



FTGA Roundup Annual Pest Control Guide Distributed

The Florida Turfgrass Association sent out to its membership packages that included the 1998 University of Florida's Pest Control Guide for Turfgrass Managers. This publication is an important tool for the safe use of pesticides. A booklet on how to motivate employees to superior performance was also included in the package, along with a report titled "FTGA — A Year in Review."

At the request of the Southern Seed Foundation, the FTGA is helping the Foundation inform the industry of the high standards of our turf certification program by sending out handbooks on the standards and regulations for certified turfgrass production in Alabama and Florida to all facets of the turf industry in Florida. The FTGA will also help promote certified grass by inserting flyers in the next issue of the *Turf Digest*.

Planning continues for an outstanding FTGA Conference & Show this September in Tampa. The Florida Turfgrass Association invited the Florida Golf Course Superintendents Association to participate in finding speakers for workshops and concurrent sessions. With the assistance of the Central Florida, Everglades and West Coast chapters of the FGCSA, the FTGA is funding three Etonic Leadership Series seminars which will be eligible for tested CEUs.

There are plans for great fun to go

along with all this education. There is Casino Night, Vendor Hospitality Night, an opportunity to win a Kawasaki Jet Ski and much more. The FTGA is trying to make it more economical for all to attend by having special package pricing this year: registered superintendents will be able to bring their managers with them for free and all registrants will receive lunch coupons. In addition, there will be

a New Product Showcase and your only opportunity for show sale pricing from some of our 300 exhibitors.

The FTGA would like to recognize the Seven Rivers Chapter of the FGCSA, World Woods Golf Course, Barbaron, Inc. and Glen Oberlander for their dedication to turfgrass research and thank them for arranging and hosting the 6th Annual Envirotron Classic.

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You have a Pesticide Applicator's License, but...

ARE YOU LEGAL?

BY W. CRAIG WEYANDT, GCS
The Yacht & Country Club of Stuart

I have been the golf course superintendent at the Yacht & Country Club for the past 6-1/2 years and working on golf courses for the past 17 years. I try to stay up-to-date with all the changes in the industry (agronomics, legal issues, pesticides, etc.). And for the most part, I thought I was doing a pretty good job. That is, I thought so until about four months ago when I found out about a pesticide law that affects me and I'm sure many others. I really have two points in writing this article: One is to inform you of a pesticide law that you may not be aware of and the other is to convey my feelings of worth in belonging to different allied associations (FTGA, USGA, IMA, LMA, etc.).

Lets tackle the big one first: Pesticide laws. The Florida Administrative Code is administered by the Bureau of Compliance Monitoring. If you are a golf course superintendent, you are subject to the Florida Pesticide Law, Chapter 487, Florida Statutes and associated rules, Chapter 5E-2 and 5E-9. This law regulates both general-use and restricted-use pesticides.

In general, a pesticide applicator license is required only for applicators purchasing and applying restricted-use pesticides. However, a license is also required for individuals who apply any aerial pesticide, or apply chlorine gas into residential swimming pools using a portable system, or apply metam sodium to sewer systems to control roots, although the products used may not be restricted-use pesticides.

The license required for individuals working on a golf course who use restricted-use pesticides is a commercial applicator's license. A commercial applicator is a person who uses restricted-

use pesticides in areas regulated by the Bureau of Compliance Monitoring for any purpose other than as provided by the other license classifications. A commercial applicator license is required for employees or owners of the following who apply restricted-use pesticides:

- Aerial application service
- Aquatic weed control service
- Cemetery
- Chemical/fertilizer company
- Golf Course
- Parks and recreational property (privately owned)
- Right-of-Way control contracting with government or utility (i.e., railroad, power lines, pipeline, telephone, public road, etc.)
- Seed treatment company
- Wood treatment company

Commercial applicators are required to pass the general standards (Core) examination and the examination(s) for each category of intended use.

The categories most often used on golf courses are the Ornamental & Turf and Aquatic. I can go on and on explaining Chapter 487 but you should be well aware of it.

