

## HOW RESEARCH BENEFITS TURF MANAGEMENT

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Turf research and turf management relationships, although often considered to be independent categories, are, I suggest, in several respects complementary. Each supports the other; and, each is independent.

Let me give you an example of how turf management benefits research - two topical situations:

- (1) Black Layer
- (2) Dominance of bentgrass in a mixed bentgrass Poa annua fairway sward.

Both of these current problems are being researched at Michigan State University. Neither project originated with research personnel. Rather, when those in charge of golf course turfgrass management recognized these problems - as a result of their own observations, then, research and extension personnel confirmed and sought documented answers - none existed!

Research personnel launched programs to seek answers and to verify observational data. Most importantly, within a short period of time (research time basis) answers as to "why" and "how" were found.

Once a problem is defined solutions either to avoid, to correct or to alter management programs were forthcoming.

An example of how research drives management is the building of sand greens. A number of years of research were needed to be able to say with certainty, "greens constructed in this manner resist compaction and support quality playing surfaces." There are numerous other examples.

Let me point out other benefits research brings to turf management.

Publication of research results in refereed (papers reviewed by other scientists) journals, conference proceedings, and progress reports have, in the past, often been placed in libraries or less accessible places and lost for all practical purposes.

One of the early objectives of the USGA Research Program was to establish a computerized information file at Michigan State University under the direction of Dr. Dick Chapin and Peter Cookingham. This information file (TGIF) provides bibliographic access to published materials relating to turfgrass research and management and is accessible by contacting TFIG staff for assistance with a search of the file, or subscribing to the "dial-up" access service to perform a search of the database from a remote location. The latter process requires an IBM or compatible PC and a 1200 baud modem as well as registration and documentation to guide the search process and downloading of materials.

Included in the database of over 11,600 references, is literature from research journals, professional publications and trade magazines, in all, over 70 sources.

The Turfgrass Information Center acquires and stocks turfgrass related materials, indexes and abstracts materials for inclusion in the database, maintains a Turfgrass Thesaurus to aid in the search process, and provides a printed bibliography as well as reprints of requested documents. There are 121 references to Patch Disease, 25 are referred; and there are 37 on Black Layer, 15 of these referred.

Another way research benefits turf management is the constant flow of well-trained students into management positions. These students are familiar with current research because of their exposure - many have worked on research plots, all have observed research plots and techniques - all of which brings a "professionalism", true professionalism to golf course superintendents.

Basic research provides information and data that at first sight may appear to have no application to turf management. Yet, basic research is the foundation upon which tomorrow's applied research and turf management practices will be based. The need for expanded efforts to find answers is great and perhaps in some situations, may be critical.

Depending upon the extensiveness and the funding of various grass breeding programs in the future, we may see:

Nitrogen fixing grasses useful for turfgrass purposes.

Allelopathy (war between plants) incorporated into turfgrasses. Ryegrass is reported to possess this characteristic. Also, it has been noted that ryegrass can be seeded into Poa annua far more easily than bentgrass. Then, bent can be seeded into rye, and, obtain a good stand! Why? We don't know - actually we only have observations to support this belief, no research as yet!

Endopathy - endophytes (fungi) are found in certain grasses. They cause the plant to repel certain insects. For example, tall fescue and some ryegrasses contain an endophyte known to repel sobweb worms and the Argentine stem weevil - limited research, but what tremendous dividends!

Biological immunity - similar to immunization of man. Already there is evidence to indicate that attack by weak (attenuated) pathogens preclude or prevent attack by stronger (virulent) ones - of the same genus.