

KENTUCKY BLUEGRASS

(*Poa pratensis*)

Description: Kentucky bluegrass is a member of the Poaceae or grass family. Kentucky bluegrass is a cool season, mat-forming perennial grass that can reach heights up to 4 feet. Culms of the plant are erect to decumbent at the base, slender and wiry, and nearly circular to slightly flattened. Leaf blades can be flat to folded, 1/2 to 6 inches long, 1/32 to 1/8 of an inch wide, glabrous with a double mid-rib and curved or boat-shaped leaf tip. Sheaths are rounded to slightly keeled, partially closed, and glabrous. Ligules are truncate. The inflorescence of the plant is an open to somewhat contracted panicle that is 1 to 5 inches long and 1/32 to 1/16 of an inch wide with a pyramidal shape when open. Panicle branches are flexuous and lower branches occur in a whorl. Spikelets have three to six flowers and are laterally compressed. Glumes are unequal, acute, with rough keels. Lemmas are sharply keeled and acute or obtuse. Lemmas have soft hairs that are found on the keel, marginal nerves, and are copiously webbed at the base. Anthers are 1/32 to 1/16 of an inch in length.

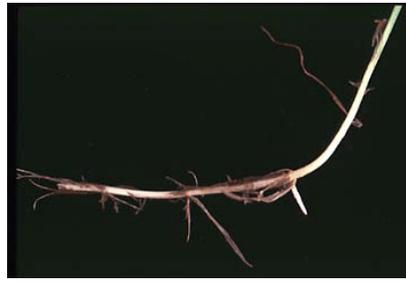


Kentucky bluegrass

Plant Images:



Boat-shaped leaf tip



Root



Growth habit

Distribution and Habitat: Kentucky bluegrass is native to Europe, but is thought to be naturalized in North America. The plant is adapted to a wide range of habitats but favors mesic to moist sites. Cool, humid climates found in the northern half of the United States are ideal for Kentucky bluegrass growth. The plant occurs on most soil types but is most commonly found on fine textured and well-drained soils. Kentucky bluegrass is relatively shade tolerant, but may produce more leaves in full sunlight. The plant will generally thrive in meadows, pastures, open woods, ditches, along roadsides, and railroad right-of-ways. Kentucky bluegrass is also commonly planted as a pasture and lawn grass.

Life History/Ecology: Kentucky bluegrass is a shallow-rooted, perennial, cool season grass that reproduces through the production of tillers, rhizomes, and seeds. Once established, Kentucky bluegrass populations principally expand through the formation and growth of rhizomes and tillers. Rhizomes of the plant are responsible for the sod-forming capability of Kentucky bluegrass. Seeds generally

germinate in the fall. A cold, moist chilling period is necessary to promote germination. Seedlings rapidly establish, forming a short tuft, rhizomes, and tillers. In North Dakota, Kentucky bluegrass emerges in late March and early April. The plant matures by late June and can flower between April and August. Each panicle is capable of producing between 100 and 200 seeds that remain viable for a period of two years. If adequate moisture is available in mid and late summer, regrowth may occur in September and October.

The axillary buds of Kentucky bluegrass are borne close to the ground and can develop into either a tiller or rhizome. Tillers, although often short-lived, are favored by cool temperatures and short day lengths. Tiller formation is most prevalent in the spring and fall. Factors reported to favor tillering include spring mowing, fall grazing, the removal of dead plant material and shading. Axillary buds that have not formed tillers can develop into rhizomes or lateral shoots that penetrate the enveloping leaf sheath, turn downward, and develop underground.

History of Introduction: Kentucky bluegrass is native to Europe, Eurasia, and possibly North America. The plant was likely introduced to the east coast sometime after 1600, and was quickly spread westward by settlers. Today, Kentucky bluegrass is considered naturalized across North America. The plant is widely valued as a pasture and turf grass. Kentucky bluegrass is found in all 50 states of the United States, throughout Canada, and in Mexico. The plant is widely distributed in North Dakota with invasive populations likely in all counties.

Effects of Invasion: Kentucky bluegrass is an aggressive species that can become a problem in tallgrass and mixed grass prairies, hardwood draws, and other plant communities. The plant out-competes native species, thus reducing plant biodiversity. In the northern mixed grass prairie, the plant is believed to directly compete with cool season native grasses. While highly palatable to livestock in the spring, Kentucky bluegrass provides little forage to livestock when dormant during the heat of the summer. The propensity of Kentucky bluegrass to invade native grasslands and displace other native grasses limits the desirability of the plant in rangeland settings.

