

Reclaiming Putting Green Edges Using Core Aeration Plugs

Plugging perimeters with aeration cores offers a practical solution to encroachment of rough-type bermudagrasses into bermudagrass putting greens.

BY TODD LOWE

A turf war is taking place on golf courses in the southern U.S. between dwarf-type bermudagrasses on putting greens and the surrounding rough-type bermudagrasses. Rough types, like common bermudagrass, are more aggressive than the hybrid bermudagrasses established on putting surfaces and slowly creep into the edge of greens. The rough-type bermudagrasses are coarse textured and offer poor playability at putting green mowing heights. As rough types encroach inward, putting green perimeters are brought in slightly in order to maintain good aesthetics. The end result is smaller putting greens and the potential loss of usable hole locations over time. For information on this topic, refer to the article [Lost and Found](#) by Paul Vermeulen.

Currently, there are no selective herbicides to remove rough-type bermudagrass from other bermudagrass varieties. Several practices have been implemented to suppress encroachment, including mechanical edging and establishing alternative grasses within putting green collars. However, the most common means of managing encroachment is to physically remove contaminated turf on putting green perimeters and replace it with commercial sod. Aside from the initial cost of commercial sod, there are several other concerns with this method, including increased surface grain, soil settling, and soil layering. All too often, the sod just does not match the existing turf.

Bermudagrass produces an abundance of stolons, and surface grain can be quite pronounced on bermudagrass greens. This is especially true with commercial sod because most suppliers apply additional nitrogen to produce a quicker crop, and they do not intensively



Original putting green perimeters are located and marked with paint.



After the contaminated turf is killed and removed, trenches are backfilled with a 70:30 sand-peat (by volume) rootzone mix, and core aeration plugs are planted in the new mix.



Aeration plugs are sand topdressed, rolled, and kept moist for several weeks while the new perimeters establish.

manage their fields to the extent common on golf greens. It can take several months to reduce this stem layer through intensive grooming, cultivation, and topdressing. Once mower scalping subsides, the differing grain patterns can still remain.

Another concern with sodding is inconsistent surface smoothness. Too much backfill causes sod to remain higher in elevation and more prone to mower scalping, whereas inadequate backfill creates small depressions on greens. An experienced staff and a lot of time are required to sod an area so that the final product is smooth.

Perhaps one of the most important issues with commercial sod is that it is generally grown on a rootzone that is heavier than the sand-based rootzones common in most putting greens. Layering can develop when sod containing the heavier soil is placed on a sandy rootzone. The end result is poor internal drainage, reduced rooting, and the need for much more core aeration in the future. Although core aeration helps to mitigate soil layering and improve root growth, it cannot completely remove soil layers within putting green rootzones. Problems caused by soil layering may persist long after sodding is performed.

In an effort to develop a new way to solve the problem of encroachment, an innovative form of putting green perimeter regrassing was implemented for the first time at Quail West Golf and Country Club in Naples, Florida. Original putting green perimeters were located, and contaminated turf was killed with multiple RoundUp® (glyphosate) treatments several weeks prior to removal with a sod cutter. The cavity was slightly excavated and then replenished with a similar rootzone mix. The initial regrassing used the same 90:10 sand-peat (by volume) rootzone mix, but it proved to be rather droughty. Subsequent operations showed that a heavier mix of 70:30 sand-peat (by volume) provided better long-term quality. Putting greens were then core aerated. Instead of removing the cores, they were simply pushed into the prepared areas and rolled.

New perimeters generally require six to seven weeks to completely establish.

Core aeration plugs provide a much smoother and more uniform surface than conventional sodding. Because plugs are harvested on site, plugging perimeters is also less expensive than sodding. Perimeter plugging also eliminates grain, since the plugs create a new stand of turf as they establish into the existing greens. Lastly, soil layering is eliminated because a similar root-zone mix is used throughout the establishment and grow-in process.

Mark Black, director of golf course and grounds operations at Quail West G&CC, and his staff offer the following suggestions based on their experience:

- A pre-plant fertilizer is not necessary as it gets buried beneath the new plugs.
- Install plugs approximately 0.375 of an inch below grade of the existing putting green edge and topdress new plantlets up to the existing green surface. Wait until plugs are actively growing before beginning the topdressing program.
- Keep these areas moist, especially during the heat of the day.



Putting green perimeters at three weeks after establishment are fertilized regularly as they mature.

- Resist excessive rolling until plugs are established.
- Avoid turning mowers on new plugs.
- Initiate a grow-in fertilizer program once root development begins.

- Avoid applying plant growth regulators until plugs are fully established.
- Spike as necessary.

Reclaiming putting green perimeters with core aeration plugs has been successfully implemented on both golf courses at Quail West in the past eight years. Black has been quite pleased with the results, although he credits the original concept to his staff and particularly crew leader Lacho Martinez. Their plan is to plug perimeters every three years at Quail West so that Tifway bermudagrass encroachment into putting greens is kept to a minimum. In addition to plugging, perimeters are edged on a weekly basis during the growing season and Tifway runners are physically removed.

If encroachment of rough-type bermudagrass into putting greens is a problem at your facility, consider giving this reclamation technique a try. You may find that it offers better long-term results at a lower price than traditional sodding strategies.

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New perimeters established by core aeration plugs at three months after establishment are smooth and free of surface grain.