# Plant Diseases in Kentucky

## Plant Disease Diagnostic Laboratory Summary

# 2012

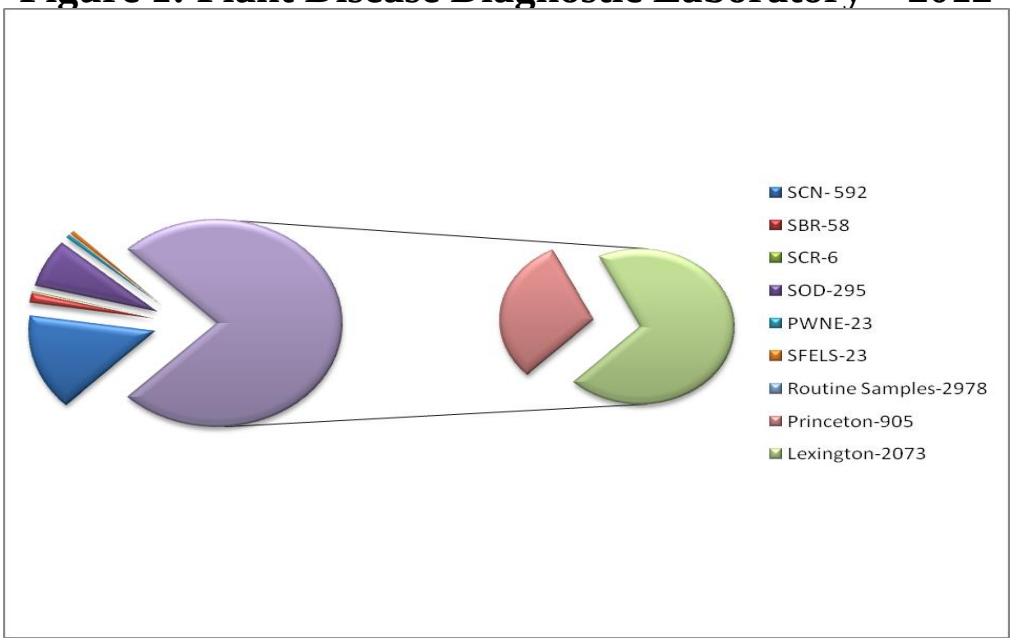
*by:*
*P.R. Bachi, J.W. Beale, D.E. Hershman, B.S. Kennedy*
*S.J. Long, K.W. Seebold, P. Vincelli, N.A. Ward*

# TABLE OF CONTENTS

## INTRODUCTION

The Plant Disease Diagnostic Laboratory (Lexington and Princeton) handled 3383 plant samples and 592 nematode soil samples during 2012. Plant samples with more than one problem numbered 452 bringing the total number of actual diagnoses to 4427. The Lexington Laboratory diagnosed 2391 specimens, including 2073 routine plant samples, 295 samples from commercial nurseries from the survey work for the Sudden Oak Death (SOD) pathogen, and 23 eastern red cedar (*Juniperus*) samples from commercial lumber companies for pinewood nematode extraction (PWNE). The SOD and PWNE samples are included in the total number of samples in Figure 1 below and within the totals for the various woody plant samples. The Princeton Laboratory diagnosed 1584 specimens, including 905 routine plant samples, 58 Soybean Rust (SBR) sentinel plot samples, 23 soybean leaf samples for the frogeye fungicide resistance study (SFELS), 6 Southern Corn Rust (SCR) survey samples, and 592 soil samples submitted exclusively for soybean cyst nematode (SCN) analysis. The SBR samples are included in Figure 1 below and in the summaries for soybean. The SCR samples are included in Figure 1 below and in the summary for corn. In addition to the physical specimens processed in the laboratory, 211 cases were submitted in 2012 through the web-based UK Digital Consulting (see Table 10, page 20). Plant samples plus SCN samples are summarized in Figure 1 below:

**Figure 1: Plant Disease Diagnostic Laboratory – 2012**




| | |
|---|---|
| **Total Samples** | **3975** |
| **Samples with >1 diagnosis** | **452** |
| | **4427** |

## NATURE OF WORK

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

Making a diagnosis involves a great deal of research into the possible causes of the plant problem. Most visual diagnoses involve microscopy to determine what plant parts are affected and to identify the microbe(s) involved. In addition, many specimens require special tests such as moist chamber incubation, culturing, enzyme-linked immunosorbent assay (ELISA), electron microscopy, nematode extraction, or soil pH and soluble salts tests. The laboratory also uses the polymerase-chain-reaction (PCR) technique for identification of certain pathogens.

A database of laboratory records is maintained to provide information used for conducting plant disease surveys, identifying new disease outbreaks, and formulating educational programs. In addition, information from the laboratory provides the basis for timely news of plant disease problems through the Kentucky Pest News newsletter, radio and television tapes, and plant health care workshops. Both laboratories meet Homeland Security regulations for reporting all diagnoses of plant diseases to USDA-APHIS on a real-time basis. To assist County Extension Agents and Specialists in dealing with plant disease issues, we also operate a web-based UK Digital Consulting System (DCS). Via the DCS, Extension Agents submit images and request advice about plant problems, including how and where best to collect physical samples for submission to the laboratory.

## WEATHER SUMMARY

Unusual weather patterns during 2012 impacted all crops. The onset of warm temperatures occurred earlier than normal in spring, and heat and drought conditions characterized spring through early summer weather. March was the warmest on record in Kentucky, while June was the second driest on record, according to data collected by the UK AgWeather Center. The absence of early season rains and cool temperatures at the time of leaf emergence reduced the incidence of certain fungal foliar diseases. However, high temperatures and high humidity with low rainfall favored development of other later season foliar diseases and many soil-borne diseases of roots and vascular systems. Drought abated in most of the state by late July to August except in far western Kentucky which remained in a drought through the end of the year.

## CROP SUMMARIES

***Tobacco:*** The number of tobacco samples for 2012 (285) was slightly higher than the previous year's total (254) which was the lowest total for any year since 1971. No cases of blue mold (*Peronospora tabacina*) were confirmed in Kentucky for the second year in a row. Samples of black shank (61) were nearly twice that of last year due in part to inoculum buildup over a wet season in 2011 following by stressful dry conditions in 2012 which promote symptom development. Diagnoses of tomato spotted wilt virus (TSWV) on tobacco were very high (30 samples from 15 different counties) due in large part to early vector (thrips) activity.

### *Other agronomic crops:*

***Corn, forages and small grains:*** Infectious diseases of corn, forages and small grains were minimal in 2012 with the exception of barley yellow dwarf virus on wheat and other small grains, which was extensive (16 samples).

***Soybean:*** Potassium deficiency was common early in soybean fields due to dry conditions (14 lab samples). Soybean cyst nematode (*Heterodera glycines*) was detected for the first time in Metcalfe county.

### *Fruit and Vegetable Plant Disease Observations:*

**New, Emerging, and Problematic Fruit and Vegetable Diseases in Kentucky**

**Grape downy mildew** (*Plasmopara viticola*) was diagnosed on June 1, 2012 in central Kentucky, a much earlier diagnosis than typical. Although downy mildew was not widespread and was limited to shaded valleys in vineyards with limited or poorly-timed spray programs, the disease was detected in various regions of the state despite drought conditions. In addition, one particular case consisted of fungicide-resistant *P. viticola*. This is the first report of resistance of *P. viticola* to FRAC 11 QoI (strobilurin) class fungicides in Kentucky.

**Blueberry mosaic virus** was diagnosed from a large blueberry planting. This is the first report of the virus in Kentucky. Although the disease has been observed in northern states, this is the farthest south that the virus has been reported. Details of its geographic range are not yet known. At this point, the virus has not been completely characterized, and its means of transmission and potential impact are unknown.

**Bacterial fruit blotch** (*Acidovorax avenae* subsp. *citrulli*) was diagnosed in 2011 on 'Matrix' watermelon as an isolated occurrence in Allen county (one farm affected). This disease recurred in the Allen county location on 'Utopia' watermelon in 2012 and was also diagnosed in Casey county (also on 'Utopia') this year.

**Bacterial wilt** (*Ralstonia solanacearum*) was detected in tomato in high tunnel production systems in May (two locations in Madison county). The disease was also found in pepper (Morgan county) in late summer, which had not been reported previously in Kentucky. Early soil warming resulting from higher-than-average spring temperatures likely favored disease development, particularly in high tunnel systems.

**Tomato spotted wilt virus** (TSWV) was observed in twenty-eight different counties on solanaceous vegetables (tomato, pepper), as well as tobacco. Incidence of the disease was low in any given field, but many different farms in each county were affected. Early arrival of the vectors of TSWV (thrips) is suspected to have increased disease incidence.

**Downy mildew** (*Pseudoperonospora cubensis*) developed in late summer and became widespread in many cucurbits (cucumber, pumpkin, winter squash) in 2012. The range of hosts infected indicated that multiple strains of the pathogen were present simultaneously.

**Tree Fruit Diseases**

**Pome Fruits** Unseasonably warm spring temperatures and rain events occurring during bloom favored fire blight (*Erwinia amylovora*) on both apple and pear, with clear visual symptoms of blighting appearing on pear as early as the second week of April. Infection in ornamental pear was extensive, but fruit pears were also affected in some locations. Levels of scab (*Venturia inaequalis*) were very low; frogeye leaf spot (*Botryosphaeria obtusa*) and cedar-apple rust (*Gymnosporangium juniperi-virginianae*) occurred at low to moderate levels on apple. Fruit rots—especially bitter rot (*Glomerella cingulata*)—were common in late summer.

**Stone Fruits** Diseases were less common on stone fruits than in previous years. Limited incidence and severity of bacterial leaf spot (*Xanthomonas campestris* pv. *pruni*), leaf curl (*Taphrina deformans*) and scab (*Venturia carpophila*) were recorded on peach. Powdery mildew (*Podosphaera* sp.) of sweet cherry was an uncommon occurrence due to the limited number of sweet cherries grown in Kentucky.

**Small Fruit Diseases**

**Grapes** Anthracnose (*Elsinoe ampelina*) was widespread for the third consecutive year but was diagnosed most often in home fruit plantings rather than in commercial vineyards. Black rot (*Guignardia bidwellii*) was not a severe problem. Downy mildew (*Plasmopara viticola*) was first diagnosed in early June, although it is typically a later season disease in Kentucky (see above). Powdery mildew (*Uncinula necator*) was more common than downy mildew.

**Brambles** Few infectious diseases were diagnosed on brambles. One or two samples each of cane blight (*Leptosphaeria coniothyrium*), spur blight (*Didymella applanata*), orange rust (*Gymnoconia nitens*) and late leaf rust (*Pucciniastrum americanum*) were diagnosed on blackberry and/or raspberry. More common was the physiological disorder known as "white drupelet" in which scattered drupelets within an aggregate expand to a normal size but fail to ripen; high temperatures and intense solar radiation promote this disorder.

**Blueberries** Blueberry mosaic virus (first report in Kentucky—see above) and blueberry red ringspot virus were diagnosed. Despite dry conditions during 2012, root and collar rot caused by *Phytophthora* spp. was common. Botyrosphaeria stem dieback (*Botryosphaeria* spp.) was diagnosed occasionally on blueberry.

**Strawberries** The crown rot phase as well as the fruit/petiole rot phase of anthracnose (*Colletotrichum fragariae*) were diagnosed. Angular leaf spot (*Xanthomonas fragariae*) and common leaf spot (*Mycosphaerella fragariae*) were observed occasionally but were not serious problems.

**Vegetable diseases**

**Beans** Foliar/pod diseases, including angular leaf spot (*Phaeoisariopsis griseola*) and anthracnose (*Glomerella lindemuthiana*), were common in areas where rain was more frequent. In western Kentucky where drought conditions persisted throughout most of the summer, ashy stem blight (*Macrophomina phaseolina*) occurred in numerous locations.

**Cole crops** Few diseases were observed on cole crops, with the exception of black rot (*Xanothomonas campestris* pv. *campestris*), which was diagnosed in cabbage and kale from commercial and home garden plantings. Alternaria blight (*Alternaria japonica*) was observed in a few locations in late summer.

**Cucurbits** Bacterial wilt (*Erwinia tracheiphila*) was problematic on cantaloupe early in the season in areas where striped cucumber beetle pressure was high. Downy mildew (*Pseudoperonospora cubensis*—see above) and powdery mildew (*Sphaerotheca fuliginea*) became problematic later in the season; Plectosporium blight (*Plectosporium cucumerina*) on pumpkins was also severe during late summer. Because foliar/vine diseases such as downy mildew, powdery mildew

and Plectosporium blight tend to reduce rind hardening in pumpkin and winter squash, some growers were forced to harvest early rather than risk severe losses from Fusarium rot (*Fusarium* spp.) and other fruit rots. Bacterial fruit blotch (*Acidovorax avenae* subsp. *citrulli*) was diagnosed on watermelon from two locations (see above).

**Peppers** Southern blight (*Sclerotium rolfsii*) and bacterial spot (*Xanthomonas campestris* pv. *vesicatoria*) were diagnosed on pepper, although neither disease was widespread. Tomato spotted wilt virus and bacterial wilt (*Ralstonia solanacearum*) were unusual observations (see above).

**Tomatoes** Foliar diseases such as early blight (*Alternaria solani*) and Septoria leaf spot (*Septoria lycopersici*) were much less common than average, while leaf mold (*Fulvia fulva*) was unusually prevalent in greenhouse/high tunnel systems and even field plantings. Timber rot (*Sclerotinia sclerotiorum*) was fairly common in the early part of the season; also prevalent were stem/vascular problems such as southern blight (*Sclerotium rolfsii*) and Fusarium wilt (*Fusarium oxysporum*). High incidence of tomato spotted wilt virus and two isolated cases of bacterial wilt (*Ralstonia solanacearum*) are described above.

**Other vegetables** Cercospora leaf blight (*Cercospora asparagi*) and Fusarium crown rot (*Fusarium oxysporum* f. sp. *asparagi*) were diagnosed in asparagus plantings in 2012. Phytophthora crown rot (*Phytophthora dreschleri* or *Phytophthora cryptogea*) was diagnosed on lettuce from a hydroponic system. Root knot nematode (*Meloidogyne incognita*) was seen frequently on potato.

### *Landscape Plant Disease Observations:*

The following important or unusual diseases were observed:

Deciduous trees

- Dogwood powdery mildew (*Erysiphe*)
- Goldenraintree, magnolia, maple and serviceberry canker (*Botryosphaeria*)
- Oak bacterial leaf scorch (*Xylella*)
- Ornamental pear fireblight (*Erwinia*)
- Redbud and tuliptree wilt (*Verticillium*)
- Yellowwood anthracnose (*Gloeosporium*)

Needle Evergreens

- Leyland cypress canker (*Seiridium* and *Botryosphaeria*)
- Pine needle spot (*Dothistroma*)
- Pine tip blight (*Sphaeropsis*)
- Spruce needle cast (*Rhizosphaera*)
- Arborvitae, fir, pine, spruce and taxus root rot (*Phytophthora*)

Shrubs

- Boxwood canker (*Volutella*)
- Cherrylaurel, pieris and rhododendron root rot *(Phytophthora*)
- Crape myrtle web blight (*Rhizoctonia*)
- Holly black root rot (*Thielaviopsis*)
- Honeysuckle leaf blight (*Insolibasidium*)
- Rhododendron canker (*Botryosphaeria*)
- Rose downy mildew (*Peronospora*) and powdery mildew (*Podosphaera*)
- Rose rosette (virus)

Herbaceous Annuals and Perennials

- Catharanthus, pansy and petunia black root rot (*Thielaviopsis*)
- Chrysanthemum wilt (*Fusarium*)
- Hollyhock rust (*Puccinia*)
- Impatiens downy mildew (*Plasmopara*)
- Liriope anthracnose (*Colletotrichum*)
- Phlox and hollyhock charcoal rot (*Macrophomina*)
- Petunia root/crown rot (*Rhizoctonia*)

### *Disease and Pesticide Resistance Monitoring:*

In addition to the diagnosis of routine plant samples, additional monitoring for the following high priority diseases/pathogens is conducted in the diagnostic laboratory:

Pierce's disease of grapes caused by *Xylella fastidiosa*
Grape crown gall caused by *Agrobacterium tumefaciens* or *A. vitis*
Cucurbit yellow vine disease caused by *Serratia marsescens*
Bacterial fruit blotch of watermelon caused by *Acidovorax avenae* subsp. *citrulli*
Root, stem and fruit diseases of solanaceous and cucurbit vegetables caused by *Phytophthora* spp.
Bacterial canker of peppers caused by *Clavibacter michiganensis* subsp. *michiganensis*
Thousand Cankers disease of walnuts caused by *Geosmithia morbida*

Furthermore, surveys for Asian soybean rust, sudden oak death, southern corn rust and the tests to detect soybean cyst nematodes in new areas of the state and in soil on commercial ornamental stock for export (e.g., to Canada and California) are also conducted.

### *Educational Resource:*

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.

## ACKNOWLEDGMENTS

Technical support in the PDDL and Extension Plant Pathology program was provided by Sara Long (Lexington laboratory full-time Diagnostic Assistant); Ed Dixon (research technician in Lexington); Bernadette Amsden (research technician in Lexington); Brenda Kennedy (research specialist in Princeton); Terry Yielding (research support staff in Princeton screening soybean leaf samples for Asian soybean rust and performing soybean cyst nematode analyses). Student workers in the PDDL in 2012 were Meagan Amburgey (Lexington) and Renee Laurent (Princeton). Administrative support in mailing diagnostic forms was provided by Mindy Thompson and Elizabeth Shelby in Lexington and Mary Ann Kelley and Stephanie Farmer in Princeton. We appreciate the contributions and dedication of these individuals.

Support from the Kentucky Integrated Pest Management Program and from the Southern Plant Diagnostic Network for supplemental funding of additional diagnostic testing, supplies and part-time laboratory assistance is gratefully acknowledged.

We thank the College of Agriculture's extension specialists and researchers who served as consultants to the diagnostic laboratory in 2012. Their services ranged from making diagnoses to assisting the diagnosticians with plant, insect, weed or pesticide questions. These individuals are listed in Table 9, and we are grateful to each for their valuable assistance.