Control:

A limited number of control options exist for Kentucky bluegrass. The plant is able to withstand or thrive on successive defoliations. This ability contributes to the usefulness of Kentucky bluegrass as a forage plant and lawn grass, but detracts from the usefulness of defoliation as a method of control. Management of Kentucky bluegrass is a difficult proposition because control practices that will damage the plant may also be detrimental to native species that occupy the same area. An assessment of a particular area should be conducted prior to initiation of control measures to determine if a sufficient reserve of desirable species is available to replace Kentucky bluegrass. If not, control measures may be of limited value or require additional effort to assure revegetation of desirable species and management goals are reached.

Kentucky bluegrass is considered to be undesirable in native tallgrass and mixed grass communities. Management objectives in many natural settings and on public lands under a variety of jurisdictions can involve reducing the dominance of Kentucky bluegrass and increasing desirable native species. Reducing vigor and spread of the plant may be a more realistic management goal in areas that have a mixture of cool season native species. Once a management plan is implemented, areas should be monitored because seeds of Kentucky bluegrass can remain viable in the soil for two years and the plant can continue to spread by tillers and rhizomes. The management literature to date has dedicated limited attention to the side effects of Kentucky bluegrass management on native prairie forb species. A better

understanding of the effect Kentucky bluegrass control has on native species and native species diversity is needed.

Mechanical - Mowing is not a recommended control method for Kentucky bluegrass and may actually stimulate tillering and rhizome elongation. Burning Kentucky bluegrass can have variable results. Plant response may be dependent on the timing of the prescribed burn. One factor that needs to be considered when conducting a prescribed burn for Kentucky bluegrass control is the initial species composition in a particular area. The objective of the prescribed burn should be to replace Kentucky bluegrass dominance with native warm and cool season species. Most of the studies published on the effect prescribed burning has on Kentucky bluegrass have been conducted in tallgrass prairies, where native grasses are often predominately warm season grasses. These studies as well as studies in the Midwest suggest that Kentucky bluegrass can be reduced through repeated annual prescribed burns. Burns to reduce Kentucky bluegrass traditionally have been conducted in the early spring prior to the emergence of warm season grasses; however, a recent study at Konza Prairie in Kansas, found that Kentucky bluegrass also declined in response to burns in the fall and winter. This same study found that over time repeated burns conducted in these non traditional seasons also lead to an increase in native cool season grasses. A fall burn in a mixed-grass prairie in North Dakota resulted in an unchanged or increased amount of Kentucky bluegrass. In Kansas and Nebraska, prescribed burns conducted in the spring have been successful in converting rangeland from Kentucky bluegrass dominance to native warm season grasses if repeated annually for a period of three years. Prescribed burns may need to be repeated annually for a period of ten years or more in central North Dakota. Moisture and site conditions can also influence the response of Kentucky bluegrass to burning.

Chemical - Glyphosate is effective in reducing Kentucky bluegrass infestations. Herbicides such as imazapyr and sulfometuron methyl can also control the plant. Given that Kentucky bluegrass is often intermixed with desirable native species, chemical control may not be a preferred method of choice in many settings.

Contact your local county extension agent for recommended use rates, locations, and timing.

Biological - No insect biological agents are available for Kentucky bluegrass control. Research is relatively limited because the plant is widely used in lawns. Kentucky bluegrass is palatable and provides excellent forage for early livestock grazing. Once established, Kentucky bluegrass increases under most grazing practices because the plant is able to tolerate and even flourish under successive intense defoliations. This ability to survive intensive, repeated defoliation is related to how Kentucky bluegrass tillers and rhizomes are produced and grow. Heavy grazing, especially during drought or during extremely high temperatures, can contribute to the death of rhizomes, but may also stress or otherwise negatively effect desirable plants. Fall grazing has been noted to increase tillering. Some land managers have suggested that intensive early spring grazing conducted while warm-season grasses are dormant may reduce Kentucky bluegrass and foster the growth of warm season grasses. However, controlled studies in the northern Great Plains regarding this theory appear to be lacking. Studies at the Central Grasslands Research Station indicate that Kentucky bluegrass may increase under rest. However, other studies have reached conclusions to the contrary. Removal of grazing pressure alone is not sufficient enough to shift the balance of species composition back to native species.

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- Kentucky bluegrass photograph courtesy of Robert H. Mohlenbrock @ USDA-NRCS PLANTS Database/USDA SCS. 1989. Midwest wetland flora: Field office illustrated guide to plant species. Midwest National Technical Center, Lincoln, NE.
- Boat-shaped leaf tip, root, and growth habit photographs courtesy of Purdue University Agronomy Extension.