

# Turfgrass and Environmental Research

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## Mission

Use science to benefit golf in the areas of turfgrass and resource management, environmental protection, and economic viability.

## Strategic Priorities

- ❖ Provide national and global leadership on golf course sustainability.
- ❖ Develop cost-effective turfgrasses and management programs that enhance stress tolerance, reduce water requirements, and limit pesticide use, fertilizer, and energy costs.
- ❖ Support and direct unbiased research that yields information to help consumers make financially and environmentally sound product purchasing and usage decisions.
- ❖ Communicate research results for the benefit of golf course and environmental sustainability.

## Research Areas

### Integrated Turfgrass Management

Turfgrasses developed for use on golf courses require management practices that provide quality playing surfaces while conserving natural resources and protecting the environment. Projects should focus on conserving natural resources by reducing the use of water, pesticides, fertilizers, and energy. The objectives of these studies include the following:

- Develop cultural practices that allow efficient turfgrass management under unique conditions, such as poor quality soils, shade, deficit irrigation, and marginal quality water
- Determine the range of adaptability and stress tolerance of turfgrasses
- Evaluate direct and interacting effects of two or three cultural practices, like mowing, irrigation, fertilization, cultivation, compost utilization; and programs to control pests and organic matter accumulation (thatch)
- Investigate pest management practices such as biological, cultural, and mechanical controls, application of turf management practices utilizing IPM and reduced inputs, and pest modeling and forecasting
- Identify and further develop agronomic practices that will enhance carbon sequestration in soils, and reduce carbon dioxide and nitrous oxide emissions.

The results of these studies should lead to the development of turfgrass management programs that conserve our natural resources and reduce costs, with minimal impairment of playing quality conditions or aesthetic appeal. We encourage regional cooperation among researchers where similar climatic and soil conditions exist.

## Physiology, Genetics and Breeding

The quality and stress tolerance of turf is a product of the environment, management practices and genetic potential of the grass plant. In many cases, major limitations to turf quality are stress effects, many of which can be modified or controlled through plant improvement. Projects will be directed toward the development of turf cultivars that conserve natural resources by requiring less water, pesticides and fertilizers. Research projects that apply new biotechnological methods toward turfgrass improvement will be considered. Among the characteristics most desirable in the new turfgrasses are:

- Reduced need for pesticides by increasing resistance to disease, insects, nematodes, and weed encroachment
- Increased shade tolerance
- Reduced requirements for mowing, irrigation, and fertilization
- Tolerance of non-potable water
- Ability to survive high and low temperature extremes
- Increased drought tolerance
- Tolerance of intensive traffic
- Tolerance of poor quality soils.

Research in the fields of biotechnology, genetics, cytogenetics, cytology, entomology, genetics, microbiology, nematology, pathology, physiology, and other sciences that support the project objectives and provide improved techniques for improving golf turf species will be considered.

## Product Testing

The goal of the product testing is to support and direct independent research designed to provide consumers unbiased information regarding product efficacy. This information will help consumers make financially and environmentally sound product purchasing and usage decisions. The program also will provide USGA Green Section agronomists scientific information to support recommendations about products that have limited scientific information about agronomic benefits. Product testing projects could include:

- Organic vs. conventional agronomic products for turfgrass nutrition
- Alternatives to pesticides for disease or insect problems
- Biostimulants
- New technology with limited information on turfgrass applications
- Recycled materials
- Soil amendments

Product testing projects should be performed over two years for a maximum of \$10,000 per year with no overhead or indirect costs included. The number of products tested, the turfgrass performance characteristics measured, and amount of research information collected will be used to determine if the full funding amount is awarded.

## Guidelines for Funding Research Projects

To facilitate the development of full proposals, the Turfgrass and Environmental Research Committee prepared the following guidelines. Full proposals will be funded after USGA Executive Committee approves the Green Section budget in December 1, 2012. *Selection of your proposal **does not guarantee funding in 2013.*** Research projects may start as early as February 2013 depending on budget approval and completion of a signed Agreement.

