REGISTRATION OF EXCEL BARLEY

'Excel' barley (Hordeum vulgare L.). (Reg. no. _____), P.I. _____, was developed by the Minnesota Agricultural Experiment Station. It was released to growers 15 Feb. 1990. Excel is derived from an F_5 plant from the cross 'Cree'/'Bonanza'//'Manker'/3/2*'Robust.' The first cross in the pedigree, Cree/Bonanza, gave rise to a parent line, M28, which is a sister line to 'Morex,' a malting cultivar. The close relatedness of the parents can be seen in that Morex and Manker are the parents of Robust. Manker, Robust and Bonanza are malting cultivars. All of the parents including Bonanza, a Canadian cultivar, have performed well in Minnesota.

Excel is a six-rowed, smooth-awned spring barley. The kernels are covered and medium size, with a long-haired rachilla and white aleurone. The spike is medium-lax, medium-long, and semi-erect. Excel is shorter than currently grown six-rowed cultivars, and has moderately strong straw. It is probably best suited for the barley growing area of the upper midwest of the U.S.

Excel appears to possess the desirable field attributes of Robust, the currently dominant cultivar in the upper midwest, and the malting and brewing attributes of Morex, the six-rowed standard for malting and brewing quality (1, 2). It is modestly higher yielding than Robust ~~for grain yield~~, exceeding Robust by 4% in 33 trials in Minnesota and by 4% in 32 regional trials. In preliminary yield testing it has done well in Idaho and Manitoba, Canada. It is similar in maturity and lodging reaction to Robust, but 5 cm shorter. It is lower than Robust in plump kernel percentage. Excel has the T gene which conditions a high level of resistance to stem rust, incited by Puccinia graminis Pers. f. sp. tritici Pers., and the ND B112 gene which conditions moderate resistance to spot blotch, incited by Bipolaris sorokiniana (Sacc. in Sorok.) Shoemaker. It is susceptible to loose smut, caused by Ustilago nuda (Jens.) Rostr.

Excel is intended to be grown as a malting barley. In tests conducted in collaboration with the USDA Cereal Research Unit at Madison, Wis. and with industry firms, Excel appears to be equal, if not superior, to Morex in quality traits. It has the high alpha amylase and diastatic power of Morex. It has exceeded Morex in extract by 0.5%, and has been lower than Morex in grain protein, 0.9%. Approval of Excel as a malting variety by the American Malting Barley Association, Inc. is pending. Breeder seed is maintained by the Minnesota Agric. Exp. Stn., St. Paul, MN 55108.

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References and Notes

1. Rasmusson, D.C., and R.D. Wilcoxson, 1979. Registration of Morex barley. Crop Sci. 19:293.
2. Rasmusson, D.C., and R.D. Wilcoxson, 1983. Registration of Robust barley. Crop Sci. 23:1216.
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