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Cool Season Turfgrasses for Nebraska

This NebGuide describes 12 species of cool season turfgrasses and the recommended cultivars which are best adapted to Nebraska.

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Cool season turfgrasses have an optimum soil temperature of 60-70°F. They grow most actively in the spring and fall, with growth slowing in summer. More than 20 cool season species are used for turf throughout the world.

Nebraska's climate is moderately conducive to cool season turfgrass species growth. The 12 species best adapted to Nebraska and some of the recommended cultivars are described below.

Kentucky Bluegrass (*Poa pratensis* L.)

Kentucky bluegrass is the most widely used turfgrass species in Nebraska. It forms a dense, medium-textured high quality turf when grown in open sunlight. Cultivars of Kentucky bluegrass are quite variable in texture, color, shoot density, growth habit, disease resistance, adaptation, and cultural requirements. It is this variability that most likely has led to the widespread acceptance and use of Kentucky bluegrass as a turfgrass species.

Adaptation. Kentucky bluegrass is adapted to a wide climatic region which includes arid states like Nebraska. In Nebraska it requires supplemental irrigation. Periods of drought and high temperature substantially reduce shoot density and growth. The above-ground tissues stop growth and turn brown during these stress periods. A properly hardened Kentucky bluegrass turf can survive drought by

initiating new growth from crown tissues and nodes located on rhizomes when growing conditions become favorable. If the crown or nodes dehydrate, the stand will be severely thinned.

Kentucky bluegrass is most suited to fertile, well-drained, medium-textured soils with a pH between 6.0 and 7.0. It prefers full sunlight, but can stand partial shade. Low temperature hardiness, fall color retention, and spring green-up rate are all good. Its wear tolerance is medium to good with good recuperative potential.

Culture. Kentucky bluegrass requires a medium to high intensity of culture. The nitrogen (N) requirement varies among cultivars from 2 to 5 pounds of nitrogen per 1,000 square feet per growing season. The preferred cutting height is 1.5 to 2 inches during periods of optimum growth. This height should be raised to 2.5 to 3 inches during periods of high temperature stress to help insulate crown tissues and minimize stress on the turfgrass growing point. A cutting height of more than 3.5 inches for Kentucky bluegrass results in poor turfgrass quality, increased disease incidence, and increased water use. Kentucky bluegrasses require 1 to 1.5 inches of water per week in Nebraska. This can be supplied by rainfall or supplemental irrigation. Kentucky bluegrass turfs should not be allowed to become seriously droughted, unless properly prepared for the drought dormancy period. Unless properly hardened, the stand will be seriously thinned.

For more specific Kentucky bluegrass cultural practice information, see NebGuide *G80-517 Kentucky Bluegrass Lawn Calendar*, available from your local Cooperative Extension office.

Uses. Kentucky bluegrass is widely used for medium to high maintenance turfgrass areas, such as lawns, parks, cemeteries, fairways, tees, and athletic fields. It should be planted in open sunlight areas and as a blend of three or more cultivars (varieties). Where it will be planted in shade, mix it with fine-leaved fescue cultivars.

Cultivars. Kentucky bluegrass cultivars are selected for Nebraska based on their performance in tests throughout the region. Particular attention is paid to their leaf spot resistance, but their other turfgrass characteristics also are considered. Diseases other than leaf spot, such as stripe smut and summer blight, also can be a problem on Kentucky bluegrass turfs. Some Kentucky bluegrass cultivars recommended for use in Nebraska include:

Abbey	Bristol	Eclipse	Midnight
Adelphi	Bronco	Freedom	Mystic
Amazon	Challenger	Georgetown	Nassau
America	Chateau	Glade	Parade
Aspen	Cheri	Gnome	Ram I
Barblue	Classic	Haga	Rugby
Baron	Columbia	Huntsville	SR 2000
Bensun	Coventry	Julia	Touchdown
Birka	Dawn	Liberty	Trenton
Blacksburg	Destiny	Merit	Victa

Most home lawns, golf fairways and tees, cemeteries, and athletic fields should be comprised of blends using three or four of these cultivars. Low maintenance turfs for parks, school grounds, roadsides, and industrial sites can use cultivars like Baron, Birka, Columbia, Park, Parade, Plush, Newport, Rugby and Victa that have performed well in low maintenance trials. However, species such as tall fescue are preferred for use on low maintenance sites.

Tall Fescue (*Festuca arundinacae* Schreb.)

Forage-type tall fescue forms a coarse textured, low density, bunch-type turf. It does have rudimentary rhizomes, but is considered a weak sod-forming species. Its establishment rate is good--ranking better than Kentucky bluegrass, but slightly slower than perennial ryegrass. Recent developments have led to the introduction of darker green, finer textured tall fescue cultivars that are preferred for turfgrass use. These cultivars are generally referred to as turf-type as opposed to the older forage-type.

