



Fairway Grass Options

FOR THE TRANSITION ZONE

It all comes down to making a commitment.

BY STANLEY ZONTEK

The Mid-Atlantic region of the USGA Green Section is located in the eastern Transition Zone of the United States.

One of the most frequently asked questions for both new and older golf courses in this region is, "What's the best grass for fairways?" Since there isn't a simple response to this question, perhaps it is best to respond with the following questions.

- How do you want your fairways to look and play in the summer? In the winter? In the spring and fall?
- Are your golfers comparing the grass on your fairways to neighboring courses with another type of grass, and is there pressure from your golfers to conform to their standard?
- How much play does your course receive?
- Do your players expect to drive up to their golf ball, jump out of the cart, hit a shot, and drive away playing "cart ball" at all times of the year? In other words, will they respect cart restriction

rules some months of the year, or do they want complete access to the fairways at any time of the year?

- Does green color of the turf mean anything on a year-round basis? Will your golfers tolerate and enjoy golf on fairway turf that isn't green in the winter?
- Are chemical usage and the cost of fairway maintenance concerns on your golf course?
- Do you want the most "bang for the buck" in terms of fairway playability? Do you want the best possible fairway turf for the least amount of money?
- Are your fairways heavily tree lined? This may limit your ability to grow warm-season grasses like bermudagrass and zoysiagrass.
- If the fairways are tree lined, are they oriented north/south or east/west? Or is this even a concern?
- How good or bad is your fairway drainage?
- How good or bad are your fairway soils?

Overseeding a bermudagrass fairway with perennial ryegrass is another option for fairways located in the Transition Zone region of the United States.

As you can plainly see, answering the question “What’s the best grass for fairways in the Transition Zone?” is not easy or straightforward.

Another question for someone not familiar with the Transition Zone may be, “What is a Transition Zone anyway?”

Historically, the Transition Zone region has been defined as the northern extreme for the adaptation of warm-season grasses like bermudagrass and zoysiagrass, and the southern extreme for the adaptation of cool-season grasses like the bentgrasses, Kentucky bluegrass, perennial ryegrass, and the fescues. The Transition Zone is also where the distinction between the annual and perennial biotypes of *Poa annua* becomes blurred. In this Zone, *Poa annua* can be a true winter annual. Equally, there are always some perennial biotypes of *Poa annua* that tend to survive the weather extremes in this region of the country just fine. However, for the purposes of this article on fairway grasses, creeping bentgrass, perennial

ryegrass, and possibly Kentucky bluegrass are the cool-season grasses for fairways in the Transition Zone. Simply defined, the Transition Zone is an overlap area for plants. It is neither a southern area where warm-season grasses are best adapted nor a northern climate where cool-season grasses thrive. For turf managers who maintain golf courses in Transition Zones worldwide, such areas are simply tough spots to grow grass.

As a footnote, old-timers called this area the “goosegrass zone.” They used a weed to define a climatic zone and, interestingly, this observation is amazingly accurate. If you can see goosegrass (silver crabgrass, *Eleusine indica*) growing naturally, you are in a Transition Zone!

It should be noted that modern plant breeding has blurred these lines. Cold-tolerant bermudagrasses are being developed and thus can be grown further north. Equally, now bentgrasses are more heat tolerant and disease resistant and thus can be grown further south. What to do? This

In some instances, bermudagrass will not survive winter stresses. In this situation, the zoysiagrass prevailed. The winter injury potential and the brown versus green winter color are major reasons for the reluctance to use warm-season grasses in the transition zone.



article will be an attempt to update and review these grass options. A better decision can be made on which type of grass to grow through a combination of factors — like better irrigation and drainage systems, a realization that too many trees and too much shade are bad for all grasses, better mowing equipment, higher operating budgets such that comprehensive fungicide and growth regulator programs are now commonplace, plant breeding that has yielded stronger and better adapted varieties, and perhaps most important of all, golfers who expect better fairway turf more days of the year regardless of the weather.

The next section will discuss the strengths and weaknesses of each grass type.

