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Adds Mike Koppen, group marketing manager of golf products for John Deere: "We're adding value and additional features to our new Tier IV machines that will increase performance, productivity and operator comfort. We've undertaken Tier IV as an opportunity to redesign our machines from the ground up to provide an overall better machine that is, at the same time, Tier IV compliant."

Ford speculates that there may be some short-term sales fluctuations, but in the long term, he expects sales to be largely unaffected.

Koppen says that end-user reactions, in more often than not, are being driven by uncertainty because they largely haven't seen what a Tier IV-compliant piece of equipment can do.

"When they come face-to-face with a Tier IV piece of equipment, they're pleasantly surprised by new standards

in performance, productivity and operator comfort," he says.

John Deere has been getting the word out on Tier IV mostly through its dealer channel.

"We have an enormous amount of experience in smoothly transitioning to new emissions standards," Ford says. "And we have found our best method of communicating changes like this is through our well-trained dealers. They have done very well in so many other regulatory transitions in communicating these changes to our customers."

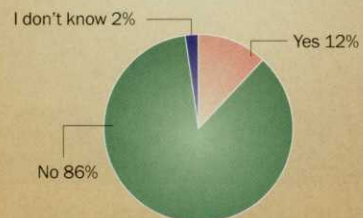
Like Toro, Rachel Luken, product manager for Jacobsen, predicts a 10- to 20-percent price increase for Tier IV-compliant products.

"Of course, customers don't want to pay more, especially when we're talking about increases as high as 10 to 20 percent for higher horsepower, Tier IV-powered products,"

## Cost factor

Equipment manufacturers did a solid job educating end users about the nuts and bolts of Tier IV and what it would mean for new model technology. It wasn't a stretch to realize these changes would also mean price increases. Many insiders speculated that these expected price hikes could result in a spike in spending in 2012. However, this turned out not to be the case. The majority of superintendents (86 percent) say Tier IV regulations and the associated costs increases for the technology did not play a factor into 2012 equipment purchasing decisions.

### Did you purchase equipment in 2012 specifically because of Tier IV regulations that go into effect in 2013?



Source: GCI State of the Industry research

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“So, comparatively, the price of compliance isn’t terribly surprising to anyone who has had experience in one of the other categories, OTR trucks probably being the closest to most. That said, it’s never easy delivering a message of price increase to customers. In the end, it’s a mandatory regulation that has a price associated with it.”

— Grant Young, The Toro Co.

says Luken. “But for equipment manufacturers, distributors and end users, this is a ‘must-do’ in order to comply with federal regulations – the choice is how and when you make that equipment transition and replacement.”

Jacobsen is working on alleviating the higher costs, though, via technological innovation.

“In addition to Tier IV final engine and equipment modi-

fication solutions with high pressure common rail and exhaust after-treatment systems, Jacobsen is exploring innovative, non-conventional approaches – where technically feasible – to deliver lower emissions and meet compliance,” Luken says.

As a precursor to the more conventional solutions, Jacobsen has launched the LF510, a new addition to its line of lightweight

fairway mowers. Luken describes it as an alternative, simple Tier IV final solution for 100-inch width of cut applications.

“The market also told us it wanted an affordable fairway mower that provides a superior quality-of-cut. We answered that need by putting Jacobsen’s True-Set cutting units with Classic XP reels on an easy-to-use, easy-to-maintain tractor,” says Luken.

“In addition, technicians don’t have to worry about additional exhaust after-treatment filtration devices, technology or service because the LF510’s rugged and reliable Kubota engine is compliant with Tier IV emission regulations.”

Jacobsen has chosen to communicate its Tier IV message through its dealer network using sales and technical training sessions where flyers are handed out as education and reference pieces.

In addition, the company is participating in regional/local GCSAA organization meetings, trade shows and conferences, customer roundtable events. GCI

Jason Stahl is a Cleveland-based freelance writer and a frequent GCI contributor.

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## BUILDING A REBUILDING CASE

**G**reat master plans with no “buy in” from your members or city council have the same value as no plan at all. Here are a few ideas we presented to circumvent this.

**INITIATE FROM THE TOP.** When a new superintendent/GM/Pro tells me “I’m new here, and I am pushing some big changes,” the end result is usually a master plan that goes nowhere. If the president or greens chair (or mayor/park director) isn’t interested enough to call me, he/she probably isn’t interested in a rebuilding program.

Most failures to sell a renovation program stem from either selling the wrong people, or selling the wrong project. A committee selling total renovation to their clubs that don’t want it, or can’t afford it, rarely works. Architects attempting to spend club millions for what appears to be a career-making project never does.

