



CLEMSON® UNIVERSITY

*Plant and Pest Diagnostic Clinic*  
*Molecular Pathogen and Pest Detection Lab*  
*Commercial Turfgrass Clinic*  
*Nematode Assay Lab*

## 2022 ANNUAL REPORT



The cover page image above highlights a conidiospore of *Alternaria cinerea*, a novel pathogen of leopard plants in South Carolina, USA. See **Appendix I** for details.

The information contained in this report is based upon work that was partly supported by the Southern Plant Diagnostic Network of the National Plant Diagnostic Network.

## *A message from Plant Industry Labs staff*

As a part of Clemson University's Regulatory Services, Department of Plant Industry (DPI) laboratories serve our clients by providing high-quality diagnoses and management recommendations against a variety of plant problems including diseases, disorders, pests, weeds, plant parasitic nematodes, fungus ID, fungicide-resistance profiling, and molecular specimens. DPI labs include Plant and Pest Diagnostic Clinic (PPDC), the state lab dedicated to handle all plant diagnostic samples in SC, the Molecular Pathogen and Pest Detection (MPPD) Laboratory, the lab using advanced molecular techniques to rapidly detect agricultural pathogens and pests, and the Commercial Turfgrass Clinic (CTC), a specialty lab providing expedited, high-quality diagnostic services of turf problems to golf courses, athletic fields, sod farms, and other turf management professionals. The Nematode Assay Lab (NAL) at the Clemson University Department of Plant and Environmental Sciences (PES) serves under contractual agreement with PPDC to identify plant parasitic nematodes. The 2022 Annual Report of NAL is included as **Appendix II**. DPI labs also partner with Clemson Extension, teaching, regulatory, and research personnel to survey and document new diseases and pests in SC and provide educational and training opportunities.

Predeesh Chandran started in December 2022 to begin his new position as a full-time Entomologist II at PPDC. Prior to his new role, Predeesh worked as a part-time Diagnostician at PPDC and a seasonal Technician at the Clemson Ag. Service Lab. In his new role, Predeesh will serve clients of PPDC by identifying insects and other pest samples and providing pest management recommendations. He will also participate in the development of programs designed to advance plant pest and vector-borne disease detection and other outreach and extension activities, as well as train field staff.

Meg Williamson, Immediate Past Lab Manager, came back to PPDC as a part-time Diagnostician in 2022. She also trained three Graduate Diagnostic Assistants, Wanita Dantes, Kim Whitlock, and Jordan Marshall in traditional diagnostic techniques. Check out **Appendix I** for a disease note project led by one of the graduate students.

The DPI Labs hosted 12 lab tours in 2022, including 96 students, 13 staff, and 10 faculty members. We welcome old and new friends to come tour the DPI Labs in 2023!



**Xiao Yang, Ph.D.**  
DPI Labs Manager



**Curt Colburn, Ph.D.**  
Diagnostician  
Molecular Biologist



**Diana Low**  
Lab Coordinator



**Predeesh Chandran**  
Entomologist

## *Acknowledgements*

We thank faculty members, specialists, agents, and retired professors who provided diagnostic services and professional consultation to DPI labs in 2022.

**Justin Ballew**, Commercial Horticulture Agent, provided consultation for at least two small fruit samples.

**Eric Benson**, Professor (PES), provided insect identification and control recommendations.

**Juang Chong**, Professor (PES), provided pest identification and recommendations.

**Matthew Cutulle**, Assistant Professor (PES), provided consultation for a watermelon sample that had herbicide injury problem.

**Timothy Drake**, State Entomologist, provided pest identification and recommendations.

**Jeremy Greene**, Professor (PES), provided advice for a sesame sample that had beetle infestation.

**John Hains**, Associate Professor Emeritus, and Dr. **Lance Beecher**, Aquaponics, Aquaculture, and Fisheries Specialist, provided algae and aquatic plant identification.

**Steve Jeffers**, Professor, and **Linus Schmitz** (PES) provided consultation for at least three samples with Phytophthora infection.

**Anthony Keinath**, Professor (PES), provided advice for at least three vegetable and fruit samples.

**Julia Kerrigan**, Associate Professor (PES), provided identification services and consultation for mushroom ID samples.

**Churamani Khanal**, Assistant Professors (PES), provided advice for a dill sample that had root-knot nematode infection.

**Lambert (Bert) McCarty**, Professor (PES), provided management recommendations for turf problem samples.

**Jay Pscheidt**, Professor, and **Gabe Sacher** (Oregon State University) provided consultation on a witch alder sample that potentially had ozone damage.

**Joseph Roberts**, Assistant Professor (PES), provided advice for diagnosis of turf diseases.

**Guido Schnabel**, Professor (PES), provided consultation for peach disease and comments on 22 fungicide-resistance profiling reports.

**Hehe Wang**, Assistant Professor (PES), provided consultation for at least four samples that had bacterial and phytoplasma infections.

**Ted Whitwell**, Professor Emeritus, provided terrestrial weed identification.

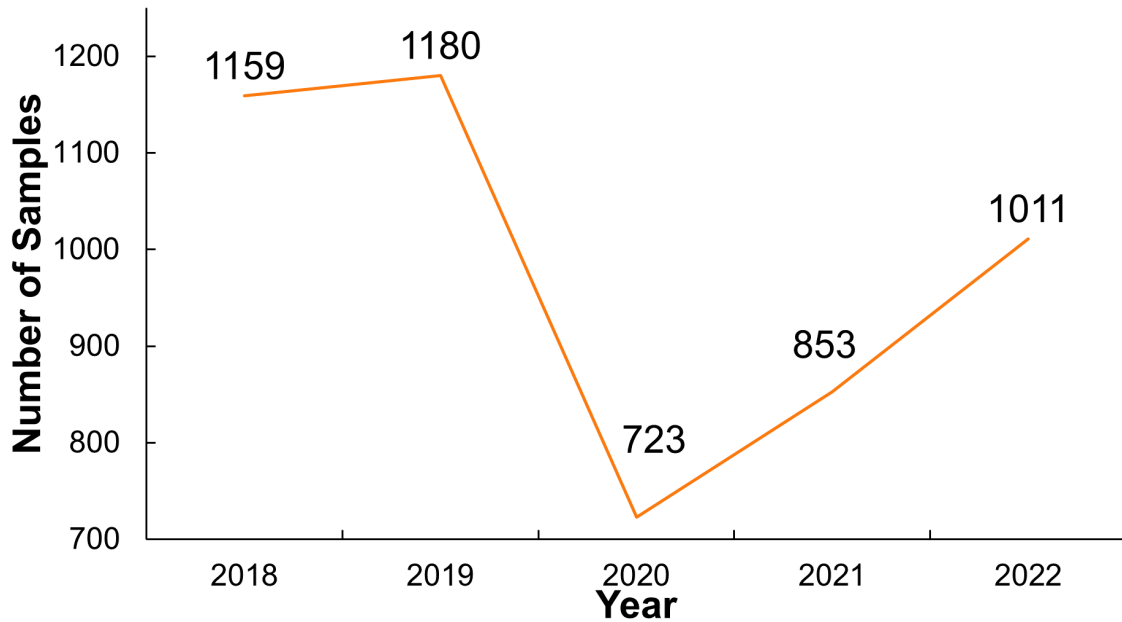
**Joey Williamson**, Retired Horticulture Extension Agent, provided diagnosis and management recommendations for at least 15 samples.

# Table of Contents

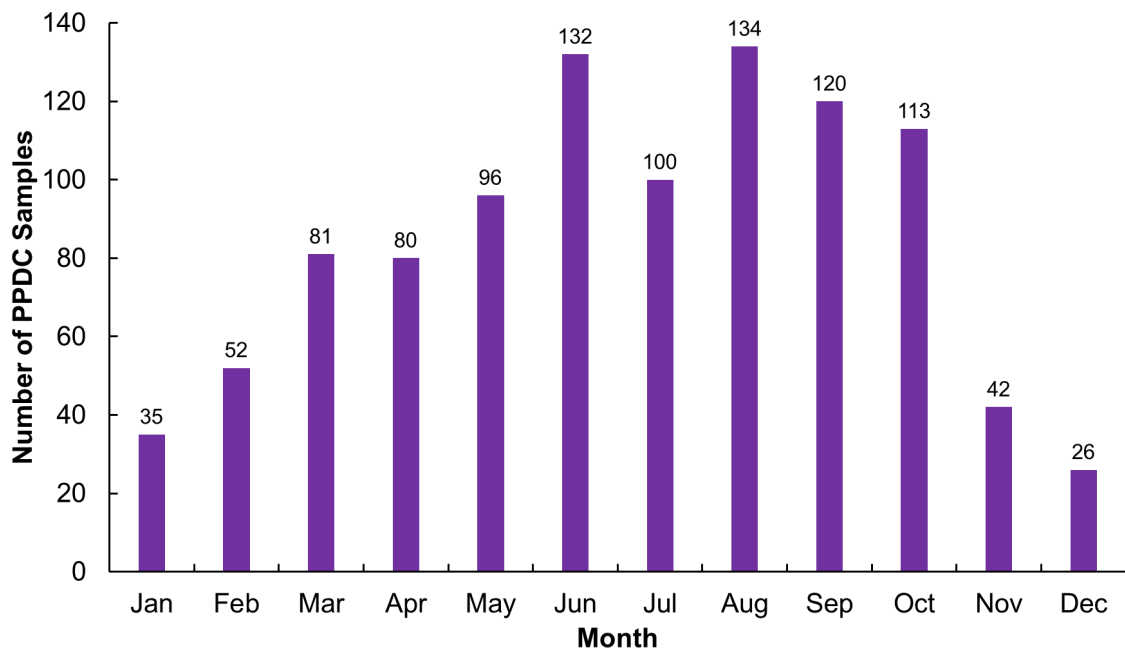
<i>A message from Plant Industry Labs staff</i> .....	2
<i>Acknowledgements</i> .....	3
<i>Plant and Pest Diagnostic Clinic (PPDC) Report</i> .....	5
<b>Fig. 1</b> Number of samples processed at PPDC per year over the past five years .....	5
<b>Fig. 2</b> Number of samples processed at PPDC per month in 2022 .....	5
<b>Fig. 3</b> Percentage of samples by source at PPDC in 2022 .....	6
<b>Fig. 4</b> PPDC sample counts in 2022 per client type .....	6
<b>Fig. 5</b> PPDC sample counts in 2022 per sample category.....	7
<b>Fig. 6</b> Count of PPDC samples in 2022 per SC county .....	7
<b>Table 1</b> Number of samples processed by each diagnostician at PPDC during 2022 .	8
<b>Table 2</b> Diagnostic results (plant diseases and disorders) at PPDC in 2022.....	9
<b>Table 3</b> Results of Pest ID samples at PPDC and a list of Exotic Pest Surveys in 2022 .....	22
<b>Table 4</b> Identifications of terrestrial and aquatic weed samples at PPDC in 2022 .....	25
<i>Molecular Pathogen and Pest Detection (MPPD) Lab Report</i> .....	28
<b>Table 5</b> Sample count by suspected problem at the MPPD Lab in 2022 .....	28
<b>Fig. 7</b> Number of samples processed at the MPPD Lab over the past five years .....	29
<b>Fig. 8</b> Count of MPPD Lab samples in 2022 per SC county .....	29
<i>Commercial Turfgrass Clinic (CTC) Report</i> .....	30
<b>Fig. 9</b> Samples processed at CTC per year over the past five years .....	30
<b>Table 6</b> Diagnostic results at CTC in 2022 .....	30
<i>Appendix I: First report of <i>Alternaria cinerariae</i> causing leaf blight on <i>Farfugium japonicum</i> in South Carolina, USA</i> .....	31
<i>Appendix II: Nematode Assay Lab 2022 Annual Report</i> .....	34

## Plant and Pest Diagnostic Clinic (PPDC) Report

PPDC continued to recover from the impact caused by the pandemic in 2020. We have received a total of 1011 samples in 2022 including 12 canceled samples. The 2022 sample load was 19% higher than that of 2021 (**Fig. 1**). Summer remained as our busiest season with more than 130 samples received in each of June and August (**Fig. 2**).



**Fig. 1** Number of samples processed at PPDC per year over the past five years



**Fig. 2** Number of samples processed at PPDC per month in 2022

Approximately 59% of PPDC samples in 2022 were received from county extension offices. About 55% of samples originated from residential sites, while 45% were submitted by commercial clients (Fig. 3). We provided services to a total of 1346 clients in 2022. Most of our clients in 2022 (>60%) were homeowners, home gardeners, and other residential clients referred by extension agents. (Fig. 4).

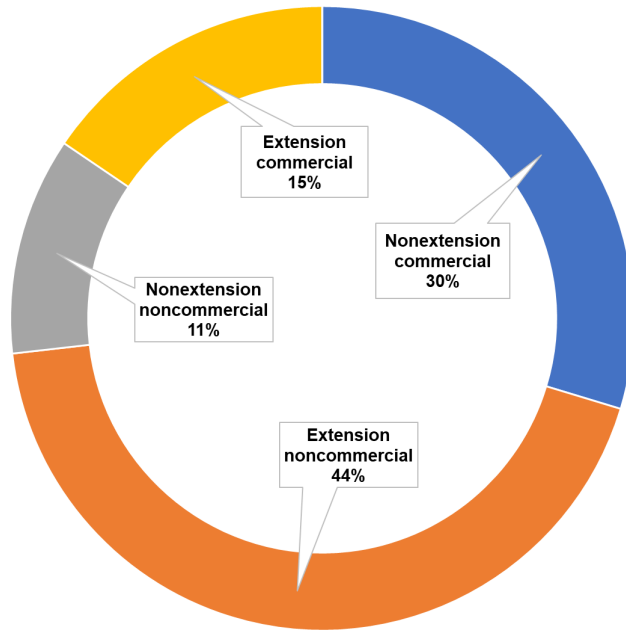


Fig. 3 Percentage of samples by source at PPDC in 2022

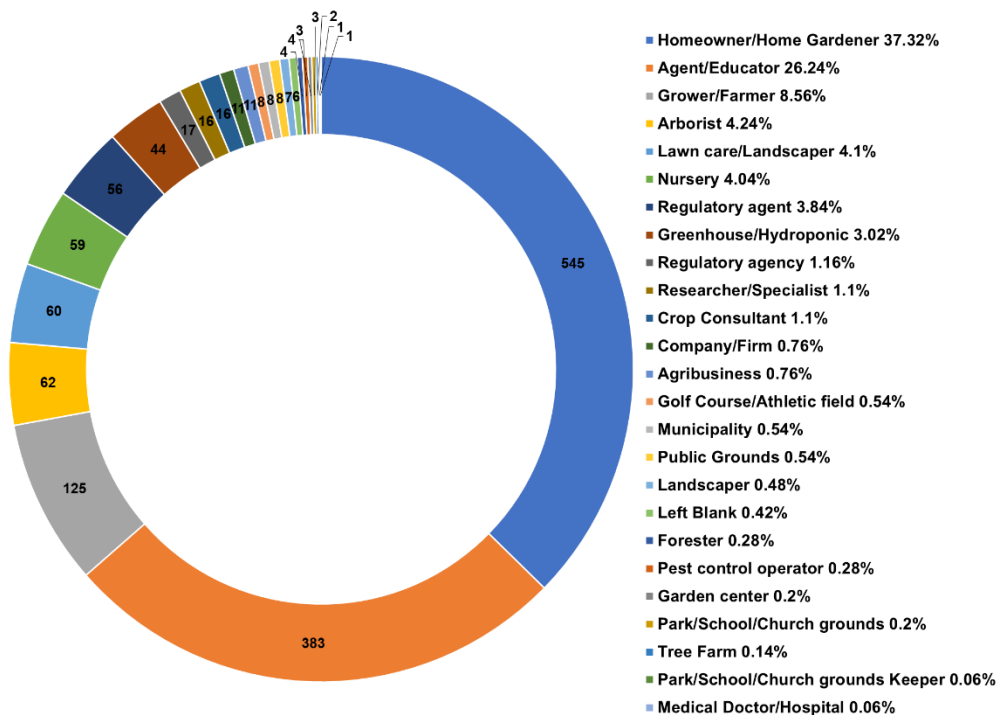
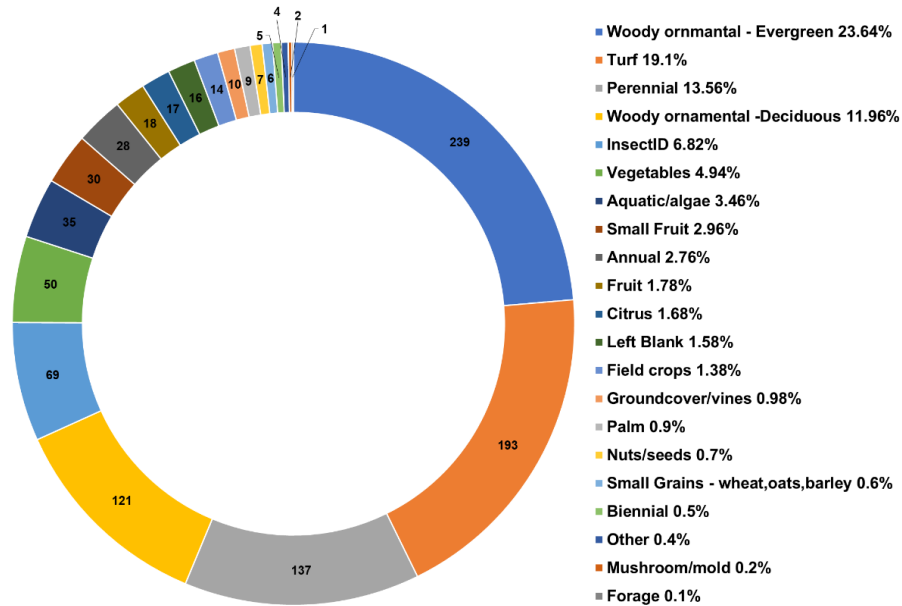


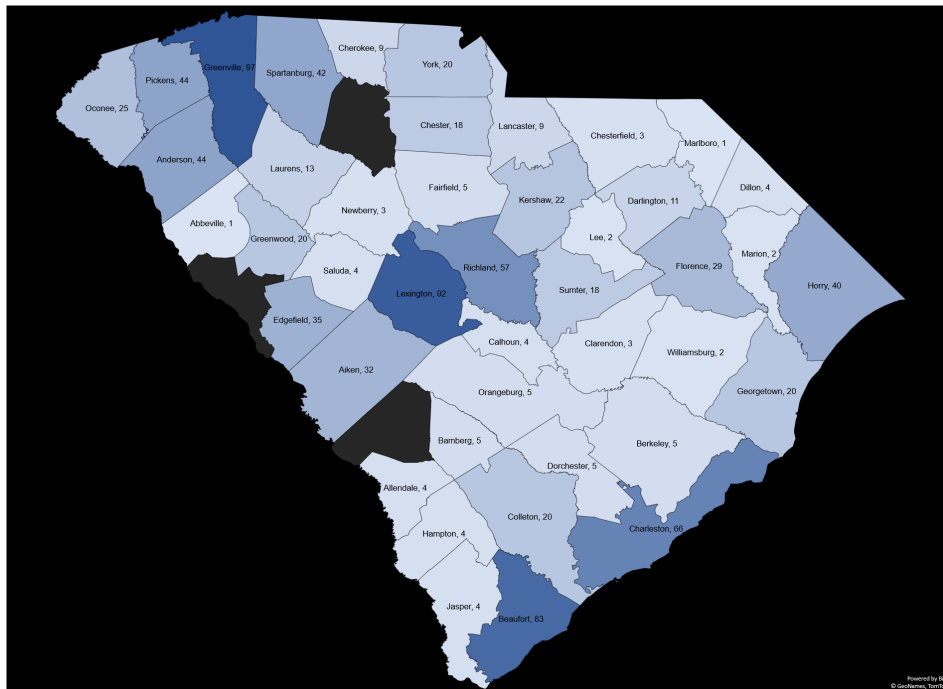
Fig. 4 PPDC sample counts in 2022 per client type

PPDC samples in 2022 belonged to at least 21 categories. More than 35% of samples were evergreen and deciduous woody ornamentals. We found an increase in submissions of turf samples (>19%). A total of 69 samples sought Pest ID (**Fig. 5**).



**Fig. 5** PPDC sample counts in 2022 per sample category

A total of 932 samples (92%) in 2022 came from 43 SC counties (**Fig. 6**). Our out-of-state clients were from U.S. states including CA, CO, FL, GA, IL, KS, MI, MO, NC, NJ, NY, OR, PA, TN, TX, and VA.



**Fig. 6** Count of PPDC samples in 2022 per SC county

The following diagnosticians performed diagnoses at PPDC in 2022 (**Table 1**). Each sample may involve one or more diagnosticians. As the Lab Coordinator, Diana Low logged all samples into the Plant Diagnostic Information System (PDIS). All 1011 samples received in 2022 were physical samples. Diagnostic results of individual host groups are listed in **Tables 2–4**.

