

BRIEFS



LUIKENS BUSY IN THE SOUTHLAND

CONROE, Texas — Richard Luikens Golf Services here is consulting on several construction projects scheduled to open this fall in Texas, Arkansas and Louisiana. Luikens, former director of golf course maintenance for The Woodlands Resort & Country Club in Houston, assisted in the growth with Beacon Lakes Golf Club and Green River Golf Course in Houston, RidgePointe Country Club in Jonesboro, Ark., and Cypress Bend Golf Course in Many, La. For more information contact Luikens at 409-441-5100.

NY TURF SHOW NOV. 12-15

ROCHESTER, N.Y. — The annual New York State Turfgrass Association Turf and Grounds Exposition will be held Nov. 12-15 at the Rochester Riverside Convention Center. This year's event will feature educational seminars, trade show and keynote speaker Paul Maguire, a former Buffalo Bill and commentator for NBC Sports football coverage. For more information contact 800-873-TURF.



GA. TURFGRASS REPORT POSITIVE

DULUTH, Ga. — The Georgia Turfgrass Foundation Trust's Turfgrass Research Report demonstrates that many new bentgrass cultivars are performing better than traditional golf course bentgrasses. Results were gathered in the eight Southern states participating in the 1993 National Turfgrass Evaluation Program trials. For more information contact the Trust at 770-975-4123.

PSU BESTOWS AWARDS OF MERIT

STATE COLLEGE, Pa. — Three Pennsylvania State University graduate students have received Awards of Merit from the Pennsylvania Turfgrass Council. Quebec native Andrea-Anne Couillard received her bachelor's and master's degrees from Laval University in Quebec, her doctorate from Penn State and has accepted a post-doctoral position at Guam University. Kathy Kallenbach of Erie, Pa., received her bachelor's and master's degrees at Penn State and has been accepted for the doctoral program there. Douglas Linde of Coopersburg, Pa., completed his doctoral work this summer and hopes to become a professor.



ONE IF BY AIR, TWO IF BY SEA

Gambusias worth their weight in mosquitoes

By MARK LESLIE

CHESTERTON, Ind. — So, you've tried the "air" approach — the bat, purple martin and tree swallow houses are all installed — but the mosquitoes are still bugging golfers and the grounds crew alike. How about trying the "water" approach, getting the little pests before they take to flight?

That's what senior ecologist Robert Wolfe of Walkerton-based J.F. New & Associates here recommended to superintendent Don Ewoldt of Sand Creek Country Club in Chesterton. The water approach entails transplanting the little-known *Gambusia affinis*, commonly known as mosquitofish, to Sand Creek's ponds and wetlands. *Gambusia* could become the superintendent's best friend at golf courses with still, or slowly moving water — the best breeding ground for mosquitoes.

Since their mouths are located on top of their heads, the *Gambusia* eat mosquito larvae off the water surface before they hatch. And since they grow to a full size of 1 to 2 inches, they can reach very shallow water that larger fish can not.



Also, they are tolerant of poor water-quality conditions and don't need much oxygen.

"When we deal with golf courses, they are always concerned with mosquitoes and want to drain the wetlands," Wolfe said. "But you can't do that."

"Mosquitofish are one piece in the control puzzle. I recommend purple martin, tree swallows, bats and

Continued on page 24

MSU's Vargas on the cusp of pioneering research

Dr. Joe Vargas has been a professor of botany and plant pathology for 28 years at Michigan State University, where he has been involved in teaching, research and extension. His has helped develop



Dr. Joe Vargas

the *Pseudomonas aureofaciens* (TX-1) biological-control microorganism that is proving useful in treating warm-weather diseases when applied through EcoSoils' Bioject system (see August '96 Golf Course News); discovered the first bacterial disease in turf on Toronto creeping bentgrass; reported the first resistance by a turfgrass pathogen to a systemic fungicide and later reported the first resistance to DMI fungicide by the dollar spot organism; developed the

first mathematical prediction model for a turfgrass disease; and developed a fungicide timing model for summer patch that is used worldwide.

Golf Course News: Can you tell us about your work on injecting disease-resistant genes into bentgrass?

Joe Vargas: The USGA funded a project for this at MSU. Dr. Miriam Sticklen isolated a chitinase gene from an elm tree and is trying to incorporate it into creeping bentgrass. Since most fungi have chitin in their cell walls, theoretically, a chitinase gene in the turf plant should produce chitinase that could attack the cell wall or the fungus and destroy it. A year from now, we should know how successful we have been.

GCN: What is the nature of MSU's



work on sand green construction?

JV: The USGA has funded a project to look at mixes for USGA-spec greens conducted by Drs. Crum, Paul Rieke and John Rogers. USGA greens are still the most popular. Hopefully this

will lead to some minor refinements to make them even better.

GCN: What are you discovering about using peat moss to minimize damage from hydraulic oil leaks?

JV: Most researchers believed, for many years, that the heat of the hydraulic oil killed the turf when a mower hose ruptured. Attempts to remove the oil with soap or wetting agent failed. Zorbit Technologies approached us with a product called Peat Sorb, a super dry peat moss.

Continued on page 27

New zoysiagrasses fulfilling prophecies of the past

By MARK LESLIE

BELTSVILLE, Md. — You could call it The Zoysiastine Prophecy. And in this case, it came true.

"Two years from now," Dr. Milt Engelke of Texas A&M University told Golf Course News in 1994, "more vegetative types will come on line, and they will use 20 to 30 percent of the water required by Meyer, which translates to 50- to 70-percent less water than used for hybrid Bermudagrass. These also will have excellent cold hardiness and very low fertility requirements."

