

Choosing grasses and buying seed for lawns in Nebraska and the Northern Great Plains

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Choosing the proper grass species and cultivar is essential for maximizing performance as well as significantly reducing irrigation, fertility, pesticide, and other management inputs compared to using the wrong grass. The primary turfgrass species recommended for lawns in the Northern Great Plains region are the cool-season grasses Kentucky bluegrass or tall fescue and the warm-season buffalograss.

The first step in selecting the right turfgrass is evaluating needs. Is the objective merely ground cover for erosion control, aesthetics for a garden, durability for a heavily used lawn, or reduced input requirements for a low maintenance home lawn? Usually a lawn species cannot provide for all four of these needs. Also recognize that turfgrass may not fit in all parts of every lawn. Partial to full shade, hot spots next to drives and walks, and steeply sloped areas are a few examples of areas where turf should be avoided in favor of shade-loving ornamentals or hardscaping. Tables 1 and 2 summarize the adapted turf species and recommendations for lawns in the northern Great Plains.

Kentucky Bluegrass

Kentucky bluegrass is frequently found in home lawns. Forming a medium textured turf, Kentucky bluegrass generally has good shoot density and

produces an attractive, dark green sod. It is a rhizomatous (spreading) species with good wear resistance and recovers well from damage. Kentucky bluegrass performs best in medium-textured soils, with a pH between 6.0 and 7.0. The fertility requirement is somewhat dependent on the variety grown and is in the range of 2 to 4 lbs N/1000 sq ft/growing season. Kentucky bluegrass varies widely in irrigation needs. It can survive unirrigated conditions but also thrives when receiving 1.0 inch of



Figure 1. Though density and management dramatically effects leaf width, leaf width of the newer cultivars tall fescue (top) are only slightly wider than that of Kentucky bluegrass (bottom) and are indistinguishable by most.

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water per growing week through irrigation or precipitation. Extended drought and high temperature can thin a Kentucky bluegrass stand, but overwatering causes thatch accumulation and increased disease. The preferred mowing height is 3.0 inches or higher. Kentucky bluegrass is best suited for full sun, but some of the newer varieties have some shade tolerance. Kentucky bluegrass is the slowest cool-season grass to germinate, typically taking 14-21 days, so it is often mixed with perennial ryegrass to speed establishment. Kentucky bluegrass is susceptible to the difficult-to-control diseases summer patch and necrotic patch and can also be damaged by white grubs. However, Kentucky bluegrass has the best winter tolerance of cool-season grasses adapted to the northern Great Plains. Kentucky bluegrass is the best adapted grass for lawns throughout Nebraska and the northern Great Plains, with the possible exception of eastern Nebraska.

Tall Fescue

Tall fescue has been considered a versatile grass because it can perform well in a variety of environments. The tall fescues grow well in a wide range of soil fertility, soil textures, and pH. Tall fescue is susceptible to brown patch which can thin the turf. However, unlike Kentucky bluegrass, tall fescue is not affected by summer patch or necrotic ring spot and white grubs rarely cause damage in tall fescue. High fertility increases susceptibility to disease and damage from abiotic stresses. A nitrogen range of 1 to 3 lbs N/1000 sq ft/yr should be used. Tall fescue produces an impressive root system providing a means of persisting during periods of poor growth conditions. Under low management conditions

this extensive root system generally mines the soil of essential nutrients and moisture causing reduced turf quality after a few years, unless the moisture is maintained and nutrients are returned to the soil. This deep root system allows tall fescue to stay green longer in drought than other cool-season grasses like Kentucky bluegrass. However, tall fescue has minimal drought survival if extended drought conditions persist to the point of tall fescue leaves turning fully brown or dormant. Tall fescue has the coarsest texture of any of the species commonly used for turf in the Great Plains region, but leaf width of modern cultivars is similar to Kentucky bluegrass. Tall fescue should be mowed at 3.5 inches. It is generally a bunch type species, but some of the newer rhizomatous tall fescue (RTF) varieties are weakly rhizomatous. Tall fescue has good wear and abiotic stress tolerance once it has been established for more than one year, with the exception of cold tolerance which can damage and thin the turf. Though tall fescue is the best adapted grass for lawns in eastern Nebraska with relatively high summer humidity and rainfall, tall fescue's relative poor winter tolerance limits its use for