Adaptation. Tall fescue is considered a long-lived perennial when grown in the transitional region. In colder portions of the cool-humid and cool-arid regions, stands can be thinned due to direct low temperature injury, particularly in the seedling stage of development. As a turf in these areas, it tends to act like a short-lived perennial. Because of this susceptibility to low temperature kill, the stand can be thinned, leaving scattered coarse textured plants and an unsightly turf. Tall fescue is very heat and drought tolerant when compared to the other cool season turfgrasses. It is also one of the most wear tolerant species. Its shade tolerance is intermediate.

Tall fescue has a wide range of adaptation in terms of soil fertility, texture, and drainage. It prefers a pH of 5.5 to 6.5, but will tolerate a range of 4.7 to 8.5. It tolerates alkaline and saline soil conditions better than most cool season turfgrasses. It also will tolerate periods of submersion and can be used in drainage areas.

Culture. Tall fescue will respond to a wide range of cultural practices. It is generally considered a low to medium maintenance turfgrass species. The best leaf texture is obtained when mowed between 2 and 3 inches. The shoot density of forage-types declines markedly when mowed continuously at 1.5 inches or below, while turf-types will tolerate this height. The nitrogen requirement is 1 to 4 pounds of nitrogen per 1,000 square feet per growing season. Higher nitrogen fertility increases low temperature injury, decreases drought tolerance and encourages brown patch disease. More cultural practice information is available in NebGuide G80-558, *Tall Fescue Lawn Care Calendar*.

Uses. Turf-type tall fescue is well adapted for use in southeastern Nebraska. However, its coarser leaf texture may make it undesirable where fine quality turfs are desired. It is used primarily on playgrounds, roadsides, sports fields, airfields, waterways, home lawns, and low maintenance turfgrass areas.

Cultivars. Kentucky 31 (K-31) tall fescue has been the recommended cultivar for use in Nebraska for several years. It is a forage-type cultivar with satisfactory turfgrass adaptation. More recently, the following turf-type cultivars have been recommended:

Adventure	Falcon	Rebel II
Apache	Fine Lawn 1	Rebel Jr.
Arid	Houndog	Shortstop
Bonanza	Maverick II	SR 8200
Bonsai	Mustang	Trailblazer
Brookston	Olympic	Tribute
Cimarron	Rebel	Wrangler

These cultivars can be blended to enhance adaptation and performance, but in Nebraska it is not recommended to mix tall fescue with other species, such as Kentucky bluegrass.

Perennial Ryegrass (*Lolium perenne* L.)

Perennial ryegrass is a bunch-type grass with a medium texture and medium to high shoot density. It is similar in color and appearance to Kentucky bluegrass and mixes well with it. Perennial ryegrass establishment is considerably more rapid than Kentucky bluegrass. Its vertical growth is also more rapid.

Adaptation. Perennial ryegrass is generally considered a short-lived perennial. It has the poorest low temperature tolerance of the cool season grasses grown in Nebraska, and is very susceptible to winter desiccation (drying) injury. It is best adapted to cool, moist regions that have mild winters and cool summers. The drought tolerance of perennial ryegrass is medium to poor. Its drought avoidance is fair since it generally has a medium-deep root system. Its wear tolerance is good, and it tolerates compacted soils better than most cool season grasses. Perennial ryegrasses prefer well-drained, fertile soils that are slightly acid (pH 5.5 to 6.5), but grow well in soils that are slightly alkaline.

Culture. Perennial ryegrass requires a medium to high degree of culture in Nebraska. The nitrogen requirement ranges from 2 to 5 pounds of nitrogen per 1,000 square feet per growing season. Higher nitrogen levels increase the susceptibility of direct low temperature, desiccation and drought stress injury. The preferred cutting height is 1.5 to 2 inches. It will tolerate fairway and tee heights of cut. Mowing must be done with a sharp mower to maintain desired mowing quality due to the tough, fibrous vascular bundles in the leaves. Irrigation is essential to prevent loss of stand due to drought injury. For more information on perennial ryegrass maintenance, see NebGuide G80-462, *Football and Intramural Field Maintenance*.

Uses. Perennial ryegrass is commonly used in mixtures with Kentucky bluegrass. It is often used where rapid establishment and soil stabilization are desired. Home lawns, parks, cemeteries, institutional grounds, fairways, tees, and athletic fields are primary areas for using perennial ryegrass mixtures.

Cultivars. Some of the preferred perennial ryegrasses for use as turfs in Nebraska are:

All*Star	Elka	Pennfine
Belle	Fiesta II	Pinnacle
Birdie II	Gator	Prelude
Blazer	Jazz	Regal
Blazer II	Loretta	Regency
Citation	Manhattan II	Repell
Citation II	Omega II	Rodeo
Cowboy	Ovation	Saturn
Dasher II	Palmer	SR 4200
Delray	Palmer II	Tara
Derby	Pennant	Yorktown II

Most ryegrass cultivars are susceptible to pythium blight disease. Use preventative pythium blight programs where conditions are conducive for disease development.

Fine-Leaved Fescues

The fine-leaved fescues are composed of creeping red fescue (*Festuca rubra* L.), Chewings fescue (*F. rubra* var. *commutata* Gaud), Sheep fescue (*F. ovina* L.), and Hard fescue [*F. ovina* var. *duriuscula* (L.) Koch]. This section considers these species together as one group. Specific references are made to individual species only when differences in their characteristics or adaptation warrant it.

