

# CUTT

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## Cornell's Turf Program Addresses Social, Economic and Environmental Issues

**T**urfgrasses represent one of the more important interfaces where people and plants come together, directly impacting the quality of human lives. Currently there are between 20 and 30 million acres of turfgrass in the United States, consisting of lawns, parks, golf courses, sod farms, industrial and institutional grounds, right-of-ways, etc. In New York State alone, close to two million acres are covered with turfgrasses. About 321,000 acres of residential and commercial lawns are managed by lawn and landscape services. Of that, approximately 50 percent lies in downstate New York (Westchester, Rockland, Nassau, and Suffolk Counties), where the landscape industry has traditionally been very strong.

The approximately 800 golf courses in New York State cover at least 80,000 acres of intensively maintained turfgrass, again concentrated throughout urban areas of the state. In addition, there are over 200,000 acres of highly maintained turf and lawns in parks, public and private institutions, schools, cemeteries, and airports. The rest of the two million acres of turfgrass are lower maintenance areas, such as highway medians and the residential lawns or commercial grounds not serviced by the lawn care industry.

The turfgrass industry, both nationwide and in New York State, continues to grow, with exponential growth in the golf course sector of the industry. This year in New York State alone, over \$10 million will be spent on new golf

course construction. Some courses under construction are being developed on former dairy, beef cattle, and cash crop land by owners hoping to secure a living producing a recreational commodity. In the landscape maintenance segment of the industry, sales have increased, but increased demand does not guarantee next year's profit.

Highly maintained turfgrass sites use vast amounts of inputs (fuel, fertilizers, pesticides, water for irrigation). Pesticide use in particular is greater than any other agricultural commodity produced worldwide. Many high-maintenance turfgrass sites are found in close proximity to surface waters and within critical

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groundwater recharge areas and are found primarily in and around the urban areas of the state in close proximity to most the population in the United States. Questions have been raised as to the impact of such a land use on water quality, wildlife, and human health, particularly as it relates to pesticide exposures.

### **Rationale for Increased Support:**

A major goal of the Turfgrass Science Program at Cornell University is to develop management systems that promote environmental stewardship by reducing inputs of pesticides, fertilizers, fuel, and water, and to use materials (i.e., fertilizers, pesticides, growth regulators) that are safer to the environment and for human health. Cornell's turfgrass program is respected internationally as a program where strong science and outreach directly impact the ways in which environmental quality can be maintained. Private and public funds have been and will continue to be used to address important environmental issues in addition the development of systems to safely utilize waste materials (e.g., municipal biosolids, sewage effluent, composted industrial and agricultural wastes and byproducts) for the purposes of waste stream reduction and turfgrass management input reduction (i.e., water, fertilizers, and pesticides).

Positive social, economic, and environmental impacts would occur as a result of increased state funding by 1) enhancing preservation of green spaces in New York's urban environments and in protecting public health, 2) reducing costs of waste disposal and of turfgrass management inputs, and 3) on enhanced environmental protection and preservation.

The strength and size of the turfgrass industry nationwide and in New York—and their respect for the turfgrass program at Cornell—has created greater demands and presented more opportunities for the faculty and staff of the turfgrass program. It is becoming more difficult to not only meet the demands of the industry, but to take advantage of new opportunities and initiatives with the resources available to us. Clearly, the turfgrass program at Cornell is viewed as one of the leading programs in the country. Its effects are evident well beyond the boundaries of New York State. Information generated at Cornell is used in both research and

education programs in all 50 states. It is essential that adequate resources be available to continue our important leadership role and continue to reach turf professionals, industry, and consumers with unbiased research-based information on the issues that affect their daily lives.

Additional support would be used to further strengthen research and outreach programs to reduce the impacts of turfgrass maintenance and production through increased 1) knowledge and use of microbial biotechnologies in pest control, 2) understanding of pest biology and ecology, 3) awareness and understanding of environmental contamination issues, 4) utilization of improved turfgrass varieties to reduce management inputs and potential environmental contamination, and 5) nutrient management efficiency.

State supported research, teaching, and extension programs will not only have measurable impacts on environmental quality in New York state, but will also be pertinent to other regions of the country. Despite our national and international influence, the outcome of these projects that impact the protection of drinking water quality, resource conservation, and reduced human health risks are intended for the residents of New York State. Even though the program has been fortunate to have support from industry/turfgrass management organizations such as the New York State Turfgrass Association, other funds are currently not and have historically not been available to fund such work. This is mainly because either the costs associated with the implementation of these programs have been too large, turfgrasses have not fit in the mainstream of agriculture, or for various reasons there has been a general lack of interest by legislators in funding such projects.

### **Rationale for State Support:**

To meet the challenges ahead by continuing to enhance the development of research, teaching, and outreach programs, there is a need to expand our programmatic base within the turfgrass program. Currently there are 2.1 Full Time Equivalents (FTE's) in research, 0.3 FTE's in teaching, and 1.55 faculty and 2.0 staff FTE's devoted to outreach. The overall research and educational strengths of the program have been in pest management, water quality, and allied environmental issues. We see an expan-

sion of these efforts as essential to the continued growth and excellence of the Cornell turfgrass program.

Although all of the current faculty in the turfgrass program have been successful in securing outside funding to support research programs, base support for the maintenance of facilities is eroding. The Field Research Laboratory is now able to provide only the most basic level of support, is undersized, and poorly equipped to meet programmatic needs. Much of this support is coming from soft monies obtained by individual faculty. This is a potentially dangerous situation, limiting our abilities to solve some of the more pressing and immediate problems facing the industry. Furthermore, continuing reductions in both public and private support has made it difficult to maintain highly-trained technical personnel to support important research project and, in some cases, has halted productive research programs. Additionally, maintaining outreach programs has been hampered by insufficient funding to develop both human and other resources to support such programs.

The lack of a highly visible and structured turfgrass management curriculum at Cornell has had a negative impact on campus-based instruction in the turfgrass management discipline. A strong undergraduate teaching program is important to the overall well-being of the program. Not only does the program train students to serve the industry, but a strong base of alumni will support the program in the future. Certainly support is needed to increase the number of teaching FTE's in the program and to develop a plan for promoting the program.

In a time where the demand for education, information and service in support of the turfgrass industry has been overwhelming, the commitment from county extension associations for extension turfgrass programming has been limited. This has forced the turfgrass extension program to be increasingly campus-based. We do not see this trend reversing itself in the future. Therefore, additional resources are needed to maintain campus-based extension efforts.

*Eric B. Nelson*

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## **Collaborating Organizations and Agencies; Teaching, Research and Extension Partnerships:**

**Federal Agencies:** U.S. Department of Agriculture, U.S. Environmental Protection Agency.

**National Organizations:** United States Golf Association, Golf Course Superintendents Association of America, American Society of Agronomy, American Phytopathological Society, Entomological Society of America, Weed Science Society of America, International Turfgrass Producers Association, Professional Lawn Care Association of America.

**State Agencies:** New York State Department of Agriculture & Markets, New York State Department of Environmental Conservation.

**Statewide Organizations:** New York State Turfgrass Association, Tri-State Turfgrass Research Foundation, New York State Center for Advanced Technology, New York State Integrated Pest Management Program, New England Golf Course Superintendents Association, the eight regional Golf Course Superintendents Associations of New York State.

**Industry Partnerships:** Agricultural Chemical Companies, Waste Management Companies, Fertilizer Manufacturers, Seed Companies, Turfgrass Equipment Manufacturers.