The club – not their staff or architect – must decide it needs a total image makeover to reposition it in the market, restore lost luster or recapture course rankings. You and your architect must present information on problems and options for correction, but the final direction must come from the decision makers.

**PICK A “FLAG BEARER.”** Every project needs a connected, respected and energetic “flag bearer” to lead the troops into battle. Without good leadership, the project will likely fail.

**YES, IT’S SELLING.** Most folks hate the concept of “Selling your master plan,” and I prefer to call it “building a case for renovation,” but make no mistake – it’s selling. Even with top brass behind the project, the task of convincing members to move forward requires real sales, diplomacy and marketing skills. There are numerous

good books on the subject, so, go read a book to brush up on all those old clichés. “Sell benefits, not features,” “Sell the sizzle, not the steak,” “Hit their ‘hot buttons,’” all apply here.

Some tips, as they apply to renovations:

**OVERCOME FEAR.** The biggest cause of inaction is fear – of change and of wasting money. Fear is greater if there

**I have found the simplicity works over complexity. I prefer graphic boards and plans to a power point presentation in a darkened room.**

were some previous renovation flops. Perhaps the best method to allay fear is to acknowledge it, and clearly demonstrate you have picked solid projects and people to implement them.

**TALK THEIR LANGUAGE.** We tend to talk in our own lingo, which doesn’t impress others. Superintendents wax eloquently about the features of a state-of-the-art irrigation system, but it’s more convincing to show (in simple case studies or examples) how golfers benefit. They are more likely to be interested in the benefits of water conservation to either water more roughs and give them better conditions; or lower their water bills, and hopefully, dues.

Similarly, they don’t care about the sand particle size of your proposed USGA greens, but they are interested in smoother greens, making more putts or impressing their guests.

**PICK THE RIGHT ISSUES.** Selling/Case building isn’t catchy slogans or slick

presentations. It’s doing your homework ahead of time to find out what changes are necessary (in fact and opinion) and providing those improvements to your golfers.

At most courses, there are greens, holes, areas or conditions that everyone agrees need improvement. Those have to be part of the plan, of course. Then, it may be possible to demonstrate the added value of other work, especially if it saves time, money or hassle to do now.

**REHEARSE THAT PRESENTATION!** While it is best to be confident of the vote before the big meeting, that doesn’t always happen. For the best chance of success, plan on doing a great presentation. Like sales, there are many books devoted to making great presentations that are a good investment.

I have found that simplicity works over complexity. I prefer graphic boards and plans to a PowerPoint presentation in a darkened room. It’s better to talk with them than at them. In addition, I find presentations that focus on the most important one to three points are more convincing than ones that promise dozens of project benefits, which tend to run together.

**CROSS THE “I’S,” DOT THOSE “T’S.”** If you have ever hired someone, you know that you quickly dismiss candidates with obvious flaws. The same is true when considering renovation projects. I have seen good presentations derailed by simple questions that the committee doesn’t seem to have considered and can’t answer. This usually instills fear (see above) leading to rejection. **GCI**

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# Down with PRD

The mysterious pythium root dysfunction scares superintendents, but there are preventative measures they can take to make sure their roots stay healthy and PRD-free. BY JASON STAHL

**“M**ysterious” is a scary term to describe any turf disease, but that’s exactly the word Jim Kerns uses when talking about pythium root dysfunction (PRD)

Caused by the root pathogen *Pythium volutum* and impacting creeping bentgrass greens, Kern, a turfgrass pathologist at North Carolina State University, says it doesn’t act the way most superintendents expect. There are other reasons why it’s shrouded in mystery, too.

“If you actually look at the root system, it doesn’t look that bad,” says Kern. “The pathogen infects during spring and fall when the soil temperature is between 55

and 75 degrees Fahrenheit. And the symptoms don’t show up till you enter a stressful period (soil temperature increase to greater than 90 degrees Fahrenheit). So by the time you see the symptoms, going out and treating for it can be very challenging.”

But before you talk about managing PRD, you must be able to distinguish it from pythium blight and pythium root rot – two completely different diseases. According to Kerns, pythium blight occurs when pythium species attack the foliage of the plant. Pythium root rot is easy to detect because, if you pulled up a sample, the roots would be rotten, black and stinky. PRD is not as easy to determine.



Pythium root dysfunction (PRD) got its name because it doesn’t kill the roots, it just impairs their function. It’s difficult, if not impossible, to see without a microscope.



