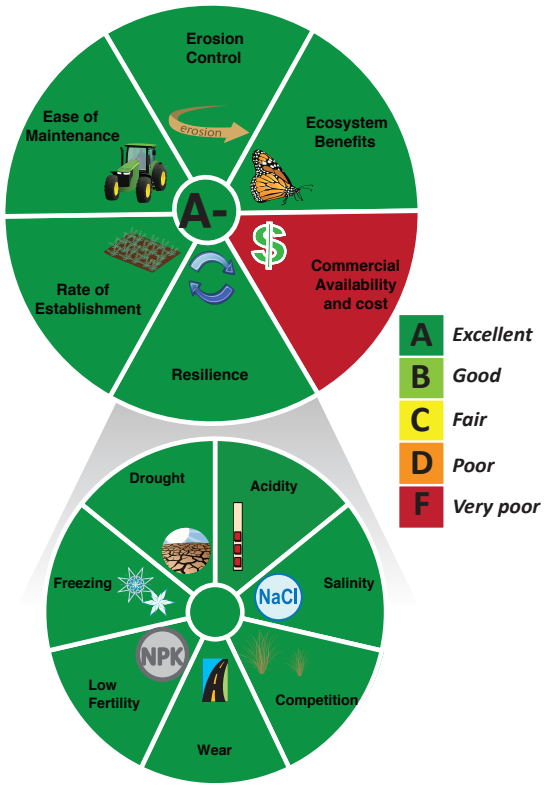
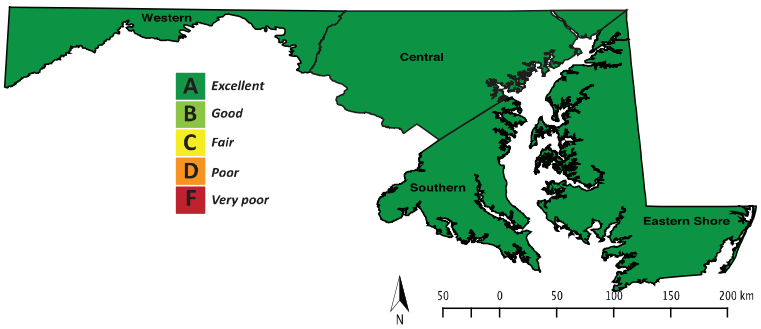
# Purple lovegrass

*Eragrostis spectabilis = Eragrostis spectabilis var. sparsihirsuta = Poa spectabilis*

Purple lovegrass is native to the United States and has species traits that allow it to be resilient to roadside conditions, and provide services to roadside management including superior establishment, low stature to reduce maintenance, superior rooting for erosion control and excellent ecosystem benefits. It is rated as Excellent to Good (grade = A-) owing to only one major concern:




Purple lovegrass is commercially available only in limited quantities and seed is therefore very expensive.




Purple lovegrass is suitable for all regions of Maryland.

Purple lovegrass is an excellent species for roadside vegetation. Thus, this species should be developed further, including the development of regional ecotypes. Tiny lovegrass (*Eragrostis capillaris*) is another species that is currently not commercially available but suitable for roadsides.

Biology: Purple lovegrass is a perennial warm season grass that is native to eastern and central United States. Plants produce short and slender rhizomes that connect individual bunches into colonies (USDA plant fact sheet). As a $C_4$ plant, purple lovegrass actively grows in the summer months. Due to its aesthetic appeal in the landscape, it is considered in China to be cultivated as a non-native ornamental plant (Qing et al. 2013). Purple lovegrass has been observed at sites in 15 counties of central and southern Maryland, including the Eastern Shore (Maryland Biodiversity Project).

*Seeds per pound:* 4,480,000 seeds per pound
*Cost per pound:* $180 per pound from Ernst Conservation Seed and Cheaspeake Valley Seed
*Cost per acre:* $900.00
*Suggested sowing rate:* 5 pounds per acre (Chesapeake Valley Seed; USDA Plant Fact Sheet)
*Sowing depth:* Seeds should not be covered; germination percentage decreases with soil depth between 0.4-1.6 inches (Qing et al. 2013).
*Germination time:* 14-21 days, depends on temperature (Baskin and Baskin 1967, Qing et al. 2013)
*Seeding timing:* Seed in mid- to late spring
*Length of growing season:* spring to fall
*Leaf height:* 8-18 inches (USDA plant fact sheet)
*Height at seed head stage:* 12-36 inches (USDA Plant Fact Sheet)
*Shade tolerance:* prefers full sun but can tolerate partial shade
*Suggested mowing height:* best for no-mow conditions
*Tolerance of wet conditions:* requires well drained soils
*Humidity tolerance:* adapted to the humid climate of eastern United States
*Disease resistance:* no serious disease or insect problems

Services:

*Commercial availability and cost*: Purple lovegrass is available in limited quantities through native plant nurseries. While the sowing rate per acre for purple lovegrass is low, the cost per pound is very expensive.

