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; Secher et al., 1977). 3270A was an Ohio experimental line with the pedigree: 2669F/Logan. 2669F 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/’Tarbot’ (Whiteside and Gfeller, 1964). 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/CItlr 12530 (Heyne, 1960). Materials received through the International Rust and Powdery Mildew Nursery Program include Rousalka (PI520076), 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 research 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 F5 hill plot based on visual selection for height, heading date, and resistance to powdery mildew. Glume blotch, leaf rust (caused by *Puccinia graminis* 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-F9 generation in replicated yield trials, initially at Wooster and then throughout Ohio. R19182B-33-2 was renamed OH490 in 1994.

Selected hill plots were harvested and advanced with selection for uniformity for two more generations. In 1994, registration was compiled from selected uniform putative pure line drill strips and grown as Breeder Seed by John Saether, Seed Production, Croton, OH.

The juvenile growth habit of Hopewell is erect at Zadoks growth stage 45 (boot stage) is dark green

11.04; x = 0.327; y = 0.428), as determined by the Cr-300 Chroma meter using the CIE Yxy color system (Datacolor Corp., Ramsey, NJ). Stems are hollow with oblique shoulders and auricles possess anthocyanin. Spikes are mostly 72 mm in length at maturity. Hopewell awned 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 beaks. Chaff is red (Y = 20.31; x = 0.384; y = 0.428). Hopewell’s pheno reaction is dark brown. Kernels are surrounded by medium and shallow crescent, with 3.4 mm in width and 33 mg in weight. Uniformity was observed across four generational ratings. In Breeder Seed nurseries, Hopewell exhibited total variants of tall plants, awned spikes, and bluegreen coloration.

In 22 location–years of replicated yield trials between 1991 and 1994, Hopewell averaged 4465.3 kg ha−1, compared with Freedom (4371.2 kg ha−1) (Gooding et al., 1997). At locations in northern and western Ohio, the wheat crop is grown, Hopewell averaged 45 as compared with 4351.1 kg ha−1 for Freedom. The phenol reaction of Hopewell (72.9 kg hL−1) was slightly better than Freedom (72.1 kg hL−1). Hopewell’s heading date is earlier than Freedom (Day of Year 144 vs. 147). Stalks of Hopewell were good, with 1.3% lodging recorded across 4 yr of disease trials (Lipps and Madden, 1989).

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Hopewell carries no known resistance genes to rusts, as determined by the USDA Cereal Disease laboratory, St. Paul, MN, and is considered moderately susceptible to *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 carries moderate resistance to the glume blotch phase of powdery mildew in Ohio) (Pershad et al., 1994). Hopewell is sold as a class of Certified Seed. U.S. Plantsimilar to heading date, height, plant and spike morphology.