

RESEARCH

The National Turfgrass Research Initiative

Basic research in turfgrass needs federal funding.

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The annual value of the turfgrass industry in the United States is estimated at \$40 billion to \$60 billion. This figure includes the cost of establishing and maintaining turfgrass on golf courses, athletic fields, parks, home lawns, roadsides, sod farms, grounds of commercial buildings, hospitals, cemeteries and countless other areas. In the United States, turfgrass covers an estimated 50 million acres, 31 million acres of which is irrigated (2), making turf the fourth largest crop in acreage and the largest irrigated crop in the country.

The turfgrass industry is growing rapidly in size and scope. Collectively, the turfgrass and other green industries in the United States (trees, shrubs, flowers, interior landscaping, etc.) generate \$147.8 billion in annual sales and provide a livelihood to a substantial portion of the population (1).

Turfgrass research in the United States

Turfgrass research in the United States is almost exclusively conducted by state universities or private for-profit companies. Private companies conduct research on their products for their own internal use in research, development and marketing. Their research results are proprietary and most often not released to the public. However, for-profit companies do supply funding to university researchers to test products and to help develop recommended rates and uses.

Several nonprofit organizations such as GCSAA, USGA, National Turfgrass Evaluation Program and Turfgrass Producers International fund turfgrass research at state universities. Each year USGA provides about \$1 million, and GCSAA, NTEP and TPI collectively fund another \$1 million. Various state and local turfgrass organizations also



Photo by Scott Bauer, USDA/ARS

ARS has more than 2,100 scientists nationwide, most conducting basic research on crops and animals.

contribute to state university research programs. In total, private companies and nonprofit organizations support an estimated \$10 million in turfgrass research every year.

Many states have at least one university with a turfgrass research program. Funds for those programs come from nonprofit organizations and private companies, the

state government and the U.S. Department of Agriculture Cooperative State Research, Education, and Extension Service. CSREES, with an annual budget of \$1 billion, provides funding to state universities for agricultural research, education and Extension-related activities, but most of that money is used for faculty salaries or Extension activities. Few,

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Increase turfgrass genetic diversity

Germplasm is generally considered plants with genetic traits that may be useful in developing improved grasses. Germplasm improvement is a critical component of plant science, and having a wide range of germplasm available is important for breeding better grasses. Little turfgrass germplasm is collected and placed into public germplasm banks, stifling overall turfgrass improvement and increasing the potential for a major disaster, such as a new disease or insect wiping out turfgrass stands.

Document the benefits of turfgrass

The general public has little understanding of the importance of turfgrass in protect-

ing soil and water, reducing heat, controlling dust, etc. One avenue to obtaining and releasing information on turf's benefits is through large, coordinated research programs.

Help from the federal government

Through the USDA, the federal government funds basic and applied research on many crops and for many agricultural industries. The Agricultural Research Service is the in-house research arm of the USDA, with a \$1 billion annual budget and 2,100 scientists at 100 locations. ARS conducts primarily basic research on everything from apples to petunias. ARS has programs for the big crops such as corn, wheat and soybeans, but it also has significant programs for smaller

industries such as aquaculture (fish farming) and floriculture (floral and nursery crops). This research is critical, helping these industries advance the science in their areas and making large improvements that benefit end-users. Could the same be done for turf?

The turfgrass industry wants to address the issues facing it and desires to be part of the solution rather than the problem. However, these critical issues must be addressed with science-based information and with improvements in turfgrass development and management. Because these issues are national in scope and importance, the turfgrass industry believes that ARS is the appropriate agency to conduct the research.

The National Turfgrass Research Initiative

The National Turfgrass Research Initiative is the blueprint for a coordinated national research program to be funded through USDA ARS and conducted through a coalition including the USDA, the university research community and the turfgrass industry. NTRI discusses the industry, the crucial need for this research and specifically identifies high-priority research goals and key programs.

NTRI has been developed through intensive discussion among industry, academic and government researchers and fine-tuned through the recent efforts of a joint working group of industry leaders. It proposes a new level of cooperation among all these groups for research in an area that, until now, has not been federally supported.

Federal attention to the issues and research goals identified in NTRI are critical to the continued success of the turfgrass industry. A basic premise of NTRI is that federal research dollars should be directed toward programs that cannot be funded adequately by the states or industry. With many programs, the federal government can play a coordinating role that is not possible for any other entity but is essential to ensure cooperation and maximum efficiency. Federally funded research programs also have greater credibility than privately funded programs. Finally, the industry looks to government to fund the long-term basic research, the building blocks that the industry uses in its own shorter-term research efforts.

How does the turf initiative work?

