

Over the past 25 years, a large number of real estate development golf courses have been constructed in Florida and other regions. With no separation between the golf course rough and the home lawns running parallel down both sides of almost every hole, a wall-to-wall maintenance philosophy must be practiced.

Roughing It With Bermudagrass

A review of basic management practices for the dominant warm-season turfgrass used in roughs.

BY JOHN FOY



The Scottish links courses typically have very wide fairways bordered by heather, gorse, and areas of tall but somewhat sparse grass. Since the game of golf was brought across the Atlantic Ocean, a characteristic of American golf courses that has evolved over time is maintaining acres of higher-cut turfgrass roughs.

With the shift to lightweight mowing of fairways in the 1980s, simple economics begged reductions in the acres of intensively maintained fairway turf by as much as 50% at some courses. The setup of courses hosting championships or professional tournaments has also resulted in increased rough turf acreage. The widths of fairway landing zones are being narrowed to as little as 25–30 yards to place a higher premium on accuracy. This type of setup is not necessarily appropriate for daily play, but there is a mindset at some courses that par must be defended to maintain rankings and status.

Furthermore, and coinciding with escalating golfer expectations for perfect turf through all areas, the boom in construction of real estate development courses over the past two to three decades has increased demands for lush, green, weed-free, and regularly mowed roughs. At many facilities, a wall-to-wall maintenance philosophy must be practiced because there is no separation between the roughs of the golf course and the home lawns running parallel down both sides of every hole.

Along with being a hazard or penalty for off-line shots, roughs are a design feature utilized to provide fairway definition. On northern cool-season grass courses, mixtures of Kentucky bluegrass, perennial ryegrass, and fine fescues provide both color and texture contrast to bentgrass fairways. Over the years there have been attempts to use different warm-season turfgrass species or cultivars in fairway and rough areas in an effort to



create a northern look on southern golf courses. However, in most cases, long-term successful results have not been achieved with mixing and matching different turfgrasses. Bermudagrass (*Cynodon sp.*) is by far the dominant turfgrass species used throughout the warm climatic regions of the United States, and the standard setup is a monostand of bermudagrass through both the roughs and fairways.

The hybrid bermudagrass cultivar Tifway (419) produces a very dense, fine-textured turf cover and has been used predominantly on courses throughout much of the South. In the middle to upper portion of the transition zone, where periodic winterkill can be a problem, more cold-hardy bermudagrasses such as Vamont and several new cultivars can be found; in the desert southwest, common bermudagrass roughs and fairways are frequently encountered.

HEIGHTS OF CUT AND ROUTINE MOWING

With any degree of fertilization and supplemental irrigation, the hybrid bermudagrasses produce a

very dense turf cover. The shoot density of the common type bermudagrasses is less, but this is somewhat relative. The stoloniferous or “stemmy” growth habit creates additional resistance to being able to make good contact with the ball and swing the clubhead through bermudagrass roughs. Thus, if the goal is to have the roughs result in a half-shot penalty, care and discretion must be exercised with heights of cut. This is especially true with average- to high-handicap golfers who lack hand and arm strength and cannot aggressively attack golf balls sitting down in bermudagrass roughs. During the summertime and when hosting general play, a height of cut in the range of 1.25 to 1.50 inches does not produce an overly penal play character with hybrid bermuda roughs. Slightly higher heights of cut are sometimes practiced with common bermuda, but only for the play of professional tournaments or national championships is it ever recommended to maintain bermudagrass roughs at a height of cut of 2.50 inches or higher.

When bermudagrass is actively growing, a minimum mowing frequency of once per week is

A standard setup at northern golf courses hosting championships or professional events is to have a 6 to 10 ft. wide intermediate rough between the primary rough and fairways. However, due to height of cut limitations with bermudagrasses, maintaining this type of course setup when hosting daily play is not practical.