Thanks also go to several county ANR (Ag and Natural Resources) agents for cooperating on the survey projects for Asian soybean rust (SBR) and Southern Corn Rust (SCR) in the form of surveying and/or sending samples for our use.

Last, but certainly not least, we recognize the contributions of Mr. Paul Bachi, who retired in early 2013 after serving as the Princeton Diagnostician for 30 years. Paul's diagnostic expertise and commitment to service will be missed by the Extension Plant Pathology group and many colleagues in Princeton and throughout the College.

## 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 contains 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 not as a primary problem for this year thus a zero (0) will appear in the primary diagnosis column. 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.

**Table 1.**

**SUMMARY OF DIAGNOSES[1] BY CROP CATEGORY AND CAUSAL AGENT TYPE**

| Crop Category | Abiotic Problems | Biotic[2] Problems | Chemical Injury | Inadequate Specimen | Insect Injury | Other[3] | Total Diagnoses |
|---|---|---|---|---|---|---|---|
| **Agronomic** | | | | | | | |
| Corn | 56 | 18[a] | 3 | 2 | 8[a] | 15[a] | 102 |
| Forages | 16 | 12 | 3 | 2 | 3 | 6 | 42 |
| Small grains | 19 | 34 | 3 | 1 | 3 | 5 | 65 |
| Soybeans | 39 | 615[b] | 6 | 1 | 15 | 128[b] | 804 |
| Tobacco | 115 | 157 | 24 | 2 | 4 | 32 | 334 |
| **Fruit** | | | | | | | |
| Small fruit | 62 | 72 | 6 | 4 | 19 | 23 | 186 |
| Tree fruit | 27 | 87 | 5 | 3 | 34 | 21 | 177 |
| **Herbs** | 1 | 7 | 0 | 0 | 1 | 1 | 10 |
| **Identifications** | 0 | 67 | 0 | 7 | 0 | 4 | 78 |
| **Ornamentals** | | | | | | | |
| Herbaceous and Houseplants | 42 | 130 | 3 | 4 | 33 | 30 | 242 |
| Turfgrass | 24 | 99 | 0 | 1 | 0 | 10 | 134 |
| Woody | 313 | 465[c] | 51 | 16 | 226 | 450[c] | 1521 |
| **Vegetables** | 166 | 321 | 56 | 29 | 73 | 78 | 723 |
| **Miscellaneous** | 0 | 1 | 0 | 1 | 1 | 6 | 9 |
| **Total** | 880 | 2085 | 160 | 73 | 420 | 809 | 4427 |

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

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

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

[a] Numbers include 6 Corn samples in Southern Corn Rust survey.

[b] Numbers include 4 soybean samples with and 54 soybean samples without Asian Soybean Rust from the SBR sentinel plot system; 23 soybean leaf samples with the fungal disease frogeye leaf spot (SFELS), and 530 soil samples with and 62 soil samples without Soybean Cyst Nematodes.

[c] Numbers include 295 SOD samples with 70 problems caused by fungi and 225 with no diseases, and 23 juniper samples without pinewood nematode.

**Table 2.**

## SUMMARY OF BIOTIC PROBLEMS[1] BY CROP CATEGORY

| Crop Category | Bacterial | Fungal | Nematode | Virus | Other[2] |
|---|---|---|---|---|---|
| **Agronomic** | | | | | |
| Corn | 0 | 18[a] | 0 | 0 | 0 |
| Forages | 0 | 10 | 0 | 2 | 0 |
| Small grains | 1 | 13 | 0 | 20 | 0 |
| Soybeans | 1 | 75[b] | 537[c] | 2 | 0 |
| Tobacco | 8 | 117 | 0 | 32 | 0 |
| **Fruit** | | | | | |
| Small fruit | 3 | 64 | 0 | 4 | 1 |
| Tree fruit | 42 | 44 | 0 | 0 | 1 |
| **Herbs** | 0 | 7 | 0 | 0 | 0 |
| **Identifications** | 1 | 34 | 0 | 0 | 32 |
| **Ornamentals** | | | | | |
| Herbaceous and Houseplants | 9 | 120 | 0 | 0 | 1 |
| Turfgrass | 0 | 98 | 1 | 0 | 0 |
| Woody | 75 | 355[d] | 1 | 19 | 15 |
| **Vegetables** | 54 | 219 | 5 | 43 | 0 |
| **Miscellaneous** | 0 | 0 | 0 | 1 | 0 |
| **Total** | 194 | 1174 | 544 | 121 | 50 |

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

[2] Other includes these categories: Animal (rodent and bird damage), Plant (plant identifications or parasitic plant) and Algae, Lichen and Phytoplasma.

[a] Number includes 4 Corn samples in Southern Corn rust survey (SCR) with problems caused by fungi.

[b] Number includes 23 soybean leaf samples with the fungal disease frogeye leaf spot (SFELS) and 4 soybean leaf sample with Asian soybean rust.

[c] Number includes 530 soil samples with Soybean Cyst Nematodes (SCN).

[d] Number includes 70 Sudden Oak Death (SOD) samples with problems caused by fungi.

**Table 3.**

**NUMBER OF PLANT SAMPLES BY CROP CATEGORY**

| Crop Category | Number of Plant Specimens | Percentage of Total Specimens |
|---|---|---|
| Agronomic (-Tobacco +58 SBRs, + 23 SFELS, +6 SCRs) | 349 | 10.3 |
| Tobacco | 285 | 8.4 |
| Fruit | 319 | 9.4 |
| Herbs | 9 | 0.3 |
| Identifications | 78 | 2.3 |
| Ornamentals (+ 295 SODs, +23 PWNEs) | 1708 | 50.5 |
| Vegetables | 626 | 18.5 |
| Miscellaneous | 9 | 0.3 |
| Total Plant Samples (w/ SBRs, SFELS, SCRs, & SODs) | 3383 | 100 |

**Table 4.**

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

| Crop Category and Crop | Number of Primary Diagnoses[1] | Number of Secondary Diagnoses[2] | Total Diagnoses[3] |
|---|---|---|---|
| **Agronomic** | | | |
| Corn | 84[a] | 18[a] | 102 |
| Forages | 38 | 4 | 42 |
| Small grains | 51 | 14 | 65 |
| Soybeans | 768[b] | 36 | 804 |
| Tobacco | 285 | 49 | 334 |
| **Fruit** | | | |
| Small fruit | 162 | 24 | 186 |
| Tree fruit | 157 | 20 | 177 |
| **Herbs** | 9 | 1 | 10 |
| **Identifications** | 78 | na | 78 |
| **Ornamentals** | | | |
| Herbaceous and Houseplants | 210 | 32 | 242 |
| Turfgrass | 108 | 26 | 134 |
| Woody | 1389[c] | 131 | 1520 |
| **Vegetables** | 626 | 97 | 723 |
| **Miscellaneous** | 9 | 0 | 9 |
| **Total** | 3974 | 452 | 4426 |

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

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

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

[a] Number includes 6 Corn samples in SCR survey

[b] Soybean plant samples + 592 SCN soil samples + 58 SBR soybean samples + 23 SFELS samples

[c] Numbers include 295 SOD samples, + 23 PWNE samples

**Table 5.**

**SUMMARY OF ROUTINE SAMPLES RECEIVED BY GROWER TYPE AND CROP GROUP**

| | Grower Type | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Commercial Institution | | Homeowner | | Research | | | |
| Crop Group | Ext[1] | Non-Ext[2] | Ext[1] | Non-Ext[2] | Ext[1] | Non-Ext[2] | Ext[1] | Non-Ext[2] |
| **Agronomic** | | | | | | | | |
| Corn | 70 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| Forages | 36 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Small grains | 47 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| Soybeans | 80 | 8 | 0 | 0 | 1 | 6 | 0 | 0 |
| Tobacco | 266 | 12 | 0 | 0 | 0 | 6 | 0 | 1 |
| **Fruit** | | | | | | | | |
| Small Fruit | 77 | 5 | 70 | 3 | 0 | 6 | 1 | 0 |
| Tree Fruit | 15 | 2 | 132 | 2 | 3 | 1 | 2 | 0 |
| **Herbs** | 4 | 0 | 4 | 0 | 1 | 0 | 0 | 0 |
| **Identifications** | 3 | 0 | 61 | 1 | 0 | 1 | 3 | 9 |
| **Ornamental** | | | | | | | | |
| Herbaceous and Houseplants | 82 | 24 | 88 | 4 | 1 | 4 | 4 | 3 |
| Turfgrass | 19 | 11 | 55 | 0 | 0 | 5 | 11 | 7 |
| Woody | 122 | 150 | 758 | 16 | 2 | 1 | 18 | 5 |
| **Vegetable** | 278 | 12 | 305 | 10 | 2 | 15 | 2 | 2 |
| **Miscellaneous** | 0 | 0 | 3 | 0 | 0 | 5 | 0 | 1 |
| **Total** | 1099 | 235 | 1476 | 36 | 11 | 51 | 41 | 29 |
| **Total/Grower Type** | 1334 | | 1512 | | 62 | | 70 | |

**Total number of routine samples received = 2978**

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

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

**Table 6.**

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

| | Crop Category | | | | | |
|---|---|---|---|---|---|---|
| **Department, Facility or outside agency** | **Agronomic** | **Fruit** | **Ornamental** | **Vegetable** | **Other** | **Total** |
| **Agdia, Inc.** | **15** | **1** | **0** | **1** | **0** | **17** |
| **Entomology Department** | **3** | **8** | **22** | **5** | **2** | **40** |
| **Forestry Department** | **0** | **0** | **0** | **0** | **1** | **1** |
| **Horticulture Department** | **0** | **1** | **0** | **0** | **5** | **6** |
| **Plant & Soil Sciences Department** | **29** | **0** | **5** | **2** | **0** | **36** |
| | | | | | **Total** | **100** |
| | | | | | **Total number of routine plant specimens** | **2978** |
| | | | | | **Percent of specimens referred outside Diagnostic Lab for diagnosis** | **3.4** |

*** 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 BY PLANT DISEASE DIAGNOSTIC LABORATORY*

| Test | Number of Tests |
|---|---|
| **Polymerase Chain Reaction (PCR)** | **3** |
| **Culturing** | **12** |
| **Enzyme-linked Immunosorbent Assay (ELISA)** (253 routine plant samples, +295 SOD) | **550** |
| **Microscope** (1411 routine plant samples + 58 SBR + 23 SFELS + 6 SCR) | **1501** |
| **Nematode extraction** | |
| **Pinewood nematode (PWN)** | **23** |
| **Soybean cyst nematode (SCN)** | **592** |
| **Soil tests** | **45** |
| **Visual** | **1249** |
| **Total** | **3975** |

*** Based on 2978 routine plant samples, 58 SBR, 592 SCN, 6 SCR, 23 SFELS, 23 PWNE and 295 SOD samples = 3975**

**Note: Some samples may have required more than one test but only the definitive test was recorded.**

## Table 8.

**NUMBER OF ROUTINE PLANT SAMPLES RECEIVED BY COUNTY AND CROP CATEGORY (KY AND OUT-OF-STATE SOURCES) [1]**

| COUNTY | Total | Agronomic[2] | Tobacco | Fruit | Ornamental | Vegetable | Other |
|---|---|---|---|---|---|---|---|
| ADAIR | 24 | 7 | 3 | 3 | 10 | 1 | 0 |
| ALLEN | 34 | 1 | 6 | 1 | 4 | 22 | 0 |
| ANDERSON | 14 | 1 | 0 | 3 | 2 | 8 | 0 |
| BALLARD | 11 | 4 | 2 | 0 | 4 | 0 | 1 |
| BARREN | 40 | 3 | 3 | 5 | 18 | 8 | 3 |
| BATH | 10 | 3 | 2 | 1 | 2 | 2 | 0 |
| BELL | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| BOONE | 54 | 2 | 0 | 5 | 38 | 8 | 1 |
| BOURBON | 24 | 4 | 3 | 1 | 10 | 5 | 1 |
| BOYD | 11 | 0 | 0 | 1 | 6 | 3 | 1 |
| BOYLE | 34 | 2 | 8 | 2 | 20 | 1 | 1 |
| BRACKEN | 8 | 1 | 6 | 0 | 1 | 0 | 0 |
| BREATHITT | 8 | 0 | 0 | 0 | 1 | 6 | 1 |
| BRECKINRIDGE | 67 | 7 | 33 | 5 | 9 | 13 | 0 |
| BULLITT | 5 | 1 | 0 | 1 | 2 | 1 | 0 |
| BUTLER | 6 | 4 | 0 | 0 | 0 | 2 | 0 |
| CALDWELL (+UKREC) | 62 | 21 | 1 | 15 | 13 | 10 | 2 |
| CALLOWAY | 46 | 2 | 13 | 4 | 19 | 8 | 0 |
| CAMPBELL | 31 | 0 | 0 | 0 | 24 | 7 | 0 |
| CARLISLE | 7 | 2 | 0 | 2 | 1 | 2 | 0 |
| CARROLL | 5 | 0 | 1 | 1 | 1 | 2 | 0 |
| CARTER | 17 | 1 | 4 | 3 | 8 | 0 | 1 |
| CASEY | 26 | 2 | 2 | 4 | 2 | 16 | 0 |
| CHRISTIAN | 91 | 11 | 10 | 4 | 24 | 42 | 0 |
| CLARK | 30 | 1 | 2 | 3 | 15 | 9 | 0 |
| CLAY | 10 | 1 | 0 | 8 | 0 | 1 | 0 |
| CLINTON | 8 | 3 | 1 | 1 | 0 | 3 | 0 |
| CRITTENDEN | 20 | 0 | 0 | 0 | 8 | 4 | 8 |
| CUMBERLAND | 15 | 0 | 1 | 4 | 8 | 2 | 0 |
| DAVIESS | 121 | 16 | 7 | 7 | 53 | 35 | 3 |
| EDMONSON | 11 | 1 | 0 | 4 | 3 | 3 | 0 |
| ELLIOTT | 16 | 1 | 1 | 4 | 8 | 2 | 0 |
| ESTILL | 25 | 0 | 0 | 0 | 21 | 4 | 0 |
| FAYETTE (+Lex. campus) | 393 | 13 | 14 | 27 | 281 | 33 | 25 |
| FLEMING | 15 | 4 | 5 | 1 | 2 | 3 | 0 |
| FLOYD | 3 | 0 | 0 | 0 | 2 | 1 | 0 |
| FRANKLIN | 74 | 4 | 1 | 5 | 50 | 12 | 2 |
| FULTON | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| GALLATIN | 3 | 1 | 1 | 0 | 0 | 1 | 0 |
| GARRARD | 11 | 0 | 5 | 0 | 5 | 1 | 0 |
| GRANT | 18 | 1 | 0 | 4 | 6 | 7 | 0 |
| GRAVES | 22 | 15 | 3 | 2 | 1 | 1 | 0 |
| GRAYSON | 7 | 1 | 0 | 3 | 0 | 3 | 0 |
| GREEN | 9 | 0 | 4 | 1 | 3 | 0 | 1 |

| COUNTY | Total | Agronomic[2] | Tobacco | Fruit | Ornamental | Vegetable | Other |
|---|---|---|---|---|---|---|---|
| GREENUP | 4 | 0 | 0 | 1 | 3 | 0 | 0 |
| HANCOCK | 4 | 1 | 0 | 1 | 1 | 0 | 1 |
| HARDIN | 10 | 8 | 1 | 0 | 1 | 0 | 0 |
| HARLAN | 8 | 1 | 0 | 2 | 3 | 2 | 0 |
| HARRISON | 10 | 2 | 4 | 0 | 4 | 0 | 0 |
| HART | 17 | 1 | 5 | 3 | 1 | 7 | 0 |
| HENDERSON | 50 | 20 | 0 | 6 | 18 | 6 | 0 |
| HENRY | 38 | 5 | 7 | 13 | 8 | 5 | 0 |
| HICKMAN | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| HOPKINS | 29 | 2 | 0 | 3 | 15 | 5 | 4 |
| JACKSON | 13 | 1 | 2 | 3 | 6 | 1 | 0 |
| JEFFERSON | 58 | 0 | 0 | 1 | 40 | 14 | 3 |
| JESSAMINE | 28 | 1 | 1 | 2 | 20 | 4 | 0 |
| JOHNSON | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| KENTON | 18 | 0 | 0 | 4 | 13 | 1 | 0 |
| KNOTT | 5 | 0 | 0 | 1 | 2 | 2 | 0 |
| KNOX | 5 | 0 | 0 | 0 | 0 | 5 | 0 |
| LARUE | 10 | 0 | 0 | 2 | 5 | 3 | 0 |
| LAUREL | 27 | 2 | 0 | 8 | 11 | 3 | 3 |
| LAWRENCE | 14 | 1 | 0 | 6 | 4 | 3 | 0 |
| LEE | 5 | 0 | 0 | 2 | 2 | 1 | 0 |
| LESLIE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LETCHER | 18 | 0 | 0 | 5 | 8 | 4 | 1 |
| LEWIS | 7 | 0 | 2 | 1 | 3 | 1 | 0 |
| LINCOLN | 79 | 4 | 3 | 4 | 18 | 50 | 0 |
| LIVINGSTON | 5 | 0 | 0 | 1 | 2 | 1 | 1 |
| LOGAN | 12 | 3 | 4 | 1 | 0 | 3 | 1 |
| LYON | 24 | 5 | 0 | 3 | 10 | 5 | 1 |
| McCRACKEN | 54 | 2 | 0 | 6 | 37 | 6 | 3 |
| McCREARY | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| McLEAN | 2 | 1 | 1 | 0 | 0 | 0 | 0 |
| MADISON | 35 | 2 | 3 | 2 | 16 | 11 | 1 |
| MAGOFFIN | 2 | 0 | 0 | 0 | 0 | 2 | 0 |
| MARION | 26 | 4 | 4 | 1 | 9 | 8 | 0 |
| MARSHALL | 28 | 0 | 0 | 1 | 22 | 5 | 0 |
| MARTIN | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| MASON | 41 | 4 | 9 | 5 | 21 | 1 | 1 |
| MEADE | 16 | 4 | 1 | 3 | 6 | 2 | 0 |
| MENIFEE | 6 | 0 | 1 | 0 | 2 | 3 | 0 |
| MERCER | 56 | 0 | 2 | 6 | 34 | 9 | 5 |
| METCALFE | 26 | 4 | 4 | 12 | 3 | 3 | 0 |
| MONROE | 19 | 2 | 10 | 0 | 2 | 5 | 0 |
| MONTGOMERY | 35 | 1 | 11 | 2 | 12 | 7 | 2 |
| MORGAN | 13 | 0 | 4 | 1 | 6 | 2 | 0 |
| MUHLENBERG | 49 | 16 | 4 | 2 | 9 | 18 | 0 |
| NELSON | 30 | 4 | 1 | 1 | 19 | 3 | 2 |
| NICHOLAS | 11 | 1 | 3 | 3 | 3 | 1 | 0 |
| OHIO | 6 | 0 | 1 | 0 | 0 | 5 | 0 |
| OLDHAM | 59 | 2 | 0 | 7 | 38 | 12 | 0 |
| OWEN | 5 | 0 | 1 | 2 | 2 | 0 | 0 |
| OWSLEY | 3 | 0 | 1 | 1 | 0 | 1 | 0 |
| PENDELTON | 2 | 0 | 2 | 0 | 0 | 0 | 0 |
| PERRY | 2 | 0 | 0 | 1 | 1 | 0 | 0 |
| PIKE | 14 | 0 | 0 | 1 | 5 | 7 | 1 |

