Clemson University Commercial Turf Clinic 2019 Annual Report

The Commercial Turf Clinic (CTC) serves the turfgrass industry in South Carolina and other states. It is a multidisciplinary lab that provides diagnoses of plant diseases, nematode infestations, insect damage and other problems. Solutions are provided through management recommendations. The Clinic strives to provide a quick turnaround, with preliminary reports submitted within 48 hours of sample receipt.

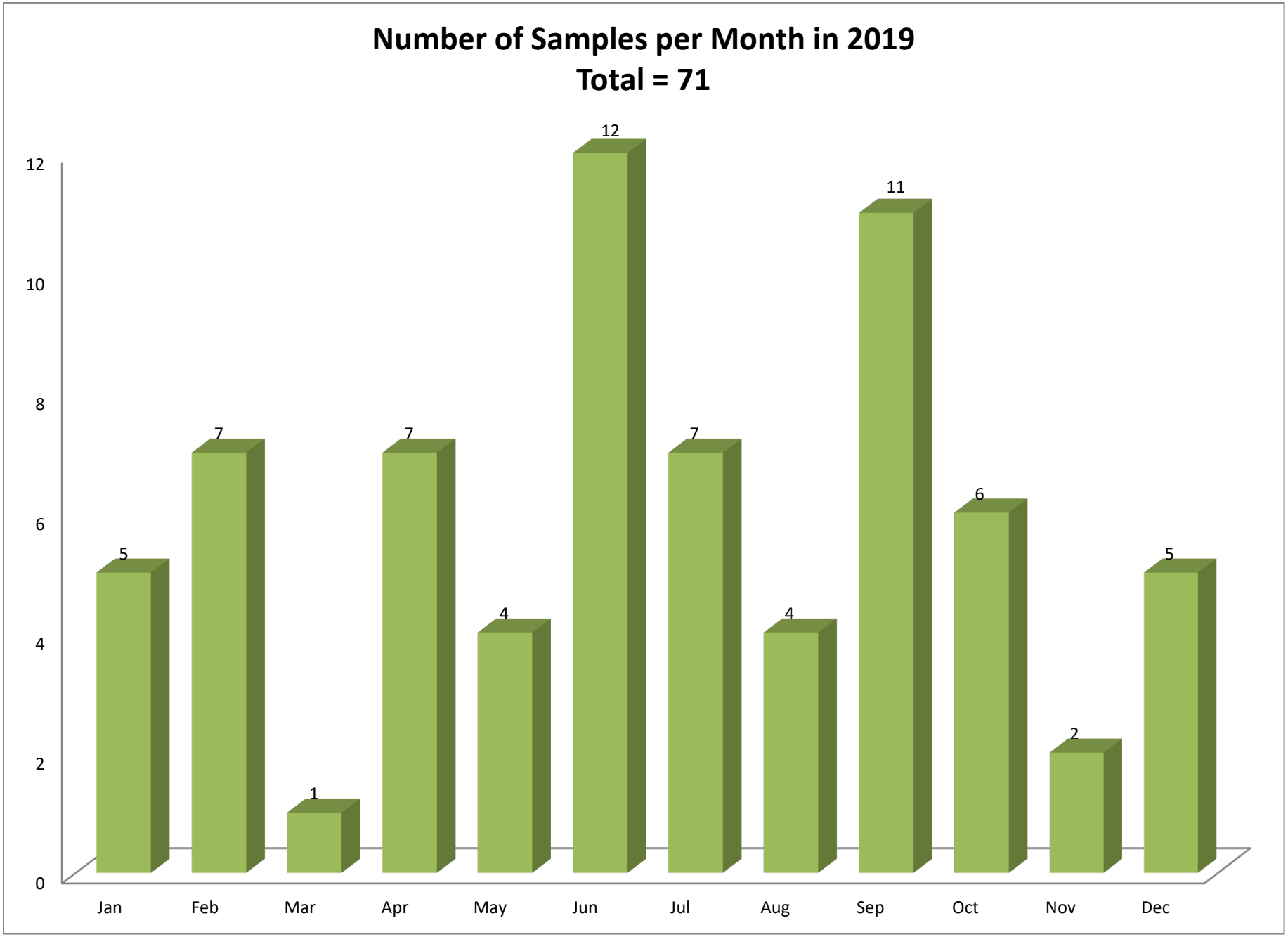
In 2019, the CTC received 71 samples from South Carolina and four other states. Most were from golf courses but sod producers and commercial landscapes were also represented.

