



FINAL STUDY REPORT
Rose Lake Plant Materials Center
E. Lansing, Michigan

Development of Great Lakes Composite of Virginia Wildrye

J.C. Durling and J.W. Leif



Virginia wildrye. Photo courtesy of Larry Allain, hosted by the USDA-NRCS PLANTS Database.

ABSTRACT

Virginia wildrye (*Elymus virginicus* L.) is a native, cool-season perennial bunchgrass. Virginia wildrye plant material from native stands in Michigan, Indiana, Ohio, and Wisconsin was collected, accessioned, and established in trials at Rose Lake Plant Materials Center. The objective of this study was to evaluate these accessions for restoration or revegetation as conservation cover or stream bank protection with the prospect of releasing a Great Lakes composite of Virginia wildrye. Release of a Great Lakes composite of Virginia wildrye from this study will not be forthcoming due to commercial availability of sources adapted to the region.

INTRODUCTION

Virginia wildrye is a native (Reznicek et al., 2011), cool-season perennial bunchgrass with erect stems that reach to 4-ft high (USDA, NRCS, 2014). Leaves are flat, up to 0.5-in wide, and rough on both sides and the margins. Spikes are stiff and up to 5-in long. The lower portion of the spike is often enclosed by the sheath. Lemmas have awns that reach 1.5 in. Auricles are claw-like and clasping. Virginia wildrye is found in moist woods, meadows, and prairies throughout the United States east of the Rockies (Gleason and Conquist, 1991). It has good tolerance to flooding and moderate tolerance to drought. Virginia wildrye may be mixed with warm season

grasses for restoration and conservation plantings, and provides an important cool-season component to seed mixtures.

MATERIALS AND METHODS

Virginia wildrye was collected by field staff and partners from 19 native stands in Michigan, Indiana, Ohio, and Wisconsin and accessioned. Plants from each accession were started in the greenhouse and transplanted into replicated field plots at Rose Lake Plant Materials Center. Based on survival, vigor, plant density, lodging, disease and insect damage, seed production, and germination as observed in plots established in 2002, 2003, and 2005, “finalists” were selected.

In 2010 a comparison of “finalists” with seed from original collections (as available) and seed collected from plots was used to establish transplants in a randomized complete block design with four replicates at the Rose Lake Plant Materials Center with the commercial variety ‘O’ma’ha’ included as the standard for comparison. Data were collected on survival, first anthesis, mature height, vigor, lodging, and fall green up and subjected to analysis of variance. Treatment means were separated with the least significant difference test at $P < 0.05$.

RESULTS AND DISCUSSION

Field data collected in 2011-12 are presented in Table 1. Significant differences among accessions were observed in survival, date of first anthesis, height, vigor, lodging, and fall green up. By the end of the third season (2012) or earlier all accessions were beginning to show the short-lived nature of Virginia wildrye (USDA, NRCS, 2014).

CONCLUSION

Since Virginia wildrye from sources adapted to the Great Lakes region is commercially available, a release of Virginia wildrye from this study will not be forthcoming.

LITERATURE CITED

- Gleason, H. and A. Conquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada. 2nd ed. Bronx, NY: The New York Botanical Garden. 910 pp.
- Reznicek, A.A., E.G. Voss, and B.S. Walters. 2011. Michigan Flora Online (<http://michiganflora.net/>, 11 Sept 2014). University of Michigan.
- USDA, NRCS. 2014. The PLANTS Database (<http://plants.usda.gov>, 11 Sept 2014). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Table 1. Virginia wildrye growth data. Rose Lake Plant Materials Center. 2011-12.

Accession number	Origin	Survival (%)		First anthesis		Mature height (ft)		Vigor [¶]	Lodging [#]	Fall green up ^{††}	
		<u>2011[†]</u>	<u>2012[‡]</u>	<u>2011</u>	<u>2012</u>	<u>2011[§]</u>	<u>2012[‡]</u>	<u>2011[§]</u>	<u>2011[§]</u>	<u>2011^{‡‡}</u>	<u>2012^{§§}</u>
9084315	Indiana	82	50	23-Jun	12-Jul	2.0	0.5	4	1	8	8
9084344	Indiana	100	88	7-Jul	12-Jul	3.5	2.5	1	5	3	4
9084350	Ohio	96	56	3-Jun	7-Jun	2.5	2.0	1	2	5	5
9084514	Indiana	99	50	10-Jul	12-Jul	3.0	2.5	1	1	3	7
9084521	Indiana	89	6	3-Jun	7-Jun	2.5	2.0	3	1	6	8
9084531	Indiana	97	44	7-Jul	14-Jul	3.0	2.5	1	1	4	4
9084536	Indiana	99	75	7-Jul	12-Jul	3.0	2.5	1	3	2	4
O'ma'ha		97	25	7-Jul	12-Jul	3.0	2.0	1	2	5	8
LSD ^{¶¶} _(0.05)		10	45	4 days	Varies	0.5	Varies	0.6	2.1	2.4	2.6

[†]Evaluated on 19 May 2011

[‡]Evaluated on 24 August 2012

[§]Evaluated on 27 July 2011

[¶]Rating scale from 1=excellent vigor to 9=poor vigor

[#]Rating scale from 1=no lodging to 9=severe lodging

^{††}Rating scale from 1=most plants green, vigorous, 12-18 inches tall to 9=no green plants

^{‡‡}Evaluated on 13 October 2011

^{§§}Evaluated on 12 October 2012

^{¶¶}LSD=least significant difference