

MTGF Funding For 2005

By LARRY VETTER

Executive Director, Minnesota Turf & Grounds Foundation

The Board of Directors of the MTGF at its March 3, 2005 meeting approved funding several research programs and other projects. Approved requests were submitted by Dr. Brian Horgan, Dr. Eric Watkins, Dr. Jeff Gillman, Brad Pedersen and Bob Mugaas.

Dr. Brian Horgan, Turfgrass Extension Specialist at the University of Minnesota, submitted proposals that would continue funding his research for the coming year and also provide technician support for the operation of the TROE Center on the St. Paul campus. These requests were at the same level as those submitted in 2004. Brian's request included his appreciation for past support which has allowed him to leverage those contributions for additional grants, in-kind contributions from industry and other state associations. The Board unanimously approved both requests.

Dr. Jeff Gillman, Associate Professor, Department of Horticultural Science, also submitted two proposals. The first was a request for continued funding of stem girdling root research by the TRE Nursery at the University of Minnesota. Collaborating researchers are Dr. Gary Johnson, Patrick Weicherding, Extension Educator, and Chad Giblin, Scientist, all with the University of Minnesota.

The Minnesota Turf and Grounds Foundation supported research at the TRE nursery for the first time last year when it provided funds to look at a variety of different research projects related to stem girdling roots (SGRs). This research was conducted primarily by Gary Johnson, an Urban Forester and Professor at the University of Minnesota, who is one of the leading national authorities on SGRs, and Jeff Gillman, Associate Professor and Nursery Management Specialist. Much information was gleaned through the use of these funds and information from these experiments was made available to those interested at the 2005 Green Expo as well as in the fall 2004 MTGF newsletter and the MNLA Foundation Bulletin. Additional information from these studies will be published as it is collected.

As is the case with most research, the

answers that have gained have led to more questions. These questions include how soft the bark is in trees that have been planted too deep and whose root system is raised upon transplanting and whether more radical root pruning can lead to enhanced ability for a plant to break out of a pot-bound state.

The TRE nursery request was to help support three different research projects associated with planting depth and stem girdling roots. These projects are as follows:

The first set of experiments is to investigate the tenderness of stem tissue covered by earth during production. This

could lead to damage on stems similar to what has been seen recently on transplants coming from various nurseries.

This set of experiments is broken into two parts. First, a greenhouse experiment will be arranged where trees that have been planted too deeply will be replanted to a proper planting depth and will have their lower, formerly earth-covered stems, exposed to high intensity heat lamps to see how well they handle this energy source compared to trees that have not been buried too deeply.

Second, two sets of trees, one that was planted too deeply during production and one that was planted to the proper height, will be planted in the field at the proper depth. These trees

will be monitored for trunk splitting and cambial damage over the course of three years.

We will perform an experiment that looks at better ways to stop circling roots in containers based on an experiment conducted last year which showed that butterflying, teasing and slicing roots had no benefit over a control in encouraging rooting in pot-bound plants. This experiment will include testing much more drastic measures for altering the root mass such as removing the outer inch of roots and soil from the circumference of the pot and slicing significantly deeper into the root ball when scoring the tree.

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We will continue our nine-year study that investigates the effects of planting depth on the development of girdling roots. This experiment was designed to look at the effect of planting depth on *Acer saccharum* and *Tilia cordata*. In this experiment trees are planted with the crown placed at a depth of 0, 5 or 10 inches below the soil surface.

After 3, 6, and 9 years (Currently in 4th year) groups of trees will be harvested using an air spade to analyze root growth and their effects on the tree. Yearly measurements of height and caliper size will also be collected. Maintenance will be conducted as with typical landscape trees. Results from the first sampling date already shows some significant encircling problems in deeply planted lindens.

Jeff's second request was for funding of elm tree propagation research by the TRE Nursery at the University of Minnesota with Chad assisting.

According to Jeff in his request, many new American elm cultivars, resistant to Dutch elm disease, are finding favor in today's nursery industry. Hence, new ways need to be found to rapidly produce these plants. Historically grafting cultivar buds onto seedling rootstock has been a favored way to reproduce elm cultivars. However, the use of seedling rootstocks is no longer an attractive way to reproduce these plants because of the possible susceptibility of these rootstocks to DED. Currently many grow-

ers, such as Schmidt's are using stem cuttings to propagate DED resistant American elms. However, only a relatively few cultivars have been propagated and it is unlikely that this process will work for all American elms. St. Croix and Eden Prairie are two elms from our geographical area that have been found to be resistant to DED and which currently do not have a protocol in place for their vegetative propagation.

