

2013 Summary Report Plant & Pest Diagnostic Lab



Samples

The Purdue University Plant & Pest Diagnostic Lab provided 3612 diagnoses on 2,584 samples submitted in 2013 (Tables 1 and 2). The vast majority of samples originated from within the state of Indiana, however due to our national reputation, 23% of our samples are submitted from other states within the continental US (Figure 1).

We are fortunate to have the cooperation and assistance of numerous faculty and staff from the Departments of Botany & Plant Pathology, Agronomy, Entomology, Horticulture & Landscape Architecture, and Forestry & Natural Resources as well as assistance from select diagnostic specialists at other institutions across the country (Table 1).

Of the routine sample submissions, 53% were ornamental plants and 20% were agronomic crops (Figure 2 and Table 4). Many of the samples received multiple diagnoses due to the presence of more than one causal agent. The most frequently diagnosed group of causal agents were infectious diseases (51%), followed by non-infectious (abiotic) disorders with 23% (Figure 3).

We provide service for a diverse clientele (Table 3). Forty-two percent of all samples in 2013 came from our commercial clientele, which includes agribusiness, green industry and pest control operations. Our non-commercial clients (homeowners, Extension educators, and other researchers and specialists) submitted 23% of our total samples. As the designated State plant disease diagnostic facility for the Indiana Department of Natural Resources (IDNR), 35% of our submissions relate to our assistance with the diagnosis of Cooperative Ag pest Survey samples and the diagnosis of regulatory/phytosanitary samples submitted by State Nursery Inspectors.

Surveys

The PPDL participated with the Indiana Department of Natural Resources (IDNR) in Cooperative Ag Pest Survey (CAPS) efforts to safeguard Indiana from the introduction of *Phytophthora ramorum*, causal agent of Ramorum Blight and SOD, a potentially devastating disease to our nursery trade and oak timber industry (Table 2). Of the 345 samples tested in the CAPS survey, there were no confirmations of *P. ramorum* in Indiana. Additional funding was made available from the Farm Bill that allowed us to test an additional 333 ornamental samples in Indiana for the pathogen, which also yielded zero confirmations of *P. ramorum*. Information gathered from surveys is uploaded through the NAPIS data base system as well as through the NPDN national data repository. This data helps researchers and regulatory agencies guide future research and monitoring efforts.

Extension and Teaching Activities

PPDL staff members participate in a variety of Purdue University sponsored events and educational programs. Some of these programs in 2013 included:

- Adobe Connect Diagnostic Training sessions for county Extension educators
- Thirty-two first detector training programs for agribusiness, green industry personnel and homeowners

- Poster presentations/informational booths at field days (IPLLA/Turf and Ornamental) and the Indiana Green Expo
- Contributions to Pest and Crop Newsletter and Vegetable Crops Hotline
- Undergraduate Teaching
 - Invited Guest Lab Presentations and Lab Tours - BTNY 301 Introductory Plant Pathology;
 - HORT 420 Ornamental Plant Production; Hort # Veg Production,

Other highlights

A notable venture this year was the development of an iOS app that provides users a convenient way to submit photos for diagnosis/identification using their smartphone or tablet. The PPDL diagnosticians worked together with diagnosticians at seven other universities (Alabama Cooperative Extension, University of Connecticut, University of Illinois, University of Kentucky, Michigan State University, University of New Hampshire, and Ohio State University) and software developers at IN3 Applications. The Sample Submission app is free (available for iOS devices), and regular sample processing fees still apply.

The PPDL staff were part of a 31 member team that was awarded the 2013 College of Agriculture Team Award: Imprelis® Herbicide Injury Response Team; for their efforts in investigating the consumer complaints of tree and plant damage due to the use of the DuPont herbicide Imprelis®. The investigation and subsequent communications led to a nationwide recall and stop use order of the turf herbicide.

Table 1. Departmental faculty and staff that assisted with diagnoses of samples submitted to the Plant and Pest Diagnostic Laboratory during 2013.¹

