**BORAX ON WARPATH**

CINCINNATI, Ohio — Turfgrass as well as agronomic issues will be addressed at the annual meetings here of the American Society of Agronomy, Crop Science Society of America and Soil Science Society of America, Nov. 7-12. For instance, research out of Iowa State University shows that 20 Mule Team Borax is the weapon to use against the scourge of nematodes.

More information is available from the societies at 677 South Segoe Road, Madison, Wis. 53711; 608-273-8080.

**AGRICIENCE, BIOTECHNOLOGY STUDIED**

MADISON, Wis. — The U.S. Department of Education has awarded a $456,780 grant to the National FFA Foundation to part-fund a study entitled Voluntary National Skills Standards for Competencies in Agrisience/Biotechnology.

A 12-month study, to be matched by the education, industrial and labor communities, will determine the skills employees will need in agriscience/biotechnology occupations. The goal is to develop voluntary educational standards in these fields which will lead to a better-prepared workforce.

**TGIF LISTING ARCHITECTS**

TGIF (Turfgrass Information File), the industry's largest single source of turfgrass information, has created a new listing containing members of the American Society of Golf Course Architects (ASGCA). Information from TGIF is available in hard copy or via a modem, and can be searched by author name, subject, etc. For additional information about TGIF, or the architects' directory, contact Nancy Donati, Medinah Country Club, Medinah, Ill. 60157-9633; 708-773-1700, ext. 254, or Peter Cookingham.

**RECYCLING PESTICIDE CONTAINERS**

COLUMBUS, Ohio — Ohio State University instituted a pesticide container recycling program at its Turfgrass Research Field Day here Aug. 17. Superintendents could drop off their clean, empty pesticide containers, which Grower Service Co. will grind, granulating them for further processing. Eventually, they will be made into new containers or be put to other safe uses. The program was supported by OSU Extension, the Ohio Department of Agriculture and Ohio AgriBusiness Association.

**USGA reports on nationwide university research**

Turfgrass safer than farmland, research studies confirm

By MARK LESLIE

Major university studies around the country are verifying the belief that turfgrass is a vast improvement to agricultural land in pesticide and fertilizer leaching, and researchers are even comparing differences between grasses in runoff studies.

The U.S. Golf Association Green Section's newly released annual Environmental Research Summary notes these findings along with many others in its review of USGA-funded research projects. The booklet reports results after the second year of the three-year studies.

Objectives of the overall project are to understand the effect of turfgrass pest management and fertilization on water quality and the environment; evaluate valid alternative methods of pest control to be used in integrated turf management systems; and determine environmental findings widespread, report says

From staff reports

Ten years and $8 million after it was undertaken, new and better grasses that survive on less water and lower maintenance have been developed through the Turfgrass Research Program initiated in 1982 by the U.S. Golf Association (USGA) Green Section and Golf Course Superintendents Association of America. So the USGA Executive Committee has committed its support for another five years, according to Jim Snow, Green Section national director.

Some recent research projects improved knowledge about water-use rates of various turfgrasses and how these grasses react to moisture stress; introduced new grasses that use less water and pesticides; and forwarded understanding of maintenance practices.

Snow said: "Through the efforts of the individual turfgrass scientists and their support staff, many significant rounds of golf. And public courses will do more."

Play has gradually gone deeper into the winter and started earlier in the spring. The resulting problems are many.

"One major problem is that damage caused by winter play doesn't show until the heat stress of summer, and many superintendents don't associate it with using the course in the winter," said Jim Snow, national director of the U.S. Golf
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the past few years, O’Brien believes many superintendents would benefit from establishing their own test nurseries to see what works best in their specific area.

"They weren’t performing up to their normal standards," Stone recalled. "The nursery green thinned out very badly. We thought this would be a good time to take a look at some of the new bentgrasses that were supposed to outperform Penncross."

Stone contacted a number of seed companies. They provided him with 27 different bentgrass varieties, which he planted in 3-by-5-foot plots at the rate of one pound per square foot.

With the help of University of Tennessee Professor Tom Samples, Stone developed two test areas. One was in the shady bentgrass’ worst enemy) former nursery and the second in a more favorable sunny site.

To discover which varieties performed best under all conditions, Stone subjected both areas to extraordinary stresses, including daily 9/64-inch mowing, rolling and overwatering.

"I was always disappointed in university trials," Stone explained of the additional measures. "They do their best. But they just don’t have the resources to mow every day or perform the maintenance practices golf courses do."

O’Brien agreed. The Green Section agronomist works out of the University of Georgia Experiment Station in Griffin, which is conducting bentgrass trials of its own.

"They just don’t have the staff here to mow at that height every day," O’Brien said. "And none of the plots test for shade tolerance." Rose also criticized existing seed trials.

"The National Turf Trials really aren’t a fair evaluation," he said. "They should be better and I understand they will be this year. That’s why we tested Pennlinks (another Tee-2-Green product) on actual golf courses."

Stone and Sample evaluated the samples for visual appearance and texture throughout 1992 and 1993. They paid particular attention to density measurements during the hottest months of July and August, when differences are most significant.

What surprised them most was Penncross’ poor showing compared to newer grasses.

"So many varieties performed better that Penncross," Stone said. "It did so poorly, in fact, we wondered if the seed might have come from old fields. It didn’t even do as well as the Penngrass that is already on our greens."

Added O’Brien: "It’s interesting to note that the Penngrass on the course is doing very well. If you have an excellent superintendent, like Dave, who does a top-notch job on his course, then existing Penncross greens are still very good. But when you put Penncross under daily stress — like low cutting, rolling and shade — it doesn’t perform as well as some of the newer varieties."

Rose said Penncross performs best on high-wear areas, like tees and landing areas. Pennlinks is better for greens and Penneagle for fairways, he added.

A variety called Crenshaw has been the top performer, Stone said. Loft’s Seed Co. holds the rights to Crenshaw, which was developed by Dr. Mill Engelke at Texas A & M University.

"It’s a fine-textured, dark-green grass that recovers fast and is extremely dense," Stone said. "Dave told me to try to pick out the Crenshaw plots," O’Brien recalled. "I walked to them immediately. There were four plots and I was 4-for-4. It stood up extremely well to all stresses."

But there is no perfect grass. Even Crenshaw had weaknesses.

"[Left untreated] It was one of the worst for dollar spot and had a lot of brown patch when we didn’t treat it," Stone said. "But it always grew denser than the others if we sprayed it and knocked the disease out."

Other strong performers, Stone reported, were Johnson Seed Co.’s 18th Green ("It had no brown patch and excellent heat tolerance, but was the worst for dollar spot.") and Seed Research of Oregon’s SR 10/20 ("It’s similar to Crenshaw, but doesn’t perform quite as well in the shade.").

Stone plans to maintain the test nurseries into the foreseeable future. He will use Round-Up to kill off some of the poorer-performing varieties and replant newer strains next spring.