

Prepared by the Department of Plant Pathology

Plant Diseases in Kentucky



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PLANT DISEASE DIAGNOSTIC LABORATORY

SUMMARY OF PLANT DISEASES

1984

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Turfgrass	22
Woody ornamentals	23
Vegetables	30
Total Specimens	33

Introduction

The 1984 growing season marked the second year of operation for our Princeton Plant Disease Diagnostic Lab located at the Research and Education Center in west Kentucky. The Princeton facility serves twenty-four counties in three areas (Pennyriple, Green River and Purchase). During 1984 the Princeton lab handled 869 specimens. The Lexington Plant Disease Diagnostic Lab, which services the 94 counties in central and eastern Kentucky, processed 3503 samples. The diseases and disorders evident on the 4372 total specimens examined by the two labs are summarized in the following pages.

This year, unlike previous years, we compiled our summary using both the primary and secondary diagnosis entries in our computer database (see also "Explanatory Remarks"). We feel this gives us a more complete picture of the problems actually observed in the lab. More than one significant problem (i.e. at least two diagnoses) was evident on nearly 10% of the specimens examined.

Highlights

Highlights of some of the disease problems observed in 1984 are given below:

Apple scab was once again severe, particularly on unsprayed apple and crabapple trees. This marked the second year in a row that scab infections resulted in heavy defoliation by early to midsummer.

Anthracnose was a common problem, particularly on maple and ash. Twig infections, uncommon during most years, were frequently observed on maples. The resulting dieback was often confused with dieback resulting from winter injury. Other usually hardy woody plants, such as spruce and apple were also damaged by winter kill. After consulting with horticulture specialists, we came to the conclusion that a combination of the 1983 summer drought and a sudden, rapid drop in temperatures to subzero levels after a mild fall were involved in winter damage to these plants.

The entomologists were not the only ones impacted by the large aphid populations observed in 1984. The Plant Disease Diagnostic Labs received large numbers of inquiries (samples and phone calls) regarding the "sticky substance" that homeowners observed on their landscape plants. This abundance of honeydew provided plentiful food supplies for the sooty mold fungi. Aphid activity was also responsible for an increase in the incidence of certain virus diseases. Garden bean samples with bean virus complex numbered 42 (compared to 16 in 1983). Tobacco samples infected with viruses increased from a mere 17 in 1983 to 139 in 1984!

A number of bacterial diseases were common on various vegetable crops. Bacterial hollow stalk of tomato, previously referred to as "bacterial stem rot", increased in incidence in 1984. Reports from other states indicate that Pseudomonas is the likely cause. We also saw an increase in samples with bacterial wilt on tomato and bacterial spot of pepper. Samples of black rot of crucifers and bacterial wilt of cucurbits remained high for a second

year in a row.

Soybean growers in the Integrated Pest Management (IPM) program received an offer they could not refuse: Soybean cyst nematode analyses (normally a bargain at \$5.00/soil sample) were offered free for soil samples collected from IPM fields currently (1984) in soybeans. This tremendous offer helps account for the unusually high number (715) of soybean cyst nematode soil samples processed in 1984 compared to 1983 (182).

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 less 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. pod and stem blight on soybeans). In these cases, a hyphen (-) is used 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 we were unable to pinpoint an exact abiotic or biotic cause of the problem, based on the sample and the information provided.

Referrals and consultations: Insect problems were generally identified or verified by a specialist in the Entomology Department. Chemical injury on all commercially grown crops was diagnosed by the Weed Control Specialist in the Agronomy Department or by the Crop Specialist in the Agronomy or Horticulture Departments. On a number of occasions we consulted with crop specialists in other departments to diagnose or verify specific abiotic problems, as well.

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.

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We wish to thank Freddie A. Higgins for his computer programming expertise and Donna Black for typing portions of this report. Joann Eason and Sharon Kester deserve special recognition for processing what must have seemed like an endless number of soil samples for soybean cyst nematode.

We would also like to thank all the College of Agriculture Extension Specialists and researchers who served as consultants to the Diagnostic Lab during 1984. Their services ranged from making actual diagnoses to providing answers to plant or pesticide questions. While some of these able consultants may have cringed at the sight of us with dying plant in hand, all were most cooperative. Because these individuals are numerous and any list is likely to leave someone out, we will not mention them by name (you know who you are). We are grateful to each for their valuable assistance.

Table 1. Total diagnoses¹ according to crop category and problem area.

Crop Category	Abiotic Problems	Biotic ² Problems	Chemical Injury	Inadequate Specimen	Insect Injury	Other ³	Total Diagnoses
<u>Agronomic</u>							
Corn	67	13	11	7	24	54	176
Forages	22	70	1	4	13	9	119
Small grains	12	44	2	2	4	15	79
Soybeans	21	396	8	4	2	422	853
Tobacco	462	426	102	48	46	101	1185
<u>Fruit</u>							
Small fruit	30	68	6	7	9	15	135
Tree fruit	62	140	3	8	39	40	292
<u>Herbs</u>							
	1	9	0	0	2	0	12
<u>Identifications</u>							
	0	30	0	1	1	10	42
<u>Ornamentals</u>							
Herbaceous and Houseplants	47	66	6	11	19	30	179
Turfgrass	12	30	1	8	0	6	57
Woody	391	309	38	97	143	223	1201
<u>Vegetables</u>							
	87	246	22	45	27	55	482
<u>Miscellaneous</u>							
	1	0	0	0	0	7	8
<u>Total</u>							
	1215	1847	200	242	329	987	4820

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

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

³"Other" includes the causal agent categories: No disease, Unknown and None (non-applicable).

Table 2. A breakdown of biotic problems by crop category.

Crop Category	Bacterial	Fungal	Nematode	Virus	Other ¹
<u>Agronomic</u>					
Corn	0	13	0	0	0
Forages	3	66	0	1	0
Small grains	1	34	0	9	0
Soybeans	1	53	340	2	0
Tobacco	87	200	0	139	0
<u>Fruit</u>					
Small fruit	1	66	0	1	0
Tree fruit	22	118	0	0	0
<u>Herbs</u>	0	9	0	0	0
<u>Identifications</u>	17	0	0	0	13
<u>Ornamentals</u>					
Herbaceous and Houseplants	14	50	1	1	0
Turfgrass	0	30	0	0	0
Woody	8	300	0	0	1
<u>Vegetables</u>	69	122	3	50	2
<u>Miscellaneous</u>	0	0	0	0	0
<u>Total</u>	223	1061	344	203	16

¹Other includes these categories: Animal (rodent and bird damage) and Plant (plant identifications).

Table 3a. Summary of diagnoses by crop category, expressed as percentages.

Crop Category	Number of Specimens	Percentage of Total Specimens
Agronomic	1154	26.4
Tobacco	1068	24.4
Fruit	373	8.5
Herbs	8	0.2
Identifications	39	0.9
Ornamentals	1287	29.4
Vegetables	434	9.9
Miscellaneous	8	0.2
Total Specimens	4372	100.0

Table 3b. Summary of diagnoses by crop and crop category.

Crop Category and Crop	Number of Primary Diagnoses ¹	Number of ² Secondary Diagnoses	Total ³ Diagnoses
<u>Agronomic</u>			
Corn	160	16	176
Forage Crops	91	28	119
Small grains	66	13	79
Soybeans	837	16	853
Tobacco	1068	117	1185
<u>Fruit Crops</u>			
Small fruit	114	21	135
Tree fruit	259	33	292
<u>Herbs</u>			
	8	4	12
<u>Identifications</u>			
	39	3	42
<u>Ornamentals</u>			
Herbaceous and Houseplants	164	15	179
Turfgrass	45	12	57
Woody	1078	123	1201
<u>Vegetables</u>			
	434	48	482
<u>Miscellaneous</u>			
	8	0	8
<u>Total</u>	4372	449	4820

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

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

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

Table 4. Number of referrals and/or consultations made with other departments or UK lab facilities (1984).

Department or Facility	Agronomic Crops	Fruit Crops	Ornamental Crops	Vegetable Crops	Other	Total
Animal Diagnostic Laboratory	4	0	0	0	0	4
Agronomy Department	75	0	5	5	8	93
Entomology Department	36	34	121	16	1	208
Horticulture Department	0	13	74	15	13	115
Regulatory Services	0	0	2	1	6	9

Table 5. A breakdown of samples received by grower type and crop group.

Grower Type	Number of Samples						Total Samples
	Agronomic Tobacco	Agronomic Other	Fruit	Ornamentals	Vegetables	Other	
Commercial	1057	1138	73	72	101	15	2456
Homeowner	0	0	295	1151	322	36	1804
Institution	0	0	3	56	0	1	60
Researcher	11	16	2	8	10	3	50

Table 6. Total number of specimens received from Kentucky counties and out-of-state sources.

