

THE PUTTING SURFACE: ROLLERS REVISITED

By FRANK H. ANDORKA JR.

Golfdom

Superintendents who work to balance the golfer's desire for fast greens with healthy turf should consider rolling their greens as an alternative to lowering mowing heights.

Though superintendents manually rolled greens 40 years ago, mechanical rolling just came to the United States in the mid-1980s, says George Hamilton, a senior lecturer at Penn State University who researched the process in the early 1990s.

Hamilton says Australian companies produced the first mechanical rollers to smooth lawn bowling courts there. Then Australian superintendents began using them on their greens, and the companies recognized the business opportunity that American golf courses presented for them. When the first machines reached American golf courses, superintendents readily integrated them into their maintenance regimens.

To roll, a superintendent uses a machine that contains a heavy metal drum and rides it across the green. The roller, which applies 6 pounds per square inch (psi) of pressure on the turf, flattens the grass. (By comparison, the atmosphere presses 14.7 psi on an object at sea level.) Since a golf ball loses less momentum traveling over rolled turf, it travels further, Hamilton says.

"Think of putting on a shag carpet," Hamilton says. "Then think of putting on a shag carpet that has been ironed flat. That's the difference you see between a green that hasn't been rolled and one that has."

Full-Speed Ahead

Rolling greens two to three times a week, combined with mowing on the other days, allows superintendents to mow greens at higher heights and still maintain speed, says John Foy, director of the Florida Region of the USGA's Green Section.

"You shouldn't mow at low heights if your greens have intense contours or consist of older varieties of grass," Foy says. "When you mow grass low, you produce a shallower root system that puts the grass at risk of disease and stress. Rolling allows you to maintain the speed golfers expect without sacrificing the health of the plant."

Smoother greens are also truer, says Matt Nelson, an agronomist in the Northwest Region of the USGA Green Section. Nelson says an aggressive rolling program provides an extra 6 inches to 1.5 feet to a regular Stimpmeter rating.

"Rolling is also helpful if you have a green under repair or one you've recently aerified," Nelson says. "In those cases, you can avoid some golfer complaints by creating a smooth surface for them to putt on."

Concerns About Compaction

Experts say superintendents do not have to worry about compaction if they roll their greens. Hamilton, Chris Hartwiger, an agronomist in the USGA's Southeast Region Green Section, and

Thom Nikolai, a turfgrass education specialist from Michigan State University, each conducted two year studies in the early 1990s to determine how much rolling turf could withstand. The studies concluded that the practice causes no compaction, Hartwiger says.

"I rolled my test plots for 70 straight days and saw no compaction," Hartwiger says. "Mechanical wear from the roller killed some of the grass, but I don't know anyone who would roll 70 straight days in real life."

His experiment shows that superintendents can roll two to three times a week during high stress periods, and up to four times a week during low-stress periods, without damaging the turf.

Hamilton says superintendents who have installed new bent-grasses and maintain low mowing heights shouldn't roll their greens.

"You can't roll if you're going to mow at extremely low heights," Hamilton says. "Stress is cumulative, and if you combine the two stresses, you'll kill the grass."

Popularity Waning

Despite the increasing desire for speed, Hamilton says he sees fewer superintendents employing rollers these days.

The advent of sophisticated triplex mowers, combined with grass varieties that superintendents can mow at ultra-low heights, explain a portion of the roller's receding popularity, Foy says. Rolling is also labor intensive, with one or two crew members dedicated to doing the job, Nelson says.

"It's a slow process," Nelson says. "For most courses, particularly those watching their budgets, they're only trying to stay one step ahead of the golfers. They don't have the labor to roll on a regular basis."

Then there's the cost of an additional piece of equipment. Stand-alone mechanized rollers cost between \$5,000 and \$10,000, while triplex mower attachments cost only slightly less, Hamilton says.

While rolling is an important tool in the quest for more speed, superintendents can't treat it as their only solution to the problem. The effects only last 24 hours, says David Oatis, director of the Northeast Division of the USGA Green Section.

"You can get a sharp increase in speed for a short time," Oatis says. "You won't see any long-term effects, however."

Nelson says he doesn't expect widespread rolling to catch on, but Hartwiger is far more optimistic.

"Rolling adds another important weapon in the superintendent's arsenal in the fight to balance speed and health of the turf," Hartwiger says. "Putting greens are the most important part of a golf course, and you should use all the tools available to keep them in good shape. That's why rolling will make a comeback."