

## **UF/IFAS** Plant Diagnostic Center

2019 Annual Report

## **Program Highlights**

As the hub lab for the SPDN, the UF/IFAS Plant Diagnostic Center (PDC) plays a big role in early detection of diseases from survey samples. Early detection makes eradication possible before the disease spreads. In addition to routine samples, PDC staff processed 3,642 samples that surveyed affiliated library in October of 2019. The grand for a new viral disease in greenhouse-grown tomatoes from seven states (photos below). We also processed 123 sudden oak death survey samples from 10 states.





In October, our lab manager, Dr. Sladana Bec, led three workshops at Gardens by the Bay in Singapore for International Plant Propagators' Society participants (a). In December, the PDC hosted the week-long Greater Caribbean Safeguarding Inititative Diagnostic Training (b). Diagnosticians and plant health experts travelled from 15 Caribbean countries in order to build diagnostic capacity of the Caribbean region. Participants practiced basic diagnostic techniques for pathogens on a priority pest list for the Caribbean.



Additionally, in 2019, we trained 780 First Detectors and Master Gardeners (c) and 150 green industry professionals. We led tours for 165 students, 10 extension agents, 12 educators, six clients; and trained six interns. We also hosted a meeting with UF-IFAS Extension administrators and orange growers. Again, we offered a monthlong online professional development course on disease management. Over 110 students enrolled, including some from Canada and the

Caribbean. We introduced a new online graduate-level diagnostics course and expect to release the professional extension version in 2021.



The PDC library became a University of Florida opening was celebrated with an open house that included tours of the Center. The library houses literature and collections relating to all aspects of plant sciences. It is available to both UF patrons and the general public, although UF affiliation is required to check out material. A UF librarian is available on Thursdays from 1-2pm to provide walk-in reference services.

The PDC participates in an APHIS certification program that requires diagnosticians to pass a blind Proficiency Test Panel to evaluate their proficiency of technical skills. PDC diagnosticians passed their panels for citrus greening and Phytophthora ramorum (Sudden Oak Death) in 2019.

## Samples

The annual number of samples submitted for diagnosis has increased dramatically over the last 15 years (Figure 1). In 2019, we processed 2,933 routine samples and 3,642 survey samples.



Figure 1. Total samples received in 2004 through 2019.

The PDC in Gainesville processed samples for clientele from 57 out of the 67 counties in the state (Figure 2) and 21 other states and territories (Figure 3) in 2019.

Figure 2. Geographic distribution of 2019 samples submitted to the PDC from within the state of Florida based on county.



Figure 3. Geographic distribution of 2019 samples submitted to the PDC by state.

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Our international diagnostic service received samples from Barbados, Bahamas, Cayman Islands, Colombia, Costa Rica, Belize, Dominican Republic, Guatemala, Guyana, Haiti, and Jamaica (Figure 4). The Rapid Turf Diagnostic Service (RTDS) received samples from Hong Kong, Malaysia, Mexico, Singapore, and Vietnam.



Figure 4. Geographic distribution of international samples in 2019.

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 palms, followed by turf, woody ornamentals, and vegetables or herbs (Fig. 5). The number of palm samples reflects an increased awareness and incidence of Lethal Bronzing (formerly Texas Phoenix Palm Decline) and Fusarium. These diseases are fatal and palms can die quickly. Learn more here: https://bit.ly/2vO2uLk

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Figure 5. Percent of samples by sample type.

Most RTDS samples were Bermudagrass (53%), followed by St. Augustinegrass (32%) (Figure 6).



Figure 6. RTDS samples by turf type.

Diagnoses: Approximately 78% of all samples the PDC received in 2019 were diagnosed as being affected by a plant disease. 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 2019 (Figure 7). Note that the percent of samples for General and RTDS can total over 100% on the graph because one sample may have multiple causes of health problems.



Figure 7. Percent of samples diagnosed as being infected by a plant pathogen in 2019 by type.

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