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 yield, 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: 2669F1/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/‘Telbot’ (Whiteside and Gfeller, 1964). Pur5752cl-7 was an Indiana AES experimental line. 6767 was an Ohio experimental line with the pedigree TN1493/Pur5724B3-5P-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/C/Itr 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 Èm. Marchal; syn. *Blumeria graminis* (D.C.) 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 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 F7F8 generation in replicated yield trials, initially at Wooster and then throughout Ohio. R19182B-33-2 was named and 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 pure lines, increased drill strips and grown as Breeders Seed by the Ohio State Seed Association, Wooster, OH. Hopewell was released as a class of Certified Seed. U.S. Plantsimilarity of heading date, height, plant and spike morphology.

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The juvenile growth habit of Hopewell is erect at Zadoks growth stage 45 (boot stage) is darker than Freedom (Day of Year 144 vs. 147). Straw strength and lodging were at the 7th to 11th percentile of all entries. The last rachis internode is glabrous. Glumes are medium long, and wide with oblique shoulders and acute beaks. Chaff is red (Y = 20.31; x = 0.384; y = 0.428). Hopewell’s phenol reaction is dark brown. Kernels are rounded checks and a medium and shallow crescent. The kernel is medium and noncollared. Kernels average 6.8 mg in length, 3.4 mm in width, and 33 mg in weight. Uniformity of Hopewell had been observed across four generations after release. In Breeder Seed nurseries, Hopewell exhibited a total variants involving tall plants, awned spikes, exhibiting bluenet coloration.

In 22 location-years of replicated yield trials between 1991 and 1994, Hopewell averaged 4466 kg ha−1, compared with Freedom (4371.2 kg ha−1) (Gottlieb et al., 1997). At locations in northern and western Ohio where the wheat crop is grown, Hopewell averaged 4351.1 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 Freedom (72.1 kg hL−1). Hopewell’s heading date was 3 d earlier than Freedom (Day of Year 144 vs. 147). Seed set 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 to Hessian Fly (*Mayetiola destructor* Say), as determined by the USDA-ARS Cereal Disease laboratory, St. Paul, MN, and is considered moderately susceptible to scab (*Fusarium graminearum* Schwabe). Hopewell carries powdery mildew resistance genes, *Pm6* (no longer effective against prevalent race of powdery mildew in Ohio) (Pershad et al., 1994). Hopewell has shown moderate resistance to the glume blotch (*Blumeria graminis* D.C. f. sp. tritici) in field ratings and is moderately susceptible (caused by *Fusarium graminearum* Schwabe). Hopewell is sold as a class of Certified Seed. U.S. Plantsimilarity of heading date, height, plant and spike morphology.