0	1
	No disease		2		2
	Nutritional	- general	1	0	1
	Root/stem rot	- fungal	1	0	1
<b>HYDRANGEA (Hydrangea)</b>					
	Chemical injury	- herbicide	1	0	1
	Insect injury		3	0	3
	No disease		2		2
	Nutritional	- acid soil	1	0	1
<b>INKBERRY (Ilex)</b>					
	Insect injury		1	1	2
<b>ITEA (Itea)</b>					
	Nutritional	- nitrogen deficiency	1	0	1
<b>JUNIPER and RED CEDAR (Juniperus)</b>					
	Environmental stresses		2	2	4
	Inadequate specimen, no disease		17		17
	Insect injury		5	0	5
	Physical injury	- rodent	1	0	1
		- unknown	3	0	3
	Root rot	- Phytophthora	1	0	1
	Twig blight	- Kabatina	10	0	10
<b>LARCH (Larix)</b>					
	No disease		1		1
<b>LILAC (Syringa)</b>					
	Bacterial blight	- Pseudomonas	1	0	1
	Cultural	- transplant shock	2	0	2
	Environmental stresses		3	0	3
	No disease		3		3
	Powdery mildew	- Microsphaera	3	0	3
<b>LINDEN (Tilia)</b>					
	Inadequate specimen, no disease		2		2

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<b>LOCUST (Robinia)</b>					
	Insect injury		0	2	2
	Leaf spot	- Cercospora	1	0	1
<b>MAGNOLIA (Magnolia)</b>					
	Bacterial leaf spot	- Pseudomonas	1	0	1
	Environmental stresses		3	0	3
	Insect injury		4	1	5
	No disease		2		2
	Sooty mold	- species	0	1	1
<b>MAHONIA (Mahonia)</b>					
	Cultural	- transplant shock	1	0	1
<b>MAPLE (Acer)</b>					
	Air pollution	- ozone	1	0	1
	Anthracnose	- Colletotrichum	1	0	1
		- Discula	5	1	6
		- Gloeosporium	1	0	1
		- Kabatiella	65	0	65
		- unknown	1	0	1
	Chemical injury	- growth regulator	3	0	3
		- herbicide	4	1	5
		- unknown	1	0	1
	Cultural	- transplant shock	4	0	4
	Damping-off	- Pythium	1	0	1
	Decline	- environmental	1	0	1
		- unknown	1	1	2
	Environmental stresses		18	0	18
	Inadequate specimen, no disease		48		48
	Insect injury		33	16	49
	Leaf scorch	- environmental	2	0	2
		- unknown	2	0	2
		- Discosporium	2	0	2
	Leaf spot	- Gnomoniella	2	0	2
		- Phyllosticta	11	2	13
		- bird	0	1	1
	Physical injury	- rodent	0	1	1
		- species	1	1	2
	Sooty mold	- Rhytisma	1	1	2
	Tar spot	- Verticillium	3	0	3
	Wilt	- Basidiomycete	1	0	1
	Woody decay				
<b>MIMOSA (Albizzia)</b>					
	Canker	- Nectria	1	0	1
<b>MOUNTAIN ASH (Sorbus)</b>					
	Environmental	- stress	1	0	1
<b>MOUNTAIN LAUREL (Kalmia)</b>					
	No disease		1		1

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<b>MULBERRY (Morus)</b>					
	Bacterial scorch	- Xylella	1	0	1
	Leaf spot	- Phloeospora	1	0	1
<b>OAK (Quercus)</b>					
	Anthracnose	- Apiognomonia	7	1	8
	Bacterial scorch	- Xylella	9	0	9
	Chemical injury	- growth regulator	7	0	7
		- herbicide	1	0	1
	Cultural	- transplant shock	1	0	1
	Decline	- unknown	0	1	1
	Environmental	- stress	3	1	4
	Inadequate specimen, no disease		20		20
	Insect injury		28	7	35
	Leaf blister	- Taphrina	3	0	3
	Leaf scorch	- unknown	3	0	3
	Leaf spot	- Tubakia	8	2	10
	Nutritional	- iron deficiency	6	2	8
		- general	1	0	1
	Physical injury	- wounding	1	0	1
	Powdery mildew	- Erysiphe	1	0	1
