is similar to that of other released cultivars of intermediate wheatgrass. Haymaker is recommended for dryland hay production in the central and northern Great Plains, USA in USDA Plant Hardiness Zones 3, 4, and 5 (Cathey, 1990).

Haymaker has an erect growth habit and has rhizomes typical of intermediate wheatgrass. Its culms and leaves are glabrous and non-glacuous, and leaf margins are smooth. Leaves are green-yellow or Munsell 5GY 5/4 (Munsell Color, 1977). Sheaths have ligules, auricles are usually absent, and sheath margins are smooth. Spikes are oblong, erect, and have green, lanceolate glumes. Spike density is lax. Anthers are yellow. At 41°N lat. in the central Great Plains, Haymaker has anthesis the last week of June. The spike height of Haymaker varies with environment but is typically taller than other intermediate wheatgrasses and has a wider flag leaf.

Breeder seed will be jointly maintained and produced as needed by USDA-ARS and the University of Nebraska-Lincoln with random-mated isolations based on the Syn 2 seed used in evaluation trials. Foundation seed production of Haymaker will be managed by the Nebraska Foundation Seed Division, University of Nebraska-Lincoln, Lincoln, NE 68583. Foundation seed will be made available for Certified seed production on a non-exclusive basis to seed producers who contractually agree to produce and market the seed only as Certified seed using the cultivar name Haymaker. A technology development and transfer fee will be assessed by the University of Nebraska.

Limited amounts of seed for research purposes will be provided upon written request to the corresponding author. Recipients are asked to recognize the source if it contributes to the development of a cultivar or germplasm or is used for other research purposes. U.S. Plant Variety Protection will be sought for Haymaker.


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References


Munsell Color. 1977. Munsell color charts for plants. 2nd ed. Munsell Color (Firm), Baltimore, MD.


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Registration of ‘NU-ARS AC2’ Crested Wheatgrass

‘NU-ARS AC2’ crested wheatgrass [Agropyron cristatum (L.) Gaertn.–A. cristatum var. pectinatum (M. Bieb.) Tzvelev] (Reg. no. CV-28, PI 634507) is a broadly adapted, complex composite population produced by allowing selected plants from fairway-type germplasm accessions to randomly intermate. It originates from collections made by Douglas Dewey, USDA-ARS Plant Geneticist, in the former USSR in 1977. It was released in September 2002 by USDA-ARS; Agricultural Research Division, Institute of Agricultural and Natural Resources, University of Nebraska-Lincoln; and the USDA-NRCS. NU-ARS AC2 was tested under the experimental designation NE AC2.

Seed of fairway-type crest wheatgrass accessions obtained from Dewey’s collections were used to establish evaluation trials at Mead and Alliance, NE. Accessions were evaluated during the period 1979–1983 in space-transplanted evaluation trials. Four accessions with high forage yields, high in vitro dry matter digestibility (IVDMD), and overall superior forage evaluation ratings were identified. Superior plants of these accessions were visually selected in the evaluation nursery at Mead, NE, in 1985 prior to anthesis. All non-selected plants in the evaluation nursery were mowed prior to anthesis and seed was harvested and bulked from the selected plants. The Dewey accessions and the numbers of plants selected from each accession to form NU-ARS AC-2 were as follows: D-1458 (18), D-1462 (6), D-1610 (13), and D-1654 (9). The Dewey accessions have been entered into the USDA Plant Germplasm System. D-1458 was a single plant collection (D.R. Dewey, personal communication, 1980) which was combined with D-1457 to form PI 440062. D-1462 was a bulk collection and assigned PI 439922. Both PI 440062 and PI 439922 are fairway-like in appearance and were collected from a site 52 km southeast of Stavropol, Russia. PI 440062 has subsequently been classified as A. cristatum var. pectinatum and is a tetraploid. D-1610 was assigned PI 439926 and D-1654 was assigned PI 439929. PI 439926 and PI 439929 were classified as A. cristatum. PI 439926 was collected on a seeded site near Stavropol, Russia and believed to be the cultivar Krasnokovskii 305 (D.R. Dewey, personal communication, 1980). PI 439929, a diploid, was collected about 50 km southeast of Svetlograd, Russia. Bulked seed from selected plants was used to establish an increase nursery in the fall of 1985 at Mead, NE. Seed harvested from the increase nursery (Syn 2 generation) produced the synthesized population, NE AC2, which was used to plant evaluation trials.

