TEE TO GREEN

A Quarterly Publication of the Louisiana-Mississippi Chapter GCSAA

GOLF COURSE SUPERINTENDENTS ASSOCIATION OF AMERICA

SPRING 2010

From the President

As I am writing this letter I am constantly reminded that spring is no longer rapidly approaching, it is here! The Bradford pears are blooming and their leaves are growing. Narcissus flowers are beginning to show their bright colors and the grass is greening up. My boss is calling with numerous requests and my employees are unwillingly readjusting to a hurried pace. There are also soccer practices, baseball practices, camping trips, honey do's, and if I'm able I'll make a turkey hunt or two. We can all relate to the demands on our time and the related stresses that spring brings with it. We can also recognize the fact that this is our time to shine. We can take the areas that have been beaten with rain, snow, and ice over the winter and give them a new appearance. We can finally take advantage of some sunny days to spray out weeds, get that first cut on the fairways, and complete some overdue projects.

We have received more than our fair share of rain over the last six months and if your luck has been anything like mine, then you have seen any chance of your course drying out crushed by weekly rain events and cool, overcast conditions. How long can a slope with good surface drainage stay wet? If one weather extreme follows another we might get to try the irrigation out this summer. I for one am definitely hoping for the opportunity to perform some glaring drainage issues just in case we have a winter like this again.

There are many great things in the works for the LMGCSA this year. We are going to try and hold numerous zonal gatherings so that everyone has the chance to get together and enjoy some fellowshipping along with educational opportunities and golf. We are also looking to hold a Member Championship this year as well as a Research Event. You should know that you have a Board of Directors that really cares about the organization and the benefits that it holds for all of its members. Please take the opportunity to voice any ideas, issues, or comments that you may have to us by phone or email. We want to make this organization a tool that you can utilize to make your job easier and more efficient. You can definitely see this if you get a chance to check out our new website (Thanks, Stephen and Linda). Here's to the spring.

Brent McBrayer, CGCS
Dancing Rabbit Golf Club
Choctaw, MS ■

2010 BOARD OF DIRECTORS

(L to R) Robb Arnold, Pat Sneed, Brent McBrayer, Jason McDonald, Stephen Miles, Neil Mayberry, Brent LeBlanc, Alan Sullivan, Linda Wells. Not pictured are Matt Hughes, Shawn Emmack, and Landon Braud.

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Cooperative Weed Management Area (CWMA)

A **Cooperative Weed Management Area** (CWMA) was recently formed in Mississippi. The **Mississippi CWMA** will be a 501(c)3 organization and was organized exclusively for the charitable, agricultural, scientific, literary and educational purposes:

- To **encourage** the proper use of integrated weed management methods within the state of Mississippi and surrounding states;
- **establish** weed management priorities needing attention in the state;
- **promote** education that encourages public awareness of exotic invasive and noxious vegetations (weeds) that leads to sound and sustainable land stewardship;
- **promote** and support university programs in applied research and extension that will address exotic invasive and noxious weed problems in Mississippi and surrounding states (including Louisiana);
- **support** and foster cooperation with commercial, private, non-profit and public organizations/interests within Mississippi and surrounding states for the resolution of exotic invasive and noxious vegetation (weed) problems;
- **update** and maintain state legislation and regulations pertaining to exotic, invasive noxious vegetation and their management.

There are currently five standing committees: Finance, Research, Education, Monitoring/Survey, and Evaluation. As of December 2009, 41 governmental and private organizations signed a memorandum of agreement to participate in the MS CWMA with each having an opportunity to have a representation on the CWMA Board of Directors.

If you are interested in invasive species training workshops, have a group interested in signing the MOU, or interested in other information about the Mississippi CWMA, please contact Victor Maddox, CWMA Coordinator at:

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CWMA Coordinator
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Geosystems Research Institute
Box 9555
Mississippi State, MS 39762
(662) 325-2313, (662) 325-2311
vmaddox@gri.msstate.edu

Mark Your Calendars!

What: **Zurich Classic of New Orleans**
When: **April 19-25, 2010**
Where: **TPC-LA**
Host: **Robb Arnold**

What: **Mississippi Gulf Resort Classic**
When: **April 28-May 2, 2010**
Where: **Fallen Oak Golf Club**
Host: **Matt Hughes**

What: **Zone 5 Seminar/Golf Outing**
When: **TBA**
Where: **The Cottonwoods Golf Club, Tunica, MS**
Host: **Jim Harris, CGCS**

What: **2010 Golf For The Gulf**
When: **May 11, 2010**
Where: **The Bridges Golf Club, Bay St. Louis, MS**
Time: **10:00 a.m. Shotgun Start**
Information and entry form can be found on LMGCSA website's Events Calendar (www.lmgcsa.com)

What: **Golf Course Management Workshop**
When: **TBA**
Where: **Dancing Rabbit Golf Club, Choctaw, MS**
Time: **Registration begins at 8:00 a.m.**

What: **LMGCSA Providing Meal for Muscular Dystrophy Association Camp Sunshine**
When: **June 3, 2010**
Where: **Camp Sunshine is a MDA Camp near Bunkie, Louisiana**
Time: **TBA**
Coordinator: Tex Reed, Superintendent at Tamahka Trails GC in Marksville, LA. Tex is our Zone 2 Coordinator. Plan is to serve fried fish with all the trimming and hot dogs. We will need volunteers to provide the food, cook and serve it. Fixing and serving the meal to happy campers is a wonderful service opportunity for our association. Please contact Tex Reed at ??????