		- species	0	1	1
	Root rot	- Ganoderma	1	0	1
	Rust	- Cronartium	0	1	1
<b>PAULOWNIA (Paulownia)</b>					
	Environmental	- winter injury	1	0	1
<b>PAWPAW (Asimina)</b>					
	No disease		1		1
	Nutritional	- iron deficiency	1	0	1
<b>PEAR (Pyrus)</b>					
	Chemical injury	- growth regulator	3	0	3
		- herbicide	6	0	6
		- unknown	2	0	2
	Cultural	- transplant shock	1	0	1
	Environmental stresses		6	0	6
	Fire blight	- Erwinia	7	0	7
	Inadequate specimen, no disease		12		12
	Insect injury		3	0	3
<b>PERSIMMON (Diospyros)</b>					
	No disease		2		2
<b>PHOTINIA (Photinia)</b>					
	Environmental	- winter injury	1	0	1
<b>PIERIS (Pieris)</b>					
	Cultural	- transplant shock	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>
<b>PINE (Pinus)</b>					
	Air pollution	- ozone	1	0	1
	Brown spot	- Mycosphaerella	1	0	1
	Canker	- Leucostoma	1	0	1
	Cultural	- improper depth	1	0	1
		- transplant shock	7	0	7
	Dieback	- unknown	1	0	1
	Environmental stresses		13	1	14
	Girdling root	- cultural	1	0	1
	Insect injury		18	6	24
	Needle burn	- unknown	1	0	1
	Needle drop	- normal	3	1	4
	No disease		41		41
	Physical injury	- bird	1	0	1
		- unknown	1	0	1
	Pinewood nematode	- Bursaphelenus	3	0	3
	Root rot	- Phytophthora	2	0	2
	Sooty mold	- species	3	0	3
	Tip blight	- Sphaeropsis	14	1	15
	Witches broom	- unknown	1	0	1
	White pine decline	- environmental	6	0	6
<b>PLUM (Prunus)</b>					
	Black knot	- Apiosporina	5	0	5
	Inadequate specimen		1		1
	Insect injury		1	1	2
	Nutritional	- nitrogen deficiency	1	0	1
	Physical injury	- mower	0	1	1
	Plum pockets	- Taphrina	1	0	1
<b>POPLAR (Populus)</b>					
	Insect injury		2	0	2
	No disease		1		1
<b>PRIVET (Ligustrum)</b>					
	Environmental	- winter injury	2	0	2
<b>PYRACANTHA (Pyracantha)</b>					
	Environmental	- winter injury	2	0	2
	No disease		1		1
	Scab	- Spilocaea	1	0	1
<b>QUINCE (Chaenomoles)</b>					
	Fire blight	- Erwinia	1	0	1
<b>REDBUD (Cercis)</b>					
	Chemical injury	- herbicide	1	0	1
	Cultural	- transplant shock	1	0	1
	Environmental	- sunscald	1	0	1
	Inadequate specimen, no disease		13		13
	Insect injury		1	0	1
	Wilt	- Verticillium	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>RHODODENDRON and AZALEA (Rhododendron)</b>					
Cultural		- black plastic	1	0	1
		- improper depth	1	0	1
		- overwatered	1	0	1
		- poor drainage	1	0	1
		- transplant shock	7	0	7
Dieback		- Botryosphaeria	2	0	2
Environmental stresses			15	0	15
Inadequate specimen, no disease			19		19
Insect injury			6	0	6
Leaf/flower gall		- Exobasidium	7	0	7
Leaf spot		- Septoria	1	0	1
Nutritional		- high pH	0	1	1
		- iron deficiency	2	1	3
Powdery mildew		- Microsphaera	3	0	3
Root rot		- Phytophthora	7	0	7
Slime mold		- species	1	0	1
Tissue proliferation		- physiological	1	0	1
<b>ROSE (Rosa)</b>					
Black spot		- Diplocarpon	2	0	2
Brand canker		- Coniothyrium	1	0	1
Chemical injury		- growth regulator	1	0	1
		- herbicide	1	1	2
Common canker		- Leptosphaeria	1	0	1
