New Varieties and Germplasms

The following is only a partial list of new wheat varieties and germplasms available in the region. Included are those for which we have current information.

VARIETIES

The Nebraska Agricultural Experiment Station and USDA-ARS announced the release of 'Windstar' hard red winter wheat. Windstar is an F3 derived line from the cross 'TX79A2729//Caldwell/Brule sel./3/Siouxland' and was tested in the NRPN in 1993 and 1994 as NE90625. Windstar is a tall semidwarf, similar in height to Niobrara and Rawhide, with short coleoptile, and it matures one day later than Arapahoe. It possesses Sr 6 and Sr 24 for resistance to stem rust, is moderately susceptible to leaf rust, and is susceptible to Hessian fly, the Russian wheat aphid, and soilborne-mosaic virus. Winterhardiness is comparable to other Nebraska varieties currently under production. Windstar has slightly lower test weight, similar to Alliance and Vista, and has acceptable milling and baking qualities. Windstar is recommended for the dryland production areas of the Nebraska Panhandle and western South Dakota.

The Texas Agricultural Experiment Station announced the release of 'TAM-110' hard red winter wheat. TAM-110 has the pedigree 'TAM-105*4/Amigo*5//Largo'. It was tested in the WPRPN in 1994 and 1995 and the SRPN in 1996 as TXGH12588-105. TAM-110 is unique among hard red winter wheat cultivars in its resistance to greenbug biotypes E and I, which are the currently predominate biotypes. It is also resistant to all previously known field biotypes. TAM-110 carries the 1AL-1RS translocation, which provides for tolerance to the wheat curl mite. TAM-110 is daylength neutral and similar to TAM-107 in plant height, maturity, and grain yield. Quality characteristics have been at least as good as those of TAM-107 and TAM-200, with grain protein content 0.5-1.0% higher than TAM-101 or TAM-200.

The Montana Agricultural Experiment Station announced the release of three hard red winter wheats in 1996: 'McGuire' (PI593890), 'Rampart' (PI593889), and 'Erhardt' (PI564761).

McGuire is an F4 derived selection from the cross 'Plainsman V/MT77003//NE7060/Froid' and was tested in the NRPN in 1995 and 1996 as MT88046. McGuire was released based on its superior protein content and milling and baking characteristics. McGuire has a long coleoptile, strong straw, and plant height similar to Arapahoe. Its maturity is similar to Arapahoe and one to two days earlier than Rocky or Judith. Winterhardiness of McGuire is similar to Tiber and

adequate for most production areas of Montana. McGuire is postulated to carry Sr10 and other unidentified genes for resistance to stem rust and is susceptible to leaf rust, stripe rust, dwarf bunt, WSMV, Russian wheat aphid, and wheat stem sawfly. McGuire has averaged over a full percentage point higher grain protein than Redwin. It has strong mixing characteristics, superior loaf volume and loaf grain and texture, and meets quality criteria for high-quality bread flour production.

Erhardt is an F4 derived selection from the cross 'Roughrider/MT6928'. MT6928 is a high yielding semidwarf from the cross 'TX55-391-56-D8/Westmont'. Erhardt was tested in the 1992 and 1993 NRPN as MT8719. Erhardt was released based on its relatively high winterhardiness combined with improved yield potential and reduced height. It is medium maturity, two days later than Judith, and intermediate in height, 9 cm shorter than Redwin. Erhardt has coleoptile length similar to Rocky and Neeley and winterhardiness similar to Roughrider and Norwin. Erhardt expresses adult plant resistance to stem rust, is resistant to tan spot, and is susceptible to leaf rust, stripe rust, dwarf bunt, WSMV, Russian wheat aphid, and wheat stem sawfly. It is heterogeneous for resistance to Hessian fly. Erhardt has protein content similar to Redwin with moderate dough strength, relatively short mix times, and excellent loaf volume and internal loaf characteristics.

Rampart is an F5 selection from the cross 'Lew/Tiber//Redwin' and was tested in the NRPN in 1996 and 1997 as MTS92042. Rampart expresses high levels of stem solidness and shows tolerance to feeding and cutting damage of the wheat stem sawfly. Rampart will supplement and/or replace Vanguard, which is a sib selection and the only other sawfly tolerant wheat available for Montana producers. Rampart is medium maturity, heading one day later than Rocky and Judith, and similar in height to Judith and Neeley with tendency to lodge under high yield conditions. It has a very long coleoptile, averaging 10 to 20 mm longer than the conventional height cultivars Rocky and Neeley. Rampart is resistant to stem rust and has field tolerance to WSVM, but is susceptible to leaf rust, stripe rust, dwarf bunt, and Russian wheat aphid. Grain protein content of Rampart is similar to Redwin with strong dough mixing requirements, relatively long mix time, and loaf volume and internal characteristics similar to Judith and Redwin.

The Oklahoma Agricultural Experiment Station has announced the release of '2174' hard red winter wheat. 2174 is derived from the cross 'IL 71-5662/PL145//2165'and was tested in the SRPN in 1994 and 1995 as HBZ374C. 2174 originated from the hard winter wheat germplasm donated to Kansas State University by Pioneer Hi-bred

International. 2174 was released for its stable grain yield potential in Oklahoma and tolerance to acid soils. Acid soil tolerance of 2174 is slightly less than 2163. It has a relatively long coleoptile and is resistant to SBMV. 2174 expresses adult plant resistance to leaf rust. Test weights of 2174 have been higher than 2137 or Jagger, and similar to Custer. 2174 has been targeted for production in central and north-central Oklahoma.

HybriTech Seed International has indicated the intent to release Quantum 7406 hybrid hard red winter wheat for commercial production in 1997. Quantum 7406 was tested in the 1994 and 1995 SRPN as XH1706. It has high yield potential and excellent winterhardiness. It has good protection to tan spot, stem rust, and powdery mildew; resistance to SBMV; moderate susceptibility to leaf rust and Septoria tritici; and is susceptible to WSMV and Hessian fly. Quantum 7406 is primarily targeted for production in western Kansas, eastern Colorado, and southwest Nebraska, with secondary adaptation to irrigated areas of the southern High Plains.

Hybrid wheats formerly released by Agripro Seeds, Inc., are now being marketed by HybriTech Seed International under the Quantum label. The Agripro hybrids AP7501, AP7510, and AP7601 are now designated as 'Quantum AP7501', 'Quantum AP7510', and 'Quantum AP7601', respectively. Quantum AP7501 was tested in the 1995 SRPN as AP7501 and Quantum AP7510 was tested in the 1995 and 1996 SRPN as WX92-0408.

GERMPLASM

The USDA-ARS and University of Nebraska announced the release of five hard red winter wheat genetic stocks carrying null alleles at the Glu-D1 locus. N86L090 (PI591816) is an F3 derived line from the cross 'Brule/3/Atlas66/NapHal//Lancota sib/Aurora' and also carries the 1BL-1RS translocation. N94L7843 (PI591817), N94L7844 (PI591818), N94L7845 (PI591819) and N94L7846 (PI591820) were F3 derived selections from the cross 'GKF-8261//NapHal/CI13449/3/NE78868'. Nap Hal is likely the source of the Glu-D1 null-allele in all five lines. The genetic stocks are notable for their significant loss of flour dough strength and mixing performance while having protein content similar to Lancota. The stocks may be useful in genetic studies to test quality effects of new HMW glutenin alleles in adapted genetic backgrounds, or to develop wheats with reduced gluten strength and highly extensible doughs.