

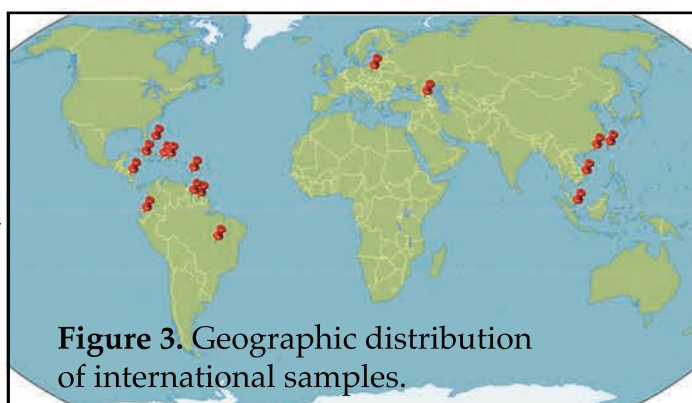
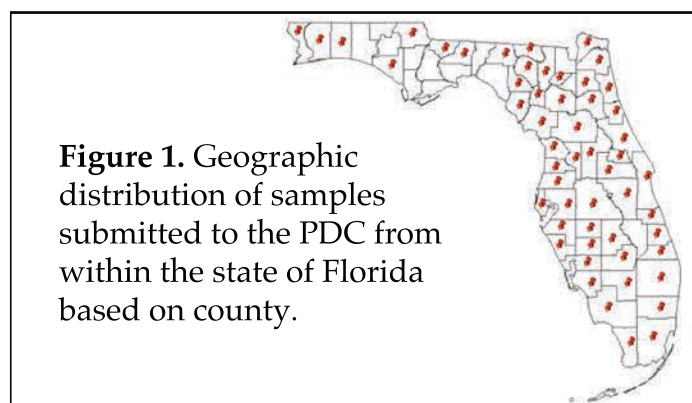
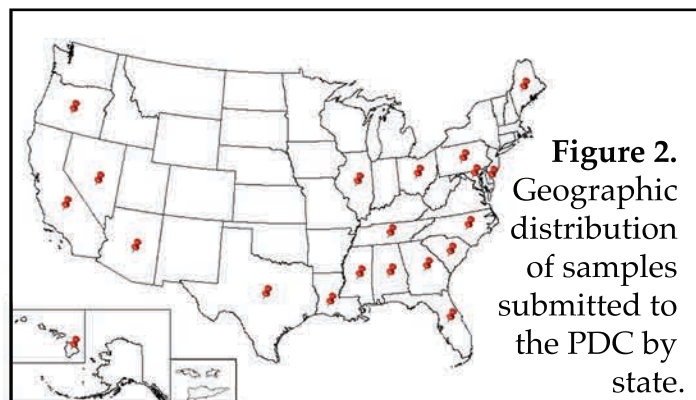


UF/IFAS Plant Diagnostic Center

2018 Report

Laboratory Highlights

The UF/IFAS Plant Diagnostic Center (PDC) in Gainesville processed samples for clientele from 54 out of the 67 counties in the state (Figure 1) and 19 other states (Figure 2).



➤ Our international diagnostic service received samples from Barbados, Bahamas, Cayman Islands, Ecuador, Guyana, Suriname, Nicaragua, Poland, Haiti, and Georgia (Figure 3). The Rapid Turf Diagnostic Service (RTDS) received samples from Brazil, Dominican Republic, Hong Kong, Singapore, Taiwan, and Vietnam.



◀ In addition to conducting routine diagnoses, PDC staff also conduct trainings covering new and emerging diseases of note in Florida. In 2018, 200 First Detectors and 1,000 Master Gardeners participated in trainings. We led tours for 144 students, five extension agents, 12 educators, nine from industry; and trained eight interns. For the first time this fall we offered an online professional development course on disease management. We had over 100 students, some from Canada, Guatemala, Peru, and Indonesia.

➤ In December, lab director, Carrie Harmon, traveled to Santa Cruz Island in the Galapagos. There, the ecosystem is dominated by Cinchona trees, which have been in decline for the last 10 years. Dr. Harmon collected samples for the PDC to diagnose the causal agent of the massive die-off.

