

only a few times throughout the season (typically the case on fairways), choose primarily slow-release nitrogen to avoid a surge of growth.

- Water turf deeply and infrequently to encourage deeper root growth and allow the surface of the soil to dry out periodically. This ensures adequate oxygen availability in the top layers of the soil.

- If you have highly acidic or alkaline soil, you can attempt to neutralize it with lime or an acidifying fertilizer. More often than not, however, the nature of the irrigation water is likely the cause of the imbalance, making any attempt to alter soil pH temporary. However, if thatch levels are already excessive, a temporary adjustment may be enough to allow for greater microbial degradation.

Although prevention is important, thatch levels will often increase over time even if you follow the above guidelines. At that point, more active maintenance methods are necessary to remove and prevent excess thatch. Numerous studies have

looked at various thatch reduction practices, including core cultivation, vertical mowing, topdressing and the use of biological thatch controls. These biological controls often contain some natural bioactive ingredients and/or specific microbial populations aimed at organic matter decomposition. Unfortunately, their effectiveness is often erratic; one study showed no decrease in thatch levels compared to untreated plots.

On the other hand, core cultivation, vertical mowing and topdressing tend to disrupt the playing surface, a particularly important issue on putting greens. This is partly why thatch layers are allowed to accumulate to a detrimental level. Many superintendents would rather deal with thatch than member complaints. However, given the damage it can cause, superintendents would be well advised to take this issue seriously.

Core aeration improves soil quality by both removing thatch and opening up pore spaces in compacted soils. Very little surface area is actually affected by most



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Contributions Welcome

Contact Lee Huether at the STA office if you are interested in contributing to the *Sports Turf Manager*. We appreciate feature-length articles, column ideas and newsworthy items. Updates on innovative research or equipment are also welcomed. This is a great way to both support your professional association and enhance your resume!

Happy Fall!

core cultivation, so it is recommended this practice be done at least once per year (preferably twice) depending on other factors, including turfgrass species and cultivar. Vertical mowing involves slicing of the turf surface to remove underground material. Many superintendents prefer to lightly verticut or groom their greens to achieve the same results, as it has a less severe effect on playability. On greens, this practice may be acceptable to cut through stolons and prevent excess build-up, but research indicates water infiltration is significantly increased only through deep (~ 2 cm [0.8 in.]) vertical mowing two times annually, not with periodic grooming. Increased water infiltration was also observed with core cultivation; both thatch removal and increased soil porosity were achieved with this practice. Interestingly, topdressing alone was not found to significantly reduce thatch or increase water infiltration.

What's Next?

The Guelph Turfgrass Institute is currently conducting a rather extensive thatch reduction study on an established mixed green comprising creeping bentgrass, annual bluegrass and velvet bentgrass. Thatch levels at the onset of the experiment were ~ 2 cm (0.8 in.). Treatments include various diameter tines for core cultivation, solid tine cultivation, vertical mowing at different depths and topdressing. The study should be complete by the end of the 2009 season and I look forward to sharing the results.

The important thing to remember about thatch levels is that you need to monitor them each season since there are so many factors that can affect accumulation, in-

cluding the weather itself. There is no doubt excess thatch is detrimental to turfgrass growth, regardless of what part of the golf course is affected. Although many thatch reduction maintenance practices are disruptive, a couple of weeks of less-than-ideal playing conditions is well worth it in the long run. Turf will be healthier and more stress-tolerant. Now if members start to complain, you'll have the knowledge to back up your decision. Once they understand the threat, the inconveniences may be a little easier to deal with.

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