**Table 1** Number of samples processed by each diagnostician at PPDC during 2022

<b>Diagnostician Name</b>	<b>No. of Samples</b>
Xiao Yang	571
Curt Colburn	262
Predeesh Chandran	115
Meg Williamson	91
Wanita Dantes*	72
Ted Whitwell	41
Kimberly Whitlock*	36
John Hains	35
Timothy Drake	30
William Cory Heaton	27
Jordan Marshall*	25
Eric Benson	1

\* Graduate Diagnostic Assistant



**Table 2** Diagnostic results (plant diseases and disorders) at PPDC in 2022

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
<i>Acca sellowiana</i>	Pineapple Guava	Nutrient imbalance (Abiotic disorder)	0	0	1	0
<i>Acer palmatum</i>	Japanese Maple	Leaf spot ( <i>Discosia</i> sp./spp.)	1	0	0	0
		Phomopsis dieback; Tip blight; Canker ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
		Maple anthracnose ( <i>Aureobasidium apocryptum</i> )	1	0	0	0
		Dieback; Canker ( <i>Diplodia</i> sp./spp.)	0	0	1	0
		Scorch (Abiotic disorder)	0	0	1	0
		Verticillium wilt ( <i>Verticillium</i> sp./spp.)	1	0	0	0
		Cytospora canker; Dieback ( <i>Cytospora</i> sp./spp.)	1	0	0	0
<i>Acer rubrum</i>	Red Maple	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
		Secondary fungus ( <i>Pestalotia</i> sp./spp.)	1	0	0	0
		Maple anthracnose ( <i>Aureobasidium apocryptum</i> )	1	0	0	0
		Anthracnose leaf blight ( <i>Colletotrichum</i> sp.)	1	0	0	0
<i>Acer saccharum</i>	Sugar Maple	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
		Maple tar spot ( <i>Rhytisma acerinum</i> )	0	0	1	0
<i>Acer</i> sp./spp.	Maple	Maple anthracnose ( <i>Aureobasidium apocryptum</i> )	0	0	1	0
		Bacterial wetwood; Slime flux (Unidentified Bacteria)	0	0	0	1
<i>Agastache rugosa</i>	Giant Hyssop	Abnormal plant growth (Abiotic disorder)	0	0	0	1
<i>Agrostis</i> sp./spp.	Bentgrass	Unspecified pathology ( <i>Phytophthium</i> sp./spp.)	1	0	0	0
<i>Ajuga reptans</i>	Bugleweed (ground cover)	Southern stem rot ( <i>Sclerotium rolfsii</i> )	1	0	0	0
<i>Allium cepa</i>	Onion	Anthracnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Botrytis blight ( <i>Botrytis</i> sp./spp.)	1	0	0	0
		Stemphylium leaf spot ( <i>Stemphylium</i> sp./spp.)	2	0	0	0
<i>Anemone coronaria</i>	Wind Flower; lily of field	Botrytis bulb and root rot ( <i>Botrytis</i> sp./spp.)	1	0	0	0
		Botrytis blight ( <i>Botrytis</i> sp./spp.)	1	0	0	0
<i>Anemone</i> sp./spp.	Anemone	Botrytis blight ( <i>Botrytis</i> sp./spp.)	1	0	0	0
<i>Anethum graveolens</i>	Dill	Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	0	0	1	0
<i>Antirrhinum majus</i>	Snapdragon	Botrytis blight ( <i>Botrytis</i> sp./spp.)	1	0	0	0
		Crown rot ( <i>Rhizoctonia</i> sp./spp.)	1	0	0	0
		Phytophthium root rot ( <i>Phytophthium</i> sp./spp.)	0	0	1	0
		Snapdragon rust ( <i>Puccinia antirrhini</i> )	1	0	0	0
<i>Aquilegia caerulea</i>	Columbine	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Botrytis blight ( <i>Botrytis</i> sp./spp.)	1	0	0	0
<i>Aristolochia macrophylla</i>	Dutchman's Pipe	Abnormal plant growth (Abiotic disorder)	0	0	1	0
<i>Aristolochia tomentosa</i>	Woolly Dutchman's Pipe	Abnormal plant growth (Abiotic disorder)	0	1	0	0
<i>Asclepias incarnata</i>	Swamp Milkweed	Black root rot ( <i>Thielaviopsis basicola</i> )	1	0	0	0
		Cercospora leaf spot ( <i>Cercospora</i> sp./spp.)	1	0	0	0
		Anthracnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<i>Asclepias</i> sp./spp.	Milkweed	Black root rot ( <i>Thielaviopsis basicola</i> )	1	0	0	0
<i>Asclepias tuberosa</i>	Butterflyweed	Anthracnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Rust ( <i>Uromyces</i> sp./spp.)	1	0	0	0
<i>Aucuba japonica</i>	Japanese Aucuba	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
		Phomopsis dieback; Tip blight; Canker ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
<i>Avena sativa</i>	Oats	Crown rust; Rust ( <i>Puccinia coronata</i> )	1	0	0	0
		Helminthosporium leaf spot ( <i>Drechslera</i> sp./spp.)	1	0	0	0
<i>Baptisia</i> sp./spp.	False Indigo	Tip blight ( <i>Diplodia</i> sp./spp.)	0	0	1	0
<i>Begonia</i> sp./spp.	Begonia	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
<i>Beta vulgaris</i>	Garden Beet	Environmental stress; Problem (Abiotic disorder)	1	0	0	0
<i>Brassica juncea</i>	Mustard Greens	Bacterial leaf blight ( <i>Pseudomonas</i> sp./spp.)	1	0	0	0
<i>Brassica oleracea</i> var. <i>acephala</i>	Collards	Saprophytic bacteria (Unidentified bacteria)	1	0	0	0
		Fusarium yellows ( <i>Fusarium oxysporum</i> )	1	0	0	0
		Cercospora leaf spot ( <i>Cercospora</i> sp./spp.)	1	0	0	0
<i>Buddleia</i> sp./spp.	Butterfly Bush	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	0	0	1	0
		Botrytis blight ( <i>Botrytis</i> sp./spp.)	1	0	0	0
		Phyllosticta leaf spot ( <i>Phyllosticta</i> sp./spp.)	1	0	0	0
		Armillaria root rot ( <i>Armillaria</i> sp./spp.)	1	0	0	0

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
		Phytophthora crown and/or root rot ( <i>Phytophthora nicotianae</i> )	1	0	0	0
<i>Butia capitata</i>	Pindo Palm; jelly palm	Potassium deficiency (Abiotic disorder)	0	0	1	0
		Leaf spot ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0
<i>Buxus microphylla</i>	Littleleaf Boxwood	Dieback ( <i>Colletotrichum theobromicola</i> )	1	0	0	0
		Volutella blight ( <i>Pseudonectria</i> sp./spp.)	1	0	0	0
		Excessive water (Abiotic disorder)	0	0	1	0
<i>Buxus microphylla</i> var. <i>japonica</i>	Japanese Boxwood	Environmental stress; Problem (Abiotic disorder)	0	1	0	0
		Freeze; Frost; Cold damage (Abiotic disorder)	0	0	1	0
		Volutella blight ( <i>Pseudonectria</i> sp./spp.)	1	0	0	0
		Boxwood Macrophoma leaf spot ( <i>Dothiorella candollei</i> )	1	0	0	0
		Boxwood Volutella blight; Canker ( <i>Volutella buxi</i> )	1	0	0	0
		Fusarium canker ( <i>Fusarium</i> sp./spp.)	1	0	0	0
<i>Buxus sempervirens</i>	Common Boxwood	Fusarium canker ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Phytophthora root and crown rot ( <i>Phytophthora cinnamomi</i> )	1	0	0	0
		Boxwood Volutella blight; Canker ( <i>Volutella buxi</i> )	3	0	0	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	2	0	0	0
		Volutella blight ( <i>Pseudonectria</i> sp./spp.)	4	0	0	0
		Boxwood blight; Leaf and stem blight ( <i>Calonectria pseudonaviculata</i> )	1	0	0	0
<i>Buxus sempervirens</i> 'suffruticosa'	Edging Boxwood	Volutella blight ( <i>Pseudonectria</i> sp./spp.)	1	0	0	0
		Phytophthora crown and/or root rot ( <i>Phytophthora nicotianae</i> )	1	0	0	0
<i>Buxus sinica</i> var. <i>insularis</i>	Korean Boxwood	Volutella blight ( <i>Pseudonectria</i> sp./spp.)	1	0	0	0
		Crown and root rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
		Phytophthora crown and/or root rot ( <i>Phytophthora nicotianae</i> )	1	0	0	0
		Boxwood blight; Leaf and stem blight ( <i>Calonectria pseudonaviculata</i> )	1	0	0	0
<i>Buxus</i> sp./spp.	Boxwood	Volutella blight ( <i>Pseudonectria</i> sp./spp.)	5	0	0	0
		Phytophthora crown and/or root rot ( <i>Phytophthora nicotianae</i> )	1	0	0	0
		Boxwood Volutella blight; Canker ( <i>Volutella buxi</i> )	5	0	0	0
		Boxwood blight; Leaf and stem blight ( <i>Calonectria pseudonaviculata</i> )	2	0	0	0
		Boxwood Macrophoma leaf spot ( <i>Macrophoma candollei</i> )	2	0	0	0
		Root rot ( <i>Phytophthora</i> sp./spp.)	0	2	0	0
		Dieback ( <i>Colletotrichum theobromicola</i> )	5	0	0	0
		Boxwood Macrophoma leaf spot ( <i>Dothiorella candollei</i> )	5	0	0	0
		Fusarium canker ( <i>Fusarium</i> sp./spp.)	2	0	0	0
<i>Camellia japonica</i>	Common Camellia	Algal leaf spot ( <i>Cephaleuros</i> sp./spp.)	1	0	0	0
		Phomopsis blight ( <i>Phomopsis</i> sp./spp.)	2	0	0	0
		Algal leaf spot ( <i>Cephaleuros virescens</i> )	2	0	0	0
		Armillaria root rot ( <i>Armillaria</i> sp./spp.)	1	0	0	0
		Anthraxnose ( <i>Gloeosporium</i> sp./spp.)	1	0	0	0
<i>Camellia sasanqua</i>	Sasanqua Camellia	Armillaria root rot ( <i>Armillaria</i> sp./spp.)	1	0	0	0
		Nitrogen deficiency (Abiotic disorder)	0	0	1	0
		Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
<i>Camellia sinensis</i>	Tea Plant	Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<i>Camellia</i> sp./spp.	Camellia	Leaf spot ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0
		Armillaria root rot ( <i>Armillaria</i> sp./spp.)	1	0	0	0
<i>Cannabis sativa</i>	Hemp	Fusarium crown and stalk rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Secondary fungus (Unidentified Fungus)	0	0	0	1
		Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
		White mold ( <i>Sclerotinia</i> sp./spp.)	1	0	0	0
		Drought stress damage (Abiotic disorder)	0	0	3	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	2	0	0	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Leaf spot ( <i>Bipolaris</i> sp./spp.)	1	0	0	0
		Root and or pot bound (Abiotic disorder)	0	0	1	0
<i>Capsicum annuum</i>	Jalapeno Pepper	Blossom end rot (Abiotic disorder)	1	0	0	0
		Residue (Identification Analysis)	0	0	1	0
<i>Capsicum</i> sp./spp.	Pepper	Insufficient sample (Identification Analysis)	0	0	0	1
<i>Carica papaya</i>	Papaya	Potyvirus Group ( <i>Potyvirus</i> sp./spp.)	1	0	0	0
<i>Carya illinoensis</i>	Pecan	Pecan; Hickory scab ( <i>Cladosporium caryigenum</i> )	0	0	1	0
		Phomopsis leaf spot ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
		Pecan; Hickory scab ( <i>Fusicladium caryigenum</i> )	1	0	2	0
<i>Carya</i> sp./spp.	Hickory	Anthraxnose ( <i>Apiognomonina</i> sp./spp.)	1	0	0	0
		Walnut downy leaf spot ( <i>Microstroma juglandis</i> )	0	0	1	0

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
		Leaf spot ( <i>Discosia</i> sp./spp.)	1	0	0	0
<i>Castanea mollissima</i>	Chinese Chestnut	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	0	0	1	0
		Zonate leaf spot ( <i>Monochaetia</i> sp./spp.)	1	0	0	0
<i>Catharanthus roseus</i>	Madagascar Periwinkle; vinca	Phytophthora root and basal stem rot ( <i>Phytophthora nicotianae</i> )	1	0	0	0
		Aerial stem blight ( <i>Phytophthora</i> sp./spp.)	1	0	0	0
<i>Cedrus deodara</i>	Deodar Cedar	Unknown abiotic disorder (Abiotic disorder)	0	0	2	0
<i>Cephalotaxus harringtonia</i>	Plum-yew	Leaf spot ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0
		Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
<i>Cercis</i> sp./spp.	Redbud	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
<i>Chamaecyparis pisifera</i>	Sawara Falsecypress	Cultural/environmental problem (Abiotic disorder)	0	0	1	0
		Macrophoma blight; Dieback ( <i>Macrophoma</i> sp./spp.)	1	0	0	0
<i>Chrysanthemum morifolium</i>	Florist's Chrysanthemum	Crown and stem rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Tomato spotted wilt (TSWV) (Tospovirus Tomato Spotted Wilt Virus)	0	1	0	0
		Pythium wilt ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Impatiens necrotic spot (INSV) (Tospovirus Impatiens Necrotic Spot Virus)	0	1	0	0
<i>Chrysanthemum</i> sp./spp.	Chrysanthemum	Fusarium wilt; Fusarium wilt complex ( <i>Fusarium</i> sp./spp.)	1	0	0	0
<i>Citrullus lanatus</i>	Watermelon	Fusarium wilt; Fusarium wilt complex ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Herbicide injury G:4 Synthetic auxin (Abiotic disorder)	0	0	1	0
		Insufficient sample (Identification Analysis)	0	1	0	0
		Fusarium wilt ( <i>Fusarium oxysporum</i> )	1	0	0	0
		Potyvirus Group ( <i>Potyvirus</i> sp./spp.)	1	0	0	0
<i>Citrus aurantifolia</i>	Key Lime	Anthraxnose ( <i>Colletotrichum acutatum</i> )	1	0	0	0
		Citrus greening huanglongbing (Asian) (' <i>Candidatus</i> Liberibacter asiaticus')	0	1	0	0
<i>Citrus limetta</i>	Lime	Citrus canker ( <i>Xanthomonas axonopodis</i> pv. <i>citri</i> )	0	1	0	0
<i>Citrus limon</i>	Lemon	Leaf blight; Leaf spot ( <i>Botrytis</i> sp./spp.)	1	0	0	0
		Sooty mold (Unidentified Fungus)	1	0	0	0
<i>Citrus meyeri</i>	Meyer Lemon	Citrus greening huanglongbing (Asian) (' <i>Candidatus</i> Liberibacter asiaticus')	0	3	0	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	2	0	0	0
		Citrus greasy spot ( <i>Zasmidium citri</i> )	1	1	0	0
		Phytophthora crown and/or root rot ( <i>Phytophthora nicotianae</i> )	1	0	0	0
		Citrus canker ( <i>Xanthomonas axonopodis</i> pv. <i>citri</i> )	0	1	0	0
		Nutrient imbalance (Abiotic disorder)	0	0	1	0
		Algae (Unidentified Algae)	1	0	0	0
		Citrus variegated chlorosis ( <i>Xylella fastidiosa</i> )	0	1	0	0
		Oedema; Edema (Abiotic disorder)	0	0	1	0
<i>Citrus reticulata</i>	Satsuma; Mandarin; tangerine	Citrus greening huanglongbing (Asian) (' <i>Candidatus</i> Liberibacter asiaticus')	0	1	0	0
<i>Citrus sinensis</i>	Sweet Orange	Citrus canker ( <i>Xanthomonas axonopodis</i> pv. <i>citri</i> )	0	1	0	0
<i>Cladrastis lutea</i>	American Yellowwood	Bacterial leaf spot (Unidentified Bacteria)	1	0	0	0
		Anthraxnose ( <i>Gloeosporium</i> sp./spp.)	0	0	1	0
<i>Cleome serrulata</i>	Rocky Mountain beeplant	Herbicide injury (Abiotic disorder)	0	0	1	0
<i>Conoclinium coelestinum</i>	Mistflower	Herbicide drift (Abiotic disorder)	0	0	1	0
<i>Coreopsis grandiflora</i>	Bigflower Coreopsis	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
<i>Coriandrum sativum</i>	Cilantro	Alternaria leaf spot ( <i>Alternaria</i> sp./spp.)	2	0	0	0
		Angular leaf spot ( <i>Pseudomonas syringae</i> )	0	2	0	0
<i>Cornus florida</i>	Flowering Dogwood	Dogwood powdery mildew ( <i>Erysiphe pulchra</i> )	2	0	0	0
		Decline; Dieback (Abiotic disorder)	1	0	0	0
		Nutrient imbalance (Abiotic disorder)	1	0	0	0
		Spot anthracnose ( <i>Elsinoe corni</i> )	0	0	1	0
		High pH damage (Abiotic disorder)	1	0	0	0
		Oedema; Edema (Abiotic disorder)	1	0	0	0
<i>Cornus kousa</i>	Japanese Dogwood; kousa	Canker; Stem blight; Dieback ( <i>Botryosphaeria dothidea</i> )	1	0	0	0
		Anthraxnose ( <i>Colletotrichum acutatum</i> )	1	0	0	0
<i>Cornus</i> sp./spp.	Dogwood	Low pH; Nutrient imbalance (Abiotic disorder)	0	0	1	0
		Spot anthracnose ( <i>Elsinoe corni</i> )	1	0	1	0
		Dogwood powdery mildew ( <i>Erysiphe pulchra</i> )	1	0	1	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Drought stress damage (Abiotic disorder)	0	0	1	0
<i>Cryptomeria japonica</i>	Japanese Cedar	Armillaria root rot ( <i>Armillaria</i> sp./spp.)	0	0	1	0
		Cultural/environmental problem (Abiotic disorder)	0	0	1	0
		Decline; Dieback (Abiotic disorder)	0	0	1	0
		Pestalotiopsis needle blight; Tip blight ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined		
<i>Cryptomeria</i> sp./spp.	Cryptomeria	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0		
		Cercospora needle blight ( <i>Cercospora</i> sp./spp.)	1	0	0	0		
		Needle blight ( <i>Phyllosticta</i> sp./spp.)	1	0	0	0		
		Unspecified pathology ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0		
<i>Cucumis sativus</i>	Cucumber	Crown and stem rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0		
<i>Cucurbita pepo melopepo</i>	Zucchini Squash	Damping off ( <i>Fusarium</i> sp./spp.)	1	0	0	0		
		Stem rot ( <i>Sclerotinia sclerotiorum</i> )	1	0	0	0		
<i>Cucurbita</i> sp./spp.	Squash	Stem rot ( <i>Sclerotinia sclerotiorum</i> )	1	0	0	0		
		Damping off ( <i>Fusarium</i> sp./spp.)	1	0	0	0		
<i>Cupressus arizonica</i>	Arizona Cypress	Pestalotiopsis needle blight; Tip blight ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0		
		Cultural/environmental problem (Abiotic disorder)	0	0	1	0		
		Needle dieback ( <i>Phyllosticta</i> sp./spp.)	1	0	0	0		
<i>Cupressus arizonica glabra</i>	Carolina Sapphire cypress	Macrophoma leaf spot ( <i>Macrophoma</i> sp./spp.)	1	0	0	0		
		Leaf spot ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0		
		No pathogen found (Identification Analysis)	1	0	0	0		
<i>Cupressus sempervirens</i>	Italian Cypress	Normal plant growth (Identification Analysis)	1	0	0	0		
		Seiridium canker ( <i>Seiridium unicorne</i> )	1	0	0	0		
		Macrophoma blight; Dieback ( <i>Macrophoma</i> sp./spp.)	1	0	0	0		
		Pestalotia dieback ( <i>Pestalotia</i> sp./spp.)	0	0	1	0		
		Tip blight ( <i>Diplodia</i> sp./spp.)	1	0	0	0		
<i>Cycas revoluta</i>	Sago Palm	Insufficient sample (Identification Analysis)	0	0	0	1		
		Insufficient sample (Identification Analysis)	0	0	0	1		
		Low pH; Nutrient imbalance (Abiotic disorder)	0	0	1	0		
<i>Cyclamen</i> sp./spp.	Cyclamen	Anthraxnose basal rot; Crown rot ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0		
<i>Cynodon dactylon</i>	Bermudagrass	Take-all ( <i>Gaeumannomyces</i> sp./spp.)	1	0	0	0		
<i>Cynodon</i> sp./spp.	Bermudagrass	Bipolaris spot blotch ( <i>Bipolaris</i> sp./spp.)	1	0	0	0		
		Take-all ( <i>Gaeumannomyces graminis</i> var. <i>tritici</i> )	2	0	0	0		
		No pathogen found (Identification Analysis)	0	1	0	0		
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	4	0	0	0		
		Anthraxnose ( <i>Colletotrichum cereale</i> )	3	0	0	0		
		Cereal/ grass disease ( <i>Bipolaris</i> sp./spp.)	2	0	0	0		
		Large patch ( <i>Rhizoctonia solani</i> )	5	0	0	0		
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0		
		Curvularia blight; Leaf spot ( <i>Curvularia</i> sp./spp.)	9	0	0	0		
		Leaf spot ( <i>Bipolaris</i> sp./spp.)	2	0	0	0		
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	2	0	0	0		
		Brown patch ( <i>Rhizoctonia</i> sp./spp.)	1	0	0	0		
		Free living nematodes (Multiple genera)	0	0	1	0		
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0		
		Take-all ( <i>Gaeumannomyces</i> sp./spp.)	1	0	0	0		
		<i>Diospyros</i> sp./spp.	Persimmon (ornamental)	Cedar-apple rust ( <i>Gymnosporangium juniperi-virginianae</i> )	0	0	0	1
		<i>Distylium</i> sp./spp. hybrids	Distylium	Drought stress damage (Abiotic disorder)	0	0	1	0
<i>Dryopteris erythrosora</i>	Autumn Fern	Unknown abiotic disorder (Abiotic disorder)	0	0	1	0		
<i>Eremochloa ophiuroides</i>	Centipede grass	Phoma blight; Dieback; Rot ( <i>Phoma</i> sp./spp.)	1	0	0	0		
		Dollar spot ( <i>Clarireedia homoeocarpa</i> )	4	0	0	0		
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	2	0	1	0		
		ETRI ectotrophic root infecting fungi (Complex of Fungi)	0	0	0	5		
		High pH damage (Abiotic disorder)	0	0	1	0		
		Take-all ( <i>Gaeumannomyces</i> sp./spp.)	3	0	0	0		
		Anthraxnose ( <i>Colletotrichum cereale</i> )	3	0	0	0		
		No pathogen found (Identification Analysis)	0	2	0	0		
		Cultural/environmental problem (Abiotic disorder)	0	0	3	0		
		Drought stress damage (Abiotic disorder)	0	0	1	0		
		Poor leaf emergence (Abiotic disorder)	0	0	2	0		
		Large patch ( <i>Rhizoctonia solani</i> )	30	0	0	0		
		Nutrient imbalance (Abiotic disorder)	0	0	1	0		
		Brown patch ( <i>Rhizoctonia</i> sp./spp.)	1	0	0	0		
		Soil compaction (Abiotic disorder)	1	0	0	0		
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	7	0	0	0		
		Bipolaris spot blotch ( <i>Bipolaris</i> sp./spp.)	1	0	0	0		
Curvularia blight; Leaf spot ( <i>Curvularia</i> sp./spp.)	9	0	0	0				
<i>Eriobotrya japonica</i>	Loquat	Unspecified pathology ( <i>Lasiodiplodia</i> sp./spp.)	1	0	0	0		

