



Louisiana Turfgrass Association

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Gray Leaf Spot

Gray leaf spot, caused by the fungus *Pyricularia* (or *Magnaporthe*) *oryzae* (previously called *Pyricularia* (or *Magnaporthe*) *grisea*), occurs on a wide range of turfgrasses throughout the United States. In Louisiana, this disease is most commonly associated with St. Augustinegrass; however, it can sometimes be problematic on bermudagrass and centipedegrass as well. This disease is generally associated with drought stress, soil compaction and high nitrogen fertility and typically occurs from mid-summer to early fall. Disease development is favored by periods of warm (82-90 F), humid weather with sufficient leaf wetness (9 hours) for spore germination and pathogen growth. Disease develops especially well when the turf undergoes prolonged periods of alternating wetting and drying.

The primary symptoms of gray leaf spot on St. Augustinegrass are the presence of round to oblong spots on the leaf blades that first appear as small, brownish-colored lesions that expand rapidly resulting in lesions with a purplish or brown-colored margin and a light tan- to gray-colored center (Fig. 1). During periods of warm, humid weather when the fungus is actively sporulating, the lesions may be covered with gray masses of conidia. These conidia are then dispersed by wind, water and various types of lawn equipment. Lesions that extend across the leaf blade will kill it. As the disease progresses and becomes more severe, areas of affected turf appear dry and the leaf blades often shrivel and die (Fig. 2).

Because the disease is more severe on rapidly growing turf that is subject to stress, practices that reduce these stresses are important in its management. Avoid over-fertilization with nitrogen, especially quick release formulations, during the summer months. Irrigate on a regular basis as needed to promote a deep root system, which will help the turf get through periods of drought. In some cases, it may be necessary to aerate the lawn to reduce compaction that impedes root growth. (Cont'd



Fig. 1. Typical gray leaf spot lesions on St. Augustinegrass.



Fig. 2. Scorched appearance of St. Augustinegrass due to gray leaf spot.

Nematodes in golf greens

By Charles Overstreet, Ph.D.
Extension Nematologist

Golf course managers have been battling nematode problems in Louisiana for a long time now. These are tough pests to deal with because they are often difficult to recognize and equally difficult to control. Greens are the primary area where damage occurs simply because of the soil types used to create them and the way turfgrass is maintained on greens.

One of the most troublesome things about nematodes is simply the fact that they are difficult to recognize as a pest. Most of the common types that damage turfgrass are root feeders. This damage is below ground and has to be recognized by the symptoms expressed above ground. Careful examination of the root system will often show that the roots are stunted, off-color, or dead. Even then it is difficult to positively identify the damage as being a nematode problem.

Foliage or above-ground symptoms can often simply be an off-coloring, slowness in normal growth and development, thinning of stand, and failure to respond to either fertilizer or watering. Often spots appear in the grass first giving an indication that a problem is developing. These spots can be from a few feet in diameter to



a fairly large area. These spots will always occur in areas that are weak or in a stressed condition first. Nematode injury is nothing more than a stress placed on a plant which will be enhanced if poor conditions already prevail. Symptoms may grow worse during a growing season and tend to spread. Injury can show up at any time during the growing season. Symptoms usually are in response to high populations. The greatest injury tends to be when high populations have survived the winter and early spring, and attack the roots early in the growing season. Nematode areas may tend to show up in the same locations each year. If you had a problem this year in an area, expect more problems in the future. Populations tend to go up or down with environmental conditions or the usual population dynamics. However, don't expect nematodes to just go away.

Sting nematode (*Belonolaimus* sp.) is considered to be one of the most damaging nematodes to turfgrass. This pathogen is so bad that even detecting any at all would strongly suggest a serious threat to the turfgrass. Sting nematode is generally found throughout the south but found only in very sandy soils. In Louisiana this

pest has only been found in association with turfgrass. It is extremely limited in its native distribution in this state, having been found in only Grand Isle, Ouachita Parish and Claiborne Parish. However, it is a common problem on golf greens primarily because it comes in with infected sod or sprigs. Sting nematode feeds on root tips causing them to be severely damaged.