Dormant bermudagrass roughs can provide a striking contrast to overseeded fairways during the fall, winter, and spring months. At facilities that host moderate to heavy play, cart traffic management must be an integral and ongoing part of course management to prevent excessive wear and damage to the bermudagrass when it is not actively growing and able to recover.

needed. With bermudagrass roughs that receive regular irrigation, or during times of frequent rainfall, the height of bermudagrass roughs can easily double in a week's time. At many top facilities, a rough mowing frequency of two to three times per week is being practiced so that an excessively penal play character does not develop and to provide consistent conditioning in keeping with golfer demands and expectations. Naturally, with an increased mowing frequency, additional manpower hours and equipment must be made available. For budgeting purposes, a good rule of thumb is to allow one manpower hour per acre for routine mowing of roughs. In an effort to control costs, some facilities are maintaining a perimeter fine-cut rough that is mowed two or three times a week, while the deep roughs are still mowed only once per week.

An intermediate rough 6 to 10 feet wide between the primary rough and fairways is maintained on courses hosting championships, and it has become a common feature on northern cool-season turfgrass courses. The goal with intermediate roughs is to provide a less severe penalty for shots that just miss the fairways. However, given the height of cut limitations of bermudagrass roughs, it is certainly debatable as to whether or not the additional cost of maintaining an intermediate rough is justified. An intermediate rough height of cut of 0.75 to 1.00 inch really does not provide any degree of visual definition between fairways being maintained at 0.50 inch and a primary rough at 1.25 to 1.50 inches.

With regard to mowing equipment, it has long been thought that reel units are needed to produce a clean, sharp, and good quality cut with bermuda roughs. Large multi-gang, ground-

driven, pull-behind mowers were used at all facilities up until the mid-1980s. Then, coinciding with the movement to smaller and lighter-weight mowing units for fairways, the top facilities began to change over to medium-weight five-gang riding mowers with hydraulically driven reels.

In the past five years or so, there has been a major shift underway to the use of rotary mowers for routine cutting of bermudagrass roughs. Although rotary mowers have long been the standard in the north, it took innovations such as high rpm and multi-blade mulching decks to cut, rather than tear, bermudagrass. Providing an acceptable quality of cut, it is possible to take advantage of the other benefits of rotary mowers, such as still being able to mow wet and high grass, and more effectively cut tough seed stalks of grasses and broadleaf weeds. Furthermore, rotary mowers have a lifting or vacuuming effect that helps maintain a more upright shoot growth character, which in turn produces a more uniform cut and smoother surface condition. With a more upright shoot growth character, however, golf balls are able to settle deeper into the turf. Thus, setting up rotary mowers at a slightly lower height of cut is a needed adjustment when an equipment change is made. It is stressed that regular sharpening or replacement of the blades is needed to maintain a good quality of cut. Yet, compared to the maintenance of reel cutting units, there are savings in both time and money.

GROWING GRASS

As with all plants, bermudagrass needs the basic ingredients of sunlight, water, and food to produce a dense and healthy turf cover. Without a doubt, the most common growth-limiting factor encountered with bermuda roughs is shade. The bermudagrasses are the least shade-tolerant turf species used, and six to eight hours of direct sun needs to be provided. It is simply not possible to have heavily treed roughs and a good quality bermuda turf cover. The negative impact of trees has been extensively documented and will not be rehashed here. It should, however, be reiterated that tree feeder root competition for nutrients and moisture is often an overlooked turf problem, and root-pruning operations can produce a marked improvement in both rough and fairway turf quality.

With regard to irrigation and fertilization of bermudagrass roughs, both are needed to maintain a uniform, dense, and good quality turf