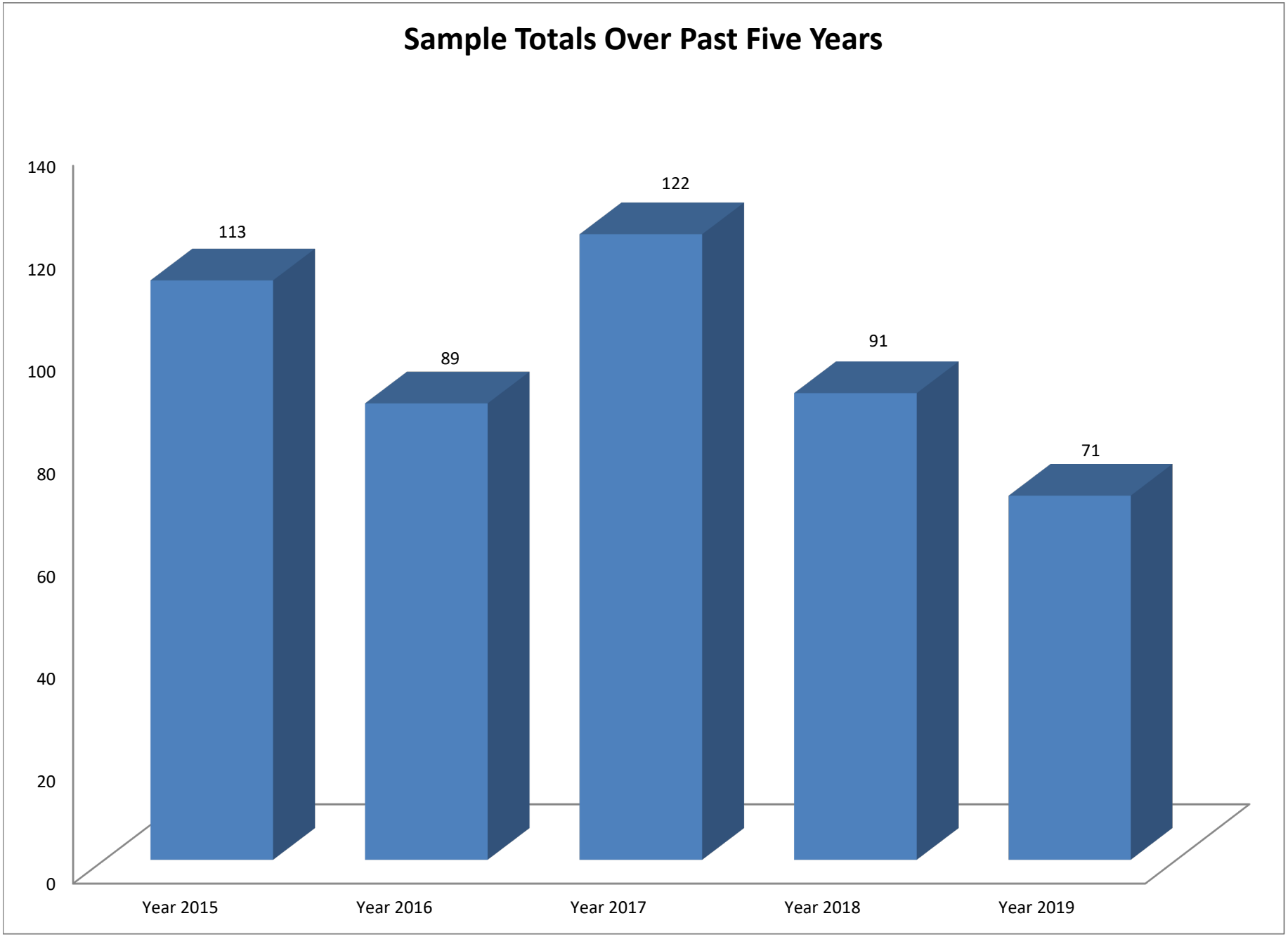
I would like to thank Dr. Bruce Martin and Dr. Bert McCarty for their assistance during 2019. Even though he officially retired in 2018, Bruce continued to provide advice until Dr. Joe Roberts arrived to replace him in late 2019. I'd like to officially welcome Dr. Roberts and look forward to working with him as a trusted advisor.