Faculty/Staff	Number of Samples	Faculty/Staff	Number of Samples
Agronomy	83 (2%)	Entomology	320 (9%)
J. Camberato	38	L. Bledsoe	7
S. Casteel	9	B. Brown	8
K. Johnson	5	J. Faghihi	6
B. Nielsen	7	R. Foster	9
A. Patton	24	T. Gibb	154
		M. Ginzel	2
		J. Obermeyer	11
Botany & Plant Pathology	2938 (82%)	D. Richmond	7
		C. Sadof	116
C. Aime	3		
J. Beckerman	14	Horticulture & Landscape Architecture	81 (2%)
T. Creswell	966	B. Bordelon	7
D. Egel	6	K. Daniel	10
N. Harby	1	P. Hirst	1
K. Hockemeyer	7	R. Lerner	25
B. Johnson	15	R. Lopez	35
R. Latin	7	L. Maynard	1
D. Lubelski	10	S. Weller	2
T. Legleiter	176		
R. Pruitt	1		
G. Ruhl	1712 ^{3,4,5}	Other	184 (5%)
I. Thompson	5	R. Baird, MS State Univ.	1
K. Wise	15	J. Byrne, MI State Univ.	147
		S. Kinzie, IDNR	27
Forestry & Natural Resources	6 (*)	J. McKemy, USDA-APHIS	4
		L. Nees, OISC	1
D. Cassens	1	G. O'Keefe, USDA-APHIS	1
R. Meilan	1	M. Putnam, OR State Univ.	2
L. Purcell	4	K. Seebold, Univ. of KY	1
Total Diagnoses			3612

¹ The total number of diagnoses exceeds the total number of samples due to multiple people assisting with a diagnosis.

² Names in bold type were designated by departments as 2013 PPDL diagnosticians.

³ 345 diagnoses were provided for *Phytophthora ramorum* nursery survey samples.

⁴ 98 diagnoses were provided for corn phytosanitary survey samples.

⁵ 333 diagnoses were provided for *Phytophthora ramorum* Farm Bill survey samples.

* Less than 1%

Table 2. Breakdown of total samples for 2013	
Routine samples	1808
Regulatory/survey samples	776
<i>P. ramorum</i> national survey samples	345
Phytosanitary certification samples (IDNR/ICIA)	98
<i>P. ramorum</i> Farm Bill survey samples	333
Total number of samples	2584

Table 3. Affiliation of persons submitting samples to the PPDL in 2013		
Affiliation	Number of samples	%
Commercial	1080	42
Agribusiness	214	8
Arborist	37	1
Consultant	132	5
Garden Center/Greenhouse/Nursery	235	9
Golf Course	32	1
Grower/Farmer	54	2
Landscaper/Groundskeeper/Lawn & Tree Care	296	11
Pest Control	46	2
Other	34	1
Non-Commercial	585	23
Extension Educator	188	7
Homeowner	235	9
Researcher/Specialist	162	6
Regulatory/Survey	919	35
ICIA	98	4
IDNR	61	2
Annual SOD Survey	345	13
Farm Bill SOD Survey	333	13
Indiana State Chemist	82	3
Totals	2584	100

Table 4. Routine samples sorted by sample category¹

	2013	
Category	Number of Specimens	% ²
Agronomic	353	20
Field crops	308	17
Forage	3	*
Small grains	42	2
All Fruit	68	4
Fruit	42	2
Small Fruit	26	1
Ornamentals	954	53
Annual	172	10
Deciduous	440	24
Evergreen	178	10
Grnd Cvr/Vines	10	1
Perennial	154	9
Turf	112	6
Vegetables	100	6
Miscellaneous	221	12
Aquatic	12	1
Insect ID	164	9
Nuts/Seeds	1	*
Multiple Hosts	20	1
Mushroom/Mold	7	*
Other	17	1
Total Specimens	1808	100

¹ Excludes 345 ornamental samples submitted for 2013 *P. ramorum* National Nursery Survey, 333 ornamental samples submitted for 2013 *P. ramorum* Farm Bill Survey and 98 samples submitted for corn Phytosanitary Testing.

² Percent of total samples submitted during the year

* Less than 1%

Figure 1. Distribution of samples received by the Plant and Pest Diagnostic Laboratory in 2013.