<u>County</u>	<u>Total</u>	<u>Agronomic</u> ¹	<u>Tobacco</u>	<u>Fruit</u>	<u>Ornamentals</u>	<u>Vegetables</u>	<u>Other</u>
Adair	3	0	1	1	1	0	0
Allen	28	1	18	1	4	4	0
Anderson	9	0	5	0	3	1	0
Ballard	13	5	6	2	0	0	0
Barren	67	7	29	5	22	3	1
Bath	19	3	8	1	6	1	0
Bell	13	0	1	2	9	1	0
Boone	50	3	19	6	16	6	0
Bourbon	56	7	20	3	18	6	2
Boyd	20	1	0	4	15	0	0
Boyle	32	5	4	0	21	2	0
Bracken	17	3	11	2	1	0	0
Breathitt	26	3	7	2	7	5	2
Breckinridge	39	12	16	1	9	1	0
Bullitt	35	2	6	11	12	3	1
Butler	13	4	4	1	4	0	0
Caldwell	74	12	19	18	14	9	2
Calloway	66	10	26	3	14	13	0
Campbell	8	0	1	4	3	0	0
Carlisle	21	4	4	6	4	3	0
Carroll	16	3	7	2	4	0	0
Carter	0	0	0	0	0	0	0
Casey	11	1	1	1	3	5	0
Christian	95	22	32	13	25	3	0
Clark	42	3	21	5	12	1	0
Clay	9	1	5	2	1	0	0
Clinton	9	1	5	0	0	2	1
Crittenden	32	12	2	4	5	8	1
Cumberland	2	1	0	0	0	1	0
Daviess	112	29	27	13	27	11	5
Edmonson	22	5	7	0	2	8	0
Elliott	15	0	5	2	3	5	0
Estill	18	2	5	6	1	4	0
Fayette	693	23	52	69	469	65	15
Fleming	18	5	9	1	1	1	1
Floyd	2	0	0	0	2	0	0
Franklin	55	1	5	5	40	2	2
Fulton	216	209	0	1	4	2	0
Gallatin	21	2	17	0	1	1	0
Garrard	10	2	2	1	2	3	0
Grant	45	2	22	0	16	5	0
Graves	53	5	26	7	9	4	2
Grayson	8	4	1	0	2	1	0
Greene	5	0	2	0	3	0	0
Greenup	13	0	1	2	9	0	1
Hancock	12	0	8	2	0	2	0
Hardin	197	151	13	1	28	4	0
Harlan	2	0	0	0	2	0	0
Harrison	24	1	19	0	4	0	0

<u>County</u>	<u>Total</u>	<u>Agronomic¹</u>	<u>Tobacco</u>	<u>Fruit</u>	<u>Ornamentals</u>	<u>Vegetables</u>	<u>Other</u>
Hart	22	5	10	0	3	4	0
Henderson	16	3	4	1	7	1	0
Henry	25	1	17	1	5	1	0
Hickman	116	102	2	4	6	2	0
Hopkins	43	16	6	2	6	13	0
Jackson	13	1	6	0	3	1	2
Jefferson	70	1	3	2	54	10	0
Jessamine	14	1	8	1	3	1	0
Johnson	12	0	3	1	2	6	0
Kenton	17	0	5	3	6	3	0
Knott	3	0	0	1	2	0	0
Knox	7	0	1	1	4	1	0
Larue	28	8	8	3	4	3	2
Laurel	14	1	1	2	3	5	2
Lawrence	12	1	4	1	5	1	0
Lee	9	0	0	2	1	6	0
Leslie	2	0	1	0	1	0	0
Letcher	7	1	0	0	4	2	0
Lewis	30	2	22	1	1	4	0
Lincoln	11	4	2	2	3	0	0
Livingston	7	3	0	1	2	1	0
Logan	64	19	28	5	5	7	0
Lyon	5	0	4	0	0	1	0
Madison	103	4	40	9	42	5	1
Magoffin	4	0	2	0	1	0	1
Marion	20	15	1	2	2	0	0
Marshall	31	2	9	5	8	7	0
Martin	5	0	0	1	4	0	0
Mason	23	5	9	3	4	2	0
McCracken	49	7	5	11	17	8	1
McCreary	5	1	0	2	2	0	0
McLean	33	12	13	0	5	3	0
Meade	22	2	7	0	7	6	0
Menifee	11	1	0	3	0	7	0
Mercer	14	2	4	2	5	1	0
Metcalf	3	0	3	0	0	0	0
Monroe	8	2	5	1	0	0	0
Montgomery	46	0	23	3	17	2	1
Morgan	22	0	15	2	2	3	0
Muhlenburg	10	3	2	3	0	1	1
Nelson	43	19	6	3	13	2	0
Nicholas	11	3	7	0	0	1	0
Ohio	11	1	5	2	2	1	0
Oldham	5	2	0	0	2	1	0
Owen	25	2	10	5	5	3	0
Owsley	16	0	5	2	3	6	0
Pendleton	10	3	6	1	0	0	0
Perry	5	0	0	1	3	1	0
Pike	10	0	0	3	7	0	0
Powell	9	1	1	2	2	3	0
Pulaski	25	3	11	0	7	3	1
Robertson	2	0	2	0	0	0	0
Rockcastle	13	1	5	4	2	0	1

County	Total	Agronomic ¹	Tobacco	Fruit	Ornamentals	Vegetables	Other
Rowan	24	0	3	2	13	6	0
Russell	42	7	13	7	5	10	0
Scott	16	0	4	3	8	1	0
Shelby	71	16	23	3	23	6	0
Simpson	15	5	5	0	3	2	0
Spencer	3	0	0	0	2	1	0
Taylor	18	5	6	2	4	1	0
Todd	158	106	23	9	7	12	1
Trigg	25	4	9	2	2	8	0
Trimble	17	3	10	2	0	2	0
Union	113	106	0	2	2	3	0
Warren	54	3	15	6	16	12	2
Washington	26	8	10	2	6	0	0
Wayne	55	7	23	1	4	20	0
Webster	79	38	12	7	9	13	0
Whitley	2	1	1	0	0	0	0
Wolfe	8	0	4	3	1	0	0
Woodford	57	1	19	6	27	2	2
Out-of-State	65	6	54	0	2	2	1
Unknown	16	11	2	2	1	0	0

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

Table 7. Special laboratory tests performed.

Test	Number of cases
Culturing	115
Incubation	169
Nematode extractions (total = 722)	
Pinewood nematode	3
Soybean cyst nematode	715
Other	4
Virus assays (total = 8)	
Inclusion staining	1
Indicator plants	6
Leaf dip (electron microscope)	1
Soil tests (total = 206)	
pH	198
Soluble salts	8
Tissue tests	
Quick nitrate tests (tobacco)	17
MH in tobacco tissue ^a	1

^aThis test was run by the UK Agronomy Department.

CROP	DIAGNOSIS	CAUSAL AGENT	NO. OF PRIMARY DIAGNOSES	NO. OF SECONDARY DIAGNOSES	TOTAL
<u>AGRONOMIC CROPS</u>					
<u>Corn</u>					
CORN (<u>Zea</u>)	CHEMICAL INJURY		10	1	11
	EAR ROTS	- <u>DIPLODIA, FUSARIUM</u>	3	2	5
	ENVIRONMENTAL	- DROUGHT	3		3
		- SOIL COMPACTION	14	1	15
		- STRESS	4		4
	EYESPOT	- <u>KABATIELLA</u>	1		1
	GENETIC MUTATION		2		2
	INSECT INJURY		23	1	24
	NO DISEASE, INADEQUATE SPECIMEN		43	3	46
	NUTRITIONAL	- ACID SOIL/PH PROBLEMS	11	4	15
		- PHOSPHORUS DEFICIENCY	4		4
		- POTASSIUM DEFICIENCY	6		6
		- ZINC DEFICIENCY	11		11
		- OTHER	4	1	5
	REFERRALS		14		14
	ROOT ROT	- <u>RHIZOCTONIA</u>	1		1
	SEEDLING ROT	- <u>FUSARIUM</u>	-	1	1
	SMUT	- <u>USTILAGO</u>	3		3
	STALK ROTS	- <u>DIPLODIA, FUSARIUM</u>	1	1	2
<u>Forages</u>					
ALFALFA (<u>Medicago</u>)	ANTHRACNOSE	- <u>COLLETOTRICHUM</u>	2		2
	BACTERIAL STEM BLIGHT	- <u>PSEUDOMONAS</u>	2	1	3
	CROWN/ROOT ROTS	- COMPLEX	1	1	2
		- <u>FUSARIUM, RHIZOCTONIA</u>	5	1	6
		- <u>SCLEROTINIA</u>	10		10
	DAMPING-OFF, SEED ROTS	- <u>PYTHIUM</u> etc.	2		2
	ENVIRONMENTAL STRESS		6	4	10
	INSECT INJURY		7	4	11
	LEAF SPOTS	- <u>LEPTOSPHERULINA</u>	8	6	14
		- <u>PSEUDOPPEZIZA, STEMPHYLLIUM</u>	5	2	7
	NO DISEASE, INADEQUATE SPECIMEN		6		6
	NUTRITIONAL		2		2
	REFERRALS		2		2
	ROOT ROT	- <u>PHYTOPHTHORA</u>	1		1
	RUST	- <u>UROMYCES</u>	7	2	9
	SPRING BLACK STEM & LEAF SPOT	- <u>PHOMA</u>	2		2
	VIRUS	- ALFALFA MOSAIC VIRUS	2		2