| COUNTY | Total | Agronomic[2] | Tobacco | Fruit | Ornamental | Vegetable | Other |
|---|---|---|---|---|---|---|---|
| POWELL | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| PULASKI | 32 | 2 | 2 | 1 | 16 | 7 | 4 |
| ROBERTSON | 18 | 1 | 3 | 2 | 11 | 1 | 0 |
| ROCKCASTLE | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| ROWAN | 8 | 0 | 1 | 1 | 2 | 3 | 1 |
| RUSSELL | 22 | 0 | 0 | 3 | 12 | 6 | 1 |
| SCOTT | 53 | 2 | 5 | 4 | 33 | 8 | 1 |
| SHELBY | 31 | 3 | 3 | 5 | 18 | 2 | 0 |
| SIMPSON | 34 | 13 | 4 | 2 | 11 | 4 | 0 |
| SPENCER | 11 | 2 | 2 | 1 | 5 | 1 | 0 |
| TAYLOR | 25 | 5 | 6 | 3 | 2 | 9 | 0 |
| TODD | 49 | 28 | 7 | 2 | 7 | 5 | 0 |
| TRIGG | 44 | 9 | 3 | 5 | 14 | 8 | 5 |
| TRIMBLE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UNION | 8 | 2 | 0 | 1 | 2 | 3 | 0 |
| WARREN | 83 | 7 | 3 | 13 | 48 | 9 | 3 |
| WASHINGTON | 12 | 0 | 0 | 0 | 9 | 3 | 0 |
| WAYNE | 10 | 1 | 1 | 2 | 1 | 5 | 0 |
| WEBSTER | 7 | 0 | 0 | 2 | 3 | 2 | 0 |
| WHITLEY | 15 | 3 | 0 | 2 | 5 | 5 | 0 |
| WOLFE | 4 | 0 | 2 | 0 | 1 | 1 | 0 |
| WOODFORD | 74 | 3 | 3 | 2 | 53 | 13 | 0 |
| Out-of-State | 9 | 2 | 5 | 0 | 2 | 0 | 0 |
| **TOTALS** | 3042 | 326 | 285 | 319 | 1390 | 626 | 96 |

**1** Does include SBR (58) and SCR (6) survey samples but not SCN (mixed specialist research and county samples), SFELS (collected by researchers), SOD samples (collected by nursery inspectors), or PWNE samples (collected by nursery inspectors).

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

| | | Number of cases | |
|---|---|---|---|
| **Specialists, Researchers, Diagnosticians** | **Department** | **Primary Diagnosis[1]** | **Consultations[2]** |
| **LEXINGTON** | | | |
| Beale, JW (Diagnostician) | Plant Pathology | 1704 | 8 |
| Berberich, SG | Horticulture | 0 | 1 |
| Bessin, RT | Entomology | 8 | 4 |
| Coolong, TW | Horticulture | 5 | 3 |
| Dutton, SR | Horticulture | 0 | 1 |
| Fountain, WM | Horticulture | 7 | 1 |
| Geneve, RL | Horticulture | 0 | 1 |
| Green, JD | Plant & Soil Sciences | 24 | 8 |
| Lee, CD | Plant & Soil Sciences | 2 | 24 |
| Long, SJ | Plant Pathology | 624 | 0 |
| Munshaw, GC | Plant & Soil Sciences | 0 | 1 |
| Paratley, RD | Forestry | 2 | 0 |
| Pearce, RC | Plant & Soil Sciences | 4 | 16 |
| Seebold, KW | Plant Pathology | 3 | 28 |
| Schnelle, RS | Horticulture | 0 | 1 |
| Smith, SR | Plant & Soil Sciences | 0 | 3 |
| Strang, JG | Horticulture | 1 | 7 |
| Townsend, LH | Entomology | 49 | 28 |
| Vincelli, P | Plant Pathology | 6 | 8 |
| Ward, NA | Plant Pathology | 2 | 5 |
| Witt, WW | Plant & Soil Sciences | 0 | 1 |
| Wright, S | Horticulture | 1 | 0 |
| **PRINCETON** | | | |
| Bachi, PR (Diagnostician) | Plant Pathology | 782 | 77 |
| Bailey, WA | Plant & Soil Sciences | 21 | 4 |
| Dunwell, WC | Horticulture | 8 | 20 |
| Herbek, JH | Plant & Soil Sciences | 3 | 0 |
| Hershman, DE | Plant Pathology | 9 | 6 |
| Johnson, DW | Entomology | 2 | 1 |
| Kennedy, BS | Plant Pathology | 230 | 114 |
| Lacefield, GD | Plant & Soil Sciences | 4 | 3 |
| Martin, JR | Plant & Soil Sciences | 19 | 6 |
| Murdock, LW | Plant & Soil Sciences | 14 | 6 |
| Wolfe, DE | Horticulture | 2 | 0 |
| Yielding, TL | Plant Pathology | 58 | 0 |

**OUT OF STATE**

| | | | |
|---|---|---|---|
| Martin, RR | USDA-ARS | 0 | 1 |
| Polashock, J | USDA-ARS | 0 | 1 |
| Wynham, AS | Uni. of TN | 0 | 1 |

[1] The specialist or diagnostician making the primary diagnosis. Number includes all plant samples and 211 cases from the Digital Consulting System.

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

**Table 10.**

## DIGITAL CONSULTING SYSTEM

To assist County Extension Agents and Specialists, we operate a web-based Digital Consulting System for digital images of plant problems. The images can be used to help determine how and where best to collect samples for submission to the laboratory, as well as general or specific advice on a wide range of topics.

**211 cases were submitted in 2012 by a total of 39 submitters.**

**Cases came from a total of 35 counties.**

| DCS Cases 2012 | |
|---|---|
| **Crop** | **Count** |
| Corn | 6 |
| Forage crop | 2 |
| Herbaceous ornamental | 13 |
| Landscape shrub | 27 |
| Landscape tree | 77 |
| Mushroom ID | 1 |
| Small fruit | 13 |
| Small grain | 2 |
| Soybean | 2 |
| Tobacco | 9 |

| DCS Cases 2012 | |
|---|---|
| **Crop** | **Count** |
| Tree fruit | 18 |
| Turf grass | 4 |
| Vegetable | 37 |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **AGRONOMIC CROPS** | | | | | | |
| | | | **CORN** | | | |
| **CORN (Zea) (includes Popcorn)** | | | | | | |
| | **Charcoal rot** | - | **Macrophomina** | **0** | **1** | **1** |
| | **Chemical injury** | - | **herbicide** | **1** | **1** | **2** |
| | | - | **unknown** | **1** | **0** | **1** |
| | **Cultural** | - | **improper depth** | **3** | **3** | **6** |
| | **Ear/Kernel rot** | - | **Fusarium** | **2** | **1** | **3** |
| | | - | **Stenocarpella** | **2** | **0** | **2** |
| | **Environmental stresses** | | | **13** | **2** | **15** |
| | | - | **unknown** | **1** | **0** | **1** |
| | **Insect injury** | | | **3** | **5** | **8** |
| | **No disease, inadequate sample** | | | **17** | **0** | **17** |
| | **Nutritional** | - | **acid soil** | **1** | **0** | **1** |
| | | - | **fertilizer burn** | **2** | **0** | **2** |
| | | - | **magnesium deficiency** | **9** | **0** | **9** |
| | | - | **phosphorus deficiency** | **3** | **2** | **5** |
| | | - | **potassium deficiency** | **8** | **0** | **8** |
| | | - | **zinc deficiency** | **9** | **0** | **9** |
| | **Physiological** | - | **lesion mimic** | **1** | **0** | **1** |
| | **Root rot** | - | **Fusarium** | **0** | **2** | **2** |
| | | - | **Rhizoctonia** | **1** | **0** | **1** |
| | **Rust, common** | - | **Puccinia** | **5** | **1** | **6** |
| | **Smut** | - | **Ustilago** | **3** | **0** | **3** |
| | | | **FORAGES** | | | |
| **ALFALFA (Medicago)** | | | | | | |
| | **Chemical injury** | - | **growth regulator** | **1** | **0** | **1** |
| | | - | **herbicide** | **1** | **0** | **1** |
| | **Crown/stem rot** | - | **Sclerotinia** | **3** | **0** | **3** |
| | **Environmental stresses** | | | **4** | **1** | **5** |
| | **Insect injury** | | | **3** | **0** | **3** |
| | **Leaf spot** | - | **Leptosphaerulina** | **1** | **2** | **3** |
| | **No disease, inadequate sample** | | | **4** | **0** | **4** |
| | **Nutritional** | - | **acid soil** | **1** | **0** | **1** |
| | | - | **boron deficiency** | **1** | **0** | **1** |
| | | - | **general** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **ALFALFA (Medicago) (cont'd)** | | | | | | |
| | **Nutritional** | **-** | **poor nodulation** | **1** | **1** | **2** |
| | **Summer black stem** | **-** | **Cercospora** | **2** | **0** | **2** |
| **CLOVER (Trifolium)** | | | | | | |
| | **Chemical injury** | **-** | **herbicide** | **1** | **0** | **1** |
| | **Environmental stresses** | **-** | **frost injury** | **1** | **0** | **1** |
| | **Nutritional** | **-** | **potassium deficiency** | **1** | **0** | **1** |
| | **Virus** | **-** | **Alfalfa mosaic** | **2** | **0** | **2** |
| **FESCUE (Festuca)** | | | | | | |
| | **Environmental stresses** | **-** | **compaction** | **1** | **0** | **1** |
| **INDIANGRASS (Sorghastrum)** | | | | | | |
| | **No disease** | | | **1** | **0** | **1** |
| **JOHNSONGRASS (Sorghum)** | | | | | | |
| | **No disease** | | | **1** | **0** | **1** |
| **ORCHARDGRASS (Dactylis)** | | | | | | |
| | **Brown stripe** | **-** | **Cercosporidium** | **1** | **0** | **1** |
| | **Environmental stresses** | | | **1** | **0** | **1** |
| | **No disease** | | | **2** | **0** | **2** |
| **RYEGRASS (Lolium)** | | | | | | |
| | **Environmental** | **-** | **cold injury** | **1** | **0** | **1** |
| **SUGARBEET (Beta)** | | | | | | |
| | **Environmental** | **-** | **compaction** | **1** | **0** | **1** |
| **TIMOTHY (Phleum)** | | | | | | |
| | **Brown stripe** | **-** | **Cercosporidium** | **1** | **0** | **1** |
| | | | **<u>SOYBEAN</u>** | | | |
| **SOYBEAN (Glycine)** | | | | | | |
| | **Anthracnose** | **-** | **Colletotrichum** | **1** | **3** | **4** |
| | **Asian soybean rust** | **-** | **Phakopsora** | **4** | **0** | **4** |
| | **Bacterial blight** | **-** | **Pseudomonas** | **0** | **1** | **1** |
| | **Brown spot** | **-** | **Septoria** | **0** | **2** | **2** |
| | **Brown stem rot** | **-** | **Phialophora** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **SOYBEAN (Glycine) (cont'd)** | | | | | |
| | **Charcoal rot** | **- Macrophomina** | **6** | **1** | **7** |
| | **Chemical injury** | **- growth regulator** | **1** | **0** | **1** |
| | | **- herbicide** | **2** | **0** | **2** |
| | | **- unknown** | **3** | **0** | **3** |
| | **Cultural** | **- improper depth** | **0** | **1** | **1** |
| | **Downy mildew** | **- Peronospora** | **3** | **0** | **3** |
| | **Environmental stresses** | | **10** | **4** | **14** |
| | **Frogeye** | **- Cercospora** | **2** | **1** | **3** |
| | **(SFELS samples)** | | **23** | **0** | **23** |
| | **Greenstem** | **- environmental** | **1** | **0** | **1** |
| | **Inadequate specimen, no disease** | | **13** | **0** | **13** |
| | **(samples without Asian Soybean Rust)** | | **54** | **0** | **54** |
| | **Insect injury** | | **10** | **5** | **15** |
| | **Leaf blight** | **- Cercospora** | **1** | **1** | **2** |
| | **Leaf scorch** | **- unknown** | **3** | **0** | **3** |
| | **Nutritional** | **- general** | **1** | **0** | **1** |
| | | **- nitrogen deficiency** | **1** | **0** | **1** |
| | | **- poor nodulation** | **1** | **1** | **2** |
| | | **- potassium deficiency** | **11** | **3** | **14** |
| | **Purple seed** | **- Cercospora** | **0** | **1** | **1** |
| | **Root rot** | **- Phytophthora** | **1** | **0** | **1** |
| | | **- Pythium** | **6** | **0** | **6** |
| | | **- Rhizoctonia** | **1** | **2** | **3** |
| | **Root/stem rot** | **- Fusarium** | **1** | **0** | **1** |
| | | **- Rhizoctonia** | **3** | **2** | **5** |
| | **Soybean cyst nematode** | **- Heterodera** | | | |
| | | **on plant samples** | **1** | **6** | **7** |
| | | *** in soil samples** | **530** | **0** | **530** |
| | | *** absent in soil samples** | **62** | | **62** |
| | | **(*soil submitted to Nematode Analysis Laboratory)** | | | |
| | **Senescense** | **- normal** | **1** | **0** | **1** |
| | **Sudden death** | **- Fusarium** | **6** | **1** | **7** |
| | **Virus** | **- Soybean vein necrotic associated** | **1** | **0** | **1** |
| | | **- Tobacco ringspot** | **1** | **0** | **1** |
| | **Wilt** | **- unknown** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| | | | **SMALL GRAINS** | | | |
| **BARLEY (Hordeum)** | | | | | | |
| | **Head scab** | **-** | **Fusarium** | **1** | **0** | **1** |
| | **Loose smut** | **-** | **Ustilago** | **1** | **0** | **1** |
| | **No disease** | | | **1** | **0** | **1** |
| | **Nutritional** | **-** | **nitrogen deficiency** | **1** | **0** | **1** |
| | **Scald** | **-** | **Rhynchosporium** | **1** | **0** | **1** |
| | **Virus** | **-** | **Barley yellow dwarf** | **1** | **0** | **1** |
| **OAT (Avena)** | | | | | | |
| | **Black chaff** | **-** | **Xanthomonas** | **1** | **0** | **1** |
| | **Nutritional** | **-** | **nitrogen deficiency** | **2** | **0** | **2** |
| | **Rust (leaf)** | **-** | **Puccinia** | **0** | **2** | **2** |
| | **Virus** | **-** | **Barley yellow dwarf** | **1** | **0** | **1** |
| **RYE (Secale)** | | | | | | |
| | **No disease** | | | **2** | **0** | **2** |
| **SORGHUM (Sorghum)** | | | | | | |
| | **Chemical** | **-** | **herbicide** | **1** | **0** | **1** |
| **SPELT (Triticum)** | | | | | | |
| | **Rust (leaf)** | **-** | **Puccinia** | **2** | **0** | **2** |
| **WHEAT (Triticum)** | | | | | | |
| | **Chemical injury** | **-** | **herbicide** | **2** | **0** | **2** |
| | **Environmental stresses** | | | **6** | **3** | **9** |
| | **Flecking** | **-** | **physiological** | **1** | **0** | **1** |
| | **Head mold** | **-** | **Rhodotorula** | **1** | **0** | **1** |
| | **Insect injury** | | | **3** | **0** | **3** |
| | **No disease, inadequate sample** | | | **3** | | **3** |
| | **Nutritional** | **-** | **acid soil** | **0** | **1** | **1** |
| | | - | **low fertility** | **0** | **1** | **1** |
| | | - | **nitrogen deficiency** | **1** | **0** | **1** |
| | | - | **potassium deficiency** | **1** | **0** | **1** |
| | | - | **sulfur deficiency** | **0** | **1** | **1** |
| | **Rust (stripe)** | **-** | **Puccinia** | **2** | **0** | **2** |
| | **Sharp eye spot** | **-** | **Rhizoctonia** | **0** | **1** | **1** |
| | **Speckled leaf blotch** | **-** | **Septoria** | **2** | **0** | **2** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **WHEAT (Triticum) (cont'd)** | | | | | |
| | **Virus** | **- Barley yellow dwarf** | **14** | **0** | **14** |
| | | **- Wheat spindle streak mosaic** | **0** | **4** | **4** |
| | | **TOBACCO** | | | |
| **TOBACCO (Nicotiana)** | | | | | |
| | **Angular leaf spot** | **- Pseudomonas** | **3** | **0** | **3** |
| | **Bacterial soft rot** | **- Erwinia** | **2** | **1** | **3** |
| | **Black shank** | **- Phytophthora** | **58** | **3** | **61** |
| | **Brown spot** | **- Alternaria** | **1** | **0** | **1** |
| | **Chemical injury** | **- fungicide** | **3** | **3** | **6** |
| | | **- growth regulator** | **7** | **0** | **7** |
| | | **- herbicide** | **7** | **0** | **7** |
| | | **- insecticide** | **1** | **0** | **1** |
| | | **- unknown** | **3** | **0** | **3** |
| | **Cultural** | **- high temperature** | **3** | **0** | **3** |
| | | **- spiral root** | **1** | **0** | **1** |
| | | **- transplant shock** | **6** | **1** | **7** |
| | | **- tray filling** | **0** | **1** | **1** |
| | | **- wet feet** | **1** | **1** | **2** |
| | **Damping-off** | **- Rhizoctonia** | **3** | **4** | **7** |
| | **Environmental** | **- cold injury** | **10** | **1** | **11** |
| | | **- compaction** | **6** | **0** | **6** |
| | | **- heat injury** | **4** | **2** | **6** |
| | | **- lightning** | **1** | **0** | **1** |
| | | **- others** | **9** | **5** | **14** |
| | | **- sun/weather scald** | **8** | **3** | **11** |
| | **Frenching** | **- metabolites** | **5** | **0** | **5** |
| | **Frogeye** | **- Cercospora** | **2** | **2** | **4** |
| | **Hollow stalk** | **- Erwinia** | **1** | **0** | **1** |
| | **Improper curing** | **- greening** | **2** | **0** | **2** |
| | | - **piebald** | **1** | **0** | **1** |
| | **Inadequate specimen, no disease** | | **34** | | **34** |
| | **Insect injury** | | **4** | **0** | **4** |
| | **Nutritional** | **- acid soil** | **1** | **0** | **1** |
| | | **- boron deficiency** | **8** | **0** | **8** |
| | | **- calcium deficiency** | **2** | **0** | **2** |
| | | **- general** | **4** | **1** | **5** |
| | | **- manganese toxicity** | **6** | **1** | **7** |
| | | **- nitrogen deficiency** | **3** | **1** | **4** |
| | | **- pH high** | **0** | **1** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **TOBACCO (Nicotiana) (cont'd)** | | | | | | |
| | **Nutritional** | **-** | **potassium deficiency** | **1** | **1** | **2** |
| | | **-** | **soluble salts** | **2** | **2** | **4** |
| | | **-** | **temp. phosphorus def.** | **8** | **3** | **11** |
| | **Root rot** | **-** | **Pythium** | **19** | **0** | **19** |
| | | - | **Rhizoctonia** | **0** | **2** | **2** |
| | **Sore shin** | **-** | **Rhizoctonia** | **5** | **5** | **10** |
| | **Stem rot** | **-** | **Pythium** | **1** | **0** | **1** |
| | **Storage mold** | **-** | **unknown** | **1** | **0** | **1** |
| | **Target spot** | **-** | **Rhizoctonia** | **1** | **1** | **2** |
| | **Virus** | **-** | **Tobacco mosaic** | **2** | **0** | **2** |
| | | **-** | **Tomato spotted wilt** | **26** | **4** | **30** |
| | **Weather fleck** | **-** | **ozone** | **2** | **0** | **2** |
| | **Wilt** | **-** | **Fusarium** | **6** | **0** | **6** |

