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PETA Leader Speaks Out

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incorporate strategically placed vegetation, rock and fence barriers to keep Canada geese from congregating in areas of concern, and superintendents can apply for federal permits to humanely render eggs "unhatchable" should a pair of geese nest on the course.

Also, the goal should always be wildlife damage reduction, not elimination. Just as eco-friendly golf courses like Widow's Walk in Massachusetts and Desert Willow in California have to contend with a few brown spots on their greens to minimize water usage, so superintendents must learn to accept goose poop on the greens from time to time.


There are some also new concepts that are not included, such as the recent development of an oral waterfowl contraception drug (also one for pigeons) called Ovocontrol by a company called Innolytics (www.innolyticllc.com/information). But other than that, most of the information is current.

You recently played some desert courses. Your thoughts on the experience both as a golfer and as someone concerned about wildlife?

I'm a wildlife biologist, but like many people, I'm chained to a PC most of the workweek, and on weekends I only venture outdoors a short distance from my home. When I take a week off from work, I usually plan adventures to national parks where I can really lose myself in a place I've never been before. I love taking long hikes in the wilderness, using my field guides to identify and learn the names and features of plants and animals that make the area unique, and of course, watching every bird, mammal, reptile, amphibian, fish and bug I can spot with my own eyes or my trusty binoculars. I spent my last vacation in Yellowstone and it was breathtaking. The landscape, the thermal features, the wildlife — it was unbelievable.

When I decided to spend this year's vacation in Scottsdale, Ariz., I thought I'd have to choose between playing spectacular golf courses and exploring the wilds of the Sonoran Desert. Needless to say, I was in for a very pleasant surprise. I mean, I didn't have to choose — I got to do both. Don't get me wrong: Watching wildlife and admiring the desert landscape from a golf car isn't the same as hiking up to Cathedral Rock, but I was still amazed at the diversity of plants and animals I was able to enjoy while playing a round of golf. We saw hummingbirds, cactus wrens, coyotes, thrashers, rabbits, ground squirrels, quail, flickers, foxes, javalinas, doves, deer, golden eagles, verdin, phainopepla, violet green swallows and roadrunners — to name a few.

On our first day, we were waiting to tee off on the back nine when a coyote trotted up to a shady area above a green next to us and nonchalantly laid his body down for a snooze. I was so excited and asked the folks playing with us if people ever complain about animals like coyotes living on or near golf courses communities. They laughed. "Nonsense! For goodness sake, that's why we live here! Isn't that why you came to Arizona to play golf? To see the desert and all the wildlife?" I laughed and replied, "Oh, of course!" [laugh]

No question about it — I had a great time, but I'm no fool. I know one of the reasons those desert courses are so overwhelmingly attractive to wildlife is because we take water from natural, self-sustaining riparian ecosystems and use it to maintain artificial, 120-acre man-made "systems" carefully designed for people like me who enjoy chasing and hitting little white balls with sticks. The plants and animals in those natural systems struggle to survive and those fortunate enough to live close to these artificial "systems" thrive. As conscientious golfers, we cannot ignore this fact. We are morally obligated to petition the golf industry to be proactive and strike some sort of balance with what the industry takes from wildlife and the environment. If nothing else, we should support golf courses that have been certified by Audubon International as Conscientious golfers "cannot ignore" the fact that courses must respect the very wildlife it invites by nature, PETA representative Stephanie Boyles says.

Also, the goal should always be wildlife damage reduction, not elimination. Just as eco-friendly golf courses like Widow's Walk in Massachusetts and Desert Willow in California have to contend with a few brown spots on their greens to minimize water usage, so superintendents must learn to accept goose poop on the greens from time to time.


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Down on the FarmLinks

Pursell on a ‘Passionate Pursuit of Perfection’ to make PTI’s ‘Experience’ even better

BY LARRY AYLWARD, EDITOR IN CHIEF

It’s good. It’s darn good. It is doesn’t-get-much-better-than-this good. But it can be better. Much better.

And David Pursell, the CEO of Pursell Technologies Inc. (PTI) and the maestro of the company’s Experience at FarmLinks educational/entertainment program for golf course superintendents and green industry professionals, will be the first person to tell you that.

“Even though we’ve got a great thing going, we can always do better,” Pursell says.

