Clemson University Molecular Plant Pathogen Detection Lab
Annual Report for 2019

Introduction

The Molecular Plant Pathogen Detection Lab (MPPD Lab) identifies plant diseases of USDA-APHIS regulatory concern, and as such, the lab works closely with Department of Plant Industry (DPI) Inspectors as they do inspections and surveys across the state. Through this process, the lab also supports South Carolina growers because it provides early detection of plant diseases.

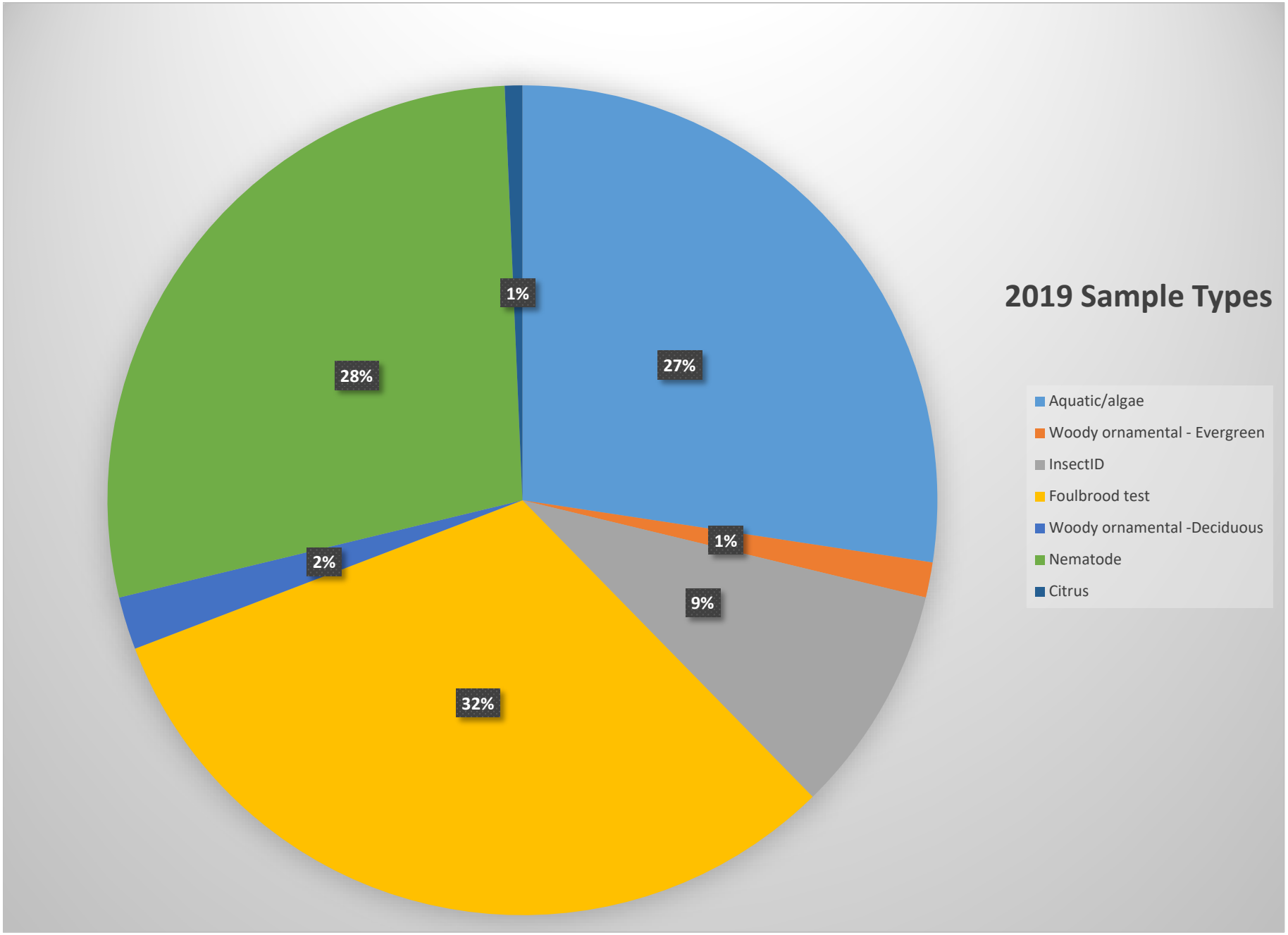
In 2019, survey samples for *Phytophthora alni*, *P. quercina*, *P. kernoviae* and *P. ramorum* comprised the majority of samples. None of these samples were positive for those species. A new concern for the foreign root-knot nematode, *Meloidogyne enterolobii* led to our first samples of this species. Forty-one root-knot nematode positive samples were received from the Nematode Assay Lab and all were found to be negative for *M. enterolobii* by real-time PCR.

