

Prepared by the Department of Plant Pathology

Plant Diseases in Kentucky



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PLANT DISEASE DIAGNOSTIC LABORATORY

SUMMARY OF PLANT DISEASES

1982

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INTRODUCTION

The following lists and tables represent a summary of plant diseases and abiotic disorders processed by the Plant Disease Diagnostic Laboratory during 1982. Since records were not kept of specimens diagnosed at field days, field visits, and during IPM and county extension agent training sessions, those diagnoses are not tallied here. Samples from walk-ins and research personnel who did not need a written copy of the diagnosis represent additional specimens not recorded here.

This summary is not meant to serve as a means of determining the relative frequency of diseases as they occur in Kentucky, since many of the more common diseases are easily recognized and therefore not submitted to the Diagnostic Lab. For some disease problems, however, the samples received in the Lab can serve as an indicator of what is occurring in the field.

A few highlights of 1982 plant diseases follow:

Blue mold, black shank and the virus disease complex continue to be the major diseases on tobacco. An increase in nutritional problems, attributed to environmental conditions, was observed in 1982 as compared to previous years. Damage due to hollow stalk was especially high in certain areas of Kentucky where hot, humid weather occurred during topping.

In some portions of the state, leaf rust on wheat was more severe than in previous years. Rhizoctonia root rot was frequently observed on soybeans, either alone or in conjunction with soybean cyst nematode.

Wet weather favored black root of crucifers, resulting in an unusually high number of these samples submitted to the Diagnostic Lab. Rhizoctonia root rot on green beans was frequently present alone or in conjunction with bean virus disease. Septoria leaf spot was the most common disease problem on tomatoes.

EXPLANATORY REMARKS

1. Abiotic problems. In the interest of space, many abiotic problems were tallied together. For example, weather-related problems, cultural problems and mechanical injuries are generally included together under "environmental stress". Some specific stresses have been separated out where significant numbers occur.
2. No disease. "No disease" indicates that no pathogen was observed on the specimen submitted, and we were unable to pinpoint an exact abiotic or biotic cause of the problem.
3. No disease/inadequate/insect injury. Also in the interest of space, the categories of "no disease", "inadequate specimen" and "insect injury" were tallied together, where indicated.
4. Referrals and consultations. Insect problems were generally identified or verified by a specialist in the Entomology Department. Chemical injury on all commercially grown and economically important crops were diagnosed by the Weed Control Specialist in the Agronomy Department or by the Crop Specialist in the Agronomy or Horticulture Departments. We also consulted with the Crop Specialists in the Agronomy or Horticulture Departments regarding abiotic problems.

Generally, in all these cases we received a copy of the diagnosis and therefore these diagnoses were tallied into our summary under the respective crops. In those cases where we did not receive a copy of the diagnosis, the specimens were tallied as "Referrals" (See "Miscellaneous" Section).
5. Root problems. Samples designated as having a "root problem" had top symptoms suggestive of root dysfunction and/or evidence of root degeneration, however, a biotic or abiotic cause could not be determined.
6. Total diagnoses. Unless otherwise indicated, all the numbers given in the following tables and summaries represent the number of diagnoses and not the total number of samples. In some cases, the same sample had more than one major problem and was filed accordingly. Thus, there are more diagnoses (4248 diagnoses) than actual samples received (4222 samples).
7. Number in parentheses. Numbers in parentheses following a crop or a crop category indicate the total number of diagnoses for that crop or crop category.

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Table 1. Total diagnoses according to crop category and problem area.

Crop Category	Abiotic Problems		Biotic Problems		Chemical Injury		Inadequate Specimen		Insect Injury		No Disease		Total Diagnoses
	1	2	1	2	1	2	1	2	1	2	1	2	
<u>Agronomic</u>													
Tobacco	585		674		117		99		33		135		1643
Other	87		572		15		21		11		84		790
<u>Fruit Crops</u>													
Small Fruits	6		64		2		6		9		16		103
Tree Fruits	39		76		2		6		23		47		193
Herbs	0		3		0		0		2		4		9
<u>Ornamentals</u>													
Herbaceous	30		58		1		11		17		34		151
Turfgrass	8		28		0		5		0		6		47
Woody	180		153		16		52		178		330		909
Vegetables	47		204		16		38		11		45		361
Miscellaneous	NA ³		NA		NA		NA		NA		NA		42
<u>Total Diagnoses</u>	982		1832		169		238		284		669		4248

¹"No disease" indicates that no pathogen was observed on the specimen and a more specific diagnosis was not possible.

²The total number of specimens received was 4222. In some cases one sample had more than one major problem and was filed accordingly. Thus, there are more diagnoses than actual specimens received.

³NA = non-applicable. Samples were not of a nature that they could be categorized according to this scheme. Total miscellaneous samples are listed under "Total Diagnoses".

Table 2. Summary of diagnoses by crop and crop category, expressed as percentages.

