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A GRADE REPORT FOR TURFGRASSES SUITABLE FOR MARYLAND RIGHT-OF-WAYS

Problem

Roadsides are managed as mowed turfgrass to prevent erosion, maintain visibility, provide a safety zone for stopped vehicles, and improve aesthetics. Roadside vegetation often needs to be mowed several times each growing season, and in addition to its cost mowing exposes workers to traffic and other hazards, discharges tailpipe gases, and disturbs soil. This study explored the efficacy of using commercially-available grass species that may reduce maintenance costs, yet still provide economic and ecological services such as fast establishment, erosion control, ecosystem benefits, and resilience.

Objective

The objective of the project was to evaluate grass species for use along roadsides in Maryland, paying particular attention to commercial cost, rate of establishment, ease of maintenance, potential for erosion control, ecosystem benefits, and resilience to stressful roadside conditions. Resilience included tolerance to drought, low fertility, freezing, salinity, acidity, wear, and competition.

Description

A literature review of over 500 journal articles, white papers, reports, and fact sheets and discussions with turfgrass experts produced a list of over 100 graminoid species. A trait-based approach was then used to select a subset of species for evaluation. The final selection included 21 species and cultivars. Each species was given an overall grade (A=Excellent, B=Good, C=Fair, D=Poor, and F=Very poor) reflecting six economic and ecological services. Four grading scenarios were applied to different management priorities: 1. all six services weighted equally; 2. establishment and maintenance weighted twice as high as the other services; 3. equal weighting with ecosystem benefits not included in grading; 4. equal weighting with ecosystem benefits and erosion control not included in grading.

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Results

Maryland's standard roadside seed tall fescue received a grade below the median grade. Fine fescues ranked higher than tall fescue owing to lower stature and generally higher resilience. The native grass species Sporobolus, side-oats grama, and purple lovegrass received excellent grades (A or A-) and should be further studied as alternatives to tall fescue. Species that are not recommended for roadsides include Kentucky bluegrass, perennial ryegrass, prairie junegrass, alkaligrass, and zoysia.

Species	Cost	Establishment	Maintenance	Erosion	Ecosystem	Resilience	Overall Grade
Sporobolus	100	90	90	100	100	97	A
Side-oats grama	82	90	90	100	100	91	A-
Purple lovegrass	55	95	100	100	100	99	A-
Little blue stem	80	65	100	100	100	93	B+
Weeping lovegrass	98	95	85	100	65	93	B+
Blue Grama	66	80	90	100	100	91	B+
Tufted hairgrass	96	85	82	82	92	84	B
Hard fescue	63	75	100	88	89	92	B
Upland bentgrass	67	65	100	95	100	73	B
Red fescue	75	80	100	85	65	88	B-
Sheep fescue	61	65	100	88	89	89	B-
Buffalograss	45	75	80	100	100	89	B-
Chewings fescue	69	80	100	83	60	86	C+
Poverty oatgrass	20	95	100	80	85	93	C+
Tall fescue	72	85	60	100	60	89	C+
Bermudagrass	60	100	70	100	50	82	C
Prairie junegrass	87	50	100	60	85	76	C
Alkaligrass	92	95	20	85	90	71	C
Zoysia	35	60	100	80	50	90	D+
Kentucky blue grass	77	70	65	85	40	69	D+
Perennial ryegrass	78	100	20	90	30	71	D

Maryland is a diverse state that varies considerably in climate and soil conditions, which will impact establishment, survival, and long-term persistence of the recommended species. The next step therefore is to plant these species in the three climatic zones in Maryland, test their resilience to a variety of environmental conditions, and rank their ecological services.

Report Information

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Link to Final Report

http://www.roads.maryland.gov/OPR_Research/MD-16-SHA-UMCES-6-3_Turfgrass_Report.pdf