CLOVER (<u>Trifolium</u>)				
CROWN ROT	- <u>FUSARIUM, RHIZOCTONIA</u>	3	1	4
	- <u>SCLEROTINIA</u>	1		1
ENVIRONMENTAL STRESS		1	1	2
INADEQUATE SPECIMEN		1		1
POWDERY MILDEW	- <u>ERYSIPHE</u>	1		1
ORCHARDGRASS (<u>Dactylis</u>)				
ANTHRACNOSE	- <u>COLLETOTRICHUM</u>	1		1
CROWN ROT	- <u>FUSARIUM</u>	-	1	1
ENVIRONMENTAL STRESS, NO DISEASE		2		2
INSECT INJURY		1		1
SWITCHGRASS and MILLET (<u>Panicum</u>)				
CHEMICAL INJURY		1		1
LEAF SPOT	- <u>PIRICULARIA</u>	2		2
RUST	- <u>UROMYCES</u>	-	1	1
MISC. FORAGES				
ENVIRONMENTAL STRESS		4	1	5
INSECT INJURY		1		1
NO DISEASE, INADEQUATE SPECIMEN		2		2
REFERRAL		1		1

Soybeans

SOYBEAN (<u>Glycines</u>)				
AIR POLLUTION	- OZONE	-	1	1
ANTHRACNOSE	- <u>COLLETOTRICHUM</u>	1		1
BACTERIAL PUSTULE	- <u>XANTHOMONAS</u>	1		1
BROWN SPOT	- <u>SEPTORIA</u>	2	1	3
BROWN STEM ROT	- <u>PHIALOPHORA</u>	3	1	4
CHARCOAL ROT	- <u>MACROPHOMINA</u>	5		5
CHEMICAL INJURY		6	2	8
DAMPING-OFF	- <u>PYTHIUM</u>	1		1
DOWNY MILDEW	- <u>PERONOSPORA</u>	2		2
ENVIRONMENTAL STRESS		6	1	7
INSECT INJURY, OTHER REFERRALS		3		3
NO DISEASE, INADEQUATE SPECIMEN		20		20
NUTRITIONAL		10	1	11
POD & STEM BLIGHT	- <u>DIAPORTHE</u>	-	3	3
ROOT/STEM ROT	- <u>FUSARIUM, etc.</u>	1	2	3
	- <u>PHYTOPHTHORA</u>	9	1	10
	- <u>RHIZOCTONIA</u>	15	2	17
SOYBEAN CYST NEMA	- on plant roots	38	1	39
(<u>HETERODERA</u>)	- in soil	301		301
	- absent in soil	398		398
	- missing forms	8		8
STEM CANCKER	- <u>DIAPORTHE</u>	2		2
SUDDEN DEATH SYNDROME		5		5
VIRUS	- BYMV, SMV	1	1	2

Small Grains

BARLEY (<u>Hordeum</u>)			
LOOSE SMUT	- <u>USTILAGO</u>	1	1
NO DISEASE		1	1
OATS (<u>Avena</u>)			
ENVIRONMENTAL STRESS, CULTURAL		2	1
INSECT INJURY		1	1
LEAF SPOT		1	1
RYE (<u>Secale</u>)			
ENVIRONMENTAL STRESS		-	1
VIRUS - BARLEY YELLOW DWARF VIRUS		1	1
SORGHUM, SUDANGRASS and MILO (<u>Sorghum</u>)			
ABIOTIC PROBLEMS (misc.)		5	5
ANTHRACNOSE	- <u>COLLETOTRICHUM</u>	2	2
CHARCOAL ROT	- <u>MACROPHOMINA</u>	3	3
DAMPING-OFF	- <u>RHIZOCTONIA</u>	1	1
INSECT INJURY, OTHER REFERRALS		3	3
NO DISEASE		3	3
ROOT ROT	- <u>RHIZOCTONIA</u> , etc.	1	4
SEED MOLD	- <u>PENICILLIUM</u>	-	1
VIRUS - MAIZE DWARF MOSAIC VIRUS		2	2
WHEAT (<u>Triticum</u>)			
BASAL GLUME ROT	- <u>PSEUDOMONAS</u>	-	1
ENVIRONMENTAL, CULTURAL, NUTRITIONAL		4	1
GLUME BLOTCH	- <u>SEPTORIA</u>	-	2
HEAD SCAB	- <u>FUSARIUM</u>	2	2
INSECT INJURY		2	2
LEAF BLOTCH	- <u>SEPTORIA</u>	2	1
LEAF RUST	- <u>FUCCINIA</u>	3	3
NO DISEASE, INADEQUATE SPECIMEN		9	9
ROOT ROT	- <u>PHYTOPHTHORA</u>	1	1
STEM RUST	- <u>FUCCINIA</u>	2	2
TAKE-ALL	- <u>GAEUMANNOMYCES</u>	7	7
VIRUS - WHEAT SPINDLE STREAK MOSAIC		5	1

Tobacco

TOBACCO (<u>Nicotiana</u>)			
ANGULAR LEAF SPOT	- <u>PSEUDOMONAS</u>	55	6
ANTHRACNOSE	- <u>COLLETOTRICHUM</u>	4	4
BACTERIAL BLACK STALK	- <u>ERWINIA</u>	1	1
BLACK ROOT ROT	- <u>THIELAVIOPSIS</u>	14	2
BLACK SHANK	- <u>PHYTOPHTHORA</u>	58	1
BLACKLEG	- <u>ERWINIA</u>	13	13
BLUE MOLD	- <u>PERONOSPORA</u>	5	1
BROWN SPOT	- <u>ALTERNARIA</u>	15	6

TOBACCO (cont'd)

CHEMICAL INJURY - BURN, etc.	41	1	42
- GROWTH REGULATOR	60		60
DAMPING-OFF - <u>PYTHIUM</u>	2	1	3
ENVIRONMENTAL - COLD INJURY	6		6
- SOIL COMPACTION	7	1	8
- DROUGHT	14		14
- LIGHTNING INJURY	32		32
- STRESS	10	1	11
- WEATHER SCALD	34	3	37
- WET FEET	45	3	48
FALSE BROOMRAPE	22	5	27
FROG-EYE LEAF SPOT - <u>CERCOSPORA</u>	5	2	7
FUSARIUM WILT - <u>FUSARIUM</u>	7		7
GENETIC MUTATION	14		14
HOLLOW STALK - <u>ERWINIA</u>	4	1	5
INADEQUATE SPECIMEN	48		48
INSECT INJURY	37	9	46
NO DISEASE	87		87
NUTRITIONAL - FERTILIZER BURN	14	4	18
- MANGANESE TOXICITY/ACID SOIL	111	14	125
- PHOSPHORUS DEFICIENCY	55	9	64
- POTASSIUM DEFICIENCY	24		24
- OTHER	8	1	9
PHYSICAL INJURY	6	4	10
PHYSIOLOGICAL SPOTTING	5	1	6
PIEBALD (improper curing)	-	1	1
RAGGED SPOT - <u>ASCOCHYIA</u>	1		1
REFERRAL	3		3
ROOT PROBLEM - CAUSE UNKNOWN	4		4
ROOT ROTS - <u>FUSARIUM</u> (secondary)	-	1	1
- <u>PYTHIUM</u>	2	1	3
- <u>RHIZOCTONIA</u>	8		8
SOFT ROT - <u>ERWINIA</u>	6	1	7
- <u>PYTHIUM</u>	12		12
SORE SHIN - <u>RHIZOCTONIA</u>	27	5	32
STORAGE DECAY - <u>ALTERNARIA</u>	3	2	5
- BACTERIAL (Houseburn)	1		1
- <u>CLADOSPORIUM</u>	3	3	6
- OTHER	2	1	3
VIRUS - ALFALFA MOSAIC VIRUS	1		1
- COMPLEX	60	8	68
- TOBACCO ETCH VIRUS	32	6	38
- TOBACCO RINGSPOT	20	2	22
- TOBACCO STREAK	1	1	2
- TOBACCO VEIN BANDING	2		2
- TOBACCO VEIN MOTTLING	7	2	9
WEATHER FLECK - OZONE	4		4