Crop Category and Crop	# Diagnoses	% of Crop Category	% of Total Diagnoses ¹
<u>Agronomic</u>	(2433)	(100)	(57.5)
Corn	157	6.5	3.7
Forage crops	125	5.2	2.9
Small grains	90	3.7	2.1
Soybeans	417	17.1	9.8
Tobacco	1643	67.5	39
Miscellaneous	1	-.2	-.2
<u>Fruit Crops</u>	(296)	(100)	(6.5)
Small fruits	103	34.8	2
Tree fruits	193	65.2	4.5
<u>Herbs</u>	9	100	0.2
<u>Ornamentals</u>	(1107)	(100)	(26.4)
Herbaceous	151	13.6	3.9
Turfgrass	47	4.3	1.1
Woody	909	82.1	21.4
<u>Vegetables</u>	361	100	8.5
<u>Miscellaneous</u>	42	100	0.9

¹Total diagnoses of all crop categories = 4248

²Value is negligible

Table 3. Total number of specimens received from Kentucky counties and out-of-state sources.

<u>County</u>	<u>Total</u>	<u>Ornamentals</u>	<u>Vegetables</u>	<u>Fruit</u>	<u>Tobacco</u>	<u>Agronomic</u>
Adair	1	1	0	0	0	0
Allen	32	1	7	0	23	1
Anderson	9	5	2	0	2	0
Ballard	8	1	0	1	1	5
Barren	95	9	4	3	69	10
Bath	73	9	6	1	50	7
Bell	12	4	3	5	0	0
Boone	37	17	7	2	10	1
Bourbo:	73	4	9	2	53	5
Boyd	39	21	10	6	1	1
Boyle	63	45	2	2	9	5
Bracken	20	5	1	0	14	0
Breathitt	20	5	4	2	6	3
Breckinridge	25	2	1	0	17	5
Bullitt	52	15	2	11	19	6
Butler	17	2	2	1	11	1
Caldwell	11	0	1	3	4	3
Calloway	51	13	1	4	16	17
Campbell	7	0	1	5	1	0
Carlisle	32	0	5	3	15	9
Carroll	15	7	1	0	7	0
Carter	3	0	0	0	3	0
Casey	21	4	1	1	7	8
Christian	56	17	0	4	14	21
Clark	33	7	0	2	20	4
Clay	11	1	0	1	9	0
Clinton	23	1	5	0	15	2
Crittenden	3	1	0	0	0	2
Cumberland	4	0	0	0	3	1
Daviess	143	29	14	4	67	29
Edmonson	27	0	3	1	18	5
Elliott	22	0	3	2	16	1
Estill	29	2	11	3	13	0
Fayette	452	283	56	41	59	13
Fleming	35	1	5	0	16	13
Floyd	5	2	0	2	0	1
Franklin	31	20	1	2	5	3
Fulton	145	9	2	2	0	132
Gallatin	25	3	2	1	17	3
Garrard	15	3	2	2	7	1
Grant	49	10	5	5	29	0
Graves	42	10	3	5	7	17
Grayson	4	0	0	1	3	0
Greene	7	3	0	1	0	3
Greenup	13	7	1	0	4	1
Hancock	15	1	1	1	9	3
Hardin	47	18	5	7	6	11
Harlan	5	1	3	1	0	0
Harrison	12	6	0	0	4	2
Hart	36	5	4	1	24	2
Henderson	23	4	1	2	5	11
Henry	32	5	2	0	19	6
Hickman	30	1	1	2	0	26
Hopkins	15	3	2	1	4	5
Jackson	20	4	2	2	12	0

Table 3. (continued)

Jefferson	121	102	6	4	8	1
Jessamine	11	0	0	0	10	1
Johnson	18	12	2	2	2	0
Kenton	11	6	1	1	3	0
Knott	0	0	0	0	0	0
Knox	8	2	3	1	1	1
LaRue	52	10	6	5	27	4
Laurel	56	22	4	1	20	9
Lawrence	23	7	2	0	13	1
Lee	4	0	0	0	2	2
Leslie	5	3	0	0	2	0
Letcher	6	3	1	1		1
Lewis	26	2	3	1	19	1
Lincoln	8	0	0	1	5	2
Livingston	2	1	0	0	0	1
Logan	64	15	2	4	25	18
Lyon	0	0	0	0	0	0
Madison	94	32	5	8	48	1
Magoffin	5	1	2	2	0	0
Marion	24	3	2	0	12	7
Marshall	21	3	4	3	10	1
Martin	12	2	3	7	0	0
Mason	18	4	1	1	10	2
McCracken	31	4	7	2	13	5
McCreary	4	1	1	1	1	0
McLean	16	3	2	1	5	5
Meade	20	9	4	1	3	3
Menifee	33	3	9	4	16	1
Mercer	41	8	8	2	20	3
Metcalf	9	0	0	1	7	1
Monroe	25	0	0	2	22	1
Montgomery	16	8	0	0	8	0
Morgan	46	6	5	4	31	0
Muhlenburg	37	3	15	0	13	6
Nelson	39	17	2	4	9	7
Nicholas	10	1	0	0	9	0
Ohio	6	0	0	0	5	1
Oldham	4	1	0	1	1	1
Owen	62	5	5	4	45	3
Owsley	19	6	1	1	8	3
Pendleton	17	3	1	1	9	3
Perry	6	3	1	2	0	0
Pike	3	0	1	2	0	0
Powell	10	2	1	5	2	0
Pulaski	39	7	3	3	17	9
Robertson	5	0	0	0	4	1
Rockcastle	12	0	2	0	10	0
Rowan	21	11	2	5	3	0
Russell	12	2	0	2	8	0
Scott	32	14	1	0	15	2
Shelby	112	24	2	8	38	40
Simpson	67	4	0	3	28	32
Spencer	35	9	2	6	9	9
Taylor	20	0	2	5	10	3
Todd	53	7	7	2	21	16
Trigg	9	1	1	0	5	2
Trimble	14	1	1	4	5	3