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
		Anthrachnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Armillaria root rot ( <i>Armillaria</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	1	0	0	0
<i>Erysimum × hybrida</i>	Wallflower	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Botrytis blight ( <i>Botrytis</i> sp./spp.)	1	0	0	0
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	2	0	0	0
		Anthrachnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<i>Eucalyptus pulverulenta</i>	Money Tree	Alternaria leaf blight ( <i>Alternaria</i> sp./spp.)	1	0	0	0
<i>Eupatorium maculatum</i>	Spotted Joe-pye-weed	Botrytis blight ( <i>Botrytis</i> sp./spp.)	2	0	0	0
		Fertilizer injury (Abiotic disorder)	0	0	2	0
		Herbicide drift (Abiotic disorder)	0	0	1	0
<i>Euphorbia pulcherrima</i>	Poinsettia	Nutritional deficiency (Abiotic disorder)	0	0	1	0
<i>Farfugium japonicum</i>	Leopard Plant	Leaf spot ( <i>Alternaria cinerariae</i> )	1	0	0	0
<i>Feijoa sellowiana</i>	Pineapple Guava	Cultural/environmental problem (Abiotic disorder)	0	0	1	0
		Anthrachnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<i>Festuca arundinacea</i>	Tall Fescue	Anthrachnose ( <i>Colletotrichum cereale</i> )	1	0	0	0
		Curvularia blight; Leaf spot ( <i>Curvularia</i> sp./spp.)	1	0	0	0
<i>Festuca</i> spp.	Fescues	Anthrachnose ( <i>Colletotrichum cereale</i> )	1	0	0	0
		Dollar spot ( <i>Clarireedia homoeocarpa</i> )	1	0	0	0
		Take-all ( <i>Gaeumannomyces</i> sp./spp.)	1	0	0	0
<i>Fothergilla gardenii</i>	Witch Alder	Unknown abiotic disorder (Abiotic disorder)	0	1	0	0
		Ozone damage (Abiotic disorder)	0	0	1	0
<i>Fragaria x ananassa</i>	Commercial Strawberry; garden strawberry	Abnormal plant growth (Abiotic disorder)	0	0	1	0
		Botrytis blight ( <i>Botrytis</i> sp./spp.)	3	0	0	0
		Fusarium wilt; Fusarium wilt complex ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Leaf Spot ( <i>Alternaria alternata</i> )	1	0	0	0
		Crown and root rot ( <i>Phytophthora</i> sp./spp.)	1	0	0	0
		Phomopsis leaf spot ( <i>Phomopsis</i> sp./spp.)	2	0	0	0
		Leaf blotch ( <i>Gnomonia comari</i> )	2	0	0	0
		Fusarium crown rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Strawberry leather rot ( <i>Phytophthora cactorum</i> )	1	1	0	0
		Leaf /stem/twig blight; Rot; Gray mold ( <i>Botrytis cinerea</i> )	2	0	0	0
		Phytophthora root and crown rot ( <i>Phytophthora cactorum</i> )	4	0	0	0
		Secondary fungus ( <i>Pestalotia</i> sp./spp.)	0	0	2	0
		Sclerotinia crown rot ( <i>Sclerotinia</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Leaf spot ( <i>Neopestalotiopsis</i> sp./spp.)	1	0	1	0
		Verticillium wilt ( <i>Verticillium</i> sp./spp.)	1	0	0	0
<i>Fraxinus americana</i>	White Ash	Ash dieback ( <i>Hymenoscyphus fraxineus</i> )	0	1	0	0
<i>Fritillaria camschatcensis</i>	Chocolate Lily	Unknown abiotic disorder (Abiotic disorder)	0	0	0	1
		Non-pathogenic; Saprophyte (Secondary Agents; Saprophytes; Unspecif.)	0	0	0	1
<i>Gardenia augusta</i>	Common Gardenia; cape jasmine	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
<i>Gardenia jasminoides</i>	Common Gardenia; cape jasmine	Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	0	0	1	0
		2,4-D injury (Abiotic disorder)	0	0	1	0
		Dicamba injury (Abiotic disorder)	0	0	1	0
		Root girdling (Abiotic disorder)	1	0	0	0
<i>Gaura lindheimeri</i>	Beeblossom	Fusarium crown rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
<i>Gerbera</i> sp./spp.	Gerber Daisy; african daisy	Fusarium root; Crown rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
<i>Ginkgo biloba</i>	Ginkgo	Leaf spot ( <i>Botryosphaeria</i> sp./spp.)	0	0	1	0
<i>Gladiolus hybrids</i>	Gladiolus	Corm and bulb rot ( <i>Penicillium</i> sp./spp.)	1	0	0	0
		Fusarium dry rot; Bulb rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
<i>Glycine max</i>	Soybean	Southern soybean stem canker ( <i>Diaporthe aspalathi</i> )	2	0	0	0
		Fusarium wilt; Fusarium wilt complex ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1	0	0	0
		Charcoal rot ( <i>Macrophomina phaseolina</i> )	1	0	0	0
		Stem canker ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Soybean cyst nematode ( <i>Heterodera glycines</i> )	1	0	0	0
habitat	Soil	No pathogen found (Identification Analysis)	0	1	0	0
		Non-pathogenic; Saprophyte (Secondary Agents; Saprophytes; Unspecif.)	0	0	0	1
<i>Hedera helix</i>	English Ivy	Crown and root rot ( <i>Phytophthora</i> sp./spp.)	1	0	0	0
		Anthrachnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<i>Hedera</i> sp./spp.	Ivy	Phytophthora root rot ( <i>Phytophthora palmivora</i> )	1	0	0	0

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
<i>Helianthus annuus</i>	Sunflower	Charcoal rot ( <i>Macrophomina</i> sp./spp.)	2	0	0	0
		Cultural/environmental problem (Abiotic disorder)	0	0	3	0
<i>Helleborus orientalis</i>	Lenten Rose	Downy mildew ( <i>Peronospora pulveracea</i> )	1	0	0	0
<i>Hemerocallis</i> sp./spp.	Daylily	Anthracnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Anthracnose; Leaf streak ( <i>Aureobasidium microstictum</i> )	1	0	0	0
<i>Heuchera villosa</i>	Hairy Alumroot	Armillaria root rot ( <i>Armillaria</i> sp./spp.)	1	0	0	0
<i>Hibiscus syriacus</i>	Rose-of-sharon; Shrub-althea	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
<i>Hosta plantaginea</i>	August-lily Hosta	Petiole rot; Stalk rot ( <i>Sclerotium rolfsii</i> var. <i>delphinii</i> )	1	0	0	0
<i>Hosta</i> sp./spp.	Hosta	Petiole rot; Stalk rot ( <i>Sclerotium rolfsii</i> var. <i>delphinii</i> )	0	0	1	0
		Phytophthora leaf spot ( <i>Phytophthora</i> sp./spp.)	0	2	0	0
		Impatiens necrotic spot (INSV) (Tospovirus Impatiens Necrotic Spot Virus)	0	1	0	0
		Alternaria leaf spot ( <i>Alternaria</i> sp./spp.)	1	0	0	0
		Bacterial leaf spot (Unidentified Bacteria)	0	0	2	0
<i>Hydrangea macrophylla</i>	Bigleaf Hydrangea	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Abnormal plant growth (Abiotic disorder)	0	0	0	1
		Anthracnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<i>Hydrangea paniculata</i>	Panicle Hydrangea	Phytophthora root and crown rot ( <i>Phytophthora cactorum</i> )	1	0	0	0
		Unknown abiotic disorder (Abiotic disorder)	0	0	1	0
		Insufficient sample (Identification Analysis)	0	0	0	1
		Glyphosate injury (Abiotic disorder)	0	0	1	0
		Unspecified pathology ( <i>Phoma</i> sp./spp.)	1	0	0	0
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Phytophthora</i> sp./spp.)	1	0	0	0
<i>Hydrangea</i> sp./spp.	Hydrangea	Root problem; root damage (Unidentified Agent)	0	0	0	1
		Excessive water (Abiotic disorder)	0	0	1	0
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Saprophytic bacteria (Unidentified bacteria)	0	0	0	1
		Herbicide injury (Abiotic disorder)	0	0	1	0
		Nitrogen deficiency (Abiotic disorder)	0	0	1	0
		Cultural/environmental problem (Abiotic disorder)	0	0	1	0
		Bacterial soft rot (Unidentified Bacteria)	0	0	0	1
<i>Hypericum calycinum</i>	Aaron's Beard	Armillaria root rot ( <i>Armillariella</i> sp./spp.)	1	0	0	0
		Chemical; Environmental injury (Abiotic disorder)	0	0	1	0
<i>Hypericum</i> sp./spp.	St. Johnswort	Drought stress damage (Abiotic disorder)	0	0	1	0
<i>Iberis sempervirens</i>	Candytuft	Crown and root rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Black root rot ( <i>Thielaviopsis basicola</i> )	0	1	0	0
		Unspecified pathology ( <i>Alternaria</i> sp./spp.)	1	0	0	0
<i>Ilex aquifolium</i>	English Holly	Anthracnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<i>Ilex cornuta burfordii</i>	Burford Holly	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
		Anthracnose ( <i>Colletotrichum</i> sp./spp.)	2	0	0	0
<i>Ilex crenata</i>	Japanese Holly	Anthracnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
		Black root rot ( <i>Thielaviopsis basicola</i> )	1	0	0	0
<i>Ilex crenata</i> 'helleri'	Heller Holly; mushroom holly	Black root rot ( <i>Thielaviopsis basicola</i> )	0	1	0	0
		Insufficient sample (Identification Analysis)	1	0	0	0
		Armillaria root rot ( <i>Armillaria</i> sp./spp.)	0	0	1	0
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Crown and root rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
<i>Ilex glabra</i>	Inkberry	Black root rot ( <i>Thielaviopsis basicola</i> )	1	0	0	0
		Phytophthora root and crown rot ( <i>Phytophthora cinnamomi</i> )	1	0	0	0
<i>Ilex</i> sp./spp.	Holly	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Anthracnose ( <i>Elsinoe</i> sp./spp.)	1	0	0	0
		Freeze; Frost; Cold damage (Abiotic disorder)	0	0	1	0
		Glyphosate injury (Abiotic disorder)	0	0	1	0
		Crown and root rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
		Oedema; Edema (Abiotic disorder)	0	0	1	0
		Root rot ( <i>Thielaviopsis</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Lasioidiplodia</i> sp./spp.)	1	0	0	0
		Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	2	0
		Black root rot ( <i>Thielaviopsis basicola</i> )	4	1	1	0
		Insufficient sample (Identification Analysis)	0	0	0	2

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
<i>Ilex vomitoria</i>	Yaupon	Phomopsis dieback; Tip blight; Canker ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
		Root problem; root damage (Unidentified Agent)	0	0	1	0
		Insufficient sample (Identification Analysis)	0	1	0	0
<i>Illicium floridanum</i>	Florida Anisetree	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
		Planting too deep (Abiotic disorder)	0	1	0	0
		Secondary fungus (Unidentified Fungus)	0	0	0	1
<i>Illicium parviflorum</i>	Yellow anise	Phomopsis blight ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
<i>Illicium</i> sp./spp.	Anise Tree	Phomopsis blight ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
<i>Impatiens</i> sp./spp.	Impatiens	Pythium damping-off; Root rot ( <i>Pythium irregulare</i> )	1	0	0	0
<i>Ipomoea batatas</i>	Sweetpotato	Cerambycid beetle ( <i>Prionus</i> sp./spp.)	0	0	1	0
		Crown and stem rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Nematode damage (Phylum Nematoda)	0	0	1	0
<i>Iris germanica</i>	Tall Bearded Iris	Bacterial soft rot ( <i>Erwinia</i> sp./spp.)	0	0	1	0
		Bacterial soft rot ( <i>Pectobacterium</i> sp./spp.)	0	0	1	0
		Bacterial soft rot ( <i>Erwinia</i> sp./spp.)	1	0	3	0
<i>Juniperus</i> sp./spp.	Juniper	Unspecified pathology ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Armillaria root rot ( <i>Armillaria</i> sp./spp.)	1	0	0	0
		Environmental stress; Problem (Abiotic disorder)	0	1	0	0
<i>Juniperus virginiana</i>	Eastern Red cedar	Needle blight ( <i>Phyllosticta</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Kabatina tip blight; Needle blight ( <i>Kabatina juniperi</i> )	1	0	0	0
<i>Kerria japonica</i>	Japanese Kerria	Chlorine toxicity (Abiotic disorder)	0	0	1	0
		Phomopsis tip blight; Needle blight ( <i>Phomopsis juniperovora</i> )	1	0	0	0
		Drainage problem (Abiotic disorder)	0	0	1	0
<i>Lactuca</i> sp./spp.	Lettuce	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	0	0	1	0
<i>Lagerstroemia indica</i>	Crape Myrtle	Lettuce mosaic (Lettuce Mosaic Virus (LMV))	0	0	1	0
		Insufficient sample (Identification Analysis)	0	1	0	1
		Armillaria root rot ( <i>Armillaria</i> sp./spp.)	0	0	1	0
		Phomopsis blight ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
		Powdery mildew ( <i>Erysiphe</i> sp./spp.)	1	0	0	0
		Herbicide injury (Abiotic disorder)	0	0	1	0
		No pathogen found (Identification Analysis)	0	1	0	0
		Cercospora leaf spot ( <i>Cercospora</i> sp./spp.)	4	1	0	0
		Leaf spot ( <i>Pseudocercospora</i> sp./spp.)	1	0	0	0
<i>Lantana</i> sp./spp.	Lantana	Gloeosporium leaf spot ( <i>Gloeosporium</i> sp./spp.)	1	0	0	0
		Botrytis blight ( <i>Botrytis</i> sp./spp.)	1	0	0	0
		Unknown abiotic disorder (Abiotic disorder)	0	0	1	0
<i>Laurus</i> sp./spp.	Laurel	Freeze; Frost; Cold damage (Abiotic disorder)	0	0	1	0
		Phoma blight; Dieback; Rot ( <i>Phoma</i> sp./spp.)	1	0	0	0
		Bacterial leaf spot ( <i>Xanthomonas arboricola</i> pv. <i>pruni</i> )	0	0	1	0
<i>Lavandula angustifolia</i>	English Lavender	Crown and root rot ( <i>Phytophthora</i> sp./spp.)	0	10	0	0
		Crown rot; Root rot; Stem rot ( <i>Phytophthora</i> sp./spp.)	0	4	0	0
		Phytophthora crown and/or root rot ( <i>Phytophthora nicotianae</i> )	4	0	0	0
<i>Lavandula</i> sp./spp.	Lavender	Unspecified pathology ( <i>Phytophthora</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	3	0	0	0
		Armillaria crown and root rot ( <i>Armillaria solidipes</i> )	1	0	0	0
		Crown and root rot ( <i>Phytophthora</i> sp./spp.)	0	10	0	0
		Crown rot; Root rot; Stem rot ( <i>Phytophthora</i> sp./spp.)	0	4	0	0
		No pathogen found (Identification Analysis)	0	1	0	0
		Phytophthora crown and/or root rot ( <i>Phytophthora nicotianae</i> )	8	2	0	0
		Drought stress damage (Abiotic disorder)	0	0	2	0
<i>Lavandula stoechas</i>	Spanish Lavender	Soil compaction (Abiotic disorder)	0	0	3	0
		Black root rot ( <i>Thielaviopsis basicola</i> )	1	0	0	0
		Nutrient imbalance (Abiotic disorder)	0	0	1	0
<i>Leucanthemum</i> sp./spp.	Leucanthemum	Moisture stress (Abiotic disorder)	0	0	1	0
<i>Ligustrum japonicum</i>	Japanese Privet	Glyphosate injury (Abiotic disorder)	0	0	1	0
<i>Ligustrum</i> sp./spp.	Privet	Insufficient sample (Identification Analysis)	0	1	0	2
		Nutrient imbalance (Abiotic disorder)	0	0	1	0
		No pathogen found (Identification Analysis)	0	1	0	0
		Cercospora leaf spot ( <i>Cercospora</i> sp./spp.)	3	0	0	0
		Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
		Armillaria root rot ( <i>Armillaria</i> sp./spp.)	2	0	0	0
<i>Lisianthus</i> sp./spp.	Lisianthus	Unknown abiotic disorder (Abiotic disorder)	0	1	0	0
<i>Loropetalum chinense</i>	Chinese Fringe flower	Crown and root rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
		Bacterial gall ( <i>Pseudomonas savastanoi</i> )	0	1	1	0
		Leaf spot ( <i>Pseudocercospora</i> sp./spp.)	1	0	0	0
<i>Lupinus</i>	Lupine	Black root rot ( <i>Thielaviopsis basicola</i> )	1	0	0	0
<i>Lycopersicon esculentum</i>	Tomato	Leaf mold; Spot ( <i>Passalora fulva</i> )	1	0	0	0
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1	0	0	0
		Septoria leaf spot ( <i>Septoria lycopersici</i> )	1	0	0	0
		Tomato spotted wilt (TSWV) (Tospovirus Tomato Spotted Wilt Virus)	3	1	0	0
		Herbicide injury (Abiotic disorder)	0	0	1	0
		Leaf mold ( <i>Fulvia fulva</i> )	1	0	0	0
		Corynespora leaf spot ( <i>Corynespora cassiicola</i> )	1	0	0	0
		Early blight; Leaf spot ( <i>Alternaria solani</i> )	0	0	2	0
		Bacterial speck ( <i>Pseudomonas syringae</i> pv. <i>tomato</i> )	0	0	1	0
		2,4-D injury (Abiotic disorder)	0	0	1	0
		Bacterial wilt ( <i>Ralstonia solanacearum</i> )	6	0	18	0
		Insufficient sample (Identification Analysis)	0	0	0	1
<i>Magnolia grandiflora</i>	Southern Magnolia	Fusarium stem; Root rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Cladosporium mold ( <i>Cladosporium</i> sp./spp.)	1	0	0	0
		Algal leaf spot ( <i>Cephaleuros virescens</i> )	1	0	0	0
		Cultural/environmental problem (Abiotic disorder)	0	1	0	0
		Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
		Verticillium wilt ( <i>Verticillium</i> sp./spp.)	0	0	1	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Excessive water (Abiotic disorder)	0	0	1	0
		Algal leaf spot ( <i>Cephaleuros</i> sp./spp.)	1	0	0	0
<i>Malus domestica</i>	Domestic Apple	Canker; Stem blight; Dieback ( <i>Botryosphaeria dothidea</i> )	1	0	0	0
		Crown rot; Root rot; Stem rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
		Alternaria blotch (Apple) ( <i>Alternaria mali</i> )	2	0	0	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	1	0	0	0
<i>Muehlenbeckia</i> sp.	Wire Plant	Fusarium root; Crown rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Unknown abiotic disorder (Abiotic disorder)	0	0	1	0
<i>Myrica californica</i>	Wax Myrtle	Curvularia blight; Leaf spot ( <i>Curvularia</i> sp./spp.)	1	0	0	0
		Anthraxnose ( <i>Gnomonia</i> sp./spp.)	0	0	1	0
		Gray leaf blight ( <i>Pestalotiopsis</i> sp./spp.)	0	0	1	0
<i>Neviusia alabamensis</i>	Alabama Snow Wreath	Environmental stress; Problem (Abiotic disorder)	0	0	1	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Fusarium</i> sp./spp.)	1	0	0	0
<i>Nicotiana tabacum</i>	Tobacco (general)	Bacterial stem rot ( <i>Enterobacter</i> sp./spp.)	1	0	0	0
		Leaf Spot ( <i>Alternaria alternata</i> )	1	0	0	0
		Bacterial wilt ( <i>Ralstonia solanacearum</i> )	1	0	0	0
<i>Nyssa sylvatica</i>	Black Gum	Angular leaf spot ( <i>Cercospora</i> sp./spp.)	0	0	1	0
<i>Ophiopogon japonicus</i>	Mondograss; Dwarf lily turf	Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<i>Origanum vulgare</i>	Oregano	Unknown abiotic disorder (Abiotic disorder)	0	0	1	0
		Botrytis blight ( <i>Botrytis</i> sp./spp.)	1	0	0	0
<i>Osmanthus fragrans</i>	Sweet Olive; tea olive	Colletotrichum leaf spot ( <i>Colletotrichum gloeosporioides</i> )	1	0	0	0
		Bacterial leaf spot ( <i>Xanthomonas arboricola</i> pv. <i>pruni</i> )	0	0	1	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Environmental stress; Problem (Abiotic disorder)	0	0	1	0
		Phytophthora root and crown rot ( <i>Phytophthora cinnamomi</i> )	1	0	0	0
		Mechanical damage (Abiotic disorder)	0	0	1	0
<i>Pachysandra</i> sp./spp.	Pachysandra	Leaf and stem blight ( <i>Coccinectria pachysandricola</i> )	1	0	0	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<i>Papaver nudicaule</i>	Iceland Poppy	Alternaria leaf blight ( <i>Alternaria</i> sp./spp.)	1	0	0	0
<i>Paspalum</i> sp./spp.	Paspalum; Bahiagrass	No pathogen found (Identification Analysis)	0	1	0	0
<i>Pelargonium x hortorum</i>	House Geranium	Botrytis blight ( <i>Botrytis</i> sp./spp.)	2	0	0	0
		Unknown abiotic disorder (Abiotic disorder)	0	0	1	0
<i>Penstemon</i> sp./spp.	Penstemon; Beard-tongue	Abnormal plant growth (Abiotic disorder)	0	0	1	0
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
<i>Perovskia atriplicifolia</i>	Russian Sage	Fusarium root rot ( <i>Fusarium</i> sp./spp.)	2	0	0	0
<i>Petroselinum crispum</i>	Parsley	Septoria leaf blight ( <i>Septoria</i> sp./spp.)	1	0	0	0



Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
		Unspecified pathology ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Septoria leaf spot ( <i>Septoria petroselinii</i> )	2	0	0	0
<i>Petunia x hybrida</i>	Wave Petunia	Phytophthora crown and/or root rot ( <i>Phytophthora nicotianae</i> )	1	0	0	0
<i>Phaseolus lunatus</i>	Lima Bean	Anthraco-nose; Leaf blight ( <i>Colletotrichum truncatum</i> )	2	0	0	0
		Potyvirus Group ( <i>Potyvirus</i> sp./spp.)	1	0	0	0
<i>Phaseolus vulgaris</i>	Snap Bean; green bean	Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1	0	0	0
		<i>Fusarium</i> crown rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
<i>Philodendron</i> sp./spp.	Philodendron	Bacterial marginal leaf blight ( <i>Pseudomonas marginalis</i> pv. <i>marginalis</i> )	1	0	0	0
<i>Phlox subulata</i>	Phlox Moss; pink phlox	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Black root rot ( <i>Thielaviopsis basicola</i> )	2	0	0	0
<i>Pieris</i> sp./spp.	Pieris	Cercospora leaf spot ( <i>Cercospora</i> sp./spp.)	1	0	0	0
<i>Pittosporum</i> sp./spp.	Pittosporum	Alternaria leaf spot ( <i>Alternaria</i> sp./spp.)	1	0	0	0
		Angular leaf spot ( <i>Cercospora</i> sp./spp.)	2	0	0	0
		Drainage problem (Abiotic disorder)	0	0	1	0
		Phoma blight; Dieback; Rot ( <i>Phoma</i> sp./spp.)	1	0	0	0
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Sooty mold (Unidentified Fungus)	0	0	0	1
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	2	0	0	0
<i>Pittosporum tobira</i>	Japanese Pittosporum	Leaf spot ( <i>Pseudocercospora</i> sp./spp.)	1	0	0	0
		Lichenicolous fungus (Unidentified Fungus)	0	0	0	1
<i>Poa pratensis</i>	Bluegrass; Kentucky bluegrass	Cultural/environmental problem (Abiotic disorder)	1	0	1	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Environmental stress; Problem (Abiotic disorder)	0	0	1	0
<i>Podocarpus</i> sp./spp.	Japanese Yew	Macrophoma blight; Dieback ( <i>Macrophoma</i> sp./spp.)	2	0	0	0
		Leaf spot ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Phoma</i> sp./spp.)	1	0	0	0
		Cultural/environmental problem (Abiotic disorder)	0	0	1	0
		Drought stress damage (Abiotic disorder)	0	0	1	0
		Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	2	0	0	0
		Pestalotiopsis needle blight; Tip blight ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0
<i>Prunus avium</i>	Sweet Cherry; mazzard cherry	Crown and root rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
		Leaf blight and spot; Shothole ( <i>Blumeriella jaapii</i> )	1	0	0	0
<i>Prunus cerasifera</i>	Cherry Plum	Insufficient sample (Identification Analysis)	0	0	0	1
<i>Prunus laurocerasus</i>	Cherry laurel	Anthraco-nose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Bacterial leaf spot ( <i>Xanthomonas arboricola</i> pv. <i>pruni</i> )	0	0	2	0
		Shothole (Unidentified Agent)	0	0	0	1
		Phoma blight; Dieback; Rot ( <i>Phoma</i> sp./spp.)	1	0	0	0
<i>Prunus mume</i>	Japanese Apricot	Crown and root rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
		Leaf scorch (Abiotic disorder)	0	1	0	0
<i>Prunus persica</i>	Peach	<i>Fusarium</i> root; Crown rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Abnormal plant growth (Abiotic disorder)	0	0	1	0
		Phytoplasma disease ( <i>Phytoplasma</i> sp./spp. unknown)	1	0	0	0
		Scab ( <i>Cladosporium</i> sp./spp.)	1	0	0	0
		Phomopsis blight ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
		Canker; Dieback ( <i>Leucostoma persoonii</i> )	1	0	0	0
		Dieback; Twig blight; Canker ( <i>Botryosphaeria obtusa</i> )	1	0	0	0
		Leaf damage (Abiotic disorder)	0	0	1	0
<i>Prunus triloba</i>	Plum (flowering)	Twig blight ( <i>Lasiodiplodia theobromae</i> )	1	0	0	0
		Anthraco-nose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<i>Pyrus calleryana</i>	Callery Pear	Nutritional deficiency (Abiotic disorder)	0	0	1	0
<i>Pyrus communis</i>	Pear	Sooty blotch flyspeck complex (Various Fungi)	0	0	1	0
		Fire blight ( <i>Erwinia amylovora</i> )	0	0	1	0
		Measles (Abiotic disorder)	0	0	1	0
<i>Quercus acutissima</i>	Sawtooth Oak	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
<i>Quercus alba</i>	White Oak	Decline; Dieback (Abiotic disorder)	0	0	1	0
		Alcoholic flux; Frothy flux; White flux (Unidentified Agent)	0	0	0	1
		Crown and root rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
<i>Quercus laurifolia</i>	Laurel Oak	Insufficient sample (Identification Analysis)	0	1	0	0
		Phytophthora basal canker ( <i>Phytophthora cinnamomi</i> )	0	0	1	0
<i>Quercus nigra</i>	Water Oak	Canker ( <i>Hypoxylon</i> sp./spp.)	1	0	0	0
		Bacterial leaf scorch ( <i>Xylella fastidiosa</i> )	0	1	0	0
		Drought stress damage (Abiotic disorder)	0	0	1	0

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
		Oak leaf blister ( <i>Taphrina caerulescens</i> )	0	0	1	0
		Oak wilt ( <i>Bretziella fagacearum</i> )	0	2	0	0
<b>Quercus phellos</b>	<b>Willow Oak</b>	Herbicide drift (Abiotic disorder)	0	0	1	0
		Canker ( <i>Hypoxylon</i> sp./spp.)	0	0	1	0
		Wood rot fungus ( <i>Inonotus</i> sp./spp.)	1	0	0	0
<b>Quercus robur</b>	<b>English Oak</b>	Canker ( <i>Hypoxylon</i> sp./spp.)	1	0	0	0
		Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	1	0
		Branch canker and dieback (Unidentified Agent)	0	0	0	1
<b>Quercus rubra</b>	<b>Northern Red oak</b>	Oak wilt ( <i>Ceratocystis fagacearum</i> )	0	1	0	0
		Wood decay fungus (Unidentified Fungus)	0	1	0	1
		Phomopsis dieback; Tip blight; Canker ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
		Lycoperdon puffball ( <i>Lycoperdon</i> sp./spp.)	0	0	1	0
<b>Quercus</b> sp./spp.	<b>Oak</b>	Root problem; root damage (Unidentified Agent)	0	0	1	0
		Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
		Oak wilt ( <i>Bretziella fagacearum</i> )	0	1	0	0
<b>Quercus velutina</b>	<b>Black Oak</b>	Actinopelte leaf spot ( <i>Dicarpella dryina</i> )	1	0	0	0
		Oak leaf blister ( <i>Taphrina caerulescens</i> )	1	0	0	0
<b>Quercus virginiana</b>	<b>Live Oak</b>	Armillaria root rot/ mushroom rot ( <i>Armillaria tabescens</i> )	1	0	0	0
		Insufficient sample (Identification Analysis)	0	0	0	1
		Canker ( <i>Hypoxylon</i> sp./spp.)	0	0	2	0
		No pathogen found (Identification Analysis)	0	1	0	0
		Red ring rot ( <i>Porodaedalea pini</i> )	0	0	1	0
		Shelf fungus ( <i>Pseudoinonotus dryadeus</i> )	1	0	0	0
		Wood rot fungus ( <i>Ganoderma</i> sp./spp.)	0	4	0	0
		Phytophthora root and crown rot ( <i>Phytophthora cinnamomi</i> )	2	0	0	0
		Root rot ( <i>Ganoderma curtisii</i> )	1	0	0	0
		Wood rot fungus ( <i>Bjerkandera adusta</i> )	0	0	1	0
		Anthraxnose ( <i>Apiognomonium errabunda</i> )	1	0	0	0
		Wood rot fungus ( <i>Phellinus</i> sp./spp.)	0	0	1	0
<b>Ranunculus asiaticus</b>	<b>Persian Buttercup</b>	Bacterial blight ( <i>Xanthomonas campestris</i> )	1	0	0	0
		Potyvirus Group ( <i>Potyvirus</i> sp./spp.)	1	0	0	0
<b>Raphanus sativus</b>	<b>Radish</b>	Non-pathogenic; Saprophyte (Secondary Agents; Saprophytes; Unspecif.)	0	0	0	1
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Unknown abiotic disorder (Abiotic disorder)	0	0	1	0
<b>Rhododendron arborescens</b>	<b>Sweet Azalea</b>	Environmental stress; Problem (Abiotic disorder)	0	0	1	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Leaf spot ( <i>Discosia</i> sp./spp.)	1	0	0	0
<b>Rhododendron calendulaceum</b>	<b>Flame Azalea</b>	Leaf spot ( <i>Pestalotiopsis</i> sp./spp.)	0	0	1	0
		Cultural/environmental problem (Abiotic disorder)	0	0	1	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<b>Rhododendron catawbiense</b>	<b>Native Rhododendron</b>	Gray leaf blight ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0
		Canker; Stem blight; Dieback ( <i>Botryosphaeria dothidea</i> )	1	0	0	0
<b>Rhododendron periclymenoides</b>	<b>Pinxter Flower</b>	Environmental stress; Problem (Abiotic disorder)	0	0	1	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
<b>Rhododendron</b> sp./spp.	<b>Azalea; Rhododendron</b>	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
		Leaf and flower gall ( <i>Exobasidium vaccinii</i> )	1	0	0	0
		Leaf spot ( <i>Pseudocercospora</i> sp./spp.)	1	0	0	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Cultural/environmental problem (Abiotic disorder)	0	0	1	0
		Phytoplasma disease ( <i>Phytoplasma</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		No pathogen found (Identification Analysis)	0	2	0	0
		Septoria leaf spot ( <i>Septoria</i> sp./spp.)	1	0	0	0
		Cercospora leaf spot ( <i>Cercospora</i> sp./spp.)	3	0	0	0
		Iron; Manganese deficiency (Abiotic disorder)	0	0	1	0
		Armillaria root rot ( <i>Armillaria</i> sp./spp.)	1	0	1	0
		Insufficient sample (Identification Analysis)	0	1	0	1
		Herbicide injury; Exposure (Abiotic disorder)	0	0	1	0
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
<b>Ribes uva-crispa</b>	<b>European Gooseberry</b>	Ribes anthracnose ( <i>Drepanopeziza ribis</i> )	1	0	0	0
<b>Rosa</b> sp./spp.	<b>Rose</b>	Black spot (Rose) ( <i>Diplocarpon rosae</i> )	0	0	1	0
		Dieback; Canker ( <i>Coniothyrium</i> sp./spp.)	1	0	0	0

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
		Bacterial identification ( <i>Pseudomonas fluorescens</i> )	1	0	0	0
		Rose rosette disease (RRV) (Emaravirus Rose Rosette Virus)	0	0	4	0
		Herbicide injury (Abiotic disorder)	0	0	1	0
		Botrytis blight ( <i>Botrytis</i> sp./spp.)	2	0	0	0
		Chemical injury (Abiotic disorder)	0	0	1	0
<b>Rosmarinus officinalis</b>	<b>Rosemary</b>	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Fusarium root; Crown rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Botrytis blight ( <i>Botrytis</i> sp./spp.)	1	0	0	0
<b>Rubus fruticosus</b>	<b>Thornless Blackberry</b>	Dieback; Canker ( <i>Coniothyrium</i> sp./spp.)	1	0	0	0
		Phomopsis dieback; Tip blight; Canker ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
		Cercospora leaf spot ( <i>Cercospora</i> sp./spp.)	1	0	0	0
<b>Rubus</b> sp./spp.	<b>Blackberry</b>	Phomopsis fruit rot ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
		Secondary fungus ( <i>Pestalotia</i> sp./spp.)	1	0	0	0
		Dieback; Canker ( <i>Coniothyrium</i> sp./spp.)	1	0	0	0
		Downy mildew ( <i>Peronospora</i> sp./spp.)	1	0	0	0
<b>Rudbeckia hirta</b>	<b>Blackeyed Susan</b>	Charcoal rot ( <i>Macrophomina</i> sp./spp.)	1	0	0	0
		Septoria leaf spot ( <i>Septoria</i> sp./spp.)	1	0	0	0
		Fusarium crown rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
<b>Salix babylonica</b>	<b>Babylonian Weeping willow</b>	Drought stress damage (Abiotic disorder)	0	0	1	0
<b>Sassafras albidum</b>	<b>Sassafras</b>	Rhizoctonia root rot ( <i>Rhizoctonia</i> sp./spp.)	1	0	0	0
<b>Sedum</b> sp./spp.	<b>Stonecrop</b>	Oedema; Edema (Abiotic disorder)	0	0	0	1
		Crown and stem rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Fusarium stem; Root rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
<b>Serenoa repens</b>	<b>Saw Palmetto</b>	Butt rot ( <i>Ganoderma zonatum</i> )	1	0	0	0
		Leaf spot ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0
		Cercospora leaf spot ( <i>Cercospora</i> sp./spp.)	1	0	0	0
<b>Sesamum indicum</b>	<b>Oriental Sesame</b>	Sesame Cercospora leaf spot ( <i>Cercospora sesami</i> )	2	0	0	0
<b>Solanum tuberosum</b>	<b>Potato</b>	Herbicide injury (Abiotic disorder)	0	0	1	0
		Nutrient imbalance (Abiotic disorder)	0	0	1	0
		Brown spot ( <i>Alternaria alternata</i> )	1	0	0	0
<b>Stenotaphrum secundatum</b>	<b>St. Augustinegrass</b>	Gray leaf spot ( <i>Pyricularia grisea</i> )	12	0	0	0
		No pathogen found (Identification Analysis)	0	1	0	0
		Pyricularia leaf spot ( <i>Pyricularia</i> sp./spp.)	1	0	0	0
		ETRI ectotrophic root infecting fungi (Complex of Fungi)	1	0	0	1
		Take-all ( <i>Gaeumannomyces</i> sp./spp.)	2	0	0	0
		Large patch ( <i>Rhizoctonia solani</i> )	5	0	0	0
		Take-all ( <i>Gaeumannomyces graminis</i> var. <i>tritici</i> )	3	0	0	0
		Curvularia blight; Leaf spot ( <i>Curvularia</i> sp./spp.)	4	0	0	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Brown patch ( <i>Rhizoctonia</i> sp./spp.)	0	0	1	0
		Grey leaf spot ( <i>Stemphylium solani</i> )	1	0	0	0
<b>Tagetes</b> sp./spp.	<b>Marigold</b>	Root rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
		Bacterial wilt ( <i>Ralstonia solanacearum</i> )	0	0	1	0
<b>Taxodium distichum</b>	<b>Baldcypress (forest)</b>	Phomopsis blight ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
<b>Taxus</b> sp./spp.	<b>Yew</b>	Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Excessive water (Abiotic disorder)	0	0	1	0
<b>Ternstroemia gymnanthera</b>	<b>Japanese Cleystera</b>	Environmental stress; Problem (Abiotic disorder)	0	0	1	0
		Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
<b>Thuja occidentalis</b>	<b>North. White (American) cedar</b>	Drought stress damage (Abiotic disorder)	0	0	1	0
		Herbicide injury G;9 Glyphosate (Abiotic disorder)	0	0	1	0
		Stemphylium leaf spot ( <i>Stemphylium</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	1	0	0	0
<b>Thuja</b> sp./spp.	<b>Arborvitae</b>	Macrophoma blight; Dieback ( <i>Macrophoma</i> sp./spp.)	1	0	0	0
		Sooty mold (Unidentified Fungus)	0	0	0	1
		Arborvitae needle blight ( <i>Phyllosticta thujae</i> )	1	0	0	0
		Phytophthora root and crown rot ( <i>Phytophthora cinnamomi</i> )	1	0	0	0
		Armillaria root rot ( <i>Armillaria</i> sp./spp.)	1	0	0	0
		Insufficient sample (Identification Analysis)	0	0	0	1
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	2	0	0	0
<b>Thuja standishii x plicata</b>	<b>Green Giant arborvitae</b>	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
		Drought stress damage (Abiotic disorder)	0	0	1	0
		Secondary fungus ( <i>Pestalotia</i> sp./spp.)	1	0	0	0