### Research Proposal Format and Timetable

Please submit one copy of the full proposal (5 to 6 pages) to the USGA Green Section Research office by July 11, 2012. **PLEASE E-MAIL copies using Microsoft Word to [mkenna@usga.org](mailto:mkenna@usga.org).**

**Page 1:** Complete the 'Executive Summary' form to accompany the full proposal. The research committee revised the Executive Summary to include 'Potential Benefits or Impact for the Golf Industry.' **Please consider this one page summary as the cover sheet of your proposal.**

**Pages 2 through 4:** Up to three (3) single-spaced pages with one (1) inch margins, **and minimum font size of 10 point.** Proposals should outline the objectives of the project; research methodology; available research and field facilities; and results reasonably expected at the project conclusion. A brief timeline is helpful when evaluating proposals. Include a Literature Cited section for previous research pertaining to your project proposal.

**Page 5 (or next page):** A project budget, which **does not** include funding for equipment, construction costs, faculty salaries, and **not more** than 16% indirect costs (see the 'Funding' section below). **NOTE:** Projects requesting \$10,000 or less **should not** include indirect costs as outlined in the Funding Section below.

**Page 6 (or last page):** Brief one paragraph biographical description of the Principal Investigator and cooperating researchers.

Full proposals selected by the research committee will be submitted for funding within the 2013 Green Section budget for final approval by the USGA Executive Committee. After USGA Executive Committee approves the Green Section budget in December, and signed Agreement is completed, funding will begin in the project year of February 1, 2013 through January 31, 2014.

Agreements for approved projects will be written for one to three years; however, continuation of the project shall be determined annually and written notice shall be given. The decision to continue will be subject to performance and progress toward meeting the stated project objectives.

### Funding

The USGA will fund research projects up to \$30,000 per year for one to three years. These grants are intended to provide seed money or partial funding of the project. The USGA realizes that \$30,000 per year may not be sufficient to cover all project costs for most areas of research. USGA project funding shall not be used for capital expenditures, construction costs or faculty salaries. It may, however, be used for graduate student research support, graduate student tuition, technician salaries, and labor costs.

Overhead or administrative costs shall be held to an absolute minimum, but will not exceed 16 percent. The USGA **will not** support overhead or administrative costs for grants of \$10,000 or less. The USGA is a not-for-profit, [501(c) 3] association. As such, it is vitally interested in providing the maximum direct support to research from available funds.

Please indicate if other agencies are committed to or are funding the same project. University, local or regional funding contributed to the project is favorably viewed.

### Proprietary Rights

The general policy of the USGA is that all technology, inventions, and writings developed or first made in the performance of the research project and any patents, plant variety protection and copyrights thereon shall become the property of the university. However, the USGA, in effect, shall have the right of first refusal if the university elects not to file a patent or plant variety protection application on any invention conceived or reduced to practice in the course of the research project.

It is the policy that the USGA receives up to 50 percent of all royalties (less patenting and licensing costs) or the monetary equivalent of any other consideration received by the university or the USGA from the sale, licensing or sub-licensing of proprietary rights. It should be noted that all royalties received by the USGA shall be deposited in the USGA Foundation for the perpetuation of turfgrass and environmental research.

### Reports and Articles

The university or research institution shall submit two reports annually to the USGA. Failure to provide the USGA the following reports and articles as described below and by the dates indicated will result in the withholding of funding.

- a. A brief report (2 to 3 pages) describing in reasonable detail the research initiated, progress, and results will be due in the USGA Research office by October 1 of each project year. The information in this report will be used in the USGA's "Turfgrass and Environmental Research Summary" that is published each year on the USGA website. All reports also will be available online as part of the Turfgrass Information File.
- b. At the conclusion of the project, a final report that summarizes the entire project is required and will be published in *Turfgrass and Environmental Research Online (TERO)*. If a graduate student thesis or dissertation is a result of the funded research, a copy will be submitted to the Turfgrass Information Center at Michigan State University.

At the conclusion of the project, a peer-reviewed article (or equivalent) should be submitted to a scientific journal. A copy of the article submitted to the scientific journal should be sent to the Research Office.

Note: The USGA has the first right of refusal to trade articles published on USGA-funded research. During the project or at the conclusion of the project, at least one 2,000-word article for the *Green Section Record* or *TERO* is required.