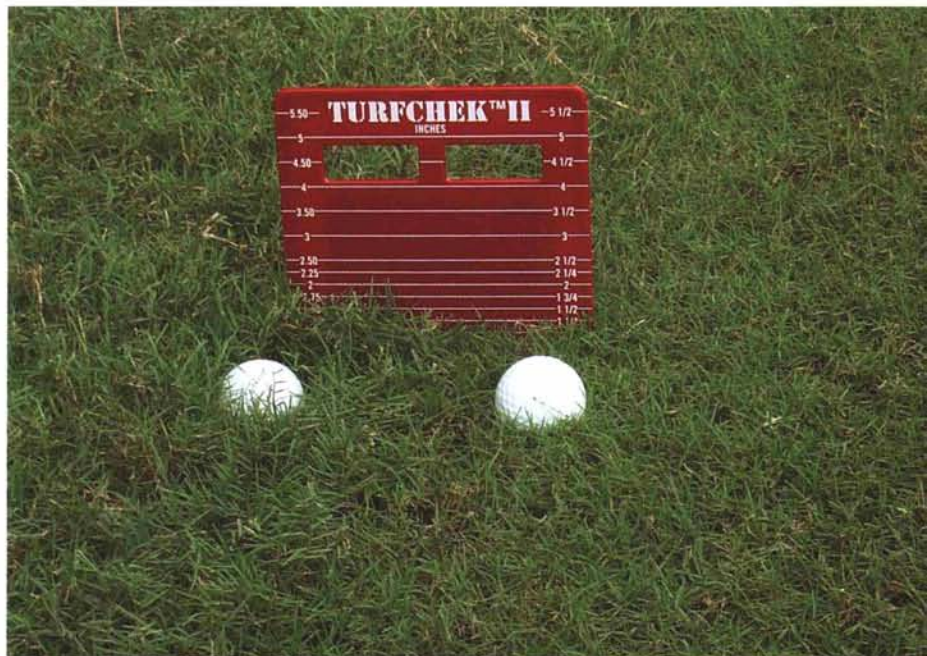
cover. To accommodate demands for a lush, green aesthetic character, however, some courses use more fertilizer than required. In consideration of current environmental and economic course management issues, employment of a spartan rough management philosophy and irrigating and fertilizing only to maintain turf coverage is encouraged. Unfortunately, at most courses the standards of quality have been set, and the golfers are unwilling to accept anything less.

WINTERTIME CONSIDERATIONS

Daytime and nighttime temperatures in the mid-80- and 60-degree range, respectively, are needed for sustained active bermudagrass growth. In the fall, the growth rate of bermuda begins to slow in response to cooler temperatures and a shorter day length. With the onset of freezing temperatures or frost, warm-season turfgrasses such as bermudagrass enter into and remain in a semi- to fully dormant stage through the rest of the winter. A loss of green color coincides with this period of dormancy, and this is the driving force behind large acreage winter overseeding programs being conducted at resort and high-end private courses across the sunbelt region. The pros and cons of overseeding have been debated over the years, but this practice will no doubt continue to be necessary at many facilities. It should be pointed out, however, that the negative aspects of overseeding are exacerbated in rough areas. Even with the use of reduced seeding rates, the higher height of cut on roughs significantly increases the amount of stress and competition exerted on the base bermuda. With the existence of any other growth-limiting factors such as shade, poor drainage, or concentrated cart traffic, transition problems in the early summer are almost guaranteed. If resodding is not performed, reestablishment of the base bermuda can take the entire summer. Quite simply, the Green Section staff strongly discourages winter overseeding of bermudagrass roughs.

When overseeding is not performed, it is suggested to raise the height of cut of the roughs by 0.25 to 0.50 inch to increase wear tolerance and help maintain a degree of definition. At facilities that receive moderate to heavy winter play, aggressive and ongoing cart traffic management must be practiced to prevent the roughs from becoming totally beaten down and worn out. In the spring, once the bermudagrass breaks

dormancy and shoot growth begins to occur, dropping the height of cut to 1.00 inch is advisable to remove damaged, older leaf material and reestablish a dense and smooth surface condition. In regions where bermudagrass never goes fully dormant, such as Central and South Florida, scalping the roughs to a height of cut of 1.00 inch or slightly less in the late spring to early summer is suggested. The golfers do need to be made aware that this will cause extensive discoloration, yet within a couple of weeks the green color will redevelop along with a dense and smooth surface condition.



CONCLUSION

Along with having desirable play characteristics, the very good wear, drought, heat, and salt tolerance of bermudagrass makes it one of the best adapted turfgrasses for roughs in warm climatic regions. However, and as is the case with bunkers, golfer expectations and demands are requiring that more effort and time be invested in the maintenance of roughs. If it is not possible to lower expectations as far as rough turf quality is concerned, for the future of the game, reducing acreage is encouraged as a compromise. When was the last time a golfer talked about how much fun he or she had playing out of the rough?

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At a cutting height of two inches or more, golf balls settle into bermudagrass roughs. The result is penal play for average to high-handicap golfers. A summertime rough height of cut of 1.25 to 1.50 inches is suggested, and while not as pronounced, there is still definition between the fairways and roughs.