Registration of ‘Norris’ Wheat


‘Norris’ (Reg. No. CV-1015, PI 643430) hard red winter wheat (Triticum aestivum L.) was developed by the Montana Agricultural Experiment Station and released in September 2005. Norris is a Clearfield wheat that is licensed for production with Beyond herbicide [active ingredient imazamox (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid) BASF Corp., Research Triangle Park, NC]. Norris was released based on its tolerance to imazamox, its adaptation to winter wheat production systems in Montana, and improved yield potential relative to available Clearfield winter wheat cultivars.

Norris originated from the cross ‘BigSky’//TXGH12588-26*4/FS2 made in 1997. BigSky (PI 619166) is a well-adapted, high-quality hard red winter wheat released by the Montana Agricultural Experiment Station in 2001 (Bruckner et al., 2003). BigSky was crossed to an imazamox-tolerant selection derived from a TX12588-26*4/FS2 segregating backcross F2 population developed by the Texas Agricultural Experiment Station and distributed by BASF. TXGH12588-26 is a sib selection of TAM 110 (PI 595757; Lazar et al., 1997). The wheat germplasm line FS2 (syn. FS4) was developed by the BASF Corporation (formerly American Cyanamid) using sodium azide-induced mutagenesis of ‘Fidel’ (Newhouse et al., 1992), and it contains a single gene at the als1 locus for acetolactate synthase tolerance to imidazolinone herbicides. The F2 population was grown in the greenhouse in 1998 and the F3 bulk populations were planted at Kalispell and Williston, respectively, and sprayed with imazamox (22.4 g a.i. ha−1) to remove susceptible segregants. F3–derived F4 headrows were grown at Fort Ellis, MT, and sprayed with imazamox (105 g a.i. ha−1) to remove herbicide-susceptible segregants. F3 plants were selected from the population, and 100 individual heads from F3 plants were selected from the population. The F3–derived F4 headrows were grown at Fort Ellis, MT, and sprayed with imazamox (105 g a.i. ha−1) to remove herbicide-susceptible segregants. F4 headrow 97X369C6 was selected on the basis of herbicide tolerance, uniformity, productive agronomic type and was harvested in bulk. Norris was subsequently tested in sprayed (105 g a.i. ha−1) and nonsprayed plots and was tested in multilocation Montana trials since 2003. MTCL0316 was also tested in the Montana Advanced nursery at six sites in 2006.

In 2004 and 2005 MTCL0316 was evaluated during the MTCL0316 qualification trial with three imazamox rates (0, 52.5, and 105 g a.i. ha−1) at four locations. MTCL0316 was also tested in the 2002 Single Rep Clearfield Observation Nursery grown at Bozeman, Havre, and Moccasin, MT. In 2006, MTCL0316 was named Norris in 2006.

Norris is a medium-early maturing, red-ear height Clearfield hard red winter wheat. Average heading date of Norris (158.7 d from 1 January, n = 26) is 3.3 d later than that of ‘MT1159CL’ (PI 641221, Berg et al., 2006) and 2.8 d later than that of ‘Above’ (Haley et al., 2003; 156.5 d). Norris (97 cm, d) is more moderate high in four trials exhibiting differential survival, than that of ‘MT1159CL’ (PI 641221, Berg et al., 2006; 161.9 d) and later than that of ‘Above’ (Haley et al., 2003; 156.5 d). Norris is moderately resistant to blue mold (caused by Peronospora tabacina Westend. f. sp. Pers. f. sp. tabacina) and stripe rust (caused by Puccinia graminis Westend. f. sp. Pers. f. sp. tritici Eriks. & E. Henn.). Norris is susceptible to stem rust (caused by Puccinia striiformis Westend. f. sp. Pers. f. sp. tritici Eriks.).

On the basis of limited field observations under natural infection with stem rust, Norris is moderately-resistant to stem rust. Norris is moderately resistant to powdery mildew (caused by Erysiphe graminis Westend. f. sp. Pers. f. sp. tritici Eriks. & E. Henn.) and resistant to brown spot (caused by Cercospora leaf spot (caused by Cercospora), and slow-growing, and it is susceptible to powdery mildew (caused by Erysiphe graminis Westend. f. sp. Pers. f. sp. tritici Eriks. & E. Henn.) and resistant to brown spot (caused by Cercospora)

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