

Is It Time For A Facelift?

Identifying and correcting common age-related problems on golf courses in Florida and other areas with a year-round growing season.

BY TODD LOWE

All golf courses are unique regarding soil types, microclimates, budgets, and standards. Golf facilities in some parts of the U.S. seldom, if ever, renovate playing surfaces. However, many golf courses in Florida and a few other areas in the South undergo an occasional nip and tuck every five to 10 years. The nearly 12-month growing season and aggressive turfgrass growth cause golf courses to age faster in Florida than in other parts of the country where the growing season is shorter. As a result, golf facilities in year-round growing environments warrant more frequent makeovers. The intent of this article is to address the most common issues that golf facilities in Florida and other areas in the southern U.S. face and highlight considerations for renovation.

PUTTING GREENS

Putting surfaces are among the most important features of any golf course. As such, more emphasis is placed on their care, upkeep, and performance. Championship conditions may be difficult to maintain if some factors are not addressed at some point or, for some golf facilities, on a regular basis. There are essential growth factors that affect putting greens in all areas of the country, and it is important to address these issues (see [Helping Your Greens Make the Grade](#)). For Florida and other select southern locales, some of the more important issues that occur on putting greens include:

- **Subsurface Issues and Internal Drainage** — Good construction is the foundation for good putting greens, and I would be remiss if proper construction was not discussed. It is not essential that golf course putting greens necessarily be built according to the [USGA Method](#), but adequate drainage and resistance to soil compaction are necessary for maintaining



By locating the underlying gravel layer used to construct putting greens, irrigation probes can help determine how much of the surrounding grass has encroached onto putting greens. In this case, the current putting green perimeter has moved several feet away from its original location.



Organic matter accumulates at an accelerated pace on Florida putting greens, and this can negatively impact drainage and turfgrass rooting. To show how rootzones change with time, from left to right are soil profiles removed from the same putting green (renovated in 2001) in 2001, 2003, 2008, and 2012, respectively.



The elevation of putting green collars increases from years of sand topdressing. This creates “sand dams” and a bowl-like appearance where water is unable to surface flow off greens.

good turf health and playability in any location. It is nearly impossible to provide consistently good playing conditions on poorly constructed greens, as more time and attention are required for keeping turf healthy.

Even properly built putting greens are not immune to the need for an occasional facelift to improve drainage. Organic matter accumulates at an accelerated pace on putting greens in Florida due to the nearly year-round growth cycle. It is not uncommon for greens to accumulate as much as six inches of organic matter within a 10-year period. Despite best intentions of diluting organic accumulation through aggressive core aeration, organic matter continues to build up.

Excessive organic matter decreases drainage and increases soil saturation. In fact, the original rootzone mixture used in construction of the green, which becomes buried beneath the new, accumulated rootzone higher in organic matter content, may percolate more than six inches per hour, but a dense organic layer may drain less than one inch per hour. This creates

soft, spongy greens that are more prone to disease and thin turf. In turn, putting green performance diminishes and ball roll becomes inconsistent, especially during periods of increased rainfall.

Complete renovation may not be necessary if putting greens were prop-

erly constructed. Avoid overspending on unnecessary reconstruction if the underlying rootzone mix, i.e., the original rootzone used in construction, drains well. Oftentimes, simply removing the upper organic layer and fumigating the remaining rootzone is all that is necessary to regrass most well-



Reducing the elevation of raised collars through aggressive stripping may be necessary to alleviate sand dams around greens.

built greens. Submit undisturbed core samples for analysis to an [accredited physical soil testing laboratory](#) (to see a complete list [click here](#)) and also dig your own small test plots down to the gravel layer. Ground-penetrating radar can also be used to help determine rootzone depth consistency and drain line integrity.

● **Off-Type Bermudagrass Contamination** — Contamination from off-type bermudagrasses has long been a problem on Tifdwarf bermudagrass greens. In fact, many golf facilities regrassed their greens as often as every 10 to 15 years due to poor performance. Off-types have also been found on ultradwarf bermudagrass greens in recent years. Some off-types grow differently than the desired bermudagrass turf and create inconsistent ball roll. Some greens have even thinned out completely with bare patches void of any turf during times of stress.

Some off-type bermudagrasses can be managed if addressed early and their populations do not grow in size and number. However, complete regrassing may be necessary if aggressive, poor performing off-types become dominant on greens — anything above 40 percent. Fumigation with methyl bromide prior to regrassing is currently the most effective measure to reduce the likelihood of off-type reemergence.