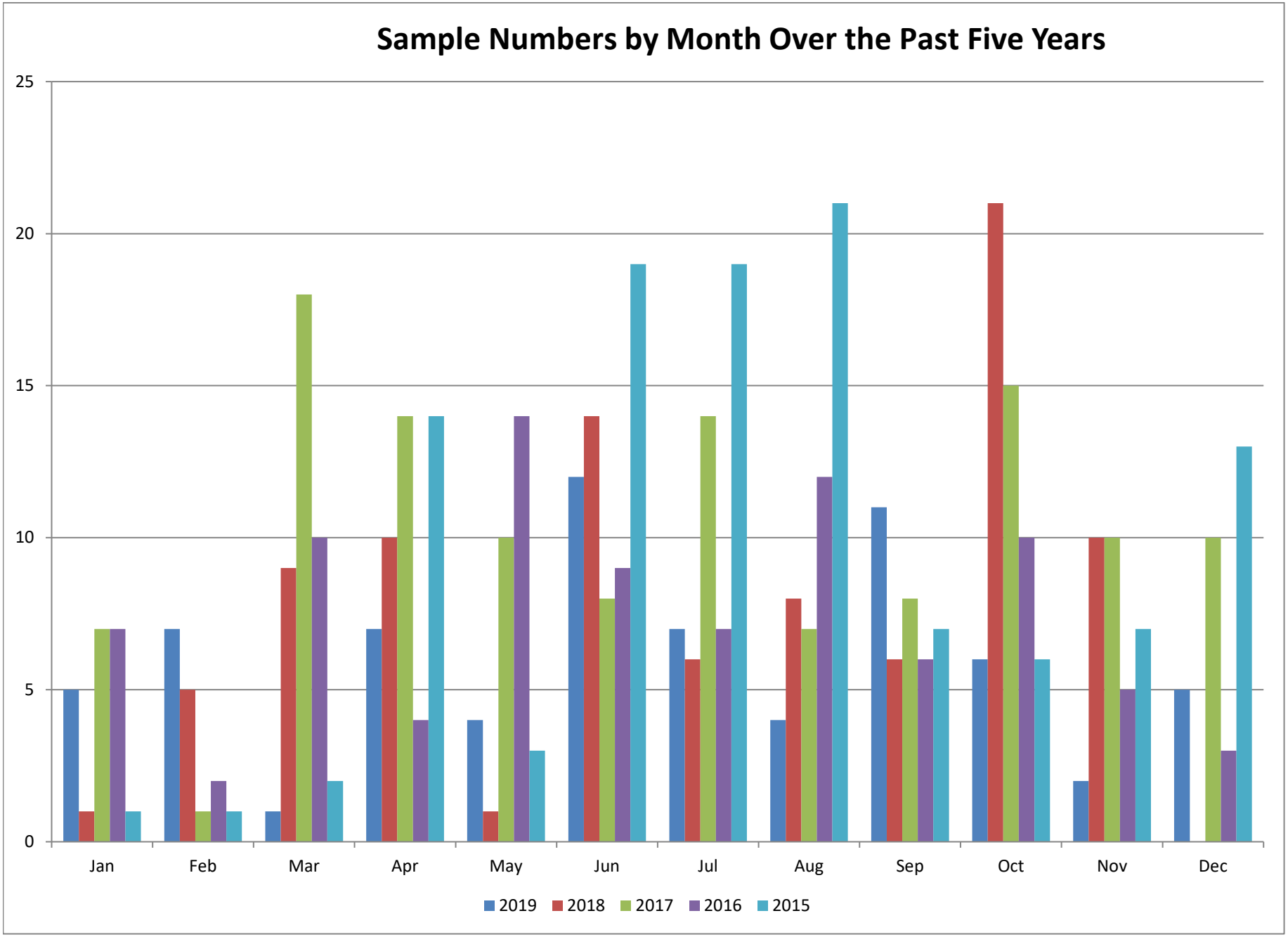
The CTC works closely with the Nematode Diagnostic Clinic since nematode damage is a major problem in golf course turf. Recently, CU Nematologist, Dr. Paula Agudelo, moved into the position of Associate Dean of Research and Experiment Station Director. She has been replaced by Dr. Churamani Khanal, and I would like to officially welcome him and to thank him and his staff for providing quick identifications of nematode populations.