CREEPING BENTGRASS

(Agrostis stolonifera palustris)

For the purpose of this article, only creeping bentgrass will be discussed for Transition Zone fairways, even though plant breeders may someday yield other adapted bentgrass species for fairway usage, most notably colonial bentgrass (*Agrostis tenuis*).

Strengths

- Considered the “Cadillac” of fairway grasses. It is perceived that more of the *better* courses have bentgrass fairways than other grass options.
- Does not require extensive yearly interseeding in comparison to perennial ryegrass.
- Excellent winter hardiness.
- Good to excellent summer heat tolerance.
- Depending upon the variety, bentgrass has reasonably good disease tolerance, especially when properly managed in terms of irrigation, fertility, and thatch control.
- Stays green through most winters, losing color only during the coldest and most desiccating winters.
- Responds well to growth regulator programs for *Poa annua* suppression and control, and for clipping reduction.
- Tolerates some shade.
- Tolerates moderate to low levels of fertility once established.
- Can be closely cut.
- Spreads by stolons, making divot recovery reasonably good in the spring and fall.
- Plant breeders have provided any number of good grass choices, which can be used as single varieties or in compatible blends. Also, bentgrasses

as a group are being genetically engineered as another means to improve the species.

Weaknesses

- Slow divot recovery during hot summers, requiring a divot-filling program.
- When under wilt stress in the summer, cart restrictions may be needed.
- Thatch must be controlled. Unless properly managed, thatch can be the Achilles’ heel of bentgrasses.
- Bent fairways are at their best with lightweight mowing and clipping removal programs. This can increase the cost of golf course maintenance in comparison to other grass options.
- Requires a good irrigation system for establishment and maintenance.
- Can require handwork, especially hand watering and attention to isolated dry spots, to avoid over-irrigation.
- Requires a moderate fungicide spray program.
- Bentgrass can creep into intermediate roughs and primary rough. The turf manager needs to be mindful of this or else fairway contours can slowly change, or the character of the rough definitely will change!
- Requires careful selection of individual varieties and seed lots to avoid seed contamination concerns with *Poa annua* and *Poa trivialis*.
- Some golfers do not like the tight lies associated with properly maintained bentgrass fairways.

PERENNIAL RYEGRASS

(Lolium perenne L.)

Even with today’s concerns about chemical usage in the environment, a significant number of golf courses maintain perennial ryegrass as their principal fairway turf. Perennial ryegrass has evolved as the replacement for Kentucky bluegrass fairways, which were common in the Transition Zone a few decades ago. Ryegrass shares many of the same color and growth habit characteristics of Kentucky bluegrass but is far easier to establish and maintain than Kentucky bluegrass, especially under the close mowing heights common on today’s fairways.

Strengths

- Good playability. When properly maintained, the ball sits up well on perennial ryegrass, and a wide spectrum of golfers like the playability offered by ryegrass fairways.
- Toughness. Except in extreme circumstances, golf courses seldom restrict cart traffic from rye-

grass fairways. This grass is compatible with the concept of “cart ball.” The fact is, perennial ryegrass is physically one of the toughest and most wear-resistant cool-season grasses available to the turf manager.

- Tolerance to a wide range of plant-protectant chemicals, including those for pre- and post-emerge herbicides, which eases controlling weeds and weed grasses of the Transition Zone like crabgrass, goosegrass, *Poa annua*, broadleaf and narrow-leaf weeds.
- A nice dark green color that stripes well.
- Inexpensive seed.
- Rapid seed germination.



Spring dead spot on bermudagrass is the only significant disease to impact this species in the Transition Zone.

- Excellent seedling vigor.
- New varieties are always being developed with better density and better mowing characteristics.
- Excellent winter color and spring green-up.
- Responds well to growth regulators.
- Rapid recovery via interseeding and growth of existing plants when turf loss problems do occur.
- Very drought tolerant.
- Moderately tolerant to summer heat stress, depending upon the variety.
- Most varieties are endophyte-enhanced for natural insect suppression.

Weaknesses

- Disease susceptibility. Perennial ryegrass requires a comprehensive and preventative fungicide spray program that can be expensive and extend for

nearly the entire grass-growing season. Pythium, brown patch, and gray leaf spot can be devastating.