I said that I would inform you of a pesticide law that you probably don't know about. Did you know that you need a different license for any pesticide applications made outside the boundaries of the golf course (i.e.) club house, tennis courts, security gate, pool areas, walking trails, etc.? These are just a few of the areas that I am also responsible for maintaining at The Yacht & Country Club.

I know what you're saying: either you already have a Turf & Ornamental license which should cover it, or you thought you didn't need a license if you don't spray restricted use pesticides. Well you're right on both accounts in my books, but that won't get you very far with the State of Florida.

What we are talking about is specifically chapter 482.156 Limited Certification for commercial landscape maintenance personnel.

The regulation covering the Limited Certification for Landscape License (as it's known) states the department shall establish a limited certification category for commercial landscape maintenance personnel to authorize them to apply herbicides for controlling weeds in plant beds and to perform Integrated Pest Management on ornamental plants using the following materials: insecticides having the signal word "caution" but not having "warning" or "danger" on the label; insecticidal soaps; horticultural oils; and *Bacillus thuringensis* (BT) products.

What this means is if you want to spray something around your clubhouse, you must first have a Limited Certification for Landscape license, even if you are only going to spray Roundup. Only those personnel with the license may apply the pesticide (no supervising up to 15 people like the T & O license). You can only spray pesticides with the signal word "caution" and only use a portable, hand-pump-up sprayer. No power equipment!

OK, so the Limited Certification license just won't do for your operation. You need more control over the products applied. Well the way I see it, you have two choices: call a commercial pest controller (PCO) to do the spraying for you, which does have some advantages and disadvantages, or get a pest control license for yourself.

Get another license! How do you do it? The general rule is that first you must have a college degree in horticultural technology, entomology, botany, or agronomy.

That doesn't sound too bad for most people but you must also have three years' employment as a service employee of a licensed pest control operator, with

at least one of those years in Florida. The second requirement sounds kind of tough for most people that I know. You just can't stop working on the course to go out and work for a pest control operator to obtain a license.

So it sounds like you may have to contract those applications out, which will be more expensive. You will have less control over the specific application (the applicators are not your employees) and more than likely you won't have access to the same products.

What is the answer? Don't ask me; I'm just reporting the facts.

Last I wanted to talk about the advantages of belonging to allied associations (USGA, FTGA, LMA, IMA, etc.). It is very important to belong to allied associations for the information that you receive, the continuing education that can be learned and the support that you can get from colleagues and peers. I feel even stronger than I used

to about belonging to and supporting different associations because that is how I found out about the Limited Certification for Landscape.

A piece of mail came across my desk from the Landscape Maintenance Association advertising a seminar. On the back side of the flyer was a state-

ment in bold print, "Did you know?" I didn't know. That is how I found out about the law. The more I dug and the more information I found, the more I wanted to forget the whole thing. So if you are reading this now, you may wish that you never started.

FQPA Letter-Writing Offer

If you have had good intentions about writing your senators and congressman about EPA's implementation of the Food Quality Protection Act, but just haven't been able to get around to it.

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Sooner or later, somebody's going to find a Snake in Your Grass!

In Central Florida as in most parts of the world, bites by nonvenomous snakes occur far more frequently than by venomous snakes. Since the differentiation is often difficult and the offending snake is not known, victims of snake bite should be brought under a physician's care as quickly as possible. Whenever possible, the offending snake should be killed, as safely as possible, and brought with the victim for positive identification.

The total number of bites per year has changed and the number of deaths is probably negligible. This is probably attributed to quicker response and better treatment of bite victims. If you talk to 20 different people familiar with the dynamics of venomous snake bites, you will probably get 20 different opinions as to how to treat the bite.

An important fact to remember is that one can be bitten by a venomous snake and not be poisoned. In up to 49 percent of the bites inflicted by venomous snakes, no signs or symptoms of poisoning develop. This could be due to the fact that the snake does not always inject venom or, in the case of superficial wounds, the venom does not enter the wound.

The venom is injected through an apparatus consisting of a gland, a duct and one or more fangs located on either side of the head. The size of these structures depends on the size and species of the snake. The venom glands are surrounded by

muscles which can be contracted separately or together at will by the reptile to discharge the venom.