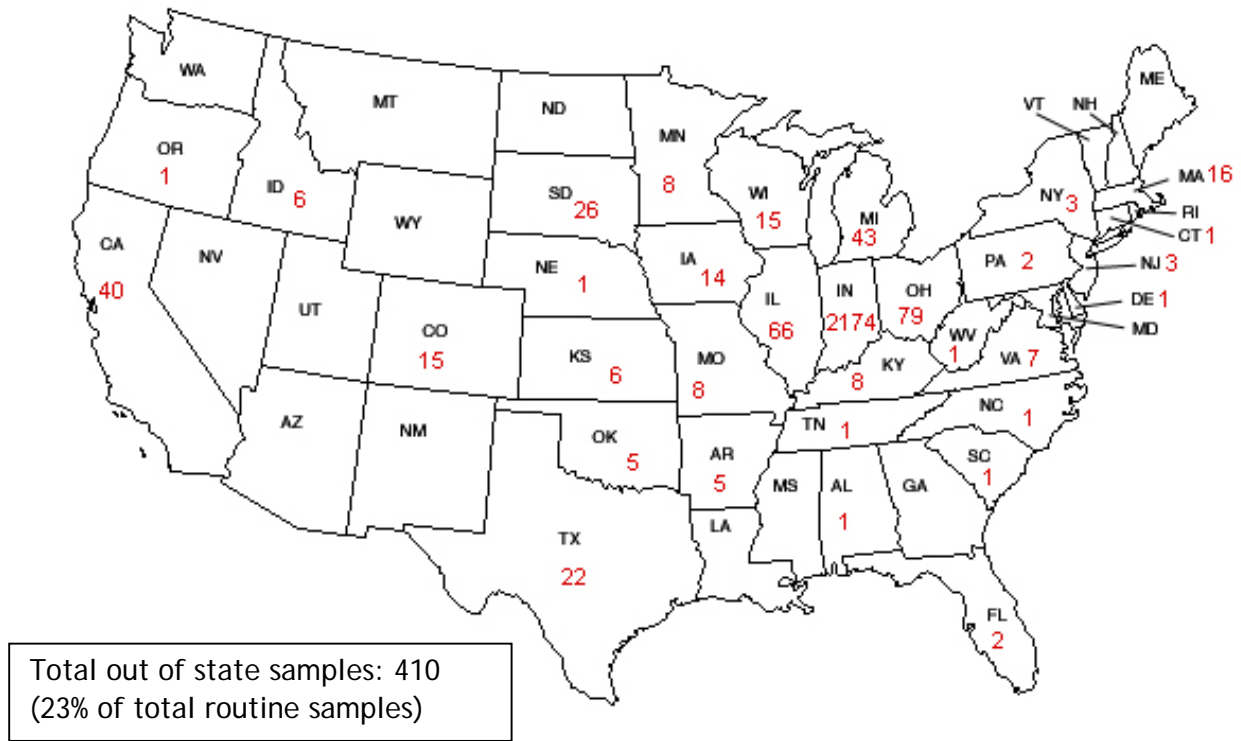
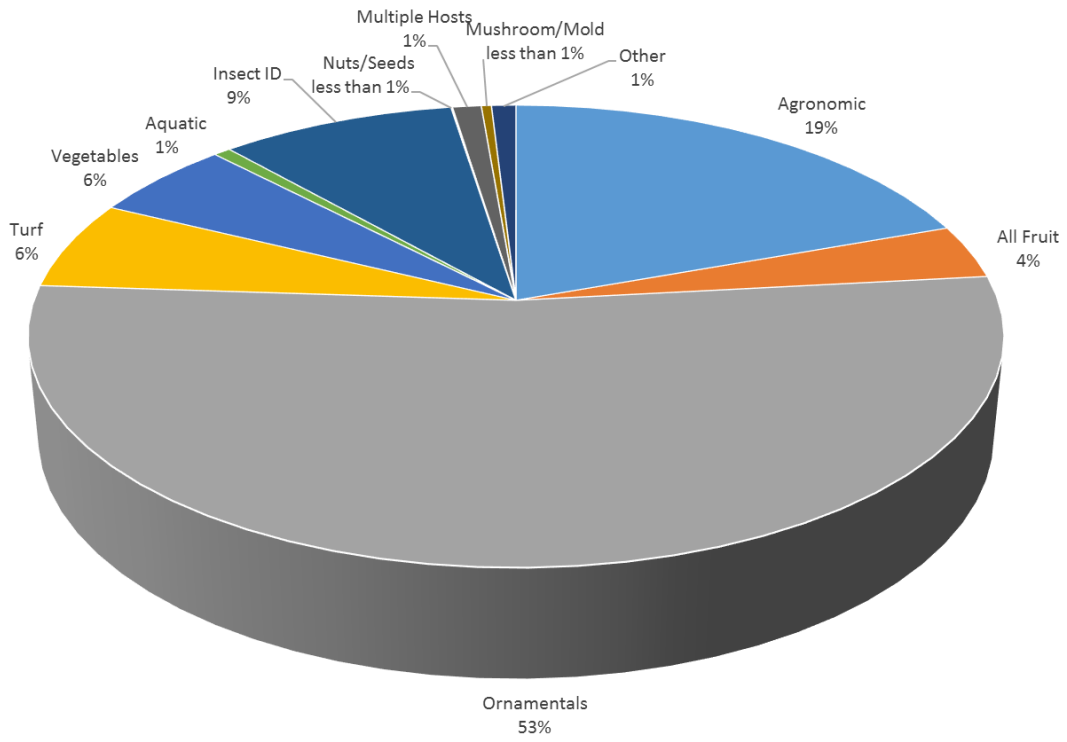


Figure 2. Sample Categories 2013



Excludes survey samples

Figure 3. Diagnoses by Pest Category - 2013

