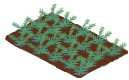


Upland bentgrass

Agrostis perennans and synonyms

Upland bentgrass (also called autumn bentgrass) is a native grass that provides excellent ecosystem benefits in terms of food for wildlife. It is best used in seed mixes as a biodiversity enhancer. Plants are somewhat short-statured, which may decrease mowing frequency, and their root system stabilizes soil through deep and fibrous roots. Some unknowns decrease confidence in the resilience rating, but tolerance of cold temperatures and acidic soils is known to be excellent. Upland bentgrass is rated as Good (grade = B) for use as a roadside species with several management concerns:



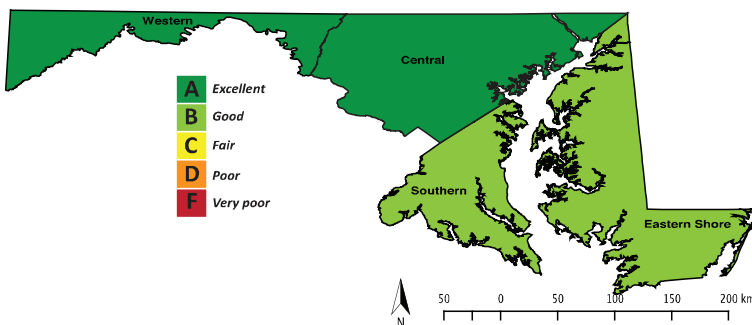
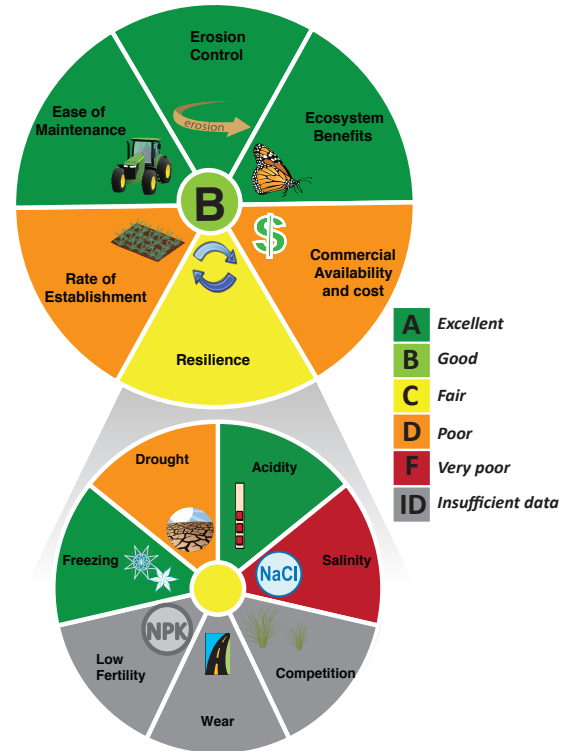
Rate of establishment for upland bentgrass is slow owing to growth occurring in the summer months rather than the spring.



Seed cost per pound is high for upland bentgrass and although the species has a lower sowing rate, seeding upland bentgrass over a large area is moderately expensive.



Upland bentgrass is sensitive to salinity, and drought tolerance can be low owing to high water use. Resilience under roadside conditions may therefore be low although more research is needed.



Given its wide distribution in Maryland, upland bentgrass has excellent suitability for growth along roadsides in Western and Central Maryland. Ratings for Southern Maryland and the Eastern Shore are slightly lower (Good) owing to potential drought sensitivity.



Local ecotypes should be used to maximize plant adaptation to local environmental conditions.