The viper (rattlesnakes, cottonmouths and copperheads) fangs are two elongated teeth of the maxillary bones. These bones can be rotated so that the fangs can be moved from their resting positions against the upper jaw, to their biting positions, approximately perpendicular to the upper jaw. The snakes have full control over their fangs, raising or lowering them at will. The two functional fangs are shed periodically and are replaced by reserve fangs.

The fangs of the *elapid* (coral snakes and cobras) are two enlarged anterior maxillary teeth which are hollow and are fixed in an erect position.

The arbitrary division of venom into such groups as neurotoxins, hemotoxins and cardiotoxins, has led to much misunderstanding and a number of errors in treatment. Neurotoxins can, and often do, have cardiotoxins and hemotoxins in their substance. It should be safe to say that all venom has some reaction characteristics of the other elements.

Venom from vipers causes change in the tissue both at the site and in its proximity, changes in red blood cells, defects in coagulation, injury to the blood vessels; and to a lesser extent, damage to the heart muscle, kidneys and lungs. The venom of the *elapid* snakes causes serious alterations in sensory and motor functions as well as cardiac and respiratory difficulties.

The gravity of snake-venom poisoning is dependent upon the age and size of the victim; the nature, location, depth and the number of bites; the length of time the snake holds on; the amount of venom injected; the species and size of the offending snake; the condition of the fangs and venom glands; the victim's sensitivity to the venom; the pathogens present in the snake's mouth; and the degree and kind of first aid and subsequent medical care.

The victim may also have other complicating considerations—heart disease, diabetes, epilepsy or special medication may play on the reaction of the bite.

Diagnosis of *crotalid* (rattlesnake, cottonmouth and copperhead) envenomation is dependent upon the presence of one or more fang marks, immediate and usually progressive swelling, edema and pain. Swelling and edema are usually seen about the injured area within 10 minutes of the bite. Without treatment, swelling progresses rapidly and may involve the entire extremity within one hour. Generally, however, swelling and edema spread more slowly and usually over a period of 8 to 36 hours. The skin appears tense and shiny, vesicles may form within three hours and are generally present by the end of 24 hours. Hemorrhagic vesiculations (bleeding blisters) and petechiae (small, bleeding spots) are common. Pain immediately following the bite is common in *crotalid* poisoning. Regional lymph nodes may be enlarged, painful and tender.



Eastern Diamondback Rattlesnake



Pigmy Rattlesnake



Coral Snake

Snake Myths

Many myths have spawned about snakes and snake bites, most passed down from one generation to the next as fact. These myths originated from observations and are told as they were seen with much color and flair added.

1. MYTH: FLORIDA HAS THE HIGHEST NUMBER OF VENOMOUS SNAKE BITES.

Considering that Florida has the most diverse number of species of snakes in North America and venomous snakes can be found in heavily populated areas of the state, one would expect this to be a true statement. However, we do not have the highest incident of venomous snake bites. Currently, North Carolina is leading the United States in snake bites.

2. MYTH: SNAKES TRAVEL IN PAIRS.

This thought has been around for many years. Nothing could be further from the truth. Snakes do not travel in pairs. They will search each other out during the mating season (usually early spring). At this time, two snakes may be seen together. If one lives in an area of high snake concentration or where food (rats, mice, rabbits, etc.) exist in quantity that may support higher-than-usual populations of snakes, this occurrence may be observed.

3. MYTH: RATTLESNAKES ALWAYS RATTLE BEFORE STRIKING AND MUST BE COILED.

In the wild, rattlesnakes often break off their rattles and are unable to rattle. Coiled is the best, most effective striking position for most snakes, including rattlesnakes. Stretched out straight, however, rattlesnakes can strike a few inches and can also turn and bite.

4. MYTH: SNAKES STALK PEOPLE TO BITE THEM.

Snakes do not stalk people. Snakes do not like people. Persons receiving venomous snake bites usually are trying to kill or capture the snake or accidentally and unknowingly step on or close to a snake.