● **Encroachment** — Encroachment of the surrounding rough-type bermudagrass occurs slowly as perimeter mowing is brought in incrementally to reduce mower scalping. These slight changes add up over time, and we have found as much as 30 percent putting surface loss from encroachment over a 10-year period. Encroachment can eliminate perimeter hole locations, reduce hole selection variability, and encourage turf thinning around popular hole location areas from concentrated wear stress.

Complete regrassing is generally not necessary if encroachment is managed on a regular basis and kept to within a few feet of the putting green perimeter. The contaminated turf can be removed occasionally, new rootzone mix added, and the area regrassed. However, regrassing might be recommended if significant encroachment has occurred.

● **Collar “Sand Dams”** — Sand topdressing improves putting surface smoothness and consistency, and many Florida golf courses topdress greens every seven to 14 days. Dragging or brushing topdressing into the putting green canopy often deposits extra sand onto higher-cut collars. Additional sand is also deposited onto putting green collars from overlap and mowers/rollers following topdressing, which increases surface elevation of putting green collars over time.

Higher collars are often referred to as “sand dams” because they dam up



Turf on this tee remains thin during the peak winter play season because it is too small for the amount of play it receives.



Some newer turf varieties, such as Celebration bermudagrass in this test plot, are more tolerant of stresses like shade and traffic, and they perform better than older bermudagrasses.

surface water that should normally flow away from putting surfaces into surrounding roughs. With water unable to properly surface flow off greens, turf becomes very weak or dies in areas where the rootzone is saturated. The anaerobic condition often referred to as black layer is also common near sand dams where water accumulates and soils remain saturated. Some aggressive sand dams create a bowl-like appearance and also disrupt playability, as the ball comes to rest against elevated collars.

Lowering sand dams does not require complete regrassing, but they are generally addressed through cultivation practices like deep core aeration and verticutting. Aggressive measures of using sod cutters to remove the upper soil and thatch layer, followed by coring, are also quite effective at

removing sand dams on collars (see [Strip 'Em Bare](#)).

Several of these concerns can be addressed individually without regrassing the entire putting green. However, regrassing may be the most efficient means to address all of the issues collectively, especially when there are factors like surface contamination or rootzone modifications that must be addressed.

TEERING GROUNDS

Teeing grounds should be reasonably level, properly sized, and aligned. The American Society of Golf Course Architects lists the [life expectancy](#) of teeing grounds at 15 to 20 years, but this may be less in Florida due to the nearly year-round growing season. The following features are not only the most important in regard to teeing

ground quality and playability, but they can also change considerably over time and require attention:

- **Size** — Teeing grounds must be large enough to accommodate the amount of play they receive. This is particularly true for the peak winter play season in Florida, when a considerable amount of play occurs on semi-dormant turf. Tees become thin and weak from a number of stresses, or they can simply remain bare from a lack of divot recovery between play (see [Tailor-Made — New Equations to Determine Proper Tee Size](#)).

Middle tees generally receive the most play and should be larger than forward or rear tees to allow good turf recovery during the peak winter play season. Also, par-3 tees receive more iron shots and, because of more divots, require more time to recover than tees where woods are frequently used. Lastly, golfer demographics change with time, and more players are now enjoying the game from forward tees. As such, forward tees that were once properly sized and of good quality may now become thin during the winter months and should be enlarged to accommodate additional play.

- **Level** — A level teeing ground provides good playability and presentation to golfers. While it is not essential that tees be level, it is a nice standard that most golf facilities strive to provide. Some teeing surfaces become uneven and can develop a mounded appearance from years of topdressing divots. These tees are periodically leveled and regrassed to improve overall quality. Occasionally, teeing grounds can be leveled and enlarged by golf course staff, but it is generally best to hire an experienced shaper with proper equipment to provide the best results.

- **Common Bermudagrass** — Common bermudagrass is one of the most difficult weeds to control on golf courses in southern regions. Common bermudagrass and coarse-textured off-types perform poorly at lower mowing heights and can become thin or bare when maintained below 0.5 inch. The population of these grasses may increase on certain tees over time, and maintaining good turf quality

with highly contaminated tees can be a difficult task. Resurfacing with a commercial variety of bermudagrass is advised in those cases.

FAIRWAYS AND ROUGHS

Fairways and roughs generally do not degrade in quality considerably over time, and they are regrassed or renovated less frequently than greens or tees. Similar concerns about organic matter accumulation and off-type contamination occur on fairways and roughs, but their impact on golf course playability is less severe and often

takes longer to become problematic. Still, it may be necessary to improve fairways and roughs if these conditions occur:

- **Organic Matter** — Effective cultivation and fertilization programs that minimize thatch production generally keep organic matter from becoming problematic on fairways. However, there are some instances where a significant organic layer develops and impedes water movement. Too much organic matter leads to saturated conditions and, at times, increases the need for carts to remain on paths.