What: **MTA Yard Dawg Classic**
When: **August 23, 2010**
Where: **Old Waverly Golf Club, West Point, MS**
Time: **9:00 a.m.**

What: **MSU 4th Annual Bulldog Turf Field Day and Turf Equipment Expo**
When: **August 24, 2010**
Where: **MSU North Farm**
Time: **Registration begins at 8:00 a.m.**

Stop Guessing and Start Soil Testing

Keith Crouse • MSU-ES Soil Testing Laboratory Director

As we turn the calendar to the spring time of the year, we are hoping for warmer and dryer weather. We have people who are eager beavers when it comes to taking soil samples. At the Mississippi State Soil Testing Laboratory, we are receiving samples in plastic cups, coffee cans, five gallon buckets, gallon bags, etc. that are so wet you can squeeze the sample and water will puddle on the floor. Taking samples under these conditions causes turnaround time problems by creating more handling in a soil testing laboratory. Soils have to be spread out and air dried before being placed in line for analysis. Even though laboratories have a dryer, it doesn't handle extremely wet samples. Under wet conditions it is easy to take the subsamples deeper than the recommended depth which can cause erroneous fertility recommendations. We also receive samples that barely cover the bottoms of our soil sample boxes, which is not enough soil. This also slows down turnaround time because the laboratory will have to wait for additional soil or a new sample. This often occurs with golf courses. I don't understand the reasoning behind shipping an inadequate amount of soil, since it creates more work and consumes more time for the individual taking the sample and the soil lab technicians.

The amount of nitrogen required during a growing season for tees and greens that are highly sand based texture can cause the soil pH to change and could lead to the need for more frequent lime applications. Also, they have a lower cation exchange capacity which means higher nutrients leaching potential. Therefore split applications of fertilizers or more frequent sampling may be applicable. Organic matter is important to improve water infiltration and it gives soils a higher cation exchange capacity which enables more nutrient holding potential.

Climate can affect soil pH and nutrients in the soil. As the temperature gets hot and soils become drier the organic acids accumulate at the surface. Therefore, a sample taken during these conditions will have a lower soil pH and higher nutrient levels. Usually these conditions occur in the late summer and fall. If the climate conditions are cool and there is adequate moisture, the soil pH will be higher and nutrients are lower. This will occur during the winter and spring months. When soil sampling annually, make sure samples are taken the same time of the year so that soil conditions are similar and you avoid seeing changes in the soil analysis due to the climatic changes.

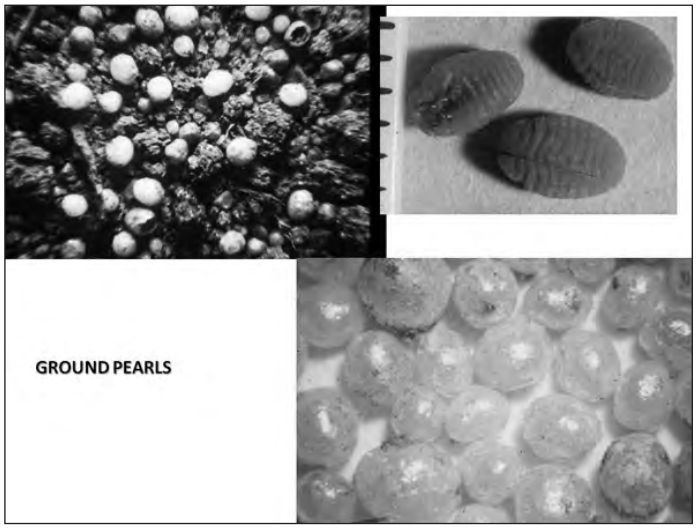
When taking a sample remember to take the soil at field capacity moisture, not saturated; take cores at four to six inch depths; take numerous cores at a random zigzag pattern; mix the cores and fill the container (most laboratories require approximately a pint of soil). Label the containers and fill out any submission forms that are required by the laboratory that you use. Be sure when taking a soil sample that you submit at least a pint of soil for testing. Make sure that the correct payment is sent to the laboratory. Most recommendations are in pounds of lime or nutrients per one thousand square feet and are good for one year. If it has been more than two years since the last soil sampling, it is recommended that a new soil sample be taken.

Nutrient fluctuations in sand based tees and greens may require a tissue sampling program to help monitor fertility throughout the growing season. If a tissue sample is required make sure that an adequate amount of sample is taken and the grass is actively growing with an ideal growth environment. Clean debris from the tissue sample and place in a paper bag with paper towels to help keep moisture from collecting on the sample and to help prevent the sample from molding during shipment. MSU-ES Soil Testing Laboratory can mail forms and boxes for samples coming to our laboratory. For more information call 662-325-3313. For information about the LSU Bengals Soil Testing Laboratory contact Rodney Henderson at 225-578-1219. Fertility recommendations are only as good as the soil samples taken. Once the samples are mailed to the laboratory and analyzed it is too late to change the soil report. ■

Scales on Turf

When scale insects are brought into a conversation, most people think of ornamentals, shade trees and fruit and nut trees. There is a group, however, that attacks and infests turf grass and weeds. All are of economic importance.

One of the scales that infest grasses (Bermuda, Zoysia, St. Augustine and centipede) and lives and develops underground is a mealy bug commonly called ground pearls.



These scales infest turf grasses from California to North Carolina and are potentially serious pests in both the Southeast and Southwest. Damage is caused when the scale inserts its piercing, sucking mouthpart into the roots of the grass, sucks the plant juices and injects toxic fluids. These toxic fluids keep the sap flowing through the damaged grass tissue, causing the blades of the grass to turn yellow. The damage becomes most apparent during dry spells when irregular patches turn yellow and then brown and die by fall.

