

# Which Kentucky Bluegrass cultivars are best for you?

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Most grasses grown in the northern and transition zones are classified as cool-season turfgrasses. These plants prefer temperatures between 60 and 70 degrees Fahrenheit, which is why they thrive in these regions from spring through fall. Cool-season turfgrasses also have good cold tolerance as well, enabling them to survive sub-freezing northern winters.

Kentucky bluegrass, (*Poa pratensis* L.) is a widely grown cool-season turfgrass. Although you might surmise that this grass comes from Kentucky, it is actually native to Europe. You may find Kentucky bluegrass on home lawns, around industrial sites, in parks, and on athletic fields. This grass is usually mixed with two other cool-season turfgrasses: fine fescues and perennial ryegrasses. Each grass contributes specific attributes to the mixture, enabling establishment over a wider range of environments.

Kentucky bluegrass leaves are medium to fine textured with a medium to dark green color. A distinguishing character of this grass is the boat-shaped tip found on unawn leaf blades.

The good sod-forming ability of this grass is one reason it is so popular. Underground stems, known as rhizomes, become interwoven, forming a strong, dense sod. These rhizomes also enable Kentucky bluegrass to recuperate more rapidly from injury or wear compared to other cool-season turfgrasses. A good, dense stand of Kentucky bluegrass will prevent most weeds from becoming established.

Kentucky bluegrass exhibits moderate tolerance for heat and drought. If summers become excessively dry and hot, this grass turns brown, becoming dormant until cooler temperatures and adequate moisture return.

Well-drained, fertile soils on open, sunny sites favor Kentucky bluegrasses. Although not known for shade tolerance, some cultivars of Kentucky bluegrass tolerate moderate shade. Examples include A-34, Bristol, Eclipse, Glade, Nugget, and Touchdown.

The most limiting nutrient for turfgrasses is usually nitrogen. Kentucky bluegrasses grow best with 2 to 4 pounds of actual nitrogen per 1000 square feet per year. Excessive nitrogen on Kentucky bluegrass may result in undesirable thatch development. Too much thatch inhibits water infiltration into the ground for favorable turf root growth, while increasing the potential for disease and insect damage. Preferred pH ranges from 6

to 6.5 or 7. In some areas, naturally low pH levels may necessitate the use of lime to bring the pH up to the desired range.

Kentucky bluegrasses should be mown at heights between 1.5 to 2.5 inches. Mowing height should be raised 1/2" higher than normal during high heat and humidity, which often occur in summer.

Occasionally, disease and insect pests may attack Kentucky bluegrasses. Leaf spots, dollar spot, stripe smut, necrotic ring spot, and summer patch are some of the more damaging diseases. The severity of some diseases may be reduced by adjusting management practices. Optimal pH and nitrogen levels, as well as avoiding drought stress, reduce occurrences of disease outbreaks. Several improved cultivars selected for genetic disease resistance or tolerance have been released over the past 30 years. Severe disease eruptions may require fungicidal controls.

Chinch bugs and Japanese beetles have been particularly severe insect problems on many turfgrasses. Hot, dry conditions favor chinch bugs. Milky spore disease is a biological control which has had limited success in the battle against Japanese beetles. Its availability has also been quite limited. Chemical controls are available for severe infestations of both chinch bugs and Japanese beetles. Other potentially damaging insects to Kentucky bluegrasses include bluegrass billbugs and sod webworms.

When selecting Kentucky bluegrasses, they may be grouped into improved and common types. Improved types, such as Midnight, Lofts 1757, 1757, and SR2000 generally have been developed for better growth characteristics or enhanced pest tolerance or resistance. Common types, like Park and South Dakota Certified tend to do better under lower maintenance conditions where higher mowing heights are used. Common types also tend to be more susceptible to leaf spot diseases than improved Kentucky bluegrasses.

The University of Rhode Island, along with universities across the country, conducts cultivar evaluations of several turfgrasses, including Kentucky bluegrass, as part of the National Turfgrass Evaluation Program (NTEP). Usually, every four or five years a new cultivar test is initiated for each species. The last complete Kentucky bluegrass trial ran from 1985 through 1990 with 72 entries grown under one kind of management scheme at each location.

