

Yield and Quality of Hard Red Spring Wheat Varieties Following Fallow and Wheat

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Summary

Continuous wheat (*Triticum aestivum* L. emend. Thell.) and other intensive cropping systems are replacing wheat-fallow (WF) in the northern Great Plains. However, most wheat variety recommendations are based on performance in a WF system. Our objective was to determine if variety ranking for grain yield, grain protein concentration, and kernel weight changed for hard red spring wheat in WF compared with continuous wheat (WW) systems. Ten varieties were sown following fallow and wheat over 3 consecutive years at Dickinson, ND. Fertilizer was applied for equivalent yields in both systems based on soil test results. More grain and heavier kernels were produced during the crop phase of the WF system than the WW system, in part because soil-water content was greater after fallow than wheat in 2 of 3 year. Grain protein concentration was unaffected by cropping system. Grain yield, grain protein concentration, and kernel weight differed among varieties. Interactions did not occur between cropping systems and varieties for any grain parameter. Results of this study suggest that wheat variety ranking based on performance in a WF system can be extended to a WW system.

A paper describing the study will be published in a scientific journal and will be summarized in future press releases.

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