



UF/IFAS Plant Diagnostic Center

2017 Report

Laboratory Highlights

The UF-IFAS Plant Diagnostic Center (PDC) in Gainesville processed samples for clientele from 59 out of the 67 counties in the state (Figure 1) and 19 other states (Figure 2).

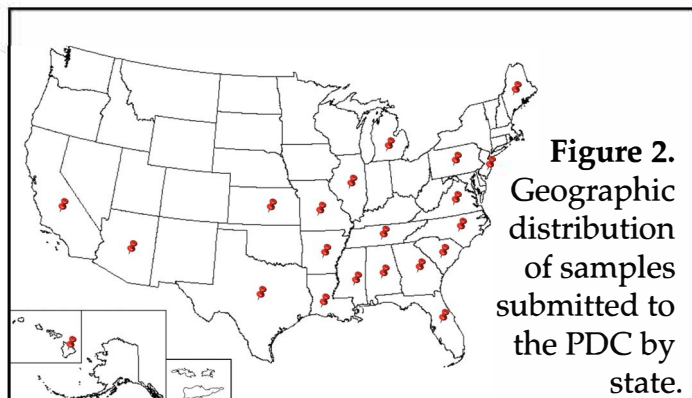


Figure 2. Geographic distribution of samples submitted to the PDC by state.

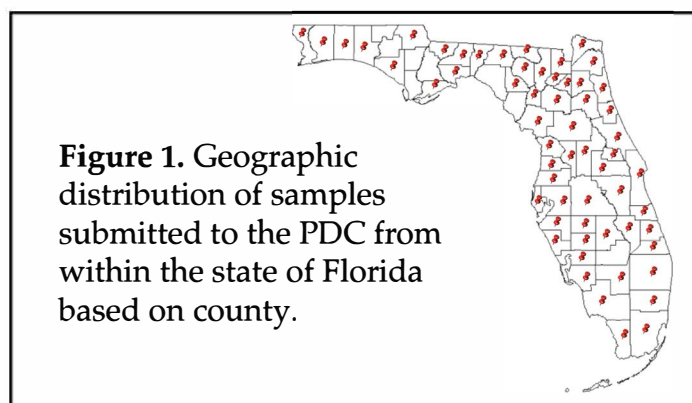


Figure 1. Geographic distribution of samples submitted to the PDC from within the state of Florida based on county.

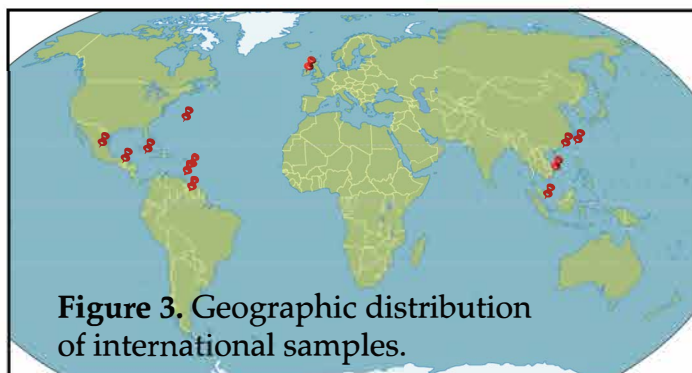


Figure 3. Geographic distribution of international samples.

➤ Our international diagnostic service received samples from Barbados, Bermuda, Guatemala, Guyana, Cayman Islands, and Trinidad (Figure 3). The Rapid Turf Diagnostic Service (RTDS) received samples from Hong Kong, Ireland, Mexico, 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 2017, 350 First Detectors, and 185 Master Gardeners participated in trainings. We led tours for 120 students, five extension agents, 32 educators, 18 from industry; and trained five interns. Two researchers visited the PDC from Peru to participate in a week-long training on blueberry diseases. Dr. Bec traveled to Haiti to teach a 3-day course on microscopy in disease detection.

➤ *Dickeya* is an emerging bacterial pathogen affecting potato crops in the U.S. It can rapidly cause severe losses under warm and wet conditions, like those in Florida. Until recently, *Dickeya* was not easily differentiated from other soft rots, including *Pectobacterium* spp. Management practices for these two diseases differ, making accurate and timely disease identification critical.

The PDC now offers *Dickeya* detection in potato tubers, plant tissue, and bacterial cultures. In 2017, we detected *Dickeya* in 30 samples using a targeted gene sequencing approach. This work allows us to provide rapid and accurate diagnostics and pathogen species identification to potato growers and researchers in Florida and around the world.



➤ The PDC published an online client satisfaction survey this year. 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 29 clients complete surveys and the results indicate that clients are “extremely likely” to use their diagnostic report to manage their plant health issue.

➤ The PDC covers diagnostic fees for samples submitted by new extension agents for their first year on the job. This allows the agents to familiarize themselves with diseases in their counties. In 2017, 11 first-year agents from nine counties took advantage of this service and submitted over 30 samples.

➤ We are excited to announce the hire of two new diagnosticians this year. Max Duncan is a UF Plant Science graduate and, in July, came back to the RTDS as the turfgrass diagnostician. In August, Dr. Peng Tian finished his post-doc at UGa and started at the PDC as a senior clinic diagnostician. They look forward to working with you!



Samples

➤ The annual number of samples submitted for diagnosis has increased dramatically over the last 13 years (Figure 4). We processed 2,940 samples in 2017.

