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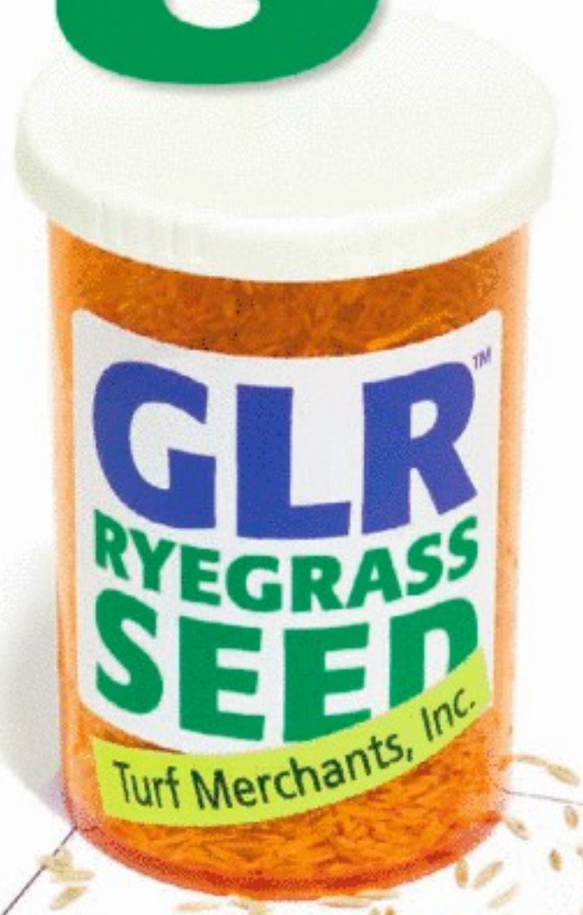

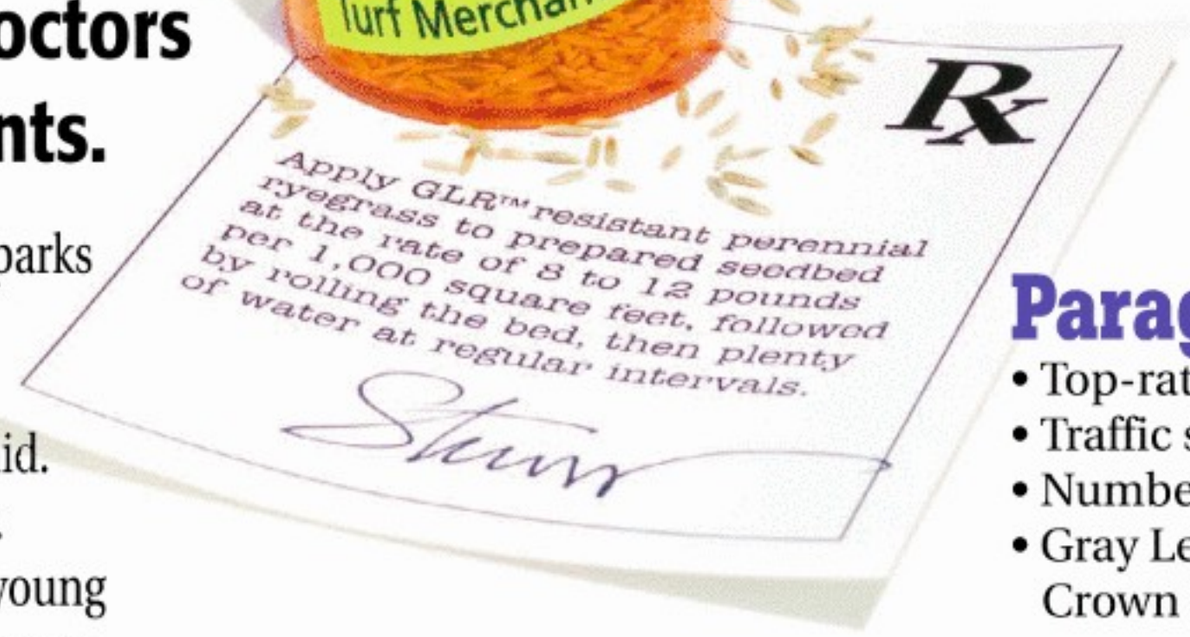

Even the best home lawns, parks and golf courses have Gray Leaf Spot in late summer when days are hot and humid.