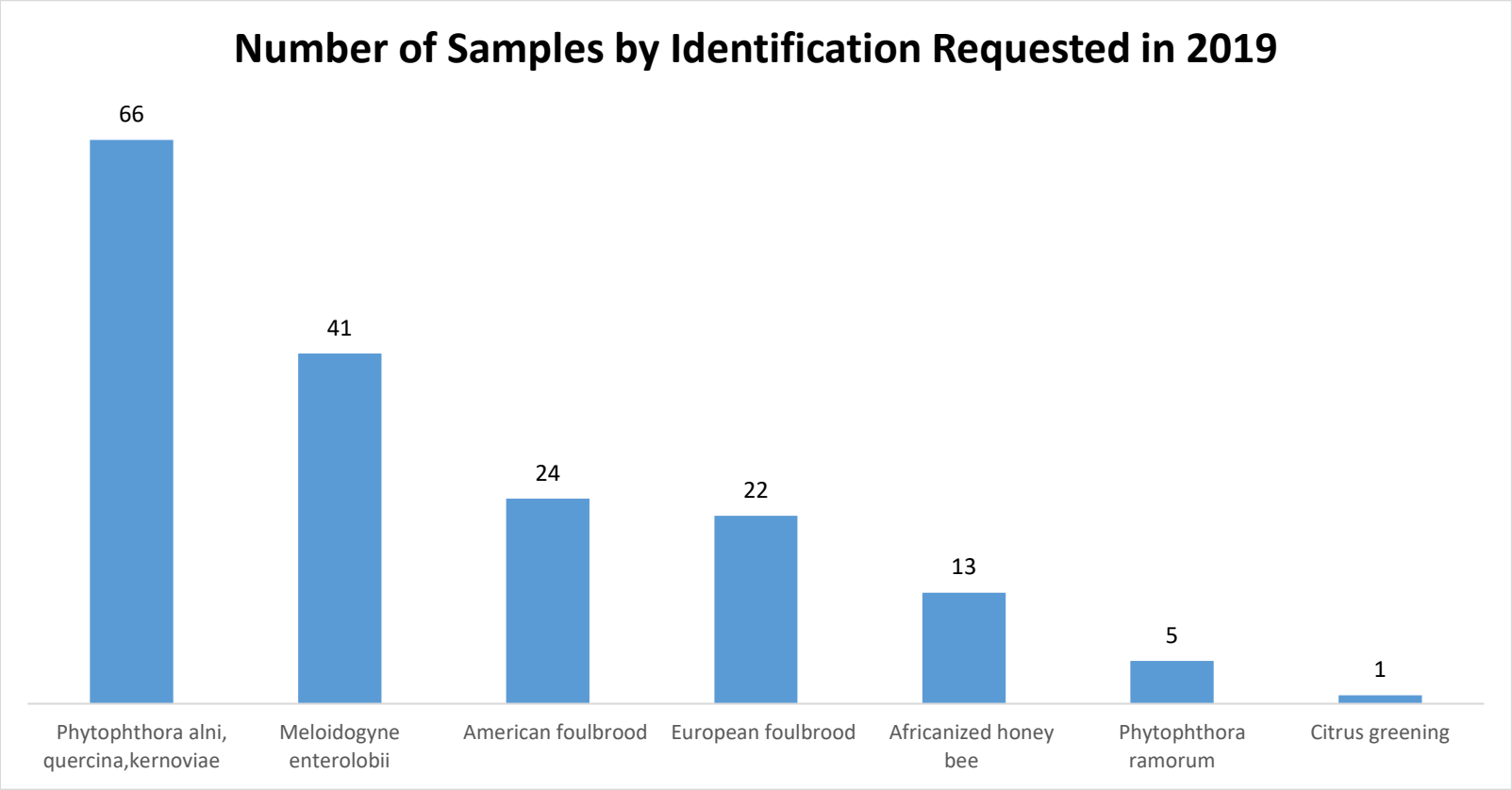
In addition, the lab has taken on non-plant disease issues that are relevant to Agriculture and public health. These include detection of foulbrood disease of bees, identification of Africanized honeybees and microbial source tracking for municipal water sources.

The honeybee diseases and identification of Africanized bees have become of great importance. Twenty-four bee samples were sent for bacterial disease identification and another 13 bees were identified as European honey bees. None were found to be Africanized honeybees.

Curt Colburn, PhD

MPPD Lab Manager


2019 Sample Types
27%
1%
9%
32%
2%
28%
1%
Aquatic/algae
Woody ornamental - Evergreen
InsectID
Foulbrood test
Woody ornamental -Deciduous
Nematode
Citrus


Number of Samples by Identification Requested in 2019
66
41
24
22
13
5
1
Phytophthora alni, quercina,kernoviae
Meloidogyne enterolobii
American foulbrood
European foulbrood
Africanized honey bee
Phytophthora ramorum
Citrus greening

Molecular Plant Pathogen Detection Lab Sample Results for 2019

	Confirmed	Not detected	Suspected	Inconclusive
HONEY BEE TESTING				
American foulbrood (Paenibacillus larvae larvae)	6	18	0	0
European foulbrood (Melissococcus plutonius)	6	16	0	0
European honey bee (Apis mellifera european)	13	0	0	0
Africanized honey bee (Apis mellifera hybrid)	0	13	0	0
Sweet Orange (Citrus sinensis)				
Citrus greening huanglongbing (Asian) (Candidatus Liberibacter asiaticus)	0	1	0	0
PHYTOPHTHORA FROM BAITED SOIL				
Camellia (Camellia sp./spp.)				
Phytophthora alni	0	1	0	0
Phytophthora quercina	0	1	0	0
Japanese Andromeda (Pieris japonica)				
Phytophthora ramorum	0	1	0	0
PHYTOPHTHORA SPECIES IN WATER SOURCES				
River; Stream; creek; waterway (Aquatic habitat)				
Phytophthora cinnamomi	3	0	0	0
Phytophthora quercina	0	4	0	0
Water Sample (Aquatic habitat)				
Phytophthora alni	0	3	0	0
Phytophthora sp./spp.	0	1	0	0
Phytophthora cinnamomi	7	0	0	0
Phytophthora kernoviae	0	29	0	0
Phytophthora quercina	0	29	0	0
Phytophthora ramorum	0	4	0	0
NEMATODE				
Meloidogyne enterolobii	0	41	0	0

Meloidogyne sp./spp	41	0	0	0