

If you work in the turf business and you've never heard of Dr. Milt Engelke, you should probably go find a new profession.

Engelke has been an innovator in research and education in the industry for nearly four decades. Think buffalograss. Think zoysia-grass. Think Texas A&M – and you pretty much have to think of the man known as Dr. Milt to thousands of superintendents worldwide.

Like so many turfheads, Engelke came off of a Wisconsin dairy farm. But, unlike most, he majored in physics as an undergrad at Plattsville College. Despite the high-end academics, he spent summers and free time working with his hands and became a licensed plumber and learned all he could about electric, HVAC and carpentry. That paid off when he was drafted in 1968 and, instead of going to the jungles of Vietnam, ended up in El Paso working on rocket electronics. Easy to see how he'd end up as one of the world's leading turf authorities, huh?

But, he jumped over into ag thanks to a fascination with genetics. To make a long career story short, he moved from Wisconsin to Oklahoma to Mexico. During his time south of the border, he focused on wheat hybridization and worked with the recently deceased Nobel laureate, Dr. Norman Borlaug.

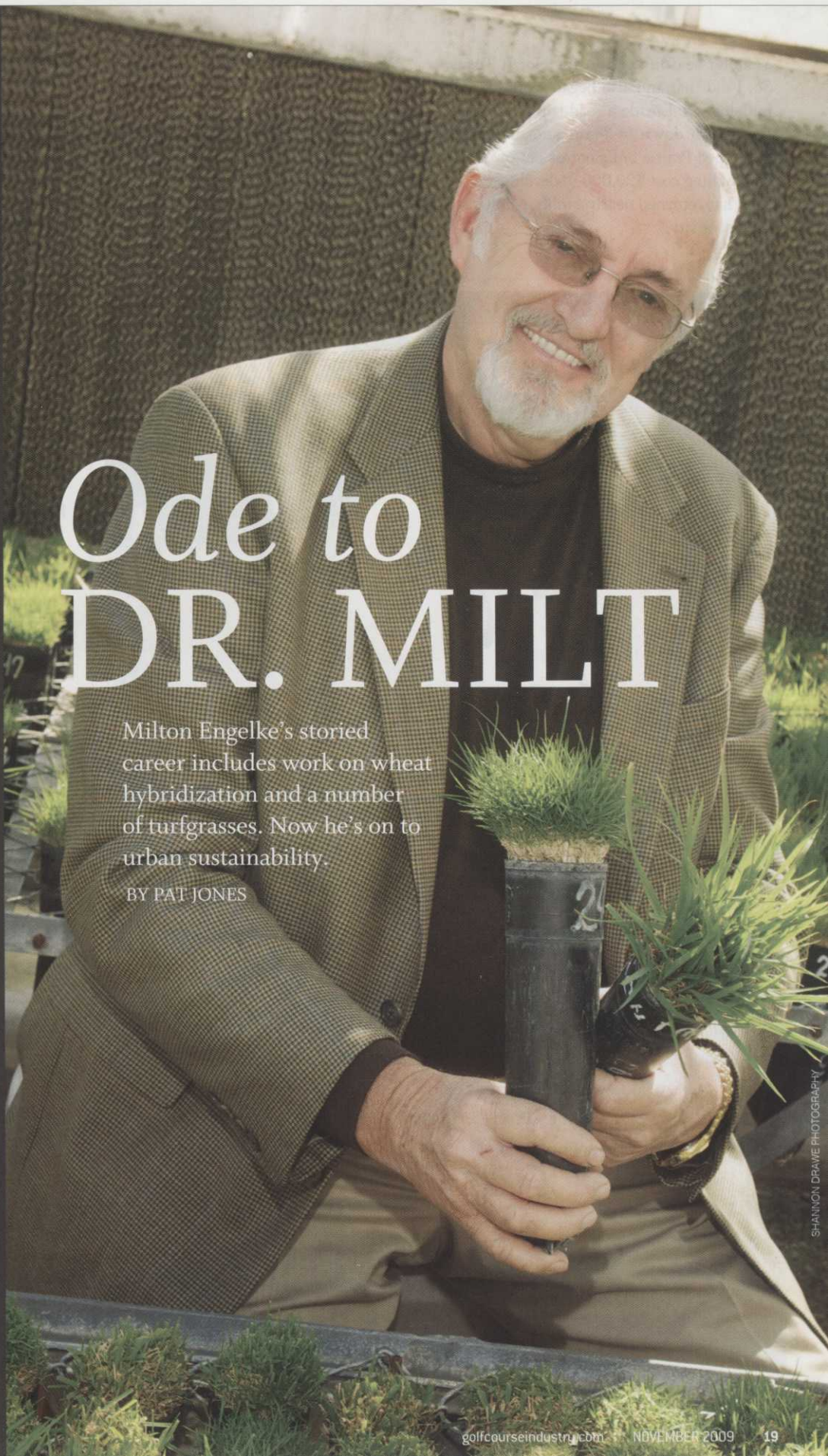
Finally, after a brief stint in private turf breeding, he ended up at Texas A&M in 1980.