5. MYTH: OUTDOOR ENTHUSIAST ARE MOST OFTEN VICTIMS OF SNAKE BITE.

This is not necessarily true. Hunters, fishermen, campers, hikers and other outdoor enthusiasts probably place themselves in areas where snakes are more commonly found, but by the nature of their activity they are usually more cautious and aware of the potential dangers and safety measures to follow keeping them from becoming a snakebite victim.



Juvenile Cottonmouth Water Moccasin

The first systemic sign of *elapid* venom poisoning is usually drowsiness. This is apparent within two hours of the bite. Ptosis, burring of vision and difficulties in speech and swelling may also appear within several hours of the bite.

In closing, any snake bite associated with immediate pain, followed within several minutes by the appearance of swelling and subsequent edema is usually diagnostic of snake venom poisoning by a viper. *Elapid* envenomation is not so easily diagnosed during the first

10 minutes. Swelling usually appears two to three hours following the bite and tends to be limited to the general area of the bite.

First aid in regard to snake bite and envenomation is as varied as those administering to the victim. Probably the best is to stabilize the victim and transport to the hospital as soon as possible.

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Alaqua Lakes Joins Audubon Signature Sanctuary Program

Alaqua Lakes, Taylor Woodrow Communities' newest luxury golf community in Longwood, has been accepted as a registered member of the Audubon International Signature Cooperative Sanctuary Program.

Admission to the Audubon Signature Program is a distinct honor. According to Michael Moser, club operations manager, only eight golf courses worldwide have achieved full certification. The 170-acre golf course at Alaqua Lakes was designed by Tom Fazio and is scheduled to open in September.

Audubon International personnel carefully scrutinize all design and construction plans before development work begins and visit the site regularly to monitor compliance. In addition, the golf course operations must maintain vigorous standards for wildlife management, water quality, integrated pest management (IPM), energy efficiency, waste management and a natural resources management plan that assures a long term commitment to the environment.

"We're thrilled," said Tom Spence, land development manager for Taylor Woodrow at Alaqua Lakes. "The Audubon Signature Program is an important effort that promotes conservation measures which provide large-scale developers with a more environmentally sensitive approach to land management. Taylor Woodrow Communities is a company dedicated to all types of environmental causes and sustainable resources management is an idea everyone should endorse."

"The Audubon Signature Program designation is rare because so few golf courses qualify. Tom Spence has spent nearly three years monitoring water quality and wildlife management efforts here," Moser said. "Alaqua Lakes is a pristine piece of property and we intend to make certain the golf course serves not only as a nurturing habitat for wildlife, birds and native or indigenous plants, but also as a role model for existing and future golf

course developers in Central Florida."

The Audubon Signature Program is the most rigorous — and the most prestigious — of the environmental management programs Audubon sponsors. "They monitor us very closely, literally day by day," Moser noted. "This program will also allow us the opportunity to work closely with the community. We have 'adopted' a local school, Heathrow Elementary, and will spend time educating the children there on the positive effects a golf course has on the environment."

Adam Feltman is the golf course superintendent at Alaqua Lakes. Prior to coming to Alaqua Lakes, Feltman was heavily involved in the Audubon Cooperative Sanctuary Program at the Champions Club at Summerfield in Stuart.

The Habitat at Valkaria Named Certified Sanctuary

IGM's The Habitat at Valkaria in Malabar has been named a certified Audubon Cooperative Sanctuary.

Awarded by Audubon International through its Audubon Cooperative Sanctuary System, a course must meet requirements in six categories to qualify for certification: Environmental Planning, Outreach and Education, Wildlife and Habitat Management, Integrated Pest Management, Water Conservation and Water Quality Management.

"We try to create more habitat that already exists for the variety of native birds on the course," said Bob Marshall, golf course superintendent at The Habitat for IGM. Along with the help of Lynne Walker, assistant golf course superintendent, we managed to achieve certification by limiting the use of chemicals and creating a safe environment for many of our endangered species of birds." These birds include the Scrub Jay, Bald Eagle and the Sand Hill Crane.

