Clemson University Commercial Turfgrass Clinic

2014 Annual Report

Introduction

America's first golf course was built in Charleston, South Carolina in 1786. According to a 2012 report by Dudley Jackson, Research Director for the SC Department of Parks, Recreation and Tourism, there are approximately 350 golf courses around the state and these generate $756 million in total revenues. These courses are found in settings that vary from ocean views to mountain vistas. Golf Digest Magazine ranks South Carolina among the nation's top golf destinations. Because golf has such a big presence in South Carolina, it follows that plant diseases and other problems will occur, and solving those problems is a high priority.

In August of 2013, the Clemson University Commercial Turfgrass Clinic, run by Dr. Bruce Martin at the Clemson Pee Dee Research and Education Center, was relocated to the Clemson University Plant Problem Clinic in Pendleton. This specialty lab is targeted towards clients at golf courses who are willing to pay a higher fee to obtain an expedited response. We strive to provide a preliminary report, or in some cases, a final diagnosis with management recommendations, within 48 hours.

Although the Turf Lab is no longer managed by Dr. Martin, he is still available to us for consultation, and has provided entire diagnoses when requested. His continued assistance is much appreciated. Dr. Bert McCarty, of the Department of Horticulture, has also provided valuable consultation. One of Dr. Martin's graduate students, Brad Shaver, worked as a part time diagnostician for commercial turf until August, 2014, when his studies demanded more attention. He got the Commercial Turf Clinic off to a good start by providing a quick diagnostic turnaround and valuable consultation for the golf course clients, and we really appreciated his efforts.

The Commercial Turf Clinic processed 81 samples in 2014. These came from South Carolina and a number of other states, mostly in the southeastern U.S.