"They hired me in May of 1980," Engelke recalls. "I had really enjoyed private industry and began to understand the necessity of getting plant materials into the marketplace. My job was to work on St. Augustinegrass and other native grasses – St. Augustine was about 40 percent of the lawns in South Texas at the time – and everyone wanted

Ode to DR. MILT

Milton Engelke's storied career includes work on wheat hybridization and a number of turfgrasses. Now he's on to urban sustainability.

BY PAT JONES



SHANNON DRAWE PHOTOGRAPHY

a cooler-season version for North Texas. So, I did that and also began working with buffalograss. I made a road trip from North Dakota on down to Texas and eventually developed Prairie buffalograss out of it. The whole thing cost \$20,000 to develop and, to date, has returned nearly a million dollars to the university."

We caught up with Dr. Milt as he continues to grow into his new role heading up A&M's urban sustainability program.

It just figures that a man who started with physics and moved into the world of grasses is now moving far beyond turf as associate director of A&M's Urban Solutions Center.

Where exactly are you now?

The Urban Solutions Center is 180 miles north of the A&M campus. You'd think it would be Siberia, but I have all the sciences working together right here with me. There are no silos or barriers. We're trying to solve problems that go way beyond golf or turf, but turf represents a huge opportunity in so many ways.

You're not really just a turf guy anymore. Tell us about it.

Right now, I'm focused on sustainability, and sustainability in our world is germ plasm. It's just like Rutgers where Dr. (Reed) Funk created such a diverse library of germ plasm. Had we not maintained the old germ plasm and kept it from being dumped, who knows where we'd be today. We can't lose those genetic resources.

What's the one thing that's made you successful?

I hired people better than me. I didn't need another me. I needed someone better who could complement me and eventually replace me.

Mike Kenna (now of USGA) was the first. He worked on zoysia. Virginia Lehman did bentgrass. David Huff, Richard Light, Jen Markham... I know I'm forgetting a bunch, but I've been incredibly lucky to have people who brought talents in that we didn't have.

Turf science has taken you all over the world. What are some of the most eye-opening things you've experienced?

Well, the Far East is always wild. Jack Murray and I went there in 1982. Korea was the most interesting. We went from one field with people using oxen to another a half mile away where they were using modern tractors.

The place where I collected a lot of original zoysia specimens is now covered by an airport. It's more proof that urbanization of the world is destroying a lot of our genetic resources. Urbanization is a worldwide challenge for any of us in agriculture. It impacts everyone.

How does the science of breeding compare now to when you got started?

I think we're not as far as we should be. (Dr. Jim) Beard said 30 years ago to make sure you don't lose sight of water (as a breeding issue) and we still have a long way to go on that. It absolutely has to be our priority moving ahead.



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Also, we didn't understand what the power of molecular science could bring to us, so we're still not where we should be in that arena. It's not the salvation, but it's another tool. You still have to have germ plasm to work with, but molecular breeding is a way of fast-tracking Mother Nature. But, because of the problems we've had with pollen containment, etc., we've ended up dragging around a boat anchor that's preventing us from making progress. (Breeders) failed to recognize that Mother Nature was still going to rule the roost. We'll overcome it eventually.

We're finally overcoming some of the barriers and starting to learn how to take advantage of the host of consistent DNA sequences. Our team is now inserting genes into plant materials all the time – just like Monstanto – and it turns out the genetic characteristic was already there in many cases – it was just turned off. The question is how to turn the sequences on and off.

We're making baby steps, but I think the USDA will eventually get comfortable with this because it's not introducing new sequences – it's all native. We're just taking advantage of inherent gene components.

Look into your crystal ball... What new varieties/standards for turf will we see in 10 years? 20 years?

Our new varieties are all targeted at concerns about natural resources. Water, heat dissipation, etc. We're working hard on living filtration systems to take brackish water and clean it up through natural processes. You'll hear more and more about zoysias that live in a saline environment that can pull the salt out of the soil and remediate the water and the soils. Salt extraction will be a hot new topic.

If you can preserve the soil, it's a phenomenal way to remove salt. Diamond zoysia is one of the most salt-tolerant plants you'll ever find. The zoysias will give us a whole different concept about how to manage salts and water.

You've known the man forever so give us your best Jim Beard story.

I have plenty, but here's the most recent. Just a few weeks ago, I read an obituary in the newspaper for a "James Beard" from Bryan, Texas – the same town Jim lives in – and I just about had a heart attack. Then I noticed that the deceased was 101. I was much relieved.

Jim Beard was one of the reasons I came to Tex along with Al Turgeon (now of Penn

State). They were among the best in the world. Garald Horst (now of the University of Nebraska-Lincoln) was in El Paso, too. It was a bird's nest on the ground in terms of wonderful people. In 1980, Jim Beard said we need to understand one thing: Water is king. He was right. Thirty years later, that's all we're talking about. But we were our own worst enemy.