Two other projects of international importance involves crops from Haiti. A Ph.D. student working in the PDC has identified a complex of bacterial organisms that are responsible for a toppling disease in plantains that was declared a national emergency. Also, a post-doctoral researcher in the PDC has identified the fungal pathogen causing rot in eggplant. First reports for these two projects will be published this year.



➤ The PDC published an online client satisfaction survey in 2017. We invite you to evaluate your experiences with our services. Results from this survey will provide data to support our activities and help us continue to improve our services. We value and appreciate your feedback!
https://ufl.qualtrics.com/jfe/form/SV_5nZHXZ7IF5mU0y9
To date, we have had 56 clients complete surveys and the results indicate that clients are “extremely likely” to use their diagnostic report to manage their plant health issue.

✓ The national accreditation program requires diagnosticians to pass a blind Proficiency Test Panel to evaluate their proficiency of technical skills. PDC diagnosticians passed their panels for HLB and *Phytophthora ramorum* (Sudden Oak Death) in 2018.

➤ The UF/IFAS Nematode Assay Lab is a state resource for determining the type and number of nematodes in soil and plant samples. The lab is now submitting data to the National Plant Diagnostic Network (NPDN) repository via the NClinic software. This will make sample data more readily available.



Samples

➤ The annual number of samples submitted for diagnosis has increased dramatically over the last 14 years (Figure 4). We processed 3,336 samples in 2018.

Sample Type

▼ General plant samples are categorized by host type: citrus, field crop, fruit or nut, herbaceous ornamental/indoor plant, palm, small fruit, turf, vegetable/herb, or woody ornamental. The majority of samples submitted to the General PDC were woody ornamentals, followed by small fruit, palms, and herbaceous ornamentals (Fig. 5). The number of woody ornamental samples reflects an increased number of out-of-state samples being tested for *Phytophthora ramorum*, the causal agent of Sudden Oak Death (SOD). *P. ramorum* infects a wide variety of woody hosts. This pathogen is internationally quarantined in an attempt to prevent its spread. The disease is fatal and threatens plant nurseries, timber, and Christmas tree production in the United States.

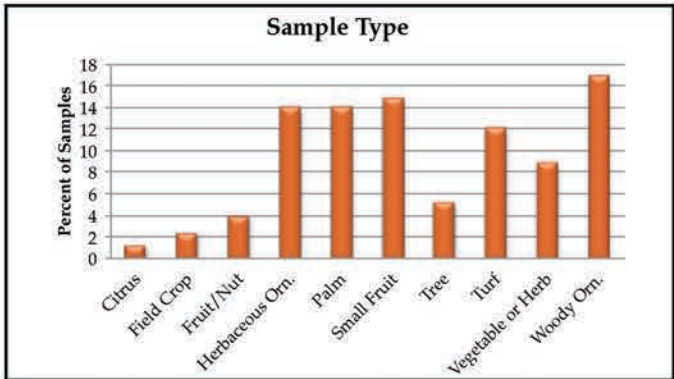


Figure 5. Percent of samples by sample type.

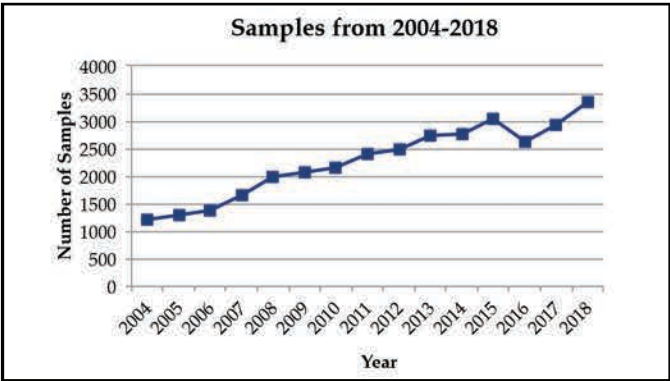


Figure 4. Diagnostic samples received 2004 through 2018.

