

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 grow-in 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

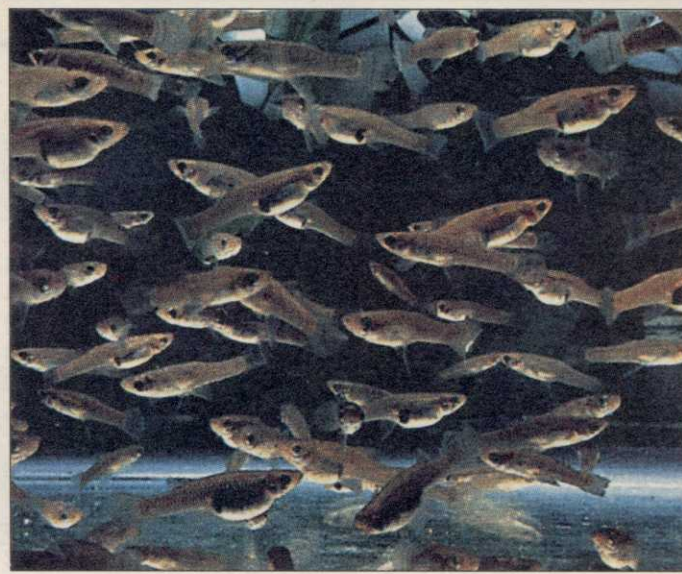
Gambusias worth their weight in mosquitoes

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

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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.

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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.

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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,

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## NTEP lists leading zoysiagrasses in test categories

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The latest data in the National Turfgrass Evaluation Program trials reveals not only where each zoysiagrass cultivar stands in "mean quality ratings," but in a number of other categories as well. And the leading varieties in the overall tests are sometimes overshadowed by others when it comes to such judgments as spring greenup, drought tolerance and fall density.

The leaders in each rating are:

- **Genetic color:** DALZ 8516, 6.6; Emerald, 6.5; DALZ 8508, 6.3; Belair, Royal and Cavalier, 6.2.
- **Spring greenup:** Sunburst and TC 5018, 6.2; CD 259-13 and Korean Common, 6.0; and JZ-1, 5.9.
- **Leaf texture:** Cavalier, 7.6; DALZ 8508 and Diamond, 7.5; Emerald and Royal, 7.4; Omni and QT 2004, 7.1.
- **Spring density:** Emerald, 7.3; Cavalier, 7.0; Marquis, DALZ 8508 and Royal, 6.9.
- **Summer density:** Cavalier, Royal and Diamond, 7.5; Emerald and DALZ 8508, 7.4; DALZ 8516, 7.3.
- **Fall density:** Diamond, 7.2; Marquis, 7.1; Cavalier and Emerald, 7.0; DALZ

8516, 6.9; Royal, 6.8; DALZ 8501 and DALZ 8508, 6.7.

• **Percent living ground cover (spring):** CD 259-13, 82.0; Crowne, 81.6; DALZ 8516, 10.6; Meyer and QT 2004, 80.5; Sunburst, 79.8; Korean Common, 79.7; JZ-1, 78.9; TC 5018, Marquis and TGS-W10, 78.2.

• **Percent living ground cover (summer):** Sunburst, 91.2; CD 259-13, 90.0; QT 2047 and TC 5018, 87.6.

• **Percent living ground cover (fall):** All were within range except lowest three — DALZ 8501, Diamond and DALZ 8701.

• **Frost tolerance:** Crowne, DALZ 8516, El Toro, Omni, QT 2004 and Marquis, 9.0; Cavalier and Palisades, 8.7; DALZ 8701 and Emerald, 8.3; DALZ 8508, Royal, Diamond and Sunburst, 8.0; CD 259-13 and JZ-1, 7.7.

• **Winter color:** Diamond, 6.8; DALZ 8501, 5.8.

• **Drought tolerance (wilting):** Crowne, 8.3; Palisades, 7.3; DALZ 8701

and El Toro, 7.0; JZ-1, 6.7.

• **Drought tolerance (dormancy):** Emerald, 5.8; Cavalier, 5.4; DALZ 8508, 5.1; DALZ 8516 and Diamond, 5.0; DALZ 8501 and Royal, 4.9.

• **Fall color (September):** DALZ 8516, 7.7; Belair, DALZ 8701 and Palisades, 7.3; Meyer, 7.0; JZ-1, Omni, QT 2004, Marquis and TGS-W10, 6.7.

• **Fall color (Dec.):** DALZ 8516, 6.8; Diamond, 6.6; Cavalier, 6.2; Palisades, 5.9.