In the late-summer of 1996, Engelke has proven prophetic.

"It's all true," he said. "Actually, I've known this for five years. We've just been taking a long time getting them [zoysiagrasses] out."

A more moderate Susan Samudio, head of Jacklin Golf's zoysiagrass breeding program since 1990, concurred: "We've made tremendous advances in seed production. But if you compare them to cool-season grasses, it's still extremely low. We're almost to the point where we're satisfied



with the yield and we're starting to work more on the qualitative traits — texture, color and density."

Some golf course superintendents are sold on zoysiagrasses for their areas, but many are waiting to see how the new varieties perform before

taking the plunge.

Zoysias win golfers' favor for their upright growth that gives a consistently good lie. Superintendents like them for many reasons.

"After a lot of investigating, zoysia was picked as the best for our transition area — not only from a playability standpoint, but for its financial advantages as well," said Wayne Van Arendonk, superintendent at Rolling Hills Country Club in Wichita, Kan., which solid-sodded its fairways, green surrounds and tees — 34 acres worth. "We figure the annual savings between \$45,000 to \$60,000."

Rolling Hills had a mix of ryegrass and common Bermudagrass, a cool- and warm-season mix that proved hard to maintain.

Continued on page 17

Cheaper product forecast for zoysias

COLLEGE STATION, Texas — Faster production cycles for the newer zoysiagrass varieties should translate to better — and cheaper — availability. Good news because availability has been a problem.

Concerning his grasses, Dr. Milt Engelke of Texas A&M University said in early August: "We're just now going into production this year. We still have not cut sod for the first production, so it probably won't go into production until next year and it may not be available until 1998."

Future availability should be improved — at least for some varieties.

"The production cycles are much faster on the newer varieties," Engelke said. "With Palisades and Crowne, which are El Toro types,

Continued on page 17

Mosquitofish an answer to prayer

Continued from page 15

mosquitofish. Those are the easiest ones to get onto your site."

"They are fantastic, unreal," said Ken Holyoak, owner of Ken's Hatchery and Fish Farms, Inc. in Alapaha, Ga., the largest supplier of *Gambusia* in the country.

"They would have never finished the Panama Canal without that minnow..."

Ewoldt, who has taken every "air" measure against mosquitoes, has had his wooded areas sprayed with the insecticide Malathion once or twice, "but we do not like to use any chemicals, so we're going this [mosquitofish] route."

The mosquitofish were dumped into Sand Creek's wetlands in late June. Because the weather has been cool since then, "it hasn't been a good indicator for mosquito infestation," Ewoldt said. "But you can see them out there eating away."

Wolfe recommended transplanting 300 to 500 mosquitofish per acre in ponds where they have no predators. "If you have bass or bluegill that eat mosquitofish, you need to put a lot more in there — several thousand per acre," he said. "Once they get established, depending on wintertime temperatures, you needn't restock them."

Mosquitofish are "prolific," Holyoak said, "and reproduce hundreds of babies every 28 days." Which is good, since they are food to other fish, frogs, snakes and turtles.

Gambusia are native to the Southeast and therefore susceptible to cold winters, especially where water ices over.

"In South Bend," Wolfe said, "we're marginal [in climate] for having them over-winter."

"If you have deep water, they'll go to the bottom of the lake and survive a harsh winter," Holyoak said. "But they'll die in shallow water."

With his shallow wetlands, Ewoldt put in 3,000 mosquitofish per acre of wetland and expects that he will have to restock each year because of Indiana's harsh winters. Nevertheless, he sees the mosquitofish as worth the investment.

"We bought 10,000 fish at a cost of \$250," he said, "but it cost \$300 in shipping because of the weight and because the fish had to be shipped quickly so that the heat and lack of oxygen didn't kill them."

The best time to order mosquitofish is in cool or cold weather because "June to August is too hot to ship them," Holyoak said. He adds 15 to 20 percent more fish than ordered because of the loss during transportation.

Ken's Hatchery sells the fish for 3 cents apiece in large quan-

ties. They are shipped 5,000 per container — the fish costing \$150, the container \$20 and the freight \$120 — anywhere in United States.

Mosquitofish have been known to eat up to 230 larvae per hour, Wolfe reported.

And because they can live in as little as one-inch-deep water, Holyoak said: "Some people cover a 10-mile radius around their farm, putting them in road ditches — everywhere."

"I wouldn't have a lake without them," Holyoak said. "They are the most valuable fish that

swims. They don't do any harm. They do nothing but eat mosquito larvae, and some aquatic insects, crustacea, algae and zooplankton. They really add to the food chain."

But why haven't golf courses "discovered" these little mosquito-killers sooner?

"I don't think anybody has ever informed them," Holyoak surmised.

Buyers need not worry about the supply, he said. There reportedly are a couple of other fisheries that grow *Gambusia*, and, Holyoak added: "I have 20 million of them."

White opens turf consultant firm

WATKINSVILLE, Ga. — Charles B. "Bud" White, a longtime agronomist with the USGA Green Section and most recently national manager of agronomic services for the Toro Co., has formed a company here specializing in professional turfgrass consultation.

The firm, TotalTurfServices, Inc., will be associated with both domestic and foreign



Bud White

projects. Its purpose is to provide technical and managerial assistance to golf course superintendents, architects and other turfgrass professionals.

White will also provide outsourcing services to management companies.

The company is located at 1141 Station Drive, Watkinsville, Ga. 30677; telephone 706-769-4570.

WE'VE GOT QUALITY DOWN TO A SCIENCE.

