



For the Common Good: A National Turfgrass Research Initiative

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There exists an estimated six million square miles of turf in the U.S. making it by some accounts the nation's largest irrigated crop (Milesi et al., 2005). The turf industry employs hundreds of thousands of persons and has grown to have an approximate value of \$40 billion (NTRI, 2003). Despite the hugely public nature and impact of turf in the U.S., private enterprises have been virtually the only funding source for turf research for the past 100 years. Requirements to show rapid results, combined with relatively small amounts of funding available for any particular project result in efforts being directed towards applied research with short-term results and limited national impact. Such a situation has resulted in a lack of understanding of fundamental turf processes and has hindered the development of sound environmental practices. Such a lack of understanding has translated

into public apathy and regulations based more on emotion than scientific rationale.

In January 2002 representatives from the U.S. Department of Agriculture (USDA)-Agricultural Research Stations division met with turf managers and researchers to discuss the possibility of federal involvement in turf research. Such a move would facilitate long-term research to focus on fundamental problems requiring more attention and funding than is available using industry monies. The coordination resulting from such an effort would enhance the efficiency of turf research while increasing its public visibility and acceptability as results would be less likely to be viewed as "tainted" by industry funding.

The National Turfgrass Research Initiative (NTRI) is being advanced by the non-profit National Turfgrass Federation (NTF). Board members are drawn from

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the following groups: the National Turfgrass Evaluation Program (NTEP), United States Golf Association, Golf Course Superintendents Association of America, Turf Producers International, the Irrigation Association, and Professional Landcare Network (PLANET), Crop Science Society of America-C5 (Turfgrass Division), American Seed Trade Association, Outdoor Power Equipment Institute, National Roadside Vegetation Management Association, and the National Parks and Recreation Association. Some of the goals of the NTRI are to:

- Aid communities by developing better management systems to conserve natural resources and protect the environment
- Maintain grass biodiversity through collecting and preserving germplasm
- Improve environmental restorations and protection efforts by exploring grasses abilities to remediate environmental pollution
- Document economic impacts of the turf industry
- Enhance the quality of American life through beautification and recreational facilities

The NTRI seeks to have Congress approve a \$32.4 million line item in the USDA-ARS annual budget to fund turf research. The plan would establish six research cen-

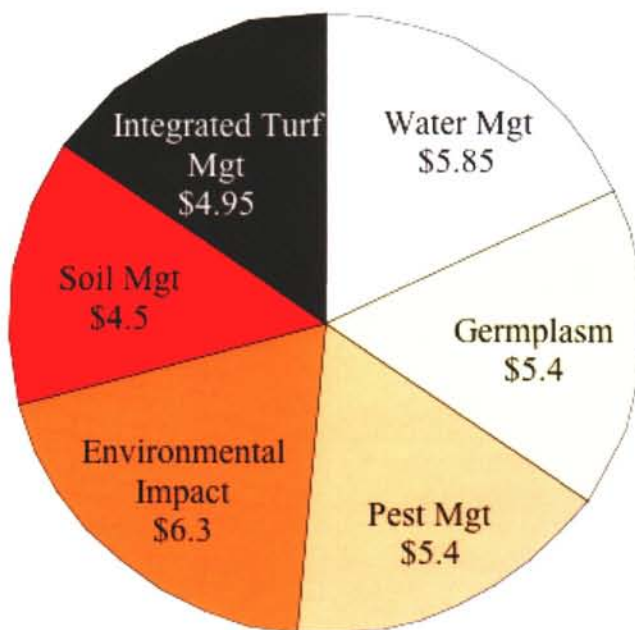


Fig. 1. Proposed budget allocation areas for turf research under the National Turfgrass Initiative. Each value is in millions of dollars.

ters in the U.S., each with a small cadre of scientists working on a specific topic. Their work would complement existing university programs and include research not currently performed at universities or private entities.

Each of the six centers would be funded at approximately \$5 million annually (Fig. 1). Approximately two-thirds of the funds would support research at these centers. The centers would distribute the remaining one-third of the funds to support cooperative projects with university scientists around the country. Major and secondary objectives for each of the centers has already been identified though these could change as progress is made and/or as new issues develop. The six major objectives are as follows:

1. Improvement of water management strategies and practices (\$5.85 million).

Water has already become a precious commodity for turf production and management in the West and parts of the southeast and eastern coastal areas. Primary objectives for water management research would be: 1) Increase the understanding of turf water use and efficiency, 2) Improve the management of available water through better conservation strategies and best management practices, and 3) Evaluate the use of non-potable and poor quality water sources on turfgrasses and the environment.