## FRUIT CROPS

### SMALL FRUITS

| | | | | | |
|---|---|---|---|---|---|
| **BLUEBERRY (Vaccinium)** | | | | | |
| **Canker** | **-** | **Botryosphaeria** | **1** | **0** | **1** |
| **Crown gall** | **-** | **Agrobacterium** | **0** | **1** | **1** |
| **Cultural** | **-** | **insufficient water** | **1** | **0** | **1** |
| | **-** | **transplant shock** | **1** | **0** | **1** |
| **Environmental stresses** | | | **12** | **1** | **13** |
| **Inadequate specimen, no disease** | | | **11** | | **11** |
| **Insect injury** | | | **4** | **1** | **5** |
| **Leaf spot** | **-** | **Alternaria** | **0** | **1** | **1** |
| | - | **Phyllosticta** | **0** | **1** | **1** |
| **Nutritional** | **-** | **acid soil** | **1** | **0** | **1** |
| | **-** | **general** | **3** | **0** | **3** |
| | **-** | **iron deficiency** | **4** | **0** | **4** |
| | **-** | **nitrogen deficiency** | **1** | **0** | **1** |
| | **-** | **pH high** | **0** | **1** | **1** |
| **Root rot** | **-** | **Phytophthora** | **16** | **0** | **16** |
| **Virus** | **-** | **Blueberry mosaic** | **1** | **0** | **1** |
| | - | **Blueberry red ringspot** | **1** | **0** | **1** |
| | - | **Unknown** | **1** | **0** | **1** |
| **BRAMBLES - BLACKBERRY, and RASPBERRY (Rubus)** | | | | | |
| **Anthracnose** | **-** | **Elsinoe** | **1** | **1** | **2** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **BRAMBLES - BLACKBERRY, and RASPBERRY (Rubus) (cont'd)** | | | | | | |
| | **Cane blight** | **-** | **Leptosphaeria** | **1** | **0** | **1** |
| | **Chemical** | **-** | **herbicide** | **0** | **1** | **1** |
| | | - | | | | |
| | | - | **growth regulator** | **1** | **0** | **1** |
| | **Cultural** | **-** | **transplant shock** | **1** | **0** | **1** |
| | **Environmental stresses** | | | **17** | **1** | **18** |
| | **Fasciation** | **-** | **unknown** | **1** | **0** | **1** |
| | **Insect injury** | | | **3** | **0** | **3** |
| | **Late leaf rust** | **-** | **Pucciniastrum** | **0** | **1** | **1** |
| | **Leaf spot** | **-** | **Cercospora** | **2** | **0** | **2** |
| | | **-** | **Phyllosticta** | **0** | **1** | **1** |
| | | **-** | **Septoria** | **1** | **0** | **1** |
| | **No disease** | | | **5** | | **5** |
| | **Orange rust** | **-** | **Gymnoconia** | **2** | **0** | **2** |
| | **Root/Crown rot** | **-** | **Phytophthora** | **3** | **0** | **3** |
| | **Spur blight** | **-** | **Didymella** | **1** | **1** | **2** |
| | **Virus** | **-** | **unknown** | **1** | **0** | **1** |
| | **White druplet** | **-** | **physiological** | **2** | **1** | **3** |
| **ELDERBERRY (Sambucus)** | | | | | | |
| | **Chemical** | **-** | **growth regulator** | **1** | **0** | **1** |
| **GRAPE (Vitis)** | | | | | | |
| | **Anthracnose** | **-** | **Elsinoe** | **6** | **0** | **6** |
| | **Berry split** | **-** | **unknown** | **0** | **1** | **1** |
| | **Black rot** | **-** | **Guignardia** | **8** | **0** | **8** |
| | **Chemical injury** | **-** | **growth regulator** | **2** | **0** | **2** |
| | **Crown gall** | **-** | **Agrobacterium** | **1** | **0** | **1** |
| | **Downy mildew** | **-** | **Plasmopara** | **1** | **0** | **1** |
| | **Environmental stresses** | | | **7** | **1** | **8** |
| | **Insect injury** | | | **7** | **2** | **9** |
| | **No disease** | | | **5** | | **5** |
| | **Nutritional** | **-** | **magnesium deficiency** | **1** | **0** | **1** |
| | | - | **unknown** | **1** | **0** | **1** |
| | **Physiological** | **-** | **Rupestris speckle** | **1** | **1** | **2** |
| | **Root rot** | **-** | **Phytophthora** | **1** | **1** | **2** |
| | **Stem rot** | **-** | **Phomopsis** | **0** | **1** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **STRAWBERRY (Fragaria)** | | | | | | |
| | **Angular leaf spot** | **-** | **Xantonmonas** | **1** | **0** | **1** |
| | **Anthracnose** | **-** | **Colletotrichum** | **4** | **0** | **4** |
| | **Black root** | **-** | **Rhizoctonia** | **3** | **0** | **3** |
| | **Chemical** | **-** | **herbicide** | **1** | **0** | **1** |
| | **Crown rot** | **-** | **Phytophthora** | **1** | **0** | **1** |
| | **Environmental** | **-** | **heat injury** | **0** | **1** | **1** |
| | **Gray mold** | **-** | **Botrytis** | **2** | **0** | **2** |
| | **Insect injury** | | | **1** | **1** | **2** |
| | **Leaf blight** | **-** | **Phomopsis** | **0** | **1** | **1** |
| | **Leaf scorch** | **-** | **Diplocarpon** | **1** | **0** | **1** |
| | **Leaf spot** | **-** | **Mycosphaerella** | **2** | **0** | **2** |
| | **Leather rot** | **-** | **Phytophthora** | **1** | **0** | **1** |
| | **No disease, inadequate sample** | | | **6** | | **6** |
| | **Nutritional** | **-** | **soluble salts** | **1** | **0** | **1** |
| | **Root rot** | **-** | **Pythium** | **0** | **1** | **1** |

**TREE FRUIT**

| | | | | | | |
|---|---|---|---|---|---|---|
| **APPLE (Malus)** | | | | | | |
| | **Bitter rot** | **-** | **Glomerella** | **3** | **1** | **4** |
| | **Burr knot** | **-** | **unknown** | **1** | **0** | **1** |
| | **Canker** | **-** | **Botryosphaeria** | **2** | **0** | **2** |
| | **Cedar apple rust** | **-** | **Gymnosporangium** | **9** | **2** | **11** |
| | **Environmental stresses** | | | **6** | **1** | **7** |
| | **Fire blight** | **-** | **Erwinia** | **17** | **1** | **18** |
| | **Frogeye** | **-** | **Botryosphaeria** | **3** | **3** | **6** |
| | **Insect injury** | | | **9** | **2** | **11** |
| | **Internal breakdown** | **-** | **storage** | **1** | **0** | **1** |
| | **Jonathan spot** | **-** | **physiological** | **3** | **0** | **3** |
| | **Lichen** | **-** | **species** | **1** | **0** | **1** |
| | **Moldy core** | **-** | **fungal** | **1** | **0** | **1** |
| | **Necrotic leaf blotch** | **-** | **physiological** | **1** | **0** | **1** |
| | **No disease, inadequate sample** | | | **8** | | **8** |
| | **Shoestring root rot** | **-** | **Armillaria** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **CHERRY (Prunus)** | | | | | | |
| | **Canker** | **-** | **Cytospora** | **1** | **0** | **1** |
| | | - | **Phomopsis** | **1** | **0** | **1** |
| | **Environmental** | **-** | **cold injury** | **1** | **0** | **1** |
| | **Insect injury** | | | **1** | **0** | **1** |
| | **Leaf spot** | **-** | **Coccomyces** | **1** | **0** | **1** |
| | **No disease** | | | **2** | | **2** |
| | **Powdery mildew** | **-** | **Podosphaera** | **1** | **0** | **1** |
| **FIG (Ficus)** | | | | | | |
| | **No disease** | | | **1** | | **1** |
| **MEDLAR (Mespilus)** | | | | | | |
| | **No disease** | | | **1** | | **1** |
| **PEACH, APRICOT and NECTARINE (Prunus)** | | | | | | |
| | **Bacterial spot** | **-** | **Xanthomonas** | **6** | **1** | **7** |
| | **Brown rot** | **-** | **Monilinia** | **2** | **0** | **2** |
| | **Canker** | **-** | **Cytospora** | **1** | **0** | **1** |
| | | - | **unknown** | **1** | **0** | **1** |
| | **Catfacing** | **-** | **environmental** | **1** | **0** | **1** |
| | **Cultural** | **-** | **transplant shock** | **1** | **1** | **2** |
| | **Environmental stresses** | | | **3** | **3** | **6** |
| | **Inadequate specimen, no disease** | | | **5** | | **5** |
| | **Insect injury** | | | **10** | **2** | **12** |
| | **Leaf curl** | **-** | **Taphrina** | **4** | **0** | **4** |
| | **No disease** | | | **6** | | **6** |
| | **Nutritional** | **-** | **nitrogen deficiency** | **2** | **0** | **2** |
| | **Scab** | **-** | **Cladosporium** | **2** | **0** | **2** |
| | **Shot hole** | **-** | **unknown** | **1** | **0** | **1** |
| | **Soft suture** | **-** | **physiological** | **1** | **0** | **1** |
| | **Sooty mold** | | | **1** | **0** | **1** |
| **PEAR (Pyrus)** | | | | | | |
| | **Chemical injury** | **-** | **growth regulator** | **1** | **0** | **1** |
| | | **-** | **herbicide** | **1** | **0** | **1** |
| | | **-** | **oil** | **1** | **0** | **1** |
| | | **-** | **unknown** | **1** | **0** | **1** |
| | **Environmental stresses** | | | **3** | **0** | **3** |
| | **Fire blight** | **-** | **Erwinia** | **17** | **0** | **17** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **PEAR (Pyrus) (cont'd)** | | | | | | |
| | **No disease** | | | **5** | | **5** |
| **PECAN (Carya)** | | | | | | |
| | **Insect injury** | | | **6** | **2** | **8** |
| | **Kernel rot** | **-** | **Ulocladium** | **1** | **0** | **1** |
| | **Leaf spot** | **-** | **Cercospora** | **1** | **0** | **1** |
| | **Physiological** | **-** | **internal breakdown** | **1** | **0** | **1** |
| | **Wood decay** | **-** | **Basidiomycete** | **1** | **0** | **1** |
| **PLUM (Prunus)** | | | | | | |
| | **Black knot** | **-** | **Apiosporina** | **3** | **0** | **3** |
| | **Insect injury** | | | **2** | **0** | **2** |
| | **Lichen** | | | **1** | **0** | **1** |
| | **No disease** | | | **1** | **0** | **1** |
| | | | **HERBS** | | | |
| **BASIL (Ocimum)** | | | | | | |
| | **Downy mildew** | **-** | **Peronospora** | **1** | **0** | **1** |
| **BONESET (Eupatorium)** | | | | | | |
| | **Root/stem rot** | **-** | **Pythium** | **1** | **0** | **1** |
| | | - | **Rhizoctonia** | **0** | **1** | **1** |
| **HOPS (Humulus)** | | | | | | |
| | **Leaf spot** | **-** | **Mycosphaerella** | **1** | **0** | **1** |
| **LAVENDER (Lavandula)** | | | | | | |
| | **Root rot** | **-** | **Pythium** | **1** | **0** | **1** |
| **PARSLEY (Petroselinum)** | | | | | | |
| | **Insect** | **-** | **aphid** | **1** | **0** | **1** |
| **ROSEMARY (Rosmarinus)** | | | | | | |
| | **No disease** | | | **1** | **0** | **1** |
| | **Nutritional** | **-** | **soluble salts** | **1** | **0** | **1** |
| | **Root rot** | **-** | **Pythium** | **1** | **0** | **1** |
| **SAGE (Salvia)** | | | | | | |
| | **Root rot** | **-** | **Pythium** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **MISCELLANEOUS** | | | | | | |
| **ARABIDOPSIS (Arabidopsis)** | | | | | | |
| | **No disease** | | | **1** | **0** | **1** |
| | **Virus** | **-** | **Impatiens necrotic spot** | **1** | **0** | **1** |
| **NICOTIANA** | | | | | | |
| | **Gall** | **-** | **unknown** | **1** | **0** | **1** |
| | **No disease** | | | **2** | **0** | **2** |
| **SOIL** | | | | | | |
| | **No disease** | | | **1** | | **1** |
| **UNKNOWN** | | | | | | |
| | **Insect specimen or problem** | **-** | **bee** | **1** | | **1** |
| | **Inadequate specimen, no disease** | | | **2** | | **2** |
| **IDENTIFICATIONS** | | | | | | |
| **FUNGAL IDENTIFICATIONS** | | | | | | |
| | **Agaricus** | **-** | **campestris** | **1** | | **1** |
| | | - | **species** | **1** | | **1** |
| | **Aspergillus** | **-** | **niger** | **1** | | **1** |
| | **Basidiomycete** | **-** | **species** | **2** | | **2** |
| | **Calvatia** | **-** | **gigantea** | **1** | | **1** |
| | **Catharellus** | **-** | **cibarius** | **1** | | **1** |
| | **Chlorophyllum** | **-** | **molybdites** | **2** | | **2** |
| | **Destuntzia** | **-** | **species** | **3** | | **3** |
| | **Ganoderma** | **-** | **species** | **1** | | **1** |
| | **Grifola** | **-** | **frondosa** | **2** | | **2** |
| | **Inadequate specimen** | | | **6** | | **6** |
| | **Irpex** | **-** | **lacteus** | **1** | | **1** |
| | **Laetiporus** | **-** | **sulphureus** | **1** | | **1** |
| | **Lentinula** | **-** | **edodes** | **1** | | **1** |
| | **Lepiota** | **-** | **cepaestipes** | **1** | | **1** |
| | **Mutinus** | **-** | **caninus** | **1** | | **1** |
| | **Mycena** | **-** | **species** | **1** | | **1** |
| | **Omphalotus** | **-** | **olearius** | **1** | | **1** |
| | **Panaeolus** | **-** | **foenisecii** | **2** | | **2** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **Polyporus** | | **- species** | **1** | | **1** |
| | **Poria** | **- species** | **1** | | **1** |
| | **Puffball** | **- unknown** | **1** | | **1** |
| | **Russula** | **- emetic** | **1** | | **1** |
| | | - **nigricans** | **1** | | **1** |
| | **Scleroderma** | **- species** | **1** | | **1** |
| | **Trametes** | **- elegans** | **1** | | **1** |
| | **Tricholoma** | **- species** | **1** | | **1** |
| **LICHEN IDENTIFICATIONS** | | | | | |
| | **Lichen** | **- species** | **1** | | **1** |
| **PLANT IDENTIFICATIONS** | | | | | |
| | **Aesculus** | **- glabra** | **1** | | **1** |
| | | **- species** | **1** | | **1** |
| | **Barbarea** | **- vulgaris arcuta** | **1** | | **1** |
| | **Brassica** | **- rapa** | **1** | | **1** |
| | **Carya** | **- illinoinensis** | **1** | | **1** |
| | **Cornus** | **- racemosa** | **1** | | **1** |
| | **Cyanobacteria** | **- speices** | **1** | | **1** |
| | **Fraxinus** | **- americana** | **1** | | **1** |
| | | - **pennsylvanica** | **1** | | **1** |
| | **Gleditsia** | **- speices** | **1** | | **1** |
| | **Gymnocladus** | **- dioicus** | **2** | | **2** |
| | **Inadequate specimen** | | **4** | | **4** |
| | **Ligustrum** | **- sinense** | **1** | | **1** |
| | **Lonicera** | **- maackii** | **1** | | **1** |
| | **Malus** | **- species** | **1** | | **1** |
| | **Mangifera** | **- species** | **1** | | **1** |
| | **Morus** | **- alba** | **1** | | **1** |
| | | - **species** | **1** | | **1** |
| | **Moss** | **- species** | **2** | | **2** |
| | **Nostoc** | **- species** | **4** | | **4** |
| | **Nyssa** | **- sylvatica** | **1** | | **1** |
| | **Passiflora** | **- incarnata** | **1** | | **1** |
| | **Paulownia** | **- tomentosa** | **1** | | **1** |
| | **Polygonium** | **- cuspidatum** | **1** | | **1** |
| | **Prunus** | **- persica** | **1** | | **1** |
| | | - **serotina** | **1** | | **1** |
| | **Quercus** | **- species** | **1** | | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **PLANT IDENTIFICATIONS (cont'd)** | | | | | | |
| | **Unknown** | **-** | **unknown** | **1** | | **1** |
| | | | **ORNAMENTALS** | | | |
| | | | **HERBACEOUS ORNAMENTALS and INDOOR PLANTS** | | | |
| **ADENOCARPUS (Adenocarpus)** | | | | | | |
| | **Root rot** | **-** | **Pythium** | **1** | **0** | **1** |
| **AFRICAN VIOLET (Saintpaulia)** | | | | | | |
| | **No disease** | | | **1** | | **1** |
| **AJUGA (Ajuga)** | | | | | | |
| | **Southern blight** | **-** | **Sclerotium** | **1** | **0** | **1** |
| **ANTHURIUM** | | | | | | |
| | **Bacterial spot** | **-** | **unknown** | **1** | **0** | **1** |
| **ASTER (Aster)** | | | | | | |
| | **Insect injury** | | | **1** | **1** | **2** |
| | **Leaf spot** | **-** | **Alternaria** | **1** | **0** | **1** |
| | **Rust** | **-** | **Coleosporium** | **1** | **0** | **1** |
| **BACOPA (Bacopa)** | | | | | | |
| | **No disease** | | | **1** | | **1** |
| **BEGONIA (Begonia)** | | | | | | |
| | **Environmental injury** | | | **2** | **0** | **2** |
| **BIDENS** | | | | | | |
| | **Cultural** | **-** | **transplant shock** | **1** | **0** | **1** |
| | **Root rot** | **-** | **Rhizoctonia** | **0** | **1** | **1** |
| **BRUNNERA** | | | | | | |
| | **Stem rot** | **-** | **Rhizoctonia** | **1** | **0** | **1** |
| **CACTUS (Schlumbergera)** | | | | | | |
| | **Insect injury** | **-** | **spider mite** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **CALIBRACHOA (Calibrachoa)** | | | | | |
| | **Insect injury** | **- aphid** | **1** | **0** | **1** |
| | **No disease** | | **1** | | **1** |
| | **Nutritional** | **- general** | **0** | **1** | **1** |
| | | **- high pH** | **1** | **0** | **1** |
| | | **- iron deficiency** | **2** | **0** | **2** |
| | **Root/stem rot** | **- Pythium** | **2** | **0** | **2** |
| | | - **Rhizoctonia** | **0** | **1** | **0** |
| **CHRYSANTHEMUM (Chrysanthemum)** | | | | | |
| | **Bacterial spot** | **- Pseudomonas** | **1** | **0** | **1** |
| | **Blight** | **- Ascochyta** | **0** | **1** | **1** |
| | **Leaf spot** | **- Cercospora** | **0** | **1** | **1** |
| | **No disease, inadequate sample** | | **3** | | **3** |
| | **Nutritional** | **- general** | **1** | **0** | **1** |
| | **Physiological** | **- unknown** | **1** | **0** | **1** |
| | **Root rot** | **- Pythium** | **2** | **0** | **2** |
| | **Root/stem rot** | **- Rhizoctonia** | **2** | **1** | **3** |
| | **Web blight** | **- Rhizoctonia** | **2** | **0** | **2** |
| | **Wilt** | **- Fusarium** | **3** | **0** | **3** |
| **CLEMATIS (Clematis)** | | | | | |
| | **Leaf spot** | **- Phyllosticta** | **1** | **0** | **1** |
| **COFFEE PLANT (Coffea)** | | | | | |
| | **Root rot** | **- Rhizoctonia** | **1** | **0** | **1** |
| **CONE FLOWER (Echinacea)** | | | | | |
| | **No disease** | | **1** | | **1** |
| **CUPHEA (Cuphea)** | | | | | |
| | **Distortion** | **- physiological** | **1** | **0** | **1** |
| **DAISY (Dimorphotheca)** | | | | | |
| | **Crown rot** | **- Pythium** | **1** | **0** | **1** |
| | **Insect injury** | **- fungus gnat** | **1** | **0** | **1** |
| **DAYLILY (Hemerocallis)** | | | | | |
| | **Bacterial soft rot** | **- Erwinia** | **2** | **0** | **2** |
| | **Leaf streak** | **- Aureobasidium** | **4** | **0** | **4** |
| | **No disease** | | **2** | | **2** |