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“PRD got its name because it doesn’t kill the roots, it just impairs their function somehow, whether it’s nutrient uptake or water uptake,” says Kern. “We tried to figure out which one of these functions it impairs through studies, but we couldn’t distinguish between the two. But we did determine that the pathogen impairs root hair development, and that would imply that the turf is having trouble getting water and nutrients up to the foliage.”

The kicker is that it’s also extremely difficult to diagnose. First, because it affects the root system, it can be hard to see.

## Key points

- The pythium root dysfunction (PRD) pathogen infects during spring and fall when the soil temperature is between 55 and 75 degrees Fahrenheit.
- PRD symptoms don’t show up until you enter a stressful period, such as high temperatures.
- PRD doesn’t kill the roots, it just impairs their function.
- It’s also extremely difficult to diagnose, and nearly impossible to see without a microscope.
- While PRD has been seen throughout the U.S., it’s most active on Mid-Atlantic and Southeastern courses.

Second, it can also be found on healthy roots, so just seeing it doesn’t necessarily mean you have the disease. Finally, the symptoms can be confused with take-all patch.

“So really, the only surefire way to diagnose the disease is to send it to a diagnostic clinic,” says Kern, who recommends North Carolina State, Rutgers, Purdue or the University of Wisconsin – labs he personally knows have stayed abreast of the disease and know what to look for.

PRD is difficult if not impossible to see without a microscope, which is one of the reasons Kern recommends sending a sample to a clinic. He especially emphasizes the clinic route for those superintendents who haven’t had it diagnosed in the past.

“One of the biggest issues I’ve found is that many vendors will say you need to treat for this particular disease, and then you have people treating for it who have never had previous experience with it or anything remotely similar to it,” says Kern. “Not to say it couldn’t hurt, but what I like to say is if you’re going to do that, you need to pick the right fungicide where you’re getting the most bang for your buck.”

Kerns emphasizes that super-



If they’re not seeing results from their traditional fungicide programs, superintendents should have turf samples diagnosed for PRD.

intendents will not be able to see PRD with the naked eye. He says it does not create any real defining feature in the foliage.

“From what we’ve seen, the pathogen never gets into the foliage, so you basically just see a decline when it initially starts,” he says. “It would look like an area suffering from heat or drought stress, a small little patch that might be drying out that then, over time, gets progressively worse.”

So how do you manage it? The experts, including Kern, all promote a preventative approach. But Kern doesn’t necessarily believe it’s a lost cause if you haven’t

managed it preventatively and it surprises you.

“You can do something about it once it appears because it’s primarily a stress-induced disease,” he says. “Doing simple things like raising your mowing height, adding more fertilizer and anything to limp the plant through the summer months can help you manage it – it’s just a lot more challenging than if you managed it preventatively. If you continue to manage your greens at extremely low mowing heights and limit fertilizers, then the tissue can collapse pretty quickly.”

Some experts have said that superintendents will typically scout wet, low-lying spots on their courses and then make preventative applications during hot, humid weather conditions. Those conditions may be the best time to try to stave PRD off, but as far as weather having anything to do with PRD rearing its ugly head, Kern says he has not seen any pattern. He has not seen an increase in it over the last couple years of unseasonably warm winters and hot, dry summers, only that it has lingered on. But one interesting characteristic has been determined.

“Back in the early ‘80s when Clint Hodges was studying PRD at Iowa State, we found that this disease was most problematic on

## MAXIMIZING ROOT HEALTH

BEING THAT PRD is a root disease, measures that promote healthy root production are key to managing it. One measure is to not limit nitrogen fertility.

Root cultivation such as core or solid tine aerification followed by topdressing in the spring and fall is also key, says Maria Tomaso-Peterson, Ph.D., associate research professor, plant pathology, Mississippi State University.

“Root cultivation promotes an increased root mass that can better withstand PRD,” says Tomaso-Peterson. “A weakened root system, due to a lack of root cultivation, may be a contributing factor to the overall decline during the stressful summer months. Spent cores should always be removed prior to topdressing. Core removal reduces the level of *P. volutum* and other associated root pathogens by physically removing the pathogens and any associated infected roots.”

Monitoring for nematodes is also critical to keeping creeping bentgrass roots healthy in that they may be a factor that weaken them, making them more vulnerable to PRD. Their feeding sites, says Tomaso-Peterson, can serve as a point of entry for PRD.

“And that may increase infection and overall foliar dieback,” she says. “Monitor the nematode populations and treat if populations are above the threshold.”