Registration of ‘Paul’ Wheat

‘Paul’ (Reg. no. CV-985, PI 640425) hard red winter wheat (Triticum aestivum L.) was developed by the Montana and North Dakota Agricultural Experiment Stations and jointly released in August 2003. Paul was released based on high yield potential and superior winter survival in rain-fed environments of Montana. Paul is named in honor of the late Dr. Paul L. Brown, a long-term USDA-ARS soil scientist who pioneered research in water management in dryland cereal cropping systems of Montana.

Paul was selected from the cross MT8030/’Neeleymade in 1985. Neeley (Sunderman and O’Connell, 1983) was the leading winter wheat cultivar in Montana for 15 consecutive years (1988 to 2002). MT8030 has the pedigree, ‘TAM W-103’/‘Froid’/‘Yogo’/‘Turkey Red’/‘Oro’/‘Centurk’. F2, F3, and F4 generations were grown as bulks in Bozeman from 1987 to 1989. Paul was selected and bulked in 1990 as an F4-derived F3 headrow by Dr. Gene Hockett. The line subsequently was selected from nonreplicated observation trials grown at Bozeman, Sidney, and Moccasin, MT, in 1992 and Huntley, MT, in 1993. The primary selection criterion for Paul was high winter survival. Paul was assigned experimental number MT9426 and evaluated in Montana Preliminary (1994) and Advanced (1995–1998) yield trials. Based on good winter survival and high grain yield, MT9426 was further tested in the Montana Intrastate Nursery since 1999, the Montana Offstation Nursery since 2000, and the Northern Regional Performance Nursery (NRPN) in 2003. Quality has been evaluated in multilocation Montana trials since 1994 and in the 2002 PNW Crop Quality Council evaluation.

Seed purification of Paul was initiated in 2000 when 150 F14:15 headrows were evaluated for uniformity at Bozeman. Line rows (89) were grown in Bozeman in 2001 and further evaluated for phenotypic uniformity. Sixty-five line rows with uniform appearance were selected and harvested in bulk by plot combine. Breeder seed (F14:17) was produced in 2002 at the Post farm in Bozeman.

Paul is an awned, white-chaffed, medium to late maturity semidwarf hard red winter wheat. Paul has medium maturity, 164 d to heading from 1 January, similar to Neeley and ‘Tiber’ (PI 517194), 1 d earlier than ‘Morgan’ (PI 599336) and 1 d later than ‘BigSky’ (PI 619166). Plant height of Paul is relatively short (73 cm), 7 cm shorter than Neeley and Morgan, and 11 cm shorter than BigSky and Tiber. Coleoptile length of Paul (76 mm, n = 5 observations) is shorter than Neeley (89 mm), Tiber (91 mm), and BigSky (94 mm) but longer than Morgan (61 mm). Winter survival in 13 trials showing differential survival was 59% for Paul compared to Morgan (67%, LSD0.05 = 6%), BigSky (59%), Tiber (56%), and Neeley (55%). Straw strength of Paul is only moderate and the cultivar will often lodge under high yield conditions.

On the basis of field observations and cooperative evaluations through the USDA Regional Testing Program, Paul is moderately susceptible to stem rust (caused by Puccinia graminis Pers.:Pers. f. sp. tritici Eriks. & E. Henn.; resistant resistance to Hessian fly screening.

References