

Alternative Grasses: Panacea or Problem?

Breeders and superintendents are still searching for the perfect turfgrass.

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Any of us would appreciate it if our jobs were made easier. This is particularly true for golf course superintendents faced with rising expectations and fixed or reduced resources. Plant breeders assist turf managers by developing turfgrasses with improved quality, greater stress resistance, and reduced inputs. Turfgrass breeding programs have produced new grasses to choose from, but none of these grasses is bulletproof. This article discusses some of the benefits and challenges of managing these new, and increasingly popular, turfgrass varieties.

PUTTING GREENS — ULTRADWARF BERMUDAS, HIGH-DENSITY BENTS

Hybrid bermudagrass still reigns as the most popular grass in regions south of the transition zone. Tifdwarf bermudagrass was the standard for putting greens for nearly 30 years. Even today, it withstands a variety of mowing heights and provides good playing conditions for most golfers. A breakthrough occurred in the late 1990s with the introduction of ultradwarf bermudagrasses. With higher shoot densities and finer leaf texture than Tifdwarf bermudagrass, the ultradwarfs provide better overall quality. The National Turfgrass Evaluation Program (NTEP) ranked Mini-Verde, TifEagle, and Champion ultradwarf bermudagrasses better than Tifdwarf in turf quality over a three-year period (“Bentgrasses and Bermudagrasses for Today’s Putting Greens,” January/February 2003 *Green Section Record*).

High-density creeping bentgrasses have set a similar standard for putting

green quality. Ironically, the quality of ultradwarfs has pushed bermudagrass greens further north, and the high-density bents have allowed high-quality creeping bentgrass greens to be maintained further south. Compared to other creeping bentgrasses, high-density bentgrasses tolerate heat and low mowing heights extremely well.



The newer putting green grasses accumulate thatch rapidly. Thatch management programs should be initiated at the time of grow-in and continue on a routine basis for the life of the green.

Ultradwarf bermudagrasses and high-density bentgrasses are becoming popular for golf course putting greens because they provide significantly better playing conditions than previous standards. Nevertheless, there are some concerns with these grasses.

- A faster rate of thatch accumulation requires adherence to good core aeration, sand topdressing, and light surface grooming programs to dilute thatch and organic matter. Thatch management should be initiated at the time of grow-in to prevent falling behind on these programs.
- These grasses can be maintained periodically at very low mowing heights,

but they become stressed during periods of prolonged cloudy, hot, and humid weather. To help weather-proof putting greens, mowing heights must be raised incrementally through stressful periods. Putting greens become more susceptible to secondary pathogens during stressful periods under excessively low mowing heights, especially when under-nourished.

- No putting green grasses can overcome limitations such as improper construction techniques (i.e., 100% sand rootzones, poor surface drainage), shade, or restricted air circulation. These newer grasses are no exception. Whether due to their density or other factors, high-density bentgrasses are particularly sensitive to poor air movement, perhaps more so than older bentgrasses. A proper growing environment is as critical with these grasses as any other.

Ultradwarf bermudagrasses and high-density bentgrasses have created a new standard for putting green turf. Many superintendents have learned how to manage these grasses successfully, but others have been less successful, and it is often due to the previously mentioned limitations. Neither grass will overcome unrealistic expectations, poor growing environments, or limitations due to improper construction techniques. Appropriate management decisions are still essential.

SEASHORE PASPALUM

Seashore paspalum is a salt-tolerant grass that has been around the golf course scene since the mid-'70s, but it was used only on a limited basis because of its inferior turf quality. This past



If managed properly, seashore paspalum can provide a good putting green and tight fairway lies.

decade has seen a major advancement in seashore paspalum development with the introduction of several fine-textured seashore paspalum varieties. With irrigation water quality and availability at the forefront, there will be increased use of alternative turfgrasses such as seashore paspalum. In addition to its ability to tolerate poor-quality irrigation water, there are other positive attributes of seashore paspalum:

- It can withstand a wide variety of mowing heights so that the same grass can be used on greens, tees, fairways, and roughs.
- It possesses a deep root system that can extract water from lower soil depths, even at low mowing heights (<0.125 inch).
- Seashore paspalum has improved tolerance to low light situations. Bermudagrass requires at least eight hours of full sunlight each day to maintain good quality turf, and it performs poorly in shaded areas or during cloudy weather. Seashore paspalum maintains good turf quality in these situations.
- Paspalum produces a very dense cover and tight canopy on tees, fairways, and roughs, allowing a golf ball to sit higher.