Lance nematode (*Hoplolaimus* sp.) is another fairly large nematode that can cause problems with turfgrass. Lance nematode feeds on epidermal and cortical cells. Unlike the previous nematode, this pathogen actually may move completely inside a root and act as an endoparasite. This nematode reduces shoot and root production, water uptake, and the number of root hairs as well as nutrient uptake. This may be expressed in the field as stand decline or reduced vigor.

Root-knot nematode (*Meloidogyne* spp.) is another nematode that is a widespread pest in turfgrass. One species, *M. incognita*, is widespread in Louisiana and has also



been shown to damage bermudagrass at a number of golf courses in our state. Symptoms may appear as a yellowing or stunting of turfgrass.

Management options should be used well before any problem emerges. Cultural controls include practices that make for healthy turfgrass including deep and infrequent watering, proper fertilization, and raised mowing height. Excess nitrogen is usually a bad idea since it may make grass more susceptible to damage from nematodes. De-thatching, aeration and adding sand can promote healthy growth reducing the amount of stress and damage caused by nematodes.

When problems get really bad, a nematicide may be required. Curfew is the only nematicide labeled for use on established turfgrass. However, Curfew must be applied with special equipment and only by a certified applicator. Some golf courses stockpiled Nematicur when it was still available. Nematicur can still be used until these stocks are depleted.

If nematodes are suspected as being a problem, don't hesitate to have the soil tested to find out. A slight problem can quickly develop into a serious issue particularly when sting nematode is involved.

Why we might see a double-dip recession

This column has addressed factors that affect production and sales opportunities for the turf industry with a focus on the big changes in the economic arena in the years since 2007. Enormous bubbles emerged in the housing and the stock markets from incentives provided by the Federal government for expanded home ownership. Responses of many segments of the business world were to push beyond the bounds of prudence to profit from home ownership incentives. The bubbles burst as mortgage-backed securities declined in value because homeowners defaulted on their loans at significantly higher than expected rates. It became clear that the risk of these mortgage backed securities was much higher than buyers had been led to believe. These events relieved almost all of us of lots of wealth and in the process changed our view of the future.

Over the past year or so, the economy appeared to be recovering. Now, however, many feel it is declining again. The Federal Reserve Bank warned in early August that the economy had weakened, as indicated by Gross Domestic Product (GDP) growth in the second quarter at a rate of 2.4%, compared with 3.7% in the first quarter. The Fed indicated that it would act to drive down long-term interest rates by buying Treasury bonds.

The primary drivers of GDP growth

Consumption and investment: On the consumption side, *personal spending* has kept pace with the economy over the past 3 years. It had been steady at about 70% of GDP before and during the recession of 2008-09. But consumption's share was lower in the past. It was relatively stable at about 63% of GDP from the 1950s to the 1980s. Reasons for the increase included growing wealth, government programs like social security that reduced incentives to save, and the widespread acceptance of credit cards.

Debt is a resource that supports spending. Consumer debt reached new, higher levels prior to 2008, and has declined. According to the Fed, total U.S. debt excluding the financial sector is about twice the 10 year ago level, at \$35 trillion, and has fallen only 3% from last year's all-time peak. Revolving credit is a little different. In June, credit card balances fell by \$4.5 billion, or 6%, the 21st

consecutive month of decline. Consumers are not optimistic. They are worried about jobs, are spending less, and are saving more. We shouldn't expect consumer spending to be the short term driver of growth.

Consumer confidence: Several organizations track confidence in the general economy. Recently, Investor Business Daily and the polling unit of TechnoMetrica Market Intelligence (TIPP) reported that its *business* index fell to 43.6, down 5.1 points since May to a five-month low. Readings below 50 signal pessimism. Its six-month outlook rose 2.3 points from a 16-month low to 45.1. The *personal financial* outlook gauge fell 1.7 points to 49.2, showing pessimism for the first time since June 2008. The index of confidence in federal economic policies and the Presidential Leadership Index fell. These indicate pessimism.

Nor are *small businesses* optimistic. The National Federation of Independent Business' small-business optimism index fell in July for the second month. Fewer of smaller companies expected the economy to improve in the next six months. Only 2% planned to add staff. So, added jobs in the small business sector don't seem ready to provide the support a recovery needs.