| *CROP* *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|
| **DIANTHUS (Dianthus)** | | | | |
| **Chemical** | **- unknown** | **1** | **0** | **1** |
| **Root/stem rot** | **- Fusarium** | **1** | **0** | **1** |
| **DRACAENA (Dracaena)** | | | | |
| **Decline** | **- unknown** | **1** | **0** | **1** |
| **FERN (Nephrolepis)** | | | | |
| **Environmental injury** | **- frost** | **1** | **0** | **1** |
| **Nutritional** | **- nitrogen deficiency** | **1** | **0** | **1** |
| | **- soluble salts** | **1** | **0** | **1** |
| **FOUNTAIN GRASS (Pennisetum)** | | | | |
| **No disease** | | **1** | | **1** |
| **FUCHSIA (Fuchsia)** | | | | |
| **Insect injury** | | **1** | **1** | **2** |
| **GARDENIA (Gardenia)** | | | | |
| **Insect injury** | **- spider mite** | **1** | **0** | **1** |
| **GERANIUM (Pelargonium)** | | | | |
| **Cultural** | **- oedema** | **1** | **0** | **1** |
| **No disease, inadequate sample** | | **2** | | **2** |
| **Nutritional** | **- low fertility** | **1** | **0** | **1** |
| **GUNNERA (Gunnera0** | | | | |
| **No disease** | | **1** | | **1** |
| **HOLLYHOCK (Althaea)** | | | | |
| **Charcoal rot** | **- Macrophomina** | **1** | **0** | **1** |
| **Insect injury** | | **1** | **1** | **2** |
| **Leaf blight** | **- Ascochyta** | **1** | **0** | **1** |
| **Physical injury** | **- rodent** | **0** | **1** | **1** |
| **Stem rot** | **- Cercospora** | **0** | **1** | **1** |
| **Rust** | **- Puccinia** | **19** | **0** | **19** |
| **HOSTA (Hosta)** | | | | |
| **Bacterial soft rot** | **- Erwinia** | **0** | **1** | **1** |
| **Environmental stresses** | | **2** | **0** | **2** |
| **Insect injury** | **- slug** | **2** | **0** | **2** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **HOSTA (Hosta) (cont'd)** | | | | | | |
| | **No disease** | | | **2** | | **2** |
| **IMPATIENS (Impatiens)** | | | | | | |
| | **Cultural** | **-** | **high temperature** | **1** | **0** | **1** |
| | **Downy mildew** | **-** | **Plasmopara** | **5** | **0** | **5** |
| | **Inadequate specimen, no disease** | | | **2** | | **2** |
| | **Insect injury** | **-** | **thrips** | **1** | **0** | **1** |
| | **Leaf spot** | **-** | **Cercospora** | **1** | **0** | **1** |
| | **Nutritional** | **-** | **general** | **0** | **1** | **1** |
| **IRIS (Iris)** | | | | | | |
| | **Bacterial soft rot** | **-** | **Erwinia** | **1** | **0** | **1** |
| | **Leaf spot** | **-** | **Heterosporium** | **4** | **0** | **4** |
| **IVY (Hedera)** | | | | | | |
| | **Anthracnose** | **-** | **Colletotrichum** | **2** | **0** | **2** |
| | **Bacterial spot** | **-** | **Xanthomonas** | **2** | **0** | **2** |
| | **Dieback** | **-** | **unknown** | **1** | **0** | **1** |
| **LANTANA (Lantana)** | | | | | | |
| | **Root rot** | **-** | **Rhizoctonia** | **1** | **0** | **1** |
| **LIGULARIA (Ligularia)** | | | | | | |
| | **Leaf spot** | **-** | **Alternaria** | **1** | **0** | **1** |
| **LIRIOPE (Liriope)** | | | | | | |
| | **Anthracnose** | **-** | **Colletotrichum** | **2** | **0** | **2** |
| | **Crown rot** | **-** | **Phytophthora** | **3** | **0** | **3** |
| | | - | **Rhizoctonia** | **1** | **0** | **1** |
| | **Insect injury** | **-** | **scale** | **0** | **1** | **1** |
| **MANDEVILLA (Mandevilla)** | | | | | | |
| | **Inadequate sample** | | | **1** | | **1** |
| | **Insect injury** | **-** | **spider mite** | **1** | **0** | **1** |
| **MARIGOLD (Tagetes)** | | | | | | |
| | **Nutritional** | **-** | **fertilizer burn** | **1** | **0** | **1** |
| **MISCANTHUS (Miscanthus)** | | | | | | |
| | **Nutritional** | **-** | **general** | **0** | **1** | **1** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **MISCANTHUS (Miscanthus) (cont'd)** | | | | | |
| | **Root rot** | **- Pythium** | **1** | **0** | **1** |
| **NASTURTIUM (Tropaeolum)** | | | | | |
| | **Chemical** | **- insecticide** | **1** | **0** | **1** |
| **NORFOLK ISLAND PINE (Araucaria)** | | | | | |
| | **No disease** | | **1** | | **1** |
| **ORANGE TREE (Citrus)** | | | | | |
| | **Nutritional** | **- general** | **1** | **0** | **1** |
| **ORCHID (Cymbidium)** | | | | | |
| | **Nutritional** | **- calcium deficiency** | **1** | **0** | **1** |
| **ORNAMENTAL GRASS (unknown)** | | | | | |
| | **Insect injury** | **- scale** | **1** | **0** | **1** |
| **OSTEOSPERMUM (Osteospermum)** | | | | | |
| | **Insect injury** | **- thrips** | **1** | **0** | **1** |
| **PACHYSANDRA (Pachysandra)** | | | | | |
| | **Environmental** | **- drought** | **1** | **0** | **1** |
| | **Insect injury** | | **1** | **1** | **2** |
| | **Leaf/stem blight** | **- Volutella** | **6** | **0** | **6** |
| **PALM (various)** | | | | | |
| | **Leaf scorch** | **- unknown** | **1** | **0** | **1** |
| **PANSY (Viola)** | | | | | |
| | **Black root rot** | **- Thielaviopsis** | **6** | **0** | **6** |
| | **No disease** | | **1** | | **1** |
| | **Nutritional** | **- pH high** | **0** | **1** | **1** |
| | | **- phosphorus deficiency** | **1** | **0** | **1** |
| | **Root rot** | **- Pythium** | **1** | **1** | **2** |
| **PEONY (Paeonia)** | | | | | |
| | **Bacterial soft rot** | **- Erwinia** | **1** | **0** | **1** |
| | **Blight** | **- Botrytis** | **0** | **2** | **2** |
| | **Chemical** | **- growth regulator** | **1** | **0** | **1** |
| | **Environmental stresses** | | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **PEONY (Paeonia) (cont'd)** | | | | | | |
| | **Insect injury** | **-** | **thrips** | **2** | **1** | **2** |
| | **No disease** | | | **1** | | **1** |
| | **Powdery mildew** | **-** | **Erysiphe** | **1** | **0** | **1** |
| **PERIWINKLE (Catharanthus)** | | | | | | |
| | **Black root rot** | **-** | **Thielaviopsis** | **3** | **0** | **3** |
| | **No disease** | | | **1** | | **1** |
| | **Root rot** | **-** | **Pythium** | **1** | **2** | **3** |
| | | - | **Rhizoctonia** | **1** | **1** | **2** |
| **PETUNIA (Petunia)** | | | | | | |
| | **Black root rot** | **-** | **Thielaviopsis** | **2** | **0** | **2** |
| | **Crown rot** | **-** | **Pythium** | **1** | **0** | **1** |
| | **Insect** | **-** | **fungus gnat** | **1** | **0** | **1** |
| | **No disease** | | | **4** | | **4** |
| | **Powdery mildew** | **-** | **Oidium** | **1** | **0** | **1** |
| | **Root rot** | **-** | **Pythium** | **1** | **1** | **2** |
| | **Root/stem rot** | **-** | **Pythium** | **1** | **0** | **1** |
| | | **-** | **Rhizoctonia** | **4** | **1** | **5** |
| | **Stem rot** | **-** | **Fusarium** | **0** | **1** | **1** |
| | | **-** | **Sclerotinia** | **1** | **0** | **1** |
| **PHLOX (Phlox)** | | | | | | |
| | **Charcoal rot** | **-** | **Macrophomina** | **1** | **0** | **1** |
| | **Insect injury** | | | **2** | **0** | **2** |
| | **No disease** | | | **1** | | **1** |
| **POINSETTIA (Euphorbia)** | | | | | | |
| | **Cultural** | **-** | **insufficient water** | **1** | **0** | **1** |
| | **Leaf distortion** | **-** | **environmental** | **1** | **0** | **1** |
| | **No disease** | | | **1** | | **1** |
| | **Nutritional** | **-** | **calcium deficiency** | **1** | **0** | **1** |
| | | - | **general** | **1** | **0** | **1** |
| **RUDBECKIA (Rudbeckia)** | | | | | | |
| | **Insect injury** | **-** | **aphid** | **0** | **1** | **1** |
| | **No disease** | | | **1** | | **1** |
| | **Nutritional** | **-** | **general** | **1** | **0** | **1** |
| | **Root/stem rot** | **-** | **Pythium** | **1** | **0** | **1** |
| | | - | **Rhizoctonia** | **1** | **1** | **2** |

| *CROP* *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|
| **SALVIA (Salvia)** | | | | |
| **Insect injury** | | **1** | **1** | **2** |
| **Root/stem rot** | **- Rhizoctonia** | **1** | **0** | **1** |
| **SCAEVOLA (Scaevola)** | | | | |
| **Nutritional** | **- Iron deficiency** | **1** | **0** | **1** |
| **SCHEFFLERA (Schefflera)** | | | | |
| **Nutritional** | **- potassium deficiency** | **1** | **0** | **1** |
| **Wilt** | **- unknown** | **1** | **0** | **1** |
| **SEDUM (Sedum)** | | | | |
| **No disease** | | **1** | | **1** |
| **SNAPDRAGON (Antirrhinum)** | | | | |
| **Insect injury** | **- shorefly** | **1** | **0** | **1** |
| **No disease** | | **1** | | **1** |
| **SPATHIPHYLLUM (Spathiphyllum)** | | | | |
| **No disease** | | **1** | | **1** |
| **SWEETPOTATO (Ipomoea)** | | | | |
| **Cultural** | **- oedema** | **1** | **0** | **1** |
| **Mutation** | **- genetic** | **0** | **1** | **1** |
| **VERBENA (Verbena)** | | | | |
| **Insect injury** | | **4** | | **4** |
| **VINCA (Vinca)** | | | | |
| **Canker/ dieback** | **- Phoma** | **2** | **0** | **2** |
| **VINE (unknown)** | | | | |
| **No disease** | | **1** | | **1** |
| **YUCCA (Yucca)** | | | | |
| **Leaf spot** | **- Coniothyrium** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| | | | **TURFGRASS** | | | |
| **BENTGRASS (Agrostis)** | | | | | | |
| | **Anthracnose** | **-** | **Colletotrichum** | **5** | **0** | **5** |
| | **Cottony blight** | **-** | **Pythium** | **1** | **0** | **1** |
| | **Cultural** | **-** | **layering** | **1** | **1** | **2** |
| | **Dollar spot** | **-** | **Sclerotinia** | **1** | **1** | **2** |
| | **Environmental stresses** | | | **2** | **2** | **4** |
| | **Gall** | **-** | **nematode** | **0** | **1** | **1** |
| | **No disease** | | | **3** | | **3** |
| | **Root rot** | **-** | **Pythium** | **12** | **3** | **15** |
| | **Snow mold** | **-** | **Coprinus** | **0** | **1** | **1** |
| | **Summer patch** | **-** | **Magnaporthe** | **1** | **0** | **1** |
| | **Take-all patch** | **-** | **Gaeumannomyces** | **5** | **1** | **6** |
| **BERMUDAGRASS (Cynodon)** | | | | | | |
| | **Loose smut** | **-** | **Ustilago** | **4** | **0** | **4** |
| | **Root decline** | **-** | **Gaeumannomyces** | **1** | **0** | **1** |
| **BLUEGRASS (Poa)** | | | | | | |
| | **Anthracnose** | **-** | **Colletotrichum** | **1** | **0** | **1** |
| | **Brown patch** | **-** | **Rhizoctonia** | **1** | **0** | **1** |
| | **Cultural** | **-** | **high temperature** | **2** | **0** | **2** |
| | | - | **heavy thatch** | **0** | **1** | **1** |
| | **Environmental** | **-** | **drought** | **2** | | |
| | | - | **high temperature** | **1** | **6** | **7** |
| | **No disease** | | | **2** | | **2** |
| | **Necrotic ring spot** | **-** | **Leptosphaeria** | **1** | **0** | **1** |
| | **Physical injury** | **-** | **mower** | **1** | **0** | **1** |
| | **Summer patch** | **-** | **Magnaporthe** | **10** | **0** | **10** |
| **FESCUE (Festuca)** | | | | | | |
| | **Anthracnose** | **-** | **Colletotrichum** | **1** | **2** | **3** |
| | **Brown patch** | **-** | **Rhizoctonia** | **14** | **0** | **14** |
| | **Cultural** | **-** | **heavy thatch** | **1** | **2** | **3** |
| | **Environmental** | **-** | **high temperature** | **1** | **0** | **1** |
| | | - | **stresses** | **1** | **0** | **1** |
| | **Inadequate specimen, no disease** | | | **3** | | **3** |
| | **Red thread** | **-** | **Laetisaria** | **6** | **0** | **6** |
| | **Rust** | **-** | **Puccinia** | **3** | **1** | **4** |
| | **Slime mold** | **-** | **species** | **1** | **0** | **1** |
| | **Yellow patch** | **-** | **Rhizoctonia** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **RYEGRASS (Lolium)** | | | | | | |
| | **Anthracnose** | **-** | **Colletotrichum** | **1** | **0** | **1** |
| | **Brown patch** | **-** | **Rhizoctonia** | **1** | **0** | **1** |
| | **Gray leaf spot** | **-** | **Pyricularia** | **4** | **0** | **4** |
| | **Leaf spot** | **-** | **Curvularia** | **0** | **1** | **1** |
| | **No disease** | | | **1** | | **1** |
| | **Pink snow mold** | **-** | **Microdochium** | **1** | **0** | **1** |
| | **Root decline** | **-** | **Gaeumannomyces** | **2** | **0** | **2** |
| | **Rust** | **-** | **Puccinia** | **0** | **1** | **1** |
| **TURF (unspecified)** | | | | | | |
| | **Anthracnose** | **-** | **Colletotrichum** | **0** | **1** | **1** |
| | **Brown patch** | **-** | **Rhizoctonia** | **1** | **0** | **1** |
| | **Loose smut** | **-** | **Ustilago** | **1** | **0** | **1** |
| | **No disease** | | | **1** | | **1** |
| | **Slime mold** | **-** | **species** | **2** | **0** | **2** |
| **ZOYSIA** | | | | | | |
| | **Large patch** | **-** | **Rhizoctonia** | **1** | **1** | **2** |
| | **No disease** | | | **1** | | **1** |
| | **Root decline** | **-** | **Gaeumannomyces** | **1** | **0** | **1** |
| | **Rust** | **-** | **Puccinia** | **1** | **0** | **1** |