Table 3. (continued)

Union	12	3	2	2	0	5
Warren	75	36	11	2	19	7
Washington	30	9	3	1	12	5
Wayne	45	4	11	1	19	10
Webster	19	1	1	1	8	8
Whitley	11	3	3	2	3	0
Wolfe	8	0	1	4	2	1
Woodford	74	25	6	2	37	4
Out-of-State	121	1	4	5	111	6

Table 4. Special Laboratory Tests Performed

Test	Number of Cases ¹
Cultured	161
Incubated	143
Nematode extractions (total = 249)	
Soybean cyst nematode	234
Pinewood nematode	13
Other	2
Virus assays (total = 14)	
Indicator plants	2
Leaf dip (electron microscope)	1
ELISA	11
Soluble salts test	7

¹More than one test was often performed on the same sample. Eg., portions of the same sample were frequently incubated and cultured. These numbers, then, represent the total number of times a test was performed and not the number of samples on which a test was performed.

AGRONOMIC (2433)

CORN (157)

Corn (Zea sp.) (157)

Anthracnose (<u>Colletotrichum</u>)	16
Chemical injury	6
Ear rots (<u>Diplodia</u> , <u>Fusarium</u> , <u>Gibberella</u>)	5
Environmental stress	9
Genetic abnormality	2
Inadequate specimen	7
Insect injury	7
Leaf blights, northern and southern (<u>H. turcicum</u> and <u>H. maydis</u>)	6
Leaf spots (<u>Cercospora</u> , <u>Phyllosticta</u> , <u>Helminthosporium</u>)	5
Nematodes	1
No disease	16
Nutritional (total = 43)	
Acid soil	5
General	11
Magnesium deficiency	3
Manganese toxicity	3
Nitrogen deficiency	1
Phosphorus deficiency	6
Potassium deficiency	1
Zinc deficiency	13
<u>Phyoderma</u> brown spot	1
<u>Rhizoctonia</u> root rot	4
Rust (<u>Puccinia</u>)	5
Smut (<u>Ustilago</u>)	2
Stalk rots (<u>Erwinia</u> , <u>Fusarium</u> , <u>Macrophomina</u>)	4
Stewart's bacterial wilt (<u>Erwinia</u>)	16
Virus complex	2

FORAGE CROPS (125)

Alfalfa (Medicago sp.) (110)

Anthracnose (<u>Colletotrichum</u>)	7
Chemical injury	3
Crown rots (<u>Fusarium</u> , <u>Rhizoctonia</u> , <u>Sclerotinia</u>)	33
Damping-off (fungal)	3
Environmental stress	7
Inadequate specimen/Insect injury	9
Leaf spots (<u>Leptosphaerulina</u> , <u>Stemphyllium</u>)	25
No disease	8
Nutritional	9
<u>Phytophthora</u> root rot	4
Spring black stem (<u>Phoma</u>)	2

Clover (Trifolium sp.) (13)

Anthracnose (<u>Kabatiella</u>)	1
Bacterial leaf spot	1
Crown and root rots (<u>Fusarium</u> , <u>Rhizoctonia</u>)	3
Leaf spots (<u>Cercospora</u> , <u>Stemphyllium</u>)	2
No disease/Inadequate specimen	4
Nutritional	1
<u>Rhizoctonia</u> blight	1

FORAGE CROPS (cont.)

Hay (Clover-Trifolium sp.) (1)

Moldy	1
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Switchgrass (Panicum sp.) (1)

Seed smut (<u>Tilletia</u>)	1
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SMALL GRAINS (90)Barley (Hordeum sp.) (14)

Barley yellow dwarf virus	1
Leaf rust (<u>Puccinia</u>)	1
Leaf scald (<u>Rynchosporium</u>)	1
Loose smut (<u>Ustilago</u>)	1
Net blotch (<u>Helminthosporium</u>)	4
No disease/Inadequate specimen	5
<u>Pythium</u> root rot	1

Oats (Avena sp.) (6)

No disease	4
Nutritional	1
<u>Pythium</u> seedling blight	1

Sorghum (Sorghum sp.) (8)