Meg Williamson, Diagnostician

Diagnostic and Advisory Inputs for 2014

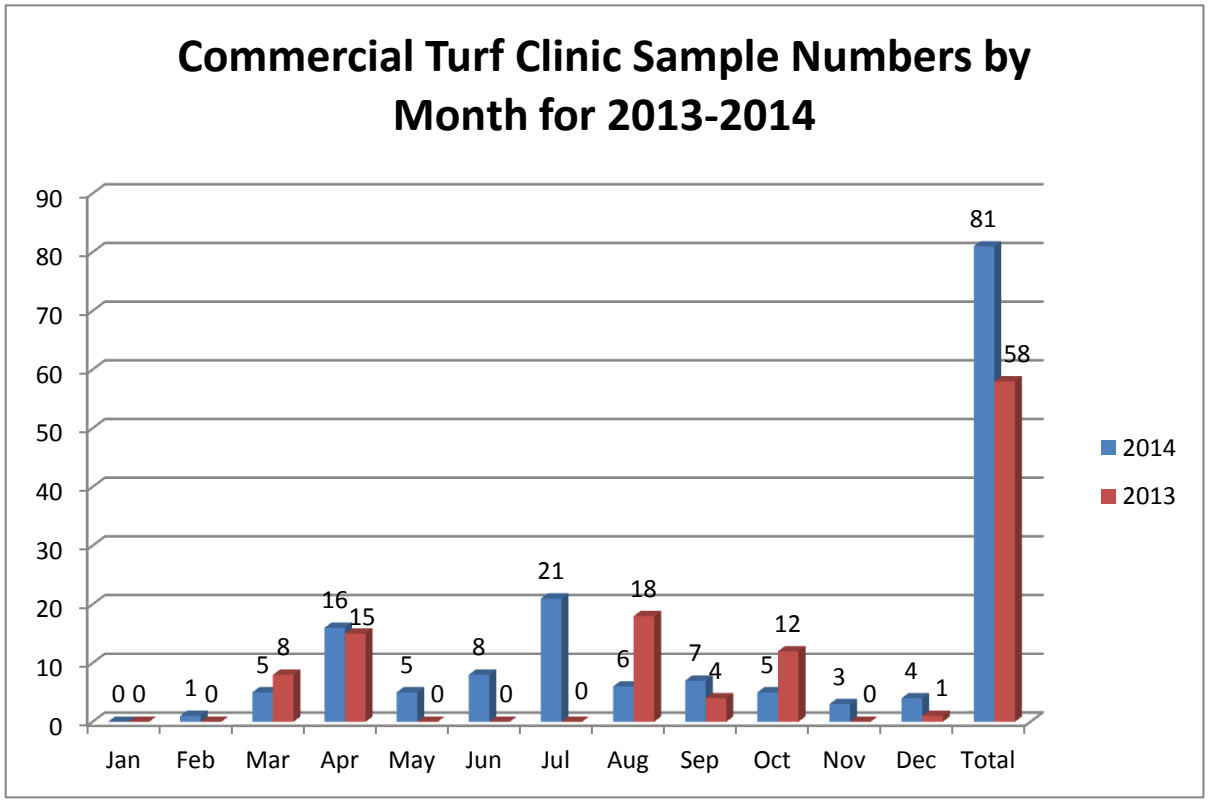
Diagnostician Sample Numbers

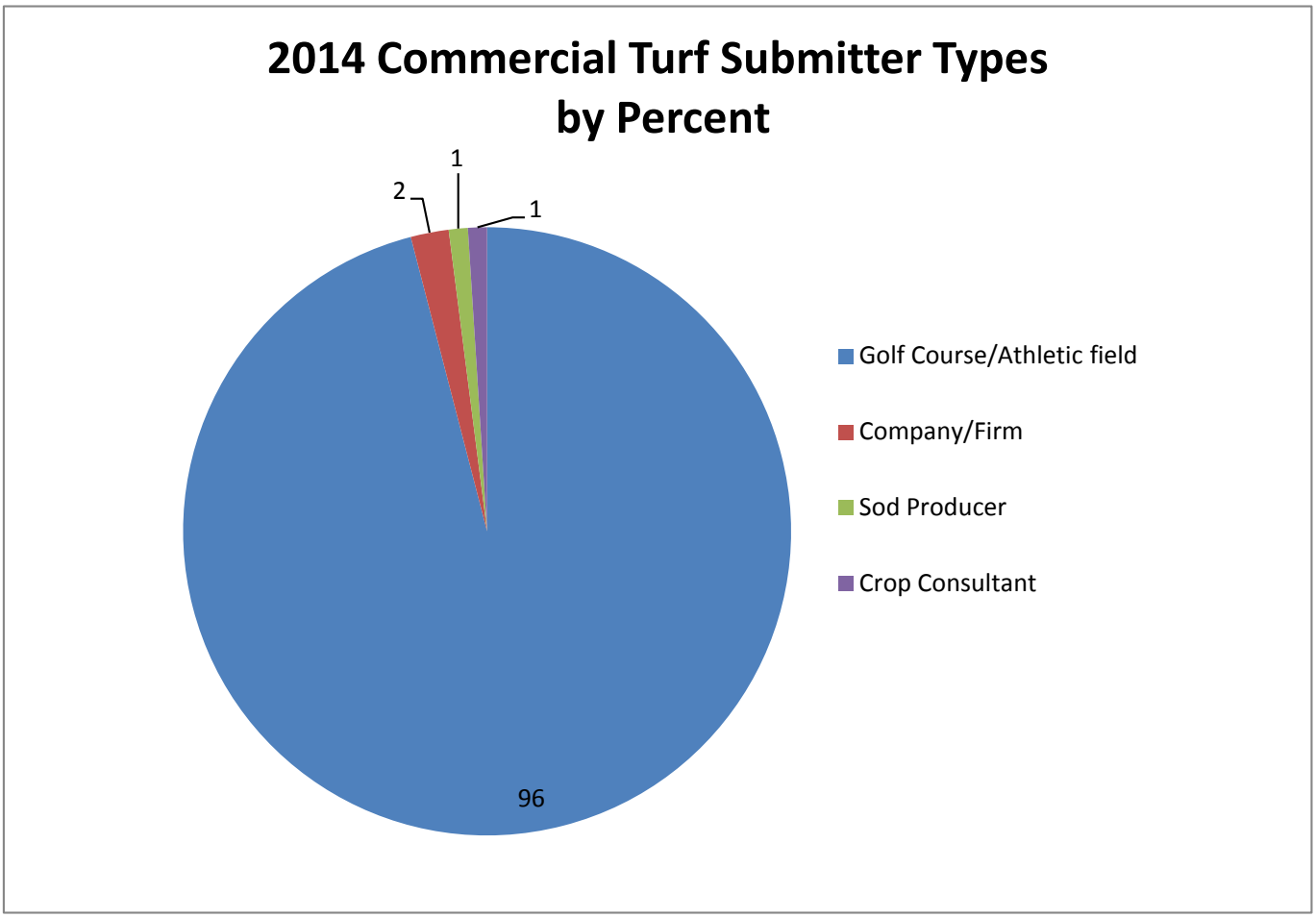
Brad Shaver diagnosed 47 samples and gave advice for 43.
Meg Williamson diagnosed and gave advice for 36 samples.
Bruce Martin diagnosed and gave advice for 3 samples.