Cultural		- transplant shock	1	0	1
Environmental		- winter injury	3	0	3
Inadequate specimen, no disease			4		4
Insect injury			6	4	10
Nutritional		- fertilizer burn	2	0	2
Powdery mildew		- Sphaerotheca	3	0	3
Rosette		- unknown	3	0	3
<b>SOURWOOD (Oxydendrum)</b>					
No disease			1		1
<b>SPIREA (Spirea)</b>					
Cultural		- overwatering	1	0	1
Mutation		- genetic	1	0	1
<b>SPRUCE (Picea)</b>					
Cultural		- transplant shock	9	0	9
Environmental stresses			4	1	5
Inadequate specimen, no disease			29		29
Insect injury			15	1	16
Needle cast		- Rhizosphaera	3	0	3
Nutritional		- high pH	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>SWEETGUM (Liquidambar)</b>					
	Bacterial scorch	- Xylella	2	0	2
	Chemical injury	- growth regulator	1	0	1
	Cultural	- transplant shock	9	0	9
	Environmental stresses		3	0	3
	Insect injury		2	2	4
	No disease		3		3
	Nutritional	- iron deficiency	1	0	1
<b>SYCAMORE and PLANETREE (Platanus)</b>					
	Anthracnose	- Apiognomonina	3	0	3
	Chemical injury	- herbicide	1	0	1
	Cultural	- transplant shock	1	0	1
	Environmental	- stress	1	1	2
	Insect injury		0	1	1
	No disease		2		2
	Powdery mildew	- Microsphaera	1	0	1
		- Sphaerotheca	1	0	1
<b>TAXUS (Taxus)</b>					
	Chemical injury	- unknown	1	0	1
	Environmental stresses		7	0	7
	Inadequate specimen, no disease		15		15
	Nutritional	- fertilizer burn	1	0	1
	Root rot	- Phytophthora	1	0	1
<b>TULIPTREE (Liriodendron)</b>					
	Inadequate specimen		2		2
	Insect injury		7	1	8
	Leaf spot	- Phyllosticta	1	0	1
	Sooty mold	- species	2	1	3
<b>VIBURNUM (Viburnum)</b>					
	Chemical injury	- herbicide	1	0	1
	Insect injury		6	0	6
	No disease		1		1
	Stem gall	- Phomopsis	1	0	1
<b>WALNUT (Juglans)</b>					
	Anthracnose	- Gnomonia	2	0	2
	Inadequate specimen		1		1
	Insect injury		2	0	2
<b>WILLOW (Salix)</b>					
	Environmental stresses		2	0	2
	Inadequate specimen		1		1
	Insect injury		1	0	1
<b>YELLOWWOOD (Cladrastis)</b>					
	No disease		2		2

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<u>VEGETABLES</u>					
<b>ASPARAGUS (Asparagus)</b>					
	Crown rot	- fungal	1	0	1
	Root rot	- Fusarium	2	0	2
<b>BEAN (Phaseolus)</b>					
	Chemical injury	- growth regulator	3	0	3
		- herbicide	1	0	1
	Environmental stresses		7	0	7
	Inadequate specimen, no disease		9		9
	Insect injury		3	0	3
	Leaf/spot	- unknown	0	1	1
	Nutritional	- general	0	1	1
		- potassium deficiency	1	0	1
	Root knot nematode	- Meloidogyne	1	0	1
	Root rot	- Fusarium	3	0	3
		- Pythium	1	0	1
	Root/stem rot	- Rhizoctonia	3	1	4
	Rust	- Uromyces	1	0	1
	Southern blight	- Athelia	2	0	2
	Virus	- Bean common mosaic	1	0	1
		- Bean yellow mosaic	6	0	6
		- unknown	1	0	1
	Yeast spot	- Nematospora	1	1	2
<b>BEET (Beta)</b>					
	Insect injury		1	0	1
<b>BROCCOLI - See listing under CRUCIFERS</b>					
<b>CABBAGE - See listing under CRUCIFERS</b>					
<b>CANTALOUPE - See listing under CUCURBITS</b>					
<b>CARROT (Daucus)</b>					
