**BRIEFS**

**MID-AM AWARDS CASH**

WAUCONDA, Ill. — Four colleges and universities received cash awards for participating in a career fair at the Mid-Am Trade Show, one of the nations leading horticultural expositions. The College of DuPage received $600 for highest attendance with 25 students. The University of Illinois was awarded $450 for second best attendance, Joliet Junior College and Iowa Gates $250 each for third highest attendance. The first annual Environmental Management Program, sponsored by the U.S. Golf Association's Environmental Research Program.

**ENVIROTRON GETS $32,000**

HOMOSASSA SPRINGS, Fla. — The third annual Environtron Golf Classic at World Woods Golf Resort raised $32,000 for the University of Florida's Environtron Research Laboratory. Environtron is a 3,100-square-foot state-of-the-art research lab that includes a greenhouse, four climate-controlled glass houses, two walk-in growth chambers, labs, study areas, classrooms and offices. Scientists there study turfgrass systems from root to blade and issues like temperature modification, noise abatement, pollution and water purification, and general turfgrass culture.

**GCSAA CERTIFIES FIVE**

**MAINTENANCE**

Bermuda tolerance

Heat • Drought • Salt

Breeders advance on cold, seed challenges

**BREEDERS ADVANCE ON COLD, SEED CHALLENGES**

BY MARK LESLIE

A s dominant a turf as Bermuda-grass is on golf courses in the South, plant breeders would like to improve certain characteristics and introduce it further north. Fulfillment of the quest appears imminent. “We’re there,” said Farmers Marketing Corp. (FMC) plant breeder Jeff Klingenberg, Arden’s mentor. “We have a series of hybrids under the Princess brand that has the quality of a Tifway.”

“We’re looking to release one or more varieties within the next year,” said Dr. Charlie Taliaferro, a pre-eminent scientist from Oklahoma State University. Plant breeders have made great advances in meeting their two key challenges: developing seed-propagated Bermuda-grasses and vegetative types that are cold-tolerant.

“A great deal of breeding work is being done by private seed companies, and they already have succeeded in putting products on the market,” said Taliaferro, whose vegetatively propagated Midlawn and Midfield have been at the top of the national trials. Our emphasis has been on development of seeded varieties that have cold tolerance in addition to reasonable turf quality. And in some of the tests in Northern locations, OKS 91-11 certainly survived, persisted and demonstrated cold tolerance.”

Saying that the turf quality of the cold-hardy seeded Bermuda-grasses is not yet as good as that of the best vegetatively propagated types, Taliaferro explained: “Breeding of seed-propagated Bermuda-grasses is relatively young. It’s been in process only about 10 years, so quite remarkable progress has been made by both public and private sectors.”

“We’re doing something instead of nothing now. For years, nothing was being done [in seeded Bermuda research],” said Ronnie Stapp, senior vice president of Pennington Seed. Indeed, Pennington has just introduced Yuma. A year ago Seed

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“This proposal uses the flexibility of the current Endangered Species Act to introduce a new conservation concept that we call Safe Harbor,” Babbitt said. “It offers private landowners an incentive to be good stewards of their land and provide habitat for endangered and threatened species. In exchange they get an ironclad guarantee that they will not be subject to restrictions later on if they succeed in attracting endangered species to their land.”

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**OFF THE RECORD**

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 **Insecticides difficult to rub off turfgrass**

BY MIKE KENNA

Do pesticides come off your shoes or clothing when they come in contact with the turf on a golf course? This is the question researchers at the University of Florida and University of Massachusetts asked in projects sponsored by the U.S. Golf Association's Environmental Research Program. Preliminary results indicate that very little rubs off the turf.

The amount of pesticide which can be rubbed off the turf is referred to by scientists as a dislodgeable residue. At the Ft. Lauderdale Research and Education Center, chlorpyrifos (Dursban 2E) was applied at the label rate of 0.75 ounces per 1,000 square feet to a Tifgreen Bermuda grass green around 11 a.m. Immediately after the application, small four-inch squares of cotton cloth were pressed onto the treated turf with a pressure of 1.5 pounds per square inch. A second sample was taken in the same manner following a light

Continued on page 19
The following are conditions at the sites of the Bermudagrass national test project, including, in order: variety, location, soil texture, soil pH, nitrogen applied (in pounds per 1,000 square feet), mowing height (in inches), and mean winterkill.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Location</th>
<th>Soil Texture</th>
<th>Soil pH</th>
<th>N Pounds/1,000</th>
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For super, 1995 could be a jackpot in buying Bermudas

*MS1 — Mississippi State, Miss., sandy clay loam, 6.7-8.0, 2.1-3.0, to prevent dormancy.*