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Leaf spot ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0
		No pathogen found (Identification Analysis)	0	1	0	0
		Needle dieback ( <i>Phyllosticta</i> sp./spp.)	1	0	0	0
<i>Trachelospermum asiaticum</i>	Asiatic Jasmine	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
<i>Trachelospermum jasminoides</i>	Confederate (star-j.) jasmine	Leaf spot ( <i>Pestalotia</i> sp./spp.)	1	0	0	0
<i>Trachycarpus fortunei</i>	Windmill Palm	Phytophthora root rot ( <i>Phytophthora palmivora</i> )	1	0	0	0
		Fusarium crown rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
<i>Triticum aestivum</i>	Common Wheat	Tan spot; Yellow leaf spot ( <i>Pyrenophora tritici-repentis</i> )	1	0	0	0
		Fusarium root; Crown rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Black head mold ( <i>Epicoccum nigrum</i> )	1	0	0	0
		Cladosporium black head mold ( <i>Cladosporium</i> sp./spp.)	1	0	0	0
<i>Tsuga canadensis</i>	Eastern Hemlock	Insufficient sample (Identification Analysis)	0	0	0	1
		Unspecified pathology ( <i>Phytophthora quercetorum</i> )	1	0	0	0
		Drought stress damage (Abiotic disorder)	0	0	1	0
<i>Typha angustifolia</i>	Narrowleaf Cattail	Crown rot ( <i>Rhizoctonia</i> sp./spp.)	1	0	0	0
<i>Ulmus</i> sp./spp.	Elm	Phytoplasma disease ( <i>Phytoplasma</i> sp./spp.)	1	0	0	0
		Elms yellows; Elm phloem necrosis (' <i>Candidatus</i> Phytoplasma ulmi')	0	1	0	0
<i>Vaccinium corymbosum</i>	Highbush Blueberry	Phytophthora root and crown rot ( <i>Phytophthora cinnamomi</i> )	1	0	0	0
		Unknown abiotic disorder (Abiotic disorder)	0	0	1	0
<i>Vaccinium</i> sp./spp.	Blueberry	Blueberry red ringspot (BRRV) (Soymovirus Blueberry Red Ringspot Virus)	0	0	1	0
		Septoria leaf spot; Stem canker ( <i>Septoria albopunctata</i> )	1	0	0	0
		Phomopsis canker and twig blight ( <i>Diaporthe vaccinii</i> )	1	0	0	0
<i>Veronica longifolia</i>	Longleaf Speedwell	Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Alternaria leaf blight ( <i>Alternaria</i> sp./spp.)	1	0	0	0
<i>Viburnum awabuki</i>	Chindo Viburnum	Leaf spot ( <i>Phyllosticta</i> sp./spp.)	1	0	0	0
		Phomopsis dieback; Tip blight; Canker ( <i>Phomopsis</i> sp./spp.)	1	0	0	0
		Leaf spot ( <i>Botryodiplodia</i> sp./spp.)	1	0	0	0
<i>Viburnum cassinoides</i>	Withe-rod Viburnum	Crown gall ( <i>Agrobacterium</i> sp./spp.)	0	1	0	0
		Root and/or pot bound (Abiotic disorder)	1	0	0	0
<i>Viburnum odoratissimum</i>	Sweet Viburnum	No pathogen found (Identification Analysis)	0	1	0	0
		Leaf spot ( <i>Phyllosticta</i> sp./spp.)	1	0	0	0
		Phoma leaf spot ( <i>Phoma</i> sp./spp.)	1	0	0	0
		Nutrient imbalance (Abiotic disorder)	0	0	1	0
<i>Viburnum plicatum</i>	Japanese Snowball	Mechanical damage (Abiotic disorder)	0	0	1	0
<i>Vigna unguiculata</i>	Cowpea	Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	1	0	0	0
		Root rot ( <i>Phytophthora</i> sp./spp.)	2	0	0	0
<i>Viola</i> sp./spp.	Violas (violet; pansy)	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Leaf blight; Leaf spot ( <i>Botrytis</i> sp./spp.)	1	0	0	0
<i>Vitis rotundifolia</i>	Muscadine Grape	Grapevine Pierce's disease ( <i>Xylella fastidiosa</i> )	0	1	0	0
		Bitter rot ( <i>Greeneria uvicola</i> )	2	0	0	0
<i>Wisteria</i> sp./spp.	Wisteria	Dieback; Canker; Twig blight ( <i>Botryosphaeria</i> sp./spp.)	1	0	0	0
<i>Zantedeschia</i> sp./spp.	Calla Lily	Anthraxnose ( <i>Colletotrichum gloeosporioides</i> )	1	0	0	0
<i>Zebrina pendula</i>	Wandering Jew	Botrytis blight ( <i>Botrytis</i> sp./spp.)	1	0	0	0
		Unknown abiotic disorder (Abiotic disorder)	0	0	1	0
<i>Zoysia</i> sp./spp.	Zoysia Grass	Helminthosporium leaf spot ( <i>Bipolaris cynodontis</i> )	1	0	0	0
		Large patch ( <i>Rhizoctonia solani</i> )	12	0	0	0
		Dollar spot ( <i>Clarireedia homoeocarpa</i> )	8	1	0	0
		Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0	0	0
		Take all ( <i>Gaeumannomyces graminis</i> var. <i>avenae</i> )	1	0	0	0
		Anthraxnose ( <i>Colletotrichum cereale</i> )	4	0	0	0
		Brown patch ( <i>Colletotrichum caudatum</i> )	1	0	0	0
		Pink snow mold; Fusarium patch ( <i>Microdochium nivale</i> )	1	0	0	0
		Anthraxnose ( <i>Colletotrichum</i> sp./spp.)	3	0	0	0
		Anthraxnose leaf blight ( <i>Colletotrichum graminicola</i> )	1	0	0	0
		Cultural/environmental problem (Abiotic disorder)	1	0	1	0
		ETRI ectotrophic root infecting fungi (Complex of Fungi)	0	0	0	1
		Take-all ( <i>Gaeumannomyces</i> sp./spp.)	7	0	0	0
		No pathogen found (Identification Analysis)	0	1	0	0
		Brown patch ( <i>Rhizoctonia</i> sp./spp.)	4	0	0	0
		Curvularia blight; Leaf spot ( <i>Curvularia</i> sp./spp.)	11	0	0	0
<i>× cupressocyparis leylandii</i>	Leyland Cypress	Cultural/environmental problem (Abiotic disorder)	0	0	1	0

Host Scientific Name	Host Common Name	Diagnostic Result	Confirmed	Not Detected	Suspected	Undetermined
		Environmental stress; Problem (Abiotic disorder)	0	0	1	0
		No pathogen found (Identification Analysis)	0	1	0	0
		Unspecified pathology ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0
<b>Potting Soil; growing media (nursery)</b>	<b>Potting Soil; growing media (nursery)</b>	Unspecified pathology ( <i>Thielaviopsis</i> sp./spp.)	0	1	0	0
		Black root rot ( <i>Thielaviopsis basicola</i> )	1	0	0	0
		Crown and root rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
		Unspecified pathology ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	0	1	0	0
<b>Mixed species</b>	<b>Palms</b>	Crown rot; Root rot; Stem rot ( <i>Phytophthora</i> sp./spp.)	0	1	0	0
		Leaf spot ( <i>Pestalotiopsis</i> sp./spp.)	1	0	0	0
		Cylindrocladium leaf spot ( <i>Calonectria</i> sp./spp.)	1	0	0	0
		Unspecified pathology ( <i>Pythium</i> sp./spp.)	1	0	0	0
<b>Mixed species</b>	<b>Turfgrass</b>	Anthraxnose ( <i>Colletotrichum cereale</i> )	1	0	0	0
		Take-all ( <i>Gaeumannomyces</i> sp./spp.)	1	0	0	0
		Root-knot nematodes (Family Heteroderidae)	0	0	1	0
		Curvularia blight; Leaf spot ( <i>Curvularia</i> sp./spp.)	2	0	0	0
<b>Mixed plant material</b>	<b>Mixed plant material</b>	Fusarium stem rot; Fusarium stalk rot ( <i>Fusarium</i> sp./spp.)	1	0	0	0
		Bristly mallow ( <i>Modiola caroliniana</i> )	1	0	0	0

**Table 3** Results of Pest ID samples at PPDC and a list of Exotic Pest Surveys in 2022

Host Scientific Name	Host Common Name	Pest ID	Confirmed	Not Detected	Suspected	Undetermined
<i>Alocasia</i> sp./spp.	Elephant Ear plant	Fungus Gnats (Superfamily Sciaroidea)	1	0	0	0
<i>Arachis hypogaea</i>	Peanut	Almond moth ( <i>Cadra cautella</i> )	0	0	1	0
		<i>Liposcelis bostrychophila</i>	1	0	0	0
<i>Asclepias tuberosa</i>	Butterflyweed	Oleander aphid ( <i>Aphis nerii</i> )	1	0	0	0
<i>Beta vulgaris</i>	Sugar Beet	European corn borer ( <i>Ostrinia nubilalis</i> )	0	0	1	0
<i>Buddleia</i> sp./spp.	Butterfly Bush	Twospotted spider mite ( <i>Tetranychus urticae</i> )	1	0	0	0
<i>Buxus microphylla</i> var. <i>japonica</i>	Japanese Boxwood	Boxwood mite ( <i>Eurytetranychus buxi</i> )	0	0	1	0
<i>Buxus</i> sp./spp.	Boxwood	Boxwood leafminer ( <i>Monarthropalpus flavus</i> )	1	0	0	0
		Armored scale ( <i>Diaspis</i> sp./spp.)	0	0	1	0
<i>Callicarpa americana</i>	American Beautyberry	Mealybugs (Family Pseudococcidae)	1	0	0	0
		Crapemyrtle bark scale ( <i>Acanthococcus lagerstroemiae</i> )	1	0	0	0
<i>Camellia japonica</i>	Common Camellia	Southern red mite ( <i>Oligonychus ilicis</i> )	1	0	0	0
<i>Camellia sasanqua</i>	Sasanqua Camellia	Tea scale ( <i>Fiorinia theae</i> )	1	0	0	0
<i>Camellia sinensis</i>	Tea Plant	Spider mites (Family Tetranychidae)	0	0	0	1
<i>Capsicum annuum</i>	Jalapeno Pepper	Pepper weevil ( <i>Anthonomus eugeni</i> )	1	0	0	0
<i>Capsicum annuum</i> var. <i>grossum</i>	Bell Pepper	Potato aphid ( <i>Macrosiphum euphorbiae</i> )	1	0	0	0
<i>Carya illinoensis</i>	Pecan	Southern pecan leaf Phylloxera ( <i>Phylloxera russellae</i> )	0	0	1	0
		Beetles (Order Coleoptera)	0	0	1	0
<i>Cercis canadensis</i>	Eastern Redbud	Butterflies; Moths; Caterpillars (Order Lepidoptera)	0	0	1	0
<i>Cercis</i> sp./spp.	Redbud	Black twig borer ( <i>Xylosandrus compactus</i> )	1	0	0	0
<i>Citrus meyeri</i>	Meyer Lemon	Citrus leafminer ( <i>Phyllocnistis citrella</i> )	1	0	0	0
<i>Citrus paradisi</i>	Grapefruit	Citrus leafminer ( <i>Phyllocnistis citrella</i> )	1	0	0	0
<i>Conoclinium coelestinum</i>	Mistflower	Green peach aphid ( <i>Myzus persicae</i> )	0	0	1	0
<i>Cornus florida</i>	Flowering Dogwood	Dogwood twig borer ( <i>Oberea tripunctata</i> )	0	0	1	0
<i>Cornus</i> sp./spp.	Dogwood	Black twig borer ( <i>Xylosandrus compactus</i> )	0	0	1	0
<i>Cupressus arizonica</i>	Arizona Cypress	Cedar and cypress bark beetle ( <i>Phloeosinus</i> sp./spp.)	1	0	0	0
<i>Diospyros</i> sp./spp.	Persimmon (ornamental)	Japanese beetle ( <i>Popillia japonica</i> )	0	0	1	0
<i>Eremochloa ophiuroides</i>	Centipedegrass	Green june beetle ( <i>Cotinis nitida</i> )	0	0	1	0
		Groundpears ( <i>Margarodes</i> sp./spp.)	1	0	0	0
		Chinch bug complex ( <i>Blissus</i> sp./spp.)	2	0	0	0
<i>Eupatorium maculatum</i>	Spotted Joe-pye-weed	Green peach aphid ( <i>Myzus persicae</i> )	0	0	1	0
<i>Festuca</i> spp.	Fescues	Chinch bug complex ( <i>Blissus</i> sp./spp.)	1	0	0	0
<i>Fragaria x ananassa</i>	Commercial Strawberry; garden strawberry	Strawberry aphid ( <i>Chaetosiphon fragaefolii</i> )	1	0	0	0
		Twospotted spider mite ( <i>Tetranychus urticae</i> )	1	0	0	0
<i>Gaura</i> sp./spp.	Gaura	Slug/Snail damage (Class Gastropoda)	0	0	1	0
<i>Gladiolus</i> hybrids	Gladiolus	Thrips damage (Order Thysanoptera)	1	0	0	0
<i>Helianthus annuus</i>	Sunflower	Wireworms (Click beetles) (Family Elateridae)	1	0	0	0
<i>Hibiscus moscheutos</i>	Rose Mallow	Gelechiid moths (Family Gelechiidae)	0	0	1	0
<i>Hosta</i> sp./spp.	Hosta	Slug/Snail damage (class Gastropoda)	1	0	1	0
<i>Hydrangea paniculata</i>	Panicle Hydrangea	Twospotted spider mite ( <i>Tetranychus urticae</i> )	1	0	0	0
<i>Ilex cornuta burfordii</i>	Burford Holly	Tea scale ( <i>Fiorinia theae</i> )	1	0	0	0
<i>Ilex crenata</i>	Japanese Holly	Greedy scale ( <i>Hemiberlesia rapax</i> )	1	0	0	0
<i>Ilex</i> sp./spp.	Holly	Florida wax scale ( <i>Ceroplastes floridensis</i> )	1	0	0	0
		Tea scale ( <i>Fiorinia theae</i> )	4	0	0	0
		Spider mites (Family Tetranychidae)	0	0	0	1
<i>Ilex vomitoria</i>	Yaupon	Holly looper ( <i>Ilexia intractata</i> )	0	0	1	0
<i>Ilex x attenuata</i> 'fosteri'	Foster Holly	Holly pit scale ( <i>Asterolecanium puteanum</i> )	1	0	0	0
<i>Lagerstroemia indica</i>	Crape Myrtle	Japanese beetle ( <i>Popillia japonica</i> )	0	0	1	0
		Crapemyrtle bark scale ( <i>Acanthococcus lagerstroemiae</i> )	1	0	0	0
<i>Laurus</i> sp./spp.	Laurel	White peach scale ( <i>Pseudaulacaspis pentagona</i> )	0	0	1	0
<i>Lavandula angustifolia</i>	English Lavender	Scarab beetle ( <i>Phyllophaga</i> sp./spp.)	0	0	1	0

Host Scientific Name	Host Common Name	Pest ID	Confirmed	Not Detected	Suspected	Undetermined
<i>Ligustrum</i> sp./spp.	Privet	Spruce spider mite ( <i>Oligonychus ununguis</i> )	1	0	0	0
		Psocid barklice ( <i>Cerastipsocus venosus</i> )	1	0	0	0
<i>Liriodendron tulipifera</i>	Tulip Tree	Black twig borer ( <i>Xylosandrus compactus</i> )	0	0	1	0
<i>Loropetalum chinense</i>	Chinese Fringe flower	Twospotted spider mite ( <i>Tetranychus urticae</i> )	1	0	0	0
<i>Lycopersicon esculentum</i>	Tomato	Aphids; Plant lice (Family Aphididae)	1	0	0	0
		Greenhouse whitefly ( <i>Trialeurodes vaporariorum</i> )	1	0	0	0
		Potato aphid ( <i>Macrosiphum euphorbiae</i> )	1	0	0	0
		Twospotted spider mite ( <i>Tetranychus urticae</i> )	1	0	0	0
<i>Magnolia grandiflora</i>	Southern Magnolia	False oleander scale ( <i>Pseudaulacaspis cockerelli</i> )	2	0	0	0
<i>Magnolia virginiana</i>	Sweet Bay magnolia	Magnolia leafminer ( <i>Phyllocnistis magnoliella</i> )	0	0	1	0
<i>Malus sylvestris</i>	Common Apple	Insect damage (Class Insecta)	0	0	1	0
<i>Nyssa sylvatica</i>	Black Gum	Black tupelo bladdergall mite ( <i>Eriophyes nyssae</i> )	1	0	0	0
		Black twig borer ( <i>Xylosandrus compactus</i> )	0	0	1	0
<i>Pittosporum</i> sp./spp.	Pittosporum	Longtailed mealybug ( <i>Pseudococcus longispinus</i> )	1	0	0	0
<i>Pittosporum tobira</i>	Japanese Pittosporum	Apple aphid ( <i>Aphis pomi</i> )	0	0	1	0
<i>Prunus laurocerasus</i>	Cherry laurel	San jose scale ( <i>Diaspidiotus perniciosus</i> )	1	0	0	0
<i>Prunus mume</i>	Japanese Apricot	European red mite ( <i>Panonychus ulmi</i> )	1	0	0	0
<i>Prunus persica</i>	Peach	San jose scale ( <i>Diaspidiotus perniciosus</i> )	1	0	0	0
<i>Pyrus calleryana</i>	Callery Pear	Spider mites (Family Tetranychidae)	0	0	0	1
<i>Quercus alba</i>	White Oak	Solitary oak leafminer ( <i>Cameraria hamadryadella</i> )	3	0	0	0
<i>Quercus prinus</i>	Chestnut Oak	Lace bugs (Family Tingidae)	1	0	0	0
<i>Quercus</i> sp./spp.	Oak	Formosan subterranean termite ( <i>Coptotermes formosanus</i> )	1	0	0	0
<i>Quercus virginiana</i>	Live Oak	Gall wasps (Family Cynipidae)	0	0	1	0
<i>Raphanus sativus</i>	Radish	Turnip aphid ( <i>Lipaphis pseudobrassicae</i> )	1	0	0	0
		Green peach aphid ( <i>Myzus persicae</i> )	1	0	0	0
		Azalea lace bug ( <i>Stephanitis pyrioides</i> )	0	0	2	0
<i>Rosa</i> sp./spp.	Rose	Acacia whitefly ( <i>Tetraleurodes acaciae</i> )	0	0	1	0
		Flower thrips (Frankliniella tritici)	1	0	0	0
		Rose scale ( <i>Aulacaspis rosae</i> )	1	0	0	0
		Twospotted spider mite ( <i>Tetranychus urticae</i> )	1	0	0	0
		Spider mites (Family Tetranychidae)	0	0	0	1
		Roseslug ( <i>Endelomyia aethiops</i> )	1	0	0	0
		Rose aphid ( <i>Macrosiphum rosae</i> )	1	0	0	0
		Japanese beetle ( <i>Popillia japonica</i> )	1	0	0	0
<i>Rubus</i> sp./spp.	Blackberry	White peach scale ( <i>Pseudaulacaspis pentagona</i> )	0	0	1	0
<i>Salix babylonica</i>	Babylonian Weeping willow	Beetles (Order Coleoptera)	0	0	1	0
<i>Sesamum indicum</i>	Oriental Sesame	Dung beetle ( <i>Calamosternus granarius</i> )	1	0	0	0
<i>Spinacia oleracea</i>	Spinach	House and stable flies (Family Muscidae; Order Diptera)	0	0	0	1
<i>Stenotaphrum secundatum</i>	St. Augustine grass	Chinch bug complex ( <i>Blissus</i> sp./spp.)	8	0	0	0
<i>Thuja</i> sp./spp.	Arborvitae	Spruce spider mite ( <i>Oligonychus ununguis</i> )	0	0	1	0
		Maskell scale ( <i>Lepidosaphes maskelli</i> )	1	0	0	0
<i>Trachelospermum jasminoides</i>	Confederate (star-j.) jasmine	Euonymus scale ( <i>Unaspis euonymi</i> )	1	0	0	0
<i>Vaccinium ashei</i>	Rabbit-eye Blueberry	leaf miner (Order Lepidoptera)	0	0	0	1
<i>Viburnum awabuki</i>	Chindo Viburnum	Lace bugs (Family Tingidae)	1	0	0	0
<i>Viburnum obovatum</i>	Viburnum	Black twig borer ( <i>Xylosandrus compactus</i> )	1	0	0	0
<i>Viburnum</i> sp./spp.	Viburnum	Insect feeding damage (Unidentified Insect)	0	0	2	0
<i>Vitis rotundifolia</i>	Muscadine Grape	Japanese beetle ( <i>Popillia japonica</i> )	0	0	1	0
<i>Zoysia</i> sp./spp.	Zoysia Grass	Field cricket ( <i>Gryllus assimilis</i> )	1	0	0	0
n.a. (General Pest ID)		Acrobat ants ( <i>Crematogaster</i> sp./spp.)	2	0	0	0
		American dog tick ( <i>Dermacentor variabilis</i> )	1	0	0	0
		Ants (Family Formicidae)	1	0	0	0
		Argentine ant ( <i>Linepithema humile</i> )	1	0	0	0
		Argentine ant ( <i>Linepithema humile</i> )	1	0	0	0