The fine-leaved fescues form a dense, uniform, and quality turf. Red fescue and Chewings fescue are the two most widely used. Red fescue is a creeping type with rhizomes, while Chewings, Sheep, and Hard fescues are bunch-types. Their establishment rate is more rapid than Kentucky bluegrass, but somewhat slower than perennial ryegrass. Fine-leaved fescues have very fine, almost needle-like leaves, and should not be confused with the new turf-type tall fescues.

Adaptation. The fine-leaved fescues are long-lived perennials. They are the best adapted cool season turfgrasses for dry, well-drained shaded areas in Nebraska. Fine-leaved fescues are commonly included in mixtures for shaded or partially shaded areas. They do not tolerate high temperature stress, but are quite tolerant to drought. Fine fescues prefer well-drained, infertile, sandy soils with a pH range of 5.5 to 6.5. They do not tolerate saline conditions.

Culture. Fine-leaved fescues prefer a low intensity of culture. Their nitrogen fertility requirement is 1 to 3 pounds per 1,000 square feet per growing season. They do not tolerate high nitrogen fertilization rates or heavy, frequent watering, especially under shaded conditions. The preferred mowing height is 1.5 to 2.5 inches, with higher heights of cut used for shaded conditions.

Uses. Fine-leaved fescues are commonly used in mixtures with Kentucky bluegrass for lawns, parks, cemeteries, institution grounds, fairways, roughs, and general use turfgrass areas. They are the primary components of mixtures for use in shaded areas, particularly if those areas are well drained.

Cultivars. The following are some of the recommended fine-leaved fescue cultivars for use as turfs in Nebraska:

Banner	Jamestown	Scaldis
Bighorn	Jamestown II	Shademaster
Biljart	Koket	Shadow
Dawson	Reliant	Spartan
Enjoy	Ruby	Victory

Creeping Bentgrass (*Agrostis palustris* Huds.)

Creeping bentgrass is not recommended for lawns in Nebraska. Its primary use is for golf greens, tees, and fairways. Creeping bentgrass forms a fine textured, high quality turf that tolerates very close mowing. It is a long-lived perennial turfgrass species with good low temperature hardiness. Creeping bentgrass tolerates a wide range of soil types, but prefers fertile, slightly acid, fine-textured soils. Creeping bentgrass is susceptible to a number of turfgrass diseases, and generally requires preventative fungicide programs to prevent disease from destroying the turf. Penncross and Pennlinks are the preferred cultivars for Nebraska. Penneagle, Emerald, Prominent and Seaside also can be used.

Colonial Bentgrass (*Agrostis tenuis* Sibth.)

Colonial bentgrasses are similar to the creeping bentgrasses except they are not vigorous creeping-types. They are long-lived perennials. Their low temperature hardiness is good, but is inferior to that of the

creeping bentgrasses. Colonial bentgrass is not recommended for turfgrass use in Nebraska.

Rough Bluegrass (*Poa trivialis* L.)

Rough bluegrass forms a fine textured, light green turf with high shoot density. It spreads by stolons and does not form as tight a sod as Kentucky bluegrass. It is a long-lived perennial that is well adapted to wet, shaded areas. Its low temperature hardiness and fall color retention are excellent, but rough bluegrass does not tolerate drought or high temperature stress. Sabre, Laser and Colt are the recommended cultivars for Nebraska. They should be used in mixtures that are planted in poorly-drained, shaded sites.

Italian or Annual Ryegrass (*Lolium multiflorum* Lam.)

Annual ryegrass persists for only one growing season. It establishes rapidly and forms a coarse, light green turf, but should be considered for use in temporary turfs only. It is too vigorous in its seedling competition to be successfully used in turfgrass mixtures.

Smooth Bromegrass (*Bromus inermis* Leyss.)

Smooth bromegrass is a coarse texture, low density species. It has only limited use as a turfgrass. Smooth bromegrass is most commonly used on low maintenance areas such as roadsides. It is a long-lived perennial species with fair heat and drought tolerance. It grows vigorously in the spring and fall. Smooth bromegrass will not tolerate frequent close mowing or heavy traffic. It goes dormant under heat and drought stress, and if heavily trafficked during this period, the stand will be thinned.

Fairway Wheatgrass (*Agropyron crisstatum* L. Gaertn.)

Fairway wheatgrass is shorter, denser, finer textured, and slower growing than most wheatgrasses. It is a perennial that is particularly well adapted to cool, semi-arid regions. It has excellent drought, but poor high temperature tolerance. Fairway wheatgrass is adapted to fertile, well-drained, sandy loam to clay soils. It is commonly used for revegetation purposes, especially in low rainfall areas. It tolerates frequent mowing at heights of 1.5 to 2.5 inches, and its nitrogen requirement is 1 to 3 pounds per 1,000 square feet per growing season. Fairway wheatgrass will not tolerate frequent irrigation. Its establishment rate is quite comparable to that of tall fescue. It is conducive for use in low maintenance turf areas, particularly in western Nebraska.

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