



He's Creating Tomorrow's Turfgrasses Today

By Lori Ward Bocher

Noted turfgrass researcher M.C. (Milt) Engelke skillfully shoe-horned an abundance of intriguing information into our one-hour conversation. A native of Wisconsin, he currently is a Professor of Turfgrass Breeding, Genetics and Management at Texas A&M University's Dallas Research and Extension Center.

But, turfgrass aside, I'll start with a newsy bit of information. Earlier this year Milt was married to another plant breeder, Dr. Virginia Lehman of Loft Seeds. "I hope this comes as a pleasant surprise to everyone in Wisconsin," Milt reveals. Dr. Lehman spoke at the Wisconsin Turf Conference in 1993.

Now on to more academic matters. With a 100 percent research assignment at Texas A&M, Milt's primary emphasis is to breed and develop turfgrasses that are environmentally adaptive. He is especially interested in zoysiagrass and creeping bentgrass and has had several plant variety releases with his name attached.

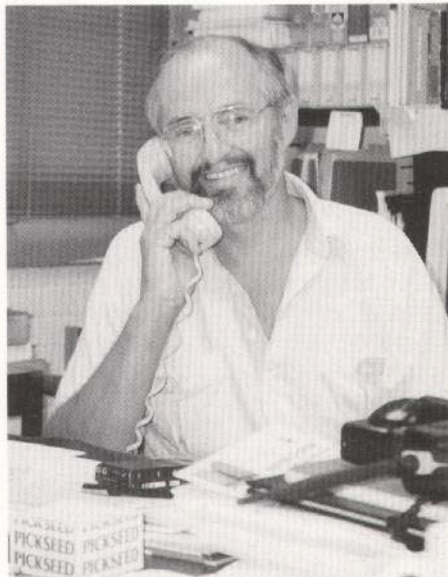
"How do you go about developing a new grass variety?" I ask.

"Our principle concentration is to identify and develop plant materials that have biological characteristics which are compatible with natural environmental conditions," he explains. "We want a plant that can exist in the environment without a lot of special care. And so our principle areas of interest are with temperature and moisture extremes as well as biological pest resistance."

"I'm not familiar with zoysiagrass," I admit.

"Lori, you are familiar with it," he counters. "Ever see the miracle grass advertised in the Sunday supplements? That's zoysia. Unfortunately, that ad often runs in areas of the country where it shouldn't, and Wisconsin is one of those areas."

Zoysiagrass is native to the Pacific Rim countries. "It is one of two warm season grasses that has a tremendous ability to grow across a very



M.C. "Milt" Engelke

broad latitude," he says, adding that it even can be found in Wisconsin. "It's also adaptable to soil conditions that range from very acid to alkaline, and moisture requirements that range from 1 inch to 20 inches of rain per month.

"We've got a lot of genetic diversity within that zoysia genus that allows us to be able to identify genes for salt tolerance, cold hardiness, low water use, diseases resistance and insect resistance," he points out.

Milt doesn't recommend zoysiagrass for Wisconsin. "You have other plants that probably are better," he points out. "But the further south you move from Wisconsin, the more you'll see it being used in golf course fairways and home lawns.

"It is a tremendous grass for erosion control," he continues. "It requires a whole lot less water than cool season grasses; irrigation is just about optional. And we're finding a lot of golf course architects using zoysiagrasses for accent because they have a different color and appearance."

"Wisconsin superintendents probably will be more interested in your work with creeping bentgrasses," I interject.

"We just released two varieties (Cato Creeping Bentgrass and Crenshaw Creeping Bentgrass), and we're prepared to release a third, yet unnamed," he points out.

"How far south does bentgrass grow fairly easily?" I ask.

"Boy, that's a loaded question," Milt answers. "We can grow bentgrass in Houston, Texas and in Florida. But your qualifier of 'easily'? I have to give a tremendous amount of credit to the golf course superintendent. A good superintendent can take a poor grass and make it grow anywhere. And a poor superintendent will kill the best thing that's out there. So it's highly dependent on the management level of the superintendent.