CROP	DIAGNOSIS	CAUSAL AGENT	NO. OF PRIMARY DIAGNOSES	NO. OF SECONDARY DIAGNOSES	TOTAL
FRUIT CROPS					
Small fruits					
BLUEBERRY (<u>Vaccinium</u>)	ROOT PROBLEM	- CAUSE UNKNOWN	1		1
	SECONDARY BLIGHT	- <u>ALTERNARIA</u>	1		1
	TRANSPLANT SHOCK		-	1	1
BRAMBLES - Blackberry and Raspberry (<u>Rubus</u>)	ANTHRACNOSE	- <u>ELSINOE</u>	8		8
	CANE BLIGHT	- <u>LEPTOSPHERA</u>	1		1
	CANE SPOT	- <u>CYLINDROSPORIUM</u>	1		1
	CHEMICAL INJURY		4		4
	CROWN GALL	- <u>AGROBACTERIUM</u>	-	1	1
	ENVIRONMENTAL	- STRESS, NUTRITIONAL	5	2	7
		- WINTER INJURY	4	2	6
	FRUIT ROT	- <u>BOTRYTIS</u>	1		1
	INSECT INJURY		4		4
	LEAF SPOT	- <u>SEPTORIA</u>	2		2
	NO DISEASE		2		2
	ORANGE RUST	- <u>GYMNOCONIA</u>	3		3
	POWDERY MILDEW	- <u>PHYLLACTINIA</u>	1		1
	ROOT PROBLEM	- CAUSE UNKNOWN	1		1
	ROOT ROT	- <u>PYTHIUM</u> , <u>RHIZOCTONIA</u>	1	1	2
	STERILITY VIRUS		1		1
GOOSEBERRY (<u>Ribes</u>)	ENVIRONMENTAL STRESS		1		1
GRAPE (<u>Vitis</u>)	BLACK ROT	- <u>GUIGNARDIA</u>	18		18
	CHEMICAL INJURY		2		2
	ENVIRONMENTAL STRESS		4		4
	INSECT INJURY		1		1
	LEAF SPOT	- <u>PHOMOPSIS</u>	1		1
	NO DISEASE, INADEQUATE SPECIMEN		4		4
	PHYSIOLOGICAL SPOTTING		2		2
STRAWBERRY (<u>Fragaria</u>)	BLACK ROOT ROT	- COMPLEX	5	2	7
		- <u>FUSARIUM</u>	1	2	3
		- <u>PYTHIUM</u>	1		1
		- <u>RHIZOCTONIA</u>	3		3
	ENVIRONMENTAL STRESS, NUTRITIONAL		3	1	4
	FRUIT ROT	- <u>BOTRYTIS</u>	1		1
	INSECT INJURY		2		2

STRAWBERRY (cont'd)

LEAF SCORCH	- <u>DIPLOCARFON</u>	1	2	3
LEAF SPOT	- <u>MYCOSPHAERELLA</u>	7	3	10
NO DISEASE, INADEQUATE SPECIMEN		15		15
RED STELE	- <u>PHYTOPHTHORA</u>	1		1
SLIME MOLD		1		1

Tree Fruits

APPLE (Malus)

BARK NECROSIS (Manganese toxicity)		2		2
BITTER ROT	- <u>GLOMERELLA</u>	2		2
BLACK ROT	- <u>PHYSALOSPORA</u>	4	1	5
BOT ROT	- <u>BOTRYOSPHERIA</u>	2		2
BURR KNOT		1		1
CANKER	- FUNGAL	1		1
CEDAR-APPLE RUST	- <u>GYMNOSPORANGIUM</u>	11	1	12
CEDAR-QUINCE RUST	- <u>GYMNOSPORANGIUM</u>	4		4
CHEMICAL INJURY		2		2
COLLAR/ROOT ROT	- <u>PHYTOPHTHORA</u> , etc.	4		4
ENVIRONMENTAL, CULTURAL - MISC.		10	2	12
	- COLD/WINTER INJURY	5	1	6
FIREBLIGHT	- <u>ERWINIA</u>	9	1	10
FROG-EYE LEAF SPOT	- <u>PHYSALOSPORA</u>	5	3	8
GROWTH CRACKS		1		1
INSECT INJURY, OTHER REFERRALS		18	7	25
NO DISEASE, INADEQUATE SPECIMEN		16	1	17
NECROTIC LEAF BLOTCH		1		1
POWDERY MILDEW	- <u>PODOSPHAERA</u>	2		2
SCAB	- <u>VENTURIA</u>	28	1	29
SOOTY BLOTCH (<u>GLOEDES</u>) & FLY SPECK (<u>MICROTHYRIELLA</u>)		2	3	5
WHITE ROOT ROT	- <u>CORTICIUM</u>	1		1

CHERRY (Prunus)

BACTERIAL CANKER	- <u>PSEUDOMONAS</u>	2		2
BROWN ROT	- <u>MONILINIA</u>	1		1
CANKER	- <u>CYTOSPORA</u> , etc.	2		2
ENVIRONMENTAL STRESS, CULTURAL		2	1	3
INSECT INJURY		1	1	2
LEAF SPOT	- <u>COCCOMYCES</u>	2		2
NO DISEASE, INADEQUATE SPECIMEN		5		5
POWDERY MILDEW	- <u>PODOSPHAERA</u>	3		3
ROOT PROBLEM	- CAUSE UNKNOWN	1		1

PEACH, APRICOT and NECTARINE (Prunus)

BACTERIAL SPOT	- <u>XANTHOMONAS</u>	1		1
BROWN ROT	- <u>MONILINIA</u>	1		1
CANKER	- <u>CYTOSPORA</u>	1		1

PEACH, APRICOT and NECTARINE (cont'd)				
ENVIRONMENTAL	- STRESS	5	2	7
	- WET FEET	4	1	5
	- WINTER INJURY	5	1	6
	INSECT INJURY	3	2	5
LEAF CURL	- TAPHRINA	11		11
LEAF SPOT	- <u>CERCOSPORA</u>	1		1
NO DISEASE		13		13
RIPE ROT (Peach)	- <u>GLOMERELLA</u>	1		1
SCAB	- <u>CLADOSPORIUM</u>	3		3
PEAR (<u>Pyrus</u>)				
	CHEMICAL INJURY	2		2
	ENVIRONMENTAL, CULTURAL, NUTRITIONAL	5		5
	FIREBLIGHT - <u>ERWINIA</u>	9		9
	INSECT INJURY, SOOTY MOLD	4		4
	LEAF SCORCH	2		2
	NO DISEASE, INADEQUATE SPECIMEN	8		8
	SCAB - <u>VENTURIA</u>	-	1	1
PECAN (<u>Carya</u>)				
	ENVIRONMENTAL STRESS, NUTRITIONAL	4		4
	INSECT INJURY	2		2
	NO DISEASE	1		1
	SCAB - <u>CLADOSPORIUM</u>	1		1
PLUM (<u>Prunus</u>)				
	BACTERIAL CANKER - <u>PSEUDOMONAS</u>	1		1
	BLACK KNOT - <u>DIBOTRYON</u>	1		1
	BROWN ROT - <u>MONILINIA</u>	3		3
	ENVIRONMENTAL STRESS	3	1	4
	LEAF SPOT - FUNGAL	1		1
	NO DISEASE, INADEQUATE SPECIMEN	4		4
	PLUM POCKETS - <u>TAPHRINA</u>	8		8
QUINCE (<u>Chaenomeles</u>)				
	INSECT INJURY	1		1

CROP	DIAGNOSIS	CAUSAL AGENT	NO. OF PRIMARY DIAGNOSES	NO. OF SECONDARY DIAGNOSES	TOTAL
<u>HERBS</u>					
GINSENG (<u>Panax</u>)	ALTERNARIA BLIGHT - <u>ALTERNARIA</u>		2		2
	BACTERIAL SOFT ROT - <u>ERWINIA</u>		1		1
	DAMPING-OFF - <u>PYTHIUM, RHIZOCTONIA</u>		2	2	4
	INSECT INJURY, PHYSICAL INJURY		-	2	2
	ROOT KNOT NEMATODE - <u>MELOIDOGYNE</u>		1		1
	ROOT ROT - <u>PHYTOPHTHORA</u>		1		1
MINT (<u>Mentha</u>)	INSECT INJURY		1		1
<u>IDENTIFICATIONS</u>					
FUNGAL IDENTIFICATIONS	ASCOMYCETES		1		1
	BASIDIOMYCETES		11		11
	FUNGI IMPERFECTI		1	1	2
	SLIME MOLDS		3		3
INSECT IDENTIFICATIONS	REFERRAL TO ENTOMOLOGY		1		1
PLANT IDENTIFICATIONS	REFERRAL TO HORTICULTURE		13		13
	REFERRAL TO AGRONOMY (WEEDS)		16		16
<u>MISCELLANEOUS</u>					
SOIL	NEMATODES ABSENT		3		3
	NUTRITIONAL - ACID SOIL		1		1
	REFERRAL TO REGULATORY SERVICES		6		6

