



TURFGRASS AND ENVIRONMENTAL RESEARCH PROGRAM

2020 CALL FOR PROPOSALS

PURPOSE

The USGA Turfgrass and Environmental Research Program develops and supports non-biased research for a healthier environment, community, and playing conditions for the game of golf. Research that advances scientific knowledge or provides agronomic, economic, or environmental solutions to golf's stakeholders will be considered. Proposals will be prioritized based on the following strategic initiatives and the specific list of research priorities on the last page of this call.

STRATEGIC INITIATIVES

1. Optimize sustainable golf course management and playing conditions.
2. Protect and conserve water resources.
3. Identify and develop novel plant materials.

1. Optimize Sustainable Golf Course Management and Playing Conditions

Description: *Create environmentally sound golf course agronomic programs that enhance golfer experience and protect the environment. Specifically, proposed research should:*

- a. Develop technologies and management strategies that improve resource efficiency and mitigate stress.
- b. Optimize maintenance efficiency by reducing golf course disruption and reliance on resources.
- c. Quantify ecosystem services and community benefits provided by golf courses.

2. Protect and Conserve Water Resources

Description: *Deliver optimal course conditions while protecting and conserving water resources with new strategies and technologies. Specifically, proposed research should:*

- a. Quantify water savings and the return on investment from the combination of new technologies, cultivars, and management strategies.
- b. Develop novel management programs and tools to mitigate the stresses of poor-quality irrigation water.
- c. Develop best management practices to protect surface and ground water quality.

3. Identify and Develop Novel Plant Materials

Description: *Develop novel plant materials for golf courses. Specifically, proposed research should:*

- a. Identify and improve low-maintenance plant materials for major climatic regions.
- b. Deliver cultivars that optimize region-specific growing conditions and mitigate stresses for all playing surfaces.
- c. Foster the development of best management practices and technologies for rapid establishment of improved plants.



GUIDELINES FOR FUNDING RESEARCH PROJECTS

Submit one copy of the full proposal to cthompson@usga.org by **Friday, June 26, 2020**. *Proposals that do not meet the following guidelines will not be considered.*

Research Proposal Format and Timetable

Page 1: Use the accompanying 'Executive Summary' form to provide a one-page summary of the full proposal. Projects that document measurable implementation of results for economic, environmental, or playability benefits will be given a higher priority. Address the following:

- **Project Description.** Introduce the research problem, rationale for the research, and a summary of the research objectives for the proposal.
- **How Our Proposal is Different.** Explain how this research differs from previous work.
- **Potential Benefits for the Golf Industry.** Summarize the scientific knowledge this research will produce and how you think results will affect golf course management. Identify the target audience and explain how this research could be implemented to produce *measurable* economic, environmental, or playability benefits.
- **Deliverables.** Specify measurable deliverables for how research results will affect the previously listed strategic initiatives and improve the golf industry. Examples include improved sustainability or management techniques, decision-support tools, peer-reviewed journal articles, trade magazine articles, other educational materials, plant varieties, improved germplasm, interesting genes, etc.
- **Budget Summary.** Complete the annual funding request and the total amount for the research project. Note specific requirements in the 'Funding Guidelines' section below.

Pages 2 through 6: Format up to five pages with one-inch margins and **minimum font size of 10 points**. Include the following:

- A description of the research question and scope of the problem, including a literature cited section for relevant previous research.
- The objectives of the project, research methodology, available research and field facilities, reasonably expected results by the end of the project, and a brief timeline.
- A table that contains the project budget. Note specific requirements in the 'Funding Guidelines' section below.
- A brief, one-paragraph biographical description of the principal investigator and cooperating researchers.

Funding Guidelines

Proposals will be prioritized for funding based on the potential to affect the previously listed strategic initiatives and the validity of methodology. Any level of funding may be requested for one to three years, but the project budget **must clearly justify requested funding**.

The USGA typically allocates \$1.7 million annually to support approximately 65 ongoing and new projects. **Approximately \$400,000 per year is budgeted to support new projects from this call in 2021, 2022, and 2023** (i.e., \$1.2 million over the next three years).

USGA funding:

- May be used for graduate student research support, graduate student tuition, technician salaries, and other labor costs.
- **Shall not** be used for capital expenditures, construction costs, or faculty salaries.
- **Will not support** overhead or administrative costs exceeding 16% of total direct costs. Indirect costs for collaborative projects over multiple institutions should be calculated separately in the budget and not exceed 16% of the annual budget for each institution.
- **Will not support** overhead or administrative costs for grants of \$10,000 per year or less. The USGA is a not-for-profit, [501(c) 3] association and is vitally interested in providing the maximum direct support to research from available funds.

NOTE: New principal investigators may be considered for a secondary competitive pool if their proposal is not initially selected. For consideration, new investigators must not have received USGA grant funding previously, must have completed their terminal degree within the previous three years, and must indicate these qualifications in their biography. Up to \$40,000 per year is available over the next two years to support suitable new investigator proposals.