Jobs: The "official" unemployment rate is about 9.5%. It was that high in the early 1980s when Reagan and Volker tackled inflation. But the official estimate doesn't count those who have given up and aren't looking for work, and many of those still working right now can only find part-time work. The Labor Department reported that private payrolls are growing slowly (71,000 in July). This pace would take years to absorb those who lost jobs during the recession and new entrants into the workforce.

Housing: Foreclosures are rising - specialist RealtyTrac reported 93,000 homes foreclosed in July, up 9% from June and essentially the same as May's record. Because the foreclosure process is slow, observers believe there are many more in the foreclosure pipeline. The ripples affect all homeowners by driving down home prices and wealth. Many analysts suggest that market-clearing prices for housing are somewhere below current levels.

Why we might see a double-dip recession, *cont. pg. 4*

New home sales peaked in April at a seasonally adjusted annual rate of 422,000, their highest level since September 2008, then fell to 267,000 with the expiration of stimulus incentives. The inventory of new homes fell to 232,000 in June, lowest since 1968. In April, sales of *existing single-family homes* declined by 1.6% to 4.98 million in May and by 5.6% to 4.7 million in June. There has been some overall improvement in the past couple of months, and the National Association of Home Builders is forecasting “further improvement in coming months as mortgage rates remain low, house prices level out and job growth continues.”

Investment: The investment part of GDP had the steeper decline in the recession. While spending by companies has risen since 2009, the level still is below the pre-recession rate. During the latest quarter, investment made up 12.7% of GDP, compared with 15% during the same period in 2008. Investment in non-residential construction for 2010 is forecasted to decline by about 20%, but to rebound to slightly positive values for 2011.

The outlook

Reports speak of an abundance of caution among consumers and businesses, that some unexpected shock could trigger a double-dip pattern of decline and recovery. Perhaps it wouldn't even take a shock. Economist Robert Shiller (of Yale University) believes the probability of another dip is more than 50-50. He pointed to high unemployment as a root cause of lingering economic woes, a concern that the Federal Reserve may not have enough tools to fight a second recession, and that Congress needs to join the battle and focus on putting people back to work.

Overall, keep in mind that that the most recent GDP estimate was positive even though it was only about 65% of the previous month's value. The direction of the trend, and pessimism among consumers and businesses, are the concerns.

Louisiana

Much of what ails the US economy, particularly housing and job losses, is centered in a few states. Louisiana didn't have the housing bubbles, but investments in mortgage backed securities and their derivatives reduced wealth for almost everyone. For Louisiana, problems can be expected from reduced fisheries catch from the oil spill, from the drilling moratorium, from closure of a few businesses in other sectors that were important employers, and regional impacts from state and local budget shortfalls. At this time these are serious threats, but the degree of impact and whether they will be mitigated by compensation from sources such as BP or additional stimulus from the federal government is unknown.

As we noted in the last issue, these are conditions under which conservative businessmen would be well advised to over-extend themselves on service to existing customers to preserve those relationships. Those who are a little more aggressive and in good fiscal shape might, after careful analysis, pursue more customers or larger market share, taking advantages of businesses whose recession strategy is to reduce costs by lowering customer service. In the meantime, we should be watching the indicators discussed above – consumer and investment spending, confidence levels, and construction forecasts.

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One Stop Shopping at LSU's Soil Lab

The first step to beautiful turfgrass is to know and then address the fertility and pH status of your soil. A soil analysis provides a wealth of information and is the most important test that a turf manager can conduct.

Soil has everything to do with the vitality of your turf, but it is often overlooked. So why should you have your soil tested? A soil with insufficient nutrients will not support a robust lawn or sports field. The time to test and amend your soil is before problems arise so turfgrass never undergoes stress due to insufficient fertility. I also see a lot of "just in case" fertilizer applications in turf management. Turf managers apply a fertilizer like 13-13-13 whether they need the high rates of P and K or not because that is "just the way that they have always done it". However, thousands of dollars may be wasted each year when we apply high rates of nutrients with little regard to what the turf actually needs or existing nutrient levels in the soil. That is why soil testing

is such a great value and where LSU's Soil Test Lab can help. I use the lab often because it gives me great information when I am diagnosing turf problems quickly (turnaround is approximately 7 days after sample receipt).