Host Scientific Name	Host Common Name	Pest ID	Confirmed	Not Detected	Suspected	Undetermined
		Bat bug ( <i>Cimex pilosellus</i> )	1	0	0	0
		Bed bug ( <i>Cimex lectularius</i> )	2	0	0	0
		Blattid cockroaches (Family Blattidae)	1	0	0	0
		Bluebottle fly ( <i>Calliphora vomitoria</i> )	1	0	0	0
		Citrus leafminer ( <i>Phyllocnistis citrella</i> )	1	0	0	0
		Drugstore beetle ( <i>Stegobium paniceum</i> )	3	0	0	0
		Drywood termites (Family Kalotermitidae)	1	0	0	0
		Eastern subterranean termite ( <i>Reticulitermes flavipes</i> )	2	0	1	0
		European hornet ( <i>Vespa crabro</i> )	0	0	1	0
		Fleas (Order Siphonaptera)	1	0	0	0
		Flies (Order Diptera)	1	0	0	0
		Fruit flies (Family Drosophilidae)	0	0	0	1
		Fungus Gnats (Superfamily Sciaroidea)	2	0	0	0
		Fungus Gnats (Superfamily Sciaroidea)	1	0	0	0
		Giant centipede ( <i>Scolopendra</i> sp./spp.)	1	0	0	0
		Ground beetles (Family Carabidae)	0	0	0	1
		Hardwood stump borer ( <i>Mallodon dasytomus</i> )	1	0	0	0
		Head louse ( <i>Pediculus humanus</i> )	1	0	0	0
		Humpbacked flies (Family Phoridae)	0	0	1	1
		Humpbacked phorid fly ( <i>Megaselia</i> sp./spp.)	1	0	0	0
		Moth flies (Family Psychodidae)	0	0	0	1
		No insect found (Identification Analysis)	0	6	0	0
		Red flour beetle ( <i>Tribolium castaneum</i> )	1	0	0	0
		Rover ant ( <i>Brachymyrmex depilis</i> )	1	0	0	0
		Spiders (Order Araneae)	1	0	0	0
		Springtails (Order Collembola)	0	0	0	1
		Springtails (Order Collembola)	0	0	0	1
		Thief ant ( <i>Solenopsis molesta</i> )	1	0	0	0
		Ticks (Order Acari)	0	0	1	0
		Torsalo fly ( <i>Dermatobia hominis</i> )	1	0	0	0
		Water boatman ( <i>Hesperocorixa</i> sp./spp.)	1	0	0	0
<b>Exotic Pest Surveys</b>						
Silver Y moth ( <i>Autographa gamma</i> )	Tomato looper ( <i>Chrysodeixis chalcites</i> )	Spotted Lanternfly ( <i>Lycorma delicatula</i> )				
Old world bollworm ( <i>Helicoverpa armigera</i> )	Japanese pine sawyer ( <i>Monoctonus saltuarius</i> )	Red palm weevil ( <i>Rhynchophorus ferrugineus</i> )				
Egyptian cottonworm ( <i>Spodoptera littoralis</i> )	Grapevine moth ( <i>Lobesia botrana</i> )	Emerald ash borer ( <i>Agrilus planipennis</i> )				
Cotton cutworm ( <i>Spodoptera litura</i> )	Bark beetle (Scolytinae)	Box tree moth ( <i>Cydalima perspectalis</i> )				



**Table 4** Identifications of terrestrial and aquatic weed samples at PPDC in 2022

Plant/Weed Type	Habitat/Host	Identification Result	Confirmed	Not Detected	Suspected	Undetermined
Aquatic	Ponds; Lakes; impounded waters	<i>Chroococcus</i> sp.	1	0	0	0
		Ciliated protozoan	1	0	0	0
		Eurasian watermilfoil ( <i>Myriophyllum spicatum</i> )	1	0	0	0
		Green algae ( <i>Pediastrum</i> )	1	0	0	0
		Green algae ( <i>Zygnema</i> sp./spp.)	1	0	0	0
		Hydrilla ( <i>Hydrilla verticillata</i> )	2	0	0	0
		<i>Scenedesmus</i> sp.	2	0	0	0
		<i>Spirodela</i> sp.	1	0	0	0
		Blue-green algae ( <i>Anabaena</i> sp./spp.)	3	0	1	0
		Blue-green algae ( <i>Oscillatoria</i> sp./spp.)	3	0	0	0
		Broadleaf arrowhead ( <i>Sagittaria latifolia</i> )	1	0	0	0
		<i>Ceratium</i>	1	0	0	0
		<i>Chlorella</i> sp.	1	0	0	0
		<i>Coleochaete</i>	1	0	0	0
		Dogfennel ( <i>Eupatorium capillifolium</i> )	1	0	0	0
		<i>Eremosphaera</i> sp.	1	0	0	0
		<i>Fragilaria</i> sp.	1	0	0	0
		Lemna duckweed ( <i>Lemna</i> sp./spp.)	1	0	0	0
		<i>Pediastrum</i> sp.	1	0	0	0
		Rotifers (zooplankton) sp.	1	0	0	0
		<i>Senedesmus</i> sp.	1	0	0	0
		<i>Staurastrum</i> sp.	1	0	0	0
		Bladderwort ( <i>Utricularia</i> sp./spp.)	1	0	0	0
		Blue-green algae ( <i>Microcystis</i> sp./spp.)	6	0	0	0
		Carolina horsenettle ( <i>Solanum carolinense</i> )	1	0	0	0
		<i>Cyclotella</i> sp.	1	0	0	0
		Dotted duckweed ( <i>Spirodela punctata</i> )	1	0	0	0
		<i>Eunotia</i> sp.	1	0	0	0
		Filamentous Green Algae ( <i>Desmidium</i> sp./spp.)	4	0	0	0
		Filamentous green algae ( <i>Mougeotia</i> sp./spp.)	1	0	0	0
		Filamentous green algae ( <i>Spirogyra</i> ; <i>Oedogonium</i> ; <i>Cladophora</i> sp./spp.)	4	0	0	0
		Green algae (Family Chlorophyceae)	2	0	0	0
		Small pondweed ( <i>Potamogeton pusillus</i> )	1	0	0	0
		<i>Staurastrum</i> sp.	1	0	0	0
		Water primrose ( <i>Ludwigia</i> sp./spp.)	2	0	2	0
		Watermeal ( <i>Wolffia</i> sp./spp.)	3	0	0	0
		Blue-green algae ( <i>Nostoc</i> sp./spp.)	1	0	0	0
		Broomsedge bluestem ( <i>Andropogon virginicus</i> )	1	0	0	0
		<i>Chlorella</i>	1	0	0	0
		<i>Dictyosphaerium</i>	1	0	0	0
		<i>Gymnodinium</i> sp.	0	0	1	0
		<i>Merismopedia</i> sp.	1	0	0	0
		<i>Scenedesmus</i> sp.	2	0	0	0
		Unspecified pathology ( <i>Bacillus</i> sp./spp.)	1	0	0	0
		<i>Vorticella</i>	1	0	0	0
		Watershield ( <i>Brasenia schreberi</i> )	1	0	0	0
		Dinoflagellate ( <i>Peridinium</i> sp./spp.)	1	0	2	0
Duckweed family (Family Lemnaceae)	1	0	0	0		
Filamentous blue-green algae ( <i>Lyngbya</i> sp./spp.)	1	0	0	0		
Green algae ( <i>Ankistrodesmus</i> sp./spp.)	3	0	0	0		

Plant/Weed Type	Habitat/Host	Identification Result	Confirmed	Not Detected	Suspected	Undetermined
		Little floating heart ( <i>Nymphoides cordata</i> )	1	0	0	0
		Pine pollen	1	0	0	0
		Unicellular Green Algae (Desmids)	1	0	0	0
		Aster ( <i>Aster</i> sp./spp.)	1	0	0	0
		Blue-green algae ( <i>Spirulina</i> sp./spp.)	1	0	0	0
		<i>Coelosphaerium</i> sp./spp.	1	0	0	0
		Euglenoid algae ( <i>Trachelomonas</i> sp./spp.)	1	0	0	0
		<i>Fragilia</i> sp.	1	0	0	0
		Insufficient sample (Identification Analysis)	0	0	0	1
		Keratella zooplankton	1	0	0	0
		<i>Spirodela</i> sp.	1	0	0	0
		<i>Tetraedron</i> sp.	2	0	0	0
		Diatoms (Phylum Bacillariophyta)	7	0	1	0
		<i>Diffugia</i> sp.	1	0	0	0
		Floating waterprimrose ( <i>Ludwigia repens</i> )	1	0	0	0
		Green algae ( <i>Gloeocystis</i> sp./spp.)	1	0	0	0
		<i>Pediastrum</i>	1	0	0	0
		Rush ( <i>Juncus</i> sp./spp.)	1	0	0	0
		<i>Coelosphaerium</i>	1	0	0	0
		Euglena ( <i>Euglena</i> sp./spp.)	1	0	0	0
		<i>Gloeocystis</i> sp.	1	0	0	0
		<i>Oocystis</i> sp.	1	0	0	0
		Parrotfeather ( <i>Myriophyllum aquaticum</i> )	1	0	0	0
		<i>Pseudanabaena</i> sp.	0	0	1	0
		<i>Scenedesmus</i>	1	0	0	0
		Watermeal ( <i>Spirodela</i> sp./spp.)	1	0	0	0
<b>Terrestrial</b>	<b>General terrestrial plant ID</b>	Hairy Bluestem ( <i>Andropogon longiberbis</i> )	0	0	1	0
		Soft rush ( <i>Juncus effusus</i> )	1	0	0	0
		Cutleaf groundcherry ( <i>Physalis angulata</i> )	1	0	0	0
		Florida betony ( <i>Stachys floridana</i> )	1	0	0	0
		Shattercane ( <i>Sorghum bicolor</i> )	1	0	0	0
		Tropical spiderwort; Benghal dayflower ( <i>Commelina benghalensis</i> )	1	0	0	0
		Asiatic dayflower ( <i>Commelina communis</i> )	1	0	0	0
		Greenbriar ( <i>Smilax</i> sp./spp.)	1	0	0	0
		American Germander ( <i>Teucrium canadense</i> )	1	0	0	0
		Kentucky bluegrass ( <i>Poa pratensis</i> )	1	0	0	0
		Tall fescue ( <i>Festuca arundinacea</i> )	2	0	0	0
		Bermudagrass ( <i>Cynodon dactylon</i> )	1	0	0	0
		Insufficient sample (Identification Analysis)	0	0	0	1
		Chinese Chestnut ( <i>Castanea mollissima</i> )	1	0	0	0
		Desert false indigo ( <i>Amorpha fruticosa</i> )	1	0	0	0
		Lily family (Family Liliaceae)	1	0	0	0
		Virginia Dayflower ( <i>Commelina virginica</i> )	1	0	0	0
		Chamberbitter ( <i>Phyllanthus urinaria</i> )	1	0	0	0
		Cogongrass ( <i>Imperata cylindrica</i> )	2	0	0	0
		Southern Daisy ( <i>Bellis sylvestris</i> )	1	0	0	0
		Torpedograss ( <i>Panicum repens</i> )	1	0	0	0
		Hairy vetch ( <i>Vicia villosa</i> )	1	0	0	0
		Timothy ( <i>Phleum pratense</i> )	1	0	0	0
	<b>Roadside</b>	Cogongrass ( <i>Imperata cylindrica</i> )	1	0	0	0
	<b>Bermudagrass (<i>Cynodon dactylon</i>)</b>	Florida Paspalum ( <i>Paspalum floridanum</i> )	0	0	1	0
	<b>Bermudagrass (<i>Cynodon</i> sp./spp.)</b>	Common carpetgrass ( <i>Axonopus fissifolius</i> )	1	0	0	0

Plant/Weed Type	Habitat/Host	Identification Result	Confirmed	Not Detected	Suspected	Undetermined
		False garlic; Crow poison ( <i>Nothoscordum bivalve</i> )	1	0	0	0
		Spikesedge ( <i>Kyllinga</i> sp./spp.)	1	0	0	0
		Annual blue-eyed grass ( <i>Sisyrinchium rosulatum</i> )	1	0	0	0
		Bermuda grass ( <i>Cynodon</i> sp./spp.)	1	0	0	0
	<b>Centipedegrass (<i>Eremochloa ophiuroides</i>)</b>	Doveweed ( <i>Murdannia nudiflora</i> )	1	0	0	0
		Buttercup ( <i>Ranunculus</i> sp./spp.)	1	0	0	0
		Hair-cap moss ( <i>Polytrichum juniperinum</i> )	1	0	0	0
		Paspalum; Field ( <i>Paspalum laeve</i> )	1	0	0	0
	<b>Tall Fescue (<i>Festuca arundinacea</i>)</b>	Orchardgrass ( <i>Dactylis glomerata</i> )	1	0	0	0
	<b>Fescues (<i>Festuca</i> spp.)</b>	Tall fescue ( <i>Festuca arundinacea</i> )	1	0	0	0
	<b>Sunflower (<i>Helianthus annuus</i>)</b>	Flat-top mille grains ( <i>Oldenlandia</i> (Hedyotis) <i>corymbosa</i> )	1	0	0	0
		Composites (Family Asteraceae)	1	0	0	0
		Unidentified Moss	0	0	0	1
	<b>Blackberry (<i>Rubus</i> sp./spp.)</b>	Buttonbush Dodder ( <i>Cuscuta cephalanthi</i> )	1	0	0	0
		Wild Grape ( <i>Vitis vulpina</i> )	1	0	0	0
	<b>Mixed plant material</b>	Bristly mallow ( <i>Modiola caroliniana</i> )	1	0	0	0

# *Molecular Pathogen and Pest Detection (MPPD) Lab Report*

The MPPD Lab utilizes conventional polymerase chain reaction (PCR)- and real-time PCR-based assays to detect plant pathogens and pests (e.g., Africanized honeybees and two honeybee pathogens, the American foulbrood pathogen *Paenibacillus larvae* and the European foulbrood pathogen *Melissococcus plutonius*). The main targets are plant diseases and pathogen that are of USDA-APHIS regulatory concern, such as the sudden oak death pathogen *Phytophthora ramorum* and the citrus greening pathogens ‘*Candidatus Liberibacter africanus*’, ‘*C. Liberibacter asiaticus*’, and ‘*C. Liberibacter americanus*’. In 2022, the MPPD Lab began to provide a *Botrytis* fungicide-resistance testing service. For each sample, a set of 10 *Botrytis* isolates are tested for resistance against a panel of 10 fungicides: boscalid, cyprodinil, fenhexamid, fludioxonil, fluopyram, iprodione, isofetamid, penthiopyrad, pyraclostrobin+SHAM, and thiophanate-methyl (e.g.: Pristine, Inspire Super/Vanguard, Elevate, Switch/Miravis Prime, Luna Sensation, Rovral/Meteor, Kenja, Fontelis, Cabrio, and Topsin M). We also work closely with other Plant Industry programs to conduct state-wide surveys.

A total of 241 samples were processed at the MPPD Lab in 2022, comparing to 18 samples in 2021 (**Fig. 7**) including 16 commercial and 2 noncommercial samples. A total of 121 (50.2%) and 120 (49.8%) samples were noncommercial and commercial samples, respectively. Most samples (216; 90%) originated from SC locations (**Fig. 8**), while 25 out-of-state samples came from GA, MI, NC, and VA. Diana Low provided checked-in services for all MPPD Lab samples. Curt Colburn processed 213 samples. Xiao Yang processed 94 samples. Diagnostic results at the MPPD Lab in 2022 are not shown due to confidentiality reasons. Sample counts by suspected problem are listed in **Table 5**.

**Table 5** Sample count by suspected problem at the MPPD Lab in 2022

<b>Suspected Problem</b>	<b>Number of Samples</b>
Phytophthora ramorum testing	106
Fungal ID	59
Fungicide-resistance testing	30
Citrus greening (huanglongbing) testing	15
Phytophthora ID	10
Foulbrood testing	7
Boxwood blight testing	3
Africanized honeybee detection	2
Citrus Canker detection	2
Phytophthora or Pythium ID	4
Thielaviopsis detection	2
Phytoplasma detection	1

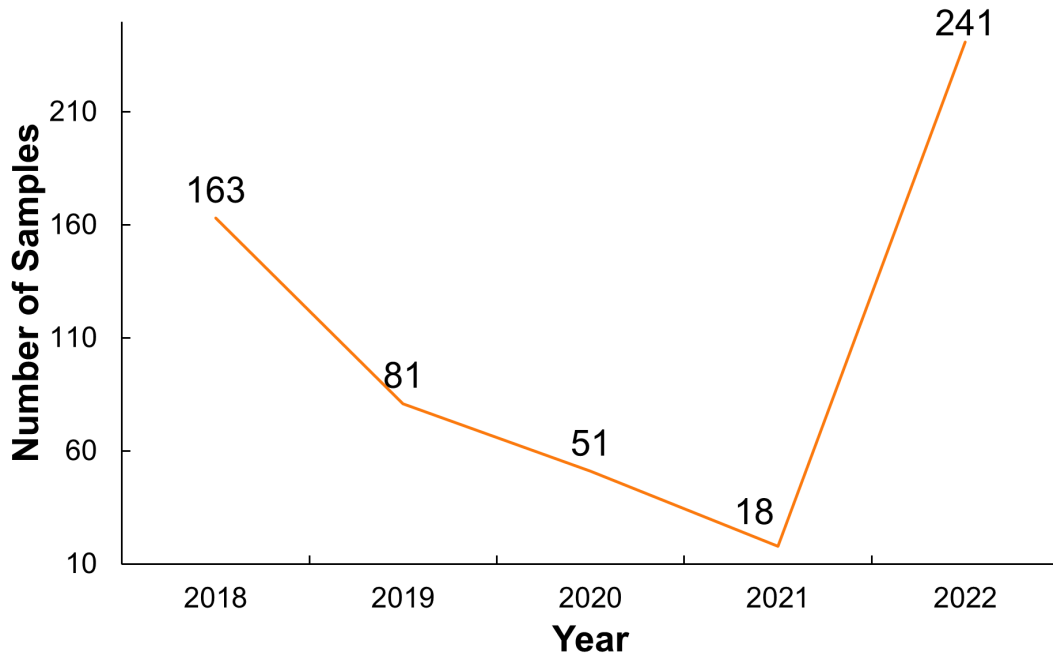


Fig. 7 Number of samples processed at the MPPD Lab over the past five years

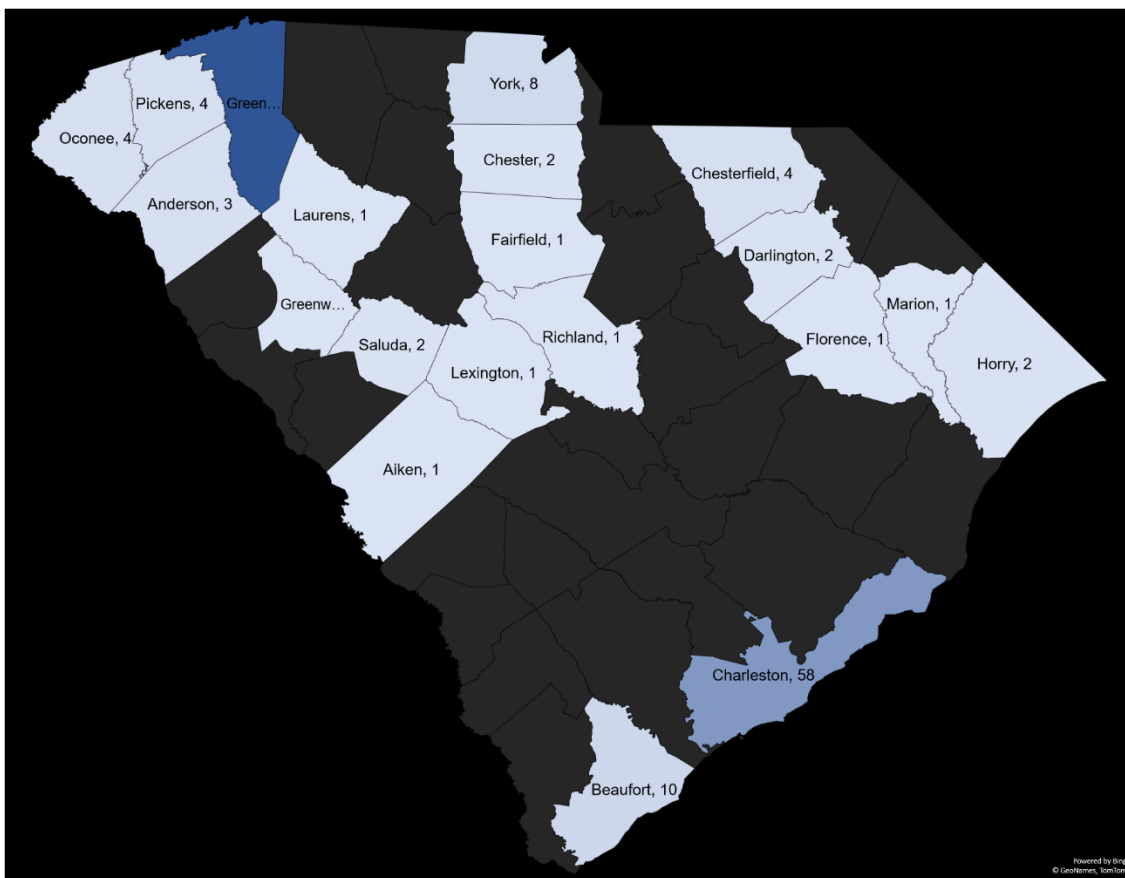


Fig. 8 Count of MPPD Lab samples in 2022 per SC county

## Commercial Turfgrass Clinic (CTC) Report

CTC revenue declined in 2022. A total of 34 samples were processed, which was a 36% decrease from 2021 (Fig. 9). All 34 samples came from commercial sources including golf course/athletic field, crop consultant, and lawn care/landscaper. By state, two, five, five, twelve, and ten samples came from AL, FL, GA, NC, and SC. Curt Colburn processed 30 samples. Curt and Xiao Yang co-diagnosed four samples. Diagnostic results at CTC in 2022 are listed in Table 6.

