

# Grass Options for Athletic Fields in the Transition Zone

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*“We can grow all grasses equally poorly in the transition zone.”*

This quote from Dr. A.J. Powell, Jr., long-time turf specialist at the University of Kentucky, was somewhat tongue-in-cheek, but it’s not too far from the truth. Several grasses will grow in the transition zone, but none grow that well. Our summers are often too hot for cool-season grasses like Kentucky bluegrass, and our winters are often too cold for warm-season grasses like bermudagrass. Keep in mind, however, that the problem with most poor athletic fields is not grass selection but rather overuse, lack of maintenance, and/or use when field is wet or cannot recover.

When selecting a grass, always consider how the grass will be used. For instance, a practice field will most certainly receive regular abuse from drills and scrimmages, and coaches often like to repeat the same drill on the same spot day in and day out. This usage will require a grass that has wear tolerance, recovery, and the ability to grow in somewhat compacted soils. Another important consideration is when the field will be used. Always select a grass that will be at its strongest at the beginning of the season. For instance, a cool-season field will likely be under heat stress in August when the football and soccer seasons begin. These fields will have poor recovery during the early season due to reduced growth rates. The poor recovery results in surfaces that are much thinner than fields that are growing and able to recover during this period. Keep these considerations in mind as you read through the following grass options.

## Cool-season Grasses

### Kentucky bluegrass (*Poa pratensis L.*)

**Uses:** best suited for spring sports such as baseball, softball, and soccer.

**Mowing heights:** 1 to 2.5 inches. Lower heights will require frequent inputs and a greater budget.

**Availability:** seed and sod.

#### Advantages

- Dark green color, medium-fine texture, and good density (attractive grass).
- Good recuperative ability (rhizomes).
- Good mowing quality (can be mowed with a rotary mower).
- Stripes well (Figure 1).
- Can typically be sodded any time of year and played on 4 to 6 weeks later.

#### Disadvantages

- Moderate to high level of maintenance required.
- Develops heavy thatch.
- Very slow germination and low seedling vigor. Germination can take as long as 21 days and spring-seeded fields are rarely ready to be played on in the fall.
- Poor traffic tolerance.

- Disease susceptible (summer patch).
- Often will have severe white grub problems.
- Will require annual renovation in high wear areas.

### Perennial ryegrass (*Lolium perenne L.*)

**Uses:** typically used for overseeding of bermudagrass fields to provide fall/winter/spring color and recovery as well as renovation of tall fescue fields.

**Mowing heights:** tolerates 1 to 1.5 inches. Due to immaturity and seedling density, perennial ryegrass may be mowed much lower (5/8 inch) as an overseeded grass on bermudagrass fields.

**Availability:** seed only.

#### Advantages

- Fast germination. Perennial ryegrass may germinate in as little as 4 days, which is beneficial for patching thin areas quickly.
- Dark green color, fine-texture, and easy to stripe (attractive grass) (Figure 2).
- Wear tolerant. Perennial ryegrass is the most wear tolerant of the cool-season grasses.



**Figure 1.** The high density and excellent striping ability of Kentucky bluegrass

- Produces very little thatch (bunch type grass).
- Endophytic which results in increased stress tolerance and resistance to insect feeding.

**Disadvantages**

- Poor recuperative ability. Cultivars are available that are weakly stoloniferous that may aid in recovery.
- Clumpy. Perennial ryegrass, because of its bunch-type growth habit can become clumpy, especially when mis-managed. Clumps can cause lower leg injuries such as ankle rolling in athletes.
- Waxy leaf surface may result in reduced shoe traction.
- Fast leaf growth and poor mowing quality.
- Susceptible to several diseases, especially during warm summers.

**Tall fescue (*Festuca arundinacea* Schreb.)**

**Uses:** best suited for sports where ball roll is not a factor due to mowing height limitations. Due to heat tolerance, tall fescue may tolerate moderate play during warm periods better than other cool-season grasses. Ideal use times are first spring, followed by early summer, and fall.

**Mowing heights:** 2 to 4 inches. Tall fescue will lose density and become weedy under low mowing heights.

**Availability:** seed and sod. Netted tall fescue sod should not be utilized on athletic fields as the netting may be a tripping hazard. Tall fescue sod mixed with Kentucky bluegrass is common across the transition zone.

**Advantages**

- Heat tolerant. Tall fescue is much better adapted to the transition zone climate than all other cool-season grasses.
- Relatively fast germination (7-10 days) and good seedling vigor.
- Good wear tolerance.
- Produces very little thatch (bunch-type grass).
- Deep root system so is able to find water even in dry conditions.
- Endophytic.