Anthracnose (<u>Colletotrichum</u>)	1
<u>Fusarium</u> stalk rot	1
<u>Helminthosporium</u> leaf spot	3
No disease	2
<u>Rhizoctonia</u> root rot	1

Wheat (Triticum sp.) (62)

Environmental stress	7
Glume blotch (<u>Septoria</u>)	4
Leaf rust (<u>Puccinia</u>)	3
Loose smut (<u>Ustilago</u>)	1
No disease/Inadequate specimen	13
Powdery mildew (<u>Erysiphe</u>)	10
<u>Rhizoctonia</u> root rot	1
<u>Septoria</u> leaf blotch	4
Take-all (<u>Gaeumannomyces</u>)	5
Viruses (total = 14)	
Barley yellow dwarf	6
Wheat spindle streak	7
Wheat streak mosaic	1

SOYBEANS (417)Soybean (Glycines sp.) (385)

Anthracnose (<u>Colletotrichum</u>)	14
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SOYBEANS (cont.)

Brown spot (<u>Septoria</u>)	5
Brown stem rot (<u>Phialophora</u>)	5
Charcoal rot (<u>Macrophomina</u>)	1
Chemical injury	6
Environmental stress	3
<u>Fusarium</u> root rot	1
No disease/Inadequate specimen	10
Nutritional	4
<u>Phytophthora</u> root rot	9
Pod and stem blight (<u>Diaporthe</u>)	3
<u>Pythium</u> root rot	1
<u>Rhizoctonia</u> root rot	39
Soybean cyst nematode present - soil and/or plant (<u>Heterodera</u>)	273
Soybean cyst nematode absent - soil only	32
Stem canker (<u>Diaporthe</u>)	9
Viruses (BYMV, SMV)	2

TOBACCO (1643)

Tobacco (Nicotiana sp.) (1643)

Algae and liverworts	2
Angular leaf spot (<u>Pseudomonas</u>)	78
Anthracnose (<u>Colletotrichum</u>)	14
Bacterial soft rot (<u>Erwinia</u>)	15
Black leg (<u>Erwinia</u>)	16
Black root rot (<u>Thielaviopsis</u>)	27
Black shank (<u>Phytophthora</u>)	196
Blue mold (<u>Peronospora</u>)	55
Broomrape and false broomrape	2
Brown spot (<u>Alternaria</u>)	14
Chemical injury	117
Early flowering	5
Environmental stress	33
Frenching	14
Frog-eye leaf spot (<u>Cercospora</u>)	28
<u>Fusarium</u> wilt	4
Genetic abnormalities	9
Hollow stalk (<u>Erwinia</u>)	21
Houseburn and piebald	7
Inadequate specimen	99
Insect injury	33
Leaf scald and scorch	52
Lightning injury	26
No disease	135
Nutritional (total = 446)	
Acid soil/Manganese toxicity	192
Excess fertilizer	33
Excess salts (due to drought)	14
General	11
Nitrogen deficiency	30
Potassium deficiency	47
Temporary phosphorus deficiency	119
<u>Pythium</u> soft rot	23
<u>Rhizoctonia</u> root rot	11
Sore shin (<u>Rhizoctonia</u>)	18

TOBACCO (cont.)

Viruses (total = 143)

Beet curly top	1
Peanut stunt	1
Tobacco etch	10
Tobacco ringspot	16
Tobacco streak	7
Tobacco vein mottling	23
Virus complex	85

MISCELLANEOUS (1)

Peanut (Arachis sp.) (1)

<u>Fusarium</u> root rot	1
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FRUIT CROPS (296)

SMALL FRUITS (103)Blueberry (Vaccinium sp.) (4)

No disease/Insect injury	2
Nutritional	1
Virus problem	1

Brambles - Blackberry and Raspberry (Rubus sp.) (24)

<u>Anthracnose</u> (<u>Elsinoe</u>)	2
<u>Botrytis</u> grey mold	1
Cane blights (<u>Gnomonia</u> , <u>Leptosphaeria</u>)	2
Environmental stress	2
Fungal leaf spot	1
Leaf curl virus	2
No disease/Insect injury	9
Orange rust (<u>Gymnoconia</u>)	1
<u>Phytophthora</u> root rot	2
Powdery mildew	1
<u>Pythium</u> stem decay	1

Gooseberry (Ribes sp.) (3)

Environmental	1
No disease	2

Grape (Vitis sp.) (26)

Black rot (<u>Guignardia</u>)	8
Chemical injury	2
Crown gall (<u>Agrobacterium</u>)	2
Environmental stress	2
No disease/Inadequate/Insect injury	12

Strawberry (Fragaria sp.) (46)

Black root rot complex	27
Leaf blight (<u>Dendrophoma</u>)	2
Leaf spot (<u>Mycosphaerella</u>)	4
No disease/Inadequate/Insect injury	6
Red stele (<u>Phytophthora</u>)	2
Root problems	4
Yellow virus	1

TREE FRUITS (193)Apple (Malus sp.) (115)

Bark necrosis	2
Bitter pit and corkspot	5
Black rot canker (<u>Physalospora</u>)	3
Cedar-apple rust (<u>Gymnosporangium</u>)	14
Collar rot (<u>Phytophthora</u>)	1
Crown gall (<u>Agrobacterium</u>)	1

APPLE (cont.)