ORNAMENTALS

Herbaceous Ornamentals and Houseplants

AJUGA (<u>Ajuga</u>)			
CROWN ROT	- <u>SCLEROTIUM</u>	2	2
BEGONIA (<u>Begonia</u>)			
NO DISEASE, INADEQUATE SPECIMEN		3	3
POWDERY MILDEW	- <u>OIDIUM</u>	1	1
ROOT KNOT NEMATODE	- <u>MELOIDOGYNE</u>	1	1
BENJAMIN FIG (<u>Ficus benjamina</u>)			
DIEBACK	- <u>PHOMOPSIS</u>	1	1
CHRYSANTHEMUM (<u>Chrysanthemum</u>)			
BLOSSOM BLIGHT	- <u>BOTRYTIS</u>	1	1
NO DISEASE		1	1
NUTRITIONAL	- FERTILIZER BURN	1	1
COREOPSIS (<u>Coreopsis</u>)			
ROOT ROT	- <u>RHIZOCTONIA</u>	1	1
DIEFFENBACHIA (<u>Dieffenbachia</u>)			
BACTERIAL SOFT ROT	- <u>ERWINIA</u>	1	1
CULTURAL		2	2
INADEQUATE SPECIMEN, REFERRAL		2	2
LEAF SPOT	- <u>COLLEOTRICHUM</u>	1	1
SLIME MOLD		1	1
DRACAENA (<u>Dracaena</u>)			
CULTURAL		4	4
LEAF SPOT	- <u>GLOMERELLA</u>	1	1
NO DISEASE, INADEQUATE SAMPLE, REFERRALS		4	4
SECONDARY STEM DECAY		1	1
GARDENIA (<u>Gardenia</u>)			
BUD DROP	- CULTURAL	1	1
FUNGAL ROOT/STEM ROT		1	1
GERANIUM (<u>Pelargonium</u>)			
BACTERIAL BLIGHT	- <u>XANTHOMONAS</u>	10	10
CULTURAL, CHEMICAL, NUTRITIONAL		2	3
INSECT INJURY		1	1
NO DISEASE, INADEQUATE SPECIMEN		2	2
GLADIOLUS (<u>Gladiolus</u>)			
INSECT INJURY, REFERRALS		2	2
STEM BLIGHT	- <u>XANTHOMONAS</u>	1	1
HOSTA (<u>Hosta</u>)			
CHEMICAL INJURY		1	1
LEAF SPOT	- <u>ALTERNARIA</u>	1	1

IMPATIENS (<u>Impatiens</u>)			
CULTURAL, NUTRITIONAL	2	1	3
DAMPING-OFF - <u>RHIZOCTONIA, PYTHIUM</u>	1	1	2
INSECT INJURY	2		2
ROOT ROT - <u>RHIZOCTONIA</u>	1		1
IVY (<u>Hedera</u> , etc.)			
BACTERIAL SPOT - <u>XANTHOMONAS</u>	1		1
CULTURAL, INSECT INJURY	1	1	2
ROOT ROT - <u>PYTHIUM</u>	1		1
LANTANA (<u>Lantana</u>)			
ROOT/STEM ROT	1		1
MARIGOLD (<u>Tagetes</u>)			
BOTRYTIS BLIGHT - <u>BOTRYTIS</u>	1	1	2
CULTURAL, CHEMICAL, INSECT INJURY	4		4
ORCHID (Various)			
BACTERIAL BROWN SPOT - <u>PSEUDOMONAS</u>	1		1
LEAF SPOTS - <u>CERCOSPOORA, GLOEOSPORIUM</u>	1	1	2
NO DISEASE	2		2
VIRUS - CYMBIDIUM MOSAIC VIRUS	1		1
FACHYSANDRA (<u>Fachysandra</u>)			
LEAF BLIGHT - <u>VOLUTELLA</u>	1		1
FANSY (<u>Viola</u>)			
ROOT ROT - <u>FUSARIUM</u>	1		1
PEONY (<u>Paeonia</u>)			
BOTRYTIS BLIGHT - BOTRYTIS	3		3
INSECT INJURY	1		1
LEAF SPOTS - <u>ALTERNARIA, PHYLLOSTICTA</u>	2		2
PETUNIA (<u>Petunia</u>)			
BOTRYTIS BLIGHT - <u>BOTRYTIS</u>		1	1
CHEMICAL INJURY	1		1
ROOT/STEM ROT - <u>RHIZOCTONIA, PYTHIUM</u>	3	1	4
POINSETTIA and EUPHORBIA (<u>Euphorbia</u>)			
INADADEQUATE SPECIMEN	1		1
LEAF SPOT - <u>CERCOSPORIDIUM</u>	1		1
ROOT ROT - <u>PYTHIUM</u>	1		1
STEM ROT - <u>BOTRYTIS</u>	1		1
SCHEFFLERA (<u>Brassaia</u>)			
CULTURAL - GENERAL	5		5
- OEDEMA/OVERWATERING	6		6
LEAF SPOT - FUNGAL	1		1
NO DISEASE, INSECT INJURY	2		2
SEDUM (<u>Sedum</u>)			
CROWN ROT - <u>PELLICULARIA</u>	1		1

SNAPDRAGON (<u>Antirrhinum</u>)				
ROOT ROT - <u>RYTHIUM</u> , <u>RHIZOCTONIA</u>	2			2
SPATHIPHYLLUM (<u>Spathiphyllum</u>)				
CULTURAL, NO DISEASE	3			3
ROOT ROT - <u>RHIZOCTONIA</u>	1			1
TULIP (<u>Tulipa</u>)				
BLUE MOLD BULB ROT - <u>PENICILLIUM</u>	1			1
CHEMICAL INJURY	1	1		2
NO DISEASE, INADEQUATE SPECIMEN	2	1		3
VINCA (<u>Vinca</u>)				
BOTRYTIS BLIGHT - <u>ROTRYIIS</u>	1			1
DIEBACK - <u>PHOMA</u>	5			5
ROOT ROT - <u>RHIZOCTONIA</u>	2			2
ZINNIA (<u>Zinnia</u>)				
POWDERY MILDEW - <u>ERYSIPHE</u>	1			1
MISC. HERBACEOUS ORNAMENTALS				
CHEMICAL INJURY, PHYSICAL INJURY	2			2
CULTURAL, NUTRITIONAL	16			16
INSECT INJURY	8	1		9
NO DISEASE, INADEQUATE SPECIMEN	16	1		17
<u>Turfgrass</u>				
BENTGRASS (<u>Agrostis</u>)				
LEAF SPOT - <u>SEPTORIA</u>	-	1		1
PYTHIUM BLIGHT - <u>PYTHIUM</u>	1			1
NO DISEASE	1			1
BLUEGRASS (<u>Poa</u>)				
DOLLAR SPOT - <u>SCLEROTINIA</u>	1	1		2
ENVIRONMENTAL, CULTURAL, CHEMICAL	4	3		7
HELMINTHOSPORIUM LEAF SPOT/MELTING OUT	6	2		8
NO DISEASE, INADEQUATE SPECIMEN	6			6
NECROTIC RING SPOT - <u>LEPTOSPHERA</u>	1			1
FESCUE (<u>Festuca</u>)				
ANTHRACNOSE - <u>COLLETOTRICHUM</u>	1			1
BROWN PATCH - <u>RHIZOCTONIA</u>	-	1		1
DAMPING-OFF	1			1
ENVIRONMENTAL, CULTURAL	2	1		3
HELMINTHOSPORIUM LEAF SPOT, NET BLOTCH	1			1
NO DISEASE, INADEQUATE SPECIMEN	2			2
SLIME MOLD - <u>PHYSARUM</u>	1			1
RYEGRASS (<u>Lolium</u>)				
RUST - <u>FUCCINIA</u>	1			1

TURFGRASS (Various)				
DAMPING-OFF	- RHIZOCTONIA	1	2	3
DOLLAR SPOT	- SCLEROTINIA	1		1
ENVIRONMENTAL STRESS, NUTRITIONAL		2		2
FADING OUT	- CURVULARIA	-	1	1
HELMINTHOSPORIUM LEAF SPOT		1		1
NO DISEASE, INADEQUATE SPECIMEN		5		5
RUST	- PUCCINIA	1		1
SLIME MOLD	- PHYSARUM	2		2
SMUT	- USTILAGO	1		1

Woody Ornamentals

ARBORVITAE (<u>Thuja</u>)				
ENVIRONMENTAL STRESS		5		5
INSECT INJURY, SOOTY MOLD		3	2	5
NO DISEASE, INADEQUATE SPECIMEN		2		2
ASH (<u>Fraxinus</u>)				
ANTHRACNOSE	- GLOEOSPORIUM	21		21
ENVIRONMENTAL STRESS		1	1	2
INSECT INJURY		2	2	4
BIRCH (<u>Betula</u>)				
INSECT INJURY		2		2
LEAF SPOTS	- GLOEOSPORIUM, SEPTORIA	2		2
NO DISEASE, INADEQUATE SPECIMEN		5		5
ROOT PROBLEM	- CAUSE UNKNOWN	1		1
BOXWOOD (<u>Buxus</u>)				
CANKER	- PSEUDONECTRIA (<u>Volutella</u>)	4	1	5
ENVIRONMENTAL, PHYSICAL INJURY		8	3	11
INSECT INJURY		5	1	6
LEAF SPOT	- MACROPHOMA	2		2
NO DISEASE		4		4
CHERRY, Ornamental (<u>Prunus</u>)				
BLACK KNOT	- DIBOTRYON	1		1
ENVIRONMENTAL STRESS		5	1	6
INADEQUATE SPECIMEN		1		1
INSECT INJURY		2	1	3
COTONEASTER (<u>Cotoneaster</u>)				
ENVIRONMENTAL STRESS		1		1
FIREBLIGHT	- ERWINIA	1		1
ROOT ROT	- RHIZOCTONIA		1	1
CRABAPPLE (<u>Malus</u>)				
CANKER	- FUNGAL	1		1
CEDAR-APPLE RUST	- GYMNOSPORANGIUM	1	1	2
ENVIRONMENTAL STRESS, CULTURAL		3	1	4
FIREBLIGHT	- ERWINIA	2		2