- Slow to spread. Perennial ryegrass is a bunch grass that spreads by basal tillers, though there are some short rhizomes on some varieties.
- Normally requires a fall interseeding program to maintain density and introduce new varieties.
- Did I say, “Extremely susceptible to summer diseases”?
- Susceptible to ice damage during the winter in shaded and low-lying areas that hold water.
- Perennial ryegrass fairways are at their best with a moderate fertility program.
- Many choices. Can be confusing when choosing which varieties to use.
- Did I say, “Extremely disease susceptible”? You get the point. The Achilles’ heel of perennial ryegrass is its susceptibility to a long list of fungal diseases that can be devastating and expensive to control.

ZOYSIAGRASS

(*Zoysia japonica* Steud.)

Zoysiagrass continues to be an option for fairways in the Transition Zone. Recently, the use of this grass has declined, rightly or wrongly. Apparently, concerns about the winter color of zoysiagrass and its intolerance of overseeding are limiting its use in the northern part of the Transition Zone. Nonetheless, zoysiagrass remains an excellent turf for fairways in the Transition Zone.

Strengths

- Outstanding playability when actively growing, when semi-dormant, and even when dormant.
- Requires low inputs of fertilizer, fungicides, herbicides, and insecticides.
- Only susceptible to one major disease — zoysia patch.
- When dormant, like bermudagrass, winter weeds are easy to control. (I bet I’ll get a few letters on this comment.) Pre-emerge and post-emerge herbicides normally work well.
- Moderate irrigation requirements. Though drought tolerant, zoysiagrass is at its best when irrigated. This is both a strength and a weakness.
- Of the warm-season grasses available, zoysiagrass is extremely winter hardy. The most-used variety continues to be Meyer.

- Tolerant of a wide range of soil conditions.
- Tolerates traffic, except when dormant.
- Tough to take a divot from zoysiagrass.

Weaknesses

- Cost of establishment. Zoysiagrass may be the costliest of the grasses to establish initially.
- Slow to establish. Sodding fairways is now the most-used establishment technique.
- Tan/brown winter color. Under normal circumstances, overseeding for winter color is not recommended.
- Though drought tolerant, zoysiagrass is at its best when irrigation is provided.
- Traffic needs to be restricted when dormant.
- Divots are slow to heal when dormant or semi-dormant (if you can even take a divot!).
- Requires a thatch-control program in the summer when the grass is actively growing.
- Can experience winter ice damage in low areas that hold water.
- Only marginally shade tolerant.

BERMUDAGRASS

(*Cynodon L. spp.*)

Bermudagrass still has a strong presence on golf course fairways, especially in the lower half of the Transition Zone. Research in breeding continues to yield new bermudagrasses that offer improved winter hardiness along with finer leaf blades and better turf density, even approaching that of the hybrid bermudagrasses from southern regions. The following list assumes reasonable winter hardiness.

Strengths

- Outstanding summer appearance and playability. The hotter it is, the better bermudagrasses grow.
- Moderate fertilizer and water needs.
- In comparison to other grass options, bermudagrass performs well using inexpensive agricultural-grade fertilizers.
- Outstanding wear tolerance when actively growing.
- Tolerance to a long list of chemicals for insect and weed control.

- Only one major disease to manage — spring dead spot.
- Cost effective and rapid to establish.
- Tolerates growth regulators to enhance turf density, especially the common types of bermudagrass.
- Greatest “bang for the buck.” Bermudagrass is the low-cost grass option for fairways.
- Can be overseeded for winter color with the realization that some damage to bermudagrass can occur, especially in shaded and wet areas during cool springs common to a Transition Zone area.

Weaknesses

- Winter color. Some golfers do not like the tan/brown color of dormant bermudagrass. For this reason, we are seeing more and more golf courses overseed bermudagrass with perennial ryegrass in the Transition Zone. This overseeding



negates some of the cost advantages to bermudagrass fairways and negatively impacts the health of the bermudagrass, especially in shaded and wet, low-lying areas.