PTI has been conducting its program, formerly known as the PTI Tour at Pursell Farms, for superintendents and green industry professionals for several years now at its headquarters in Sylacauga, Ala. The program took a giant leap in 2003 when PTI opened the FarmLinks Golf Club, an 18-hole golf course located on the company’s 3,500-acre property, that serves as a research and demonstration ground for the training program.

Around that time, PTI recruited three industry partners — The Toro Co., Syngenta Professional Products and Club Car — to help fund and operate the training program and to participate in golf course research. PTI also opened the Parker Lodge, a rustic and cozy inn that sleeps, feeds and entertains its guests, who arrive in two separate groups weekly.

The Experience at FarmLinks is unlike anything else in the golf course maintenance industry. It’s not a hotel-in-the-suburbs-for-a-few-days-of-tedious-training program. A superintendent might never admit it to his general manager or club president, but the Experience at FarmLinks is kind of like taking a holiday. Let’s just say the PTI folks know how to roll out the red carpet for superintendents and...
other guests to make them feel like kings and queens.

And that's precisely the point, stresses Pursell, noting that most superintendents aren't accustomed to that kind of treatment. It's Southern hospitality at its finest, but the spiritual Pursell says such treatment is in accord with the golden rule. "Do unto others as you would have them do to you," he cites.

The educational programs are enriching, but what helps set the program apart from others is the recess. In between the learning stuff, attendees can go have fun. They can play the golf course, a Mike Hurdzan-Dana Fry design carved from idyllic farmland, and go bass fishing in several lakes on the property, among other things. Ferris Bueller wouldn't think of taking a day off from this place.

The educational programs are out of the ordinary, which is refreshing. One program, taught by PTI Executive Director of Business Development Jeff Higgins, takes place in the PTI-Max Theater, which features 15 leather recliner chairs and, yes, popcorn and candy in a small movie theater-type setting. Higgins, who speaks on fertilizer technology, lets his keen sense of humor get in the way just enough, which adds some lightness to a technical topic.

One of the best things about the educational programs is that guests can go one on one with representatives from PTI, Syngenta and Toro and discuss and see the realities of new technology at work on the golf course. One can sit and listen intently to Dana Lonn, director of Toro's center for advanced turf technology, wax about robotics and fuel cells and golf course maintenance of the future.

Lonn will also listen to superintendents' concerns in a group discussion and address them as best he can. In fact, Lonn says getting such face time with superintendents is invaluable.

"Our product development process starts with meetings like that," he says.

Back to making the Experience at FarmLinks better and even more memorable. Pursell and Dave Heegard, PTI's vice president of sales and marketing, say there are a few wrinkles to be ironed out on the red carpet. When asked about taking the Experience at FarmLinks to another level, Pursell begins to talk about the marketing strategy of an upscale car manufacturer — Lexus.

Pursell happens to drive one, and the only thing he likes better than a Lexus' performance is its mission statement: "The passionate pursuit of perfection."

Those who know him will say Pursell could have written the line. He's all about being down to the last detail.

"I don't think you ever get there," Pursell says of perfection. "You can get above everybody else, but if you rest on your laurels, what happens is everybody is going to find a way to catch up to you or even leapfrog you."

So it's always about going back to the drawing board to make things better at FarmLinks. Pursell's latest vision is a new facility that features two pavilions — one highlighting the "hall of today" and featuring the products and services of FarmLinks major partners; and one highlighting the "hall of tomorrow" and featuring future products and services. Groundbreaking for the facility will occur this summer and it's scheduled to open in 2007.

Mark Langner, the director of agronomy and applied research at FarmLinks Golf Club, formed an advisory group comprised of 12 superintendents to scout the industry for innovative products to showcase at the pavilions.

Pursell and Heegard also want to make the experience even more fun. FarmLinks is as quiet as a cornfield after the sun sets. Guests can watch TV on a big screen in the lodge or play ping-pong, pool and

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Mark Langner Lives in the Future at Research and Demonstration Golf Course

By Larry Aylward, Editor in Chief

If anybody can tell you what the future holds for golf course maintenance, it's Mark Langner, the director of agronomy and applied research at FarmLinks Golf Club, the research and demonstration golf course owned by Pursell Technologies Inc. (PTI) in Sylacauga, Ala.

Langner is living in the future at FarmLinks, which was built to test the latest formulations and gadgets of golf course management, from machinery to chemicals to irrigation practices.