For NTRI to get off the ground, funding has to be appropriated by Congress. NTRI



Photo by Peggy Greb, USDA ARS

Agricultural engineer Kevin King examines discharge water from a turfgrass system in central Ohio as part of a research program designed to assess how land uses and management affect water quality. This research is funded, in part, by the USDA's Turfgrass and Environmental Research Program.

proposes that \$450,000 be appropriated for each research scientist position within USDA ARS. Of the \$450,000, \$300,000 is used to hire a researcher and staff and purchase equipment at an ARS location. The remaining \$150,000 is allocated for that researcher to conduct cooperative research with universities. If NTRI is fully funded (\$32.4 million), ARS will be able to hire 72 turfgrass researchers and allocate more than \$10 million annually to universities through cooperative research.

NTRI will be largely implemented by research teams. These teams will frequently involve multiple research locations spread across several states to ensure the right mix of scientific skills are available for a systematic research strategy. The research dollars will be coordinated by and through the ARS budget. In turn, ARS will work with university and private industry researchers to establish research teams. The team approach maximizes cooperation among all of the various research communities.

The need for interdisciplinary research strategies and teams is paramount. In addressing each of the research areas suggested by NTRI, researchers must consider not only the specific goals of a project, but also how the results might affect or interact with other real-world production aspects. For example, solving a problem through biotechnology or genetic manipulation would be useful only if it did not create or exacerbate other problems encountered in producing or maintaining turfgrass in the field. None of the specific research programs in NTRI is intended to be developed in isolation.

NTRI also expects researchers to adapt results from other agriculture (or other biological) research areas, rather than starting anew for each crop or project. For example, if research on corn or wheat might benefit turfgrasses, then a valid research proposal would build on rather than duplicate that research. In addition, all aspects of grassland agriculture (turf, forage, biofuels and ecosystem restoration) will benefit from a coordinated, national effort to collect, evaluate and preserve grass germplasm. This strategy will achieve a greater return on every dollar invested in research.

Research components of NTRI

NTRI consists of six broad research areas: water, germplasm, pests, environment, soil and integrated turf management. Within

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says . . .

- **The turfgrass industry** encompasses 50 million acres in United States with an estimated annual value of \$40 billion to \$60 billion.
- **The National Turfgrass Research Initiative** has been developed to address concerns about the use of water, pesticides and fertilizer for turf maintenance while documenting and improving the benefits of turf to society and the environment.
- **NTRI proposes a** \$32.4 million turfgrass research program within the federal government's USDA Agricultural Research Service.
- **NTRI addresses the** national concerns facing the turf industry by hiring federal researchers and providing funding to universities for cooperative team research.
- **NTRI emphasizes basic** research — long-term, risky and expensive research unlikely to be conducted by state universities and private companies.

each component are several research priorities. For instance, the critical research areas in the first component, water, are improving turfgrass water use efficiency and irrigation efficiency and investigating the use of recycled or saline irrigation water.

Progress to date

What progress has been made in getting NTRI funded? Over the last five years, we have met with ARS and USDA officials, members of the House and Senate, Congressional staff and the secretary of agriculture. We have stressed the size and scope of the turfgrass industry, the important issues we face and the need for federal research dollars to solve these problems.

Thus far, our efforts have been rewarded as we have convinced Congress to allocate funding for ARS to hire a research scientist at Beltsville, Md. (2002), conduct cooperative research in Logan, Utah (in conjunction with Utah State University), and hire a full-time research scientist in 2006 at Beaver, W.Va. In the ARS budget proposed for fiscal year 2007 (starting Oct. 1, 2006), an additional \$1.88 million has been allocated for turfgrass research. If this funding is retained in the budget passed by Congress later this year, it will allow ARS to hire three to four researchers in the Southwest and to develop cooperative projects with universities, concentrating on turfgrass water use issues. For 2007, we are also asking Congress to include funding for five more research positions at four different locations.

Summary

The NTRI is an ambitious, \$32 million effort to take the turf industry to new

heights. NTRI will solve problems related to environmental issues surrounding turf such as effluent water use and water use efficiency and improving pest resistance and management strategies.

What can you do to help? First, learn more about the NTRI at www.turfresearch.org or www.turfinitiative.org. Next, contact your senators and representatives in Congress to let them know the importance of federal funding for turfgrass research by USDA, ARS. Ask them to support funding for NTRI.

Finally, the expense of the lobbying effort to secure NTRI funding is very high. Ask your local and state turfgrass associations and supplier companies to make a contribution to the National Turfgrass Federation Inc. in support of this effort. The future of the turf industry is at stake.

Acknowledgments

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