Routine Soil Test

Most everyone will want to get the **Routine Test** which provides the levels of the main nutrients and the pH of the soil. The Routine Test will give you ratings and recommendations needed for fertilizer as well as the soil pH and the amount of lime or sulfur needed to correct acidic or alkaline conditions. The cost for a routine test is \$10 per sample.

Irrigation and Pond Water Quality

Water tests are important for diagnosing irrigation water quality and for helping to manage pond water properly. Tested parameters include pH, conductivity, salts, Na, K, Mg, Ca, Fe, Mn, S, Cl, nitrates, alkalinity, sodium adsorption ratio (SAR), and hardness. A routine test cost \$10.

Tissue Analysis

LSU's Soil Lab can also test the nutritional status of plants. Plant leaf analysis provides immediate diagnosis of nutrient deficiency, toxicity or imbalance for major and micro-nutrient elements. Tissue analysis serves as a supplemental tool to soil tests. It can monitor the effectiveness of your fertilizer practices and help to correct nutritional problems during the growing season. Commonly tested nutrients include nitrogen, phosphorus, potassium, magnesium, zinc, copper, boron etc. The cost varies from \$8 to \$16 per sample depending on the test needed.

You can download forms for various test at www.stpal.lsu.edu

For more information concerning LSU's Soil Lab and the services offered contact Rodney Henderson at (225)578-1219 or rhenderson@lsu.agcenter.edu.

What types of problems are we having?....

- Tropical sod webworms in St. Augustinegrass
- My yard has converted to Virginia buttonweed – no good salvage herbicide option.
- Take-all disease in St. Augustinegrass
- Doveweed in home lawns
- Armyworms in athletic turfgrass
- Grass not responding to fertilizer – very acidic soil pH
- Poor performing soccer fields with very compacted soils.

Turfgrass 101: What is soil pH?

Simply, soil pH is a measure of the hydrogen-ion concentration in the soil. Soil becomes more acidic when there is an excess of hydrogen ions attached to clay particles. If the soil pH is too acidic (low pH) or too alkaline (high pH) nutrients present in the soil become locked-up or unavailable. Fertilizer performance will be disappointing when the soil pH is not in the correct range. The greatest availability of most nutrients is in a pH range between 6 and 7. St. Augustinegrass, zoysiagrass, bermudagrass, and perennial ryegrass overseed grow best when the pH is in this range. A pH of 6.5 would be optimum for most southern grasses. The exception is centipedegrass. Centipedegrass prefers a pH range from 5.3 to 6.0.

Correcting soil pH

Liming materials are added to the soil to raise soil pH and supply calcium and magnesium (dolomitic lime). Elemental sulfur and aluminum sulfate are used to lower soil pH. Gypsum (calcium sulfate) is often added to high pH/high sodium soils to improve the soil's physical condition brought excessive sodium.



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Weed ID

We are getting rain in the state and front and back yards and low spots are becoming more saturated. I am seeing a lot of a grass-like weed called doveweed (*Murdannia nudiflora*) in lawns throughout Louisiana, especially south Louisiana.

Doveweed Identification

Doveweed is a summer annual that is extremely common in turfgrass this time of the year. It looks similar to spreading day-flower and is from the same plant family. When mowed, doveweed appears to be a foreign pale-green grass infesting the lawn. However, it is not a grass at all. Doveweed has stems that root at the nodes and blue flowers that appear on short stalks in clusters.



Doveweed control that works:

Atrazine is deadly on this weed and can be applied in St. Augustinegrass, centipedegrass, and zoysiagrass now. Simazine is also very effective and can be applied to actively growing bermudagrass. Expect the bermudagrass to go off-color. I have had more limited success with 2,4-D +MSMA and MSMA + Sencor. 2,4-D, Trimec, Speedzone, and many other common broadleaf weed herbicides are ineffective. Roundup is completely ineffective.



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