Overwintering takes place in the ground pearl stage, which attaches to the grass roots. Females reach maturity in mid- to late spring and emerge from their cysts. They burrow into the soil surface and mate with rarely seen gnat-like winged males. The females then burrow into the soil, attach themselves to roots and develop a hard, waxy coat over themselves in which they lay approximately 100 eggs through early summer. These eggs hatch in midsummer, and the slender crawlers disperse through the soil and attach to grass roots with their piercing, sucking mouthparts. Once feeding begins, they secrete a hard yellow-to-purple wax coating, which is the cyst or ground-pearl stage. The nymphs continue to grow inside the cyst and overwinter attached to the roots. During times of stress, the females will not emerge and remain in the ground-pearl stage in the soil for several years.

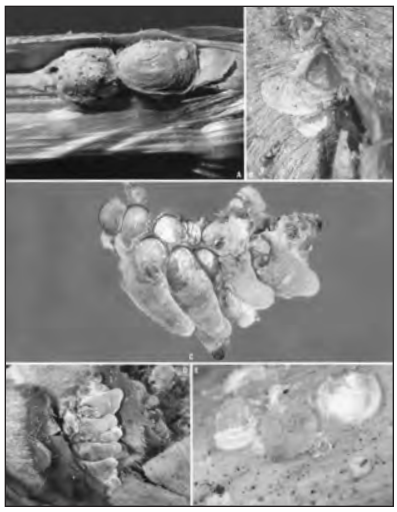
There is no effective control registered for ground pearls. Dursban has some management activity. The best management tool is reduced stress on the turf through watering and fertilization.

Rhodes grass scales, another mealy bug, were brought here and raised by our forefathers for economic reasons – they and several other scales are dye formers. The scales were raised on grasses and then harvested and dried, and when crushed, they would be used to dye fabric. These dyes were sold from the colonies to the European monarchs to dye their clothing in the royal colors. This scale can be found from California to South Carolina and is a problem where it's found. The host range covers some 70 species of grasses (Rhodes grass, Johnson grass, Bermuda grass and St. Augustine grasses are preferred hosts of economic importance) and weeds.

Heavy infestations can kill infested grasses. The grass gradually turns brown and dies. St. Augustine grass can become discolored and spotty with heavy infestations. Heavy infestations appear as if it were an overdose of fertilizer caked around the grass nodes.

The adults are parthenogenetic – no males – and bear live young (150) over a period of 50 days. The crawlers move about, actively settling around the nodes or crown of the plants. Once a suitable site is found, they wedge themselves between the leaf sheath and the node, insert their mouthparts in the plant and become sessile. Shortly after feeding begins, they excrete the felted, waxy, white sac that covers the scale. Only the mouthparts and an excretory filament emerge from the body. The life cycle requires 60–70 days, and four to five generations appear annually. These scales are easily moved on grass clippings, sod, or pet or animal fur. They are limited in distribution northward by temperature – 28 degrees for 24 hours is usually fatal.

There are no biological or cultural controls known, but a systemic – either soil drenched or broadcast – is effective. But be ready to have the infested turf become stained red or purple as the scales are killed.



An armored scale, the sugarcane scale, infests many genera of grasses. Sugarcane is one of the primary hosts, but the scale has occurred on more than 20 recorded grass hosts. It is found in Florida, Texas, Hawaii and Louisiana. Not a lot is known about the biology because this scale infests the host both above and below ground. Although found in only

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SCALES IN TURF *continued from page 5*

four states in the United States, it has been found at the ports of entry from 32 countries. It is considered a serious pest of sugarcane in the Virgin Islands, but in the United States and most other countries it is a minor to an occasional pest. Found in southwest Louisiana, it is a very minor pest, and there is seldom a need for treatment.

Bermuda grass scale is found from California to North Carolina and Kansas. Although seldom collected at ports of entry, this scale pest is known from 18 other countries. Development from egg to adult requires 60 to 70 days with two to three generations a year in February, June and August. Biological studies indicate both parthenogenetic and sexual populations. This scale can cause stunting of Bermuda grass turf and even wilting and browning. Where infestations are severe, large patches of turf turn brown and become very thin. Large populations have been documented, and 100 million per acre can be considered a low population. Populations can be so dense they give the grass a white, moldy appearance; the scales can be so dense that the covers appear like overlapping shingles. Like the Rhodes grass scale, systemics can be an effective management tool.

There are many other species of grass-infesting scales, many of which are not economically important. But when they are found, they need to be identified so that where controls are needed the scale can be managed without economic injury or loss of turf. ■

Protecting Your Tree Investment through Quality Planting

David Fulgham

Trees are a long term investment that provides value to communities. Many times there are costs associated with planting trees. I personally feel that the difference in a tree having a short or long life span can be made during the planting process. The golf or sports turf manager can often lose value when he has to replace poorly planted trees. Problems associated with poor planting practices can show up immediately after planting or be seen 15 to 30 years later. Poorly planted trees will often have root problems that lead to disease problems and a stunted, weak structured tree. The manager is left with higher maintenance cost. The best way to keep maintenance cost down and maintain a high tree value is through properly planting the tree. I would like to suggest several planting tips based on issues that I have observed that adversely affect transplanted trees.