*Rate of establishment:* Purple lovegrass establishes readily from seed (USDA Plant Fact Sheet). Purple lovegrass has a high percentage of germination (60% in Qing et al. 2013) and establishes rapidly. Seeds of purple lovegrass go through a period of dormancy as indicated by no germination of freshly collected seed (Baskin and Basin 1969). Seed germination of purple lovegrass increased to 97% when stratified at 3-5°C for 10 weeks. Ten weeks is a relatively short period of stratification and suggests that seeds are ready to germinate in the spring. However, germination is delayed until spring temperatures reach at least 30°C (Baskin and Baskin 1967) to 35°C (Qing et al. 2013).

*Ease of maintenance:* Purple lovegrass is a relatively low-stature plant that requires no irrigation or fertilizer. It can be used in no-mow conditions. Because it produces a striking purple plumage in the summer it should not be mowed in the summer for maximum effect. The grass should be cut back in the winter for best spring growth.

*Erosion control:* The root system of lovegrass is fibrous as well as deep. Purple lovegrass developed a mean maximum root length of 76 cm among rooting columns in Rhode Island (Brown et al. 2010). Rooting distribution was exceptional even compared to other grasses. The combination of deep rooting, even root distribution and relatively short stature suggests that purple lovegrass can be an excellent species for anchoring roadside slopes in low-maintenance conditions (Brown et al. 2010).


*Ecosystem benefits:* Purple lovegrass is native to North America. It provides nesting cover for ground birds such as the Botteri's sparrow. The seeds have high nutritional value and are therefore a valuable food resource for song birds and small mammals. Butterflies and moths, such as paradoxical grass moth (*Heliochelius paradoxus*) and purple-top sun moth (*Heliochelius turbata*) are attracted to plants. The leaf hopper *Flexamia areolate* and caterpillars of *Poanes zabulon* use the foliage and juices for food (Illinois Wilflowers Info). Wildlife will graze purple lovegrass during spring and summer, and deer may dig up the basal part of the stem in the winter (Lorenz's OK Seeds). Purple lovegrass may be referred to be farmers as 'ice-cream plant' for their livestock (Illinois Plant Information Network).


Resilience:


Drought: Purple lovegrass is drought and heat tolerant. Growth response of purple lovegrass to drought was compared to that of non-native ornamental grass *Miscanthus sinensis* (maiden grass) (Alvarez et al. 2006, 2007). Greater biomass gain and higher water stress integrals indicated that purple lovegrass continued to photosynthesize during drought by keeping stomata open and tolerating low water potentials. *Miscanthus* on the other hand, closes its stomata during drought, which preserves water potential but shuts down growth. In contrast, in a roadside backslope trial in Rhode Island, purple lovegrass was one of 8 species (out of 14) that did not survive a drought (Brown et al. 2010) although the authors attribute this mortality to be due to the use of a non-local ecotype (from Florida) than due to a lack of drought tolerance.

Low fertility: Purple lovegrass thrives on soils of low fertility.


Freezing: Purple lovegrass is cold tolerant.

Salinity: Purple lovegrass thrives along roadsides that receive salt (Prairie Moon Nursery). Among 10 species studied, close cousin sand lovegrass (Eragrostis trichoides) was one of the most salinity tolerant species studied, only second to 'Kentucky 31' tall fescue, when a saline solution was applied to established turf (Roberts and Zybura 1967). However, when salt was applied to seeded soil, sand lovegrass, with three Bouteloua species, was one of the slowest to establish.


Acidity: Purple lovegrass has low tolerance for $CaCO_3$ (Lady Bird Johnson Wildflower Center). pH range is 4.6 to 7.8.


Wear tolerance: Unknown


Competition: Purple lovegrass can be excluded by faster growing species in areas that are moist and fertile. However in drier, infertile sites, purple lovegrass is a good competitor.

Mixes: Purple lovegrass grows in colonies and is not a dominant species in grassland communities (USDA plant fact sheet). Purple lovegrass can be used alone in mass plantings or mixed with native flowering plants such as *Rudbeckia fugida*, *Ruellia humilis*, and *Eurybia divaricate* (North Creek Nurseries). Brown et al. (2010) suggest planting purple lovegrass with fine fescues to enhance vegetative spread, minimize winter dormancy, and decrease costs.

Species/Cultivars: Tiny lovegrass, also called lacegrass, is a small stature (culms are 15-60 cm and leaves are 6-30 cm long) native plant that may be an excellent choice for low-maintenance roadsides. However, the species is not available commercially and too little is known about its biology to assess the suitable of this species for Maryland right-of-ways. In Maryland, tiny lovegrass has been documented to occur in the Piedmont of Montgomery, Prince Georges, and Anne Arundel Counties (Maryland Biodiversity Project).