Environmental stress	11
Fireblight (<u>Erwinia</u>)	11
Flyspeck (<u>Microthyriella</u>) and sooty blotch (<u>Gloeodes</u>)	2
Frog-eye leaf spot (<u>Physalospora</u>)	11
Insect injury	14
Jonathan spot	1
Necrotic leaf blotch	1
No disease/Inadequate specimen	27
Nutritional	1
Scab (<u>Venturia</u>)	3
Southern blight (<u>Sclerotium</u>)	1
Thread blight (<u>Ceratobasidium</u>)	5
Wetwood/slime flux	1

Cherry (Prunus sp.) (19)

<u>Botryosphaeria</u> canker	1
Environmental stress	4
No disease/Insect injury	10
Powdery mildew	3
Wood decay (sapwood rot)	1

Peach, Nectarine and Apricot (Prunus sp.) (15)

Chemical injury	1
Crown gall (<u>Agrobacterium</u>)	1
Environmental stress	2
No disease/Inadequate/Insect injury	8
Nutritional	3

Pear (Pyrus sp.) (18)

Black rot (<u>Physalospora</u>)	1
Chemical injury	1
Environmental stress	2
Fireblight (<u>Erwinia</u>)	5
No disease/Inadequate specimen	6
Nutritional	3

Plum (Prunus sp.) (21)

<u>Armillaria</u> root rot	1
Black knot (<u>Dibotryon</u>)	6
Environmental stress	2
No disease/Inadequate/Insect injury	6
Nutritional	2
Perennial canker (<u>Cytospora</u>)	2
Plum pockets (<u>Taphrina</u>)	2

Miscellaneous tree fruits (5)

No disease/Insect injury	5
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HERBS (9)

Ginseng (Panax sp.) (6)

<u>Alternaria</u> blight	2
No disease	4
<u>Ramularia</u> root rot ("rust")	1

Mint (Mentha sp.) (2)

Insect injury	2
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ORNAMENTALS (1107)

Herbaceous Ornamentals (151)

African violet (<u>Saintpaulia</u> sp.) (6)	
Environmental stress	1
No disease/Inadequate/Insect injury	4
Powdery mildew (<u>Oidium</u>)	1
Ajuga (<u>Ajuga</u> sp.) (4)	
<u>Sclerotium</u> crown rot	4
Begonia (<u>Begonia</u> sp.) (13)	
Chemical injury	1
Environmental stress	3
No disease/Inadequate specimen	5
Powdery mildew	4
<u>Rhizoctonia</u> root decay	1
Celosia (<u>Celosia</u> sp.) (3)	
No disease/Inadequate specimen	2
Root knot nematode (<u>Meloidogyne</u>)	1
Chrysanthemum (<u>Chrysanthemum</u> sp.) (7)	
Environmental stress	5
Inadequate specimen/Insect injury	2
Dahlia (<u>Dahlia</u> sp.) (1)	
Powdery mildew	1
Daisy (Unspecified sp.) (1)	
Powdery mildew	1
Delphinium (<u>Delphinium</u> sp.) (1)	
Aster yellows	1
Dracaena (<u>Dracaena</u> sp.) (4)	
Environmental	2
<u>Glomerella</u> leaf spot	1
No disease	1
Exacum (<u>Exacum</u> sp.) (1)	
<u>Botrytis</u> stem rot	1
Geranium (<u>Pelargonium</u> sp.) (12)	
Bacterial stem rot (<u>Xanthomonas</u>)	4
Blackleg (<u>Pythium</u>)	2

GERANIUM (cont.)

<u>Botrytis</u> blight	2
Nutritional	2
Oedema	1
<u>Pythium</u> root rot	1
Ice plant (<u>Carpobrotus</u> sp.) (1)	
Ice plant decline	1
Impatiens (<u>Impatiens</u> sp.) (4)	
No disease/Insect injury	2
<u>Pellicularia</u> stem rot	2
Iris (<u>Iris</u> sp.) (2)	
Bacterial soft rot (<u>Erwinia</u>)	2
Bacterial leaf spot (<u>Xanthomonas</u>)	1
Lily (<u>Lilium</u> sp.) (3)	
<u>Botrytis</u> grey mold	1
No disease/Insect injury	2
Marigold (<u>Tagetes</u> sp.) (7)	
Environmental stress	1
No disease/Insect injury	5
<u>Phytophthora</u> stem rot	1
Narcissus (<u>Narcissus</u> sp.) (1)	
<u>Botrytis</u> bulb rot	1
Pachysandra (<u>Pachysandra</u> sp.) (7)	
Insect injury	1
<u>Volutella</u> leaf blight	6
Peony (<u>Paeonia</u> sp.) (2)	
<u>Alternaria</u> leaf spot	1
No disease	1
Periwinkle (<u>Vinca</u> sp.) (7)	
Environmental stress	1
No disease/Insect injury	3
<u>Pellicularia</u> root rot	1
<u>Phoma/Phomopsis</u> canker/dieback	2
Petunia (<u>Petunia</u> sp.) (3)	
No disease	2
<u>Pellicularia</u> stem rot	1