Jeff proposed to investigate stem cutting propagation of a variety of Dutch elm disease resistant cultivars that have not previously been propagated using stem cuttings including St Croix, Eden Prairie and a few others from un-named Minnesota sources as well as Valley Forge and Princeton as these two elms are already propagated from cuttings somewhat successfully. He will test hardwood and softwood cuttings for their rootability through varying timing (season and month), hormone concentrations (IBA and NAA at concentrations from 1,000 - 10,000 ppm in quick dips and in talc), and propagation media (sand, peat, and perlite mixes). These tests would be run using standard factorial designs and will yield answers as to the best way to propagate these elms from stem cuttings.

Given the value of both of these projects, the Board unanimously approved both of these requests.

Dr. Eric Watkins, Turfgrass Research & Teaching in the Department of Horticultural Science requested support for his research-related activities in the turfgrass breeding program at the University of Minnesota.

In support of his request Eric stated that the overall goal of his program is the development of low-input turfgrass varieties with improved winter hardiness. Over the past year, he has initiated breeding programs for tall fescue, perennial ryegrass, Kentucky bluegrass and a native grass species (tufted hairgrass). Turf plots have been established on the St. Paul campus for several cool-season turfgrass species. This data will be available to turfgrass managers this summer.

They have completed several freezing tolerance studies on turf-type tall fescue cultivars; this information will be valuable to turfgrass managers throughout Minnesota and the region. New varieties of perennial ryegrass and Kentucky bluegrass should be ready for release within the next two years. Research studies have also been initiated on the vernalization requirements of both Kentucky bluegrass and tufted hairgrass. This information will be valuable as the breeding program continues to expand.

Eric is also working with Dr. Don White on the continuation of the creeping bluegrass breeding program. They will be initiating a large-scale turf plot evaluation project this spring. This study will include all material developed in recent years by Dr. White's program.

The most important component of a successful plant breeding program is high quality germplasm. Eric will continue to spend time and effort on germplasm acquisition. This will involve collection trips throughout Minnesota and the surrounding states during 2005.

The majority of his budget is devoted to labor and space fees. Adequate greenhouse and field space are critical to my program. His budget must also cover labor expenses associated with a research scientist (50%), graduate students and several undergraduate employees. Additionally, he will be contributing toward the purchase of modern seed-cleaning equipment. This equipment is necessary for proper treatment of turfgrass seed.

Given the need for improved cultivars in a variety of species, the Board unanimously approved Eric's request for funding.

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The next request was made by Bob Mugaas, Regional Extension Educator - Horticulture, University of Minnesota Extension Service, Extension Regional Center-Farmington, for a summer Horticulture Technician at UMORE Park.

Bob requested funding to hire a person to be responsible for the day-to-day maintenance needs associated with the four existing and two or three newly planned turfgrass research trials being conducted at UMORE Park. In addition, they will be involved with providing supplementary maintenance as required for the Plant Research Evaluation Program trial gardens as well as assisting with the initial installation and early establishment of the planned woodland edge teaching gardens near the UMORE Park Administrative offices. The person will also be involved with the ongoing development and implementation of IPM plans initiated in 2004.

This funding, combined with matching funds from the applicant, UMORE Park

and Dr. Mary Meyer's research grant, will be invaluable in being able to support a summer technician that can provide the kind of consistent care and management of the applied turfgrass research plots and teaching gardens. The Board unanimously approved Bob's request for funding.

Given all requests that were approved for funding in 2005, the MTGF has committed to an expenditure of up to \$109,000⁰⁰ for the coming year.

Additional requests were made by Brad Pedersen in the MTGF's *Clippings* newsletter. The final funding proposal was presented by several members of the MTGF Board. This proposal was for funding an Economic Impact Study. While this need has been discussed for several years, members felt that conducting such a study would give the MTGF much-needed leverage when dealing with partnering efforts for our activities. Such a study would not only be beneficial for the MTGF but would also provide information for our Allied associations.

It was felt that such a study would not

only be useful as a stand-alone source of information but would also be useful when combined with similar studies that are in existence. We know that our portion of the Green Industry has a huge economic impact. However, being able to reliably quantify that with any degree of certainty is virtually impossible at the present time.

Given the value of the information to be gained, the Board unanimously approved funding such a study. To facilitate this study, a committee consisting of MTGF Board members was established. Volunteering to serve on this committee were

Brian Horgan, University of Minnesota; Greg Hubbard, CGCS, MGCSA, Mark Stennes, MSA, and Dave Kemp, MAC. The MTGF Executive Director will assist as needed.

Given all requests that were approved for funding in 2005, the MTGF has committed to an expenditure of up to \$109,000.00 for the coming year. This level of funding is something that all of our members should be very proud of. A great deal of useful information will be generated and it will all benefit you as a member of the MTGF.

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