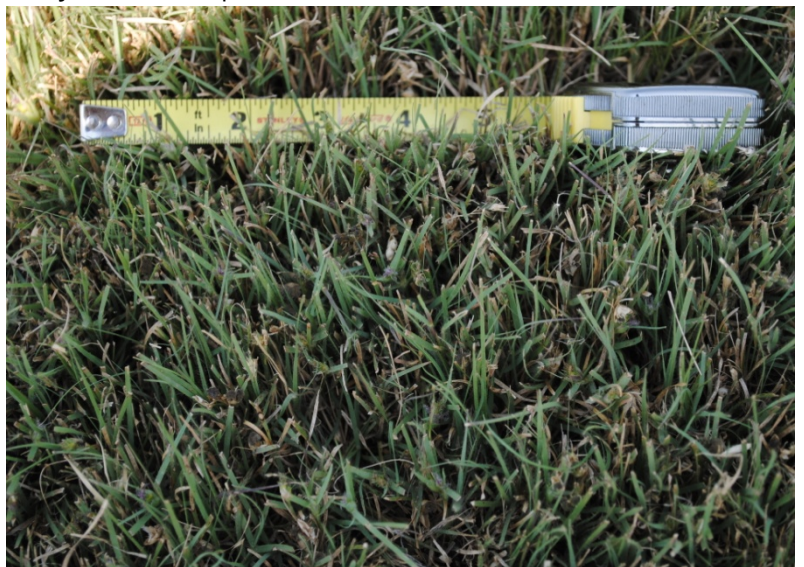


Figure 3. Buffalograss is thin-bladed, requires minimal maintenance including mowing after the establishment year.

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lawns in central to primarily eastern Nebraska.

Buffalograss

Buffalograss is the only native species that is widely adopted for use as turf. It is a warm-season species, but is unique in that its range of adaptation extends north into Canada. It has the best low temperature tolerance of any of the warm-season turfgrasses and survives low temperatures through a strong winter dormancy response. The early onset of winter dormancy and late-to-break winter dormancy makes it susceptible to encroachment by cool season grass and weed species. Buffalograss has very good heat and drought tolerance. Buffalograss is dioecious, having separate male and female plants. Female plants have an inflorescence that develops down within the turf canopy, whereas the male inflorescence is visible above the canopy. Buffalograss has fine texture, is highly stoloniferous and forms a dense sod. Buffalograss is well adapted to fine-textured, alkaline soils and less so to

sandy soils. Buffalograss should receive 1.0 inch of water per growing month either by rain or supplemental irrigation, ideally applied at 0.25 in per week. Fertility at a rate of 2 lbs N/1,000 sq ft is required for maintaining good turf quality, but can be fertilized less if expectations allow. Mowing at a height of 3 inches is preferred. Buffalograss has a slow vertical elongation rate, so mowing frequency is reduced compared to other turfgrass species. Buffalograss is available as sod, plugs, and seeded cultivars. There are only a few cultivars available and they differ in their attributes so cultivar selection is important. Buffalograss performs well as a low maintenance species because it requires fewer management inputs compared to traditionally used turfgrass species. As a warm-season grass, buffalograss should be seeded in the spring and requires significant inputs of irrigation, fertilization, and weed control its first summer to fully establish, but is extremely low maintenance thereafter. Buffalograss is not susceptible to white grubs or diseases, but occasionally is

Table 1. Comparison of the three primary turfgrasses for lawns in Nebraska and the northern Great Plains.

	Kentucky bluegrass	Tall fescue	Buffalograss
Nitrogen needs	2-4 lbs N/1000 sq ft/yr	1-3 lbs N/1000 sq ft/yr	1-2 lbs N/1000 sq ft/yr
Duration of green	Apr-Nov	Apr-Nov	June-Oct
Mowing frequency	Weekly	Weekly or more often in spring	Monthly or less
Optimum lawn mowing height	3.0" or higher	3.5" or higher	3.0" or higher
Minimum irrigation needs	To prevent death	To prevent dormancy	Almost none after establishment
Common pest problems	Annual grasses Broadleaf weeds Patch disease White grubs	Annual grasses Broadleaf weeds Brown patch	Annual grasses Broadleaf weeds Chinch bugs
Traffic tolerance	Good	Good once mature	Poor
Thatch producer	Yes	No	No
Winter tolerance	Good	Moderate	Good
Shade tolerance	Poor	Moderate	Poor

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affected by chinch bugs.