## WOODY ORNAMENTALS

| | | | | | | |
|---|---|---|---|---|---|---|
| **ABELIA (Abelia)** | | | | | | |
| | **Environmental** | **-** | **cold injury** | **1** | **0** | **1** |
| **ALDER (Alnus)** | | | | | | |
| | **Insect injury** | | | **1** | **0** | **1** |
| **ARBORVITAE (Thuja)** | | | | | | |
| | **Chemical injury** | **-** | **growth regulator** | **3** | **0** | **3** |
| | **Cultural** | **-** | **transplant shock** | **6** | **0** | **6** |
| | **Decline** | **-** | **unknown** | **1** | **0** | **1** |
| | **Environmental** | **-** | **stresses** | **4** | **0** | **4** |
| | | **-** | **winter injury** | **1** | **0** | **1** |
| | **Insect injury** | | | **12** | **4** | **16** |
| | **Leaf blackening** | **-** | **unknown** | **1** | **0** | **1** |
| | **Needle drop** | **-** | **normal** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **ARBORVITAE (Thuja) (cont'd)** | | | | | |
| | **No disease** | | **5** | | **5** |
| | **Root rot** | **- Phytophthora** | **3** | **0** | **3** |
| | **Tip dieback** | **- unknown** | **1** | **0** | **1** |
| | **Twig blight** | **- Pestalotiopsis** | **1** | **3** | **4** |
| **ASH (Fraxinus)** | | | | | |
| | **Canker** | **- Botryosphaeria** | **0** | **1** | **1** |
| | **Chemical** | **- insecticide** | **1** | **0** | **1** |
| | **Environmental** | **- stress** | **1** | **0** | **1** |
| | **Insect injury** | | **3** | **0** | **3** |
| | **No disease** | | **1** | | **1** |
| **AUCUBA (Aucuba)** | | | | | |
| | **Environmental** | **- cold injury** | **1** | **0** | **1** |
| | | **- stress** | **1** | **0** | **1** |
| **AZALEA - See listing under RHODODENDRON** | | | | | |
| **BALDCYPRESS (Taxodium)** | | | | | |
| | **Lichen** | **- species** | **1** | **0** | **1** |
| **BEECH (Fagus)** | | | | | |
| | **Anthracnose** | **- Apiognomonia** | **1** | **0** | **1** |
| | **Leaf scorch** | **- unknown** | **1** | **0** | **1** |
| | **Root rot** | **- Armillaria** | **0** | **1** | **1** |
| | | **- Phytophthora** | **1** | **0** | **1** |
| **BIRCH (Betula)** | | | | | |
| | **Anthracnose** | **- Gloeosporium** | **0** | **1** | **1** |
| | **Insect injury** | | **5** | **0** | **5** |
| | **Nutritional** | **- iron deficiency** | **1** | **0** | **1** |
| **BLACK GUM (Tupelo)** | | | | | |
| | **Decline** | **- unknown** | **1** | **0** | **1** |
| | **Insect injury** | | **1** | | **1** |
| **BOXWOOD (Buxus)** | | | | | |
| | **Canker** | **- Pseudonectria** | **11** | **3** | **14** |
| | **Cultural** | **- transplant shock** | **5** | **0** | **5** |
| | **Decline** | **- unknown** | **2** | **0** | **2** |
| | **Environmental stresses** | | **7** | **1** | **8** |

| *CROP DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|
| **BOXWOOD (Buxus) (cont'd)** | | | | |
| **Insect injury** | | **8** | **2** | **10** |
| **Leaf blight** | **- Macrophoma** | **0** | **2** | **2** |
| **No disease** | | **3** | | **3** |
| **BUCKEYE (Aesculus)** | | | | |
| **Leaf blotch** | **- Guignardia** | **1** | **0** | **1** |
| **No disease** | | **1** | | **1** |
| **BUTTERFLY BUSH (Buddleia)** | | | | |
| **Environmental stresses** | | **0** | **1** | **1** |
| **Insect injury** | | **3** | **1** | **1** |
| **CAROLINA SILVERBELL (Halesia)** | | | | |
| **Root rot** | **- Phytophthora** | **1** | **0** | **1** |
| **CAMELLIA (Camellia)** | | | | |
| **No disease** | | **1** | | **1** |
| **CHAMAECYPARIS (Chamaecyparis)** | | | | |
| **Chemical** | **- herbicide** | **1** | **0** | **1** |
| **Environmental** | **- stress** | **1** | **0** | **1** |
| **Needle browning** | **- normal** | **1** | **0** | **1** |
| **CHERRY (Prunus)** | | | | |
| **Bacterial spot** | **- Xanthomonas** | **1** | **2** | **3** |
| **Black root rot** | **- Thielaviopsis** | **1** | **0** | **1** |
| **Canker** | **- unknown** | **1** | **0** | **1** |
| **Cultural** | **- pot bound** | **1** | **0** | **1** |
| **Insect injury** | | **2** | **1** | **3** |
| **Leaf scorch** | **- environmental** | **1** | **0** | **1** |
| **Leaf spot** | **- Coccomyces** | **1** | **0** | **1** |
| | **- fungal** | **1** | **0** | **1** |
| **No disease** | | **3** | | **3** |
| **CHERRYLAUREL (Prunus)** | | | | |
| **Bacterial spot** | **- Xanthomonas** | **5** | **2** | **7** |
| **Chemical** | **- growth regulator** | **1** | **0** | **1** |
| **Cultural** | **- transplant shock** | **2** | **1** | **3** |
| **Environmental stresses** | | **4** | **1** | **5** |
| **Insect injury** | | **6** | **1** | **7** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **CHERRYLAUREL (Prunus) (cont'd)** | | | | | | |
| | **No disease** | | | **2** | | **2** |
| | **Root rot** | **-** | **Phytophthora** | **3** | **0** | **3** |
| **CHESTNUT (Castanea)** | | | | | | |
| | **Canker** | **-** | **Cryptodiaporthe** | **3** | **0** | **3** |
| | **Environmental** | **-** | **wet feet** | **1** | **0** | **1** |
| | **No disease** | | | **1** | | **1** |
| **CINNAMON (Cinnamomum)** | | | | | | |
| | **Leaf spot** | **-** | **Phyllosticta** | **1** | **0** | **1** |
| **COTONEASTER (Cotoneaster)** | | | | | | |
| | **Insect injury** | **-** | **lacebug** | **1** | **0** | **1** |
| | **Physical injury** | **-** | **rodent** | **1** | **0** | **1** |
| **CRABAPPLE (Malus)** | | | | | | |
| | **Environmental** | **-** | **decline** | **1** | **0** | **1** |
| | **Fire blight** | **-** | **Erwinia** | **3** | **0** | **3** |
| | **Insect injury** | **-** | **cicada** | **1** | **0** | **1** |
| | **No disease** | | | **1** | | **1** |
| | **Scab** | **-** | **Venturia** | **3** | **0** | **3** |
| **CRAPEMYRTLE (Lagerstroemia)** | | | | | | |
| | **Chemical** | **-** | **herbicide** | **3** | **0** | **3** |
| | **Environmental** | **-** | **cold injury** | **3** | **1** | **4** |
| | **Inadequate specimen** | | | **1** | | **1** |
| | **Leaf spot** | **-** | **Cercospora** | **1** | **0** | **1** |
| | **Web blight** | **-** | **Rhizoctonia** | **2** | **1** | **3** |
| **DOGWOOD (Cornus)** | | | | | | |
| | **Anthracnose** | **-** | **Discula** | **2** | **1** | **3** |
| | **Bacterial spot** | **-** | **unknown** | **1** | **0** | **1** |
| | **Chemical injury** | **-** | **growth regulator** | **2** | **0** | **2** |
| | **Cultural** | **-** | **transplant shock** | **2** | **0** | **2** |
| | **Decline** | **-** | **unknown** | **1** | **0** | **1** |
| | **Environmental stresses** | | | **6** | **0** | **6** |
| | **Insect injury** | | | **2** | **0** | **2** |
| | **Leaf spot** | **-** | **Phyllosticta** | **0** | **1** | **1** |
| | **Lichen** | **-** | **species** | **1** | **1** | **2** |

| *CROP DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|
| **DOGWOOD (Cornus) (cont'd)** | | | | |
| **No disease** | | **12** | | **12** |
| **Nutritional** | **- iron deficiency** | **1** | **0** | **1** |
| **Physical injury** | **- unknown** | **2** | **0** | **2** |
| **Powdery mildew** | **- Erysiphe** | **9** | **3** | **12** |
| **Spot anthracnose** | **- Elsinoe** | **3** | **0** | **3** |
| **Sunscald** | **- environmental** | **1** | **0** | **1** |
| **DOUGLAS FIR (Pseudotsuga)** | | | | |
| **Environmental stresses** | | **1** | **0** | **1** |
| **No disease** | | **1** | | **1** |
| **ELM (Ulmus)** | | | | |
| **Bacterial leaf scorch** | **- Xylella** | **1** | **0** | **1** |
| **Cultural** | **- transplant shock** | **1** | **0** | **1** |
| **Dutch elm disease** | **- Ophiostoma** | **1** | **0** | **1** |
| **Inadequate sample, no disease** | | **5** | | **5** |
| **Wood decay** | **- unknown** | **1** | **0** | **1** |
| **EUONYMUS (Euonymus)** | | | | |
| **Chemical injury** | **- growth regulator** | **1** | **0** | **1** |
| **Cultural** | **- transplant shock** | **1** | **0** | **1** |
| **Inadequate sample, no disease** | | **5** | | **5** |
| **Insect injury** | | **9** | **1** | **10** |
| **Physical injury** | **- rodent** | **1** | **0** | **1** |
| **Powdery mildew** | **- Microsphaera** | **7** | **0** | **7** |
| **Root rot** | **- Phytophthora** | **1** | **0** | **1** |
| **EUPHORBIA (Euphorbia)** | | | | |
| **Environmental** | **- wet feet** | **1** | **0** | **1** |
| **FIR (Abies)** | | | | |
| **Canker** | **- Diaporthe** | **1** | **0** | **1** |
| **Cultural** | **- transplant shock** | **2** | **0** | **2** |
| **Root/collar rot** | **- Phytophthora** | **1** | **0** | **1** |
| **FORSYTHIA (Forsythia)** | | | | |
| **Chemical** | **- unknown** | **1** | **0** | **1** |
| **Gall** | **- Phomopsis** | **1** | **0** | **1** |
| **No disease** | | **1** | | **1** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **FRINGE TREE (Chionanthus)** | | | | | |
| | **Anthracnose** | **- Apiognomonia** | **1** | **0** | **1** |
| | **Environmental** | **- high temperature** | **1** | **0** | **1** |
| **GINKGO (Ginkgo)** | | | | | |
| | **Environmental stresses** | | **2** | **0** | **2** |
| | **No disease** | | **1** | | **1** |
| **GOLDENRAINTREE (Koelreuteria)** | | | | | |
| | **Canker** | **- Botryosphaeria** | **1** | **0** | **1** |
| | **Wilt** | **- Verticillium** | **1** | **0** | **1** |
| **HAWTHORN (Crataegus)** | | | | | |
| | **Cedar/Quince rust** | **- Gymnosporangium** | **3** | **0** | **3** |
| | **Insect injury** | | **3** | **3** | **6** |
| | **Leaf spot** | **- Entomosporium** | **1** | **0** | **1** |
| **HEMLOCK (Tsuga)** | | | | | |
| | **Chemical** | **- growth regulator** | **1** | **0** | **1** |
| | **Environmental** | **- drought** | **2** | **1** | **3** |
| | **Insect injury** | | **11** | **1** | **12** |
| | **Root rot** | **- Phytophthora** | **1** | **0** | **1** |
| **HIBISCUS (Hibiscus)** | | | | | |
| | **Chemical injury** | **- growth regulator** | **1** | **0** | **1** |
| | **Cultural** | **- transplant shock** | **1** | **0** | **1** |
| | **Lichen** | **- species** | **1** | **0** | **1** |
| | **Nutritional** | **- general** | **1** | **0** | **1** |
| **HICKORY (Carya)** | | | | | |
| | **Cultural** | **- improper depth** | **0** | **1** | **1** |
| | **Insect injury** | | **4** | **1** | **5** |
| | **Leaf spot** | **- Gnomonia** | **2** | **0** | **2** |
| | **Physical injury** | **- unknown** | **1** | **0** | **1** |
| **HOLLY (Ilex)** | | | | | |
| | **Black root rot** | **- Thielaviopsis** | **14** | **1** | **15** |
| | **Blight** | **- Botrytis** | **0** | **1** | **1** |
| | **Canker** | **- Botryosphaeria** | **1** | **0** | **1** |
| | | **- unknown** | **1** | **0** | **1** |
| | **Chemical** | **- growth regulator** | **0** | **1** | **1** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **HOLLY (Ilex) (cont'd)** | | | | | |
| | **Cultural** | **- transplant shock** | **2** | **1** | **3** |
| | **Decline** | **- unknown** | **2** | **0** | **2** |
| | **Environmental stresses** | | **14** | **1** | **15** |
| | **Inadequate sample, no disease** | | **17** | | **17** |
| | **Insect injury** | | **15** | **4** | **19** |
| | **Leaf drop** | **- normal** | **3** | **0** | **3** |
| | **Leaf scorch** | **- unknown** | **1** | **0** | **1** |
| | **Nutritional** | **- iron deficiency** | **1** | **0** | **1** |
| | | **- general** | **1** | **0** | **1** |
| | | **- pH high** | **0** | **1** | **1** |
| | **Root rot** | **- Pythium** | **0** | **1** | **1** |
| | | - **Rhizoctonia** | **1** | **0** | **1** |
| | **Sooty mold** | **- species** | **0** | **3** | **0** |
| **HONEYLOCUST (Gleditsia)** | | | | | |
| | **Chemical** | **- growth regulator** | **1** | **0** | **1** |
| | **Insect injury** | | **2** | **0** | **2** |
| | **Leaf spot** | **- Cercospora** | **1** | **0** | **1** |
| | **No disease** | | **3** | | **3** |
| **HONEYSUCKLE (Lonicera)** | | | | | |
| | **Chemical** | **- growth regulator** | **1** | **0** | **1** |
| | **Insect injury** | **- leaf miner** | **1** | **0** | **1** |
| | **Leaf blight** | **- Insolibasidium** | **2** | **0** | **2** |
| | **Powdery mildew** | **- Erysiphe** | **1** | **0** | **1** |
| **HORSECHESTNUT (Aesculus)** | | | | | |
| | **Leaf blotch** | **- Guignardia** | **1** | **0** | **1** |
| **HYDRANGEA (Hydrangea)** | | | | | |
| | **Bacterial spot** | **- Xanthomonas** | **2** | **0** | **2** |
| | **Chemical injury** | **- growth regulator** | **1** | **0** | **1** |
| | **Cultural** | **- transplant shock** | **1** | **0** | **1** |
| | **Environmental stresses** | | **8** | **0** | **8** |
| | **Leaf spot** | **- Cercospora** | **1** | **0** | **1** |
| | **Nutritional** | **- general** | **1** | **0** | **1** |
| | **Root rot** | **- Phytophthora** | **2** | **0** | **2** |
| | | **- Pythium** | **1** | **0** | **1** |
| | **Wood decay** | **- Xylaria** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **JUNIPER and RED CEDAR (Juniperus)** | | | | | | |
| | **Cedar-apple rust** | **-** | **Gymnosporangium** | **2** | **0** | **2** |
| | **Canker** | **-** | **Botryosphaeria** | **1** | **0** | **1** |
| | **Cultural** | **-** | **transplant shock** | **1** | **0** | **1** |
| | **Dieback** | **-** | **unknown** | **2** | **0** | **2** |
| | **Environmental stresses** | | | **2** | **0** | **2** |
| | **Insect injury** | | | **8** | **6** | **14** |
| | **No disease** | | | **6** | | **6** |
| | ***(samples without pinewood nematode)** | | | **23** | | **23** |
| | **Twig blight** | **-** | **Pestalotiopsis** | **1** | **0** | **1** |
| | | **-** | **Phomopsis** | **2** | **0** | **2** |
| **KATSURA (Cercidiphyllum)** | | | | | | |
| | **Canker** | **-** | **Botryosphaeria** | **1** | **0** | **1** |
| **KIWI (Actinidia)** | | | | | | |
| | **No disease** | | | **1** | **0** | **1** |
| **LEYLAND CYPRESS (X Cupressocyparis)** | | | | | | |
| | **Canker** | **-** | **Botryosphaeria** | **1** | **0** | **1** |
| | | **-** | **Seiridium** | **3** | **0** | **3** |
| | **Cultural** | **-** | **transplant shock** | **1** | **0** | **1** |
| | **Environmental stresses** | | | **5** | **1** | **6** |
| | **Insect injury** | | | **1** | **0** | **1** |
| | **No disease** | | | **4** | | **4** |
| **LILAC (Syringa)** | | | | | | |
| | **Cultural** | **-** | **transplant shock** | **1** | **0** | **1** |
| | **Environmental stresses** | | | **2** | **0** | **2** |
| | **Insect injury** | | | **2** | **0** | **2** |
| | **No disease** | | | **4** | | **4** |
| | **Nutritional** | **-** | **iron deficiency** | **1** | **0** | **1** |
| | **Powdery mildew** | **-** | **Erysiphe** | **1** | **0** | **1** |
| | **Root rot** | **-** | **Phytophthora** | **1** | **0** | **1** |
| **MAGNOLIA (Magnolia)** | | | | | | |
| | **Canker** | **-** | **Botryosphaeria** | **1** | **0** | **1** |
| | **Cultural** | **-** | **transplant shock** | **2** | **0** | **2** |
| | **Environmental stresses** | | | **11** | **2** | **13** |
| | **Insect injury** | | | **7** | **0** | **7** |
| | **Leaf drop** | **-** | **normal** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **MAGNOLIA (Magnolia) (cont'd)** | | | | | |
| | **Leaf spot** | **- algal** | **1** | **0** | **1** |
| | **No disease** | | **5** | | **5** |
| | **Nutritional** | **- iron deficiency** | **0** | **1** | **1** |
| | **Physical injury** | **- unknown** | **1** | **0** | **1** |
| | **Powdery mildew** | **- species** | **3** | **0** | **3** |
| **MAHONIA (Mahonia)** | | | | | |
| | **Leaf spot** | **- Phyllosticta** | **1** | **0** | **1** |
| **MAPLE (Acer)** | | | | | |
| | **Anthracnose** | **- Kabatiella** | **4** | **1** | **5** |
| | **Canker** | **- Botryosphaeria** | **2** | **0** | **2** |
| | | **- Melanconium** | **0** | **1** | **1** |
| | **Chemical** | **- herbicide** | **1** | **0** | **1** |
| | **Cultural** | **- transplant shock** | **7** | **2** | **9** |
| | **Decline** | **- unknown** | **4** | **0** | **4** |
| | **Environmental stresses** | | **16** | **2** | **18** |
| | **Inadequate specimen, no disease** | | **13** | | **13** |
| | **Insect injury** | | **11** | **2** | **13** |
| | **Leaf scorch** | **- unknown** | **8** | **0** | **8** |
| | **Leaf spot** | **- fungal** | **1** | **0** | **1** |
| | | **Marssonina** | **1** | **0** | **1** |
| | | **- Phyllosticta** | **3** | **3** | **6** |
| | **Lichen** | **- species** | **1** | **1** | **2** |
| | **Sooty mold** | **- speices** | **0** | **1** | **1** |
| | **Tar spot** | **- Rhytisma** | **1** | **1** | **2** |
| **MIMOSA (Albizzia)** | | | | | |
| | **Dieback** | **- unknown** | **1** | **0** | **1** |
| | **No disease** | | **1** | | **1** |
| **MT. LAUREL (Kalmia)** | | | | | |
| | **Leaf blight** | **- Phytophthora** | **1** | **0** | **1** |
| | **Insect injury** | **- unknown** | **1** | **0** | **1** |
| | **No disease** | | **2** | | **2** |
| **MULBERRY (Morus)** | | | | | |
| | **Environmental stresses** | | **1** | **0** | **1** |
| | **Leaf spot** | **- Cercosporella** | **0** | **1** | **1** |
| | | **- Phloeospora** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **MULBERRY (Morus) (cont'd)** | | | | | | |
| | **No disease** | | | **1** | | **1** |
| **NINEBARK (Physocarpus)** | | | | | | |
| | **Insect injury** | | | **1** | **1** | **2** |
| **OAK (Quercus)** | | | | | | |
| | **Anthracnose** | **-** | **Apiognomonia** | **4** | **1** | **5** |
| | **Bacterial scorch** | **-** | **Xylella** | **37** | **0** | **37** |
| | **Canker** | **-** | **Hypoxylon** | **2** | **0** | **2** |
| | **Chemical injury** | **-** | **growth regulator** | **4** | **0** | **4** |
| | **Decline** | **-** | **unknown** | **1** | **0** | **1** |
| | **Environmental stresses** | | | **2** | **1** | **3** |
| | **Inadequate specimen, no disease** | | | **9** | | **9** |
| | **Insect injury** | | | **14** | **8** | **22** |
| | **Leaf scorch** | **-** | **unknown** | **2** | **0** | **2** |
| | **Leaf spot** | **-** | **Tubakia** | **3** | **0** | **3** |
| | **Nutritional** | **-** | **iron deficiency** | **7** | **1** | **8** |
| | **Powdery mildew** | **-** | **species** | **3** | **1** | **4** |
| **PEAR (Pyrus)** | | | | | | |
| | **Chemical injury** | **-** | **growth regulator** | **1** | **0** | **1** |
| | | **-** | **unknown** | **1** | **0** | **1** |
| | **Cultural** | **-** | **transplant shock** | **0** | **1** | **1** |
| | **Decline** | **-** | **environmental** | **1** | **1** | **2** |
| | | **-** | **unknown** | **2** | **0** | **2** |
| | **Environmental stresses** | | | **3** | **2** | **5** |
| | **Fire blight** | **-** | **Erwinia** | **19** | **0** | **19** |
| | **Inadequate sample** | | | **1** | | **1** |
| | **Insect injury** | | | **1** | **2** | **3** |
| | **Leaf scorch** | **-** | **environmental** | **1** | **0** | **1** |
| | **Wood decay** | **-** | **Irpex** | **1** | **0** | **1** |
| **PIERIS (Pieris)** | | | | | | |
| | **Leaf blight** | **-** | **Phytophthora** | **8** | **0** | **8** |
| | **No disease** | | | **30** | | **30** |
| | **Root rot** | **-** | **Phytophthora** | **1** | **0** | **1** |
| **PINE (Pinus)** | | | | | | |
| | **Chemical injury** | **-** | **growth regulator** | **2** | **0** | **2** |
| | **Cultural** | **-** | **transplant shock** | **3** | **0** | **3** |