	Leaf blight	- Alternaria	1	0	1
<b>CAULIFLOWER - See listing under CRUCIFERS</b>					
<b>CORN, SWEET (Zea)</b>					
	Bacterial stalk rot	- Erwinia	6	0	6
	Chemical injury	- herbicide	4	0	4
	Environmental stresses		3	0	3
	Holcus spot	- Pseudomonas	1	0	1
	Insect injury		6	1	7
	No disease		9		9
	Nutritional	- acid soil	1	0	1
		- nitrogen deficiency	1	0	1
		- zinc deficiency	2	0	2
	Rust, common	- Puccinia	2	0	2
	southern	- Puccinia	1	0	1



<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>CORN, SWEET (cont)</b>					
	Smut	- Ustilago	1	0	1
	Stewart's wilt	- Erwinia	4	1	5
	Variation	- genetic	0	1	1
	Virus	- Maize dwarf mosaic	1	0	1
		- unknown	1	0	1
<b>CRUCIFERS - BROCCOLI, CABBAGE, CAULIFLOWER, KALE, TURNIP (Brassica) and RADISH (Raphanus)</b>					
	Bacterial soft rot	- Erwinia	1	0	1
	Blackleg	- Leptosphaeria	1	0	1
	Black root rot	- Aphanomyces	1	0	1
	Black rot	- Xanthomonas	2	0	2
	Bottom rot	- Rhizoctonia	1	0	1
	Chemical injury	- herbicide	1	0	1
		- unknown	1	0	1
	Damping-off	- Rhizoctonia	1	0	1
	Downy Mildew	- Peronospora	1	0	1
	Inadequate specimens, no disease		5		5
	Nutritional	- general	2	0	2
	Physiological	- oedema	1	0	1
	Stem rot	- Sclerotinia	2	0	2
	Wire stem	- Rhizoctonia	1	0	1
<b>CUCUMBER - See listing under CUCURBITS</b>					
<b>CUCURBITS - CANTALOUPE, CUCUMBER (Cucumis), PUMPKIN, SQUASH, GOURD (Cucurbita) and WATERMELON (Citrullis)</b>					
	Air pollution	- ozone	1	0	1
	Angular leaf spot	- Pseudomonas	0	1	1
	Anthracnose	- Colletotrichum	3	0	3
	Bacterial wilt	- Erwinia	9	1	10
	Blossom-end-rot	- calcium deficiency/dry	1	0	1
	Chemical injury	- herbicide	2	0	2
	Downy mildew	- Pseudoperonospora	1	0	1
	Environmental	- stress	1	0	1
	Fruit decay	- Fusarium	4	0	4
	Fruit distortion	- unknown	1	0	1
	Gummy stem blight	- Didymella	5	0	5
	Inadequate specimen, no disease		18		18
	Insect injury		5	0	5
	Leaf blight	- Alternaria	1	0	1
	Leaf spot	- Cercospora	0	1	1
	Nutritional	- general	1	0	1
	Physical injury	- unknown	1	0	1
	Pollination problem	- no bees	1	0	1
	Powdery mildew	- Erysiphe	3	2	5
		- species	1	0	1
		- Sphaerotheca	4	0	4
	Root rot	- Fusarium	2	0	2
		- Pythium	2	1	3
	Stem rot	- Fusarium			
		- Sclerotinia	1	0	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>CUCURBITS (cont)</b>					
Virus		- complex	2	0	2
		- squash mosaic	1	0	1
		- unknown	1	1	2
Wilt		- Fusarium	1	0	1
<b>LETTUCE (Lactuca)</b>					
Nutritional		- potassium deficiency	1	0	1
Root rot		- Pythium	1	0	1
<b>OKRA (Hibiscus)</b>					
No disease			2		2
Wilt		- Verticillium	1	0	1
<b>ONION (Allium)</b>					
Nutritional		- soluble salts	1	0	1
<b>PEA (Pisum)</b>					
Insect injury			1	0	1
No disease			1		1
Virus		- unknown	1	0	1
<b>PEPPER (Capsicum)</b>					
Anthracnose		- Colletotrichum	1	0	1
Bacterial spot		- Xanthomonas	19	0	19
Blossom end rot		- calcium deficiency/dry	1	0	1
Chemical injury		- growth regulator	1	0	1
		- herbicide	2	0	2
		- unknown	2	0	2