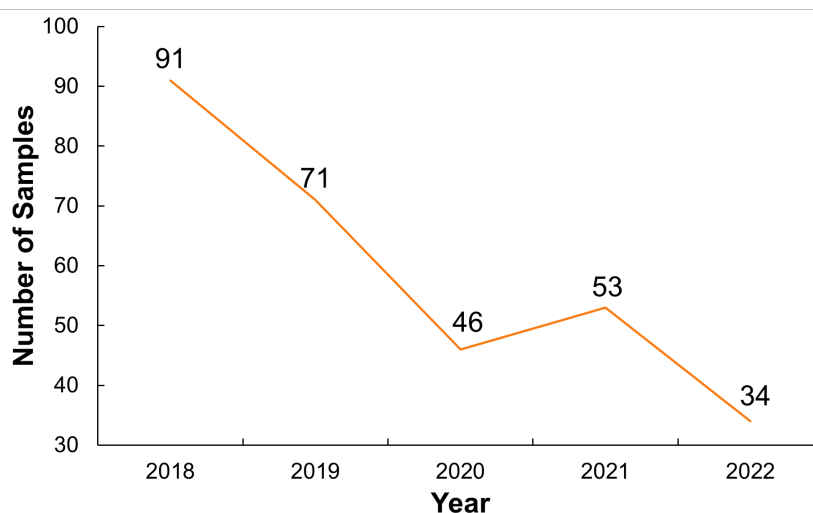


Fig. 9 Samples processed at CTC per year over the past five years

Table 6 Diagnostic results at CTC in 2022

Host Name	Pest Name	Confirmed	Suspected
<b>Bentgrass (<i>Agrostis</i> sp./spp.)</b>	Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	2	0
	Unspecified pathology ( <i>Pythium</i> sp./spp.)	2	0
	Large patch ( <i>Rhizoctonia solani</i> )	2	0
	Leptosphaerulina leaf spot; Blight ( <i>Leptosphaerulina trifolii</i> )	1	0
	Plant parasitic nematodes (Phylum nematoda)	0	1
	Pythium root and/or crown rot ( <i>Pythium</i> sp./spp.)	1	0
	Anthracnose ( <i>Colletotrichum</i> sp./spp.)	3	0
	Bacterial leaf spot ( <i>Acidovorax avenae</i> )	0	2
	Leptosphaerulina leaf spot ( <i>Leptosphaerulina</i> sp./spp.)	2	0
	Curvularia blight; Leaf spot ( <i>Curvularia</i> sp./spp.)	4	0
	Unspecified pathology ( <i>Phytopythium</i> sp./spp.)	1	0
	Plant parasitic nematodes (Family Tylenchidae)	0	1
	<b>Bermudagrass (<i>Cynodon</i> sp./spp.)</b>	Unspecified pathology ( <i>Pythium</i> sp./spp.)	5
ETRI ectotrophic root infecting fungi (Complex of Fungi)		1	0
Free living nematodes (Multiple genera)		0	1
Pythium root dysfunction ( <i>Pythium</i> sp./spp.)		1	0
Take-all ( <i>Gaeumannomyces</i> sp./spp.)		9	0
Brown patch ( <i>Rhizoctonia solani</i> )		1	0
Plant parasitic nematodes (Phylum nematoda)		0	2
Large patch ( <i>Rhizoctonia solani</i> )		1	0
<b>Centipedegrass (<i>Eremochloa ophiuroides</i>)</b>	Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1	1
	Pythium root dysfunction ( <i>Pythium</i> sp./spp.)	1	0
<b>Zoysia Grass (<i>Zoysia</i> sp./spp.)</b>	Anthracnose ( <i>Colletotrichum</i> sp./spp.)	1	0
	ETRI ectotrophic root infecting fungi (Complex of Fungi)	1	0

## ***Appendix I: First report of *Alternaria cinerariae* causing leaf blight on *Farfugium japonicum* in South Carolina, USA***

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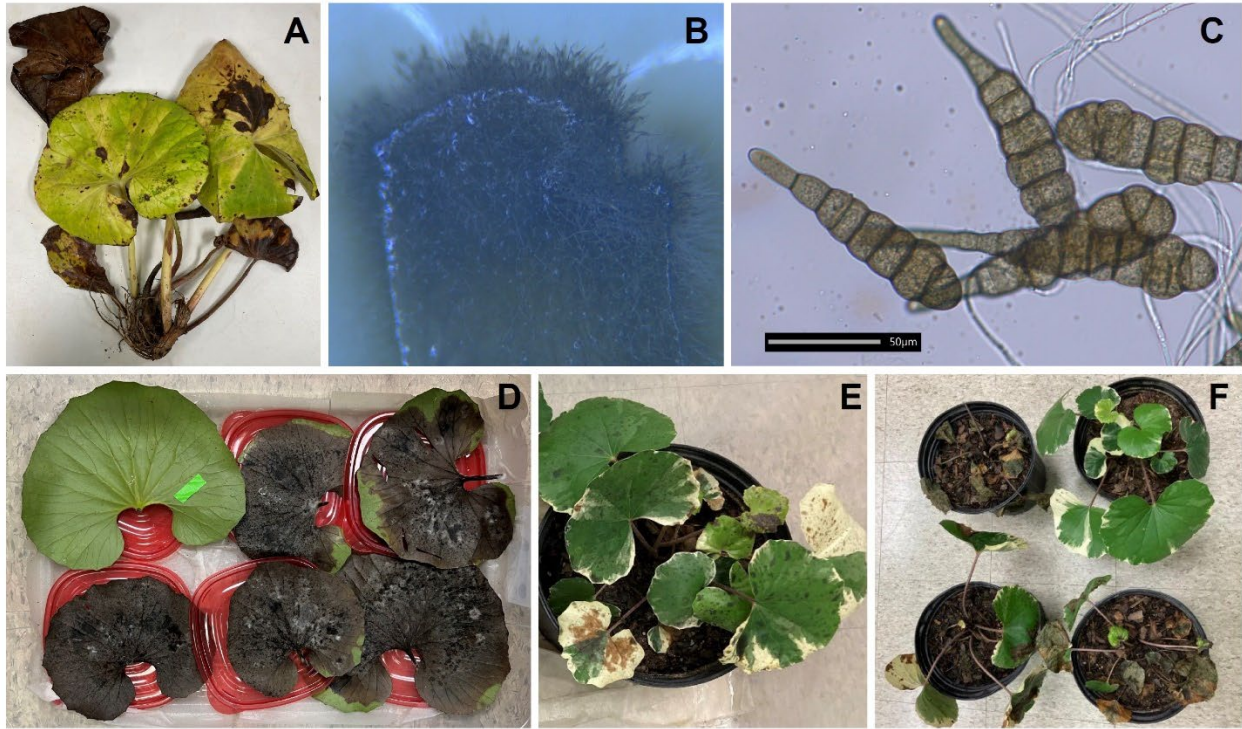
*Farfugium japonicum*, commonly known as leopard plant, is a popular perennial used in landscapes in the Southeastern U.S. In March 2022, leaf blight was observed on 20 leopard plants at a landscape site in Georgetown Co., SC. Almost all leaves were infected. Symptoms included purple to brown necrotic leaf spots and blighted petioles. Large spots had concentric circles and coalesced causing entire leaves to blight. Leaf pieces surrounding necrotic spots were excised, sterilized in 10% bleach for 1 min, rinsed in sterile water, placed onto potato dextrose agar (PDA), and incubated at 25°C. A total of three *Alternaria* isolates, 22-094-A, 22-094-B, and 22-094-C were obtained by transferring hyphal tips to new plates. All isolates had identical morphological traits. Colonies on PDA were blackish at the center and brownish at the edge. Conidia were produced using a technique described by Shahin and Shepard (1979). Conidiophores were mostly short and unbranched. They were characterized by solitary conidia or short chains of two to three conidia. Conidia (n=30) were obpyriform to obclavate and averaged  $88.5 \pm 26.1 \mu\text{m}$  in body length,  $118.4 \pm 36.3 \mu\text{m}$  in total length, and  $23.9 \pm 5.9 \mu\text{m}$  in width. They had 3 to 7 transverse septa and 0 to 4 longitudinal septa. Beaks were broadly tapered. Sequence of the internal transcript spacer (ITS) region of isolate 22-094-A (GenBank Accession No. OP481973) had 100% homology to that of CBS 116495 (KC584190), a representative strain of *A. cinerariae* (Woudenberg et al. 2013). Based on the morphological and sequence characters, the casual fungus was identified as *A. cinerariae*. Pathogenicity confirmation was done in two separate assays. In a detached-leaf assay, mature leaves were collected from 5-year-old *F. japonicum* 'Gigantea' plants. Five leaves (abaxial surface) were sprayed with a mixture of conidial suspensions of the three isolates at 300 conidia per mL and 1.5 mL per leaf, while sterile water was used for a non-inoculated control leaf. Leaves were placed in a plastic tray with wet paper towels. The tray was placed at 22°C for an 8-h photoperiod and covered for 3 days to maintain moisture. Small purple to brown spots were visible on inoculated leaves 2 days after inoculation (DAI). More than 90% of inoculated leaf areas were blighted 10 DAI, whereas the control leaf remained asymptomatic. In a whole-plant

assay, three *F. japonicum* 'Argenteo Marginata' plants grown in 10-inch pots were placed in a plastic tray and sprayed with a conidial suspension of 22-094-A onto both abaxial and adaxial surfaces at 300 conidia per mL and 40 mL per plant. The tray was maintained as described above. Sterile water was used for a non-inoculated control plant. Small leaf spots appeared on the inoculated plants 2 DAI. Large necrotic areas developed on leaves and girdled petioles causing aboveground tissues to collapse 4 DAI. All inoculated leaves were blighted 7 to 10 DAI, while the non-inoculated control plant remained healthy. Each assay was repeated once. *Alternaria cinerariae*, identified by distinct morphology traits (Nishikawa and Nakashima 2015), was consistently re-isolated from inoculated leaves in both assays. Leaf spot on *F. japonicum* caused by *A. cinerariae* has been reported in CA, USA (Woudenberg et al. 2013) and Japan (Sakoda et al. 2010). This is the first report in SC, USA. This fungus also infects at least 25 other hosts (Farr and Rossman 2022). This disease may pose a threat to leopard plants in nurseries and landscapes under conducive conditions. Disease management strategies are warranted.

## References

- Farr, D. F. and Rossman, A. Y. Fungal Databases, U.S. National Fungus Collections, ARS, USDA. Retrieved October 26, 2022, from <https://nt.ars-grin.gov/fungaldatabases/>.
- Nishikawa, J. and Nakashima, C. 2015. Mycoscience. 56: 141.
- Sakoda, T. et al. 2010. Research Bulletin of the Plant Protection Service, Japan. 46: 73.
- Shahin, E. A. and Shepard, J. F. 1979. Phytopathology. 69: 618.
- Woudenberg, J. H. C. et al. 2013. Studies in Mycology. 82: 1.





**Fig. A1** Leaf blight symptoms on a leopard plant infected by *Alternaria cinerariae* in the field. (B) Conidia of *A. cinerariae* characterized by solitary conidia or short chains of two to three conidia. (C) Conidia of *A. cinerariae*. (D) Detached-leaf assay: five leaves showing symptoms of blight 10 days after inoculation (DAI). A non-inoculated control leaf with a green tape remained asymptomatic. (E to F) Whole-plant assay. (E) A plant showing leaf spots 2 DAI. (F) Three plants showing leaf blight symptoms 8 DAI. A non-inoculated control plant at the upper right corner remained healthy.

## Appendix II: Nematode Assay Lab 2022 Annual Report

The Nematode Assay Lab (NAL) is led by Dr. Churamani Khanal. It locates in the Biosystems Research Complex at the Department of Plant and Environmental Sciences of Clemson University. NAL serves under contractual agreement with PPDC to extract and identify plant parasitic nematodes from plant and soil samples and to provide management recommendations, as needed. The nematode assay samples are submitted from various sources, including extension offices, commercial operations, research projects, and regulatory inspectors. In 2022, it processed 1136 samples (Figs. A2&A3), including a canceled sample.

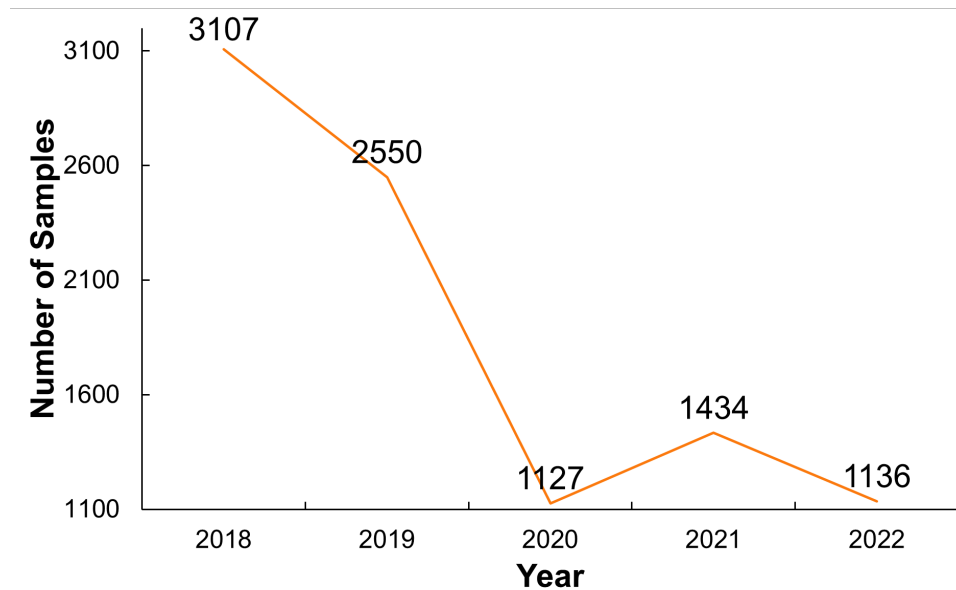


Fig. A2 Number of samples processed at NAL per year over the past five years

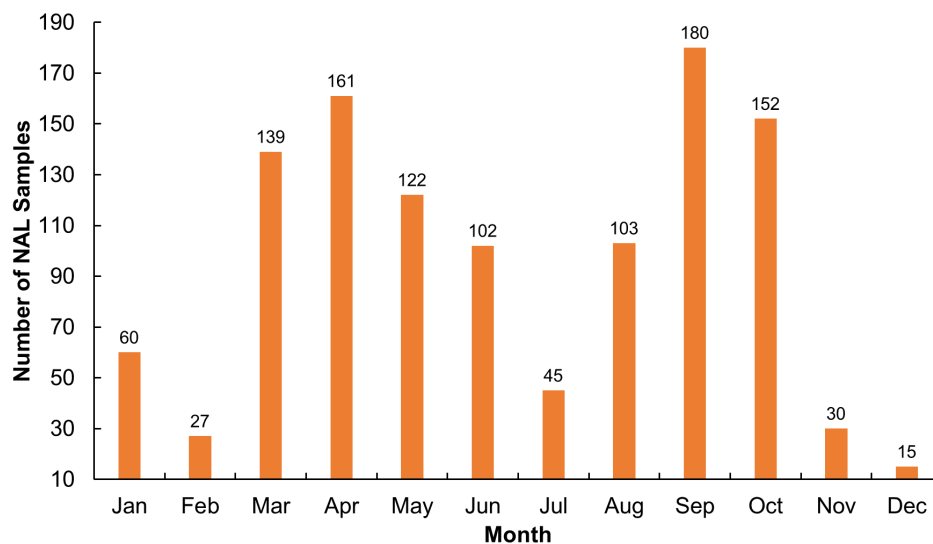
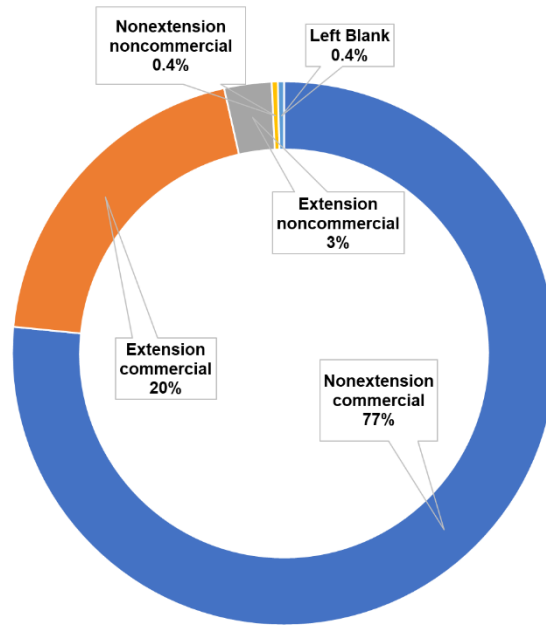
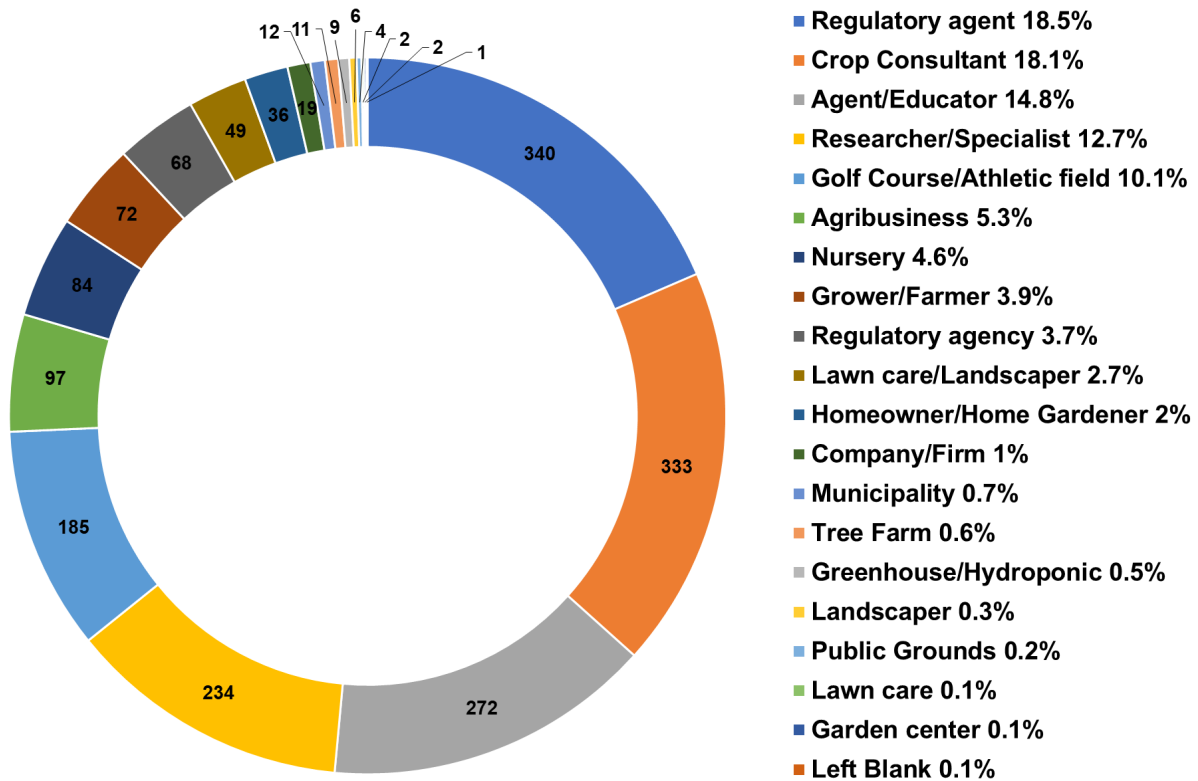


Fig. A3 Number of samples processed at NAL per month in 2021

Most samples received at NAL in 2022 (approx. 97%) were from commercial sources (**Fig. A4**). NAL provided services to 1836 clients in 2022 (**Fig. A5**).