What one thing haven't you accomplished that you wish you could have?

I submitted a design concept to build a sustainable course for patent protection and they just can't seem to understand the concept. The biggest nemesis for most superintendents is the perception that aerification or other cultural practices screw things up. My idea is to create a "chameleon" facility. It's a golf course that you could change from day to day. You could take a green, tee or fairway out of play to rest when it needs it. For every nine holes you need to build 11. Eighteen holes becomes 22. With the technology we have today, we can do that. It's cheaper, better, more interesting and actually creates more places to put houses. Unfortunately, it just doesn't work with the economy and couldn't get past a bull-headed patent examiner. Maybe it'll get built internationally.

Also, I'm frustrated that zoysia hasn't been used more on major sports venues. It's so wear-tolerant, but someone really has to grab the bull by the horns and market it. It doesn't wear out and it's so shade and salt tolerant. Lot's of people are looking at Diamond and are so amazed about how well it works for sports.

Finally, the (EPA's) WaterSense program is kind of a tragedy because it limits the amount of grass we use instead of which grasses we use. There are too many benefits to turf to limit our acreage because of misconceptions about turf. That's what we're working on today with the Urban Solutions Center here at A&M. Just Google "urban living laboratory" and check out what we're doing in terms of sustainability that combines LEED ideas with our standards for plant materials. It's a huge, ambitious project that will eventually become a global research facility.

How do students today compare to those of a decade or so ago?

They don't know the basics. They have wonderful book learning. It's like the reverse of Doug Petersan (of the Austin Golf Club).

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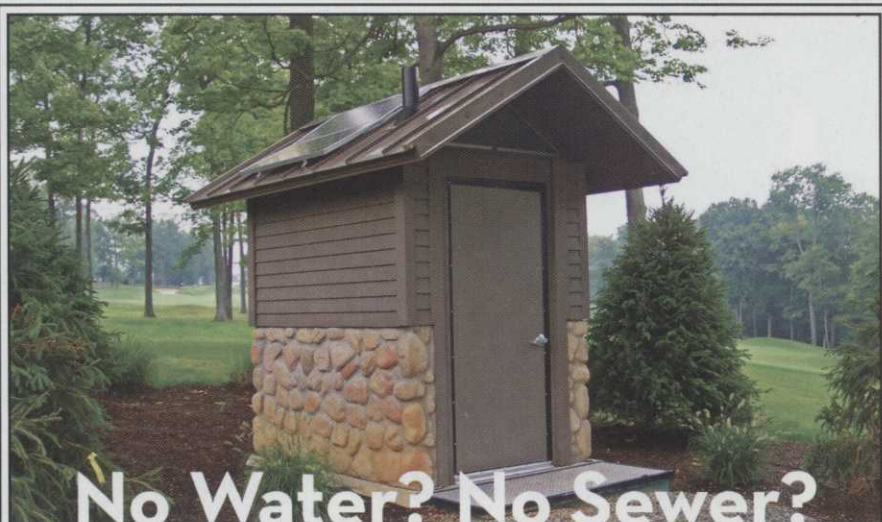
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GCI Q&A

He's a minimalist who maximizes performance because he understands the biology of the local ecosystem. The book learning isn't enough. They need more exposure to the guys like Doug who've been out there. Throwing water at stuff doesn't solve the problem.

What's the most common question you get from stressed-out superintendents?

"How do I do more with less and get away with it." If we understand the resiliency of the plants on golf courses we can do more with less. Take diseases for example. Everyone's always looking for which disease is the culprit. Sometimes, it's a cultural problem like salt in the irrigation water. It's too easy to fall into the "program" mentality and not really consider what the root problem is. Watering is often the last thing you should do and most green chairmen just don't understand that. The pressure to perform is contrary to using serious biology to manage the turf.

Then what's the most common problem?

Greens fail because the soil porosity doesn't change. You lose macropores and increase micropores. The problem is simple: too much water, not enough oxygen. When I started working with Jacobsen in 1987, they came out with the bayonet or vent tine. That technology literally manufactures macropores. You can better sustain microbial activity and microbes digest organic matter. Sometimes a holistic, sustainable, minimal approach is better than "wonder juice."

What do you do for non-turf fun?

Woodworking and fishing. Ken Mangum (of Atlanta Athletic Club) recently built a new course and had to cut down a couple of old growth cherry and black walnut trees. We had them shipped out here and I built my kitchen cabinets out of the cherry and several pieces of furniture out of the walnut. I used damned near every bit of those trees. We also have a 4,000-square-foot Diamond zoysia putting green at home, but that's another story.

Tell us about the happiest day of your life.

Years ago, I actually bought a DeLorean. I was on cloud nine, man. Yet, the second happiest day of my life was when I swapped it for a 2002 T-Bird. I've always been an early adopter, but sometimes you have to realize it wasn't the right decision.

Final question...what's next for you?

Fishing! In Oregon. Bye! GCI

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