"We can grow repeatedly, and with great success, bentgrasses in the Dallas area," he continues. "And we're seeing it move further and further south on a routine basis."

"How do your new varieties make it easier to grow bentgrass in the south?" I wonder.

"With the old, reliable bentgrasses that we've been using, they lose their root system with summer stress," Milt explains. "So we concentrated on creating a plant that had a persistent, deep root system. That gave us a plant that had better heat tolerance and better tolerance to a lot of diseases."

"So these new varieties would be good for heat tolerance in the north, too, not just in the south?" I inquire.

"That's correct," he affirms. "We have to remember that these plants grow 365 days of the year. Even in Wisconsin or Canada we have days when the temperature exceeds the optimum environment for bentgrass. That's when these stress genes kick in and give the plant a competitive edge."

"How do you measure the success of a new variety?" I ask.

"Acceptance by the industry," he answers. "That usually takes several years. Right now Crenshaw Creeping Bentgrass is receiving considerable interest from all over the U.S., Europe and Japan. A lot of that, I'm afraid, is hype, and it will wear off. But it's been out there now for three years and still has a lot of steam. In the long run, its repeat performance will determine its ultimate success."

"Is your Crenshaw variety named after the golfer?" I ask.

"Yes, it is," Milt answers. "Ben Crenshaw has been a very close proponent of Bentgrass Research, Inc., and of our research program here at the Dallas Center. Many times when Ben would come back to our Center and walk out onto the many, many grasses, he always went back to this one grass. When we released it, he was gracious enough to allow us to put his name on it."

"This may sound a bit naive, but why the drive to have bentgrass on every golf course? Is there no substitute for it?" I ask.

"It's a little bit like everybody aspiring to drive a Cadillac," Milt believes. "Especially on the putting surface, creeping bentgrass provides one of the most consistently uniform and desirable putting surfaces. If you can have the best, then go for it."

"From a research standpoint," he continues, "one of the reasons we started working very heavily on the bentgrasses is that, traditionally, we experienced a fairly high proportion of a budget for a bentgrass golf course goes into fungicides or into labor associated with managing the plant in order for it to survive in an otherwise relatively hostile environment."

"By working on the genetics related to heat tolerance and to maintaining a deep root system, and by working on the genetics of disease resistance, we were able to substantially reduce the amount of cultural input required to get that plant to survive," Milt reveals. "Now we have the opportunity for lower-budget golf courses to utilize and be able to have the best, and also to be more environmentally conscious by using fewer chemicals."

"Do they cool bentgrass by misting it?" I ask.

"It's a process called syringing," he explains. "They'll put a light mist over the top of the bentgrass. That moisture will actually take a lot of the heat

away from the plant. It is a stop-gap tool, used especially when the root system has died and the plant can no longer bring water up from the soil to cool itself."

"Tell us about Bentgrass Research, Inc.," I request.

"It's a member association with about 50 golf course members in 32 states," he explains. "Each golf course provides \$1,000 a year, mostly from the golf course superintendent's budget. Those dollars are slated to come back to Texas A&M for doing bentgrass research. Over the last 10 years BRI has raised about \$270,000."

"As a Texas A&M researcher, what are your ties to USGA?" I inquire.

"The USGA has an extensive grants program that was initiated in 1982," he explains. "Since 1982, they have provided approximately \$3.5 million in turfgrass research. Most of that has been targeted toward developing new varieties and the corresponding management practices that go along with that."

"Between BRI and the USGA, I have received approximately \$750,000 in the development of new bentgrasses since 1984," Milt continues. "Through the USGA I also have received approximately \$600,000 in support of the development of zoysiagrass since 1984."

"I think of Dallas as an urbanized area," I point out. "Is your research center being squeezed in from all sides?"

