

**UNITED STATES DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
APPALACHIAN PLANT MATERIALS CENTER  
ALDERSON, WEST VIRGINIA**

**NOTICE OF RELEASE OF THE CULTIVAR  
'RUFFNER' TALL OATGRASS**

The United States Department of Agriculture (USDA)-Natural Resources Conservation Service (NRCS) Appalachian Plant Materials Center announces the release of the cultivar 'Ruffner' tall oatgrass (*Arrhenatherum elatius* ssp. *elatius* (L.) Beauv. Ex J. & K. Presl) for use as a cool season forage in the mountainous Appalachian Region of the eastern United States. It has been assigned the accession number 9061649 by the USDA, Agricultural Research Service.

The release is named for Joseph Ruffner, the Northeast Region Plant Materials Specialist for the USDA- Soil Conservation Service during the 1970's. He advocated the use of tall oatgrass as a species for cool season forage and mined land reclamation and encouraged the assembly and evaluation of the accessions that led to this release<sup>3</sup>.

**Collection Site Information:** 'Ruffner' tall oatgrass is the progeny of a polycross of three superior accessions selected out of an assembly of 120 accessions after three years of initial evaluation and two years of evaluation of 34 plants from 22 accessions. The three accessions from which the polycross was made were: PI-202273 (from Chile, Koppen classification Csa-Mild Mid-Latitude Mediterranean climate), PI-233818 (from Italy, Koppen classification Csa-Mild Mid-Latitude Mediterranean climate), and PI-234439 (from Belgium, Koppen classification Cfa- Mild Mid-Latitude Humid Subtropical climate).

**Description:** Tall oatgrass (*Arrhenatherum elatius* ssp. *elatius*) is a perennial bunch type cool season grass that grows in clumps, producing an open sod. It is a European native, but has become naturalized in the United States where it has been used in pastures and meadows, and to a lesser extent, in reclamation of drastically disturbed lands. Culms typically are two to five feet in height and occur in large clumps<sup>4</sup>. Leaf blades are long and narrow, with typical widths between three-eighths and three-fourths of an inch<sup>4</sup>. The root system of tall oatgrass is densely fibrous. Anecdotal observations suggest tall oatgrass may be more drought tolerant than most other introduced cool season forage grasses. The observed drought tolerance of tall oatgrass may be attributed to its' densely fibrous root system. Ruffner and others have observed tall oatgrass persisting and being moderately productive on shallow, moderately infertile soils across the Appalachian Region<sup>3</sup>.

**Method of Selection:** In 1982, 120 accessions were assembled: 110 foreign introductions, 3 sources of the cultivar 'Tualatin' tall oatgrass, 3 accessions of common

seed from commercial sources, 2 accessions from naturalized stands in the United States, and 2 accessions from naturalized stands in Canada (Table 1). A planting was established for initial evaluation at the plant materials center in Quicksand, Kentucky on a moist, well-drained soil. Each accession in the planting was evaluated between 1983 and 1986 for traditional qualitative criteria and clipped to provide data on forage production and recovery from clipping (Table 2). Thirty four plants were selected from 22 accessions for advanced evaluation based on their forage production and a late boot date. Seven plants from 3 accessions were selected for a polycross block based on seed production and germination, low degree of seed shattering, and high degree of leafiness. The progeny of the polycross was assigned accession number 9061649. The University of Kentucky evaluated accession 9061649 in three orchardgrass forage variety trials at four locations between 1994 and 1998. Accession 9061649 had forage yields equal to the best orchardgrass cultivars in each trial.

**Ecological Considerations and Evaluation:** This release is from a species native to Europe that has become widely naturalized in the United States<sup>4</sup>. There has been only one tall oatgrass cultivar released in the United States, ‘Tualatin’ by Oregon State University. Seed of ‘Tualatin’ shatters readily and it is not in widespread commercial production. ‘Ruffner’ is the first tall oatgrass cultivar selected under climate conditions in the eastern United States.