1. Dig your hole properly: The hole should be no deeper than the root ball. If the sub-strata is soft, you may consider putting several bricks underneath the root ball to prevent it from sinking. This will also help you ensure that the root flare is at the correct elevation. The hole should also be three times wider than the width of the root ball. The tree needs extra rooting space to begin spreading into. The hole width is also important in relation to drainage. The wider the hole the more the drainage. In a narrow hole the roots will be impacted quicker by poor drainage and reduced levels of oxygen.
2. Prepare your root ball for planting: I strongly recommend removing the burlap and wire baskets. Simply cut the very bottom off the basket. Carefully lower the tree in the hole. Then finish removing the basket and burlap. Within the last year, I have encountered two separate situations concerning wire baskets and burlap. I was asked to diagnosis a problem with a 15 year old tree at a botanical garden. After digging around the base of the sick tree, I found a solid wire basket choking the root flares. This basket had not broken down and was severely disrupting the trees ability to function. In another situation while treating a group of trees I observed burlap and white strapping, which was embedded in a tree. While taking a closer look, I found girdling lines all the way around the tree and found places where I could see parts of the wire basket. The tree managed to grow over the basket and lap over the sides. Long term this will lead to a weaker structure and an increased possibility of having a hazard tree that should be removed. I inquired about when the trees were planted and found out they were planted in 1982 as 2-inch caliper ball and burlapped plants. After 28 years the burlap and strapping was still present and the basket had adversely affected the tree.
3. Bait the roots out of the planting hole: Many trees will fail after planting because of poor drainage within the hole. It is very easy for tree roots to become root bound in the planting hole and begin to grow in circles, much like what occurs in pots. This occurs from the presence of an impenetrable interface between the backfill and native soil. This interface is caused when the soil on the sides of the hole is glazed during the digging process. This interface should be broken down to allow root movement into the native soil. This can easily be accomplished by subterraneously fracturing the soil interface using compressed air. This is very beneficial as it allows a pathway for roots to follow into the native soil, and allows any water in the planting hole to drain out. Subterraneous fracturing allows you accomplish this without destroying your turf of flower bed as is seen in radial trenching. ■

ON THE MOVE

WILL GRIFFIN, Regional Proprietary Specialist for ProSource/Agriliance, has accepted a position in Savannah, Georgia. He will now be in the production division of the company and closer to the grandparents in Charleston, South Carolina.

MITCH O'BANION, formerly assistant at Annandale Golf Club in Madison, Mississippi, is now Superintendent at Copper Mill Golf Club in Zachary, Louisiana.

RAYMOND SMITH is now Superintendent at Beau Chene Golf and Country Club in Mandeville, Louisiana (formerly Franklinton Country Club in Franklinton, Louisiana).

Seasonal Variation in Frequency of Isolation of *Ophiosphaerekka korrae* from Bermudagrass Roots in Mississippi and Pathogenicity and Optimal Growth of Selected Isolates

D. H. Perry, Auburn University and M. Tomaso-Peterson, R. E. Baird, Mississippi State University

Abstract

Isolation frequency of *Ophiosphaerella korrae* (spring dead spot pathogen) from *Cynodon dactylon* (bermudagrass) roots at a golf course near West Point, Mississippi was monitored over a three-year investigation. Isolation frequencies of the pathogen from naturally infested root samples were significantly greater in the winter and spring and lowest in the fall regardless of cultural, nutrient, and chemical treatments. Annual soil temperatures ranged between 8 to 29°C and no correlation was observed between temperature and percent isolation of *O. korrae*. Optimal *in vitro* growth of selected *O. korrae* isolates ranged from 21 to 25°C. Root discoloration was significantly greater in the presence of *O. korrae* compared to non-inoculated roots in greenhouse studies. Results of this study confirm and are the first to document that *O. korrae* naturally infests roots throughout the bermudagrass growth cycle, but factors other than temperature and management practices may influence *O. korrae in situ*.

MATERIALS AND METHODS

Management practices

Plots 17 m^2 (3.7 m wide, 4.6 m long) were arranged in a bermudagrass fairway in a randomized complete block design with four replications. Fairways were mown twice weekly at 1.25 cm with clippings returned. Nitrogen was applied annually at the rate of 719 kg N ha^{-1}. Treatments included core aerification of sod with and without topdressing, vertical mowing, applications of manganese (Mn), elemental sulfur (S) and myclobutanil fungicide, and a control. All treatments were applied in the same plots throughout the three-year study.

O. korrae isolation and determination

Three randomly selected bermudagrass cores (10 cm long, 3.8 cm diam.), consisting of leaves, stems, stolons, roots, rhizomes and soil, were taken monthly from plots on a bermudagrass fairway with a prior history of spring dead spot (SDS) from 2005 through 2007. Roots were washed with water to remove soil and plant debris. The top 1 cm of roots were removed from the bermudagrass nodes and surface disinfested. Five roots with lesions symptomatic of SDS from each plot were plated onto ¼-strength potato dextrose agar (PDA) amended with 100 mg/L each of streptomycin sulfate and chloramphenicol. Roots were incubated at 25°C for 5 to 7 days, and hyphae characteristic of *O. korrae* was transferred to full strength PDA. All colonies that resembled morphological characteristics of *O. korrae* were confirmed using amplified rDNA and species-specific primers. The number of *O. korrae* isolates was recorded for each monthly collection date, treatment, and replication. The frequency of *O. korrae* isolation from bermudagrass roots were divided into four seasons based on the growth cycle of bermudagrass in Mississippi: bermudagrass dormancy – winter (December of previous year, January, February); transition out of dormancy – spring (March, April); active growth – summer (May, June, July, August, September); transition into dormancy – fall (October, November).

Spring dead spot ratings and soil temperature

In the spring of each year, replicated treatments were visually rated for SDS severity on a scale of 1 to 9 where 1 is no disease and 9 is dead grass. SDS ratings were recorded on 3 April 2006, 26 March 2007, and 28 April 2008. One Watchdog data logger was installed in each of the four control plots to record soil temperatures every two hours at depths of 5 cm to 7.5 cm. The average soil temperatures were determined for each month from 2005 through 2007.

RESULTS AND DISCUSSION

This study was conducted in a bermudagrass fairway naturally infested with *O. korrae*. The uniform distribution of SDS patches observed at the onset of the study indicated uniform distribution of the pathogen in the edaphic environment. Overall, 268 individual isolates of *O. korrae* were recovered from bermudagrass roots. Neither cultural, nutrient, nor chemical practices affected the frequency of *O. korrae* in bermudagrass roots. However, when isolation frequency was based on a seasonal calendar according to the growth cycle of bermudagrass in Mississippi, *O. korrae* was isolated at a significantly higher frequency from roots during the spring (8.0%) as compared to the summer (4.7%) or fall (3.1%). The frequency of isolating *O. korrae* from bermudagrass roots in the winter (6.2%) was similar to the spring and summer but significantly greater than the fall.

