

Overview of the Turfgrass Science Program

The Turfgrass Science Program at Purdue University made tremendous progress in 2000 and under went many changes. We'd like to take this opportunity to update you on the progress of the program during 2000.

William. H. Daniel Turfgrass Research and Diagnostic Center

- Progress at the Daniel Turf Center included installing a new fence around the perimeter of the research plots, building a topdressing/soil/mulch storage area, and establishing 2 more acres of research plots.
- The teaching laboratory was used for 35 class meetings, 10 extension events, and 24 other education programs with over 4176 attendees. The Center is often used for meetings with faculty, staff, alumni and friends of Purdue. There were 15 of these meetings held at the Center in 2000.
- All research at the Agronomy Farm was concluded in 2000.

Personnel Changes

- Kimberly Ralston joined the Turf Program in Aug working on her Masters degree. Kimberly is conducting research renovating golf course fairways under the direction of Zac Reicher.
- Clark Throssell left the Turf Program in Dec to become Director of Research for the Golf Course Superintendent's Association of America.

Turfgrass Undergraduate Education

- Over 75 students were majoring in Turfgrass Science at Purdue University. This represents about 40% of the undergraduate enrollment in the Department of Agronomy.
- 17 students graduated in May or Dec 2000, 15 with a B.S. degree in Turfgrass Science, two with an Associate degree in Turfgrass Management. Placement of these students was 100%.
- Seven students majoring in Turfgrass Science earned scholarships administered by the Turf Program in 2000. Funds for these scholarships came from the turf industry.

Turfgrass Research Program

- In ongoing studies in cooperation with the National Turfgrass Evaluation Program (NTEP), we evaluated the turf performance of Kentucky bluegrass, tall fescue, creeping bentgrass, fine fescue, perennial ryegrass and zoysiagrass cultivars for use in Indiana. Based on the outcome of these trials, we will be able to make cultivar recommendations to professional turf managers and homeowners.
- Also in cooperation with the National Turfgrass Evaluation Program (NTEP), we evaluated the performance of bermudagrass for golf course fairways in Evansville, IN. This study was established in June 1997 and will continue through 2002.

- Dan Weisenberger and Clark Throssell conducted several weed control experiments in 2000. These experiments included pre- and postemergence control of annual grasses, postemergence control of broadleaf weeds and selective control of *Poa trivialis* in creeping bentgrass fairways. Results of these experiments are used to make weed control recommendations for the turf industry.
- Glenn Hardebeck and Zac Reicher continued a number of turfgrass management studies including fertilizer evaluations, cultural control of red thread, and a number of establishment studies including developing fairway renovation strategies, understanding seeded zoysia and bermudagrass, and evaluating herbicide safety on seedlings.
- Zac Reicher, Ron Turco, and Jon Harbor continued an extensive water quality monitoring experiment on Purdue's new Kampen Course. This 5 year experiment examines how effective created wetlands are in filtering runoff from urban, commercial, and golf course areas. This study is supported by the United States Golf Association, Pete Dye, Inc, and Heritage Environmental.
- Eric Kohler conducted several experiments aimed at understanding how to better control ground ivy. His research is investigating whether differences exist among ground ivy populations that make it difficult to control and trying to determine better herbicide control strategies.

Turfgrass Outreach/ Extension

- Over 2500 turfgrass professionals attended on-going training programs presented by the Turfgrass Science Program in 2000. These programs included:
Midwest Turf Expo - Jan - Indianapolis
IN-IL Turfgrass Short Course - Feb - Willowbrook, IL
Midwest Regional Turf Field Day - July - West Lafayette
Turf and Ornamental Seminar - Nov - Lafayette
- In cooperation with the Indiana Golf Foundation and Indiana Professional Golf Association, an internship program was continued for the fourth year where turfgrass science students travel to Indiana golf courses with Clark Throssell or Zac Reicher on consultation visits. Paula Libassi, a senior from Northern Indiana, and Aaron Patton, a senior from Bloomington, were the students who participated this year. This continued to be a tremendous opportunity for students to experience a wide range of golf courses and suggest ways of improving each course. When students were not traveling, they were helping at the Daniel Turf Center.
- Dan Weisenberger continued to develop and refine the World Wide Web home page for the Turfgrass Science Program at <http://www.agry.purdue.edu/turf>. The home page continued to be extremely popular, with over 20,000 "hits" in 2000. The "Turf Tips" was especially popular in that it provides timely turf maintenance advice every 2 weeks during the growing season.
- A tremendous number of homeowners benefited from the turfgrass program in 2000, primarily by indirect contact with county extension educators and press releases in local newspapers, but also by direct contact

through phone calls, email, Master Gardener training, and the World Wide Web page.

Turfgrass Pathology

- Take all patch symptoms were apparent for approximately four weeks in 2000, from late May through late June. Results show that only fungicide applications in early May significantly reduced take all patch severity. No measurable reduction in take all patch were associated with ammonium sulfate application. Turf eventually recovered from symptom expression. It is interesting that fungicide sprays applied in mid June, at the height of symptom expression, had no effect on the rate of recovery of the patches.
- After three years of field research, the use of a biological agent (*Trichoderma harzianum*) had no effect on dollar spot development. Measurable differences in the rate of dollar spot development were observed on different creeping bentgrass varieties. Disease progress was most rapid in Crenshaw and Penn A4, less rapid in Penn G2, and least rapid in Pennlinks and Penncross.
- Gray leaf spot activity was monitored with an air sampling instrument during the summer of 2000. The instrument was used to trap spores of the gray leaf spot pathogen to help define daily environmental conditions that favor disease development. Research also was initiated to explore the over-wintering capacity of the pathogen. Initial results show that although a rapid decline in the pathogen population occurred during November, 2000, the pathogen remained capable of producing spores and re-establishing the disease.

Turfgrass Entomology

- Work regarding the behavior of adult Japanese beetles continued during 2000. This work is providing clues as to the behavior of Japanese beetle flight and dispersal.
- Use of remote sensing to detect and map Japanese beetle grub populations prior to irreversible turfgrass damage was initiated during 2000. Such technology may pave the way for application equipment with global positioning systems (GPS) capability to apply pesticides precisely where needed, reducing costs, human exposure to pesticides and potential negative effects on the environment.
- Chemical efficacy tests, financed by the chemical industry to evaluate and compare the effectiveness of new and existing insecticides for turfgrass insect pest control, were continued in 2000.
- Extension efforts are underway to proactively influence potential legislation of pesticide use in schools, parks, athletic fields and other public areas. Pesticide use in public areas is currently an area of intense debate and one which, if not moderated, may lead to crippling mandates for the turfgrass industry. During 2000, we have encouraged voluntary integrated pest management in schools (IPMIS) programs through the development of an IPM technical resource center and a series of training workshops

throughout the state. Our extension efforts to show voluntary compliance with the issues associated with pesticide risk reduction in public turfgrass will continue through the coming years.