



Fairway Grass Selection

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Underneath the melting snows of spring the new grass thrives - or doesn't, if it didn't survive the winter. Snow molds, freezing injury, desiccation, and other injuries damage turf, causing some superintendents (and sometimes club members) to wonder if this is the year to replace the fairways. But don't get caught making a poor selection, because a poor choice is worse than no choice at all.

The primary turfgrass choices for fairways in Wisconsin are either Kentucky bluegrass or creeping bentgrass. Ten years ago perennial ryegrass became the rage for fair-

ways in many areas of the Midwest because new varieties had greatly improved characteristics over older, coarser varieties. The recent scourge of gray leaf spot, however, has quenched the enthusiasm for ryegrass fairways. It's probably a good thing the lack of cold tolerance prevented perennial ryegrass from becoming a favorite in Wisconsin.

Kentucky bluegrass is the preferred fairway turf for many low to medium-budget facilities. The primary reason for using Kentucky bluegrass is the reduced maintenance costs compared to creeping

bentgrass. The stoloniferous growth habit of creeping bentgrass results in rapid thatch buildup which must be routinely managed, primarily through core aeration. The lower mowing height requirement of creeping bentgrass has implicitly greater costs for labor and equipment upkeep. Creeping bentgrass requires more frequent irrigation than Kentucky bluegrass. Most importantly, creeping bentgrass requires more routine fungicide applications compared to Kentucky bluegrass. Snow molds, dollar spot, take-all patch, and Pythium blight

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can devastate the appearance of creeping bentgrass fairways. The major drawback to a monostand of Kentucky bluegrass is necrotic ring spot disease, although some cultivars are less susceptible than others and these should be chosen when a monostand is to be grown.

One of the drawbacks to Kentucky bluegrass fairways has been their inability to accept the lower mowing heights which are becoming increasingly favored at many golf courses. Recent advancements in breeding have spawned a new group of Kentucky bluegrass varieties which perform well at heights of one-half inch. In order to understand where these new varieties fit in, though, it's important to realize the scope of differences among Kentucky bluegrass varieties which already existed.

Research at Rutgers University allowed existing Kentucky bluegrass cultivars to be classified into one of three main groups based on their growth characteristics: Elite, BVMG, and common. The elite group contains several subgroups of varieties with different characteristics. The differences are the result of genetic differences which are similar (conserved) within a subgroup. This knowledge can be used to select a blend of Kentucky bluegrass cultivars for specific uses or conditions.

Proper blending of Kentucky bluegrasses is important because Kentucky bluegrasses are highly apomictic. Apomixis occurs when the plant produces a viable embryo in the seed without the occurrence of sexual reproduction. Consequently, most offspring, and most plants within a variety, are genetically identical to the parent plant. While this provides a high degree of uniformity in the turf stand from an aesthetic or playability perspective, the lack of differences among plants within the variety can make a monostand of turf quite susceptible to a pest, disease, or environmental stress. Blends are used to

create a turf composed of at least three or more genetically distinct cultivars to help ensure the survivability of the turf in any given situation.

Common types.

The common types are the most reasonable choice for low maintenance situations such as roughs.

Common types generally have not gone through an extensive breeding program but are often merely selections collected from a natural setting, evaluated for a period of time, then increased for seed production. Common types perform better in low maintenance situations compared to the improved varieties because they



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were not selected under conditions of high fertility, irrigation, or pest management. Costs associated with breeding and marketing of new varieties results in higher prices compared to common varieties. Common varieties tend to have high seed yields, mature early in the seed fields, and produce abundant seed without irrigation, all factors which help to keep the cost low (Stier, 1998). Many of the common types currently on the market have been available since before WWII. With the increased interest in low maintenance turf, some new varieties have been released which perform similarly to older common types under low maintenance conditions. These cultivars are fairly insensitive to nitrogen or mowing inputs and generally do not provide a high quality turf regardless of the maintenance conditions (Table 1). Common types

Table 1. Quality ratings of selected Kentucky bluegrass varieties from the low input trial of the 1995 Kentucky bluegrass National Turfgrass Evaluation Program (1996).^a

Cultivar	----- lb N/1000 ft ² -----		-----mowing height (in)-----	
	0-1	2-3	1.6-2.0	2.6-3.0
Baron	5.7 ^b	4.7	5.0	5.4
Baronie	6.4	6.0	6.2	5.9
Bartitia	6.0	5.4	6.4	5.6
Blue Star	6.0	5.2	5.3	5.6
Canterbury	5.9	5.7	5.9	5.4
Eagleton	6.5	5.0	5.5	5.9
Kenblue	5.6	4.8	5.3	5.2
Lipoa	5.3	4.7	5.5	4.9
South Dakota	5.5	4.7	5.0	5.2

^a Source: 1996 Progress report, national Kentucky bluegrass test-1995, low input.