Soil temperature was not directly related to the frequency of *O. korrae* isolation in this study; however, the presence of *O. korrae* in bermudagrass roots indicates the fungus may be actively colonizing or surviving in a dormant state in the roots throughout the year. The average monthly soil tem-

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ISOLATION FREQUENCY *continued from page 8*

peratures in the root zone of the bermudagrass fairway were consistent across years, with the lowest soil temperature at 8°C in February and the highest at 29°C in August. The winter soil temperature averaged 8°C while the spring, summer, and fall temperatures averaged 16, 27, and 17°C, respectively, for all three years. Isolation frequencies of *O. korrae* from bermudagrass roots in Mississippi were greatest in the winter and spring. This may be due to increased availability of nonstructural carbohydrates in the form of starch and sucrose in the roots of dormant bermudagrass which are primary energy sources of plant parasitic fungi. A previous study demonstrated that starch content in bermudagrass roots was greatest at soil temperatures of 7 to 18°C. These temperatures mirror those of the bermudagrass fairway in this study during the winter and spring making optimal energy sources available for parasitic fungi, including *O. korrae*, during these periods. Another report suggests SDS severity was greater in bermudagrass cultivars that experienced delayed spring transition out of dormancy which was associated with higher nonstructural carbohydrate content in the roots for a longer period of time. In Oklahoma it was reported the optimal temperature for SDS disease caused by all *Ophio-sphaerella* spp. is near 20°C. In previous studies, bermudagrass inoculated with *O. korrae* developed the most severe SDS symptoms when soil temperatures were 13 or 15°C.

In the spring of 2007, SDS severity was significantly greater in plots that received S in 2006. The lowest SDS severity was the control with a rating of 3.0. Acidic soils have been associated with reduced SDS severity; however, in this study, SDS severity was greatest in the S treatment with a soil pH of 5.3. Similarly, in North Carolina, Lane Tredway, Extension Specialist in Turfgrass Pathology, North Carolina State University, observed suppression of SDS development in *O. korrae*-inoculated plots that were fertilized with calcium nitrate as compared to acidifying fertilizers. It is unknown whether soil pH or an increase in calcium induced this response. Spring dead spot severity was similar for all management practices in the 2006 and 2008.

In summary, this study demonstrated *O. korrae* is present in bermudagrass roots throughout the annual growth cycle of bermudagrass in Mississippi, but at greater frequencies during the winter when the plant is dormant and in the spring when plants are transitioning from dormancy and soil temperatures are ≤ 16°C. At these temperatures, abundant starch and sucrose are available in host roots for fungal nutrition. Stand-alone management practices did not influence isolation frequency of *O. korrae* in bermudagrass roots. Other factors may influence *O. korrae in situ*, such as microbial interactions, soil moisture, gas exchange, and the physiological state of the host plant. An integrated approach of cultural, nutrient and chemical management of SDS may need to be implemented in the spring and continued throughout the growing season to reduce SDS severity. Future SDS research efforts should focus on epidemiological studies including soil moisture and microbial effects on *O. korrae* colonization and infection of bermudagrass roots. ■

Prioritizing Invasive Weeds on Mississippi and Louisiana Golf Courses

Victor Maddox, Ph.D. • MS CWMA Coordinator

Invasive plant species are invasive weeds that are an ongoing issue affecting the economy and natural heritage of this country. Direct and indirect economic costs run into the billions each year, with an estimated 1 billion dollars just on golf courses. The impact of invasive weeds goes beyond local management efforts on the golf course by increasing the cost of purchased goods such as seed and other items.

Avoid planting known invasive weeds which can unnecessarily increase the cost of management. Be informed about which species are invasive. This may include both existing and potentially new invasive weeds on the golf course. There are some priority species and issues golf course superintendents and other management personnel need to be familiar with.

Prioritizing invasive weed species.

Turf is a unique environment, which is often thought of as being heavily managed. However, there are often low or even unmanaged areas on golf courses. These may include wetlands, natural areas, native grass areas, and/or low managed turf areas. Although there may be some overlap in how we define these areas, all are subject to invasion by invasive weeds. Even managed turf or ornamental planting areas are subject to invasion by invasive weeds. For example, torpedograss (*Panicum repens*) and cogongrass (*Imperata cylindrica*) continue to invade managed turf and ornamental plantings.

Because of the wide range of management areas on golf courses, defining priority species can be difficult. However, some genera priorities can be made. First, efforts should be made to control or avoid regulated invasive plants, often referred to as 'Noxious'. There are two lists that apply to MS: The Federal noxious weed list, which can be found at http://www.aphis.usda.gov/plant_health/plant_pest_info/weeds/downloads/weedlist2006.pdf, and the Mississippi noxious weed list, which can be found at http://www.mdac.state.ms.us/n_library/agency_info/reg_laws/pdf/reg_plantpest_rule41.pdf. There are also regulations on noxious weed seed in both Louisiana and Mississippi, which are important if you purchase, sell, or produce seed.

There are many plant species that are invasive, but not regulated. These can be as bad as, or worse than, regulated invasive weeds within a given area. Species like Chinese privet (*Ligustrum sinense*) are not regulated, but very common, serious invaders. Each golf course is unique, and it is up to management which species in this group are a priority.

Some species are potentially invasive, but relatively unknown. Little may be known about these species and there is often a need for more information on new invaders. When working with potentially new invasive species, you are encouraged to contact your local regulatory agency so they will be aware of the occurrence and can respond appropriately. If you do not know the identity of the weed species, take a digital image and submit it to someone that can identify it and recommend an appropriate action or contact.