Joellen Zeh, staff ecologist for ACSS praised IGM's employees for enhancing native plantings, protecting wetlands during construction and involvement in community environmental projects.

Audubon Int'l Launches 'Project Flight Plan'

Audubon International has announced a new wildlife and habitat initiative for 1998 to foster migratory bird conservation across North America called Project Flight Plan. Throughout this year, Audubon International will be asking people to "pledge" their commitment to enhance and protect habitat for migratory birds by undertaking at least one environmental project and participating in the many featured Project Flight Plan events that will be held throughout the year.

Seventy-five percent of the land in the United States is privately owned. For migratory birds to survive, they must find suitable habitat throughout the year on these private properties.

Project Flight Plan is a focused way for Audubon International to encourage migratory bird conservation with private land managers and homeowners and get them actively protecting, improving and connecting habitat for migratory birds across North America.

In 1886, the original Audubon members pledged their support of bird conservation by refusing to wear hats or clothing adorned with bird plumage. Inspired by the first Audubon movement, Audubon International, through the Audubon Cooperative Sanctuary System, is asking that individuals sign a pledge card and commit to bird conservation and habitat preservation projects.

In return, Audubon International will send individuals a Project Flight Plan decal, educational information on the bird conservation projects chosen and updates on events and progress concerning Project Flight Plan.

Although Project Flight Plan participants must sign up for at least one project to help migratory birds, there is no maximum limit on the quantity of projects they can engage in.

Projects such as planting native




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trees, maintaining bird feeders, limiting mowing of fields, leaving dead standing trees for nesting, connecting existing habitat to create habitat corridors, reducing pesticide use and keeping a bird inventory are just some examples of the many activities individuals can be involved in to help migratory birds.

"If one-thousand individuals pledged to participate in Project Flight Plan with an average of four projects each, that's 4000 migratory bird conservation actions taking place on private land!" said Jean Mackay, director of education for Audubon International.

"An individual's participation in Project Flight Plan can have a significant impact towards migratory bird conservation when added with the hundreds of other Project Flight Plan activities taking place throughout North America. The momentum that is build-

ing for this initiative is thrilling and means great things for improving migratory bird populations in North America."

Audubon International will be hosting and promoting events that tie in with Project Flight Plan throughout

1998. Some of the events this year are The Audubon International Golf Course Birdwatching Open (May 9), Safe Haven for Birds Day (June 13) and Plant a-Tree for Birds Week that will run the week of Sept. 26 through

Safe Haven Day

The Safe Haven Day in Project Flight Plan is meant to reduce the number of migratory birds killed and maimed as a result of carelessness, inaction and the ignorance of the general public.

Bird hazards include collisions with cars, buildings, windows and power lines; pesticide exposure at feeding grounds in the U.S., Mexico, Central and South America; cat predation; habitat loss and destructing of breeding grounds..

These conditions can be mitigated through environmental stewardship projects through Audubon International and by the following actions such as breaking the reflection on windows with non-reflective coatings or screens, keeping bird feeding areas clean and free of waste and pesticides and not disturbing natural areas during spring and summer months.

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Following BMPs to Reduce Nitrate Leaching Can Offer Legal Protection

BY DR. GEORGE H. SNYDER
AND DR. JOHN L. CISAR

University of Florida, IFAS

Because of concern about nitrate-nitrogen ($\text{NO}_3\text{-N}$) contamination of groundwater, the Florida Department of Agriculture and Consumer Services and the Florida Department of Environmental Regulation have a joint program that is funded by a 50-cents-per-ton tax on nitrogen fertilizer. The legislation authorizing the program is commonly referred to as the "Nitrate Bill."

Nitrate-nitrogen can cause methemoglobinemia, which can lead to impairment of oxygen transport in the blood stream ("Accumulation of Nitrate," National Academy of Sciences, Washington, DC, 1972). It is mainly a problem in infants under three months age, causing the "blue baby disease."

The problem has seldom occurred in modern times here in the United States. It is easily diagnosed and treated. Infants can ingest high levels of nitrate in a number of ways, such as by drinking concentrated vegetable juices, eating fish and meats cured with nitrates and by drinking milk formulas prepared with water containing excessive nitrate.

