

# Cool It

## TURF'S SOIL OXYGEN MUST BE INCREASED TO IMPROVE ITS HEAT TOLERANCE

Bill Meyer and other turf researchers feel the heat, so to speak, to develop more heat-tolerant bentgrass for greens.

"Certainly, you feel the pressure to come up with good products if you're a variety developer," says Meyer, a turf researcher and faculty member at Rutgers University's Center for Turfgrass Science. "This is a competitive business."

It's especially competitive when you consider that researchers must deal with superintendents who are cutting greens lower and lower to make them faster and faster. The maintenance procedure definitely has an impact on the turf's heat tolerance, says Milt Engelke, professor of Turfgrass Breeding, Genetics and Management Science at Texas A&M University.

"We have a lot of data to show that cutting heights have an impact on root depth," he says, noting that it affects the turf's ability to cool itself.

"As we cut lower and lower, we're changing the dynamics and the architecture of the plant," Engelke adds. "So the question is: How short do cutting heights need to go? Are golfers going to putt on tile?"

Texas A&M's bentgrass breeding research program is on hold because of decreased funding, Engelke says. However, Engelke adds that future studies will focus on the relationship of soil temperature and soil gases (oxygen) to the plant's respiration rate. Engelke points out that a plant's ability to respire is tied to transpiration, which goes hand in hand with cooling.

Engelke says that because many superintendents overwater turf, its root zone has more water than it needs. More water reduces the turf's soil oxygen, which is vital to root growth and heat tolerance. A plant must be able to cool itself, and it has to be able to pump water to do so, Engelke says.

"The only way it can pump water is if it has roots," he adds. "The only way it's going to have roots is if you have good gas exchange and you have a sufficient amount of oxygen in the root zone to support the plant."

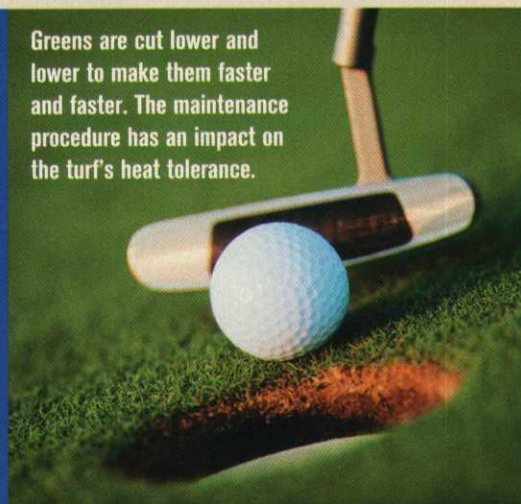
Engelke says researchers need to do more genetic work to target plants that are more efficient under water-saturated root-zone conditions.

As far as turf that displays strong heat tolerance, Meyer cites the new varieties of velvet bentgrass.

"They're outstanding," he adds. "But the sad thing is that most superintendents, unless they're in Rhode Island or Massachusetts, aren't familiar with velvets and are afraid to use them."

If using the variety, a key thing to remember is that velvet is susceptible to pythium root disease early in the growth process, Meyer says. If the disease is not caught and treated early, the turf gets off to a poor start.

Greens are cut lower and lower to make them faster and faster. The maintenance procedure has an impact on the turf's heat tolerance.



DIGITAL STOCK

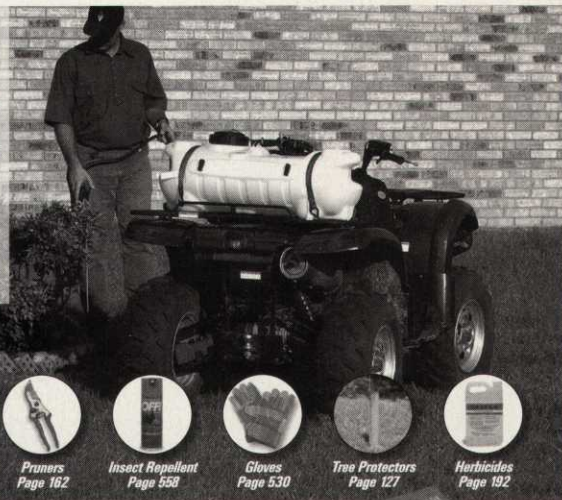
It's a reason superintendents are cautious of the variety.

"Superintendents are conservative people, and they're not going to stick their necks out too far to try something new," Meyer says.

That said, Meyer expects more superintendents to gain interest in velvet as the varieties continue to improve. He also adds that researchers need to develop more creeping bents that are as heat-tolerant as the velvets. — Larry Aylward, Editor

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