Where to find information on invasive weeds and report occurrences.

Aside from noxious weed lists online, there are numerous sources of information on invasive weed species. These can be easily accessed using simple searches. However, few offer reporting and mapping tools. The Invasive Plant Atlas of the MidSouth (IPAMS) database was designed to host reporting data on invasive plant species and provide maps of reported data to the public. Access and account setup is relatively simple. The regional IPAMS database can be found at http://www.gri.msstate.edu/ipams and includes MS and LA in the five target MidSouth states. Factsheet information can also found on the site for target invasive weeds. For more information on IPAMS, contact the author.

A Cooperative Weed Management Area was recently formed in Mississippi. One function of this group is to form a network of managers that are concerned about invasive weeds. As the CWMA continues to organize, they should become a leader in invasive weed information. More information on the MS CWMA is available in this publication, or contact the author.

If you need additional plant identification information, feel free to contact the author. Once you know what species you want to managing or control, there is a considerable amount of information on the web. However, if you have questions about invasive weed management options contact your local extension office or other trained professional in your state, such as your extension turf and/or weed specialist. ■

Don't Blame Predators for Poor Turkey Habitat

Adam Butler • Mississippi Turkey Program Biologist

Most turkey hunters would agree that wild turkeys are one of the wariest game species in the woods. It is this cautious tendency that makes them such a challenge to pursue, and is the primary reason that so many hunters leave the turkey woods shaking their heads in defeat and confusion each spring. Why it may sometimes seem as if the birds possess supernatural powers, their suspicious nature can be attributed to the host of threats with which they are surrounded. Even before they hatch, turkeys face a gauntlet of potential predators—nearly everything in the woods likes to eat turkeys or their eggs. This leads many landowners who desire higher turkey populations to conclude that a reduction in predators is all that is needed to turn their property into a slice of turkey heaven, but is this the right approach?

Although popular opinion may suggest otherwise, adult turkey survival is relatively high in most years. Research in Mississippi has suggested that <10% of adult gobblers are lost to "natural" causes outside of the hunting season. Predation rates upon hens are somewhat higher, but most hen mortality occurs during the nesting and brood rearing period; few hens are usually lost from July–March. It is earliest days of a turkey's life that are the one in which they are the most susceptible to predators. In some years, nearly eight out of 10 poults will not live past their second week. After that critical juncture, they gain the ability to fly, and survival begins to steadily increase.

The most significant type of predation affecting turkey populations is depredation of turkey nests. The suite of predators that dine on turkey nests is broad, and is comprised of everything from crows to armadillos. Perhaps the most notable of this group are the raccoon, skunk, and opossum. On average, between 40 and 60% of all turkey nests will be eaten before they are hatched, thus most predator control programs typically attempt to target this group with the goal of increasing nest success within a particular area.

Despite the well-meaning intentions of predator control programs, the effectiveness of this tool is a topic that has been debated in the scientific literature since the infancy of the wildlife management profession. Although some studies have shown that predator control con increase turkey populations, others have suggested that even the most intensive predator control programs may only result in limited, short-lived success. This can largely be attributed to the extremely complex relationship between predators and their prey. In many instances, removal of one predator may invite another, or the few individuals that remain after trapping will have much higher reproductive outputs to compensate for the temporary decline in the population. The bottom-line is that predator control must be intensive, large-scale, and continuous to even show minimal positive results, and this level of input is neither economical nor logistically feasible for most landowners.

So is there nothing that can be done to decrease predation? Not exactly—you just have to be willing to thin outside the "predator problem" box and realize that there are very few feasible options available to deal directly with predators. However, there are many things that can be done to minimize predation.

As already stated, turkeys are one of the wariest creatures in the woods because they face threats at every turn. They have dealt with these dangers for eons and have still managed to survive because they are uniquely adapted to overcome the threat of predation when given the right conditions. Landowners with an interest in turkeys will receive far better results by focusing their efforts on providing the birds with all the elements they need to gain an advantage over predators, rather than attempting to get rid of the predators themselves. This is why habitat management is important! When a property is managed with turkey habitat in mind, birds will have all the means nec-

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Photo courtesy of Steve Gulledge

DON'T BLAME PREDATORS *continued from page 11*

essary to detect, avoid, and evade predators.

So what sort of habitat puts the odds for survival in favor of turkeys? The answer will vary depending on where turkeys are within their annual cycle. Nesting hens need dense vegetation near the ground that will keep them concealed. Likewise, young turkeys need low-growing, lush vegetation that allows them to forage without being exposed. For adults, timber stands should not be so dense that the birds are unable to scan for potential danger. Creative interpersion of these habitat types can minimize the amount of travel required for the birds to meet their needs, which will further reduce exposure to predators. All of these elements are important parts of a turkey habitat management plan, and all of them can be addressed through specific management practices.

Even before they hatch, turkeys face a gauntlet of potential predators—nearly everything in the woods likes to eat turkeys or their eggs.

So keep in mind, the first step toward increasing turkey numbers is recognizing that quality habitat—rather than fewer predators—is most often all that is needed for the birds to thrive. If you are interested in learning more about how your can improve turkey habitat on your property, please contact Adam Butler at 601-695-6795 or butler.mdwfp@gmail.com. ■

Photo courtesy of Adam Butler

Editor's Note: Since wild turkey season is in full swing in Louisiana and Mississippi, thought the following might be of interest. Dave Godwin has served as the Wild Turkey and Small Game Program Coordinator for the Mississippi Department of Wildlife & Fisheries since 1992. He received his B.S. in Wildlife Management from West Virginia University and his M.S. in Wildlife Ecology from Mississippi State University. Dave graciously answered these questions for us.

