Robotics, GPS technologies promise to transform mowers

By Joel Joyner

BLOOMINGTON, Minn. — Lawn mowers have undergone only minor changes in the past several decades, but a burst of technologies promise to usher in a new world of machines. We’re talking about “smart” mowers — robotic mowers — ridden by remote controllers and computers. And then there are battery-powered, laser and hybrid mowers. Are they destined to be all the rage?

Let’s begin with the robots, where the experts are optimistic.

“It wouldn’t surprise me at all to see some type of robotic mowers on a golf course within the next five years,” said Dana Lonn, director of R&D here at the Toro Co. “It will be something out of the Jetsons, where you press a button and a fleet of mowers automatically goes out and mows your golf course? I’m not sure I’d bet on that.”

According to Lonn, newly engineered technologies will unfold over the next three years to solve the major problems.

“There’s the collision-avoidance factor, for one,” he said. “You have to be 100 percent sure you’re not going to hurt somebody. We’re also looking at digital imagery, putting enough smarts on the mowers that you process the picture for the mower to read.

One approach we’re looking at is a ‘proper scene,’ where there’s a relatively flat, green scene in front of the mower,” Lonn said. “If the mower encounters an obstacle it’s not programmed to accept, it will have to know to avoid it.”

The advantages of digital imaging don’t end there. Robotics mowers also could look for potential disease outbreaks while mowing.

“The University of Arkansas is running studies using digital imagery to quantify turf disease,” Lonn said. “They can scan an image looking for changes in color and for patterns of color. They may be able to detect conditions in the turf that are not yet visible to the naked eye. I envision a digital video camera being installed on a maintenance machine.”

ELECTRICAL MOWERS

Wouldn’t it be nice to have a mower that never leaked oil, never made noise, and never created exhaust fumes?

It’s already here. Electrical mowers are available today for mowing greens, but they have yet to become commonplace.

“New trends have more to do with environmental issues more than anything else,” said Peter Wharry, vice president of production at Textron. “The idea of being friendly to the environment is really being pushed hard in our industry. We’re the only one that currently has a tri-plex greensmower that’s battery-powered.

‘Super-bent’ thatch control made easy

By Kevin Ross

In 1995, when Penn State University released the A and G series bentgrasses, questions were immediately raised regarding the thatching potential of these varieties. Their high shoot density and growth rate characteristics were thought to translate into intense thatch development. Now, after five years of use on golf courses around the world, we are learning how to manage thatch on these bentgrasses.

Thatch is a layer of dead and dying tissue that accumulates when the growth rate exceeds the rate of decomposition. This tells us that controlling the growth of these new bentgrasses with astute fertilizer management might be the first step in the thatch-control equation.

Many superintendents growing these bentgrasses have commented that the fertilizer requirements are more complex than originally anticipated. I know one superintendent who, with a 12-month growing season, is using only two pounds of N/M per year on Penn A-4.

Another superintendent feels that A-4 has the ability to metabolize fertilizer at a much higher efficiency rate than older bentgrasses, although there has been no research to support this statement. However, this supposition is starting to hold true in the opinion of superintendents who are managing these bents. This knowledge of fertilizer needs has led some to believe that thatch is much less of a problem than originally thought, although its accumulation is still a point of debate.

EQUIPMENT SOLUTIONS

Regardless of the debate, equipment companies have addressed this issue with new machinery targeted toward thatch management.

The piece that is receiving the most attention is the Granden verticutter/dethatcher from Australia. This is the first machine on the market that has proven to be a true dethatching machine.

Some superintendents feel so strongly about this machine’s ability to remove thatch that they are saying it may even take the place of one of their scheduled aerationings. The percentage of thatch removal from the green surface area is much greater than with conventional core aeration. Using this machine in one direction with 0.125-inch bladed on 1-inch spacings will remove approximately 12 or 13 percent of the green surface area.

SHOP TALK

Graden verticutter/dethatcher

This percentage of removal cannot be achieved by aeration unless very large spacings are used, which would cause major surface disruption and require extensive healing time.

Superintendents who are using this dethatcher, or vertigroover, also are finding other benefits compared to aeration. They are claiming that, by

Continued on page 10