To prevent the latter, many years ago the U.S. Public Health Service set a drinking water standard of 10 mg/L (ppm) for nitrate-nitrogen. Virtually all water treatment facilities are subject to this standard for drinking water and the state of

Florida intends to keep groundwater at or below this level.

The Department of Environmental Protection has the authority to level penalties against those it finds guilty of nitrate pollution of groundwater. Money collected from the Nitrate Bill is used to fund research aimed at minimizing nitrate leaching in agricultural enterprises and to develop Best Management Prac-

seems that following the BMPs could prevent expensive legal problems in the future.

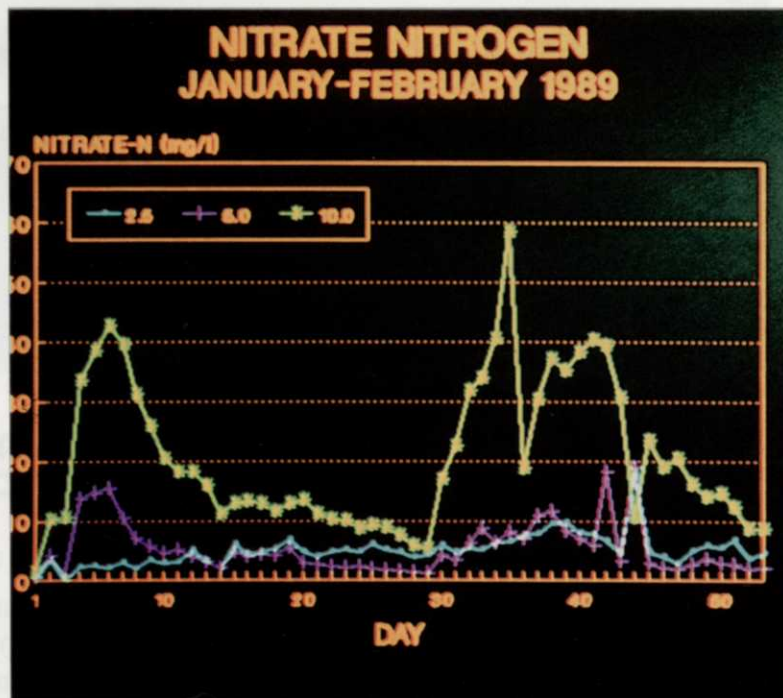
Fortunately, considerable research already has been conducted in Florida on the subject of nitrogen leaching in turfgrass and the work is continuing. In recognition of this, FDACS funded Drs. Snyder and Cisar to compile the scientific literature pertinent to nitrogen leaching

in turfgrass, develop BMPs and IMs where appropriate and develop a list of research priorities to obtain information that is lacking for the further development of BMPs.

The literature compilation is nearly complete. Over 100 scientific articles have been entered into a computerized database with key words for searching out specific topics. Hard copies of the associated papers are on file.

The first draft of proposed BMPs for established golf courses is complete. Drs. Snyder and Cisar are beginning to present these proposals to various golf course industry groups for their

reaction. With some modifications, these general proposals likely will be considered for other turfgrass uses. This article in the *Florida Green* is written to present the proposed BMPs to a wide array of turfgrass professionals for their consideration and comment. The final report will be made to FDACS in the fall. Questions, suggestions, arguments and other comments will be appreciated and should be directed to either Dr. Snyder or Dr. Cisar. It must be emphasized that the following are



Keeping soluble N application rates at or less than 0.5 lbs. N/1000 sq. ft. kept nitrate levels in perolate below 10 ppm Nitrate-N. Photo by G. Snyder.

tics for achieving this objective. The BMPs must, however, be supported by research. Suggested practices for which research is incomplete are known as Interim Measures.

The Nitrate Bill does not mandate that the BMPs be followed. However, those who can present credible evidence that they are adhering to the BMPs will not be prosecuted by the FDEP, even if excessive nitrates (greater than 10 mg/L) are found in groundwater below or emanating from their property. It certainly