Our current tests in Rhode Island, started in 1990, contain both low and high maintenance trials. Changing demands and environmental concerns necessitated inclusion of a low maintenance evaluation to determine which, if any, Kentucky bluegrasses would thrive under reduced fertility and irrigation management. The low maintenance group involves 64 cultivars mown at 2 inches, fertilized with 2 pounds nitrogen per 1000 square feet per year with no supplemental irrigation. The high maintenance test has 144 cultivars mown at 1 1/2 inches, fertilized yearly with 3 to 4 pounds nitrogen per 1000 square feet per year, and irrigated as needed to maintain active growth. Both trials have silt loam soils with potassium levels between 241 and 375 pounds per acre, phosphorus levels between 271 and 450 pounds per acre and pH ranging from 6.1 to 6.5.

Cultivar tests are evaluated regularly for turf quality and any pest infestations. Diseases evaluated in the 1985 and/or 1990 Kentucky bluegrass NTEP tests included snow mold, fusarium patch, spring and fall melting out, leaf spot, stem rust, dollar spot, red thread, summer patch, necrotic ring spot, stripe smut, crown rust, powdery mildew, leafrust, and stripe rust.

Insect damage ratings included sod webworms and billbugs. If your location is prone to damage from any of these pests, you may want to select cultivars which suffered the least damage

Additional information such as genetic summer and winter colors, spring greenup, leaf texture, wear toler-

