

## Tillage and Seeding Rate Effects on Wheat Cultivars II. Yield Components

[Patrick M. Carr](#)<sup>1</sup>, Richard D. Horsley<sup>2</sup>, and Woodrow W. Poland<sup>1</sup>  
North Dakota State University  
Dickinson Research Extension Center<sup>1</sup>  
Department of Plant Sciences<sup>2</sup>

### Research Summary

Tillage is declining in wheat production systems. Our objectives were to determine if tillage x cultivar, seeding rate x cultivar, and tillage x seeding rate x cultivar interactions occurred for the yield components of hard red spring wheat (*Triticum aestivum* L. emend. Thell.) in a wheat-fallow monoculture. The cultivars AC Minto, Amidon, Bergen, Grandin, and Norm were seeded at 123, 247, and 371 kernels m<sup>-2</sup> in conventional-till (CT), reduced-till (RT), and no-till (NT) systems in a randomized complete block in a split split-plot arrangement during 1994-1998. Tillage x cultivar and tillage x seeding rate x cultivar interactions did not occur for any yield component. A seeding rate x cultivar interaction occurred for both plant stand and tiller production, but the interaction resulted from a change in the magnitude of response and not in the ranking of cultivars to seeding rate adjustments for either yield component. Plant stand and the number of tillers plant<sup>-1</sup> were not affected by tillage systems consistently, but the number of spike-bearing tillers increased from 411 m<sup>-2</sup> under CT to 457 m<sup>-2</sup> under NT ( $P < 0.05$ ). Tillage systems did not affect the number of kernels spike<sup>-1</sup>. Kernel weight declined as tillage was reduced in two of four years. More spike-bearing tillers m<sup>-2</sup> occurred as the seeding rate increased, but there was a negative quadratic response in the number of tillers plant<sup>-1</sup> and a decrease in the number of kernels spike<sup>-1</sup>. Results of this study indicate that the ranking of contrasting hard red spring wheat cultivars for yield components is unchanged by reductions in tillage in a wheat-fallow monoculture.

*This paper has been submitted for publication in a scientific journal and will be summarized in future press releases.*

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