

Work to eliminate localized dry spot

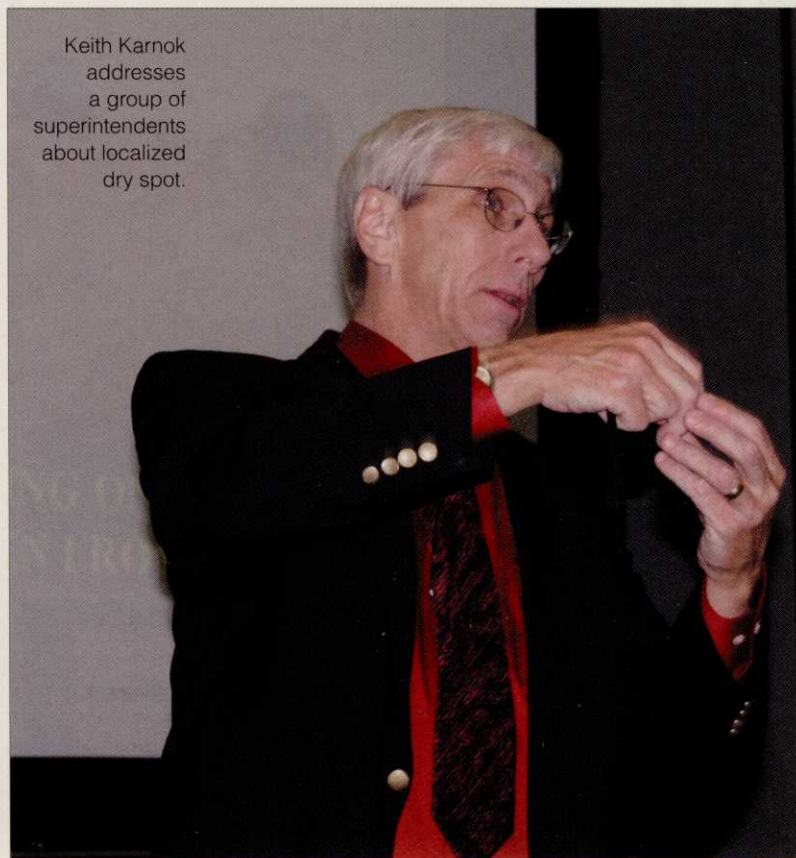
It's one of those afflictions nobody sees coming. Anywhere from eight to 18 months after green construction, when everything seems to be going well, it appears – usually in sand-based greens – with little or no warning. The affliction is localized dry spot, and it starts, like many turf afflictions, beneath the surface.

It's a greater problem now than it was even 20 years ago, says Keith J. Karnok, Ph.D., from the department of crop and soil sciences at the University of Georgia, citing the abundance of wetting agents available on the market. Kar-

nok presented a half-day session about localized dry spot at the recent Golf Industry Show in Anaheim, Calif. An increase in sand-based greens and a decrease in the height of cut on greens partly are to blame for the recent upward trend.

While prevention practices are the best way to avoid the problem, the patches of dry turf that alert superintendents to the problem are sometimes the first sign something's wrong. Knowing more about how it forms can help eliminate it.

Keith Karnok addresses a group of superintendents about localized dry spot.



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Hydrophobic or water-repellent soil causes dry spots. Signs the soil is water repellent include footprinting, blue/green coloration, wilting and ultimately the plant's death. And this isn't unique to golf courses.

"People have been battling this since there have been soils," Karnok says.

To better understand whether a patch of problem turf is a result of hydrophobic soil, take a core sample and test it. Before starting the test, make sure the soil is dry. A hair dryer or fan can be

used to dry the soil gently, but don't put it in a microwave or oven, Karnok warns. Place droplets of water on the sample every half-inch or so. If the droplets sit on the sample's surface, the soil is hydrophobic.

Localized dry spot is caused by a coating of particles that repel the water.

"That coating is the end result of organic matter decomposition," Karnok says. "These organic compounds, when allowed to dry, become very water repellent."

There are different levels of water repellency, and the levels can vary throughout a green. Soil is usually more severely hydrophobic in the summer, and it tends to appear in the top two inches of the soil profile because more organic matter resides there than further down.

Sand is usually the common denominator when water repellency is reported. In fact, coarse-textured soils are more prone to becoming hydrophobic.

"If you've got a sand-based green without fine soils mixed in

and it's a couple years old, you've got hydrophobic soil to some extent," Karnok says.

Clay-rich soil usually is able to protect turf against dry spot.

"Clay's ability to hold a lot of water overshadows the problem," Karnok says.

For those who have dry spots and no sand in the profile, Karnok recommends testing to see what else could be causing the problem. It's sometimes, but rarely, found in fine-textured soils.

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only compound the problem. Factors that contribute to localized dry spot include lower cutting heights; prolific organic matter-producing cultivars; decreased cultivation and topdressing practices; and increased golfer expectations for lush, green conditions. Some try to prevent water-repellent soil by monitoring the soil's critical moisture point – at which soil won't wet.

"In most cases, you won't get to that because it'll be dead," Karnok says.

The hydrophobic coating can't be prevented easily, but there are ways to make it less likely to occur. The best method in avoiding LDS is prevention, Karnok says.

"Strive for a deep root system – beyond the top two inches of the profile," he says. This can be achieved through practices that promote healthy turf."

Once the water-repellent coating sets in, there are ways to manage the soil to hydrate it. Some tests show sodium hydroxide, or Drano, can remove the coating.

"The problem was a little bit of uncertainty

about what's going to happen to the turfgrass," Karnok says.

A popular method of temporarily alleviating the symptoms of water repellent soil is through the use of wetting agents. They work by attaching to the organic coating that causes the repellency and allowing water to be absorbed.

While different wetting agents work on different levels, Karnok hasn't found any agents that did nothing.

"All the common available wetting agents decreased water repellency to some degree," he says.

Karnok doesn't recommend any certain brand because the most ideal wetting agent is defined by the needs of the end user.

There are few advantages of using wetting agents on nonwater-repellent soil, but Karnok says it's a good idea to apply an agent to the entire green because it's likely all soil on the green is hydrophobic to some extent. It just might not be displaying the symptoms as prominently as the dry spots. – HW

PREVENT HYDROPHOBIC SOIL

The best way to prevent localized dry spot is with a turf management program that promotes healthy turf, says Keith J. Karnok, Ph.D., of the department of crop and soil sciences at the University of Georgia.

Healthy practices include:

- Selecting the best turf species/cultivar for the region
- Reducing the amount of nitrogen applied
- Increasing cutting height
- Irrigating properly/evenly – usually LDS appears in areas that haven't gotten enough water
- Following a strict cultivation and topdressing routine to combat accumulation of organic matter
- Not adding to the problem – test the topdressing sand or mix for water repellency before using it



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