Excessive organic matter also increases the incidence of plugged lies and “mud on the ball.”

Often, this may occur on a few select fairways on a given golf course, and supplemental sand topdressing might be necessary to dilute the organic layer. Sand topdressing is an excellent cultural practice to dilute organic matter and improve playability, but if it is not applied on a regular basis, organic matter will continue to accumulate. Also, if a concentrated layer is already several inches deep, then sand topdressing may not be as



There are many areas on golf courses that simply do not require maintained turf, and significant reductions in irrigation can be realized if they are converted to naturalized areas.

effective. Fairway renovation may be necessary if a significant layering problem exists.

- **Turf Performance** — Since its introduction in the early 1960s, the hybrid cultivar Tifway (commonly known as 419) has been an industry standard for fairways, roughs, and tees. However, in recent years, several new bermudagrass cultivars have been introduced with improved performance characteristics and stress tolerances. Compared to previously used bermudagrass fairway renovation processes,

the no-till renovation method is less expensive and less disruptive. It has been used successfully to convert fairways to new bermudagrass cultivars at a number of golf facilities in Florida and along the lower coast in the Southeast.

- **Reduced Turf Acreage** — Another factor that can be addressed during golf course renovations is reducing irrigated turf acreage. Some golf course roughs can be converted to waste areas or naturalized plantings to reduce water usage and to increase

cover for wildlife habitat, without decreasing golf course playability or aesthetics.

BUNKERS

While bunkers are hazards in the game of golf, these areas receive significant attention from golfers regarding aesthetics and playability. Bunkers are initially filled with new white silica sand, yet they change in quality over time as the underlying subsoil becomes exposed and mixes with the sand. This not only makes bunkers appear dingy,

but it also affects bunker firmness and consistency.

● **Contamination** — There are several factors that affect how quickly a bunker becomes contaminated, including bunker style (flushed-faced versus flat bunkers), type of construction, surface water movement from adjacent areas, subsoil type, and bunker sand selection. These factors, along with the standards of any particular golf facility, will determine the frequency that bunkers are refurbished. Some golf facilities in Florida refurbish bunkers every five to 10 years, while others may never refurbish them.

Capping bunkers by replacing the upper inch or two of contaminated sand with new, white sand is a practice that some golf facilities perform each season. This practice temporarily improves aesthetics and delays the inevitable need for complete refurbishment, if maintaining pristine hazards is the standard for your particular facility.

● **Drainage** — It is important that bunkers drain well and not hold water. Standing water obviously directly interferes with playability, but poor drainage also leads to more contamination from soil and promotes algae. Supplemental drain lines are installed in most bunkers to encourage good drainage, and they must remain free of sediment and debris. Drain lines should be evaluated and cleaned/repared if suspected drainage problems exist.

● **Restoration** — Bunker perimeters can change with time. Some greenside bunker perimeters can accumulate a significant amount of sand as players blast bunker sand onto the turf along bunker edges. Also, maintenance practices like edging can alter bunker contours and design slowly over time. If bunkers are important design features at your golf facility, then it may be necessary to occasionally restore them to their original shape.

It might also be discovered that there simply are too many bunkers on your golf course to maintain. Bunkers that have a history of poor performance, are extremely difficult and expensive to maintain, or rarely come into play are good candidates for removal. In such cases, replacing these bunkers with turf may make the most sense.

CONCLUSION

Long-term improvements are generally costly, and it is best to plan and budget accordingly. Effective planning decreases golfer frustration and reduces the likelihood of costly membership assessments. It is best to limit the number of course closures and perform as many long-term projects as can be afforded at one time. This not only reduces costs, but reduces downtime, which greatly improves golfer satisfaction with the project.

Depending on the project, it may be necessary to seek outside advice. There are a number of independent irrigation consultants who design systems for golf facilities. Golf course architects are also quite helpful, especially if major architectural changes are necessary. Of course, USGA agronomists assist golf facilities with all types of important golf course issues as well, and they can be especially helpful when it comes to improvement projects.

ADDITIONAL RESOURCES

[Off-types in Ultradwarf Bermudagrass Greens](#)

[Lessons Learned With Ultradwarf Bermudagrasses in Florida](#)

[The Evolution of a Putting Green](#)

[Rebuild or Resurface](#)

[No-Till Bermudagrass Fairway Renovation](#)

[Reclaiming Putting Green Edges Using Core Aeration Plugs](#)

[In-House Projects](#)

[Perils and Pluses of “In-House” Renovations](#)

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Thunderstorms are a normal occurrence on Florida golf courses each summer, and they take their toll on bunker aesthetics and performance.