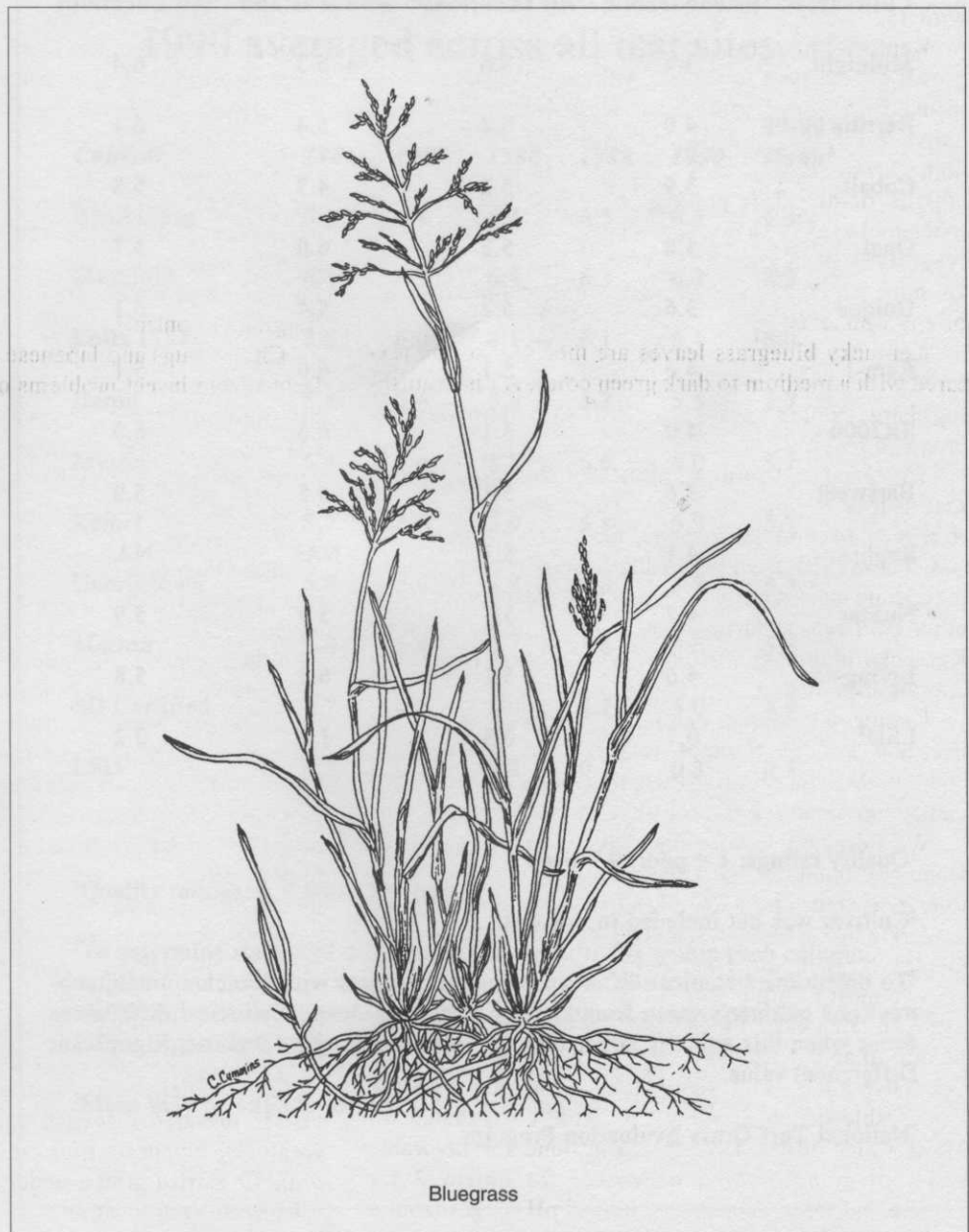


Table 1

Mean quality performance of 1990 NTEP\*  
 Low and High Maintenance Kentucky  
 bluegrasses at Rhode Island compared to  
 averages across all locations during 1992<sup>1</sup>

| Cultivar         | <i>Low Maintenance</i> |               | <i>High Maintenance</i> |               |
|------------------|------------------------|---------------|-------------------------|---------------|
|                  | Rhode Island           | All Locations | Rhode Island            | All Locations |
| Midnight         | 3.4                    | 5.6           | 6.3                     | 6.4           |
| Bartitia         | 4.0                    | 5.2           | 5.4                     | 6.1           |
| Cobalt           | 3.9                    | 5.2           | 4.7                     | 5.8           |
| Opal             | 3.8                    | 5.2           | 6.0                     | 5.7           |
| Unique           | 3.6                    | 5.2           | 5.4                     | 6.1           |
| Ram-1            | 4.6                    | 5.1           | 6.0                     | 5.1           |
| SR2000           | 4.0                    | 5.1           | 6.6                     | 6.0           |
| Barsweet         | 3.6                    | 5.1           | 6.5                     | 5.9           |
| Sophia           | 4.1                    | 5.1           | NA <sup>2</sup>         | NA            |
| NuStar           | 4.7                    | 5.1           | 5.9                     | 5.9           |
| Livingston       | 4.6                    | 5.1           | 6.0                     | 5.8           |
| LSD <sup>2</sup> | 0.7                    | 0.3           | 1.0                     | 0.2           |

<sup>1</sup>Quality ratings: 1 = poor, 9 = best.

<sup>2</sup>Cultivar was not included in this test.

<sup>3</sup>To determine statistical differences among cultivars within each column, subtract one cultivar's mean from another cultivar's mean. Statistical differences occur when this value is larger than the corresponding LSD (Least Significant Difference) value.

\*National Turf Grass Evaluation Program

ance, seasonal density, percent cover, dormancy and recovery potential, growth rates, sod strength, seedhead production, and nitrogen deficiency response were also recorded. Except for percent cover, which is listed as a percentage, all information is scored from 1 to 9 with 9 being the best or most desirable value.

Each evaluator may score cultivars slightly differently, so it is important to compare one cultivar's scores with other cultivars within that rating rather than comparing scores between two evaluators. Local adaptations or different management practices may also affect cultivar performance. Some cultivars perform well over a wide range of environmental conditions, while others are better suited to specific situations.

This information is compiled locally for publication in annual reports from some universities and nationally through the NTEP. NTEP results are available for a \$30 subscription fee by writing to: Kevin Morris, National Director; National turfgrass Evaluation Program; Beltsville Agricultural Research Center - West; Building 002, Room 013; Beltsville, Maryland 20705. Since most turfgrasses are perennial, it is important to determine performance



over a number of years. A five-year summary from the 1985 trial and up to fourth year data from the 1990 tests are available. Specific information from 1985 and 1990 trials are discussed below.