FarmLinks also doubles as an outdoor classroom for the roughly 1,000 superintendents and other green industry professionals who visit the course annually as part of the Experience at FarmLinks, a two-day training program conducted by PTI that's held on the company's 3,500-acre grounds.

Langner frequently tests products and conducts studies on everything from fertilizers to fungicides. He's observing more new grass varieties that can be found on a seed farm, from bluegrass to paspalum to zoysia to bermuda to bent. And he's checking out the latest in mower technology to cut those myriad varieties.

It's on-the-job learning, all right. It's also a cool feeling to be on the cutting edge, which is razor sharp at FarmLinks.

"I like to take chances and risks," Langner says. "What better way to do that than at a research and demonstration golf course."

The same turf research that's usually done on test plots at universities and in chemical companies' backyards is done at FarmLinks. But there's one big difference: FarmLinks is a public golf course, which means the research is conducted in a real setting with real golfers that cause real divots.

"It's always something new and challenging," Langner says. "It's never dull!"

But want to know the best thing about Langner's job? He won't get in trouble if any of the risks he takes in his outdoor lab end up going awry.

For instance, he can dry out a fairway to see how grass will react to different seasons. He's wishing and dreaming again. And he's probably only a matter of time before Pursell's latest vision becomes reality.
By Steven K. Starrett and Jamie Klein

This USGA-funded study focused on observing the fate of glyphosate following Roundup applications in a turfgrass ecosystem. Kansas State University, in cooperation with Jim Colbert, the Professional Golf Association, the Golf Course Superintendents Association of America and various alumni, built a championship course (Colbert Hills Golf Course) in Manhattan, Kansas.

The course, opened in 2000, provided the study area for the research presented here. Water and soil samples were taken from the study watershed for three years (2001-2003) during the early operation period of Colbert Hills.

The objectives of the study were:

- To measure glyphosate runoff from zoysiagrass fairways on a course following the application of Roundup herbicide.
- To analyze glyphosate runoff concentrations and determine the resulting effect on the environment.
- To provide up-to-date data of research findings on pesticide fate and transport when applied to turfgrass.

With the introduction of glyphosate to the environment, a number of environmental considerations arise, probably the most important being the health implications to those who may come in contact with the chemical. The EPA RED (1993) facts sheet reported that glyphosate ranks high among pesticides causing illness or injury to workers who report numerous incidents of eye and skin irritation from splashes during mixing and loading.

Glyphosate toxicity to wildlife is also an important issue to consider. Glyphosate has been found to be practically nontoxic to birds, honeybees, fish and aquatic invertebrates. The fate of glyphosate is influenced by its numerous interactions with the surrounding environment. The most notable interactions take place with water, soil, air and the treated vegetation. The fate of glyphosate through these different modes is highly dependent on its physical properties.

A total of 617 runoff samples were mostly taken by ISCO 3700-automated water samplers at the inlet and outlet of the sub-watershed detention pond and from three separate fairway drains on hole No. 9 (Figure 1).

Twenty-three water samples most likely to contain glyphosate were tested by the U.S. Geological Survey (USGS) lab for glyphosate, AMPA (amino methyl phosphonic acid) and glufosinate. Thirteen of the samples contained non-detectable concentrations of glyphosate. The limit of detection for the testing process used was 0.10 µg/L (micrograms per liter).

The majority of samples with detectable concentrations of glyphosate were taken from one of the three fairway drains. Those samples contained significantly greater concentrations than the inlet, outlet and pond samples. Nine of the 13 samples taken from the fairway drains

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Continued from page 57 during the years of 2002 and 2003 (when Roundup was applied) contained glyphosate at a concentration greater than 0.10 μg/L, while 10 of the 13 samples contained AMPA at a concentration greater than 0.10 μg/L.

The sample with the highest concentration observed throughout the study period was taken from the No. 2 fairway drain 62 days after Roundup application. The glyphosate concentration of this sample was 5.18 μg/L, which is significantly lower than the 700 μg/L limit for the EPA-established maximum contaminant level (MCL).

Five samples taken from the inlet into the pond were tested by the USGS lab. The one sample that contained glyphosate at a concentration above the detection limit of 0.10 μg/L was taken on April 29, 2002. This was earlier in the year than any of the fairway drain samples, which might explain why a detectable concentration was present in this sample.

The main reason the inlet samples contained undetectable concentrations of glyphosate was dilution. The drainage area for the inlet sampling location was 115 acres, with approximately 6 percent of that being zoysiagrass fairways that had been treated with Roundup.

