Registration of ‘Finch’ Wheat

Finch soft white winter wheat (Triticum aestivum L.) (Reg. no. CV-966, PI 628640) was developed by the USDA-ARS with assistance from the Washington Agricultural Experiment Station and the Oregon Agricultural Experiment Station and released in February 2001. Finch was released because of its yield potential and disease resistance combined with the excellent end-use quality characteristics desired for soft white wheat in the Pacific Northwest. Finch is best suited to the low to intermediate rainfall zones of Washington State, Oregon, and northern Idaho, especially south of U.S. Route 2.

The pedigree of Finch is ‘Dusty’ (Peterson et al., 1987)// WA7164/Dusty. The pedigree of WA7164 is ‘VPML’//Moisson951//‘Yamhill’ (Kronstad et al., 1972a)//‘Hyslop’ (Kronstad et al., 1972b). The final cross was made under the direction of R.E. Allan in 1985. The population was advanced without selection to the F2 generation as 85X619. The F3 generation was evaluated in 1.5-m² head rows. The F3 through F6 generations were evaluated in 3.75-m² yield trials. Selection criteria were disease resistance, agronomic characteristics, uniformity, and plot yield. Finch was reselected in the F27 generation because it was segregating for chalk color. In 1992, 39 F27 heads were selected for uniformity of head type, chalk color, maturity, and height. Progeny from a single head row were selected in 1993, advanced, and designated A96118. Subsequently, in 1997, A96118 was renamed WA7853.

Over 44 location-years in eastern Washington and northeast Oregon from 1997 to 2000, the average yield of Finch (5582 kg ha⁻¹) was 5% greater than ‘Madsen’ and ‘Eltan’ (both 5313 kg ha⁻¹) and 9% greater than ‘Stephens’ (5111 kg ha⁻¹). The yield advantage of Finch over Madsen is more evident in the low rainfall locations (less than 28 cm annual rainfall). Finch had 8% greater yields (3968 kg ha⁻¹) than Madsen (3698 kg ha⁻¹) at low rainfall locations. At intermediate rainfall locations (28–43 cm annual rainfall), Finch yielded 5581 kg ha⁻¹, 7% greater than Madsen (5178 kg ha⁻¹). The test weight of Finch is high, averaging 799 kg m⁻³, 13 kg m⁻³ heavier than that of Madsen, and 26 kg m⁻³ heavier than Eltan.

In the Washington State University Commercial Winter Wheat Variety Trial from 1998 to 2000 (over 52 location-years), Finch yielded 6538 kg ha⁻¹, 4% better than Eltan, 8% better than Stephens, and equal to Madsen and ‘Rod’. In those trials the test weight of Finch was 786 kg m⁻³, 2% heavier than that of Madsen, 3% heavier than Eltan and Stephens, and 4% heavier than Rod.

The appearance of Finch is most similar to Madsen with coleoptiles and auricles that lack anthocyanin, semierect juvenile growth, and hollow internodes. The plant color at boot stage is green. Finch is late maturing with an average heading date of 157 d from January 1, 1 d later than Eltan and 6 d later than Madsen. Finch is a semidwarf with height equal to Madsen and Eltan (87 cm averaged over 44 location-years). Lodging resistance of Finch is good, similar to Madsen (less than 1% over 44 location years).

Finch is moderately resistant to leaf rust (caused by Blumeria graminis DC. Speer f. sp. Triticum aestivum E. Henn.), and stripe rust, respectively (Bari et al., 1993) gene complex found on 2AS that is present in Madsen.

Finch is moderately susceptible to leaf rust (caused by Blumeria graminis DC. Speer f. sp. Triticum aestivum E. Henn.), and stripe rust, respectively (Bari et al., 1993) gene complex found on 2AS that is present in Madsen.

In 1998, under a severe natural infection of Cephalosporium stripe (caused by Cephalosporium epichloria Wallwork & Spooner = Pseudocercospora tritici (Ell. & Everh.) Ellis & Everh.), at Pullman, WA, the yield of Finch was 4505 kg ha⁻¹, 4% less than Madsen and Eltan (both 3698 kg ha⁻¹), and 6% less than the susceptible ‘Stephens’ (2958 kg ha⁻¹). Finch was rated 1.7 on a 1 to 5 visual rating scale for disease symptoms and 5 = severe yellowing and stunting) for the susceptible ‘Temple’ rated 33%) and at Mt. Vernon in 1998-2001. In those same trials, the susceptible cultivar Stephens rated 3.1.

Finch was rated as moderately resistant to stripe rust (caused by Puccinia striiformis Westend. f. sp. Triticum aestivum Pers.:Pers. f. sp. P. tritici (Pers.:Pers.) Ellis & Everh.), at Pullman that had been inoculated with PST-17, PST-37, PST-43, and PST-45. Resistance type 2 and less than 5% severity was observed. Finch has a type 3 resistance derived from Aegilops ventricosa L. (Reg. of resistance derived from Aegilops ventricosa L. (Reg. no. 93-240) was developed by the USDA-ARS at Central Ferry, WA, in 1999 (2% leaf area infected where the susceptible ‘Temple’ rated 33%) and at Mt. Vernon in 1998-2001. In those same trials, the susceptible cultivar Stephens rated 3.1.

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