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 herbaceous ornamentals, followed by palms, small fruit, and then woody ornamentals (Fig. 5). The number of palm samples reflects an increased incidence of Texas Phoenix Palm Decline and *Fusarium*. These diseases are fatal and palms can die quickly.

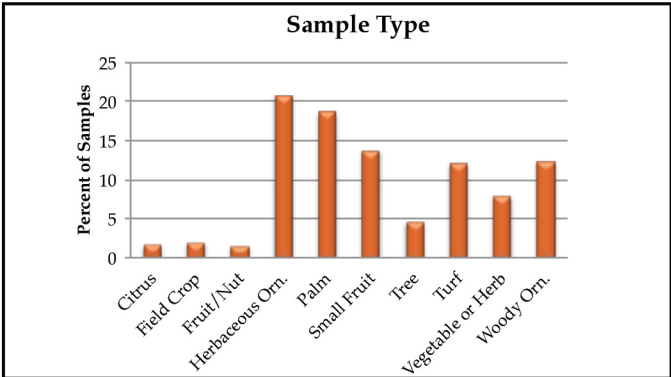


Figure 5. Percent of samples by sample type.

➤ *Pantoea* leaf blight was detected for the first time on ponytail palms in Florida in the fall of 2017. Plants exhibit symptoms of yellow translucent lesions. *Pantoea* is a relatively new, yet diverse genus with many new species recently identified.

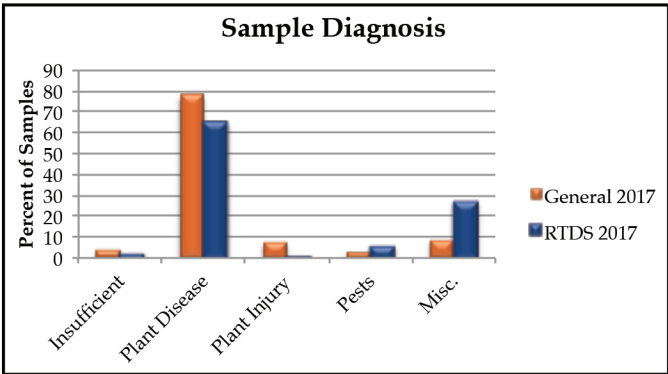


Figure 7. Percent of samples processed using a particular type of diagnostic procedure.

➤ Approximately 76% of all samples the PDC received in 2017 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 2017 (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).

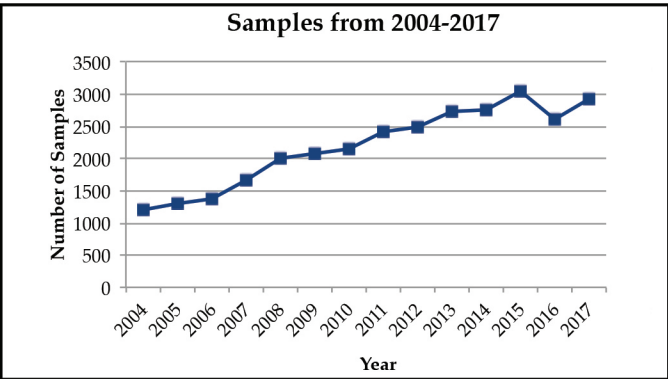


Figure 4. Diagnostic samples received 2004 through December 2017.

➤ Most RTDS samples were Bermudagrass (62%), followed by St. Augustinegrass (17%) (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. Monroe County had its first occurrence of SCMV in 2017, bringing the total number of counties with confirmed samples to nine. The occurrence data can be tracked at the following website: www.eddmaps.org/distribution/uscounty.cfm?sub=56472

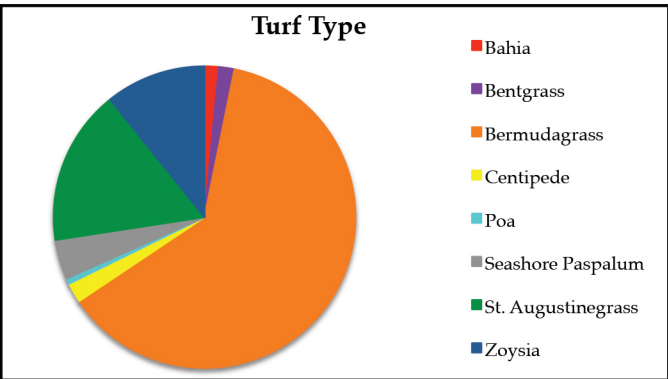


Figure 6. RTDS samples by turf type.

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 2017, about 4% of General samples and about 2% 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.

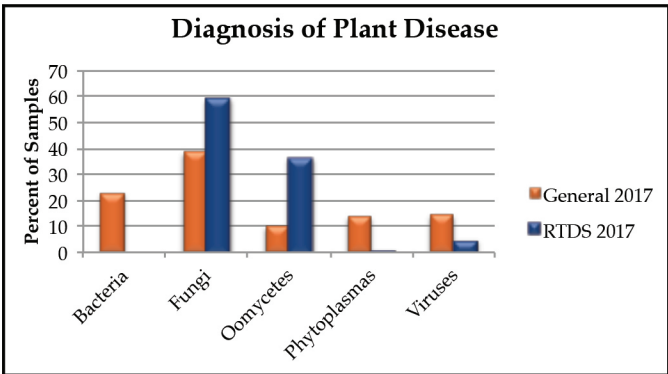


Figure 8. Percent of samples diagnosed as having a plant pathogen in 2017 by type.