"We're very much urbanized," Milt confirms. "When I came here 15 years ago I could still look out and see lots of fields. Today I see row after row of apartment complexes. So the city is moving in around us and we are feeling the squeeze."

"But the center is unique in that it was donated to Texas A&M by a private foundation," he continues. "And one of the stipulations was that this

land could never be sold. So regardless of how much squeeze occurs, we will always exist."

He went on to explain that the center is used for turf and ornamental research related to urban environment problems. Of the eight scientists at the center, five work with turf. Milt does no teaching since all teaching is done at the main campus in College Station. But he is heavily involved with graduate students and post-doctoral programs. And he team-teaches a class on turfgrass identification and utilization at the GCSAA annual conference and a class on turfgrass management for the PGA.

Milt speaks at an average of 10 to 15 conferences a year. This year he spoke at the WTA Turf Expo — his first speaking engagement in Wisconsin. He is extremely impressed with what the turf industry has accomplished in Wisconsin.

"The Wisconsin Turfgrass Association has done an excellent job of promoting what has happened at the University of Wisconsin," he says, referring to the O.J. Noer Facility and the new faculty position. "What really excites me about the changes is that they were industry motivated. It took the Wisconsin Turfgrass Association to put together enough money for the Noer Facility and to put the political pressure on the University of Wisconsin System to say, 'Hey, we want turf academic, research and extension positions to address our problems here.'"

"How does the Noer Facility compare to your Dallas Research Center?" I ask.

"When you built your facility in Wisconsin, you rivaled us," Milt admitted. "We've always thought of our turf research center as one of the best in the country, and the Wisconsin facility is second to none. You've got one of the best in the country and you've got

Flexstake is the most practical accessory to appear on the golf course maintenance market in a decade. The above ground portion is made of color-fast poly carbonate which can be mowed over with reel mowers.

Our Flexsign, O.B. Markers and Yardage Markers are designed to allow a golf cart or a tractor to ride over them with no damage.

For a free sample of **Flexstake** or a video of our complete **Flexstake** line, call or write.

FLEXSTAKE®

Paul Ronyak, Distributor of Flexstake Products
W193 N16366 Lea Fond Circle
Jackson, Wisconsin 53037
1-414-677-3855

the personnel to go with it. And you certainly have the energy, motivation, drive and enthusiasm with Drs. Kussow, Rossi, Koval and Meyer. It's so wonderful to see that."

He added that one advantage to the Noer Facility is that it is seven miles from campus while his research center is 180 miles from campus. "But we're very uniquely located in Dallas," he continues. "The horticulture growing maps show that we can be too hot, too cold, too wet and too dry. That exposes plant materials to the worst conditions that they can have."

"As a native of Wisconsin, what do you like/dislike about Texas? What do you miss about Wisconsin?" I wonder.

"I always make it a point not to be in Dallas in the summer," he quickly answers. "And I always make it a point not to be in Wisconsin in the winter. I do a lot of my research in Oregon where most of the bentgrass seed production is done. And so when the summer temperatures get pretty high, I find my way out to Oregon."

"But I miss the season changes," he continues. "The rolling hills and the trees. I love Wisconsin. It's a great state. I love coming back for visits." With his mother in Platteville and his 21-year-old daughter at college in LaCrosse, he usually gets back to Wisconsin every other year.

Milt was born and raised in Grant County, Wis.—Platteville and Belmont. "I essentially grew up as a city boy. But, since I was about 11 years old, I spent my summers on the farms with my grandparents and my uncles," he remembers.

Upon graduating from high school, he attended the UW-Platteville where he received a B.S. in agriculture in 1968. One professor there, Dr. Roger Higgs, greatly influenced his future plans. "I did not want to go out into the sales world in agribusiness," Milt explains. "Because of Dr. Higgs'

teaching and the way he handled things, I felt that I really wanted to be involved in teaching and research. That was my primary driving force for going on to graduate school."

