The University of Wisconsin has joined the growing ranks of universities with affiliated golf courses. This is a view of its new Robert Trent Jones Jr.-designed course, which officially opens in July. See a story on university courses on page 33.

Winter whacks Washington courses with winter kill

By Bob Spiwak

Yoyo-like winter temperatures caused winter kill that devastated greens on northern Washington State courses, costing tens of thousands of dollars in repair bills and lost revenues.

The Spokane area, which boasts some of the nation’s best municipal courses, was hit the hardest. Indian Canyon, perennially listed among the top U.S. venues, counted at least half its greens this spring as “browns.” And it was not alone.

In fact, courses that fared best had newly planted bentgrass, or were blanketed with snow throughout the winter. Most severely damaged were courses with incursions of poa annua (annual bluegrass) and little or no snow.

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USGA promises another $4.1M

Executive Committee promises continued support through 1997

By Mark Leslie

The U.S. Golf Association Executive Committee has approved another $4.15 million in funding for research projects.

Revealing the decision made on June 10, USGA Green Section National Director Jim Snow said he was excited at the committee’s high level of support for the research program.

The committee this winter allotted $3.8 million to 18 research projects through 1992. That will complete the 10-year program that began in 1983. This new infusion of funds will carry research from 1993 to 1997, Snow said.

Accomplishments so far have consisted mostly of findings that set the foundation for further studies, Snow said. He cited the Turfgrass Information File at Michigan State University, which “is a tremendous resource for the entire industry and is just now catching on”; development of NuMex Sahara bentgrass and 609 buffalograss; and investigation of breeding improvements such as screening for salt.

“These are things you can’t visually see, but that were important research,” he said. “We’re at the point now where...”

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Seed scientists making great strides

By Mark Leslie

While plant breeders are making extraordinary advances in turfgrasses, scientists are probing and developing other improvements using nature’s endophytes and nematodes and new techniques like seed priming and coating.

“A lot of very bright and talented young people are going into turfgrass research,” said Dr. Reed Funk of Rutgers University, an expert in cool-season grasses.

“They will do a lot of things that haven’t been done. “Priming,” he added, “could be developed to be a delivery system for micro...”

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University and industry seed breeders take aim

Continued from page 1

organisms that can improve turfgrass seed) right now in a petri dish. Putting it to work in the field may be a long way off. But who knows? Researchers now have tools that weren't available in the past.

Kevin Morris, national director of the U.S. Department of Agriculture's National Turfgrass Evaluation Program, said golf course superintendents and others have "many more grasses to pick from than in past years.

"We have made a lot of progress in grass breeding in the past 10, 15 years. I think a lot of that is due to the Plant Variety Protection law being implemented in the early 1970s. It gave people the protection to develop something new and market it without having to worry about it being stolen. Partly responsible, also, is that the NTAP's testing program has gotten information out for people to see."

Morris pointed to tremendous progress in perennial ryegrasses. "If you look at the best ryegrass in tests four years ago and compare it to the latest varieties, there is no comparison. There are 20, 30 or 40 that are better... Not that that one is bad, but the other ones have made that much headway in plant breeding."

**ENDOPHYTES**

While plant breeders nationwide are improving grasses, U.S. Golf Association Green Section National Director Jim Snow said the USGA is concentrating the next three years on environmental research. It is donating more than $3 million to 18 research projects at universities around the country.

Central to hopes of scientific breakthroughs are endophytes. An endophyte is a fungus that lives within plants and gives them natural resistance to certain chewing and sucking insects. Different endophytes live in different species of grass. If one can be found for a certain type, it can be inoculated into grass of that same type.

Since the discovery of endophytes, scientists worldwide have searched for more.

Dr. Richard Hurley of Loft's Seed, Inc. said endophyte is a good "insurance policy" and researchers "have gone a long way in a very short time finding them" for various varieties.

Morris said: "Endophytes have worked well in perennial ryegrasses. Several of the new varieties now have endophytes in them now. With tall fescue it won't be as much of a benefit as with ryegrass. Endophytes give the grass resistance to certain insects, and give the plant better tolerance to stress and drought. The survivability is better with the endophyte, although why..."

"With ryegrasses, that's critical because it's difficult for them to make it through the summer in some places and they have problems with insects, too. Tall fescues don't have very many insect problems, so I don't see the endophyte being a plus or minus with them. They might enhance their stress resistance, but we don't know that for three or four years."

He said endophytes have been found for some fine fescues, "which we desperately need because they have a lot of insect problems."

Snow said endophytes for bentgrasses would be most beneficial for Northern golf courses. "They have found endophytes in other grasses so we hope they can find one in either creeping or Colonial bentgrass," Snow said.

Funk and his Rutgers associates, among others, are looking for endophytes in bentgrasses and bluegrasses. One biologist is even going to Great Britain to search for a bluegrass endophyte for a few weeks this summer.

He said Dr. James White of England, one of the leading endophyte authorities in the world, is at Rutgers this summer working in conjunction with the Sports Turf Research Institute to find endophytes for bluegrass as part of a USGA-funded program.

Funk reported endophytes have been found for several bluegrass types, but not the poa annua or poa trivialis found on golf courses.

Once an endophyte is found, Funk said, "We need to: first, transfer it; and then get it to establish a long-term symbiotic relationship that's transferred through the seed. It must have useful properties to enhance the turf performance, like increasing its insect resistance or stress tolerance."

Hurley, Loft's vice president and director of research and agronomy, warned that while endophyte retains its viability in cold storage, it dies dramatically when stored in warm conditions.

Citing the "significant breakthroughs in grasses being developed with genetic resistance to stress tolerance and insect resis-tance," Funk added: "These are little incremental increases... But they are building blocks that make a huge difference over the years."

**SEED PRIMING**

He also pointed to "considerable research" on seed priming. Priming seed:


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