Registration of ‘Rampart’ Wheat

Rampart, a hard red winter wheat (Triticum aestivum L.) cultivar (Reg. no. CV-845, PI 593889) with tolerance to damage caused by wheat stem sawfly (Cephus cinctus Norton), was developed and released by the Montana Agricultural Experiment Station in 1996. Rampart resulted from an F2 selection from the cross ‘Lew’/’Tiber’/’Redwin’. Lew is the source of sawfly resistance (1). Rampart was evaluated as MT929042 in Montana Preliminary, Intrasrate, and Off-Station yield nurseries from 1992 to 1996 and in the Northern Regional Winter Wheat Performance Nursery in 1996. Following selection for stem solidness and uniformity in F7 headrows and F3 linerows during 1993 and 1994, 103 linerows were bulked as breeder seed. Rampart will supplement and/or replace ‘Vanguard’ (2), a sil selection which is currently the only other sawfly-tolerant winter wheat available for Montana producers.

Rampart is a bronze-chaffed cultivar with awned spikes. Kernels are hard, red, and long, with a sloped back, a midsized germ, and a heavy brush. Kernel cheeks are rounded to angular, with an open crease. Coleoptile length of Rampart is very long, averaging 10.20 mm longer than the conventional-height cultivars Vanguard, Rocky, and Neeley in replicated growth chamber evaluation (dark) at 20°C for 12 d. Rampart has some field tolerance to wheat streak mosaic virus (WSMV), or its vector, wheat curl mite (Aceria tosichella Keifer), in Montana. Rampart is resistant to prevalent races of stem rust (caused by Puccinia graminis Pers.-Pers.) but susceptible to leaf rust (caused by P. recondita Roberge ex Desmaz.), stripe rust (caused by P. striiformis Westend.), dwarf bunt (caused by Tilletia controversa Kühn in Rabenh.), and Russian wheat aphid (Diuraphis noxia Mordvilko).

Rampart is medium in maturity, heading about 1 d later than Rocky and ‘Judith’ but 2 to 3 d earlier than Neeley. Rampart is similar in height to Judith, Neeley, and Vanguard (86 cm, 36 environments), with a tendency to lodge, particularly in high-yield environments. Winterhardiness of Rampart is similar to Vanguard, Rocky, and ‘Centurk’. Rampart expresses high levels of stem solidness in most environments, and like other solid-stemmed genotypes, shows lower levels of larval infestation, reduced feeding damage, and less head weight reduction than hollow-stemmed genotypes (3). Additionally, stem solidness reduces the numbers of larvae which cut stems and reach a successful overwintering position (3). Rampart is resistant to feeding and cutting damage of wheat stem sawfly based on limited yield testing under moderate to heavy sawfly infestations. Grain yield of Rampart resulted from an FS selection from the cross ‘Lew’/’Tiber’/’Redwin’. Lew is the source of sawfly resistance (1). Rampart was evaluated as MT929042 in Montana Preliminary, Intrasrate, and Off-Station yield nurseries from 1992 to 1996 and in the Northern Regional Winter Wheat Performance Nursery in 1996. Following selection for stem solidness and uniformity in F7 headrows and F3 linerows during 1993 and 1994, 103 linerows were bulked as breeder seed. Rampart will supplement and/or replace ‘Vanguard’ (2), a sil selection which is currently the only other sawfly-tolerant winter wheat available for Montana producers.

Based on 3 yr (11 location-years) of cereal quality evaluation at Montana State University, Rampart meets domestic quality criteria for high-quality bread flour production. Grain protein content of Rampart (23 sites) is similar to that of Rocky, Redwin, Vanguard, and Neeley and higher than most wheat cultivars, Neeley, Judith, and Rocky, respectively, and 5 and 11% higher than Redwin and Vanguard, respectively. Grain volume weight of Rampart (774 kg m⁻¹) is similar to that of Rocky, Redwin, and Vanguard and higher than volume weights of Judith and Neeley.

References and Notes


‘Erhardt’ hard red winter wheat (Triticum aestivum L.) (Reg. no. CV-846, PI 556761) was developed and released by the Montana Agricultural Experiment Station in 1996. Erhardt is named in honor of Erhardt R. Hehn, former winter wheat breeder and Head, Plant & Soil Science Dep., Montana State University. Erhardt was selected and bulked as an F4-derived F2 headrow in 1985 from the cross ‘Roughrider’/’MT6928’. MT6928 is a high-yielding semidwarf selection from the cross, TX55-391-56-D8/’Westmont’. The pedigree of TX55-391-56-D8 is ‘Sinalocho’/’Wichita’/’Hope’/’Cheyenne’/3’Wichita’/4’/SeuSeu 27’. Erhardt was evaluated as MT8719 in Montana Preliminary, Intrasrate, and Off-Station yield nurseries from 1987 to 1996 and in the Northern Regional Winter Wheat Performance Nursery in 1992 and 1993. Following selection for uniformity in F3 headrows and F4 linerows in 1993 and 1994, 130 linerows were bulked as breeder seed. Erhardt was released to Montana producers based on its relatively high winterhardiness combined with improved yield potential and reduced height. Erhardt is adapted to areas of Montana where a moderate to high level of winterhardiness is required.

Erhardt is an awned, white-glummed cultivar. Kernels are hard, red, elliptical, and medium to long (6.0 mm), with a straight back, a midsized germ, and a medium to short brush. Kernel cheeks are rounded with a crease that varies from tight at the germ end to more open at the brush end. Seed coat texture is rough. Coleoptile length of Erhardt (87 mm) is similar to ‘Rocky’ and ‘Neeley’ in replicated growth chamber evaluation (dark) at 20°C for 12 d. In field tests at Bozeman, MT, and at the USDA Cereal Rust Laboratory, St. Paul, MN, Erhardt expressed adult-plant resistance to prevalent races of stem rust (caused by Puccinia graminis Pers.-Pers.) and was resistant to tan spot (caused by Pyrenophora tritici-repentis (Died.) Drechs.), based on seedling reaction in the greenhouse. Erhardt is susceptible to leaf rust (caused by P. recondita Roberge ex Desmaz.), stripe rust (caused by P. striiformis Westend.), dwarf bunt (caused by Tilletia controversa Kühn in Rabenh.), and wheat streak mosaic virus (WSMV). Erhardt is...