

Published in Renewable Agric. Food Systems 23:228–234 (2008)
doi:10.1017/S1742170508002263
©2008 by Cambridge Univ. Press

**Producer participatory spring wheat variety evaluation for organic systems
in Minnesota and North Dakota**

Herman J. Kandel*, Paul M. Porter, Patrick M. Carr, and Steven F. Zwinger
H.J. Kandel, Dep. Plant Sci., North Dakota State Univ., P.O. Box 5051, Fargo, ND 58105-5051;
P.M. Porter, Dep. of Agron. Plant Genetics, Univ. of Minnesota, St. Paul, MN; P.M. Carr and
G.B. Martin, North Dakota State Univ., Dickinson Res. Ext. Ctr., 1041 State Ave., Dickinson,
ND 58601-3267. *Corresponding author: hans.kandel@ndsu.edu.

Summary

Organic producers in Minnesota and North Dakota, USA, indicated that they wanted to participate in hard red spring wheat (*Triticum aestivum* L. emend. Thell) variety evaluations. The objectives were to determine if a farmer–researcher developed scoring system could be used to rank wheat varieties for yield potential when grown in certified organic fields, identify views of organic producers about on-farm research, and identify the educational impact of the participatory variety evaluation process. Hard red spring wheat varieties were compared for grain yield at six locations on certified organic farms in Minnesota and North Dakota over a three-year period. A scoring system was developed and then used to identify the relative rank of adapted varieties for yield. Producers were asked to rank all varieties on a scale from 1 to 9, where 1 is lowest yield potential and 9 is highest yield potential. Producers were able to distinguish higher producing varieties as a group in 2003 and 2004. ‘Oklee’ a high yielding variety was ranked lowest in 2005. There was a significant linear relationship between producer ranking and yield ($P < 0.05$) even though producers could not pick the highest yielding varieties consistently in the field. The producer survey showed that grain yield, protein content, wheat scab resistance, leaf disease resistance, early seedling vigor, test weight and canopy closure were traits producers valued most in a variety. Heading date, impact on succeeding crops, straw and stubble production were ranked lower. Multi-year variety evaluation on certified organic land was highly valued by the producers surveyed. From an educational perspective, the exercise was successful in that producers had to observe individual varieties carefully in order to come to a consensus producer ranking. The model of participatory research can be used for a variety of field research projects and field days.