Gray Leaf Spot isn't pretty. It strikes quickly, affecting young ryegrass seedlings first with gray-to-brown lesions, often contorting tender blades into fishhook shapes. With prolonged hot, humid weather, large, mature turf areas can be lost to this dreaded disease.

In existing, older ryegrass turfs, Gray Leaf Spot can be addressed by applying a preventive fungicide, but once the pathogen has developed, little or nothing can cure it.

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DESERT IPM

Simple IPM Techniques Can Mitigate Grub Damage in the Desert

By Kai Umeda

The arid desert Southwest has a harsh climate with high summer temperatures and little rainfall. Interlaced among the saguaros and mesquites are lush golf courses and many professional and recreational turfgrass facilities. These green islands can host a wide range of arthropods and micro-organisms because irrigation and nutrients are applied. Fortunately, desert turfgrasses are invaded less frequently by many pests or diseases. Unlike other parts of the country that are inundated by multiple pests and diseases, only a handful of insect pests might cause economic injury, damage or losses to well-maintained turfgrasses in the desert.

Grubs, sod webworm, cutworms and rove beetles are typical pests or nuisances in desert turfgrasses. Currently, very limited information is available about insect pests in desert turfgrasses with respect to taxonomy, generations/season, timing of emergence/occurrence, economic thresholds and control strategies.

Insect problems in desert turfgrasses

Some incidents in the summer of 2003 in central Arizona indicated the presence of different levels of an insect pest in turfgrasses. In June, a few greens on a particular golf course were infested with small black beetles that interfered with golfers' putting. Then in August, a second course suffered severe turf damage that was caused by large, white grubs. Additionally, superintendents commonly observed birds feeding and pecking on greens and some courses adjacent to the desert were invaded by javelinas that tore up greens and fairways seeking grubs.

These examples would commonly lead superintendents to make a decision to spray an insecticide for grub control.

Fundamental information that is essential for optimizing the timing of application of any insecticide was needed. In order to gain better understanding of the biology of the beetles and grubs, a network of blacklight traps was strategically installed around the Phoenix area at six golf courses. The goal was to identify the insects that were caught in the blacklight traps, quantify the abundance of pest insects in the traps and determine when the flights occurred. Ultimately, superintendents would have the ability to recognize specific beetles and have the knowledge of when they occurred on their golf courses, thus enabling them to make better pest management decisions.

Trapping technique shows a pattern

The blacklight traps were set up during late April and were monitored weekly through

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IN THIS ISSUE

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Continued from page 53

the summer until fall overseeding. Few moths of sod webworms, armyworms and cutworms were caught during the summer.

The most abundant species in the traps were the masked chafer beetles, *Cyclocephala* spp. Additionally, black turfgrass *Ataenius* adults and *Aphodius* spp. beetles (a non pest) that look very similar to each other were also trapped.

Capturing the adult stage of the masked chafers provided information about when to anticipate egg hatch and development of instars of grubs. The timing of peak flight activity was observed for the masked chafer beetles at each location. When adults are prevalent and flying, they mate and then lay eggs. The eggs hatch about three weeks to four weeks after the occurrence of a peak flight. In the Phoenix area, as many as three peaks were observed beginning with the first in early June, then in mid-July, and again in mid-September.

Improved timing of treatment

Based on the trap counts, some of the sites that had a history of grub damage in turfgrass initiated insecticide treatment about three to four weeks after the occurrence of the peak flight in June. This greatly improved the timing of application of soil-applied insecticides to target the hatching of eggs and the emergence of smaller, susceptible grubs.

The commonly used soil-applied insecticides include imidacloprid, thiamethoxam and clothianidin. Previously, soil-applied insecticides might have been sprayed in April or May, thus missing the timing for susceptible grubs.

The optimized timing also ensured soil residual efficacy of the insecticides for a longer period of time into the summer. A single insecticide application, in most situations, provided season-long grub control instead of multiple ineffective applications of costly insecticides. Frequently, ineffective applications targeted less-susceptible large-sized grubs too early or too late in the season.

Peer-to-peer outreach education

The University of Arizona Cooperative Extension conducted workshops along with agriculture chemical industry technical representatives. The workshops showed superintendents and professional turf managers how to identify key insect pests — such as white grubs — promoted the technique of trapping and monitoring for key pests, and provided education about insecticide chemistries for turf white grub management.