Other species

Perennial ryegrass does not persist in our region, particularly in turf stands with reduced management inputs. Perennial ryegrass provides quick ground cover, germinating within 5-7 days, thus is often used in mixes to provide quick cover or protection from erosion. However, perennial ryegrass is susceptible to multiple diseases, winterkill, and white grubs. Perennial ryegrass should be minimized to 10-15% by weight of the original seed mix on homelawns, and this low percentage will provide quick cover but will be quickly outcompeted by the desired turf. Annual ryegrass is generally not recommended for use in turf applications because it only survives for usually only one growing season. It is most often found as a contaminant in perennial ryegrass or tall fescue seed lots. It is often suggested as a nurse grass, but perennial ryegrass is a better choice for this use. This is because annual ryegrass may germinate over multiple years and/or survive for multiple years, thus its light yellow color and coarse texture can be offensive in a new seeding. Bermudagrass is typically used in the southern states. Bermudagrass does not perform well north of the transition zone, with the rare exception of southerly facing slopes or other exceptionally warm areas such as above underground steam tunnels. Zoysiagrass can perform well in the southern reaches of the Great Plains region. As a warm-season species, zoysiagrass is found throughout the transition zone and farther south. Zoysiagrass is strongly creeping through rhizomes and stolons and can form a dense sod. It is established in some lawns in southern Nebraska, but is usually considered a weed. However, it cannot be easily eliminated once established.

Cultivar Selection

Once the species is selected for a lawn, the next step is to choose the cultivars of that species. Generally two to four cultivars of the same species are included in the bag. The National Turfgrass Evaluation Program (NTEP; <http://www.ntep.org>) coordinates species evaluation trials of the newest varieties from seed companies. These trials are evaluated throughout the country in different environments. The greatest service that NTEP provides, aside from coordinating the trials, is collecting and analyzing the data and making the data publicly available. However, NTEP may report data from hundreds of cultivars of a particular species, but only a very limited number may be available at local outlets. Cultivar selection has already been done for you by most seed distributors, and so seed should be purchased from local, high quality seed wholesalers or retailers.

Purchasing quality seed

Purchasing quality seed is essential for long-term performance of a turf area. Though most purchase seed based on price, the actual cost of seed is insignificant compared to the cost of establishment and maintenance costs over the lifetime of a lawn. If good quality seed is used, a lawn may last for twenty years or more with no reseeding if maintained properly. The best advice is to purchase seed from local, high quality seed wholesalers or retailers, and purchase their more expensive seed, which virtually insures quality seed and dependable cultivars. Additionally, pay attention to the details on the label of the seed bag, items typically found are listed in Table 3.

Final Seed-Buying Thoughts

- Avoid buying out of bulk bins
- Don't buy seed advertised in the weekend newspaper circulars
- Don't buy mixes that contain 'Linn' perennial ryegrass, 'Kenblue' Kentucky



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bluegrass or 'KY31' ('Kentucky 31') tall fescue

- Also avoid on seed mixes that contain annual ryegrass
- Avoid seed mixes where the varieties are not stated (VNS)
- Seed cost is insignificant compared to long-term maintenance costs (you get what you pay for with seed)
- Choose ground cover other than turf in areas where turf is poorly adapted like shade, hot areas, sharp slopes that are difficult to mow, etc.

- Blue or gold tag certified seed guarantee the purity of grasses in the bag and usually results in better quality seed

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Table 2. Recommended grasses for lawns in Nebraska and the northern Great Plains.

Eastern Nebraska	100% tall fescue 90% tall fescue + 10% Kentucky bluegrass 100% Kentucky bluegrass 100% buffalograss
Central to western Nebraska, North and South Dakota, Wyoming, Montana	100% Kentucky bluegrass 100% buffalograss

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Table 3. Preferred ranges for items on the label of a good quality seed lot.

Label Property	Definition	Preferred Range
Purity	Indicates the percent, by weight, of pure seed of each component in the mixture. Not all of the pure seed is live seed.	> 90%
Variety/Kind	Cultivars (variety) and the specific turfgrass species (kind). Do not buy seed that does not list the variety (Variety not stated –often abbreviated VNS) because these lots may include older or mixed cultivars not well adapted to lawns. Conversely, blue or gold tag certified seed guarantees the cultivars in the bag are those listed on the seed tag.	
Germination	Indicates the percent of pure seed that germinated at the time of testing and should grow when seeded.	> 85 %
Other Crop	Indicates the percent, by weight, of seeds in a package that are grown as a cash crop. Examples of crop include orchardgrass, redtop, red clover, and creeping bentgrass, all which may be considered weeds in a lawn.	< 0.5 %
Weed Seed	Indicates the percent, by weight, of weed seeds in the package. A weed is any seed that has not been included in pure seed or crop.	< 0.3 %
Noxious Weeds	Defines the number per pound or ounce of weed seeds considered legally undesirable. Most of those listed for Nebraska are not problems in turf areas.	None
Inert Matter	Indicates the percent, by weight, of material in the container that will not grow. This includes pieces of seed stalks, chaff, mulch, etc. The mulch plus seed combination products contain usually well over 50% inert.	< 8 % in lots containing seed only
Date Tested	Date germination test was completed.	Within the last 9 months
Seed Lot Number	Seed lot number provides a way for the seed company to trace the history of that seed in case a problem should arise. It's best to save the actual seed tags for a few years to insure no problems arise.	