CRABAPPLE (cont'd)			
FROG-EYE LEAF SPOT - <u>PHYSALOSPORA</u>	1		1
INSECT INJURY	2	1	3
NO DISEASE	4		4
SCAB - <u>VENTURIA</u>	32		32
DOGWOOD (<u>Cornus</u>)			
CHEMICAL INJURY	2		2
ENVIRONMENTAL STRESS, NUTRITIONAL	29		29
INSECT INJURY	1		1
NO DISEASE, INADEQUATE SPECIMEN	10		10
SPOT ANTHRACNOSE - <u>ELSINOE</u>	6		6
ELM (<u>Ulmus</u>)			
INSECT INJURY	5		5
NO DISEASE	5	1	6
EUONYMUS (<u>Euonymus</u>)			
CROWN GALL - <u>AGROBACTERIUM</u>	2		2
ENVIRONMENTAL, PHYSICAL INJURY	5	3	8
INSECT INJURY, OTHER REFERRALS	2	1	3
NO DISEASE, INADEQUATE SPECIMEN	9		9
FIR (<u>Abies</u>)			
ENVIRONMENTAL STRESS	4	1	5
NO DISEASE, INADEQUATE SPECIMEN	3		3
ROOT PROBLEM - CAUSE UNKNOWN	1		1
FORSYTHIA (<u>Forsythia</u>)			
CHEMICAL INJURY	3		3
CROWN GALL - <u>AGROBACTERIUM</u>	1		1
ENVIRONMENTAL STRESS	2	1	3
NO DISEASE, INADEQUATE SPECIMEN	3		3
ROOT ROTTS - <u>RHIZOCTONIA, FUSARIUM</u>	1	1	2
HAWTHORN (<u>Crataegus</u>)			
HAWTHORN RUST - <u>GYMNOSPORANGIUM</u>	2		2
INSECT INJURY	2		2
HEMLOCK (<u>Tsuga</u>)			
CHEMICAL INJURY	1		1
ENVIRONMENTAL, NUTRITIONAL	11	3	14
NO DISEASE, INADEQUATE SPECIMEN	3		3
ROOT/TRUNK PROBLEM - CAUSE UNKNOWN	2		2
HIBISCUS (<u>Hibiscus</u>)			
CHARCOAL ROT <u>MACROPHOMINA</u>	1		1
ENVIRONMENTAL STRESS	1		1
NO DISEASE, INADEQUATE SPECIMEN	2		2
HICKORY (<u>Carya</u>)			
ANTHRACNOSE - <u>GLOEOSPORIUM</u>	1		1
INSECT INJURY, SOOTY MOLD	2	1	3

HICKORY (cont'd)			
LEAF SPOT	- SEPTORIA	1	1
NO DISEASE, INADEQUATE SPECIMEN		3	3
HOLLY and INKBERRY (<i>Ilex</i>)			
ANTHRACNOSE	- GLOEOSPORIUM	1	1
BLACK ROOT ROT	- THIELAVIOPSIS	8	8
ENVIRONMENTAL, NUTRITIONAL		16	3 19
INSECT INJURY		5	1 6
NO DIAGNOSIS, INADEQUATE SPECIMEN		17	17
ROOT PROBLEM	- CAUSE UNKNOWN	4	4
ROOT ROT	- RHIZOCTONIA, etc.	2	1 3
HONEYLOCUST (<i>Gleditsia</i>)			
CANKER	- THYRONECTRIA	1	1
INSECT INJURY		1	1
HORNBEAM (<i>Cardinus</i>)			
ANTHRACNOSE	- COLLETOTRICHUM	1	1
ROOT PROBLEM	- CAUSE UNKNOWN	1	1
HYDRANGEA (<i>Hydrangea</i>)			
NO DISEASE		1	1
ROOT ROT	- RHIZOCTONIA	1	1
JUNIPER (<i>Juniperus</i>)			
ENVIRONMENTAL STRESS		7	2 9
INSECT INJURY		4	2 6
NO DISEASE, INADEQUATE SPECIMEN		7	1 8
ROOT PROBLEM	- CAUSE UNKNOWN	4	4
RUST	- GYMNOSPORANGIUM	1	1
TWIG BLIGHT	- KABATINA	4	4
LILAC (<i>Syringa</i>)			
CHEMICAL INJURY, INSECT INJURY		2	2
NO DISEASE		2	2
POWDERY MILDEW	- MICROSPHAERA	2	2
LINDEN (<i>Tilia</i>)			
CANKER	- BOTRYOSPHAERIA	1	1
COLD INJURY		1	1
LOCUST (<i>Robinia</i>)			
ENVIRONMENTAL STRESS		2	2
INSECT INJURY, CHEMICAL INJURY		2	2 4
NO DISEASE		1	1
MAGNOLIA (<i>Magnolia</i>)			
CHEMICAL INJURY		2	2
ENVIRONMENTAL, NUTRITIONAL		7	7
INSECT INJURY, SOOTY MOLD		1	1 2
NATURAL SENESCENCE		2	2
NO DISEASE, INADEQUATE SPECIMEN		5	5

MAPLE

ANTHRACNOSE - <u>GLOEOSPORIUM</u>	53	2	55
CHEMICAL INJURY	5		5
ENVIRONMENTAL - COLD/WINTER INJURY	3	1	4
- DECLINE	6		6
- DROUGHT	3		3
- STRESS	15	7	22
- TRANSPLANT SHOCK	4	1	5
INADEQUATE SPECIMEN	11		11
INSECT INJURY	14	2	16
LEAF SCORCH	16		16
LEAF SPOTS - <u>ACTINOPELTIE, VENTURIA</u>	2		2
- <u>PHYLLOSTICTIA</u>	4		4
NO DISEASE	38		38
PHYSICAL INJURY	5		5
TAR SPOT - <u>RHYTISMA</u>	10	1	11
VERTICILLIUM WILT - <u>VERTICILLIUM</u>	2	1	3
WOOD/ROOT DECAY- <u>ARMILLARIA, FOMES, and GANODERMA</u>	5		5

MULBERRY (Morus)

POPCORN DISEASE - <u>CIBORIA</u>	1		1
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OAK (Quercus)

ANTHRACNOSE - <u>GLOEOSPORIUM</u>	2	1	3
CANKER - <u>HYPOXYLON, etc.</u>	2		2
CHEMICAL INJURY	6		6
ENVIRONMENTAL STRESS, DECLINE	10	2	12
INSECT INJURY	20	2	22
LEAF BLISTER - <u>TAPHRINA</u>	8	2	10
LEAF SCORCH	2	1	3
LEAF SPOTS - <u>ACTINOPELTIE, ELSINDE</u>	5	1	6
NO DISEASE, INADEQUATE SPECIMEN	12	1	13
NUTRITIONAL - IRON DEFICIENCY	1		1
POWDERY MILDEW	3		3
WET WOOD/SLIME FLUX	1		1
WOOD/ROOT DECAY - <u>FOMES, GANODERMA</u>	3		3

PINE (Pinus)

AIR POLLUTION INJURY	2		2
CANKER - FUNGAL	1		1
COLLAR ROT - <u>DIPLODIA</u>	1		1
ENVIRONMENTAL - DROUGHT	8	2	10
- STRESS	8	3	11
- TRANSPLANT SHOCK	3	2	5
INSECT INJURY	11	2	13
NO DIAGNOSIS, INADEQUATE SPECIMEN	24	1	25
NEEDLE BLIGHT - <u>DOTHISTROMA</u>	1		1
NORMAL NEEDLE DROP	6		6
NUTRITIONAL	3	1	4
ROOT PROBLEM - CAUSE UNKNOWN	3		3
TIP BLIGHT - <u>DIPLODIA</u>	14	1	15
WHITE PINE DECLINE	4	1	5