Crown/stem rot		- Sclerotinia	0	1	1
Cultural		- transplant shock	1	0	1
Environmental stresses			10	3	13
Fruit rot		- Alternaria	1	0	1
Inadequate specimen, no disease			20		20
Insect injury			1	0	1
Nutritional		- fertilizer burn	3	0	3
Root rot		- Fusarium	1	0	1
		- Pythium	1	0	1
Root/stem rot		- Rhizoctonia	2	1	3
Stem blight		- Sclerotinia	1	0	1
Virus		- Tomato spotted wilt	1	0	1
		- unknown	1	0	1
<b>POTATO (Solanum)</b>					
Black leg		- Erwinia	2	0	2
Dry rot		- Fusarium	1	0	1
Knobby tubers		- unknown	2	0	2
No disease			1		1
Root knot nematode		- Meloidogyne	1	0	1
Scab		- Streptomyces	2	0	2
Silver scurf		- Helminthosporium	0	1	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>PUMPKIN - See listing under CUCURBITS</b>					
<b>RHUBARB (Rheum)</b>					
	Anthracnose	- Colletotrichum	1	0	1
	Crown rot	- fungal	1	0	1
	No disease		1		1
<b>SQUASH - See listing under CUCURBITS</b>					
<b>SWEET POTATO (Ipomoea)</b>					
	Insect injury		5	0	5
	No disease		1		1
	Scurf	- Monilochaete	7	0	7
	Surface rot	- Fusarium	0	1	1
<b>TOMATO (Lycopersicon)</b>					
	Air pollution	- ethylene	1	0	1
	Bacterial canker	- Clavibacter	10	2	12
	Bacterial speck	- Pseudomonas	7	1	8
	Bacterial spot	- Xanthomonas	5	2	7
	Bacterial wilt	- Pseudomonas	2	0	2
	Blossom end rot	- calcium deficiency/dry	3	0	3
	Buckeye rot	- Phytophthora	1	0	1
	Catfacing	- environmental	3	0	3
	Chemical injury	- growth regulator	5	0	5
		- herbicide	5	2	7
		- pesticide	1	0	1
		- unknown	5	0	5
	Cultural	- poor planting	1	0	1
		- transplant shock	2	1	3
	Early blight	- Alternaria	14	2	16
	Environmental stresses		24	5	29
	Gray mold	- Botrytis	1	0	1
	Inadequate specimen, no disease		53		53
	Insect injury		12	6	18
	Internal blossom end rot	- calcium deficiency/dry	1	0	1
	Internal white wall	- environmental	3	0	3
	Irregular ripening	- unknown	1	0	1
	Leaf spot	- fungal	0	1	1
		- Septoria	3	0	3
	Mutation	- genetic	1	0	1
	Nutritional	- acid soil	1	0	1
		- calcium deficiency	1	0	1
		- fertilizer burn	2	0	2
		- general	7	2	9
		- maganesium deficiency	2	2	4
		- phosphorus deficiency	1	0	1
		- soluble salts	1	0	1
		- unknown	1	0	1
	Physical injury	- mechanical	1	0	1
		- unknown	2	1	3
	Root knot nematode	- Meloidogyne	0	1	1

<i>CROP</i>	<i>DIAGNOSIS</i>	<i>CAUSAL AGENT</i>	<i>#1 DIAGs</i>	<i>#2 DIAGs</i>	<i>TOTAL</i>
<b>TOMATO (cont)</b>					
Root rot		- Pythium	3	0	3
		- Phytophthora	1	0	1
Root/stem rot		- Fusarium	2	0	2
Southern blight		- Athelia	7	0	7
Stem canker		- Alternaria	0	1	1
Stem rot		- Botrytis	1	0	1
		- fungal	1	0	1
Virus		- Sclerotinia	8	1	9
		- Cucumber mosaic	2	0	2
		- Potato virus Y	1	0	1
		- Tomato spotted wilt	4	0	4
Walnut wilt		- unknown	4	0	4
		- juglone	1	0	1
Wilt		- Fusarium	1	0	1

**WATERMELON - See listing under CUCURBITS**

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**TOTALS** **6531** **414** **6945**

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