1. What is the role and responsibility of the Turkey Program Coordinator?

I get to work with all aspects of managing our State's wild turkey resource. Some of my primary duties include monitoring the population regionally and Statewide; providing technical assistance to private and public land managers interested in managing habitat for wild turkeys; educating the public on matters related to the wild turkey; assisting with establishing regulatory measures that impact wild turkeys (seasons, bag limits, etc.); and assisting with ongoing research projects related to wild turkeys.

2. What is the outlook for the 2010 spring hunting season?

Statewide, the 2010 season should be very similar to the 2009 season. In forecasting an upcoming spring season, we look at turkey hatch data from the past several years. We pay close attention to the hatch two years back (2008 in this case). Gobblers hatched in 2008 will be 2-year old birds this spring, and these 2-year old gobblers tend to gobble more and are a bit easier to harvest. Statewide, we see that the 2008 hatch was similar to the 2007 hatch. Some regional hotspots should be East-central Mississippi and Southwest Mississippi.

3. How beneficial are decoys and how far should they be placed from the hunter?

Decoys can be very beneficial at times. They give a gobbler that is coming into calling a visual object to key on away from the concealed hunter. Decoys can also cause problems for the hunter. Over all my years of hunting, I have watched as decoys have spooked several birds, and I have watched them work well many times. They are not fool-proof. I like to move from one set-up to another more than some turkey hunters, and I do not use decoys very often in my hunting. However, they are legal here in Mississippi, and they can—at times—be effective. Most hunters place decoys around 20 yards from their position, that way if a gobbler gets hung up 10 or 15 steps out past the decoy, they are still in effective range for most hunters.

4. How many times do hens copulate each spring?

Hens usually are bred multiple times per spring. Interestingly, a single breeding can fertilize all of the eggs in a clutch, and can also last through a resenting attempt! This is because crypts in the wall of the oviduct serve as "sperm reservoirs" and sperm can remain viable there for up to 56 days.

5. What is the average length of spur and beard growth per year?

Beards continue to grow as long as a gobbler is alive, but they start to wear by brushing the ground as a gobbler leans forward to peck at the ground. In Mississippi, Jakes (hatch-year birds) normally have beards 3–4 inches in length. Two-year old gobblers normally have beards 8–9 1/2 inches long, and older birds tend to have longer beards. Spurs can be a good way to estimate age of a gobbler. Jakes normally have spurs less than 1/2 inches long. Two-year olds have spurs that range from 5/8–7/8 inches long. Three-year old gobblers normally have spurs 1-inch–1 1/8", with older birds having longer spurs.

6. Why don't some gobblers grow spurs and why do some hens grow beards?

These are just genetic conditions. We see some bearded hens in every region of our State. We also see gobblers with no spurs or with a spur on just one leg. These would be considered "abnormalities" but they are not all that rare. ■

Another Successful Hospitality Night!

It was good to see so many friends! Plans are underway for Orlando!

(Left) Linda Wells and Melanie Bonds (Alabama GCSA) register Thomas Eschete and his lovely wife Thisbe at Hospitality Night in San Diego. Dr. Barry Stewart (MSU) waits in line.

(Above, left to right) Glen Junkin (Turtle Yacht G & CC), Stephen Miles (The Preserve GC), Adam Wright (Bayer Environmental Sciences) and Jeremy Sutton (CC of Montgomery)

(Left) MSU Alumni and LMGCSA appreciate these loyal sponsors! Their support enables us to continue to offer this great event. There were 75 in attendance—we were happy to have members from the Gulf States GCSA and Alabama GCSA partying with us. We also had a great representation from our friends in the turf business industry.

Landon Braud, Assistant Superintendent Squire Creek Country Club Choudrant, Louisiana

Landon Braud is LMGCSA's Assistants Board Member. He is a 2009 graduate of Louisiana Tech University's Agriculture Business program with a concentration in Landscape/Turf Management. Landon is single; a native of Luling, Louisiana, and now resides in Ruston.

His first job in golf was working at Squire Creek Country Club, and his favorite golfer is Phil Mickelson. Favorite foursome? Tom Glavine, John Smoltz, Greg Maddox and of course, Landon Braud!

When asked what he ejoys most and least about his job, Landon said, "What I enjoy most about my job is being outside" and "What I didlike most is cold weather."

Three words you could use to describe Landon are: spontaneous, adventurous and optimistic. When not working, Landon enjoys working out, traveling, bike riding, fishing—anything that has to do with being outdoors.

Landon will be coordinating events/outings specifically for Assistants. Please send any suggestions or ideas to him or let him know if you can hold an event at your course. You may call him at (504) 421-0810 or email him at landonbraud@rocketmail.com. ■

Industry News

Beard Equipment Celebrates 40 Years in Business and a John Deere Golf Territory Expansion

Family owned and operated, Beard Equipment Company is CELEBRATING 40 YEARS IN BUSINESS! Since 1970 Beard Equipment Company has grown its business by offering to its customers a dedicated sales and service staff committed to total customer satisfaction. Beard Equipment has held the John Deere Golf Contract since John Deere entered the golf market in 1987. Until February of 2010 Beard Equipment's Area of Responsibility for John Deere Golf Products was all of Louisiana, Central and South Mississippi, Central and South Alabama and the Florida Panhandle. In 2008, at The Golf Industry Show, Beard Equipment was presented The Mark Rostvold Award. This award is given to the Top Golf Distributor for John Deere in North America. The award exemplifies dedication to salesmanship and customer service in the Golf industry. At the presentation, Gregg Breningmeyer, director of sales and marketing for John Deere Golf, said, "The staff at Beard Equipment is setting a great example of support for our customers. Because of their hard work and dedication, John Deere is and will continue to be one of the leaders in the golf industry."

In addition to celebrating 40 years of business, in February of 2010 Beard Equipment expanded their Golf Territory. The expansion gives Beard Equipment the John Deere Golf Contract for North Florida, Central Florida, Orlando and Tampa Bay areas. Beard Equipment looks forward to serving all your Golf Course needs!