Note: Some samples include diagnostic input from more than one diagnostician.

Advisory Consultant Sample Numbers

Alejandro Canegallo gave advice for 2 samples.
Bert McCarty gave advice for 1 sample.


Commercial Turf Clinic Sample Numbers by Month for 2013-2014
90
80
70
60
50
40
30
20
10
0
0 0
1 0
5 8
16 15
5 0
8 0
21 0
6 18
7 4
5 12
3 0
4 1
81 58
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Total
2014
2013


2014 Commercial Turf Submitter Types
by Percent
1
2
1
96
Golf Course/Athletic field
Company/Firm
Sod Producer
Crop Consultant

Out of State Sample Numbers

State	Number of Samples
Alabama	3
Arkansas	5
Florida	28
Georgia	2
North Carolina	3
Nevada	1
Tennessee	1
Texas	1
OUT OF STATE TOTAL	44

South Carolina Sample Numbers by County

County	Number of Samples
Anderson	1
Beaufort	5
Berkeley	2
Dorchester	1
Georgetown	2
Greenville	6
Horry	2
Oconee	7
Orangeburg	2
Pickens	5
Richland	1
Spartanburg	3
STATE TOTAL	37

Grand Total for all is 81

Lab Methods Used in the Commercial Turf Clinic

Lab Method	Count
Biochemical	4
Culture	30
Image	5
Incubation	35
Molecular Analysis	2
Microscopic	74
Nematode Extraction	16
PCR	2
Soil Analysis	1
Visual Observation	35

Notes:

Biolog is the Biochemical method used to identify bacteria.

Incubation refers to moist tissue incubation to promote sporulation.

Microscopic methods are used, but not recorded for cultural diagnoses.

Visual methods include analysis of sample information in addition to sample examination.

Confidence Designations

The charts in the following sections show confidence designations headings above the number of samples found for that crop at each confidence level. The following descriptions are provided to describe what these mean.

Confirmed - The diagnosis was derived using techniques which allowed for the confirmation of the organism to Genus, species and/or race or pathovar level.

Not Detected -The sample was submitted as a suspect sample or as part of survey project. The suspected or survey pathogen was not detected on the submitted sample.

Suspected - Diagnostic symptoms of the pathogen or pest were present but evidence to allow for a certain determination could not be confirmed. This term is often used with abiotic entries because it is difficult to make conclusive diagnoses with these types of problems based solely on a diagnostic sample.

Inconclusive - Although the sample was examined and/or tested to the best of our ability, a reliable result could not be achieved so the only conclusion is to label the sample inconclusive. This term may also be used for insects which can only be identified to the family level. In those cases, the type of insect was identified, but the genus and species could not be determined.