▼ Most RTDS samples were Bermudagrass (48%), followed by St. Augustinegrass (32%) (Figure 6). Bermudagrass is a common turf for golf courses, while St. Augustinegrass is common in lawns. Sugar Cane Mosaic Virus (SCMV) is a continuing issue in southern Florida. Volusia and Miami-Dade counties had first occurrences of SCMV in 2018, bringing the total number of FL counties with confirmed samples to 12. SCMV occurrence can be tracked at this website: www.eddmaps.org/distribution/uscounty.cfm?sub=56472

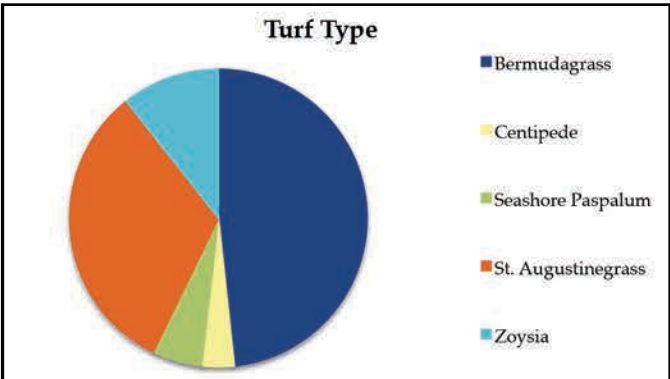


Figure 6. RTDS samples by turf type.

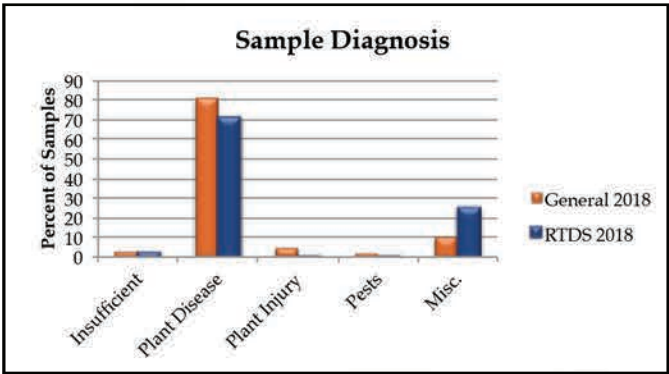


Figure 7. Percent of samples processed using a particular type of diagnostic procedure.

Diagnoses

◀ Most of the samples the PDC receives every year are affected by plant disease, yet some samples are insufficient for processing (Fig. 7). A good sample is declining, but alive with generous amounts of material displaying a wide range of symptoms. If possible, the sample should include, stems, crown, and roots. Samples that don't meet these criteria are deemed insufficient for diagnosis. In 2018, about 2% of General samples and about 3% of RTDS samples were insufficient. Remember, sufficient samples reduce turn around time and improve accuracy of the diagnosis. Instructions for sample collection can be found on the PDC website.

➤ Approximately 78% of all samples the PDC received in 2018 were diagnosed as being affected by a plant disease (Figure 7). Plant diseases include those caused by bacteria, fungi, oomycetes, phytoplasmas, and viruses. Fungi were the most common cause of plant disease in General and RTDS samples in 2018 (Figure 8). Note: percent of samples for General and RTDS can total over 100% on the graph because one sample may have multiple causes of health problems (primary and secondary pathogens).

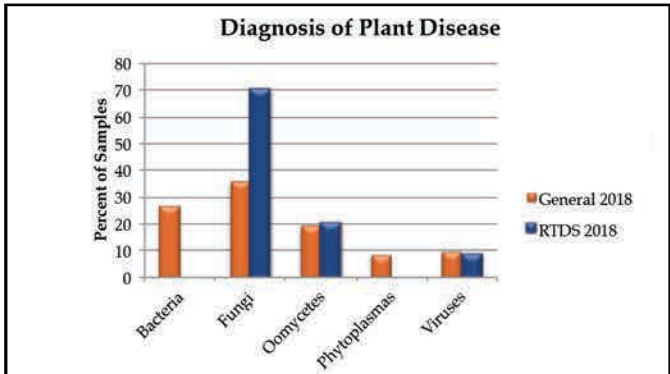


Figure 8. Percent of samples diagnosed as having a plant pathogen in 2018 by type.