- Poor spring playability. Non-overseeded bermudagrass fairways lose much of their canopy over the winter. In the spring, golfers say they are “playing on dirt” until the bermudagrass breaks dormancy and begins to grow. In some springs, this can be agonizingly slow.
- Low tolerance to shade.

Take-all patch sometimes occurs on new bentgrass fairways. Over time, dollar spot becomes the most commonly observed disease.

The final choice on the grass to use comes down to the individual decision by individual clubs, courses, architects, and golf course superintendents. After all, isn't that the beauty (or the frustration) of the game of golf?

- Susceptible to winter damage in shade and low areas that hold water and ice.
- Intolerant of overseeding in shade and poor drainage areas. May require tree removal and/or replanting or resodding following the transition of the overseeded ryegrass.

OTHER GRASS OPTIONS

While creeping bentgrass, perennial ryegrass, bermudagrass, and zoysiagrass comprise the majority of fairways on golf courses in the Transition Zone, there are other grasses being grown. Most of these grasses have simply adapted to a particular golf course. For example, there are fairways composed of various combinations of bentgrass and *Poa annua*; fairways of combinations of perennial ryegrass and *Poa annua*; and fairways of perennial ryegrass and *Poa annua*, along with various amounts of common and improved bermudagrasses and even patches of zoysiagrass, many of unknown or long-lost origins. Some golf courses where a final decision on grass types has not been made contain a hodgepodge of grasses of widely varying grass types. If there is an advantage to this approach, it is that there will always be some grass somewhere on fairways. The disadvantage of this approach is that fairway quality never is good or, if it is, it can change quickly with the weather. Having fairways containing a combination of warm- and cool-season grasses without a commitment to either grass option makes the already difficult job of maintaining fairways even worse.

There is even some Kentucky bluegrass surviving in fairways. In fact, improved varieties of Kentucky bluegrass are once again being tried on fairways in the upper Transition Zone. It has been our experience that interseeding Kentucky bluegrass into an existing stand of grass may not work and may be a waste of time and money. It is with new golf courses where the option of using Kentucky bluegrass may have some hope of success. Time will tell. The final verdict will be based on how well these grasses perform in the long term.

The same situation exists for seeded, winter-hardy varieties of bermudagrass. Plant breeding is yielding new varieties that, at the time this article is being written, seem to have potential for use on fairways in the Transition Zone. However, these new varieties of seeded bermudagrass also remain unproven in the field under actual playing con-

ditions. The agronomic verdict is just not in for these two grasses.

Still confused? In some respects, that's the point of this article. Regardless of what grass choice is made for fairways in the Transition Zone, in some years, due to the weather, any choice may seem wrong. In the Transition Zone, there are significantly different choices on which type of grass is to be grown on fairways.

Agronomically, there may not be a best choice for all golf courses in all situations like those that may exist for other golf courses even a few hundred miles north or south of the Transition Zone. To help make that final decision on which grass to use, consulting with the agronomists of the USGA Green Section, state university and extension specialists, and simply visiting neighboring golf courses that have these grasses growing on them are good ideas. In this grass-growing zone of adversity, everyone seems to help everyone else.

SUMMARY

What's the bottom line? In the final analysis, your choice of fairway grasses comes down to this one word — COMMITMENT.

Any and all of these grasses can be grown with reasonable success in the Transition Zone. The final choice on the grass to use comes down to the individual decision by individual clubs, courses, architects, and golf course superintendents. After all, isn't that the beauty (or the frustration) of the game of golf? No two courses are alike. This is so very true in the Transition Zone areas where, for example, in the Washington, D.C., metropolitan area, you can play golf on courses having essentially pure bentgrass, ryegrass, bermudagrass, zoysiagrass, and/or blends of them all, within a few miles of each other! In fact, at Woodmont Country Club in Rockville, Maryland, arguably one of the finest 36-hole facilities in the area, they have zoysiagrass on one of their 18-hole courses and ryegrass on their other course! It all comes down to the type of playability you want during the time of year your play is the greatest, your budget, and, again, your commitment to that type of fairway grass.

STANLEY ZONTEK, *Director of the USGA Green Section Mid-Atlantic Region, has visited courses in the Transition Zone for 30 years.*