hairy wildrye

Elymus villosus, Muhl. ex Willd

Alternate Common Name(s)

silky wildrye, downy wildrye

Scientific Synonym(s)

Elymus arkansanus Scribn. & C.R. Ball, *Elymus canadensis* L. var. *Villosus* (Muhl. ex Willd.) Shinners, *Elymus villosus* Muhl. ex Willd. var. *Arkansanus* (Scribn. & C.R. Ball) J.J.N. Campbell, *Terrellia villosa* (Muhl. ex Willd.) Baum

Functional Group

cool season grass

Family

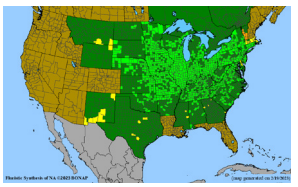
grass family (Poaceae)

Cool Season Grasses

Description

- **Life cycle/growth form:** Perennial, cool season grass from fibrous roots (no rhizomes), forming leafy tufts.
- **Height:** 2.5 - 3.5 ft
- **Leaves and stem:** Leaves flat, dark green with a soft texture from their abundant short, silky hairs; sheath is often hairy; two small purplish projections at the collar (auricles) wrap partly to all the way around the stem.
- **Fruit/seed head:** Inflorescence a single, nodding spike per culm, 1.5 - 5 in long, with many spikelets, bristly due to long awns (1 to 1 1/2 in long) on glumes and lemmas; glumes and lemma (one of the pair of bracts around the grain) are finely hairy.
- **Pollination:** wind

Habitat and Range



Dry, sandy or gravelly soil; part shade to full sun; woods, floodplain forests, river banks, ravines, wooded slopes, rock outcrops; Wetland Indicator Status is Facultative Upland (FACU) for the Midwest; moist, well-drained, loamy soils are recommended for seed production.

Conservation Status

Global- G5, secure; Massachusetts, Rhode Island, and Vermont- S1, critically imperiled; Mississippi and North Carolina- S2, imperiled; Wyoming- S2/S3, imperiled to vulnerable; Delaware- S3, vulnerable (NatureServe)

General Comments

Silky wildrye is typically found in wooded areas, but it tolerates full sun in production areas as long as the site is not excessively dry. This species somewhat resembles Canada wildrye (*Elymus canadensis*) but has straight awns in mature seedheads, slender glumes, fine hairs within the inflorescences, and generally more hairy leaves and sheaths.

Establishment for Seed Production (Appendix A)

Direct seeding:

Direct seeding methods shared by a commercial native seed grower

- **Row spacing:** solid stand
- **PLS pounds/acre:** 12
- **Seeding depth:** Surface (1/4 to 1/2 in depth with native seed drill should also be effective)
- **Seeding method:** broadcast
- **Seeding time:** late fall or early spring
- **Weed control:** Prepare clean, firm, weed free seedbed prior to seeding (e.g., following a glyphosate-resistant crop, for example).

Greenhouse:

- **Seed pre-treatment:** 30 day cold/moist stratification produces rapid, even germination
- **Sowing:** Sow seed in germination flats or plugs lightly covered (1/8 - 1/4 in) with potting mix about 2 months before the last frost free date.
- **Transplanting:** Harden off plugs for a week or two outside, then transplant after all danger of frost into rows spaced convenient for tillage equipment or at 8-12 in spacing in a weed barrier or plastic mulch.

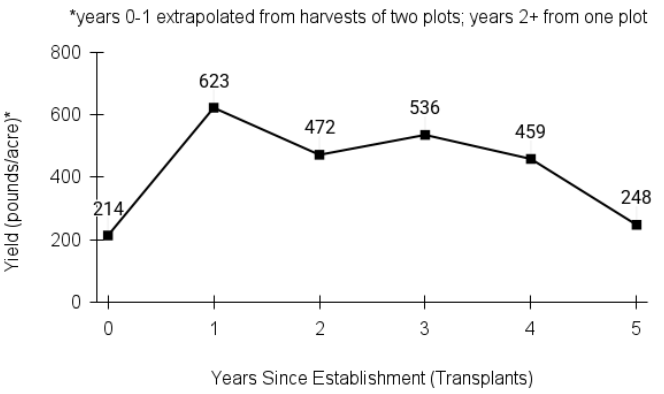
Stand Management

- **Weeds:** Mow direct seeded stands high (6-12 in) first growing season to prevent weed canopy from shading seedlings. We do not currently have information on herbicides that could be used for weed control in this crop. Cultivate or mow between rows and weed or hand rogue to prevent contamination of seed lots by weed seed.
- **Pests:** None noted.
- **Diseases:** None noted.
- **Hybridization risk:** This species is known to hybridize with related species *Elymus canadensis, E. hystrix, E. virginicus*. Maintain adequate separation between plots of these species.

Seed Production (Appendix B)

- **First harvest:** Some flowering and seed set in the establishment year when transplanted as plugs. First harvest in second growing season from direct seeding.
- **Yield:** 200 - 620 pounds/acre (extrapolated from harvests of two plots at TPC)
- **Stand life:** Five years or more, though production may begin to decline by years 4-5.
- **Flowering date:** June in northeast Iowa
- **Seed maturity/Harvest date:** Late July - Aug in northeast Iowa

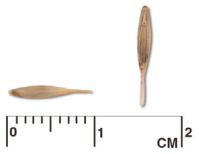
- **Harvest date range at TPC (2010-2025):** July 27 - August 30 (early September harvest is possible in first season from transplants)
- **Recommended harvest method:** Combine at hard dough stage (no clogging observed despite awns)



Seed Cleaning Process (Appendix C)

Pass combined material through 1/2 in mesh to remove large particles. Brush to remove awns and make flowable, then airscreen.

Seed Characteristics (Appendix D)



- **Seeds per ounce:** 5,500 seeds/oz (IA NRCS)
- **Seeds per pound:** 3.30g (Seed Information Database)
- **1000 seed weight:** 7.76 g (Seed Information Database)
- **Description:** Typical seed unit consists of sterile bracts (lemma and palea) enclosing the elliptical grain (1.5 mm by 5-6 mm).
- **Seed storage:** Seed may retain viability for 10 years or more when stored in cool/dry conditions (33-50° F, 30-50% RH).
- **Typical seed test:**
  PLS: 91.6%
  Purity: 98.5%
  Germination: 89%
  Dormant: 4%
  (Values obtained from 1 test of a seed lot produced at TPC; note that this seed lot was 11 years old at time of test)

Released Germplasm

- **Source Identified material:** Natural Selections/Iowa Ecotype Zone “Iowa”

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Species Updated: 12/18/2025

Notes