PLUM, Ornamental (<u>Prunus</u>)			
BLACK KNOT	- <u>DIBOTRYON</u>	3	3
CANKERS		2	2
INSECT INJURY		2	3
LEAF SPOT	- <u>PHYLLOSTICTA</u>	1	1
NO DISEASE, INADEQUATE SPECIMEN		7	7
NUTRITIONAL - NITROGEN DEFICIENCY		1	1
ROOT PROBLEM	- CAUSE UNKNOWN	1	1
POPLAR (<u>Populus</u>) and WILLOW (<u>Salix</u>)			
CANKER	- <u>CYTOSPORA</u>	1	1
CROWN GALL	- <u>AGROBACTERIUM</u>	1	1
ENVIRONMENTAL STRESS		2	3
LEAF SPOTS-	<u>PHYLLOSTICTA</u> , <u>MYCOSPHAERELLA</u>	3	3
INSECT INJURY		3	3
NO DISEASE, INADEQUATE SPECIMEN		7	7
PRIVET (<u>Ligustrum</u>)			
ANTHRACNOSE	- <u>GLOEOSPORIUM</u>	1	1
ENVIRONMENTAL STRESS, NO DISEASE		2	2
INSECT INJURY		2	2
WOOD DECAY	- <u>POLYPORUS</u>	1	1
PYRACANTHA (<u>Eyracantha</u>)			
INSECT INJURY		2	2
NO DISEASE, INADEQUATE SPECIMEN		2	2
NUTRITIONAL - NITROGEN DEFICIENCY		1	1
SCAB	- <u>FUSICLADIUM</u>	1	1
REDBUD (<u>Cercis</u>)			
ANTHRACNOSE		1	1
CHEMICAL INJURY		3	3
ENVIRONMENTAL STRESS		2	3
INSECT INJURY		3	3
NO DISEASE, INADEQUATE SPECIMEN		5	5
RHODODENDRON and AZALEA (<u>Rhododendron</u>)			
ANTHRACNOSE	- <u>GLOEOSPORIUM</u>	2	2
CANKER & DIEBACK DISEASES			
	- <u>BOTRYOSPHERIA</u>	1	1
	- <u>PHOMOPSIS</u>	2	2
	- <u>PHYTOPHTHORA</u>	2	2
ENVIRONMENTAL	- STRESS	3	4
	- TRANSPLANT SHOCK	5	5
	- WET FEET	2	2
	- WINTER INJURY	4	4
LEAF & FLOWER GALL	- <u>EXOBASIDIUM</u>	4	4
INSECT INJURY			1
NO DISEASE, INADEQUATE SPECIMEN		17	17
NUTRITIONAL - IRON DEFICIENCY, HIGH PH		7	7
POWDERY MILDEW		2	2
ROOT PROBLEM	- CAUSE UNKNOWN	3	3
ROOT ROTTS	- <u>PHYTOPHTHORA</u> , <u>PYTHIUM</u>	2	4

ROSE (<u>Rosa</u>)				
AIR POLLUTION	- OZONE	1		1
BLACK SPOT	- <u>DIPLOCARPON</u>	2		2
CHEMICAL INJURY, INSECT INJURY		4		4
ENVIRONMENTAL STRESS, CULTURAL		1	3	4
NO DISEASE, INADEQUATE SPECIMEN		10		10
POWDERY MILDEW	- <u>SPHAEROTHECA</u>	3		3
ROOT PROBLEM	- CAUSE UNKNOWN	1		1
RUST	- <u>PHRAGMIDIUM</u>	1		1
SPRUCE (<u>Picea</u>)				
AIR POLLUTION		1		1
CHEMICAL INJURY		1		1
ENVIRONMENTAL	- COLD/WINTER INJURY	2	3	5
	- DROUGHT	14	4	18
	- STRESS	8		8
	- TRANSPANT SHOCK	3	1	4
INSECT INJURY		6	1	7
NO DISEASE, INADEQUATE SPECIMEN		17		17
NUTRITIONAL	- CA/MG IMBALANCES	3		3
ROOT ROT	- <u>RHIZOCTONIA</u>	-	1	1
ROOT PROBLEM	- CAUSE UNKNOWN	2		2
SYCAMORE (<u>Platanus</u>)				
ANTHRACNOSE	- <u>GNOMONIA</u>	3		3
ENVIRONMENTAL STRESS, NO DISEASE		2		2
TAXUS (<u>Taxus</u>)				
CHEMICAL INJURY		7		7
ENVIRONMENTAL STRESS		6		6
INSECT INJURY, SOOTY MOLD		3	1	4
NO DISEASE, INADEQUATE SPECIMEN		12		12
NUTRITIONAL	- ACID SOIL	1		1
PHYSICAL INJURY		2		2
ROOT ROT	- <u>PHYTOPHTHORA</u> , <u>PYTHIUM</u>	3	1	4
TULIPTREE (<u>Liriodendron</u>)				
ANTHRACNOSE	- <u>GLOEOSPORIUM</u>	1		1
CHEMICAL INJURY		3		3
ENVIRONMENTAL STRESS, PHYSICAL INJURY		8	3	11
INSECT INJURY		1		1
NO DISEASE, INADEQUATE SPECIMEN		9		9
POWDERY MILDEW		5		5
VIBURNUM (<u>Viburnum</u>)				
DIEBACK	- <u>PHOMOPSIS</u>	1		1
ENVIRONMENTAL STRESS		2		2
INSECT INJURY		3		3
NO DISEASE		2		2
ROOT PROBLEM	- CAUSE UNKNOWN	1		1
ROOT ROT	- <u>RHIZOCTONIA</u>	-	1	1

WALNUT and BUTTERNUT (<u>Juglans</u>)			
ANTHRACNOSE - <u>GNOMONIA</u>	2		2
CANKER/INJURY	1		1
DOWNY SPOT, LEAF SPOTS- <u>MICROSTROMA</u> , etc	2		2
ENVIRONMENTAL	2		2
INADEQUATE SPECIMEN	2		2
ZELKOVA (<u>Zelkova</u>)			
CANKERS - <u>CYTOSPORINA</u> , <u>PHOMOPSIS</u>	1	1	1

CROP	DIAGNOSIS	CAUSAL AGENT	NO. OF PRIMARY DIAGNOSES	NO. OF SECONDARY DIAGNOSES	TOTAL
<u>VEGETABLES</u>					
ALFALFA SPROUTS	BACTERIAL DECAY -	<u>PSEUDOMONAS</u>	2		2
BEAN (<u>Phaseolus</u>)	BACTERIAL BLIGHT -	<u>XANTHOMONAS</u>	1		1
	BACTERIAL BROWN SPOT -	<u>PSEUDOMONAS</u>	1		1
	CHEMICAL INJURY		3	1	4
	ENVIRONMENTAL STRESS, NUTRITIONAL		4		4
	INSECT INJURY		5	2	7
	NO DISEASE, INADEQUATE SPECIMEN		15		15
	POWDERY MILDEW		1		1
	ROOT KNOT NEMATODE -	<u>MELOIDOGYNE</u>	1		1
	ROOT/STEM ROTS -	<u>FUSARIUM</u>	8	1	9
		<u>RHIZOCTONIA</u>	6	8	14
		<u>PYTHIUM</u>	1		1
	SOUTHERN STEM BLIGHT -	<u>SCLEROTIUM</u>	1		1
	VIRUS - BEAN YELLOW MOSAIC VIRUS		42	1	43
CARROT (<u>Daucus</u>)	DODDER	- <u>CUSCUTA</u>	1		1
CORN, Sweet (<u>Zea</u>)	BACTERIAL STALK ROT -	<u>ERWINIA</u>	1		1
	CHEMICAL INJURY		1		1
	ENVIRONMENTAL STRESS		4	1	5
	INSECT INJURY		2		2
	NO DISEASE, INADEQUATE SPECIMEN		6		6
	NUTRITIONAL		4		4
	SMUT	- <u>USTILAGO</u>	5		5
	STEWARTS WILT	- <u>ERWINIA</u>	1		1
CRUCIFERS, Broccoli, Cabbage, Kale, Mustard, Turnip (<u>Brassica</u>); and Radish (<u>Raphanus</u>)	BACTERIAL LEAF SPOT -	<u>XANTHOMONAS</u>	1		1
	BLACK ROT	- <u>XANTHOMONAS</u>	14	2	16
	GENETIC		1		1
	ENVIRONMENTAL STRESS, CULTURAL		2		2
	INSECT INJURY, PHYSICAL INJURY		2		2
	LEAF SPOT	- <u>ALTERNARIA</u>	2		2
		- <u>CERCOSPORELLA</u>	1		1
	NO DISEASE		5	1	6
	NUTRITIONAL		4		4
	ROOT/CROWN ROT	- <u>PYTHIUM</u>	1		1
	WIRESTEM	- <u>RHIZOCTONIA</u>	4		4
	YELLOW	- <u>FUSARIUM</u>	2		2