| *CROP DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|
| **PINE (Pinus) (cont'd)** | | | | |
| **Environmental stresses** | | **1** | **0** | **1** |
| **Inadequate sample, no disease** | | **17** | | **17** |
| **Insect injury** | | **4** | **1** | **5** |
| **Lichen** | **- species** | **1** | **0** | **1** |
| **Needle blight** | **- Dothistroma** | **5** | **1** | **6** |
| **Needle drop** | **- normal** | **1** | **0** | **1** |
| **Needle rust** | **- Coleosporium** | **1** | **0** | **1** |
| **Pinewood nematode** | **- Bursaphelenchus** | **1** | **0** | **1** |
| **Root rot** | **- Phytophthora** | **7** | **0** | **7** |
| | - **Pythium** | **1** | **0** | **1** |
| **Sooty mold** | **- species** | **0** | **1** | **1** |
| **Tip blight** | **- Diplodia** | **5** | **0** | **5** |
| **White pine decline** | **- environmental** | **12** | **0** | **12** |
| **White pine root decline** | **- Verticicladiella** | **1** | **0** | **1** |
| **PLUM (Prunus)** | | | | |
| **Black knot** | **- Apiosporina** | **2** | **0** | **2** |
| **No disease** | | **2** | | **2** |
| **POPLAR (Populus)** | | | | |
| **Environmental stresses** | **- wet feet** | **1** | **0** | **1** |
| **Insect injury** | | **1** | **0** | **1** |
| **PRIVET (Ligustrum)** | | | | |
| **No disease** | | **1** | | **1** |
| **QUINCE (Cydonia)** | | | | |
| **Dieback** | **- unknown** | **1** | **0** | **1** |
| **REDBUD (Cercis)** | | | | |
| **Chemical injury** | **- growth regulator** | **2** | **1** | **3** |
| **Environmental** | **- cold injury** | **1** | **1** | **2** |
| **Insect injury** | | **3** | **0** | **3** |
| **Leaf spot** | **- unknown** | **1** | **0** | **1** |
| **Lichen** | **- species** | **1** | **0** | **1** |
| **No disease** | | **2** | | **2** |
| **Physical injury** | **- rodent** | **1** | **0** | **1** |
| **Virus** | **- unknown** | **1** | **0** | **1** |
| **Wetwood** | **- bacterial** | **1** | **0** | **1** |
| **Wilt** | **- Verticillium** | **2** | **0** | **2** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **RHODODENDRON and AZALEA (Rhododendron)** | | | | | | |
| | **Canker** | **-** | **Botryosphaeria** | **1** | **0** | **1** |
| | **Cultural** | **-** | **transplant shock** | **2** | **0** | **2** |
| | **Decline** | **-** | **unknown** | **1** | **0** | **1** |
| | **Dieback** | **-** | **Botryosphaeria** | **1** | **0** | **1** |
| | | - | **unknown** | **1** | **0** | **1** |
| | **Environmental** | **-** | **winter drying** | **1** | **1** | **2** |
| | **Inadequate sample** | | | **3** | | **3** |
| | **Insect injury** | | | **9** | **1** | **10** |
| | **Leaf blight** | **-** | **Phytophthora** | **60** | **0** | **60** |
| | **Leaf spot** | **-** | **fungal** | **1** | **0** | **1** |
| | **Lichen** | **-** | **species** | **2** | **0** | **2** |
| | **No disease** | | | **121** | | **121** |
| | **Nutritional** | **-** | **iron deficiency** | **2** | **1** | **3** |
| | | **-** | **pH high** | **1** | **0** | **1** |
| | **Root rot** | **-** | **Phytophthora** | **2** | **0** | **2** |
| **ROSE (Rosa)** | | | | | | |
| | **Black spot** | **-** | **Diplocarpon** | **4** | **4** | **8** |
| | **Blind shoots** | **-** | **unknown** | **2** | **0** | **2** |
| | **Chemical injury** | **-** | **glyphosate** | **1** | **0** | **1** |
| | | **-** | **growth regulator** | **3** | **0** | **3** |
| | | **-** | **herbicide** | **12** | **0** | **12** |
| | | **-** | **unknown** | **2** | **0** | **2** |
| | **Cultural** | **-** | **transplant shock** | **2** | **0** | **2** |
| | **Downy mildew** | **-** | **Peronospora** | **3** | **1** | **4** |
| | **Environmental stresses** | | | **4** | **0** | **4** |
| | **Insect injury** | | | **5** | **3** | **10** |
| | **Leaf scorch** | **-** | **unknown** | **1** | **0** | **1** |
| | **Leaf spot** | **-** | **Cercospora** | **5** | **0** | **5** |
| | | **-** | **fungal** | **1** | **0** | **1** |
| | **No disease** | | | **21** | | **21** |
| | **Nutritional** | **-** | **iron deficiency** | **2** | **0** | **2** |
| | **Powdery mildew** | **-** | **Podosphaera** | **10** | **1** | **11** |
| | **Virus** | **-** | **Rose mosaic** | **1** | **0** | **1** |
| | | **-** | **Rose rosette** | **17** | **0** | **17** |
| | **Tip blight** | **-** | **Alternaria** | **1** | **0** | **1** |
| **SERVICEBERRY (Amelanchier)** | | | | | | |
| | **Cedar-quince rust** | **-** | **Gymnosporangium** | **1** | **0** | **1** |
| | **Dieback** | **-** | **Botryosphaeria** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **SERVICEBERRY (Amelanchier) (cont'd)** | | | | | | |
| | **Environmental** | **-** | **compaction** | **0** | **1** | **1** |
| | **No disease** | | | **2** | | **2** |
| **SIBERIAN CYPRESS (Microbiota)** | | | | | | |
| | **Environmental stresses** | | | **1** | **0** | **1** |
| | **Root rot** | **-** | **Phytophthora** | **1** | **0** | **1** |
| **SMOKETREE (Cotinus)** | | | | | | |
| | **No disease** | | | **1** | | **1** |
| **SOURWOOD (Oxydendrum)** | | | | | | |
| | **Environmental** | **-** | **leaf scorch** | **1** | **0** | **1** |
| **SPICE BUSH (Lindera)** | | | | | | |
| | **Insect injury** | **-** | **aphid** | **1** | **0** | **1** |
| **SPIREA (Spiraea)** | | | | | | |
| | **No disease** | | | **1** | | **1** |
| **SPRUCE (Picea)** | | | | | | |
| | **Chemical injury** | **-** | **growth regulator** | **1** | **0** | **1** |
| | **Cultural** | **-** | **transplant shock** | **4** | **0** | **4** |
| | **Decline** | **-** | **unknown** | **2** | **0** | **2** |
| | **Environmental stresses** | | | **13** | **1** | **14** |
| | **Insect injury** | | | **10** | **3** | **13** |
| | **Lichen** | **-** | **species** | **1** | **0** | **1** |
| | **Needle blight** | **-** | **Stigmina** | **3** | **2** | **5** |
| | **Needle cast** | **-** | **Rhizosphaera** | **16** | **0** | **16** |
| | **Needle drop** | **-** | **normal** | **1** | **0** | **1** |
| | **No disease** | | | **36** | | **36** |
| | **Nutritional** | **-** | **magnesium deficiency** | **4** | **0** | **4** |
| | | **-** | **pH high** | **1** | **0** | **1** |
| | **Root rot** | **-** | **Phytophthora** | **3** | **0** | **3** |
| **ST. JOHN'S WORT (Hypericum)** | | | | | | |
| | **Cultural** | **-** | **transplant shock** | **1** | **1** | **2** |
| | **Dieback** | **-** | **unknown** | **1** | **0** | **1** |
| | **Root/Collar rot** | **-** | **Armillaria** | **1** | **0** | **1** |
| | **Rust** | **-** | **Uromyces** | **2** | **0** | **2** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **SYCAMORE (Platanus)** | | | | | |
| | **Bacterial leaf scorch** | **- Xylella** | **2** | **0** | **2** |
| | **Environmental** | **- frost injury** | **1** | **0** | **1** |
| | **No disease** | | **1** | | **1** |
| **TAXUS (Taxus)** | | | | | |
| | **Chemical injury** | **- growth regulator** | **1** | **0** | **1** |
| | **Cultural** | **- oedema** | **2** | **0** | **2** |
| | **Environmental stresses** | | **4** | **0** | **4** |
| | **Insect injury** | | **1** | **0** | **1** |
| | **No disease** | | **11** | | **11** |
| | **Root rot** | **- Phytophthora** | **2** | **0** | **2** |
| | **Twig blight** | **- Pestalotiopsis** | **1** | **0** | **1** |
| | | - **Phyllosticta** | **0** | **1** | **1** |
| **TULIPTREE (Liriodendron)** | | | | | |
| | **Environmental stresses** | | **1** | **1** | **2** |
| | **Insect injury** | | **3** | **0** | **3** |
| | **Leaf cupping** | **- unknown** | **1** | **0** | **1** |
| | **No disease** | | **1** | | **1** |
| | **Powdery mildew** | **- Oidium** | **0** | **1** | **1** |
| | **Sooty mold** | **- species** | **2** | **0** | **2** |
| | **Tar spot** | **- Rytisma** | **2** | **0** | **2** |
| | **Wetwood** | **- bacterial** | **1** | **0** | **1** |
| | **Wilt** | **- Verticillium** | **1** | **0** | **1** |
| **VIBURNUM (Viburnum)** | | | | | |
| | **Cultural** | **- transplant shock** | **1** | **0** | **1** |
| | **Decline** | **- unknown** | **1** | **0** | **1** |
| | **Environmental** | **- winter drying** | **1** | **0** | **1** |
| | **Leaf blight** | **- Phytophthora** | **1** | **0** | **1** |
| | **No disease** | | **74** | | **74** |
| **WALNUT (Juglans)** | | | | | |
| | **Insect injury** | | **3** | **0** | **3** |
| **WILLOW (Salix)** | | | | | |
| | **Canker** | **- Cytospora** | **1** | **0** | **1** |
| | **Cultural** | **- improper depth** | **1** | **0** | **1** |
| | | - **transplant shock** | **1** | **0** | **1** |
| | **Decline** | **- unknown** | **1** | **0** | **1** |

| *CROP DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|
| **WILLOW (Salix) (cont'd)** | | | | |
| **Insect injury** | | **2** | **0** | **2** |
| **Leaf spot** | **- Cercospora** | **1** | **0** | **1** |
| **WISTERIA (Wisteria)** | | | | |
| **No disease** | | **1** | | **1** |
| **WITCHHAZEL (Hamamelis)** | | | | |
| **Leaf blotch** | **- Phyllosticta** | **2** | **0** | **2** |
| **No disease** | | **1** | | **1** |
| **YELLOWWOOD (Cladrastis)** | | | | |
| **Anthracnose** | **- Gloeosporium** | **3** | **0** | **3** |
| **Cultural** | **- transplant shock** | **0** | **1** | **1** |
| **Inadequate sample, no disease** | | **3** | | **3** |
| **Insect injury** | | **1** | **1** | **2** |
| **Physical injury** | **- unknown** | **1** | **0** | **1** |