**Disadvantages**

- Poor recuperative ability (Figure 3). Tall fescue lacks rhizomes and stolons, thus recovery from traffic occurs from tillering only. Rhizomatous tall fescues are being marketed that purportedly recover more quickly than traditional tall fescues; however, independent research has shown no benefit as of yet from these grasses.
- Very susceptible to the diseases brown patch and gray leaf spot during hot summers.
- Coarse texture and inability to mow at short heights can result in poor ball roll in sports such as soccer and baseball.
- KY 31 tall fescue should not be used for athletic fields due to texture, density, and mowing height limitations.

**Other cool-season grasses**

**Creeping bentgrass (*Agrostis stolonifera* L.)** is commonly found on golf course fairways and greens and may be used on grass tennis and lawn bowling courts in the transition zone due to its ability to be mowed at very low heights and good recovery rates (Figure 4). Due to its suscep-

tibility to many diseases and poor wear tolerance, creeping bentgrass is a surface that will require almost constant care.

**Annual ryegrass (*Lolium multiflorum* L.)** is occasionally used as an overseed for bermudagrass fields or for a “quick fix” in thin areas. Annual ryegrass is quite inexpensive compared to other grass options so it is sometimes tempting to use. However, due to very fast leaf growth rates (resulting in the need for frequent mowing), very poor traffic tolerance, lack of heat tolerance, and poor recovery following traffic, annual ryegrass should not be used on athletic surfaces.

**Warm-season Grasses**

**Bermudagrass (*Cynodon dactylon* spp.)**

**Uses:** Ideal for summer and fall sports. Often used for spring sports along with overseeded perennial ryegrass.

**Mowing heights:** 0.5 to 2 inches. Taller heights will result in better wear tolerance and may reduce winterkill. Mowing quality will be improved with use of a reel mower.

**Availability:** seed, sprigs, and sod.

**Advantages**

- Excellent wear tolerance and recuperative ability. Bermudagrass has robust rhizomes and stolons that improve athlete footing and reduce recovery time.
- Excellent drought tolerance. Water is required during establishment. However, after the field is grown-in, very little irrigation is required.
- Dense canopy that is somewhat resistant to weed invasion (Figure 5).
- Heat tolerant.



**Figure 2.** Bermudagrass overseeded with perennial ryegrass showing its ability to stripe



**Figure 3.** A tall fescue football field in spring showing poor recovery from damage received the previous fall



**Figure 4.** A creeping bentgrass bowling green in Cincinnati. Photo by Dean Brown



**Figure 5.** Dense bermudagrass canopy, which allows for good ball roll and reduces weed invasions

### Disadvantages

- Dormancy. Bermudagrass goes dormant from October to April, thus it will be brown and will not recover from wear.
- Cold tolerance. Depending on the health of the grass entering the winter, winterkill can occur every few years. Annual renovation in high traffic areas may be necessary. Cold tolerance varies between cultivars. For more information on cultivars, visit [www.ntep.org](http://www.ntep.org).
- High thatch producer.
- High nitrogen requirement.
- Tough leaf blades require a reel mower for a quality surface.
- Is susceptible to the disease spring dead spot.

### Other warm-season Grasses

**Zoysiagrass** (*Zoysia spp.*) is a very wear-tolerant grass that produces rhizomes and stolons for recovery. Its growth rate is much slower than bermudagrass, thus will not require frequent mowing. Zoysiagrasses as a whole have better cold tolerance than bermudagrass so the threat of winterkill is somewhat diminished. Due to its slow growth rate, zoysiagrass has rarely been utilized on athletic fields because it is slow to recover following damage. However, newer cultivars are showing improved recovery over older cultivars.



**Figure 6.** A mixture of bermudagrass and Kentucky bluegrass on a dual-use field showing excellent cover, improved color, and ability to stripe over bermudagrass alone. Photo by Tyler Farmer

**Mixture of bermudagrass and Kentucky bluegrass** (commonly referred to as 'blue-muda'). Turf managers have been growing these two species together successfully since the early 2000s. The concept behind this strategy is that there will be a grass that thrives during the summer and another that will thrive during the spring and fall resulting in a surface that will always be green, growing, and able to recover from wear. The population shifts to bermudagrass during the summer and to bluegrass in late fall. Density and color are both improved with use of this technique (Figure 6)

Although there is never a guarantee that any grass will do well on any given year,

starting with the strongest grass possible for the intended sports will at least give the field a fighting chance. After that, grass health and the safety of the field will depend on how well it is maintained, how and when it is used, and on-site environmental conditions (temperature and moisture). To some extent, mixes may be able to improve traffic tolerance and recovery and will be less susceptible to unfavorable environmental conditions but will not substitute for proper management or overuse.

For information on establishment practices as well as specific cultivars and how well they perform in the transition zone, visit [www.uky.edu/ag/ukturf](http://www.uky.edu/ag/ukturf) or [www.ntep.org](http://www.ntep.org).