Of the 72 grasses in the 1985 Kentucky bluegrass test, 55 were commercially available in the United States in 1991. Most varieties mentioned in this article were commercially available in 1994. Varieties included in the following discussion are meant to be representative rather than exclusive for their respective classifications -- there may be additional unlisted varieties which could be included in each group.

With some turf-grasses, e.g. perennial ryegrass, data showed decline in performance for some cultivars as the evaluation progressed over succeeding years. Most Kentucky blue-grasses, with a stronger recuperative ability, maintained or even increased quality rating over the years of assessment in the 1985 test as indicated by the examples in Table 2.

Newer varieties like Blacksbury, Midnight, and Lofts 1757 have improved quality compared to older varieties like Park. The highest rated grasses for quality in the 1985 test include: Blacksbury, Midnight, P-104 (Princeton 104), Asset, Chateau, Lofts 1757, Coventry, Freedom, America, Eclipse, Aspen, Estate, Glade, Classic, Able I, Wabash, A-34, Cheri, and Bristol. Several other grasses were well-ranked and may be

better suited to specific sites if they have a resistance or tolerance to a frequent problem at your location.

Quality ratings in 1992 for the 1990 low and high maintenance Kentucky bluegrass tests revealed different results when comparing Rhode Island to an average of all

Table 2

### Mean quality performance of 1985 National Turfgrass Evaluation Program (NTEP) Kentucky bluegrasses between 1986 and 1990 averaged across all test sites.<sup>1</sup>

| <i>Cultivar</i>  | <i>1986</i> | <i>1987</i> | <i>1988</i> | <i>1989</i> | <i>1990</i> | <i>89-90 Mean<sup>3</sup></i> |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------------------------|
| Blacksburg       | 6.1         | 6.4         | 6.4         | 6.5         | 6.5         | 6.3                           |
| Midnight         | 6.1         | 6.3         | 6.4         | 6.3         | 6.3         | 6.2                           |
| Lofts 1757       | 5.8         | 6.0         | 6.1         | 6.1         | 6.1         | 6.0                           |
| Baron            | 5.8         | 5.6         | 5.9         | 5.8         | 5.5         | 5.7                           |
| Mystic           | 5.4         | 5.4         | 5.8         | 6.0         | 6.0         | 5.7                           |
| Ram-1            | 5.7         | 5.6         | 5.9         | 5.8         | 5.9         | 5.7                           |
| Georgetown       | 5.8         | 5.6         | 5.8         | 5.8         | 5.7         | 5.7                           |
| Merion           | 5.4         | 5.4         | 5.7         | 5.6         | 5.6         | 5.5                           |
| SD Certified     | 4.7         | 4.6         | 5.0         | 5.1         | 5.0         | 4.9                           |
| LSD <sup>2</sup> | 0.2         | 0.2         | 0.2         | 0.2         | 0.3         | 0.3                           |

<sup>1</sup>Quality ratings: 1 = poor, 9 = best.

<sup>2</sup>To determine statistical differences among cultivars within each column, subtract one cultivar's mean from another cultivar's mean. Statistical differences occur when this value is larger than the corresponding LSD (Least Significant Difference) value.

<sup>3</sup>Mean may be slightly different due to rounding.

reporting locations in the United States (Table 2). Many cultivars in the low maintenance test did well overall, but performed poorly at Rhode Island, including Midnight, Bartitia, Cobalt, Opal, Unique, and Barsweet. The first summer after establishment in Rhode Island was hot and dry. That season may have more severely

better for quality compared to the low maintenance tests (Table 1). Except for Bartitia and Cobalt all varieties were in the highest rated group in Rhode Island. Other highly rated varieties in the Rhode Island test included: Blacksburg, Eclipse, Able 1, Alpine, Shamrock, Allure, Challenger, Glade, Washington, Minstrel, Classic, In-

