

# Cyber Superintendent-The “Turfinator” The Golf Course Superintendent of The Future

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Just imagine what this great profession of turfgrass management will look like in the future. You may have seen incredible changes within our industry during your career; but nothing like what’s in store within the next 10 years or so.

At FarmLinks we hope to be the first to show you the latest technology and turf management practices when you visit us for The Experience At FarmLinks. So, we’ve been thinking about what future changes might be waiting for us down the road. Some of the ideas below are not so far away from being reality-others may require some mental relaxation to visualize.

Are you ready to see the future? Come aboard my time machine headed for 2014 to see what your job will be like!

## Mowing

One of the most important turf management practices that affects turf quality is mowing. The more frequently we mow-the greater the turf quality (assuming that the reel mower has sharp reel blades with the proper angled bed knife, etc.) In the near future, there will be mowers that will operate on alternate energy sources and mow the entire golf course without operators. A central computer will send out a small fleet of mowers at night to mow the entire golf course and not make a squeak of noise. As a matter of fact, the computer will tell them at what time to leave, and then route their mowing “trail” and return.

These GPS-controlled mowers will use a laser beam as the cutting instrument instead of reels and bed knives. There will be no clippings because laser beams will completely disintegrate the cut leaf portions with precision accuracy. The result will be the smoothest cut that you have ever seen without any point of entry for disease infection. Extremely accurate tolerances can be set with computer

monitoring equipment built into the mowers, and constant communication will take place between the mowers and the central computer.

Specifications will be programmed into the computer that will provide the exact mowing height of greens, collars, approaches, fairways, roughs, tees, tee surrounds, etc. as the mower makes its way across the golf course. Constant feedback and communication between the mower unit and the computer will monitor these operations. Can you imagine the mowing patterns that will be possible?

What about mowing over irrigation heads that remained popped up? Not possible, due to the ever so sensitive microwaves the mowers will be sending out to detect objects in and around these mowers (kind of like a bat’s sensory skills). Or, perhaps the computer system will be integrated into the irrigation system so the mower will send a signal back to the computer and the computer can “stimulate” the head to seat itself down. Mowing will continue as programmed and when you come to work in the morning, they will be waiting for their morning bath.

## Irrigation

One of the biggest problems that golf course superintendents face is knowing when to irrigate and how much water to apply? Most turf managers overwater! Irrigation systems in the next 10 years will require no programming or manual operation. Every irrigation head will be in constant communication with the central computer and its network of soil monitoring sensors.

These sensors monitor soil moisture, soil temperature, evaporation, soil oxygen levels, etc. The central computer will be programmed to maintain a certain level of soil moisture for example, and regard-



*Dr. Higgins shown here at the Chapter Co-Hosted Meeting in January*

less of soil type, the computer will engage only the required irrigation heads to maintain perfect soil moisture conditions. Slopes? The irrigation head only turns 47 degrees normally to cover that area, but it will sometimes go further if needed based on the sensor feedback. The integration of these irrigation heads to the computer is all satellite driven and no wiring is required. And there’s no need for electricity because these are solar-powered irrigation heads and valves using nano-composite technology.

## Pest Control

Let’s look at pest control in the future. Of course, pest populations will be monitored by infrared and near infrared photographs that are constantly available via satellite. These photographs

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Forwarded to Jim 3/19/04

**These GPS-controlled mowers will use a laser beam as the cutting instrument instead of reels and bed knives.**

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map the pest populations in coordination with GPS with millimeter accuracy. So, depending on the particular pest and the environmental conditions present, the central computer will alert you about pest occurrence and the need for a pesticide application. But don't fret-the computer will also notify the sprayer. All you need to do is mix the proper recipe of pesticide products printed out from the central computer. Then the precision spray or granular treatment will be delivered to the GPS coordinates.

What about treating a specific weed like *Poa annua*? The computer will be able to bring a map showing *Poa annua* that is present. The map will be generated from a satellite photograph taken at the exact wavelength of light that this weed species reflects. So, the only objects on the photograph will be *Poa annua* plants. Then simply send the application equipment out at night and allow it to treat only those areas.

Another approach to pest control will be PTI's PRECISE™ products. For example, there will be a warm-season turf granule that you apply in February and it will take care of your annual fertility, herbicide, fungicide, insecticide and plant growth regulation applications. Yes, season-long pest control and fertilization in a single application. Release timing of each product from the PRECISE granule will be controlled by the central computer. Based on sensors and pest prediction models programmed in the computer, you'll be forewarned when pest control problems will develop. Subsequently, the central computer can alert you to release some fungicide. An "activator" will then be applied via the irrigation system that activates the PRECISE granule to release the particular fungicide from the granules.

Well, I better go now as my hydrogen fuel cell is getting low and I need to move it into the sunlight so it can recharge, then we can head out to the next stop-20 years from now!

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~~NORTH GEORGIA TURF~~

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