Graduate school was put on hold for two years while Milt served Uncle Sam at Fort Bliss, Texas. Then he entered the UW-Madison where he received his M.S. in agronomy in 1972 and his Ph.D. in plant breeding and plant genetics in 1974 under Dr. Richard R. Smith. He did some post-doctorate work at Oregon State University. Then he was hired by the USDA Agricultural Research Station in Temple, Tex.

"In 1979 the call came to go to work for North American Plant Breeders," Milt recalls. It was his first work with turf and his first work with a private company. "I reinstated a turf/forage grass breeding program that had been dormant for about 10 years."

"I stayed in that position until July of 1980 when the BIG call came," he continues. "That was to come back to Texas and join the Texas A&M faculty as an associate professor located at the Dallas Research and Extension Center."

"Research and work aside, what other interests do you have?" I inquire.

"I love world travel," he answers. "I've been in China, through most of the Pacific Rim countries a number of times, and in Europe. Most of these trips have been related to my work. As a plant geneticist, I travel around the world collecting new plant materials as well as visiting golf courses and sports facilities."

"I have become interested in photography again, especially macro photography," he adds. "It's work related, but it's fun. I'm working on a book on identifying plant materials using vegetative keys, and I will do a lot of photography for that."

"And I love the outdoors," he adds.

"Recently my wife and I purchased a new home and we will be creating some ornamental gardens, working with ornamental grasses as well as flowers—a perennial landscaping system is what we want."

"I hesitate to call it golf, but I do swing at that little white thing," he jokes. "I'm not a very good golfer because I don't concentrate on the game. I spend more time enjoying the environment, enjoying nature."

"How are you handling a two-state marriage?" I ask, knowing that his new wife works in Oregon.

"Our argument is, she works for a company that is home officed in New Jersey. Her research center is in Oregon. So it makes sense that her home ought to be in Texas," Milt explains. "Our primary residence will be in Texas and we'll have a secondary residence in Oregon."

"Anything else you'd like to say to the superintendents in Wisconsin?" I inquire.

"Go Big Red!"

"Did you see the Rose Bowl game?" I proudly ask.

"I was involved with the renovation of the Cotton Bowl here in Texas, to go from artificial turf back to natural turf," he explains. "Notre Dame and Texas A&M were playing in the Cotton Bowl that same day. And their tee-off time—catch that, their kick-off time—was about 10 minutes after the kickoff time for the Rose Bowl."

"I was in Wisconsin with my family, my brothers and sisters and everybody else, and knew that these games were at the same time," he continues. "So I gained control of the remote control. I kept switching back and forth because I wanted to see both games. We missed only one play of both games."

"So I did get to see the Rose Bowl while I was back in Wisconsin. It was great to be home," he concludes. 🏏

ANSWERS TO THE WISCONSIN GOLF COURSE QUIZ ON PAGE 26)

1. No, of course not.
2. You are, obviously. The architect needs to reread the specs for USGA greens.
3. No, you are merely "responsible". If the sand doesn't meet the USGA size specs, you won't have USGA greens. The driver needs to understand his frustration properly should be vented with the sand supplier, not you, if the load doesn't meet specs.
4. Wrong. The lab answered your question, but your question should have been, "do either of these samples meet USGA Green Section specs for putting green construction?" If the "better" of the two samples doesn't meet specs, you **DON'T** have USGA greens. Period.
5. No. Go back to square one, find new samples and resubmit them to the lab.
6. Of course. Greens built to USGA specs are built of root zone material mixed OFF-SITE.
7. No way, not if you want a USGA green for that hole. The specs say "there must be an absolute minimum of 12" of uncompacted top mix spread over the green." The contractor owes you at least two more inches of rootzone blend.
8. Of course he can; it's his property and his golf course. But he won't have USGA greens.
9. There aren't any.
10. No.