In 2005, the insect trapping network expanded to nine early-adopter golf course superintendents, most of them members of the Cactus and Pine GCSA. These superintendents conducted the trapping and monitoring and reported weekly data to build our database and to share with neighboring golf course superintendents. The data was posted on our Web site at turf.arizona.edu.

At subsequent workshops in the spring of 2006, the early adopters conveyed their experiences of improved grub management strategies to their peers. Sharing personal experiences with peers was a means for recruiting additional participants to adopt trapping and monitoring of key pests. At least 18 golf courses adopted trapping and monitoring techniques during that summer.

Grub research continues

The knowledge of the timing of masked chafer beetle flights by using the trapping techniques improved the decision-making process for superintendents to manage grubs. However, there are still gaps in our understanding of the white grubs in desert turf.

Three peak flights of beetles occur, so the question arises whether they are due to one species or a complex of grub species. It has yet to be determined exactly how many beetles or grubs result in damage to desert turfgrasses. But as more superintendents and professional turf managers adopt the IPM techniques like trapping and monitoring, then scientists can further glean pest biology and their behaviors in desert turfgrasses so they can be managed more effectively.

Kai Umeda is an area extension agent in turfgrass science for the University of Arizona's Maricopa County Cooperative Extension in Phoenix. He earned his master's degree in plant and soil sciences from Southern Illinois University after doing an undergraduate degree in pest management at the University of California - Berkeley. He can be reached at kumeda@cals.arizona.edu.

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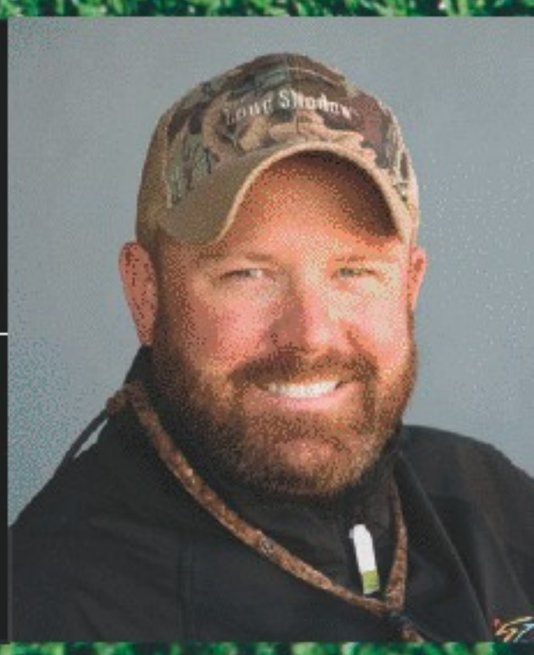

European Turfgrass Society Holds First Conference

By Mike Fidanza, John Cisar and Stan Kostka

As the European Union has been evolving and growing in recent years, many European turfgrass scientists in academia and industry, as well as turfgrass practitioners, have formed a network of connections to diffuse and share turfgrass information throughout Europe. As a result, the European Turfgrass Society (ETS) formed on July 6, 2007, as many European turfgrass-related scientists and industry representatives gathered to officially ratify the organization in Pisa, Italy.

Dr. Marco Volterrani was elected the first president of the ETS. Volterrani is also the director of the Centro Ricerche Tappeti Erbosi Sportivi (*translation:* Center for Research on Turfgrass for Environment and Sports), University of Pisa (Italy).

According to the mission statement included in the ETS statutes, the primary objective of the ETS is the encouragement of a holistic view of turf, particularly with respect to its influence on urban and environmental quality.

Specific objectives of the ETS include: to provide a forum for scientists, consultants, companies and practitioners to discuss technical issues related to the turf surfaces; to spread innovative applications for the benefit of the turfgrass industry, national and local government and the European public; to encourage a systems-based approach to the study of turfgrass through multi-disciplinary groups working at different levels; to consider turfgrass knowledge in the broadest sense, including its use in sport and leisure, its role in improving urban quality and its importance in the mitigation of environmental effects such as soil erosion; and to develop a strong ethos to promote sustainable, low-input systems and solutions based on the conscious use of non-renewable resources.