■ ■ ■

Berndt Joins Environmental Turf

Environmental Turf, Inc., an environmentally friendly turfgrass company with licensed sod producers world-wide, has announced that Dr. William L. "Lee" Berndt joined the company as Vice President, Research & Development. Dr. Berndt is well known as a turf expert and consultant in the golf and turf industries. He spearheaded the turf management program at Edison College in Fort Myers, Florida, for a dozen years, and his ongoing turf research on SeaDwarf® seashore paspalum grass, and other turf issues, is widely published in booth peer reviewed journals and popular golf and turf industry publications. He has consulted for golf courses from Hawaii to California, and from Florida to Ireland. Dr. Berndt earned his Ph.D. in botany and plant pathology from Michigan State University and began his professional career with one of the biggest names in golf as a consulting agronomist at Jack Nicklaus Golf Services.

"We are very excited to have Dr. Lee Berndt join us at Environmental Turf," said Stacie Zinn, company president. "His solid reputation and widely respected expertise will certainly be a great benefit to our company, our grass varieties and all of our licensed producers."

■ ■ ■

Jerry Pate Turf & Irrigation

Jerry Pate Turf & Irrigation is proud to announce that the following associates received awards at Toro Univeresity and the Golf Show in San Diego:

- Mark Bentley received the award for the 2009 Golf Irrigation Master Salesman. This is the highest honor an irrigation sales professional can receive and is presented to one SMEI certified professional salesperson per year. The candidate for this award must be a previous recipient of the Blue Blazer Award. Mark has consistently attained overall excellence in customer satisfaction and in meeting or exceeding annual goals in Toro Golf Irrigation product sales. This is the first time a JPTI team member has received such an honor.
- Michael Howell received the 2009 Commercial Equipment Green Blazer Award. This award is presented to sales professionals who are SMEI certified and have three years experience selling Toro equipment. Michael has served as an Account Executive in Alabama for the past three and a half years and has consistently attained overall excellence in customer satisfaction as well as exceeded annual goals in Toro Commerical Equipment sales.
- George Brooks-Powell received the Golf Irrigation Rookie of the Year. The Golf Irrigation Rookie of the Year is awarded annually to recognize an Irrigation Service person with no more than 18 months experience and who has achieved outstanding service accomplishments, customer satisfaction and a high degree of technical skill.
- Rick Howell received the 2009 Service Achievement Award at Toro University in November 2009. The Service Achievement Award recognizes outstanding achievement by a distributor service leader or location service

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manager. The award is based on having achieved outstanding results that balance Customer Satisfaction, Profitability and Sustainability.

We would like to congratulate Mark, Michael, George and Rick for their achievements and thank them for their hard work and dedication to their customers and JPTI. We would also like to thank the entire organization. We could not have received all these awards without your dedication and support.

■ ■ ■

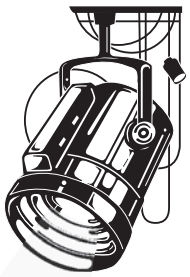
Tifton Lab Earns A2LA Reaccreditation Renewal

The Tifton Physical Soil Testing Laboratory, Inc. of Tifton, GA, became reaccredited by the American Association for Laboratory Accreditation in January 2010 for technical competence in the field of putting green materials testing valid to February 2012. Accreditation demonstrates ongoing competency by the lab in performing the required tests specified by the United States Golf Association for Putting Green Construction Recommendations. The A2LA is a non-profit, scientific, membership organization dedicated to the formal recognition of testing laboratories and related organizations around the world which have achieved a demonstrated level of competence. The USGA recommenda that only A2LA accredited laboratories be used for testing and analyzing materials for building greens according to specific guidelines.

The Tifton Physical Soil Testing Laboratory, Inc. is the oldest of the A2LA approved laboratories, having been founded in 1982. Over the years the lab has developed over 22,000 putting green rootzone mixes that have met USGA physical property recommendations for golf green construction from over 100 countries.

The company's president and owner, Powell Gaines, served on the review panel and offered much expertise to the USGA in writing the latest 2004 revision of the USGA Green Construction Recommendations. ■

The Spotlight is on...



BRYAN GLENN

Assistant Superintendent, Dancing Rabbit Golf Club - The Oaks Course

Bryan was born and raised in Philadelphia, Mississippi. He is the youngest of two boys. Bryan graduated from Neshoba Central High School in 1996. He started working for Dancing Rabbit in March of 1999. That same year he married his sweetheart, Joni. They are expecting their first child in June! He lights up this a Christmas tree when he talks about it. Needless to say, he is very excited!

Bryan is a volunteer fire fighter, an avid hunter, and a fanatical Mississippi State fan. Bryan also likes to unwind at the local gym. He says it's a great way to relieve stress that life can throw at you. I asked him what part of the day he enjoys the best and he said, "I love the whole day." Great answer I thought! ■

Editor's Note: Rob Webb, CGCS, will be writing an article for us in each issue of this year's Tee to Green, spotlighting an assistant member.

POSITION AVAILABLE

ASSISTANT SUPERINTENDENT
Colonial Country Club - Deerfield Course

Course Description: 18 hole private course; Miniverde greens, 419 Bermuda everywhere else

Duties: Work with superintendent in day to day operations of golf course, chemical/fertilizer applications, irrigation maintenance and supervision of crew members

Job Requirements: Minimum 2-year turfgrass management degree, pesticide applicators license and supervisory skills

Salary and Benefits: $26,000; paid vacation, health insurance, 401K retirement plan, golfing privileges

Contact: Bryan Deweese
264 Deerfield Club Drive
Canton, MS 39046
Phone: 601-605-9635
Email: bdeweese03@aol.com

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