^b Quality was rated visually on a one to nine scale; 1=dead turf, 9=ideal.

are characterized by an upright growth habit, early spring greenup, and good environmental stress tolerance. They are extremely susceptible to leaf spot diseases, however, particularly under high nitrogen fertility. The upright growth habit does

not allow for close mowing and it is difficult to achieve high turf density with common varieties.

BVMG types.

BVMG is an acronym for Baron, Victa, Merit, and Gnome. These four



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varieties were the first in this group to be released commercially. Widely used in the turf industry, these cultivars have medium leaf texture and form a turf of medium density with a moderately low growing height. They have good disease resistance to leaf spot, dollar spot, and rust diseases but are susceptible to stripe smut. Other varieties in this group include "Abbey", "Baron", "Kelly", and "Crest".

Elite types.

Elite Kentucky bluegrass contains five well-characterized subgroups and a six subgroup of unrelated cultivars. Blends composed of elite cultivars are best suited for use as fairway turf because they can include fine textured, disease resistant, low growing, aggressive types that can form dense, uniform turf at a relatively low growing height (Table 2).

New releases.

Tremendous advancements continue to be made in Kentucky bluegrass breeding practices. A large number of new varieties have been released in recent years which have not been characterized into the previously mentioned groups. In plots I have seen at breeding stations in the Northwestern U.S., the quality of the new and forthcoming varieties is dramatically superior compared to what we now think of as a good variety. Table 3 lists newly released varieties which can provide excellent turf quality at fairway mowing heights and/or high traffic situations.

Conclusion.

The best blend for your fairway will depend on factors including anticipated use rate, level of maintenance, leaf texture. For the same reasons listed previously, a blend of Kentucky bluegrass using genetically distinct cultivars should be used even when the turf is a mixture of two or more species (e.g., perennial ryegrass). An example may be a blend composed of four Kentucky bluegrass varieties: a Bellevue type for its late fall color

Table 2. Subgroups and cultivars of elite Kentucky bluegrasses. ^a

Elite subgroup	Characteristics	Cultivars
Aggressive	Rapid lateral growth, can dominate seed blends at high percentages	Touchdown, Limousine, Fairfax, Princeton 105
Mid-Atlantic	Long rhizomes, early spring greenup, heat and drought tolerant, moderate leafspot damage, medium mowing height, medium maintenance	Eagleton, Livingston, Monopoly, Plush, Preakness, SR 2000, Vantage, Voyager, Wabash
Bellevue	Good fall, early spring color, medium low growth, medium density, medium texture. Good resistance to leaf spot, rust, dollar spot, summer patch, stripe smut; susceptible to billbugs	Banff, Classic, Columbia, Dawn, Freedom, Georgetown, Haga, Parade, Rugby, Suffolk, Trenton
Compact	Dense, low growing turf with slow spring greenup. Dark color, good leaf spot resistance.	Alpine, America, Blacksburg, Glade, NuGlade, Indigo, Midnight, NuBlue, Unique
Julia	Leaf spot resistant, susceptible to dollar spot	Julia, Ikone
Other	Diverse characteristics, most are probably genetically unique with characteristics intermediate of above subgroups	Adelphi, Aspen, Bristol, Challenger, Chateau, Cheri, Coventry, Eclipse, Liberty, Lofts 1757, Merion, Nassau, NuStar, Ram I, Shamrock

^a Adapted from Murphy, J. 1996.

Table 3. Performance of newly released Kentucky bluegrass varieties intended for close-mowing, high traffic areas. Turf was maintained at 0.5-1.0 inch height at Illinois (Urbana) and Indiana (W. Lafayette) locations as part of the 1995-2000 NTEP Kentucky bluegrass trial (1998 data).

Cultivar	Illinois	Indiana
Absolute	4.5	6.5
Arcadia	3.6	5.3
Award	4.0	6.6
Blue Chip	3.9	5.4
Blue Moon	no data	no data
Fairfax	no data	no data
Kenblue ^b	3.5	3.1
NuGlade	5.2	6.0
Rambo	4.3	6.3
Rugby II	4.6	5.9
Total Eclipse	4.4	6.1

^a Quality was rated monthly on a one to nine scale, 9=ideal turf. Ratings shown are the yearly average.

^b Standard entry (common variety)

and early spring greenup, a mid-Atlantic type for its heat and drought tolerance, an aggressive type for its recuperative ability, and a compact type for its leaf spot resistance.

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turfgrass species and varieties. 66th Ann. Mich. Turfgrass Conf. Proc. 25:125-130. Mich. Turfgrass Conf., 15-18 Jan. 1996, E. Lansing, MI.

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