## VEGETABLES

| | | | | |
|---|---|---|---|---|
| **ASPARAGUS (Asparagus)** | | | | |
| **Blight** | **- Cercospora** | **2** | **0** | **2** |
| **Blue mold rot** | **- Penicillium** | **1** | **0** | **1** |
| **Crown rot** | **- Fusarium** | **1** | **0** | **1** |
| **Inadequate sample, no disease** | | **2** | | **2** |
| **BEAN (Phaseolus)** | | | | |
| **Angular leaf spot** | **- Phaeoisariopsis** | **3** | **0** | **3** |
| **Anthracnose** | **- Colletotrichum** | **2** | **1** | **3** |
| **Ashy stem blight** | **- Macrophomina** | **2** | **0** | **2** |
| **Chemical injury** | **- herbicide** | **3** | **0** | **3** |
| **Environmental stresses** | | **2** | **0** | **2** |
| **Inadequate specimen, no disease** | | **10** | | **10** |
| **Insect injury** | | **5** | **4** | **9** |
| **Leaf scorch** | **- unknown** | **3** | **0** | **3** |
| **Nutritional** | **- general** | **2** | **0** | **2** |
| **Root/stem rot** | **- Rhizoctonia** | **6** | **1** | **7** |
| **Seed rot** | **- Fusarium** | **1** | **0** | **1** |
| **Southern blight** | **- Sclerotium** | **1** | **0** | **1** |
| **Virus** | **- unknown** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **BEET (Beta)** | | | | | |
| | **Chemical** | **- herbicide** | **1** | **0** | **1** |
| | **Inadequate sample, no disease** | | **2** | | **2** |
| **BROCCOLI - See listing under CRUCIFERS** | | | | | |
| **CABBAGE - See listing under CRUCIFERS** | | | | | |
| **CANTALOUPE - See listing under CUCURBITS** | | | | | |
| **CAULIFLOWER -See listing under CRUCIFERS** | | | | | |
| **CORN, SWEET (Zea)** | | | | | |
| | **Anthracnose** | **- Colletotrichum** | **1** | **0** | **1** |
| | **Bacterial stalk rot** | **- Erwinia** | **1** | **0** | **1** |
| | **Chemical** | **- herbicide** | **2** | **0** | **2** |
| | **Environmental stresses** | | **1** | **1** | **2** |
| | **Insect injury** | | **2** | **1** | **3** |
| | **No disease** | | **3** | | **3** |
| | **Northern leaf blight** | **- Setosphaeria** | **2** | **0** | **2** |
| | **Nutritional** | **- acid soil** | **3** | **0** | **3** |
| | | **- fertilizer burn** | **1** | **0** | **1** |
| | | **- magnesium deficiency** | **1** | **0** | **1** |
| | | **- phosphorus deficiency** | **1** | **0** | **1** |
| | | **- soluble salts** | **0** | **1** | **1** |
| | | **- zinc deficiency** | **1** | **0** | **1** |
| | **Southern leaf blight** | **- Cochiobolus** | **1** | **0** | **1** |
| | **Stewart's wilt** | **- Erwinia** | **1** | **0** | **1** |
| | **Virus** | **- Maize dwarf mosaic** | **1** | **0** | **1** |
| **CRUCIFERS - BROCCOLI, CABBAGE, CAULIFLOWER, COLLARD, KALE, TURNIP (Brassica), RADISH (Raphanus)** | | | | | |
| | **Bacterial soft rot** | **- Erwinia** | **1** | **0** | **1** |
| | **Black rot** | **- Xanthomonas** | **2** | **0** | **2** |
| | **Chemical** | **- growth regulator** | **1** | **0** | **1** |
| | | - **insectide** | **1** | **0** | **1** |
| | | - **unknown** | **2** | **0** | **2** |
| | **Cultural** | **- transplant shock** | **1** | **0** | **1** |
| | | - **wet feet** | **1** | **1** | |
| | **Environmental stresses** | | **1** | **1** | **2** |
| | **Hollow heart** | **- boron deficiency** | **1** | **0** | **1** |
| | **Inadequate sample** | | **2** | | **2** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* Insect injur |
|---|---|---|---|---|---|---|
| **CRUCIFERS (cont'd)** | | | | | | |
| | **Leaf spot** | - | **Alternaria** | **1** | **0** | **1** |
| | | - | **Cercospora** | **1** | **0** | **1** |
| | **No disease** | | | **1** | | **1** |
| | **Nutritional** | - | **boron deficiency** | **1** | **0** | **1** |
| | | - | **phosphorus deficiency** | **1** | **0** | **1** |
| | | - | **soluble salts** | **1** | **0** | **1** |
| | **Root rot** | - | **Pythium** | **1** | **0** | **1** |
| | **White leaf spot** | - | **Pseudocercopora** | **1** | **0** | **1** |
| | **Wilt** | - | **Fusarium** | **1** | **0** | **1** |
| **CUCUMBER- See listing under CUCURBITS** | | | | | | |
| **CUCURBITS - CANTALOUPE, CUCUMBER, MELON (Cucumis), GOURD, PUMPKIN, SQUASH (Cucurbita) and WATERMELON (Citrullus)** | | | | | | |
| | **Angular leaf spot** | - | **Pseudomonas** | **3** | **0** | **3** |
| | **Anthracnose** | - | **Colletotrichum** | **1** | **0** | **1** |
| | **Bacterial fruit blotch** | - | **Acidovorax** | **4** | **0** | **4** |
| | **Bacterial soft rot** | - | **Erwinia** | **1** | **0** | **1** |
| | **Bacterial wilt** | - | **Erwinia** | **8** | **0** | **8** |
| | **Belly rot** | - | **Rhizoctonia** | **1** | **0** | **1** |
| | **Blight** | - | **Phytophthora** | **1** | **0** | **1** |
| | | - | **Plectosporium** | **0** | **1** | **1** |
| | **Blossom end rot** | - | **calcium deficiency/dry** | **1** | **0** | **1** |
| | **Chemical injury** | - | **growth regulator** | **2** | **0** | **2** |
| | | - | **herbicide** | **2** | **0** | **2** |
| | **Cultural** | - | **oedema** | **1** | **0** | **1** |
| | **Downy mildew** | - | **Pseudoperonospora** | **10** | **3** | **13** |
| | **Environmental stresses** | | | **8** | **0** | **8** |
| | **Fasciation** | - | **unknown** | **1** | **0** | **1** |
| | **Fruit rot** | - | **Phytophthora** | **1** | **0** | **1** |
| | **Gummy stem blight** | - | **Didymella** | **2** | **0** | **2** |
| | **Inadequate specimen, no disease** | | | **26** | | **26** |
| | **Insect injury** | | | **8** | **3** | **11** |
| | **Leaf blight** | - | **Alternaria** | **3** | **0** | **3** |
| | **Leaf spot** | - | **Alternaria** | **0** | **1** | **1** |
| | | - | **Cercospora** | **2** | **0** | **2** |
| | **Measles** | - | **physiological** | **1** | **0** | **1** |
| | **Mycoparasite** | - | **Ampelomyces** | **0** | **1** | **1** |

| *CROP DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|
| **CUCURBITS (cont'd)** | | | | |
| **Nutritional** | **- fertilizer burn** | **2** | **0** | **2** |
| | **- general** | **3** | **0** | **3** |
| | **- nitrogen deficiency** | **2** | **0** | **2** |
| | **- potassium deficiency** | **1** | **0** | **1** |
| | **- soluble salts** | **1** | **0** | **1** |
| **Pollination problem** | **- unknown** | **2** | **0** | **2** |
| **Powdery mildew** | **- Podosphaera** | **13** | **1** | **14** |
| **Root rot** | **- Pythium** | **0** | **3** | **3** |
| | **- Rhizoctonia** | **0** | **1** | **1** |
| **Root/crown rot** | **- Fusarium** | **1** | **0** | **1** |
| **Root/Stem rot** | **- Fusarium** | **0** | **1** | **1** |
| | **- Pythium** | **1** | **0** | **1** |
| | **- Rhizoctonia** | **2** | **0** | **2** |
| **Virus** | **- Watermelon mosaic** | **1** | **0** | **1** |
| | **- unknown** | **1** | **0** | **1** |
| **Wilt** | **- Fusarium** | **1** | **0** | **1** |
| **Yellow vine decline** | **- Serratia** | **1** | **0** | **1** |
| **KALE - See listing under CRUCIFERS** | | | | |
| **LETTUCE (Lactuca)** | | | | |
| **Insect injury** | | **0** | **1** | **1** |
| **No disease** | | **2** | | **2** |
| **Powdery mildew** | **- Erysiphe** | **1** | **0** | **1** |
| **Root rot** | **- Pythium** | **1** | **0** | **1** |
| **Root/crown rot** | **- Phytophthora** | **1** | **0** | **1** |
| **OKRA ( Abelmoschus)** | | | | |
| **Bacterial leaf spot** | **- unknown** | **1** | **0** | **1** |
| **Environmental stresses** | **- wet feet** | **1** | **0** | **1** |
| **Leaf spot** | **- Alternaria** | **1** | **0** | **1** |
| **Root/stem rot** | **- Rhizoctonia** | **1** | **0** | **1** |
| **Bacterial soft rot** | **- Erwinia** | **1** | **0** | **1** |
| **Black mold** | **- Aspergillus** | **0** | **1** | **1** |
| **Bulb rot** | **- Fusarium** | **1** | **0** | **1** |
| **Insect injury** | **- thrips** | **0** | **1** | **1** |
| **Leaf blight** | **- Stemphylium** | **1** | **0** | **1** |
| **No disease** | | **2** | | **2** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **CUCURBITS (cont'd)** | | | | | | |
| | **Purple blotch** | **-** | **Alternaria** | **1** | **0** | **1** |
| | **Sour skin** | **-** | **Pseudomonas** | **1** | **0** | **1** |
| | **White rot** | **-** | **Sclerotium** | **1** | **0** | **1** |
| **PEA (Pisum)** | | | | | | |
| | **Anthracnose** | **-** | **Colletotrichum** | **0** | **1** | **1** |
| | **Chemical injury** | **-** | **herbicide** | **1** | **0** | **1** |
| | | - | **insecticide** | **1** | **0** | **1** |
| | **Insect injury** | | | **2** | **0** | **2** |
| | **No disease** | | | **1** | | **1** |
| | **Nutritional** | **-** | **soluble salts** | **1** | **0** | **1** |
| | **Root rot** | **-** | **Pythium** | **1** | **0** | **1** |
| | **Root/stem rot** | **-** | **Rhizoctonia** | **2** | **0** | **2** |
| **PEPPER (Capsicum)** | | | | | | |
| | **Bacterial spot** | **-** | **Xanthomonas** | **7** | **0** | **7** |
| | **Bacterial wilt** | **-** | **Ralstonia** | **2** | **0** | **2** |
| | **Blossom end rot** | **-** | **calcium deficiency/dry** | **3** | **0** | **3** |
| | **Chemical injury** | **-** | **growth regulator** | **1** | **0** | **1** |
| | | - | **herbicide** | **0** | **1** | **1** |
| | **Environmental stresses** | | | **6** | **3** | **9** |
| | **Insect injury** | | | **7** | **3** | **10** |
| | **No disease** | | | **6** | | **6** |
| | **Nutritional** | **-** | **general** | **1** | **0** | **1** |
| | | - | **soluble salts** | **2** | **0** | **2** |
| | **Physical injury** | **-** | **unknown** | **1** | **0** | **1** |
| | **Root rot** | **-** | **Pythium** | **1** | **0** | **1** |
| | **Root/Stem rot** | **-** | **Pythium** | **3** | **0** | **3** |
| | | **-** | **Rhizoctonia** | **1** | **2** | **3** |
| | **Virus** | **-** | **TSWV** | **0** | **1** | **1** |
| | | - | **unknown** | **3** | **0** | **3** |
| **POTATO (Solanum)** | | | | | | |
| | **Bacterial soft rot** | **-** | **Erwinia** | **1** | **1** | **2** |
| | **Blackleg** | **-** | **Erwinia** | **1** | **0** | **1** |
| | **Charcoal rot** | **-** | **Macrophomina** | **1** | **0** | **1** |
| | **Chemical injury** | **-** | **growth regulator** | **1** | **0** | **1** |
| | | - | **herbicide** | **1** | **0** | **1** |
| | | - | **unknown** | **1** | **0** | **1** |
| | **Decline** | **-** | **unknown** | **1** | **0** | **1** |

| *CROP* | *DIAGNOSIS* | | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|---|
| **POTATO (Solanum) (cont'd)** | | | | | | |
| | **Dry rot** | **-** | **Fusarium** | **2** | **0** | **2** |
| | **Early blight** | **-** | **Alternaria** | **1** | **3** | **4** |
| | **Elephant hide** | **-** | **environmental** | **1** | **0** | **1** |
| | **Insect injury** | | | **4** | **2** | **6** |
| | **Leak** | **-** | **Pythium** | **2** | **0** | **2** |
| | **No disease** | | | **3** | | **3** |
| | **Nutritional** | **-** | **nitrogen deficiency** | **1** | **1** | **2** |
| | **Root knot nematode** | **-** | **Meloidogyne** | **4** | **0** | **4** |
| | **Scab** | **-** | **Streptomyces** | **4** | **1** | **5** |
| **PUMPKIN - See listing under CUCURBITS** | | | | | | |
| **RADISH - See listing under CRUCIFERS** | | | | | | |
| **RHUBARB (Rheum)** | | | | | | |
| | **Bacterial soft rot** | **-** | **Erwinia** | **1** | **2** | **3** |
| | **Environmental stresses** | **-** | **wet feet** | **0** | **1** | **1** |
| | **Insect injury** | **-** | **curculio** | **1** | **0** | **1** |
| | **Leaf spot** | **-** | **Ascochyta** | **1** | **0** | **1** |
| | **Physical injury** | **-** | **unknown** | **1** | **0** | **1** |
| | **Root/ crown rot** | **-** | **Phytophthora** | **2** | **0** | **2** |
| **SPINACH (Tragopogon)** | | | | | | |
| | **Chemical injury** | **-** | **herbicide** | **1** | **0** | **1** |
| **SQUASH - See listing under CUCURBITS** | | | | | | |
| **SWEETPOTATO (Ipomoea)** | | | | | | |
| | **Intumescense** | **-** | **physiological** | **1** | **0** | **1** |
| | **No disease** | | | **1** | | **1** |
| **TOMATO (Lycopersicon)** | | | | | | |
| | **Air pollution** | **-** | **ethylene** | **1** | **0** | **1** |
| | **Anthracnose** | **-** | **Colletotrichum** | **1** | **2** | **3** |
| | **Bacterial spot** | **-** | **Xanthomonas** | **3** | **1** | **4** |
| | **Bacterial wilt** | **-** | **Ralstonia** | **2** | **0** | **2** |
| | **Blight** | **-** | **Botrytis** | **6** | **0** | **6** |
| | **Blossom end rot** | **-** | **calcium deficiency/dry** | **11** | **2** | **13** |
| | **Catfacing** | **-** | **environmental** | **3** | **2** | **5** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **TOMATO (Lycopersicon) (cont'd)** | | | | | |
| | **Chemical injury** | **- growth regulator** | **28** | **1** | **29** |
| | | **- herbicide** | **3** | **0** | **3** |
| | | **- unknown** | **2** | **0** | **2** |
| | **Crown/root rot** | **- Fusarium** | **1** | **0** | **1** |
| | **Cultural** | **- improper depth** | **1** | **0** | **1** |
| | | **- transplant shock** | **4** | **0** | **4** |
| | | **- wet feet** | **0** | **1** | **1** |
| | **Dieback** | **- unknown** | **1** | **0** | **1** |
| | **Early blight** | **- Alternaria** | **8** | **3** | **11** |
| | **Environmental stresses** | | **7** | **3** | **10** |
| | **Fruit spot** | **- physiological** | **1** | **0** | **1** |
| | **Ghost spot** | **- Botrytis** | **1** | **0** | **1** |
| | **Inadequate specimen, no disease** | | **46** | | **46** |
| | **Insect injury** | | **15** | **10** | **25** |
| | **Leaf mold** | **- Fulvia** | **6** | **3** | **9** |
| | **Leaf roll** | **- physiological** | **7** | **0** | **7** |
| | **Leaf scorch** | **- unknown** | **5** | **0** | **5** |
| | **Leaf spot** | **- Phoma** | **0** | **1** | **1** |
| | | **- Septoria** | **13** | **2** | **15** |
| | **Mutation** | **- genetic** | **1** | **0** | **2** |
| | **Nutritional** | **- acid soil** | **1** | **1** | **2** |
| | | **- fertilizer burn** | **0** | **1** | **1** |
| | | **- general** | **8** | **0** | **8** |
| | | **- magnesium deficiency** | **8** | **2** | **10** |
| | | **- nitrogen deficiency** | **4** | **0** | **4** |
| | | **- phosphorus deficiency** | **4** | **1** | **5** |
| | | **- potassium deficiency** | **1** | **0** | **1** |
| | | **- soluble salts** | **3** | **0** | **3** |
| | **Physical injury** | **- unknown** | **2** | **0** | **2** |
| | **Pith necrosis** | **- Pseudomonas** | **3** | **0** | **3** |
| | **Root knot nematode** | **- Meloidgoyne** | **1** | **0** | **1** |
| | **Root rot** | **- Pythium** | **10** | **1** | **11** |
| | | - Rhizoctonia | **1** | **2** | **3** |
| | **Root/Stem rot** | **- Pythium** | **2** | **0** | **2** |
| | | **- Rhizoctonia** | **2** | **2** | **4** |
| | **Southern blight** | **- Sclerotium** | **5** | **0** | **5** |
| | **Stem rot** | **- Rhizoctonia** | **0** | **1** | **1** |
| | | **- Sclerotinia** | **6** | **0** | **6** |

| *CROP* | *DIAGNOSIS* | *CAUSAL AGENT* | *#1° DIAGs* | *#2° DIAGs* | *TOTAL* |
|---|---|---|---|---|---|
| **TOMATO (Lycopersicon) (cont'd)** | | | | | |
| | **Virus** | **- Tobacco mosaic** | **5** | **0** | **5** |
| | | **- Tomato spotted wilt** | **29** | **0** | **29** |
| | | **- unknown** | **1** | **0** | **1** |
| | **Walnut wilt** | **- juglone** | **1** | **0** | **1** |
| | **Wilt** | **- Fusarium** | **21** | **2** | **23** |
| | **Yellow shoulder** | **- unknown** | **3** | **0** | **3** |
| **TURNIP - See under CRUCIFERS** | | | | | |
| **WATERMELON - See listing under CUCURBITS** | | | | | |
| | | **TOTALS** | **3975** | **452** | **4427** |