Registration of ‘Bynum’ Wheat


‘Bynum’ (Reg. No. CV-1013, PI 643429) hard red winter wheat (Triticum aestivum L.) was developed by the Montana Agricultural Experiment Station and released in September 2005. Bynum 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]. Bynum was released on the basis of its tolerance to imazamox, its adaptation to dryland winter wheat production in Montana, and its stem solidness, which imparts tolerance to wheat stem sawfly (Cephhus cinctus Norton).

Bynum was derived from the cross ‘Rampart’ (PI 593889, Bruckner et al., 1997)/FS2/’CDC Kestrel’ made in 1998. Rampart is a well-adapted, solid-stem cultivar released by the Montana Agricultural Experiment Station in 1996. 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 synthesis, which conveys tolerance to imidazolinone herbicides.

CDC Kestrel (Canadian Reg. No. 3468) is a winter-hardy cultivar developed by the Crop Development Centre, Saskatoon, SK. The three-way F1 population was grown in 1998 and sprayed with imazamox herbicide to remove susceptible segregants. F2 and F3 bulks were planted at Kalispell, MT, in 1999 and 2000 and sprayed with imazamox (105 g a.i. ha−1) to remove susceptible segregants. Herbicide-tolerant, solid-stem F2 plants were selected and bulked to generate the F3 population. Individual heads from herbicide-tolerant solid-stem F3 plants were selected from the harvest and F4 headrows were grown at Fort Ellis, MT, in 1999 and 2000 with imazamox (105 g a.i. ha−1). A herbicide-tolerant, solid-stem line 98X73C30, was selected on the basis of cross-sectional stem examination to determine stem solidness and herbicide tolerance, uniformity, productivity, and agronomic type and was harvested in bulk subsequent to spraying with imazamox (105 g a.i. ha−1) at four locations. 98X73C30 was designated MTCL0318 and tested in the Preliminary Clearfield Screening nursery at six sites (two sprayed, four nonsprayed). MTCL0318 was evaluated in a qualification trial with three imazamox rates (105, 70, and 36 g a.i. ha−1) at four locations. MTCL0318 was also evaluated in a multilocation Montana Intrastate trial in 2004 and 2005. Montana Advanced nursery at six locations and a multilocation Montana Intrastate trial in 2005 has been evaluated in multilocation Montana Intrastate trial in 2003. MTCL0318 was named Bynum in 2006.

Bynum is an awned, red-chaffed, medium-maturity, solid-stem hard red Clearfield winter wheat similar in appearance and performance to the cultivar Rampart. Average heading date of Bynum (96 cm, 28) is taller (LSD0.05 = 2 cm) than MT1159CL (94 cm, 26) is earlier (LSD 0.05 = 0.6 d) and later than that of ‘Above’ (Haley et al., 2003; 156.5 d). Bynum has been evaluated in multilocation Montana trials since 1999 and in the Preliminary Clearfield Screening nursery at six sites (two sprayed, four nonsprayed).

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