Bluegrass (Poa sp.) (19)

Dollar spot (<u>Sclerotinia</u>)	2
Environmental stress	2
<u>Fusarium</u> blight	1
<u>Helminthosporium</u> leaf spot/melting out	2
No disease/Inadequate specimen	7
Red thread (<u>Corticium</u>)	4
Slime mold (<u>Physarum</u>)	1

Fescue (Festuca sp.) (6)

<u>Ascochyta</u> leaf spot	1
Fairy ring	1
<u>Helminthosporium</u> leaf blight	1
No disease/Inadequate specimen	2
Slime mold (<u>Physarum</u>)	1

Turfgrass (Unidentified sp.) (20)

Brown patch (<u>Rhizoctonia</u>)	2
Dollar spot (<u>Sclerotinia</u>)	1
Environmental stress	4
Fading-out (<u>Curvularia</u>)	1
Head smut (<u>Ustilago</u>)	1
<u>Helminthosporium</u> leaf blight	2
Inadequate specimen	3
Slime mold (<u>Physarum</u>)	6

Zoysia grass (1)

Environmental stress	1
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WOODY ORNAMENTALS (909)

Ash (Fraxinus sp.) (12)

Anthracnose (<u>Gloeosporium</u>)	1
<u>Cytospora</u> canker	1
Environmental stress	1
No disease/Inadequate/Insect injury	9

Barberry (Berberis sp.) (9)

Environmental stress	1
No disease/Insect injury	5
<u>Phomopsis</u> dieback	1
<u>Rhizoctonia</u> root rot	1

Birch (Betula sp.) (11)

Fungal leaf spots (<u>Phyllosticta</u> , <u>Septoria</u>)	4
No disease/Insect injury	6
Nutritional	1

Boston ivy (Parthenocissus sp.) (1)

<u>Guignardia</u> leaf spot	1
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Botwood (<u>Buxus</u> sp.) (19)	
Environmental stress	8
<u>Macrophoma</u> leaf spot	2
No disease/Inadequate/Insect injury	9
Chamaecyparis (<u>Chamaecyparis</u> sp.) (3)	
Environmental stress	2
<u>Phomopsis</u> twig blight	1
Cherry laurel (<u>Prunus</u> sp.) (4)	
Environmental stress	1
Fungal leaf spots	2
<u>Phytophthora</u> root rot	1
Chestnut (<u>Castanea</u> sp.) (5)	
Chestnut blight (<u>Endothia</u>)	1
No disease/Insect injury	4
Crabapple (<u>Malus</u> sp.) (14)	
Environmental stress	1
Fireblight (<u>Erwinia</u>)	1
No disease/Inadequate/Insect injury	8
Scab (<u>Venturia</u>)	4
Dogwood (<u>Cornus</u> sp.) (35)	
<u>Botryosphaeria</u> canker	1
Chemical injury	1
Dogwood stress (environmental)	25
No disease/Inadequate specimen	8
Elm (<u>Ulmus</u> sp.) (7)	
<u>Coniothyrium</u> canker	1
Dutch elm disease (<u>Ceratocystis</u>)	3
No disease/Insect injury	3
English ivy (<u>Hedera</u> sp.) (2)	
Environmental	1
Fungal leaf spot	1
Euonymus (<u>Euonymus</u> sp.) (15)	
Chemical injury	1
Environmental stress	3
No disease/Insect injury	10
<u>Phyllosticta</u> leaf spot	1
Forsythia (<u>Forsythia</u> sp.) (6)	
Crown gall (<u>Agrobacterium</u>)	1
No disease	5

Hawthorn (<u>Crataegus</u> sp.) (9)	
Cedar-hawthorn rust (<u>Gymnosporangium</u>)	3
<u>Fabraea</u> leaf blight	1
Fungal canker	1
No disease	4
Hemlock (<u>Tsuga</u> sp.) (21)	
<u>Dermatea</u> (?) canker	1
Environmental stress	4
No disease/Inadequate/Insect injury	16
Holly (<u>Ilex</u> sp.) (41)	
Crown gall (<u>Agrobacterium</u>)	1
Environmental stress	18
Fungal cankers (<u>Phomopsis</u> , etc.)	2
Fungal leaf spot	2
No disease/Inadequate/Insect injury	17
<u>Rhizoctonia</u> root rot	1
Juniper and Red cedar (<u>Juniperus</u> sp.) (28)	
Cedar-apple rust (<u>Gymnosporangium</u>)	2
Environmental stress	1
Insect injury	9
No disease	11
Twig blights (<u>Pestalotia</u> , <u>Phomopsis</u>)	5
Laurel (<u>Laurus</u> sp.) (1)	
<u>Phyllosticta</u> leaf spot	1
Lilac (<u>Syringa</u> sp.) (11)	
Environmental stress	2
Fungal leaf spots and blights (<u>Phyllosticta</u> , <u>Cladosporium</u>)	2
No disease/Insect injury	5
Powdery mildew (<u>Microsphaera</u>)	2
Magnolia (<u>Magnolia</u> sp.) (17)	
Chemical injury	1
Environmental stress	2
Fungal leaf spot	2
No disease/Inadequate/Insect injury	12
Nutritional	1
Maple and Boxelder (<u>Acer</u> sp.) (141)	
Anthracnose (<u>Gloeosporium</u>)	14
Bulls-eye spot (<u>Cristulariella</u>)	3
Chemical injury	1
Environmental stress	16
<u>Fusarium</u> basal canker	1
Inadequate specimen	7
Insect injury	19
Leaf scorch	21