CUCURBITS, Cantaloupe, Cucumber (<u>Cucumis</u>); Pumpkin, Squash (<u>Cucurbita</u>); and Watermelon (<u>Citrulus</u>)			
AIR POLLUTION - OZONE	3		3
ANTHRACNOSE - <u>COLLETOTRICHUM</u>	1		1
BACTERIAL WILT - <u>ERWINIA</u>	10		10
BLOSSOM END ROT	2		2
CHEMICAL INJURY	3		3
ENVIRONMENTAL, CULTURAL	3		3
FRUIT ROT - <u>CHOANEPHORA</u>	2		2
GUMMY STEM BLIGHT - <u>MYCOSPHAERELLA</u>	2		2
INSECT INJURY	2	2	4
LEAF BLIGHT - <u>ALTERNARIA</u>	4		4
NO DISEASE, INADEQUATE SPECIMEN	8		8
NUTITIONAL - MANGANESE TOXICITY	1		1
POWDERY MILDEW - <u>ERYSIPHE</u>	1		1
REFERRAL	1		1
SOFT ROT - <u>ERWINIA</u>	1		1
VIRUS - CUCUMBER MOSAIC VIRUS	2		2
EGGPLANT (<u>Solanum</u>)			
LEAF SCORCH	1		1
VERTICILLIUM WILT - <u>VERTICILLIUM</u>	2		2
LETTUCE (<u>Lactuca</u>)			
DROP - <u>SCLEROTINIA</u>	1		1
GREY MOLD - <u>BOTRYIIS</u>	-	1	1
LEAF ROT - FUNGAL	1		1
NO DISEASE	1		1
OKRA (<u>Hibiscus</u>)			
DAMPING-OFF - <u>PYTHIUM</u>	1		1
NO DISEASE, CHEMICAL INJURY	2		2
VERTICILLIUM WILT - <u>VERTICILLIUM</u>	1		1
ONION (<u>Allium</u>)			
BASAL ROT - <u>FUSARIUM</u>	1		1
CHEMICAL INJURY	1		1
ENVIRONMENTAL STRESS	1		1
STEM BLIGHT - <u>COLLETOTRICHUM</u>	1		1
PEA (<u>Pisum</u>)			
CHEMICAL INJURY, PHYSICAL INJURY	2		2
LEAF SPOT - <u>ASCHOCHYTA</u> , <u>PSEUDOMONAS</u>	1	1	2
NO DISEASE, INADEQUATE SPECIMEN	3		3
ROOT ROT - <u>RHIZOCTONIA</u>	1		1
VIRUS - PEA MOSAIC VIRUS	1		1
PEPPER (<u>Capsicum</u>)			
ANTHRACNOSE - <u>COLLETOTRICHUM</u>	1		1
BACTERIAL SPOT - <u>XANTHOMONAS</u>	10	1	11
BLOSSOM END ROT	2		2
CHEMICAL INJURY	2	1	3
CLOUDY SPOT - STINKBUG	1	1	2
ENVIRONMENTAL STRESS	5		5

PEPPER (cont'd)				
FRUIT ROT	- <u>ALTERNARIA</u>	1	2	3
FUSARIUM WILT	- <u>FUSARIUM</u>	6		6
LEAF SPOT	- <u>PHYLLUSTICTIA</u>	2		2
NO DISEASE, INADEQUATE SPECIMEN		9		9
NUTRITIONAL		4	2	6
PHYSIOLOGICAL SPOTTING (on fruit)		1	1	2
PHYTOPHTHORA BLIGHT	- <u>PHYTOPHTHORA</u>	1		1
ROOT/STEM ROTS	- <u>FUSARIUM</u>	4	4	8
	- <u>RHIZOCTONIA</u> , etc.	2		2
SOUTHERN STEM BLIGHT	- <u>SCLEROTIUM</u>	5		5
VIRUS	- TOBACCO ETCH VIRUS	1		1
POTATO (<u>Solanum</u>)				
AIR POLLUTION	- OZONE	-	1	1
BLACKLEG	- <u>ERWINIA</u>	2		2
EARLY BLIGHT	- <u>ALTERNARIA</u>	1		1
FUSARIUM WILT	- <u>FUSARIUM</u>	2		2
HEAT NECROSIS, JELLY END ROT		2		2
NO DISEASE, INADEQUATE SPECIMEN		7		7
NUTRITIONAL		2		2
ROOT KNOT NEMATODE	- <u>MELOIDOGYNE</u>	1		1
ROOT ROT	- <u>RHIZOCTONIA</u>	1		1
SCAB	- <u>STREPTOMYCES</u>	1	1	2
TUBER ROTS	- <u>FUSARIUM</u> , etc.	2		2
RHUBARB (<u>Rheum, Rumex</u>)				
CROWN ROTS	- <u>RHIZOCTONIA</u> , etc.	2		2
NO DISEASE, PHYSICAL INJURY		2	1	3
SPINACH (<u>Spinacia</u>)				
DAMPING-OFF		1		1
NO DISEASE		1		1
ROOT ROT	- <u>APHANOMYCES</u>	1		1
SWEETPOTATO (<u>Ipomoea</u>)				
BLACK ROT	- <u>CERATOCYSTIS</u>	1		1
DRY ROT	- <u>FUSARIUM</u>		1	1
ENVIRONMENTAL STRESS		1		1
GENETIC MUTATION		1		1
NO DISEASE, INADEQUATE SPECIMEN		2		2
TOMATO (<u>Lycopersicon</u>)				
BACTERIAL HOLLOW STALK	- <u>PSEUDOMONAS</u>	6		6
BACTERIAL SPECK	- <u>PSEUDOMONAS</u>	1		1
BACTERIAL SPOT	- <u>XANTHOMONAS</u>	1		1
BACTERIAL WILT	- <u>PSEUDOMONAS</u>	9		9
BLOSSOM END ROT		3		3
CATFACING		3		3
CHEMICAL INJURY		5	1	6
DAMPING-OFF		1		1
EARLY BLIGHT	- <u>ALTERNARIA</u>	4	1	5
ENVIRONMENTAL STRESS		4		4
FUSARIUM WILT	- <u>FUSARIUM</u>	2		2

TOMATO (cont'd)

INSECT INJURY, OTHER REFERRALS	9	1	10
LEAF SPOT - <u>SEPTORIA</u>	5	1	6
NAILHEAD SPOT - <u>ALTERNARIA</u>	1		1
NO DISEASE, INADEQUATE SPECIMEN	15		15
NUTRITIONAL	7	3	10
PHYSICAL INJURY	2		2
PHYSIOLOGICAL LEAF ROLL	7	1	8
REFERRAL	1		1
ROOT KNOT NEMATODE - <u>MELOIDOGYNE</u>	1		1
ROOT/STEM ROTS - <u>PYTHIUM</u> , etc.	3		3
SOUTHERN STEM BLIGHT - <u>SCLEROTIUM</u>	1		1
SOFT ROT - <u>ERWINIA</u>	1		1
VIRUS - DOUBLE VIRUS STREAK, TMV	3		3

MISCELLANEOUS VEGETABLES

CHEMICAL INJURY	2		2
INSECT INJURY	1		1
NO DISEASE	2		2

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TOTAL DIAGNOSES

4372

451

4823

Table 8. The number of cases in which Extension Specialists or diagnosticians were involved in making a primary diagnosis and the number of cases in which they served as consultants.

SPECIALIST & DIAGNOSTICIANS	DEPARTMENT	NUMBER OF CASES	
		PRIMARY DIAGNOSIS*	CONSULTATIONS**
<u>LEXINGTON</u>			
Anderson, RG	Horticulture	8	8
Bitzer, MJ	Agronomy	24	1
Chapman, RA	Plant Path	6	0
Christensen, CM	Entomology	0	1
Dougherty, CT	Agronomy	0	1
Evans, JK	Agronomy	2	5
Fountain, WF	Horticulture	6	10
Hartman, JR	Plant Path	48	67
Herron, JW	Agronomy	28	3
Jarlfors, U	Plant Path	0	1
Jones, GA	Entomology	0	2
Kaiser, CA***	Plant Path	2187	20
Kester, ST	Plant Path	0	1
Litton, CC	Plant Path	18	2
McNiel, RE	Horticulture	19	30
Nesmith, WC	Plant Path	107	23
Pirone, TP	Plant Path	0	2
Powell, AJ	Agronomy	1	1
Roberts, CR	Horticulture	8	5
Scheibner, RA	Entomology	124	20
Slone, D	Horticulture	0	2
Smiley, JH	Agronomy	106	2
Strang, JG	Horticulture	17	17
Stuckey, RE	Plant Path	744	7
Townsend, LH	Entomology	52	4
Wells, KL	Agronomy	4	2
Witt, ML	Horticulture	1	7
<u>PRINCETON</u>			
Bachi, PR***	Plant Path	825	20
Brown, GR	Horticulture	0	27
Dunwell, WC	Horticulture	0	11
Everette, GA	Agronomy	45	1
Herbek, JH	Agronomy	0	14
Hershman, DE	Plant Path	10	33
Hurley, RM	Horticulture	0	1
Johnson, DW	Entomology	8	25
Lacefield, GD	Agronomy	0	5

Table B. cont'd

SPECIALIST & DIAGNOSTICIANS	DEPARTMENT	NUMBER OF CASES	
		PRIMARY DIAGNOSIS*	CONSULTATIONS**
PRINCETON (cont'd)			
Legg, P	Agronomy	0	2
Martin, JR	Agronomy	1	58
Murdock, LW	Agronomy	0	8
Rasnake, M	Agronomy	0	5
Wilcox, WF	Plant Path	4	6

* The specialist or diagnostician signing the Plant Disease Diagnostic Form was considered the primary diagnostician.

** In some cases more than one specialist was consulted, however, only one name could be entered into the computer database. Therefore, these numbers may indicate fewer consultations than were actually made by the specialist.

***The diagnostician for the Plant Disease Diagnostic Lab.