

**NEBRASKA AGRICULTURAL EXPERIMENT STATION
UNIVERSITY OF NEBRASKA-LINCOLN
DEPARTMENT OF AGRONOMY AND HORTICULTURE**

and

**IOWA AGRICULTURAL EXPERIMENT STATION
IOWA STATE UNIVERSITY
DEPARTMENT OF AGRONOMY**

RELEASE OF NE426GT TRITICALE

NE426GT is a grain and fall forage winter triticale (*X.Triticosecale rimpaii* Wittm.) cultivar developed cooperatively by the Nebraska Agricultural Experiment Station and the Iowa Agriculture Experiment Station. It was jointly released in 2004 by the developing institutions. NE426GT was selected from the cross WB-UW24/TxTcl #50/Fain Triticale/Centurk 78//NE69150/6TA876 x Unknown (probably 6A365/NE69150). WB-UW24 is a line of unknown pedigree that was sent to the program in the late 1980s as part of an international nursery. The cross was made in 1989 at the University of Nebraska. NE426GT is an F₃-derived F₄ line that was selected in 1995 for its high grain yield potential. It released primarily for its superior grain production and fall forage production in rainfed winter cereal production systems in Nebraska and Iowa and surrounding areas with a similar climate.

NE426GT is an awned, white-glumed cultivar whose primary use will be as an annual grain or forage crop. Its field appearance is most similar to Newcale (Baenziger and Schmidt, 1991). Kernels are red colored, elliptical, large, and slightly wrinkled (as is common with triticale). After heading, the canopy is moderately closed and upright. The flag leaf is recurved and not twisted at the boot stage. The foliage is green with a waxy bloom at anthesis. The peduncle is pubescent. The spike is narrow, oblong in shape, mid-long to long, and middense. The glume is pubescent, tan, narrow, and long and the glume shoulder is wanting. The beak has an acuminate tip. The spike is usually nodding at maturity. Based on plump kernels, the kernel has no collar, a large brush of medium length, rounded cheeks, large germ, and a narrow and deep crease.

NE426GT was performance tested as NE95T426 in Nebraska grain yield nurseries starting in 1997 and in forage yield trials in 2001 to 2003 in Kansas (<http://www.wkarc.org/Research/ARCH/Soil/2003%20web%20pub.pdf>, verified January 15, 2004). In Nebraska (19 environments), NE426GT has very good grain yield (4180 kg/ha) for a grain triticale. The grain yield was higher than Presto (PI 564442, 3580 kg/ha), and much higher than forage triticale cultivars (NE422T, 2890 kg/ha; Trical [most likely Trical 100], 2380 kg/ha). For comparison, the grain yield of Arapahoe (Baenziger et al., 1989) was 3120 kg/ha, which is lower than the grain triticale yields and might be explained by triticale yield nurseries generally be planted near, but earlier than the wheat yield trials. In two years of testing in Iowa (10 environments), NE426GT had excellent grain yield (5720 kg/ha) as compared to Presto (5071 kg/ha), Trical (3850 kg/ha), NE422T (4040 kg/ha), or the wheat check Arapahoe (3950 kg/ha). In three years of forage testing in Kansas cultivar performance trials, NE426GT has performed well in the early fall, but it is not a haying triticale like NE422T (Baenziger and Vogel, 2003). The main advantages of NE426GT when compared to most other grain and forage triticale cultivars, within its area of adaptation, is its very high grain yield coupled with its relatively high fall forage yield. As such, it will be used as a feed grain triticale and as a component of forage triticale blends.

Other measurements of performance from comparison trials show that NE426GT is medium in maturity, about 0.5 days earlier than Presto, 1 day earlier than Arapahoe, and 6 days earlier than NE422T. The mature plant height of NE426GT, a medium tall triticale (47 in; 120 cm) is 4 in (10 cm) taller than Presto, 6 in (15 cm) taller than Arapahoe, and 13 in (33 cm) shorter than NE426GT. NE426GT has moderate straw strength as measured by lodging, similar to Presto and better than Arapahoe and NE422T. The winter hardiness of NE426GT would be considered as good, similar to NE422T0 which is one of the most winter hardy triticale cultivars currently available to growers, and comparable to an average winter wheat for this trait. No winter damage was noted on NE426GT in nursery sites in Iowa, including two sites about 60 km south of the Minnesota border (Sutherland and Nashua).

Based on field observations, NE426GT is moderately resistant to the currently prevalent races of stem rust (caused by *Puccinia graminis Pers.: Pers. f. sp. tritici* Eriks & E. Henn; most likely containing *Sr31*) and leaf rust (caused by *P. triticina* Eriks.). Like most ryes and triticales, NE426GT is moderately resistant to wheat streak mosaic virus. Ergot (*Claviceps purpurea* (Fr:Fr) Tul.) has not been found in the cultivar when the disease was present in the other triticales under similar growing conditions. NE426GT (51.8 lbs/bu, 66.6 kg/hl) has an above average grain volume weight for triticale (where the standard is 48 lbs/bu, 61.8 kg/hl). The 1000 kernel weight of NE426GT is large (32.3 g) when compared to Presto (29.5 g) and Arapahoe (28.6 g).

In positioning NE426GT, based on performance data to date, it should be well adapted to most rainfed winter annual grain production systems in Nebraska, Iowa, and in regions with similar climates in adjacent states. It will also have good fall forage potential in Nebraska and Kansas.

NE426GT has been uniform and stable since 1999. Less than 0.1 % of the plants were rogued from the Breeder's seed increase in 1999. The rogued variant plants were mainly taller in height (10 - 20 cm, 1:1,000 plants). Up to 1% (10:1000) variant plants may be encountered in subsequent generations. The Nebraska Foundation Seed Division, Department of Agronomy, University of Nebraska-Lincoln, Lincoln, NE 68583 had NE426GT foundation seed available to qualified certified seed enterprises in 2003. The seed classes will be Breeder, Foundation, Registered, and Certified. The Registered seed class will be a nonsalable seed class. A research and development fee will be assessed on certified seed sales.

Development Team: P. S. Baenziger (UNL) and Jean-Luc Jannink and Lance R. Gibson (ISU)

Approval

Director, Nebraska Agricultural
Experiment Station

date

Director, Iowa Agricultural
Experiment Station

date

Baenziger, P.S., and J.W. Schmidt. 1991. Registration of 'Newcale' winter triticale. *Crop Sci* 31:489-490.

Baenziger, P.S., and K.P. Vogel. 2003. Registration of 'NE422T' winter triticale. *Crop Sci* 43:434-435.
Baenziger, P.S., J.W. Schmidt, C.J. Peterson, V.A. Johnson, P.J. Mattern, A.F. Dreier, D.V. McVey, and
J.H. Hatchett. 1989. Registration of 'Arapahoe' wheat. *Crop Sci* 29:832.