Upland Bentgrass (*Agrostis perennans* = 55 synonyms including the most commonly used synonyms *Agrostis perennans* var. *aestivalis* = *Agrostis perennans* var. *elata* = *Agrostis altissima* = *Agrostis elata* = *Agrostis oreophila* = *Agrostis schweinizii* = *Cornucopiae perennans*. See ITIS for all synonyms)

Biology: Upland bentgrass is a perennial cool season (C₃) bunchgrass that is native to North and South America. It is common in fields, open woods and along roadsides and is adapted to many conditions from dry to moist soils, and sun as well as partial shade. The National Park Service reports that upland bentgrass grows in the coastal piedmont mountain range in the Chesapeake Bay region. Rhoads and Klein (1993) report occurrences of upland bentgrass in all Pennsylvania counties. The Maryland Biodiversity Project reports upland bentgrass to be common on the piedmont and coastal plain and to occur in all but 6 counties (Baltimore, Charles, Kent, Queen Annes, Talbot, and Somerset), including the higher elevations of Western Maryland.

Seeds per pound: 8,000,000

Cost per pound: \$14.65 per pound from Ernst Conservation Seed

Cost per acre: \$439.50 per acre

Suggested sowing rate: 30 pounds per acre (Ernst Conservation Seed)

Sowing depth: unknown

Germination time: unknown

Seeding timing: unknown

Length of growing season: unknown

Leaf height: 2-10 inches (Illinois Wildflowers Info)

Height at seed head stage: Up to 4 feet (Ernst Conservation Seed)

Shade tolerance: Upland bentgrass can grow in partial shade or full sun.


Suggested mowing height: unknown

Tolerance of wet conditions: Upland bentgrass prefers wet but well drained soil. Upland bentgrass is not a wetland plant but can occasionally be observed growing in wetlands.

Humidity tolerance: tolerant of humidity

Disease resistance: unknown

Services:

 **Commercial availability and cost:** Upland bentgrass is sold as autumn bentgrass by Ernst Conservation Seed. The species is not widely commercially available. Cost per pound of seed is high and although the sowing rate is low, seeding upland bentgrass over a large area is moderately expensive.



Rate of establishment: Upland bentgrass is slow to develop because most of its growth occurs in the summer rather than the spring (Illinois Wildflower Info).



Ease of maintenance: Upland bentgrass is a low-stature plant and is therefore suited for use in low-maintenance areas.



Erosion control: The root system is fibrous without rhizomes. Upland bentgrass developed a mean root length between 46 to 76 cm in Rhode Island experiments (Brown et al. 2010). It is therefore adequate for use in erosion control but not as good as some other species such as purple lovegrass or tall fescue.



Ecosystem benefits: Seeds were harvested by Native Americans for food. Upland bentgrass is a valuable food resource for moths, butterflies and their caterpillars, such as the leaf-mining moths *Elachista irrorata* and *Elachista illectella*, the Common Roadside Skipper (*Amblyscirtes vialis*), Leonard's Skipper (*Hesperia leonardus*), and Fiery Skipper (*Hylephila phyleus*). Other insects that feed on these grasses include the Black Cutworm (*Agrotis ipsilon*), the Toothed Flea Beetle (*Chaetocnema denticulata*), several species of aphids that feed primarily on the roots, adults of the Prairie Spittlebug (*Philaenarcys bilineata*), and larvae of the gall wasp *Tetramesa agrostidis*. Bent grasses in general are palatable to many mammalian herbivores and they are readily eaten by horses and livestock, especially when their foliage is young (Illinois Wildflower Info).



Resilience:



Drought: Water use, like all *Agrostis* species, is high, and drought tolerance is therefore generally low (Ernst Conservation Seed). Despite this physiological limitation, upland bentgrass was the only species out of 11 grass species to increase in cover in a summer drought along a roadside (Brown et al. 2010). However, similar to all other species except prairie junegrass, upland bentgrass decreased to below 5% cover over the subsequent 12 months.



Low fertility: unknown



Freezing: Upland bentgrass occurs from the coastal plain region to the Appalachian Mountains. Given its broad elevational range, the species is expected to have excellent freezing tolerance.



Salinity: Upland bentgrass has no salinity tolerance (Ernst Conservation Seed).



Acidity: Upland bentgrass grows in soil pH of 5.5 to 7.5 (Ernst Conservation Seed) and is not tolerant of CaCO_3 .



Wear tolerance: unknown



Competition: unknown

Mixes: Upland bentgrass is best suited as a component in a native grass mix.

Cultivars: None reported.