Registration of ‘MDM’ Wheat


‘MDM’ (J980628, WA007936) hard white winter wheat (HWW) (Triticum aestivum L.) (Reg. No. CV-1017, PI 634716) was released in 2005 by the Agricultural Research Center of Washington State University (WSU) in cooperation with the USDA-ARS. MDM is a semidwarf cultivar adapted to the low- to intermediate-rainfall (<460 mm average annual precipitation) HWW-growing regions of Washington. It was released for its high grain yield, disease resistance, and excellent quality attributes. MDM is named in honor of Michael D. Moore (deceased), wheat producer from Kahlotsu, WA. Moore was a strong supporter of WSU wheat research and contributed for many years toward the improvement of winter wheat for the low rainfall areas of Washington.

Stephen Jones selected MDM (‘Klasic’ [PI 486139]/5*‘Eltan’ [PI 536994]) in the BC4F6. Klasic is a hard white spring cultivar developed by Northrup King Company, and Eltan (Peterson et al., 1991) is a soft white winter (SWW) cultivar broadly adapted to the Pacific Northwest. The original cross and subsequent backcrosses were made in the WSU Wheat Plant Growth Center. Seed from each BC4F1 plant was used to establish a BC4F2 field plot (355 total) at Pullman, WA, in 1998. The BC4F2 seed was advanced without selection in 1999. On the basis of general adaptation, maturity, resistance to stripe rust (caused by Puccinia striiformis Westend. f. sp. tritici), grain yield, test weight, and milling and baking quality, 73 lines were selected in 2000 and planted as BC4F4 replicated plots in two advanced field nurseries in eastern Washington. Using similar selection criteria, 12 BC4F5 lines were planted in five replicated nurseries across eastern Washington in 2001, of which three were released in 2002 and tested at 16 eastern Washington locations. In addition, approximately 100 BC4F6 lines were planted as BC4F7 seed from each of the three lines were planted at Pullman. One line (J980628) emerged from the three lines planted at Pullman and grown as individual head rows at Othello, WA. Those head rows were evaluated and selected for phenotypic uniformity, maturity, and resistance to disease. Nonconforming rows (<10%) were removed before harvest, and Breeder seed of MDM was produced from the remaining rows. MDM is an intermediate-height, semidwarf that is phenotypically and agronomically very similar to Eltan and grown in eastern Washington. It has an intermediate spike length with long midline, white glumes, white awn length (awnletted to normal), and awnless spikelet.

Evaluations of Breeder and Foundation seed for stripe rust showed that MDM may contain a naturally occurring variant of up to one red seed in 10,000 (0.01%). Plant "off-type" seed with a rate of 1 in 10,000 (0.01%) for plant height, awn length (awnletted to normal), and awnless spikelet.

MDM exhibits resistance to snow mold of idahoensis Reemsberg and T. ishikariensis Imazeki. It is similar to Eltan. MDM was tested for stripe rust with natural infection across Washington State from 2002 to 2004. Stripe rust severity in field trials was moderate, according to the AACC, 2003, scale. MDM was released in 2005 by the Agricultural Research Center of Washington State University (WSU) in cooperation with the USDA-ARS.