MAPLE AND BOXELDER (cont.)

No disease	50
Nutritional	2
<u>Phomopsis dieback</u>	1
<u>Phyllosticta leaf spot</u>	6
Mountain ash (<u>Sorbus</u> sp.) (10)	
Bot rot (<u>Botryosphaeria</u>)	1
Oak (<u>Quercus</u> sp.) (79)	
Anthracnose (<u>Gnomonia</u>)	2
Chemical injury	4
Chestnut blight (<u>Endothia</u>)	1
Environmental stress	4
Insect injury	27
Iron chlorosis	6
Leaf blister (<u>Taphrina</u>)	1
No disease/Inadequate specimen	25
<u>Phomopsis canker</u>	1
Powdery mildew	4
Wetwood/slime flux	3
Wood decay	1
Paulownia (<u>Paulownia</u>) (1)	
<u>Rhizoctonia root decay</u>	1
Pine (<u>Pinus</u> sp.) (114)	
Chemical injury	2
<u>Diplodia tip blight</u>	6
Eastern gall rust (<u>Cronartium</u>)	1
Environmental stress	12
Fungal canker	1
Inadequate specimen	6
Insect injury	20
No disease	55
Pine needle rust (<u>Coleosporium</u>)	4
Pinewood nematode	2
White pine decline	5
Poplar and Cottonwood (<u>Populus</u> sp.) (17)	
Fungal cankers (<u>Diplodia</u> , <u>Dothiorella</u>)	3
No disease/Insect injury	14
Pyracantha (<u>Pyracantha</u> sp.) (1)	
Scab (<u>Fusicladium</u>)	1
Redbud (<u>Cercis</u> sp.) (12)	
<u>Botryosphaeria canker</u>	1
Chemical injury	1
Environmental stress	1
No disease/Inadequate specimen	8

REBBD (cont.)

<u>Verticillium</u> wilt	1
Rhododendron and Azalea (<u>Rhododendron</u> sp.) (46)	
Azalea gall (<u>Exobasidium</u>)	5
Environmental stress	6
Fungal cankers (<u>Botryosphaeria</u> , <u>Phomopsis</u>)	3
<u>Fusarium</u> crown rot	1
Iron deficiency	2
No disease/Inadequate/Insect injury	27
Rose (<u>Rosa</u> sp.) (9)	
Environmental stress	2
No disease/Insect injury	6
Powdery mildew (<u>Sphaerotheca</u>)	1
Spruce (<u>Picea</u>) (46)	
Chemical injury	1
Environmental stress	8
Inadequate specimen/Insect injury	21
No disease	16
Sycamore (<u>Platanus</u> sp.) (2)	
Anthracnose (<u>Gnomonia</u>)	1
<u>Septoria</u> leaf spot	1
Sweet olive (<u>Osmanthus</u> sp.) (1)	
<u>Phyllosticta</u> leaf spot	1
Taxus (<u>Taxus</u> sp.) (37)	
Chemical injury	2
Environmental stress	8
Inadequate specimen/Insect injury	6
No disease	16
<u>Phomopsis</u> canker	2
<u>Phytophthora</u> root rot	3
Tulip poplar (<u>Liriodendron</u> sp.) (29)	
Environmental stress	1
Fungal leaf spots (<u>Gloeosporium</u> and unknown)	2
<u>Fusarium</u> canker	1
No disease/Inadequate/Insect injury	22
<u>Verticillium</u> wilt	3
Viburnum (<u>Viburnum</u> sp.) (8)	
<u>Dothiorella</u> canker	1
Fungal leaf spot	1
No disease/Insect injury	5
<u>Rhizoctonia</u> root rot	1

Willow (Salix sp.) (11)

Crown gall (<u>Agrobacterium</u>)	2
Environmental	1
No disease/Insect injury	8

Miscellaneous woody ornamentals (81)

Chemical injury	2
Environmental	13
Inadequate specimen	8
Insect injury	22
No disease	36

VEGETABLES (361)

Asparagus (Asparagus sp.) (4)

Bacterial soft rot (<u>Erwinia</u>)	1
Environmental stress	2
No disease	1

Bean (Phaseolus sp.) (60)

