USGA continues major turf, env'l research

By MIKE KENNA

The United States Golf Association will fund nearly $1.4 million in 1996 for its turfgrass and environmental research programs. Of this total, $798,584 will go toward research programs. Of this total, $798,584 will go toward turfgrass and environmental research projects and $592,258 will be spent on environmental research which includes grants of $100,000 each to the Audubon Cooperative Sanctuary Program and the Wildlife Links project conducted in cooperation with the National Fish and Wildlife Foundation.

The USGA is still emphasizing plant-breeding projects to improve turfgrasses used for golf courses. Crenshaw (Lofts Seed) and Cato (Pickseed West) creeping bentgrasses resulted from a USGA project at Texas A&M University in cooperation with Bentgrass Research, Inc., a non-profit group in Dallas/Fort Worth committed to providing better bentgrasses for the Southwest. Syn 148, a reselection from Sea-side, was released to Pickseed West for low-maintenance areas using low-quality irrigation water.

In 1995, Syn 92-1 and Syn 92-2, selected for improved heat tolerance and rooting, were released to Burlington & Sons. These new bentgrasses are welcome additions to varieties which were partially sponsored by the USGA in years past. Penncross and Pennlinks (Tee-2-Green), developed at Pennsylvania State University, received small USGA grants to help produce these grasses.

Small USGA grants also helped develop Providence (Seed Research of Oregon) at the University of Rhode Island and even some of the early work on SR-1020 at the University of Arizona. The U.S. transition zone has always had problems with winter damage to warm-season turfgrass species such as Bermudagrass and zoysiagrass. At Oklahoma State University, OKS 91-11 has demonstrated superior cold tolerance among the seeded Bermudagrasses and will be released in early this year. Several of the vegetatively propagated zoysiagrasses developed by Texas A&M University have performed well and also will be released in early this year.

USGA-sponsored breeding projects have routinely entered promising varieties into the National Turfgrass Evaluation Trials. In general, OKS 91-11 Bermudagrass and some of the new DAI-ZL lines have performed well in the transition zone.

Continued on next page
USGA continuing research

Continued from previous page to produce disease-resistant bentgrasses by introducing genes which produce the chitinase protein.

At Mississippi State University, bentgrasses resistant to brown patch (Rhizoctonia solani) were successfully selected using a tissue culture technique called the Host Plant Interaction System. Several bacteria are under evaluation for their suppressive characteristics on common diseases of creeping bentgrass. At Rutgers University, more than 1,000 bacterial isolates were evaluated for their plastic capabilities to summer patch (Magnaporthe grisea). Based on laboratory and greenhouse tests, the scientists have narrowed the field of bacteria down to promising strains of Xanthomonas and Serratia. Bacterial control of Pythium-infected diseases of creeping bentgrass is under investigation at Cornell University.

Promising strains of Enterobacter cloacae have been successful in reducing the number of Pythium ultimum sporangiophores that germinate in lab tests. The results at both universities have been promising in the laboratory and greenhouse. However, they are a long way away from successful implementation of a biocontrol on turfgrass diseases in the field. Results at the University of Kentucky suggest that the number of grubs required to cause noticeable injury was much higher than prevailing rule-of-thumb estimates used by the turf industry. An application of aluminum sulfate just before beetle flights reduced subsequent grub densities by as much as 77 percent. Scientists at University of Kentucky also believe black cutworm infestation on putting greens results due to the migration of large larvae from collars and surrounds. At the University of Florida, a new technique called the Host Plant Interaction System is under evaluation. Early monitoring of six field sites where the bacteria naturally exist indicates that locations that started with low levels of spores had higher numbers of sting nematodes than areas that started with high spore levels.

In 1995, the USGA began a second three-year research project to evaluate the environmental impact of golf courses. Nine studies will focus on the fate of pesticides applied to golf course turf. Emphasis on the volatilization, runoff and leaching of pesticides and best management practices to avoid problems are underway. The USGA is continuing its support of the Audubon Cooperative Sanctuary Program conducted by Audubon International.

In 1995, the USGA successfully initiated the Wildlife Links Program in cooperation with the National Fish and Wildlife Foundation (NWF). A committee of wildlife experts, formed by the NWF, is evaluating research proposals which will develop resource information useful to golf courses. The projects will begin early this year. A tremendous amount of positive turfgrass and environmental research is being conducted across the United States due to the financial commitment of the USGA.

The universities who openly share their faculty and facilities are greatly appreciated. All of those who support the game of golf and the USGA should be proud of the positive contributions these programs have made toward improving the way we build and maintain golf courses.