*NE1 — Lincoln, Neb., sandy loam, 6.7-6.8, 1.6-2.0, to prevent stress.*

*OK1 — Stillwater, Okla., loam, 6.7-7.0, 1.2-2.0, to prevent stress.*

*TX1 — Dallas (Texas sun), silty clay, and clay silty clay loam, 7.5-8.3, 1.3-2.0, 0.4-0.7, to prevent stress.*

*TX2 — Dallas (Texas partial shade), silty clay and clay, 7.8-7.3, 0.6-1.2, 0.2-0.7, to prevent stress.*

*VA1 — Virginia Beach, Va., sandy loam, 6.8-7.0, 1.4-2.1, 0.5-0.9, to prevent dormancy.*

**In Bermudagrass, the future is here**

Research of Oregon introduced Primavera. Jacklin Seed Co.'s Jackpot will be available for the first time in July. International Seed, Inc. (ISD) is releasing two new varieties of Bermudagrass, Ares and Pyramid. And Medalist America's Sundevil 2 looms as another grass of choice. FMC is introducing Sultan this fall as its next, unnamed hybrid. All are seeded types that have good seed yield, which is not the case with many cultivars.

"In Bermudagrass, we have to make just small gains to make huge advances over Arizona's warm-season grasses," said Craig Edminster, director of research at International Seed. "Ultimately, the goal is to get these seeded types so they will compete with vegetative types.

"Clearly, seeded Bermudagrass already exists today that is comparable in quality to vegetative types, but it would be cost-prohibitive in the marketplace. It may be available in five years at a very competitive price."

Klingenberg said FMC's hybrid "could be used in greens, but it would be more of a luxury. But then it is still a little too coarse than from a dwarf Bermuda.

And it is still going to require high maintenance because it is so thick that you will have to catch build up, especially during high-fertility conditions. It's not a low-maintenance grass, but it will be lower than your Tifways. It's definitely for fairways, great for tees and good for greens colonies of fairways," said like that.

"We are several years down the road before we can challenge the 'Tifs on quality," said Stapp. "We're making progress ever so slowly," he added, "but it's going to take several years to a researcher is likely to tomorrow.

Public and private plant breeders have stepped up their development efforts for better Bermudagrasses according to Kevin Morris, national director of the U.S. Department of Agriculture's National Turfgrass Evaluation Program. "The warm-season grasses are of interest. Anything you can seed is of interest."

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Meanwhile, superintendents across the mid-south and Southern tier of the nation wait more cold-tolerant varieties. For too long they have feared walking on to their courses after a cold snap to find dead grass.

"The winter before last, courses lost Bermudagrass throughout the Tennessee Valley," said Lynch. "It was dead ev-

cerywhere. The Sarah Lee Classic was played on dry grass at The Hermitage (Richmond, Va.). As last season, it still was not recovered. Also in southern Ken-
tucky, southern and western Virginia up to the Chesapeake area, Missouri, Oklahoma.

"There is a transition in the zone, even southern Illinois, is a candidate for some of these Bermudagrasses."

"The biggest problem [to overcome] is winter-hardiness," said Morris. "People would love to have a true winter-hardy Bermudagrass hybrid."

"We tested a [new, unnamed cultivar] as far north as Kentucky," said Doug Brede, research director at Jacklin Seed. "We're trying to engineer them to do more towards a Tifway 41-type of grass, which means we have to concentrate on texture and density. We've already achieved a darker green without the need for growing more fertil-

Table: Bermudagrass Report

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<tr>
<th>Name</th>
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<th>TDS-BM2</th>
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Among the new grasses adding to the selection mix this year are:

- Arden, available in July from Jacklin. "What we've concentrated on with Jackpot," said Jacklin research director Dr. Doug Brede, "is to go for a fine texture variety on a seeded Bermudagrass. Until this point, we were at a moderate temperature, mainly because we wanted to get as cold-hardy as we could. Testing through northern Idaho, we were able to find cold-tolerance. It goes against the belief that fine-textured Bermudas don't have cold tolerance."

- Sundevil 2 from Medalist America. Developed by Jacklin, Sundevil 2 is a hybrid in the Jackpot variety."

- Sultan, a seeded variety, and a hybrid seeded variety from the Prin-
cess brand from Farmers Marketing. Sultan is coming out this fall, and in 1996 we will be going full bore with it," said plant breeder Jeff Klingenberg. "It's not a massive improve-
mement, but significant enough to quantify as a new variety. It's bet-
"er than the existing fine texture, is greener in color and has a bet-
ner response to fertilizer."

The Princess brand hybrid, he said, "has the quality of a Tifway. It will be available in a very limited quantity this year, he said. "It is very hardy. The quality is as dense as and has the color of Tifgreen, and can be used on tees and fairways quite easily."