- It has improved cool-weather color retention. Bermudagrass turns off-color during periods of low soil temperatures and becomes completely dormant in regions with prolonged low soil temperatures. Seashore paspalum also becomes dormant in northern regions, but it maintains greener color than bermudagrass in southern regions.
- Mower striping patterns are more visible on seashore paspalum. Many golfers appreciate the aesthetic qualities that mowing patterns provide. In fact, some golf courses burn-in mowing patterns by continually mowing in the same direction. For whatever reason, mowing patterns are much more visible on seashore paspalum, creating visual stripes on the turf that golfers find attractive.

Seashore paspalum is still rather new to the golf course industry, but we have learned some of the common concerns about this turf. These include:

- Susceptibility to common turfgrass pests. Seashore paspalum is *not* more tolerant of army worms, plant-parasitic nematodes, or plant pathogens.
- Consistent smoothness and speed on putting greens. It is possible to provide acceptable putting green conditioning

for daily play, but arguably it does not perform as well as high-quality bermudagrass putting greens.

- Maintaining playing surfaces of mixed grasses (i.e., paspalum tees, fairways, or roughs and bermudagrass greens) is not recommended, as either grass is difficult to control with herbicides. Controlling paspalum in bermudagrass greens is just as difficult as controlling bermudagrass in paspalum tees, fairways, or roughs. The most effective control of either non-desired grass is physical removal/replacement.
- Paspalum has accelerated thatch accumulation due to its highly rhizomatous growth character. This can cause



Recent advances in seeded zoysiagrass offer hope for more affordable establishment of this grass. Most zoysiagrass establishment is still accomplished through strip or solid sodding, which comes at a high cost.

mower scalping, which can be slow to recover.

- Seashore paspalum leaves and stems are more robust, placing a premium on sharp mowers and routine equipment maintenance.
- High mowing heights are not recommended, as the turf becomes too penal and unsightly. Roughs should be maintained at less than 1.5 inches. This decreases the penalty for hitting off-line, since the ball sits up on seashore paspalum at this height.

ZOYSIAGRASS

Zoysiagrass also provides a good option for fairways. It is well adapted for the transition zone and is often considered as a potential alternative to bermuda-

grass or cool-season fairway grasses. Establishment costs for vegetative zoysiagrass are a concern, although options for seeded zoysiagrass are improving rapidly. Advantages of zoysiagrass include:

- Exhibits excellent density. Where a clean, tight lie is desired, zoysiagrass fits the bill. The ball lie on zoysiagrass during the dormancy period is exceptional, too.
- Tolerates shade better than bermudagrass and has excellent drought and cold tolerance. Zoysia performs well in the transition zone under a variety of weather conditions.
- Seeded varieties, while not yet used extensively, are showing promise as an alternative to the high cost of establish-

ing zoysiagrass from sod. Time will tell if the seeded zoysiagrasses are a comparable alternative to vegetative varieties on golf courses, but early results suggest seeded varieties may become popular.

As with the other grasses mentioned, there are maintenance challenges that come with zoysiagrass.

- Zoysiagrass appearance during dormancy is offensive to many golfers, in spite of excellent dormant playability. Right or wrong, golf is a green world, and zoysiagrass cannot be overseeded. Overseeding causes rapid decline of zoysiagrass populations. Dormant zoysia fairways can be painted green, but this is not the same as green grass.
- Zoysiagrass requires fungicide treatments to control zoysia patch. This can come at a significant cost.
- Mower maintenance is higher with zoysiagrass. Compared to bermudagrass, the stiff leaf blades place greater demands on mowing equipment and the mechanics who maintain the quality of cut.
- Zoysia requires exceptional drainage to be its best. The tight mat layer at the surface can hold water, resulting in wetter fairways. In some instances, there has been a push to cap fairways with 6 to 8 inches of sand to promote better fairway drainage.

SUMMARY

Although there are no perfect grasses, there are several options for golf courses to choose from. Who knows? Perhaps tomorrow's researchers will develop turfgrasses that can survive a multitude of stresses and provide excellent quality with minimal inputs. Until then, we have to provide the best quality with what we have, and USGA agronomists will continue to report successful agronomic programs as well as important issues with these new grasses.

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