You will be notified in December 2020 if your proposal is selected for funding (Figure 1). Selection of a proposal does not guarantee funding in 2021. Selected proposals will be submitted for funding within the 2021 Green Section budget for final approval by the USGA Executive Committee. After the USGA Executive Committee approves the research program budget and a signed agreement is completed, funding will begin in the project year of January 1, 2021 through December 31, 2021. Agreements for approved projects will be written for one to three years; however, a 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.

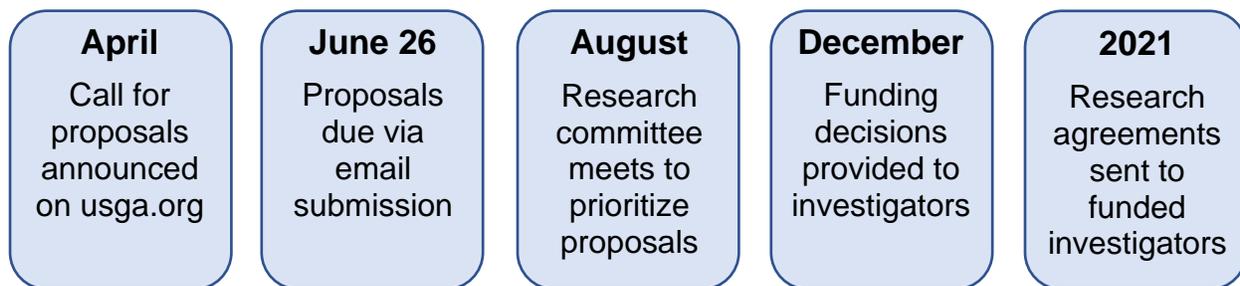


Figure 1. Timeline for the 2020 call for proposals. **NOTE:** Should funding announcements be delayed for any reason, you will be notified in December 2020 and updated regularly until funding is announced.

Proprietary Rights

USGA policy 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 therein 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 during the research project. It is the policy that the USGA receives up to 50% 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. All royalties received by the USGA shall be deposited in the USGA Foundation for the perpetuation of turfgrass and environmental research.



Reporting Requirements

The following reports and articles are due by the dates indicated. Failure to fulfill reporting requirements will result in the withholding of funding.

1. **An annual report is due by December 1st of each project year.** Annual reports should be two to three pages and describe in reasonable detail the research initiated, progress, and results to date. The information in this report will be used in the USGA's "Turfgrass and Environmental Research Summary" published each year on the USGA website. All reports also will be available online as part of the Turfgrass Information File.
2. **A final report is due at the conclusion of the project.** The final report should summarize the entire project, include examples of how results will be implemented, and estimate the potential economic impact of the research on the golf course industry. Final reports will be published on a USGA website. If a graduate student thesis or dissertation is a result of the funded research, a copy must be submitted to the Turfgrass Information Center at Michigan State University.

At the conclusion of the project, a manuscript must be submitted to a scientific journal for peer-review and consideration for publication. A copy of this manuscript also should be sent to cthompson@usga.org.

The USGA has the first right of refusal to trade articles published on USGA-funded research.

During the research project or at the conclusion of the project, at least one article for the *Green Section Record* or an acceptable trade magazine is required.

Contact Information

Cole Thompson, Ph.D.

Director, Turfgrass and Environmental Research

908.396.1562 | cthompson@usga.org



SPECIFIC RESEARCH PRIORITIES

This list of research priorities was developed by the research committee to identify critical knowledge gaps to help investigators refine proposals. The list is not all-inclusive, nor is it intended to replace the previously listed strategic initiatives. Rather, the list provides examples of crucial research subjects that could guide the development of specific hypotheses.

Topic	Description	Strategic Area
Bicarbonates in irrigation water	Demonstrate the legitimacy of concerns for bicarbonate-laden irrigation water and the efficacy of mitigation products in i) non-sodic or ii) sodic regions.	2.b.
Use of geotextile fabrics in putting green construction	Evaluate the use of geotextile fabrics in putting green construction, especially considering the potential to inhibit drainage in the years following construction.	1.b.
Return on investment of autonomous products	Demonstrate the return on investment for autonomous products used by golf course superintendents, especially regarding labor.	1.a.
GPS-assisted sprayers	Demonstrate the return on investment (especially regarding labor, chemical, and fuel savings) for using precision application technologies such as GPS-guided sprayers.	1. a.
Improve the adoption of resource-efficient cultivars	Demonstrate compelling reasons to adopt (or not to adopt) new turfgrass cultivars. Potential projects could seek to define the traits consumers most desire or to improve establishment strategies to ensure a successful renovation to a resource-efficient cultivar over a shorter timeframe.	3.c.