I hope the readers will find this report to be both interesting and informative.

Meg Williamson, Diagnostician and Lab Manager

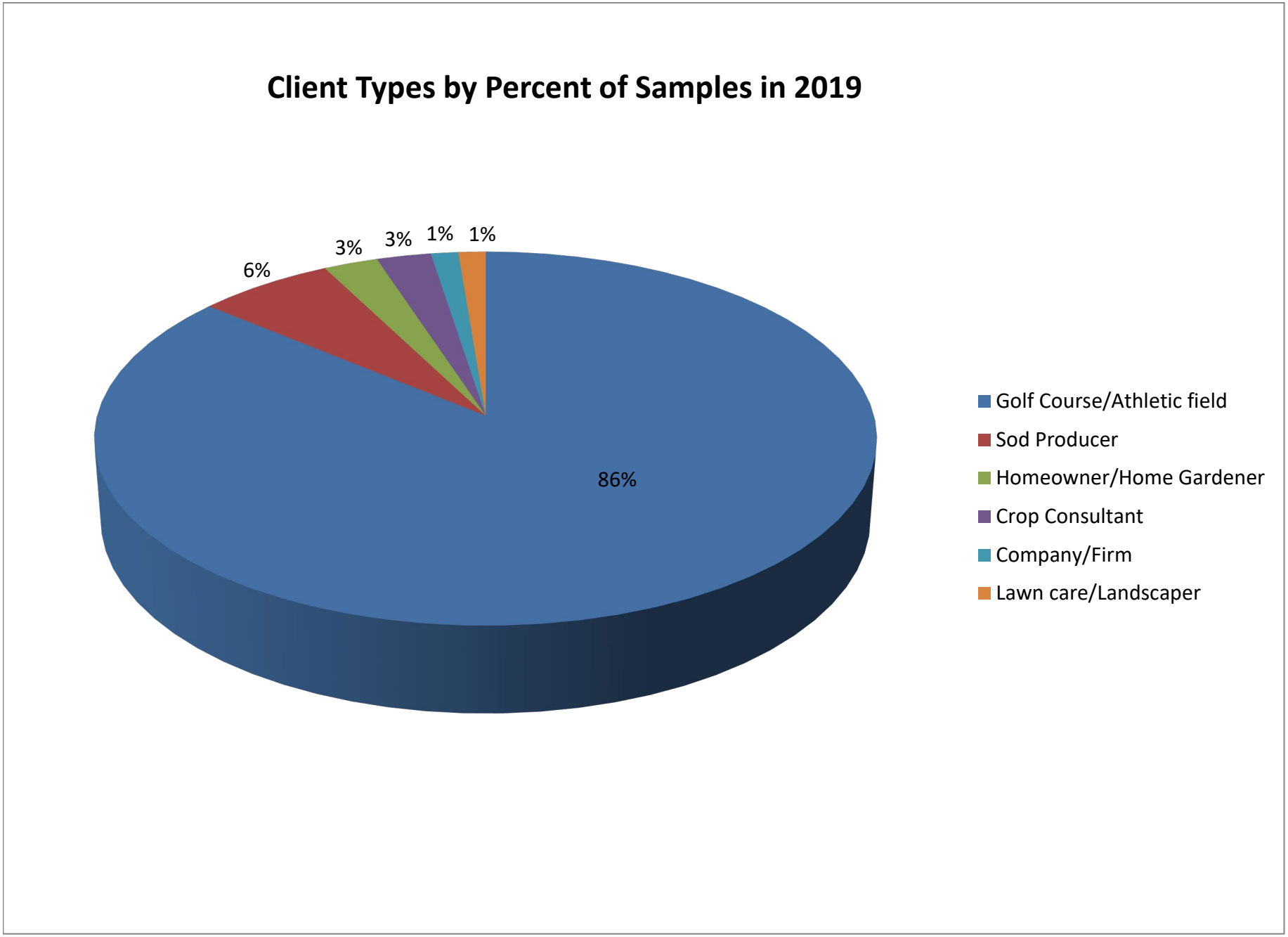

Number of Samples per Month in 2019
Total = 71
12
10
8
6
4
2
0
5
7
1
7
4
12
7
4
11
6
2
5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec


Sample Totals Over Past Five Years
140
120
100
80
60
40
20
0
113
89
122
91
71
Year 2015
Year 2016
Year 2017
Year 2018
Year 2019


Sample Numbers by Month Over the Past Five Years
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2019
2018
2017
2016
2015

Numbers of Samples from Various States in 2019

Arkansas	STATE TOTAL	6
Florida	STATE TOTAL	9
Georgia	STATE TOTAL	8
North Carolina	STATE TOTAL	4
South Carolina	Aiken	2
	Anderson	2
	Bamberg	1
	Beaufort	15
	Berkeley	3
	Charleston	4
	Clarendon	1
	Colleton	1
	Greenville	2
	Oconee	8
	Orangeburg	3
	Pickens	1
	Spartanburg	1
South Carolina	STATE TOTAL	44
	GRAND TOTAL	71


Client Types by Percent of Samples in 2019
86%
6%
3%
3%
1%
1%
Golf Course/Athletic field
Sod Producer
Homeowner/Home Gardener
Crop Consultant
Company/Firm
Lawn care/Landscaper

Diagnoses and Identification in Turfgrasses from Commercial Settings in 2019

	Confirmed	Not Detected	Suspected	Undetermined
Bentgrass (Agrostis sp./spp.) *(Host,Diagnosis/ID) (16,29)*				
Anthracnose (Colletotrichum sp./spp.)	1	0	0	0
Anthracnose basal rot; Crown rot (Colletotrichum sp./spp.)	1	0	0	0
Bacterial leaf spot (Acidovorax avenae avenae)	4	0	0	0
Bacterial leaf spot (Acidovorax sp./spp.)	1	0	0	0
Cultural/environmental problem (Abiotic disorder)	0	0	2	0
Lance nematodes (Hoplolaimus sp./spp.)	0	0	1	0
Leptosphaerulina leaf blight (Leptosphaerulina australis)	1	0	0	0
Mechanical damage (Abiotic disorder)	0	0	1	0
No pathogen found (Identification Analysis)	0	1	0	0
Pink snow mold; Fusarium patch (Microdochium nivale)	1	0	0	0
Pythium root and/or crown rot (Pythium sp./spp.)	7	0	0	0
Pythium root dysfunction (Pythium sp./spp.)	1	0	0	0
Ring nematode (Mesocriconema sp./spp.)	1	0	0	0
Root-knot nematodes (Meloidogyne sp./spp.)	2	0	0	0
Stubby-root nematodes (Family Trichodoridae)	1	0	0	0
Stunt nematodes (Tylenchorhynchus sp./spp.)	1	0	0	0
Unspecified pathology (Pythium sp./spp.)	1	0	0	0
Bermudagrass (Cynodon sp./spp.) *(Host,Diagnosis/ID) (48,97)*				
Algae (General)	1	0	0	0
Bacterial leaf spot (Acidovorax sp./spp.)	2	0	0	0
Chemical spill toxicity (Abiotic disorder)	0	0	1	0
Cream leaf blight (Limonomyces roseipellis)	4	0	0	0
Cultural/environmental problem (Abiotic disorder)	4	0	9	0
Environmental stress; Problem (Abiotic disorder)	0	0	1	0
ETRI ectotrophic root infecting fungi (Complex of Fungi)	5	0	0	0
Fairy ring (Various Fungi)	0	0	1	0

