

Integrated Pest Management Programs in 1995



IPM Corner

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Once again, 1995 marked another successful year for the New York State IPM Program. Turfgrass managers, Cornell University faculty, and Cornell Cooperative Extension field staff worked together to demonstrate and implement sound research-driven pest management methods.

The New York State IPM Program provided approximately \$35,000 in funds to research, develop and implement IPM methods for turfgrass professionals. These funds were provided by the State of New York through the Department of Agriculture and Markets; \$17,000 of these funds were provided to the Cornell turfgrass team of Drs. Michael Villani, Eric Nelson and Joe Neal to help research alternative methods to manage turfgrass pests. The Cornell research team will present their results in future *CUTT* issues. The remaining funds were used to demonstrate and implement IPM techniques and methods. In 1995, these funds provided turfgrass managers throughout the state the opportunity to expand their knowledge and improve their pest management programs.

In the early 1990's, scouting demonstrations were emphasized in golf course IPM programs in New York. (One such project was conducted on two golf courses in Westchester County this year, in cooperation with Cooperative Extension of Westchester County and the NYS IPM Program.) As more superintendents throughout the state have been exposed to the benefits of IPM, the demand for IPM scout training for golf course employees has increased. In response, IPM training was offered in three areas of the state in 1995: Adirondack region, Rockland County and Western NY.

Adirondack Region

Superintendents in the Adirondack region have been interested in IPM for many years. Several of them have attended the Cornell Turfgrass Short Course, and a private turf scouting service was provided by a student in 1993. A group interested in bringing IPM to the Adirondacks began meeting in early 1995, including representatives from the Adirondack Park Agency (APA), the Adirondack Superintendents Associations, New York State Parks, and the New York State IPM Program. Two summer sessions were planned and held, with approximately 40 participants at each. The first meeting was held in Stony Creek (Warren County) and focused on IPM strategies and scouting turf. The second session in Peru (Clinton County) focused on winter diseases and the injury they cause to turf, and disease diagnosis and the use of composts in disease control.

Rockland County

A series of six hands-on IPM training sessions were conducted at Rockland county golf courses in 1995. The workshops created the forum for exchange of information related to practical application of IPM research between and among researchers and Rockland's golf course maintenance professionals. The workshops were held at a different course each month, and the educators and participants used the course as a living laboratory for learning about site assessment; water and nutrient management; pests of trees and shrubs; turf disease management; and turf insect scouting and management. Participants were able to evaluate specific problems with the educators, debate the pros and cons of some of the IPM strategies proposed, and adapt new skills and tools for pest management as the season progressed. There is a high level of concern among Rockland County environmentalists regarding golf course maintenance practices which

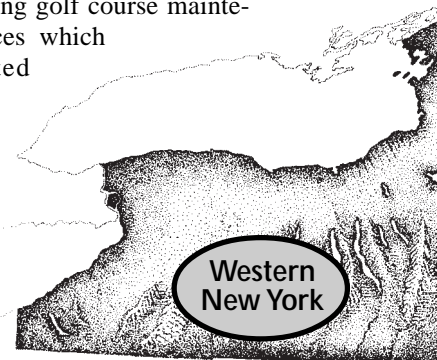
has motivated superintendents to learn as much about IPM as possible. This training not only gave them new turf

management skills, it also addressed environmental issues that are of concern to the larger community. A similar program in 1994 with state golf course personnel was used as a model.

Western New York

A hands-on training series, similar to that conducted in Rockland County, was organized by Cornell Cooperative Extension in Western New York. Although these meetings were held on golf courses, general turf topics were addressed and lawn care professionals also attended. Four sessions were held, with approximately 15 participants at each. Topics included IPM scouting (general); IPM scouting and control for diseases; IPM scouting and control of insects; and IPM scouting and control for weeds.

Many superintendents prefer to hire a private, outside scout in addition to or instead of using their own employees for scouting. In 1995, a new service was offered in Central and Western New York (Syracuse to Buffalo) that provides golf course scouting and disease diagnoses



of turfgrass samples. The consultant previously worked for Cornell Cooperative Extension and helped establish Cornell's turfgrass IPM scouting procedures. Approximately 20 courses were scouted and more are anticipated in 1996.

Developing, testing and demonstrating practical alternative methods to control turfgrass pests is a primary goal of the IPM Program. In 1995, two alternative products, *Trichoderma*, a beneficial fungus for many turfgrass diseases, and a strain of *Bacillus thuringiensis bui bui*, for controlling grubs, were tested and demonstrated. Cornell researchers have been working both in the laboratory and the field with these products for the past few seasons.

Trichoderma Demonstration

A beneficial fungus, *Trichoderma harzianum*, is a newly available biological control organism for many turfgrass diseases, such as Pythium, dollar spot, and brown patch. Spores are applied to the turfgrass surface in a granular formulation which moves into the soil where the *T. harzianum* establishes on roots, creating a coating that protects the roots from harmful root-attacking fungi.

Similarly, a sprayable formulation delivers inoculum to the leaf surfaces, and a protective layer of fungus establishes on the blades. The granular product, marketed as BIO-TREK 22G by the Wilbur-Ellis company, has been approved as a pesticide by the EPA. New York State registration was also granted in 1995. The wettable powder (sprayable form) is still under development. During the 1995 season, the use of *T. harzianum* was demonstrated on four golf courses in New York (Chemung, Erie, Seneca, and Tompkins Counties).

Four golf courses, two private, and two public, were chosen as demonstrations sites. It is too early to determine the overall effect of the *Trichoderma* demonstration. A great deal was learned that should improve the prospects for

these biocontrol organisms such as, application methods, soil population levels of *Trichoderma* and potential influences like thatch on the organism. An environmentally compatible disease management tool for high maintenance turfgrass is greatly needed by the industry, as was shown by the eagerness of several superintendents to participate in this demonstration. Further field studies with this organism will be pursued in order to improve its usefulness and adoption by NYS turfgrass managers.

Bt Demonstration for Grub Control

For many years, Dr. Villani at Cornell has studied the use of biorational control agents for grubs in turf (see article beginning on page 1). Dr. Villani has conducted research and reported the results in many popular turfgrass publications. In the laboratory and the field Dr. Villani has studied many biorational products such as the strains of *Bacillus thuringiensis* (Bt). Until recently there were no Bt varieties known to cause significant mortality in scarab grubs inhabiting turfgrass. In 1991, BT variety *japanensis* strain *BuiBui* (Bt *BuiBui*) was discovered in Japan. Bt *BuiBui* has a spherical protein crystal that is toxic to certain kinds of scarab grubs. Development and commercialization of Bt *BuiBui* has been undertaken by the biotechnology company Mycogen of San Diego CA. Dr. Villani's laboratory and field studies have shown promising results with Bt *BuiBui* for control of Japanese beetle, oriental beetle, northern and southern masked chafer and green beetle grubs. In 1995, this biological control product was applied on a lawn at Cornell. Populations of grubs were not significantly reduced two and four weeks after the application. The protocol for timing, rate, and application procedures were followed correctly. Therefore, reasons for this failure are not obvious. These types of results conflict with the laboratory and small plot work by Villani. Hopefully, in 1996 some of the answers learned from these demonstrations will get us closer to environmentally sound alternatives.

This article highlights only a few of the IPM program activities in 1995. Contact your local Cooperative Extension Association or the New York State IPM Program in Geneva for more information.

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