So on May 19 and 20, Volterrani and the ETS convened their first conference in Pisa, a historic city in the heart of the Tuscany region. The city is world renowned for the Leaning Tower, but Tuscany is also known for excellent food and outstanding wines, especially Chianti. Almost 200 people attended from academia and industry from 17 countries.

Eighty-one research papers were presented (28 as oral presentations, and 53 as poster presentations) representing 178 contributing authors from 17 countries. Many turfgrass researchers from the United States were in attendance to present research as well as support the efforts and success of the ETS. Also, turfgrass-related faculty from the University of Pisa provided a guided tour of a sports pitch (athletic field for you Yanks), a demonstration of an innovative bermudagrass sod production method and research on turfgrass species evaluation for the Mediterranean climate.

Research topics presented during the conference were varied, from basic plant nutrition research on turfgrass systems in Europe to research on turfgrass species and cultivars, soil water repellency, pest-management issues, turfgrass management and environmental quality and research on maintaining healthy and playable golf course greens and sports turf surfaces (Magni, 2008). Also, undergraduate and graduate education opportunities in turfgrass science were discussed among many university researchers from Europe and the United States. For example, several European universities with agricultural programs are in the process of developing and expanding their undergraduate curriculum in turfgrass science in hopes of training students to work in the golf and sports turf industry in Europe and abroad. Also, several academics from the United States expressed an interest in collaborating with those European schools to offer advanced graduate-degree opportunities for those international students in the United States.

Attendees at this first ETS agreed to hold a research conference every two years. The second conference will be held in 2010 in France (location to be determined) and the third conference in 2012 will be in London to coincide with the 2012 Summer Olympic Games.

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REFERENCE

Magni, Simone (Editor). 2008. Proceedings of the 1st European Turfgrass Society Conference, Palazzo dei Congressi, Pisa, Italy, May 19 - 20, 2008. Published by the European Turfgrass Society (www.turfgrassociety.eu/), Centre for Research on Turfgrass for Environment and Sports, University of Pisa, Pisa, Italy.

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Are Etiolated Tillers A Visual Nuisance or Something Else?

By Mike Fidanza, Jeff Gregos and Dan Brickley

Have you ever noticed the distinct, visual appearance of elongated or etiolated turfgrass leaf blades on tees, fairways or greens? In areas where the turfgrass surface is perfectly even and manicured, you might have noticed an occasional leaf blade stretching upward an inch or more above the neatly mowed canopy. The typical etiolated leaf blade has an abnormal appearance of a yellow or light-green color. Incidentally, the term etiolated is derived from the French *etioler*, which means to grow pale and weak (Salisbury). By definition, etiolation is the growth of shoots in the absence of light or in very low light, which causes stems and leaves to become elongated and also yellow due to the lack of chlorophyll (McMahon).

Etiolated tiller symptoms (ETS) was first coined by Jeff Gregos to describe the widespread epidemic of etiolated and damaged perennial ryegrass in fairways at Lebanon (Pa.) Country Club during 2004 and 2005. At first this condition was a visual nuisance with elongated and chlorotic leaf blades scattered throughout the fairways, but a severe decline in turfgrass quality and disruption in ball roll warranted action.

Lebanon Country Club Superintendent Dan Brickley had to resort to mowing fairways five to six days per week along with an aggressive plant growth regulator (PGR) program to minimize the appearance of those elongated or etiolated leaf blades, which has become an added expense of employee time and equipment wear and maintenance. ETS has been observed in other areas in Pennsylvania and the mid-Atlantic regions, and recent chatter on a professional Web site indicates the appearance of ETS in many other geographic regions of the country.

ETS has been observed in Northern Europe and Scandanavia, and it's called ghost disease in England. Typically, symptoms first appear during late spring to early summer, not as evident or persistent during the summer, and again more pronounced in late summer to early fall. More information is needed, however, regarding specific environmental conditions that are associated with ETS.

ETS can be expressed in different ways. Frequently, only etiolated leaf blades are visible, particularly the youngest or newly emerged leaf blade, with no other turf damage visible. An advanced stage resembles a "melt-

PHOTO 1

PHOTO 2

Photo 1: ETS (etiolated tiller syndrome) symptoms in a perennial ryegrass fairway.
Photo 2: Etiolated perennial ryegrass leaf blade. (Photos by Mike Fidanza)