Diagnoses and Identifications on Submitted Turfgrasses

	Confirmed	Not Detected	Suspected	Inconclusive
Bentgrass (Agrostis sp./spp.) *7*				
Bacterial Identification (Acidovorax (Pseudomonas) avenae)	1	0	0	0
Bacterial Leaf Spot (Acidovorax avenae avenae)	1	0	0	0
Bacterial Mosaic (Clavibacter michiganensis)	1	0	0	0
Cultural/Environmental Problem (Abiotic disorder)	0	0	3	0
Pythium Root Rot and/or Crown Rot (Pythium ultimum)	1	0	0	0
Bentgrass, Creeping (Agrostis stolonifera) *2*				
Bacterial Identification (Acidovorax (Pseudomonas) avenae)	1	0	0	0
Pythium Root and/or Crown Rot (Pythium sp./spp.)	1	0	0	0
Bermudagrass (Cynodon sp./spp.) *76*				
Algae (General)	1	0	0	0
Black Layer of Turfgrass (Abiotic disorder)	1	0	0	0
Brown Patch (Rhizoctonia sp./spp.)	1	0	0	0
Cultural/Environmental Problem (Abiotic disorder)	1	0	3	1
Curvularia Blight; Leaf Spot (Curvularia sp./spp.)	3	0	0	0
Dollar Spot (Sclerotinia homeocarpa)	0	0	1	0
Environmental Stress; Problem (Abiotic disorder)	0	0	1	0
Fairy Ring (Various Fungi)	2	0	0	0
Herbicide Injury; Exposure (Abiotic disorder)	0	0	1	0
Lance Nematodes (Hoplolaimus sp./spp.)	3	0	0	0
Leaf Rust; rust (Puccinia sp./spp.)	1	0	0	0
Leaf Spot (Bipolaris sp./spp.)	2	0	0	0

	Confirmed	Not Detected	Suspected	Inconclusive
Pink Patch (Limonomyces roseipellis)	0	0	1	0
Pink Snow Mold; Fusarium Patch [Microdochium nivale (Monographella nivalis)]	5	0	0	0
Potassium Deficiency (Abiotic disorder)	1	0	0	0
Pythium Blight; Cottony Blight (Pythium sp./spp.)	5	0	0	0
Pythium Root Rot (Pythium graminicola)	1	0	0	0
Pythium Root and/or Crown Rot (Pythium sp./spp.)	1	0	0	0
Ring Nematode (Mesocriconema sp./spp.)	2	0	0	0
Root Problems (Abiotic disorder)	4	0	5	1
Root-knot Nematodes (Meloidogyne sp./spp.)	9	0	0	0
Sheathoid Nematode (Hemicriconemoides sp./spp.)	1	0	0	0
Sting Nematode (Belonolaimus longicaudatus)	0	0	1	0
Sting Nematodes (Belonolaimus sp./spp.)	9	0	0	0
Mix Ann. bluegrass; bentgrass (Poa ; agrostis annua and a. spp.) *1*				
Brown Ring Patch, Waitea Patch; (Waitea (syn. Rhizoctonia) circinata var. circinata)	1	0	0	0
Zoysia Grass (Zoysia sp./spp.) *6*				
Anthracnose (Colletotrichum graminicola)	1	0	0	0
Pink Snow Mold; Fusarium Patch [Microdochium nivale (Monographella nivalis)]	2	0	0	0
Spring Dead Spot (Ophiosphaerella sp./spp.)	2	0	1	0
Zoysia Grass; Manilagrass (Zoysia matrella) *8*				
Cultural/Environmental Problem (Abiotic disorder)	0	0	1	0
Dense Thatch Layer (Abiotic disorder)	2	0	0	0
Freeze; Frost; Cold Damage (Abiotic disorder)	1	0	0	0

	Confirmed	Not Detected	Suspected	Inconclusive
Pink Snow Mold; Fusarium Patch [Microdochium nivale (Monographella nivalis)]	0	0	1	0
Take-all (Gaeumannomyces sp./spp.)	0	0	1	0
Winter Injury (Abiotic disorder)	2	0	0	0