NU-ARS AC2 was tested across several eco-regions (Baily, 1995) in the Central and Northern Great Plains at the following sites; Prairie (Mead, NE), Steppe (Hays, KS; Ft. Pierre, SD), Dry Steppe (Sidney, NE; Cheyenne, WY; Het- tinger, ND) during the period 1990–1997. In both the Central and Northern Plains locations, NU-ARS AC2 had greater average forage yields than the other fairway-type crested wheatgrass entries and was equivalent to the best standard crested wheatgrass cultivars. The in vitro dry matter digestibility (IVDMD) and protein content of NU-ARS AC2 was similar to that of the other strains and cultivars evaluated. Seed yields were 200 and 260 kg ha⁻¹ in 2000 and 2001, respectively, under rainfall conditions at Mead, NE.

NU-ARS AC2 has an erect, caespitose growth habit typical of crested wheatgrasses. Its culms and leaves are glabrous and non-glacuous, and leaf margins are smooth. Leaves are green-
Registration of ‘McCormick’ Wheat

‘McCormick’ (Reg. no. CV-959, PI 632691) is a soft red winter wheat (*Triticum aestivum* L.) developed and released late, awned glumes. At 41°/H11034 N lat. in the central Great Plains, May 2002 by the Virginia Agricultural Experiment Station. McCormick wheat was named in tribute of Robert Hall of Walnut Grove in Rockbridge County, VA, and his sons, including Cyrus Hall McCormick, William Sanderson McCormick, and Leander James McCormick. Their inventing, perfecting, manufacturing, and marketing of the mechanical grain reaper ushered in the era of modern agriculture and wrought one of the greatest advancements in agricultural history. McCormick wheat is broadly adapted and has performed well over most of the soft red winter wheat production region. In addition to high grain yield and volume weight, McCormick provides the wheat industry with a good pastry-quality cultivar that has resistance to most disease and insect pests prevalent in the region.

McCormick was derived from the cross VA92-51-39/AL870365. The parentage of VA92-51-39 is IN71761A-A4-31-5-48/VA71-54-147 (CItr 17449)’/McNair 1813’ (CItr 152899). Wheats line IN71761A-A4-31-5-48 was developed by Purdue University and has the pedigree ‘Benhurst’ (CItr 140543)/3’Arthurs’ (CItr 144259)/’Knox’ (CItr12798) type line/4’Beau’ (CItr17420) 2/3/Atharur/2’Riley’ (Clt 13702)/Bulgaria 88’ (PI 94407). The Knox type line has gene H5 for Hessian fly [*Mayetia destructor* (Say)] resistance. The parental line AL870365 was derived from the cross ‘Coker 74’ (CItr 17923)’/2’Amigo’ (PI 578213) by the Coker Breeding Program now a part of Syngenta and was selected as a parent from the 1990–1991 USDA-ARS Uniform Eastern Soft Red Winter Wheat Nus-ery. McCormick possesses the LAL1IRS translocation derived from AL870365, which inherited it from Amigo (Sebesta et al., 1995). The cross from which McCormick originated was made in spring 1992, and the F1 generation was grown in the field at Warsaw, VA, as a single 1.2-m headrow in 1993 to produce F2 seed. The population was advanced from the F2 to F3 generation using a modified bulk breeding method. Wheat spikes were selected from the population in each segregating generation (F2–F6) on the basis of disease resistance, early maturity, short straw, and desirable head shape and size. Selected spikes were threshed individually and planted in separate 1.2-m headrows at Warsaw, VA. McCormick was derived as a bulk of one of these F5 headrows selected in 1997 on the basis of earliness of head emergence, short plant height, and resistance to powdery mildew [caused by *Erisyphe graminis* DC. *sp. tritici* Em. Marchal; syn. *Blumeria graminis* (DC) E.O. Speer] and leaf rust (caused by *Puccinia triticina* Cathey, H.M. 1990. USDA plant hardiness zone map. USDA Misc. Pub. No. 1475. U.S. National Arboretum, Agricultural Research Service, U.S.A., Washington, DC. (1998 U.S. National Arbore- tum “Web Version” is available at www.usna.usda.gov/Hardzone/ushzmap.html, verified 20 September 2004).


Munsell Color (Firm), Baltimore, MD.

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