	Confirmed	Not Detected	Suspected	Undetermined
Bermudagrass (Cynodon sp./spp.) *(Host,Diagnosis/ID) (48,97)*				
Fusarium root rot (Fusarium sp./spp.)	2	0	0	0
Lance nematodes (Hoplolaimus sp./spp.)	10	0	0	0
Leaf blight (Various Fungi)	0	0	0	1
Leaf spot (Bipolaris sp./spp.)	2	0	0	0
Leptosphaerulina leaf blight (Leptosphaerulina australis)	1	0	0	0
Leptosphaerulina leaf spot (Leptosphaerulina sp./spp.)	1	0	0	0
Nematode damage (Unidentified Nematode)	0	0	2	0
No pathogen found (Identification Analysis)	0	0	0	1
Phosphorus deficiency (Abiotic disorder)	0	0	2	0
Pink snow mold; Fusarium patch (Microdochium nivale)	1	0	0	0
Plant parasitic nematodes (Family Tylenchidae)	1	0	0	0
Poor germination (Abiotic disorder)	1	0	0	0
Pythium blight; Cottony blight (Pythium sp./spp.)	3	0	0	0
Pythium root and/or crown rot (Pythium sp./spp.)	4	0	0	0
Red leaf and sheath spot (Rhizoctonia zeae)	2	0	0	0
Ring nematode (Mesocriconema sp./spp.)	1	0	0	0
Root decline of warm season grasses (Gaeumannomyces graminis var. graminis)	2	0	0	0
Root problem (Unknown Cause)	0	0	0	1
Root problems (Abiotic disorder)	0	0	5	0
Root-knot nematodes (Meloidogyne sp./spp.)	18	0	0	0
Sheath blight (Rhizoctonia sp./spp.)	2	0	0	0
Sting nematodes (Belonolaimus sp./spp.)	3	0	0	0
Stubby-root nematodes (Family Trichodoridae)	1	0	0	0
Unspecified pathology (Pythium sp./spp.)	2	0	0	0
Centipedegrass (Eremochloa ophiuroides) *(Host,Diagnosis/ID) (1,2)*				
Armyworms; General (Family Noctuidae)	0	0	1	0
Cultural/environmental problem (Abiotic disorder)	0	0	1	0
Seashore Paspalum (Paspalum vaginatum) *(Host,Diagnosis/ID) (1,1)*				

Cream leaf blight (Limonomyces roseipellis)	0	0	1	0

	Confirmed	Not Detected	Suspected	Undetermined
Zoysia Grass (Zoysia sp./spp.) *(Host,Diagnosis/ID) (5,7)*				
Anthracnose (Colletotrichum sp./spp.)	1	0	0	0
Cultural/environmental problem (Abiotic disorder)	0	0	2	0
Curvularia blight; Leaf spot (Curvularia sp./spp.)	1	0	0	0
ETRI ectotrophic root infecting fungi (Complex of Fungi)	1	0	0	0
Leaf rust; Rust (Puccinia sp./spp.)	1	0	0	0

Nematode Diagnoses by Turf Type

Bentgrass (Agrostis sp./spp.) *(Host,Diagnosis/ID) (16,29)*	**Confirmed**	**Not Detected**	**Suspected**	**Undetermined**
Lance nematodes (Hoplolaimus sp./spp.)	0	0	1	0
Ring nematode (Mesocriconema sp./spp.)	1	0	0	0
Root-knot nematodes (Meloidogyne sp./spp.)	2	0	0	0
Stubby-root nematodes (Family Trichodoridae)	1	0	0	0
Stunt nematodes (Tylenchorhynchus sp./spp.)	1	0	0	0

Bermudagrass (Cynodon sp./spp.) *(Host,Diagnosis/ID) (48,97)*	**Confirmed**	**Not Detected**	**Suspected**	**Undetermined**
Lance nematodes (Hoplolaimus sp./spp.)	10	0	0	0
Nematode damage (Unidentified Nematode)	0	0	2	0
Plant parasitic nematodes (Family Tylenchidae)	1	0	0	0
Ring nematode (Mesocriconema sp./spp.)	1	0	0	0
Root-knot nematodes (Meloidogyne sp./spp.)	18	0	0	0
Sting nematodes (Belonolaimus sp./spp.)	3	0	0	0
Stubby-root nematodes (Family Trichodoridae)	1	0	0	0