REGISTRATIONS OF CULTIVARS

Registration of ‘Hopewell’ Wheat

‘Hopewell’ soft red winter wheat (*Triticum aestivum* L.) (Reg. no. CV-909, PI 595678) was developed by the Ohio State University-Ohio Agricultural Research and Development Center (OSU-OARDC) and released in February 1995. Previous experimental numbers for Hopewell were ‘R19182B-33-2’ and ‘OH490’. Hopewell was released because of its superior yields, excellent straw strength, and diverse pedigree. Hopewell was named after the Native American mound building peoples that flourished in the Ohio valley 2100 yr ago.

Hopewell’s pedigree is ‘Logan’/‘Hart’/‘3270A/Rousalka’/3/TN1685/IA22’/6767/216-6-3 (Lafever, 1968; Sechler et al., 1977). 3270A was an Ohio experimental line with the pedigree: 2669F2/Logan. 2669F2 was an Ohio experimental F2 population with the pedigree ‘S410’/Logan/Logan/‘Arthur’ (Patterson et al., 1974). S410 was a dwarf spring wheat of unknown ancestry. TN1685 was an Ohio experimental line from the cross ‘Heines VII’/Pur5752cl-7/‘Balbot’ (Whiteside and Gfeller, 1966). Pur5752cl-7 was an Indiana AES experimental line. 6767 was an Ohio experimental line with the pedigree TN1493/Pur 5724B3-5P-8-2. TN1493 was an Ohio experimental line with the pedigree ‘Redcoat’/TN1345 (Patterson et al., 1978). TN1345 was an Ohio experimental line with the pedigree ‘Lucas/Citr 12530 (Heyne, 1960). Materials received through the International Rust and Powdery Mildew Nursery Program include Rousalka (P1520076), a winter wheat cultivar developed by CIMMYT; ‘IA22’ (IAPAR 22-Guarauna), a *T. aestivum* cultivar developed in Brazil; and 216-6-3, a French experimental line of unknown pedigree possessing resistance to *Stagonospora nodorum* (Berk.) Castellani & E.G. Germano.

The final cross, designated R19182B, was made by H.N. Lafever in 1982. The population R19182B was advanced without selection to the F3 generation at the OSU-OARDC search farm, Wooster OH. Thirty spikes were harvested randomly. The F4 generation was evaluated for maturity, height, and disease resistance as 30 hill plots, each containing grain from a single F3 spike. Two spikes were selected from a single F4 hill plot based on visual selection for height, heading date, and resistance to powdery mildew (caused by *Erysiphe graminis* D.C. f. sp. *tritici* Ém. Marchal; syn. *Blumeria graminis* (DC.) E.O. Speer). The F5 generation was evaluated for maturity, height, and disease resistance as two hill plots, each containing grain from a single F4 spike. Two spikes were selected from a single F4 hill plot based on visual selection for height, heading date, and resistance to powdery mildew, glume blotch, leaf rust (caused by *Puccinia triticina* Eriks.), standability, and uniformity. Harvested grain was evaluated for yield, test weight, and milling and baking quality. R19182B-33-2 was advanced from the F7-F10 generation in replicated yield trials, initially at Wooster and then throughout Ohio. R19182B-33-2 was renamed OH490 in 1994 after six more generations of development. OH490 is sold as a class of Certified Seed. U.S. Plantsimilarity of heading date, height, plant and spike morphology.

Selected hill plots were harvested and advanced with selection for uniformity for two more generations. In 1994, selection was compiled from selected uniform pur-crease drill strips and grown as Breeder’s Seed by the OARDC Seed, Croton, OH.

The juvenile growth habit of Hopewell is erect at Zadoks growth stage 45 (boot stage) is darker than Freedom (11.04; x = 0.327; y = 0.428), as determined by the USDA Cr-300 Chroma meter using the CIE Yxy color model (Nolta Corp., Ramsey, NJ). Stems are hollow with auricles and stipe possess anthocyanin. Spikes are moderate; average 72 mm in length at maturity. Hopewell awnlets, with tip awns measuring 18 to 20 mm long. The last rachis internode is glabrous. Glumes are medium long, and wide with oblique shoulders and no visible beaks. Chaff is red (Y = 20.31; x = 0.384; y = 0.308) Hopewell’s phenol reaction is dark brown. Kernels are surrounded by a medium and shallow crescent, with is medium and noncollared. Kernels average 6.8 mm in length, 3.4 mm in width, and 33 mg in weight. Uniformity has been observed across four generations at the breeding release. In Breeder Seed nurseries, Hopewell exhibited a total variants involving tall plants, awned spikes exhibiting bluegreen coloration.

In 22 location–years of replicated yield trials between 1991 and 1994, Hopewell averaged 4465 kg ha−1, compared with Freedom (4371.2 kg ha−1) (Golub et al., 1997). At locations in northern and western Ohio, the yield of the wheat crop is grown, Hopewell averaged 451 kg ha−1, as compared with 4351.1 kg ha−1 for Freedom. The yield of Hopewell (72.9 kg hL−1) was slightly better than that of Freedom (72.1 kg hL−1). Hopewell’s heading date was slightly earlier than Freedom (Day of Year 144 vs. 147). Strain of Hopewell was good, with 1.3% lodging recorded across 22 location–years. Plant height of Hopewell was 86.4 cm, as compared with 88.9 cm for Freedom.

Hopewell carries no known resistance genes that are determined by the USDA Cereal Disease laboratory and is considered moderately susceptible to *Fusarium graminearum* (Pershad et al., 1994). Hopewell carries powdery mildew resistance gene *Pm6* (no longer effective against prevalent races of powdery mildew in Ohio) (Pershad et al., 1994). Hopewell’s level of partial resistance to powdery mildew was consistently rated 5 on a 1 to 10 scale of resistance trait across 4 yr of disease trials (Lipps and Mariano, 1974). Hopewell has no known resistance genes for *Fusarium graminearum* Schwabe). Hopewell is considered to possess adequate soft wheat milling and baking quality, as determined by tests at the USDA-ARS Soft Wheat Quality Laboratory in Wooster, OH. Data reported in this publication were obtained from yield, test weight, and milling and baking quality, as determined by the USDA Cereal Disease laboratory in St. Paul, MN, and is considered moderately susceptible to *Fusarium graminearum* in field ratings and is moderately susceptible (caused by *Fusarium graminearum* Schwabe), Hopewell carries powdery mildew resistance gene *Pm6* (no longer effective against prevalent races of powdery mildew in Ohio) (Pershad et al., 1994). Hopewell’s level of partial resistance to powdery mildew was consistently rated 5 on a 1 to 10 scale of resistance trait across 4 yr of disease trials (Lipps and Mariano, 1974). Hopewell has no known resistance genes for *Fusarium graminearum* Schwabe). Hopewell is considered to possess adequate soft wheat milling and baking quality, as determined by tests at the USDA-ARS Soft Wheat Quality Laboratory in Wooster, OH. Data reported in this publication were obtained from yield, test weight, and milling and baking quality, as determined by the USDA Cereal Disease laboratory in St. Paul, MN, and is considered moderately susceptible to *Fusarium graminearum* in field ratings and is moderately susceptible (caused by *Fusarium graminearum* Schwabe).