2. Collection, enhancement and preservation of turfgrass germplasm (\$5.4 million).

Over 2,000 grass species exist though less than two dozen are routinely used for turf. Even within these 24 species an array of genetic potential exists, though



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careful management is required to maintain genetic diversity for use in breeding programs to develop turfgrasses suited for specialized locations and uses. Primary objectives of germplasm work would be to 1) Collect, evaluate and preserve valuable turfgrass germplasm, 2) Increase our understanding of turfgrass biology and genetic systems for stress tolerance, and 3) Improve turfgrass stress tolerance through genetic improvement.

3. Improvement of pest management practices (\$5.4 million). Increasing regulations and slow development of new pesticides, along with an awareness to preserve the environment, will cause pest management in the near future to rely more on practices based on a knowledge of pest biology. Research coordinated through this center will focus on disease, insect, weed, and vertebrate pest management.

4. Understanding and improvement of turfgrasses' role in the environment (\$6.3 million). It's been over 10 years since Beard and Green (1994) published their somewhat controversial manuscript outlining the benefits of turfgrasses to the scientific community. Not only is additional documentation needed to support some of these claims, but other impacts such as the cooling power of turf in the urban environment need to be understood. The GCSAA agreed with the importance of turf's environmental impact sufficiently to rename their

research grant program The Environmental Institute of Golf. The importance of this issue to the NTI is obvious as this area is slated to receive more funding than any of the other centers. The primary objectives at this center will be to 1) Assess and characterize the environmental impacts of turfgrass and management techniques, including their effect on beneficial soil and other organisms and mammals, and 2) Evaluate and develop management strategies and technologies to enhance the environmental quality of turfgrass systems, including development of computer modeling systems.

5. Enhancement of soil and management practices (\$4.5 million). The U.S. designated 2006 as the Year of Soil in recognition of the central role soil plays in our ecosystems. Soil issues, ranging from soil erosion to depletion of soil quality, are sufficient to warrant a dedicated group of turf soil researchers, an area which has long been neglected (Wayne Kussow and now Doug Soldat have been two of less than 10 bonafide turf soil researchers in the past 30 years). The Wisconsin Turfgrass Survey of 2000 found that poor soils were identified by homeowners as one of the most important obstacles for maintaining lawn turf. Soil research will focus on two primary objectives: 1) Overcoming soil limitations to turf production, establishment and use, and 2) Investigate the potential of using agricul-

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tural and industrial by-products for turf applications.

6. Development of integrated turf management systems (\$4.95 million). Combining the information developed from the other five centers into an integrated package for turf management will be part of the function of the integrated turf man-

agement system researchers. The program will also seek to enhance economic return while complying with a myriad of environmental regulations and standards and extend integrated turf management system information to the general public. Specific primary objectives include 1) Development of economic-based

integrated turf management tools to enhance environmental quality, and 2) Development of decision tools for Integrated Turf Management practices.

As with any congressional activity, lobbying is necessary for the NTRI to be successful. Successful funding of the \$32.4 million initiative will likely be developed in stages. Initial funds were sufficient to hire one full-time researcher (Dr. Scott Warnke) to work on germplasm issues. His lab is housed at the National Arboretum in Washington, D.C. More recently a small amount of funds were allocated to Utah and West Virginia for turf research. The initiative is gaining traction in Congress and NTRI could receive \$1.4-1.8 million in 2007. Lobbying is coordinated by the National Turf Federation who received \$600,000 from NTEP for the first six years of operation. The effort has now drained the resources of NTEP, causing them to reduce their annual contribution to \$20,000. An additional \$80,000 is needed annually to maintain lobbying efforts. Turf organizations throughout the country are being asked to help contribute towards the effort. If all goes well, at some point in the not-too-distant future the NTRI may be fully funded and no additional dollars will be needed: meanwhile, the efforts will have paid off by providing much-needed federal research funding for turf and an improved recognition of turf's role in society.

If you would like to find out more about the NTRI, information is available at www.turfresearch.org.

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