Table 3

### Varieties rated superior in the 1990 NTEP Low Maintenance Kentucky bluegrass test for selected characteristics.

| Characteristic                 | Cultivars  |
|--------------------------------|--|
| Dark green color               | Midnight   |
| Good green color               | Barsweet, Amazon, Destiny, SR2000, Fortuna, Gnome, Crest, Unique, Baron  |
| Finer texture                  | Cynthia, Kenblue, Amazon, Ram-1  |
| Drought tolerance <sup>1</sup> | Fortuna, Voyager, Merion, Unique   |
| Dormancy recovery              | Monopoly, Banjo, Alene, South Dakota Certified, Barzan (note: all, except Monopoly, are rated low for quality) |
| Wear tolerance                 | Suffolk, Monopoly, Unique, Freedom, Haga, Cynthia  |
| Leaf spot resistance           | SR2000, Midnight   |

<sup>1</sup>Based on least dormancy.

Table 3 lists varieties rated highly in one or more test locations for particular characteristics in the 1990 low maintenance test, while Table 4 includes results from the 1990 high maintenance test. Due to differences in management and/or cultivars included, some may be in one list, but not the other list for a particular characteristic.

stressed varieties than at other locations.

All other varieties listed were in the highest rated group in Rhode Island. Additional varieties performing best under low maintenance conditions at Rhode Island included: Washington, Cynthia, Baron, Liberty, Monopoly, Freedom, Voyager, Bronco, Crest, Gnome, Barzan, Alene, Banjo, Kenblue, Park, and South Dakota Certified.

Grasses in high maintenance tests typically scored

digo, 4 Aces, Nassau, Broadway, Baron, Silvia, Noblesse, Miracle, Buckingham, Crest, Abbey, Marquis, Viva, Gnome, Barzan, and Chelsea. Best grass varieties averaged over all locations were: Midnight, Blacksburg, Limousine, Eclipse, and Princeton 104.

You may have seen NTEP information displayed in advertising by companies with cultivars in those trials. A word of caution: some advertisements do not include all varieties tested. Their cultivar may have the highest

score of varieties listed in the advertisement, but there may be other cultivars ranked higher in the complete NTEP list which are not included in the advertisement.

Other advertisements may show results taken from data provided by a location that is dissimilar from your site. For example, one cultivar may do well

under full irrigation, but poorly under reduced or no irrigation.

Due to changing availability of turfgrass cultivars, you should check with your county or university extension personnel for the most current information on common and improved Kentucky bluegrass cultivars. ■

Table 4

### Varieties rated superior in the 1990 NTEP High Maintenance Kentucky bluegrass test for selected characteristics

| Characteristic                    | Cultivars   |
|-----------------------------------|---|
| Dark green color                  | Midnight, Buckingham, SR2000, Noblesse  |
| Good green color                  | Able I, Opal, Minstrel, Summit, Eclipse, Nassau, Bartitia, Blacksburg, Princeton 104, Aspen   |
| Winter color retention            | Dawn, Suffolk, Freedom, Nassau, Barzan, Georgetown, Haga, Banff, Classic, Cobalt, Trenton   |
| Finer texture                     | Summit, Limousine, Alpine, Barblue, Cynthia, Unique, Able I, Silvia   |
| Drought tolerance (least wilt)    | Eagleton, Barmax, Monopoly, Silvia, A-34, Indigo, Blacksburg, Challenger, Classic, Freedom, Nustar, Preakness, Suffolk, Georgetown, Trenton, Banff, Dawn, Eclipse, Haga, Merion |
| Drought tolerance (least dormant) | Barzan, Glade, Ronde, Indigo, Marquis, Merit, Viva, 4 Aces, Abbey, Belmont, Chelsea, crest, Eclipse, Estate, Minstrel, Ram-1, SR2100  |
| Spring greenup                    | Ginger, Barblue, Nassau   |
| Dollar spot resistance            | Eagleton, Midnight, 1757, Buckingham, Livingston, SR2000, Indigo, Barblue, Princeton 104, Blacksburg, Eclipse, SR2100, Unique, Classic, Preakness, 4 Aces, Nassau               |
| Leaf spot resistance              | SR2000, Blacksburg, Summit, Cardiff, Destiny, Eclipse, Limousine, Merion, Alpine, Barblue, Able I, Cobalt, Minstrel, Noblesse   |