Registration of 'Nuwest' Wheat

'Nuwest' (Reg. no. CV-812, PI 586806), a hard white winter wheat (Triticum aestivum L.) cultivar, was developed and released by the Montana Agricultural Experiment Station in 1994. Nuwest resulted from the increase of an F3-derived FS headrow selected in 1976 from the cross 'Froid'/'Winoka'/MT6928/‘Trader’. MT6928 was a high-yielding, semidwarf line selected from the cross TX55-391-56-D8/‘Westmont’. Following subsequent reselection for uniformity, Nuwest was evaluated as MT7811 in the Montana pre-priminary and intrastate yield nurseries from 1979 to 1994 (except 1992), and in the Northern Regional Winter Wheat Performance Nursery in 1989 and 1990. Nuwest was released because of its yield performance and broad adaptation to Montana environments, as well as its potential for marketing at a premium price in the U.S. domestic market.

Kernels of Nuwest are hard, white, and elliptical, with a large germ and a midlong brush. Kernel cheeks are rounded, with a narrow, straight crease. Breeder seed, produced through headrow-linerow selection from 1990 to 1992, contains approximately 1 red kernel per 1500 kernels. Spikes of Nuwest are white-glumed, awned, and erect at maturity.

In the Montana Intrastate Nursery from 1987 to 1994 (44 location-years), grain yield of Nuwest (3957 kg ha⁻¹) was 6 and 1% higher than the predominant cultivars Redwin and Tiber, respectively, and 2, 4, and 5% lower than 'Rocky', 'Neeley', and 'Judith', respectively. Yield stability of Nuwest is similar to Neeley and Tiber. Grain volume weight of Nuwest (762 kg m⁻³) is medium to low, averaging 14 kg m⁻³ higher than Judith, but 10 to 15 kg m⁻³ lower than Rocky, Tiber, and Redwin. Winterhardiness of Nuwest is comparable to Tiber and Redwin, which is adequate for most production areas of Montana. Nuwest is medium in height, heading 2 d later than Rocky and 3 d earlier than Neeley. Nuwest is similar in height to Judith and Neeley and 3 to 5 cm shorter than Rocky, Tiber, and Redwin. Straw strength and lodging resistance of Nuwest is superior to Neeley and Rocky. Coleoptile length of Nuwest is short, similar to that of 'Norwin' and 'Alliance' and about 30% shorter than Rocky and Neeley. At Bozeman, MT, in 1993, after prolonged exposure to excess moisture at maturity, Nuwest exhibited resistance to preharvest sprouting (falling number evaluation) intermediate to Judith (sprint susceptible) and Redwin (sprint resistant) hard red winter wheats.

Based on 6 yr (34 location-years) of cereal quality evaluation at Montana State University, Nuwest meets domestic quality criteria for high-quality bread flour production. Grain and flour protein content of Nuwest is less than that of Redwin, but similar to slightly higher than Neeley, Tiber, and Rocky. Nuwest has high flour yield, low farinograph absorption, and medium dough mixing characteristics similar to Rocky, with a relatively short mix time and intermediate dough stability. Loaf volume and internal grain and texture characteristics of Nuwest are similar to those of Tiber and Neeley.

Nuwest is resistant to prevalent races of stem rust (caused by Puccinia graminis Pers.:Pers.) observed in Montana. Nuwest is susceptible to leaf rust (caused by P. recondita Roberge ex Desmaz.), wheat streak mosaic virus, dwarf bunt (caused by Tilletia controversa Kühn in Rabenh.), and cephalosporium stripe (caused by Hymenula cerealis Ellis & Everh.; syn. Cephalosporium graminicium Nisikado & Ikata) and is moderately susceptible to stripe rust (caused by P. striiformis Westend.). Nuwest is susceptible to Russian wheat aphid [Diuraphis noxia (Mordvilko)] and the wheat stem sawfly (Cephus cinctus Norton).

Western Plant Breeders, Inc., Bozeman, MT, was granted an exclusive license to market seed and grain of Nuwest. Nuwest will be protected under the U.S. Plant Variety Protection Act. Breeder and Foundation seed of Nuwest will be maintained by the Foundation Seed Stock Program, Dep. of Plant, Soil and Environmental Sciences, Montana State University, Bozeman, MT 59717.

References and Notes


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Registration of 'Hazen' Wheat

'Hazen' soft red winter wheat (Triticum aestivum L.) (Reg. no. CV-817, PI 587171) was developed by the Arkansas Agricultural Experiment Station. It was released in 1994 because of its superior combination of high yield and high test weight.

Hazen originated from the cross 'Doublecrop'/‘Beau’ (1). AR 26413, was derived from a single F2 head using modified pedigree selection and was phenotypically mixed for head type, maturity, and head color. In 1988, 100 white, awned heads were selected and subsequently planted as headrows in 1989. Forty-four headrows were selected and planted as individual increase strips in 1990 and selected for uniformity. The seed from the 40 selected strips was bulked as AR 26413A, which was tested in the Uniform Southern Soft Red Winter Wheat Nursery from 1991 to 1993. Since 1991, it has been tested in the Arkansas Small-Grain Cultivar Performance Trials.

Hazen has shown excellent adaptation at all Arkansas test sites except for those in the extreme Southwestern part. In High Input State Performance trials, averaged across three years and five locations, Hazen did not differ in grain yield from the highest-yielding entry or in test weight from the highest test weight entry. Compared with 'Wakefield', it is equal in yield potential (6250 kg ha⁻¹), has approximately 15 kg m⁻³ heavier test weight, is 1 d earlier in maturity, and is 5 cm shorter under Arkansas conditions.

Hazen is similar to Florida 304 in plant type, except that it is ~4 cm shorter and has bluer leaves. Peduncles are generally snaky, and spikes are awned, middense, fusiform, and inclined at maturity. The white glumes are glabrous, midlong, and midwide, with wanting shoulders and acuminate beaks. Kernels are red, midlong, and ovate, with a midsized germ; the kernel brush is large and midlong; the kernel crease is midwide and middeep with rounded cheeks. Offtypes (0.5% or less) include awnless spikes, tall plants (awned and awnless), and bronze-colored awnless spikes. It has excellent straw strength and is moderately resistant to leaf rust (caused by Puccinia recondita Roberge ex Desmaz.), the soliborne virus complex (soliborne mosaic and wheat streak soliborne mosaic viruses), and bacterial streak (caused by Xanthomonas campestris pv. translucens). According to seedling tests from the USDA Cereal Rust Laboratory, Hazen contains resistance genes Sr11 and Sr10, plus unidentified genes for leaf and stem rust. The combined quality score from the USDA Soft Wheat Quality Laboratory at Wooster, OH, indicates acceptable milling and baking characteristics.

Hazen was named for Hazen, Arkansas, located in the Grand Prairie region of the state, to signify its adaptation to the area and...