• **White patch:** DALZ 8501 and Crowne, 8.7; Belair, 8.0; DALZ 8516 and Marquis, 7.3; CD 259-13, Cavalier, DALZ 8508, Diamond, JZ-1, Korean Common, Meyer, Omni, QT 2004, Sunburst and TC 5018, 7.0; DALZ 8701, Palisades, TGS-B10 and TGS-W10, 6.7.

## Quicker is cheaper

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we will see two crops in a year, or three crops in two years, even here in the Dallas area."

Yet, quicker production is not universal. Jacklin Golf, whose fields are in Georgia, has found difficulty speeding up seedhead production.

"We thought it [three crops in two years] was possible the first year or two because they [zoysias] do put out good seedheads," Jacklin Golf associate plant breeder Susan Samudio said. "But if your location gets a freeze, that fall crop is not worth the harvest because the germination is so low and you still have the expenses. We just keep the fall crop mowed. Further south you might be able to do it."

## Zoysia prophecies hit gold

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Using the zoysiagrass standard-bearer, Meyer, Van Arendonk figured annual savings of:

- 20 to 50 percent in water use;
- \$21,000 for fungicides, not having to spray ryegrass fairways;
- \$6,000 in herbicide savings in the future by not needing to eliminate poa annua, which can't compete with zoysia;
- \$5,000 to \$10,000 for mowing because zoysia is a slower grower and in Wichita they will start mowing six weeks later and stop six weeks earlier than with ryegrass;
- \$7,000 to \$8,000 for overseeding fairways because they will not need to buy 300 pounds per acre;
- \$2,500 for fertilizer since zoysia requires only about 1-1/2 pounds a year compared to ryegrass's need of 3-1/2 pounds.

"The only disadvantage we see is from an aesthetic point of view — off-season color," Van Arendonk said. "But we're also killing off 20 to 25 acres of rough around all the fairways and reseeding to fescue. That will give us good definition."

"We have a mind set we have to shift," Engelke said. "We have the genetics now to move these grasses into different environments than where they were before. It's an awareness and education issue. As we start working with architects and superintendents, we will see how far we can stretch these [new varieties]."

Zoysiagrass is an option from Kansas City-St. Louis south.

"Alabama and Georgia are all very adaptable to it, and we've had wonderful results in Texas," Engelke said. "We can take them into Florida, where we're doing more testing because the national trials have never been there before."

A lot of superintendents in the Maryland area are investigating zoysias because of difficulty in growing perennial ryegrass in the area, said Kevin Morris, national director of the U.S. Department of Agriculture's National Turfgrass Evaluation Program.

"My guess is, down the road we will find more problems with the bentgrasses, too," he said. "With them, you have to have good irrigation and cultivation. If you can do that, you can grow good-quality bent fairways here. But there is more interest in zoysias because of the pest issue and because they survive summer and have an advantage in winter over hybrid Bermudagrasses."

Meanwhile, whereas the standard-bearer, Meyer, was "never used outside the Midwest," Morris said, that has changed. The reason: a faster production cycle. "It has always had plenty of winter-hardiness ... but it never was used further south because Bermudagrasses, with their better production cycle, were a better choice."

Some of the newer varieties of zoysia produce two crops in a year, or sometimes three crops in two years, "even here in the Dallas area," Engelke said.

Zoysia's best fit is from the Mississippi eastward, said Morris. "It doesn't dry out as quickly in that region. Also, zoysia will tolerate low pH soil well, and that is more common in the Eastern states. Most zoysias have a problem in West, where the pH is often 8 and above."

Most everywhere superintendents are using zoysia, they are solid-sodding it. "We have our limits," Engelke said, "but we've [zoysia breeders] come a long way collectively in attaining the goals set down for us 12 years ago in our USGA [U.S. Golf Association] proposals: that we develop grass with a lower water requirement, lower fertility, easier maintenance, more competitiveness against weeds, and generally easier to manage... We also can work with poor-quality water because salt tolerance is very good in these grasses."

And while zoysias have problems in compacted soils, "a different aeration program will fix that," Engelke said, suggesting shatter-tine aeration and Verti-draining. "You just need to fracture the soil profile so that you keep the bulk density down."

Although admitting the choices for greens are still predominantly bentgrass and Bermudagrass, Engelke added: "but I predicted in 1986 we could go tee to green in zoysiagrass and today, finally, we have the data to support that. Maybe someday we'll find someone who can afford it."

"We have the green types, the tee types, the fairway and rough types, and certain parts of the country in which they will work."



# Changing the Course.

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