<u>Angular leaf spot</u> (<u>Cercospora</u>)	1
<u>Anthracnose</u> (<u>Colletotrichum</u>)	2
Chemical injury	2
<u>Cladosporium leaf and pod spot</u>	1
Environmental stress	2
<u>Fusarium root rot</u>	4
No disease/Inadequate/Insect injury	15
<u>Pythium stem rot</u>	4
<u>Rhizoctonia root rot</u>	19
<u>Virus</u> (BYMV, etc.)	11

Crucifers - Broccoli, Cabbage, Cauliflower, etc. (Brassica) (51)

<u>Alternaria leaf spot</u>	1
<u>Bacterial leaf spot</u> (<u>Pseudomonas</u>)	2
<u>Bacterial soft rot</u> (<u>Erwinia</u>)	2
<u>Black rot</u> (<u>Xanthomonas</u>)	21
<u>Cercospora/Cercospora</u> leaf spot	1
Chemical injury	1
Damping-off (<u>Rhizoctonia</u>)	2
Environmental stress	2
<u>Fusarium yellows</u>	1
No disease/Inadequate specimen	8
<u>Pythium stem rot</u>	1
<u>Rhizoctonia root rot/wire stem</u>	7
White rust - mustard (<u>Albugo</u>)	2

Cucurbita (Citrulus, Cucumis, Cucurbita) (58)

<u>Alternaria leaf spot/blight</u>	4
<u>Angular leaf spot</u> (<u>Pseudomonas</u>)	1
<u>Anthracnose</u> (<u>Colletotrichum</u>)	5
<u>Bacterial wilt</u> (<u>Erwinia</u>)	18
Cucumber mosaic virus	1
<u>Downy mildew</u> (<u>Pseudoperonospora</u>)	1
Environmental stress	2
Fruit rot	4
<u>Gummy stem blight</u> (<u>Mycosphaerella</u>)	1
No disease/Inadequate specimen	20
Powdery mildew	1
<u>Pythium root rot/damping-off</u>	1

Lettuce (Lactuca sp.) (2)

Inadequate specimen	1
<u>Sclerotinia drop</u>	1

Pea (<u>Pisum</u> sp.) (8)	
No disease/Insect injury	2
<u>Rhizoctonia</u> root rot	6
Pepper (<u>Capsicum</u> sp.) (27)	
<u>Alternaria</u> fruit rot	1
Bacterial leaf spot	4
Chemical injury	1
Early blight (<u>Alternaria</u>)	1
Environmental stress	7
<u>Fusarium</u> root rot	1
No disease/Inadequate specimen	6
Nutritional	2
<u>Rhizoctonia</u> root and stem rot	1
Southern blight (<u>Sclerotium</u>)	2
Tobacco etch virus	2
Tobacco mosaic virus	1
Potato (<u>Solanum</u> sp.) (25)	
Black heart	1
Blackleg (<u>Erwinia</u>)	3
Chemical injury	2
Environmental stress	4
Internal brown spot	1
No disease/Insect injury	2
Root knot nematode (<u>Meloidogyne</u>)	3
Tuber rots (<u>Fusarium</u> etc.)	4
<u>Verticillium</u> wilt	1
Rhubarb (<u>Rheum</u> sp.) (3)	
<u>Ascochyta</u> leaf spot	1
No disease/Inadequate specimen	2
Sweet potato (<u>Ipomoea</u> sp.) (9)	
Bacterial soft rot (<u>Erwinia</u> ?)	1
Environmental stress	2
<u>Fusarium</u> surface rot	1
Insect injury	1
Scurf (<u>Monilochaetes</u>)	4
Tomato (<u>Lycopersicon</u> sp.) (103)	
Bacterial canker (<u>Corynebacterium</u>)	2
Bacterial wilt (<u>Pseudomonas</u>)	5
Blossom end rot	1
Buckeye rot (<u>Phytophthora</u>)	1
Catfacing	4
Chemical injury	9
Damping-off (<u>Pythium</u>)	1
Early blight (<u>Alternaria</u>)	10
Environmental stress	9
<u>Fusarium</u> wilt	5
Grey wall	1
Leaf mold (<u>Cladosporium</u>)	1

TOMATO (cont.)

No disease/Inadequate/Insect injury	22
Nutritional	5
Physiological leaf curl	3
<u>Rhizoctonia</u> stem rot	1
<u>Sclerotinia</u> stem rot	1
<u>Septoria</u> leaf spot	16
Southern blight (<u>Sclerotium</u>)	1
Stem rot	2

Miscellaneous vegetables (11)

Chemical injury	1
No disease/Inadequate/Insect injury	10

MISCELLANEOUS (42)

Fungal Identifications (10)

Lichens	2
Molds and mushrooms	8

Plant Identifications (7)

Various	7
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Referrals¹ (21)

Soil² (4)

Nematodes - no diagnosis	2
pH/soluable salts test	2

¹These samples were referred to and handled directly by another department; the Clinic did not receive a copy of the diagnosis of these particular samples.

²Soil samples submitted for soybean cyst nematode analysis have been tallied under SOYBEANS.