Four samples that were taken directly from the detention and irrigation pond were tested for glyphosate. Two of the samples were taken in April 2003 and the other two were taken in August 2003. None of the four samples contained glyphosate at a concentration greater than 0.10 μg/L.

There were two primary reasons why low concentrations should be expected within the pond. First, significant dilution occurred when runoff from the watershed mixed with the water present in the 3-acre pond. Further dilution also occurred because of the addition of purchased water that was pumped into the pond for irrigation purposes. Second, the reduced runoff velocity paired with readily available suspended solids promoted glyphosate adsorption to soil particles and settling.

One sample taken from the outlet of the detention pond was tested for glyphosate. While the concentration of glyphosate was below the detectable limit of 0.10 μg/L, an AMPA concentration of 0.26 μg/L was present. Low concentrations of glyphosate were expected from the outlet for the same reasons mentioned above for the pond samples. Because water from the pond is used for irrigation, it was not favorable for water to be lost through the outlet. Therefore, outlet discharge events would likely occur only after significant or frequent precipitation events.

This was the case with the tested sample, which was taken 12 days after a 1.4-inch precipitation event. In these cases, it was likely that, due to the pond being full, the amount of water entering approximately equaled the amount exiting, which left less time for dilution, adsorption and settling of glyphosate.

Glyphosate concentrations in runoff samples from the 115-acre study watershed following annual applications of Roundup were much lower than associated health standards. The factors present during the study period effectively maintained glyphosate concentrations to acceptable levels at fairway drains and to undetectable levels within the detention pond.

Steven K. Starrett, Ph.D., is in the department of civil engineering at Kansas State University. Jamie Klein is a former graduate student in the KSU department of civil engineering.
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What we learned from building this machine is what we use to build yours.
Protecting Turfgrass from Typhula Blight

By Young-Ki Jo and Geunhwa Jung

Hopefully, you didn’t forget the preventative application for snow mold caused by Typhula fungi this winter. If you did, keep it in mind for next winter, especially if you anticipate cold temperatures and heavy snowfall.

Typhula blight strikes fast. You can be fine in autumn and then overwhelmingly get lost at seeing grayish-brown dead circles on putting greens or fairways during snowmelt. Fungi causing Typhula blight have been growing in the turfgrass thatch and rootzone as soil temperatures drop to 50 degrees Fahrenheit (F). You even don’t know the fungi are there during autumn when cool-season grasses grow well until the harsh winter front hits, and snow covers the grasses.

Winter hardiness of turfgrass can be maximized through a combination of maintaining mowing heights, fertilizing and slowly reducing irrigation during autumn, but fungicides are often required to prevent Typhula blight from killing closely mown turfgrass in the Northern states (Stier, 2005). The pre-emptive approach is a smart idea for those who simply cannot take a month or more to recuperate turfgrass damaged by Typhula blight in the next spring.

Fungicide treatment is most effective if applied before onset of symptoms or before the fungi begin actively growing. It reduces initial fungus inoculum potential and alleviates the disease severity.

Typhula incarnata and T. ishikariensis are two major causal fungal pathogens of Typhula blight on most turfgrasses cultivated in the United States (Smiley et al, 2005). The fungus survives as tuber-like hardened mycelium, called sclerotia, throughout the summer. In late autumn sclerotia germinate and mycelium begins growing from them. Club-shaped sexual fruiting structures (sporocarps) are formed from sclerotia under certain environmental cues, including light, temperature, soil moisture and soil microorganisms.

Both T. incarnata and T. ishikariensis are often present together and cause snow mold damage at the same time, although T. ishikariensis tends to be more dominant in the northern regions of Wisconsin, Minnesota and Michigan. Typhula blight becomes severe, with more than 60 days of snow cover, which provides the fungi with favorable conditions of high moisture and temperature above freezing (34-36 degrees F). Winter-stressed plants are slowly taken over by Typhula fungi, and eventually infected areas turn into patches of white to gray dead turf as snow recedes in early spring.

Typhula blight season in Wisconsin and Minnesota varies depending on the latitude and winter weather conditions, but turf damage becomes apparent in March and April. Early fungicide applications are started in mid-October when the activity of the fungi is at its peak. Usually, more than one chemistry with multiple applications are recommended in areas where snow cover is longer.

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