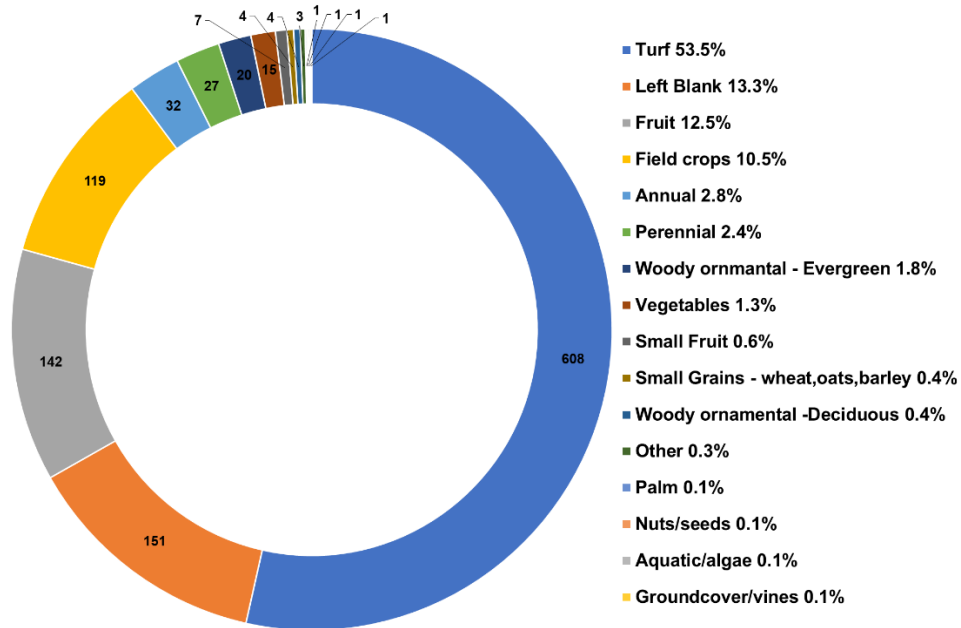


**Fig. A4** Count and Percentage of samples by source at NAL in 2021

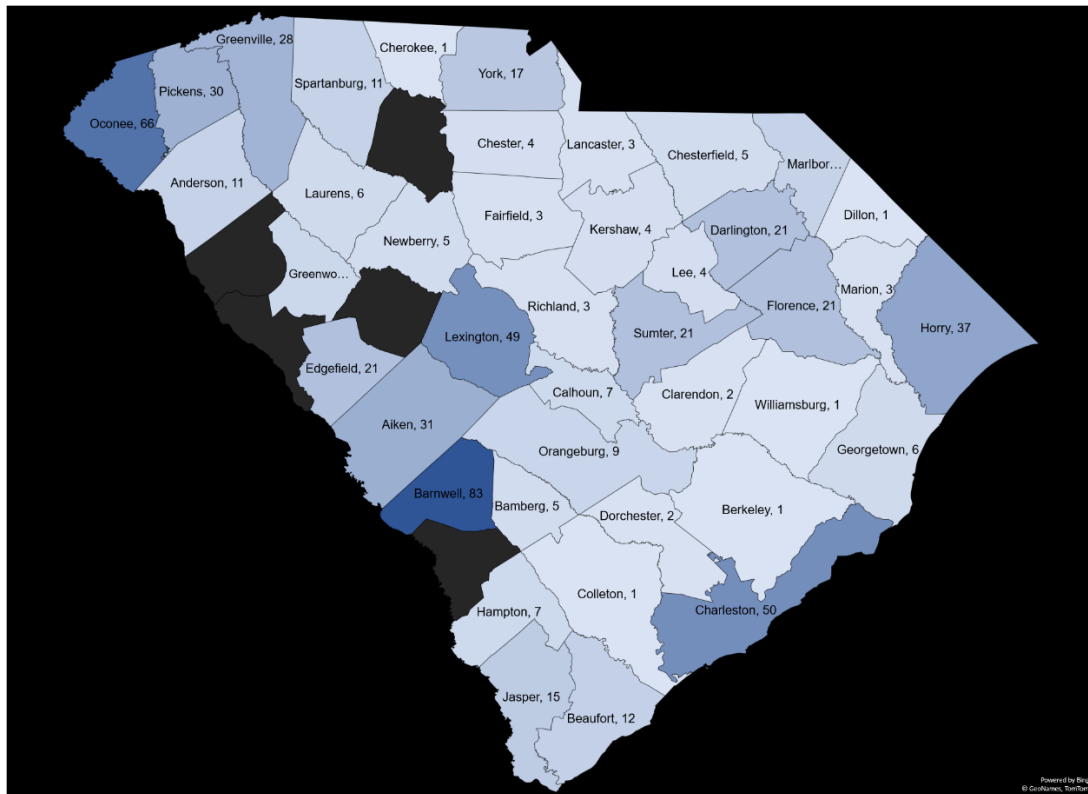


**Fig. A5** Count and Percentage of samples by client type at NAL in 2021

More than 53% of the NAL samples originated from turfgrasses (**Fig. A6**). More than 55% of the samples came from 41 counties within SC (**Fig. A7**). Out-of-state clients of NAL in 2022 were AL, AR, AZ, CA, FL, GA, IL, LA, NC, NV, NY, PA, and TX.



**Fig. A6** Count and Percentage of samples per sample category at NAL in 2022



**Fig. A7** Count of NAL samples in 2022 per SC county

Churamani Khanal and Jeanice Troutman processed 921 and 214 samples, respectively. Diana Low provided checked-in for all NAL samples. Diagnostic results of samples received at NAL in 2022 are listed in **Table A1**.

**Table A1** Diagnostic results of samples received at NAL in 2022

Host Scientific Name	Host Common Name/Substrate	Diagnostic Results	Counts
<i>Abelmoschus esculentus</i>	Okra	Cyst nematodes ( <i>Heterodera</i> sp./spp.)	1
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	3
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	2
		Stubby-root nematodes (Family Trichodoridae)	2
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	1
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	1
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	1
<i>Acer palmatum</i>	Japanese Maple	Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	1
<i>Agrostis</i> sp./spp.	Bentgrass	Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	38
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	33
		Sheath nematodes ( <i>Hemicycliophora</i> sp./spp.)	24
		Sheathoid nematode ( <i>Hemicriconemoides</i> sp./spp.)	8
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	8
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	9
		No nematode found (No Nematode Found)	3
		Stubby-root nematodes (Family Trichodoridae)	54
		Cyst nematodes ( <i>Heterodera</i> sp./spp.)	5
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	59
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	75
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	4
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	2
<i>Agrostis stolonifera</i>	Creeping Bentgrass	Sheathoid nematode ( <i>Hemicriconemoides</i> sp./spp.)	2
		Sheath nematodes ( <i>Hemicycliophora</i> sp./spp.)	5
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	3
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
<i>Arachis hypogaea</i>	Peanut	Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1
		Stubby-root nematodes (Family Trichodoridae)	1
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	1
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	1
		No nematode found (No Nematode Found)	1
		No nematode found (No Nematode Found)	1
<i>Aristolochia</i> sp./spp.	Dutchman's Pipe; pelican flower	No nematode found (No Nematode Found)	1
<i>Bambusa</i> sp./spp.	Bamboo	No nematode found (No Nematode Found)	1
<i>Beta vulgaris</i>	Sugar Beet	No nematode found (No Nematode Found)	3
<i>Buxus</i> sp./spp.	Boxwood	Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	3
		Sting nematodes ( <i>Belonolaimus</i> sp./spp.)	1
		Pin nematode ( <i>Gracilacus</i> sp./spp.)	1
		Reniform nematode ( <i>Rotylenchulus reniformis</i> )	2
<i>Caladium</i> sp./spp.	Caladium; Elephant ear	No nematode found (No Nematode Found)	1
<i>Camellia japonica</i>	Common Camellia	No nematode found (No Nematode Found)	1
<i>Cannabis sativa</i>	Hemp	No nematode found (No Nematode Found)	1
		Cyst nematodes ( <i>Heterodera</i> sp./spp.)	3

Host Scientific Name	Host Common Name/Substrate	Diagnostic Results	Counts
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	23
		Stubby-root nematodes (Family Trichodoridae)	2
		Columbia lance nematode ( <i>Hoplolaimus columbus</i> )	2
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	3
<b><i>Capsicum annuum</i></b>	Pepper	No nematode found (No Nematode Found)	1
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1
<b><i>Castanea</i> sp./spp.</b>	Chestnut	No nematode found (No Nematode Found)	1
<b><i>Citrullus lanatus</i></b>	Watermelon	No nematode found (No Nematode Found)	1
<b><i>Crinum</i> sp./spp.</b>	Milk-lily; Crinum	Spiral nematode ( <i>Scutellonema</i> sp./spp.)	1
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	1
<b><i>Cynodon dactylon</i></b>	Bermudagrass	Awl nematode ( <i>Dolichodorus</i> sp./spp.)	4
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	1
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	7
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	6
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	5
		Stubby-root nematodes (Family Trichodoridae)	1
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	6
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	165
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	13
		Sheathoid nematode ( <i>Hemicriconemoides</i> sp./spp.)	73
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	7
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	149
		Sheath nematodes ( <i>Hemicycliophora</i> sp./spp.)	24
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	11
		Needle nematodes ( <i>Longidorus</i> sp./spp.)	1
		Stubby-root nematodes (Family Trichodoridae)	70
		Reniform nematode ( <i>Rotylenchulus reniformis</i> )	1
		Awl nematode ( <i>Dolichodorus</i> sp./spp.)	7
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	148
		No nematode found (No Nematode Found)	5
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	138
		Sting nematodes ( <i>Belonolaimus</i> sp./spp.)	71
<b><i>Dahlia</i> sp./spp.</b>	Dahlia	Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
		No nematode found (No Nematode Found)	1
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	1
<b><i>Dionaea muscipula</i></b>	Flytrap Plant; venus flytrap	No nematode found (No Nematode Found)	1
<b><i>Eremochloa ophiuroides</i></b>	Centipedegrass	Spiral nematode ( <i>Scutellonema</i> sp./spp.)	1
		Sting nematodes ( <i>Belonolaimus</i> sp./spp.)	9
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	5
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	26
		No nematode found (No Nematode Found)	1
		Sheath nematodes ( <i>Hemicycliophora</i> sp./spp.)	7
		Stubby-root nematodes (Family Trichodoridae)	13
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	12
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	5

Host Scientific Name	Host Common Name/Substrate	Diagnostic Results	Counts
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	33
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	6
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	20
		Pin nematode ( <i>Gracilacus</i> sp./spp.)	1
<b>Ferns; various genera sp./spp.</b>	Ferns	No nematode found (No Nematode Found)	1
<b><i>Ficus carica</i></b>	Common Fig	Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	1
<b><i>Fragaria x ananassa</i></b>	Commercial Strawberry; garden strawberry	Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	2
<b>Grain</b>	Grain	Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	1
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	2
		Stubby-root nematodes (Family Trichodoridae)	1
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
<b><i>Glechoma hederacea</i></b>	Ground Ivy; creeping charlie	No nematode found (No Nematode Found)	1
<b><i>Glycine max</i></b>	Soybean	Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	5
		Cyst nematodes ( <i>Heterodera</i> sp./spp.)	1
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	6
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	6
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	1
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	10
		Sting nematodes ( <i>Belonolaimus</i> sp./spp.)	2
		Stubby-root nematodes (Family Trichodoridae)	8
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	3
<b><i>Gossypium hirsutum</i></b>	Cotton	Columbia lance nematode ( <i>Hoplolaimus columbus</i> )	2
		Reniform nematode ( <i>Rotylenchulus reniformis</i> )	3
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	4
		Sheath nematodes ( <i>Hemicycliophora</i> sp./spp.)	1
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	2
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	7
		Stubby-root nematodes (Family Trichodoridae)	9
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	2
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	9
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	7
<b><i>Hemerocallis</i> sp./spp.</b>	Daylily	Ring nematode ( <i>Mesocriconema</i> sp./spp.)	2
		No nematode found (No Nematode Found)	5
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	2
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	1
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	1
<b><i>Hosta</i> sp./spp.</b>	Hosta	No nematode found (No Nematode Found)	1
<b>houseplants</b>	Houseplants; Potted plants	No nematode found (No Nematode Found)	3
<b><i>Hydrangea</i> sp./spp.</b>	Hydrangea	No nematode found (No Nematode Found)	1
<b><i>Ipomoea batatas</i></b>	Sweetpotato	No nematode found (No Nematode Found)	12
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	3
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	1

Host Scientific Name	Host Common Name/Substrate	Diagnostic Results	Counts
		Pin nematodes ( <i>Paratylenchus</i> sp./spp.)	3
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	16
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	16
		Stubby-root nematodes (Family Trichodoridae)	12
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	6
<b><i>Lavandula</i> sp./spp.</b>	Lavender	Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
<b><i>Liriope</i> sp./spp.</b>	Lilyturf; Bordergrass	No nematode found (No Nematode Found)	1
<b><i>Lycopersicon esculentum</i></b>	Tomato	No nematode found (No Nematode Found)	1
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	2
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	6
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	1
		Spiral nematode ( <i>Scutellonema</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	10
		Stubby-root nematodes (Family Trichodoridae)	3
		Reniform nematode ( <i>Rotylenchulus reniformis</i> )	2
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	4
<b><i>Malus domestica</i></b>	Domestic Apple	Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	1
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	1
<b><i>Malus pumila</i></b>	Paradise Apple	Ring nematode ( <i>Mesocriconema</i> sp./spp.)	5
		No nematode found (No Nematode Found)	2
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	18
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	8
		Pin nematodes ( <i>Paratylenchus</i> sp./spp.)	3
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	6
<b><i>Mazus reptans</i></b>	Mazus	Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	1
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	1
<b>Mixed palm species</b>	Palms	No nematode found (No Nematode Found)	1
<b>Mixed vegetable species</b>	Vegetables	Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	1
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	2
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	7
		Stubby-root nematodes (Family Trichodoridae)	1
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	1
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	3
		Sheath nematodes ( <i>Hemicycliophora</i> sp./spp.)	2
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	3
<b>Mixed turfgrass species</b>	Turfgrass	Stubby-root nematodes (Family Trichodoridae)	1
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	2
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	2
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	1
		Sheathoid nematode ( <i>Hemicriconemoides</i> sp./spp.)	1
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	2
<b><i>Nicotiana tabacum</i></b>	Tobacco	Ring nematode ( <i>Mesocriconema</i> sp./spp.)	3
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	5
		Soybean cyst nematode (SCN) ( <i>Heterodera glycines</i> )	4



Host Scientific Name	Host Common Name/Substrate	Diagnostic Results	Counts
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	1
		Reniform nematode ( <i>Rotylenchulus reniformis</i> )	1
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	6
		Stubby-root nematodes (Family Trichodoridae)	6
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	2
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	3
<b>Orchidaceae (Family)</b>	Orchids	No nematode found (No Nematode Found)	1
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	1
<b>Paspalum sp./spp.</b>	Paspalum; Bahiagrass	Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	3
		Sheathoid nematode ( <i>Hemicriconemoides</i> sp./spp.)	1
		Sting nematodes ( <i>Belonolaimus</i> sp./spp.)	2
		Stubby-root nematodes (Family Trichodoridae)	2
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	3
<b>Persea americana</b>	Avocado	No nematode found (No Nematode Found)	1
<b>Phaseolus vulgaris</b>	Snap Bean; green bean	Ring nematode ( <i>Mesocriconema</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
<b>Phlox sp./spp.</b>	Phlox	No nematode found (No Nematode Found)	1
<b>Pinus sp./spp.</b>	Pine	Stubby-root nematodes (Family Trichodoridae)	7
		No nematode found (No Nematode Found)	6
<b>Poa sp./spp.</b>	Bluegrass	Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	5
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	9
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	9
<b>Prunus persica</b>	Peach	Ring nematode ( <i>Mesocriconema</i> sp./spp.)	41
		No nematode found (No Nematode Found)	2
		Sheath nematodes ( <i>Hemicycliophora</i> sp./spp.)	1
		Stubby-root nematodes (Family Trichodoridae)	5
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	10
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	35
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	60
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	42
		Free living nematodes (Multiple genera sp./spp.)	109
		Reniform nematode ( <i>Rotylenchulus reniformis</i> )	3
<b>Rosa sp./spp.</b>	Rose	Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	1
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	1
		Foliar nematodes ( <i>Aphelenchoides</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
		Stubby-root nematodes (Family Trichodoridae)	1
		No nematode found (No Nematode Found)	1
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	1
<b>Sorghum bicolor</b>	Sorghum	Ring nematode ( <i>Mesocriconema</i> sp./spp.)	1
		Stubby-root nematodes (Family Trichodoridae)	1
<b>Sorghum sp./spp.</b>	Shattercane	Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
		No nematode found (No Nematode Found)	1
<b>Stenotaphrum secundatum</b>	St. Augustinegrass	Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	5
		Stubby-root nematodes (Family Trichodoridae)	7
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	7
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	5

Host Scientific Name	Host Common Name/Substrate	Diagnostic Results	Counts
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	12
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	1
		Reniform nematode ( <i>Rotylenchulus reniformis</i> )	1
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	3
		Sheathoid nematode ( <i>Hemicriconemoides</i> sp./spp.)	2
<b><i>Thuja</i> sp./spp.</b>	Arborvitae	No nematode found (No Nematode Found)	1
<b><i>Tillandsia</i> sp./spp.</b>	Tillandsia Bromeliads	No nematode found (No Nematode Found)	1
<b><i>Trifolium</i> sp./spp.</b>	Clover	No nematode found (No Nematode Found)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
<b><i>Triticum aestivum</i></b>	Common Wheat	No nematode found (No Nematode Found)	1
<b><i>Vaccinium</i> sp./spp.</b>	Blueberry	No nematode found (No Nematode Found)	1
<b><i>Vigna unguiculata</i></b>	Cowpea	Sheath nematodes ( <i>Hemicycliophora</i> sp./spp.)	1
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	1
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
		Stubby-root nematodes (Family Trichodoridae)	1
<b><i>Vitis vinifera</i></b>	European Grape	Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	4
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	4
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	1
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	2
		Stubby-root nematodes (Family Trichodoridae)	1
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	2
<b><i>Zantedeschia</i> sp./spp.</b>	Calla Lily	No nematode found (No Nematode Found)	1
<b><i>Zea mays</i></b>	Field Corn	No nematode found (No Nematode Found)	2
		Reniform nematode ( <i>Rotylenchulus reniformis</i> )	1
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	7
		Cyst nematodes ( <i>Heterodera</i> sp./spp.)	1
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	2
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1
		Spiral nematode ( <i>Scutellonema</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	13
		Sting nematodes ( <i>Belonolaimus</i> sp./spp.)	1
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	10
		Stubby-root nematodes (Family Trichodoridae)	2
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	13
<b><i>Zoysia</i> sp./spp.</b>	Zoysia Grass	No nematode found (No Nematode Found)	2
		Sting nematodes ( <i>Belonolaimus</i> sp./spp.)	11
		Sheathoid nematode ( <i>Hemicriconemoides</i> sp./spp.)	2
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	46
		Spiral nematode ( <i>Scutellonema</i> sp./spp.)	1
		Stubby-root nematodes (Family Trichodoridae)	59
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	23
		Needle nematodes ( <i>Longidorus</i> sp./spp.)	14
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	6
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	4
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	18
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	94

Host Scientific Name	Host Common Name/Substrate	Diagnostic Results	Counts
		Sheath nematodes ( <i>Hemicycliophora</i> sp./spp.)	6
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	54
<b>Coconut Coir mat (Erosion control material) habitat</b>	Coconut Coir mat (Erosion control material) Home and garden	No nematode found (No Nematode Found)	1
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	1
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	1
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	1
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	1
		Stubby-root nematodes (Family Trichodoridae)	1
<b>Potting Soil; growing media Soil</b>	Potting Soil; growing media Soil	No nematode found (No Nematode Found)	1
		Cyst nematodes ( <i>Heterodera</i> sp./spp.)	25
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	28
		Needle nematodes ( <i>Longidorus</i> sp./spp.)	1
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	34
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	15
		No nematode found (No Nematode Found)	43
		Sheath nematodes ( <i>Hemicycliophora</i> sp./spp.)	4
		Spiral nematode ( <i>Scutellonema</i> sp./spp.)	1
		Sting nematodes ( <i>Belonolaimus</i> sp./spp.)	5
		Dagger nematodes ( <i>Xiphinema</i> sp./spp.)	26
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	69
		Reniform nematode ( <i>Rotylenchulus reniformis</i> )	2
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	113
		Stubby-root nematodes (Family Trichodoridae)	27
		Foliar nematodes ( <i>Aphelenchoides</i> sp./spp.)	2
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	24
		No nematode found (No Nematode Found)	5
		Lesion nematodes ( <i>Pratylenchus</i> sp./spp.)	2
		Stubby-root nematodes (Family Trichodoridae)	2
		Stunt nematodes ( <i>Tylenchorhynchus</i> sp./spp.)	2
		Ring nematode ( <i>Mesocriconema</i> sp./spp.)	4
		Lance nematodes ( <i>Hoplolaimus</i> sp./spp.)	1
		Root-knot nematodes ( <i>Meloidogyne</i> sp./spp.)	4
		Spiral nematodes ( <i>Helicotylenchus</i> sp./spp.)	2
		Reniform nematode ( <i>Rotylenchulus reniformis</i> )	1