The genus and species *Arrhenatherum elatius* has been listed as invasive or potentially invasive on many Internet sites across the United States, especially in the western states. However, a web based search for the invasiveness of *Arrhenatherum elatius* ssp. *elatius* produced no sites listing this subspecies as invasive or potentially invasive, while a similar search for the invasiveness of *Arrhenatherum elatius* ssp. *bulbosum* produced many listings of this subspecies as invasive or potentially invasive. Further, the PLANTS National Database clearly recognizes the invasiveness or potential invasiveness of the *bulbosum* subspecies, but does not recognize any invasiveness or potential invasiveness for the *elatius* subspecies<sup>5</sup>. Also, the test plots supporting this release were in close proximity to natural and introduced plant ecosystems. There was no evidence of *Arrhenatherum elatius* ssp. *elatius* migrating from the plots into those ecosystems.

**Anticipated Use:** The anticipated uses of ‘Ruffner’ tall oatgrass include: cool season forage for pasture and hay, cool season component in cool season grass and legume mixtures for wildlife habitat, and critical area stabilization on areas where herbaceous seed mixtures are used to facilitate succession to woody plants. Tall oatgrass has long been recognized as “evergreen grass” because of its pronounced cool season growth habit and it is common throughout the Appalachian Region<sup>4</sup>. That recognition and anecdotal observations suggest that tall oatgrass may be an excellent replacement for tall fescue in extended grazing systems throughout the Appalachian Region<sup>2</sup>.

Historically, tall fescue has been used extensively throughout the Appalachian Region to extend the grazing season<sup>1</sup>. However, tall fescue is highly susceptible to infection by an endophytic type of fungus which produces toxins detrimental to livestock and wildlife that consume the fescue<sup>1</sup>. Tall oatgrass has a pronounced cool season growth habit

similar to tall fescue and anecdotal observations indicate tall oatgrass is endophyte free<sup>2</sup>. Thus, tall oatgrass may be a better choice than tall fescue for extending the grazing season in the Appalachian Region. Anecdotal observations also clearly indicate that tall oatgrass is highly palatable to whitetail deer during the fall, winter and early spring months<sup>2</sup>.

Due to perceptions regarding potential invasiveness of *Arrhenatherum elatius*, 'Ruffner' is recommended for use only within the Appalachian Region and commercial seed production will not be encouraged outside the Appalachian area of the US.

**Area of Adaptation:** 'Ruffner' tall oatgrass is adapted to the eastern United States (MLRA L, M, N, P, R, and S) and USDA plant hardiness zones 4 through 7.

**Availability of Plant Materials:** The Appalachian Plant Materials Center in Alderson, West Virginia will maintain fields to produce breeder and foundation seed and will distribute foundation seed to commercial growers. Growers may produce certified seed from the foundation seed.

**Prepared by:** This notice of release of the cultivar 'Ruffner' tall oatgrass was prepared by John Vandevender, Manager, the Appalachian Plant Materials Center in consultation with Robert Glennon, Natural resource Specialist, USDA, Natural Resources Conservation Service, Washington, DC.

#### **References:**

1. Barnes, R. F., D. A. Miller and C. J. Nelson. 2003. Forages, An Introduction to Grassland Agriculture, 6<sup>th</sup> Ed., Iowa State Press, Ames, Iowa.
2. Glennon, R. L. 2009. Personal Communication.
3. Ruffner, J. D. 1978. Plant Performance on Surface Coal Mine Spoil in Eastern United States. USDA-SCS-TP-155.
4. Strausbaugh, P. D. and E. L. Core. 1978. Flora of West Virginia, 2<sup>nd</sup> Edition. Seneca Books, Grantsville, West Virginia.
5. USDA, NRCS. 2009. The PLANTS Database (<http://plants.usda.gov>, 12 August 2009). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

**Approvals for the Release of 'Ruffner' Tall Oatgrass**

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Director  
Ecological Sciences Division  
United States Department of Agriculture  
Natural resources Conservation Service  
Washington, DC

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Date

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State Conservationist  
United States Department of Agriculture  
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Date