

Barley Cultivar Performance Following Canola, Corn, Pea, and Spring Wheat

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Abstract

High-residue farming and crop diversification practices are replacing conventional tillage and crop-fallow in the Great Plains. Our objective was to determine if cultivar ranking changed when six barley (*Hordeum vulgare* L.) cultivars were grown following canola (*Brassica napus* L.), corn (*Zea mays* L.), pea (*Pisum sativum* L. subsp. *sativum*), and spring wheat (*Triticum aestivum* L. emend. Thell.) from 2010 through 2013 in southwestern North Dakota. An interaction between the previous crop and barley cultivar was detected in 2011 and 2013 for grain yield ($P < 0.10$). However, one cultivar in 2011 and three cultivars in 2013 produced equal or greater yields than those produced by other cultivars, regardless of previous crop. Grain yield was comparable with or greater following field pea to that following other crops in 2010 and 2012 when a previous crop cultivar interaction did not exist. Interactions between the previous crop and barley cultivar occurred in only 2 of 12 instances for grain quality traits, and even then at least one cultivar was among the top performers consistently after each previous crop treatment. These results suggest that the previous crop is not an important consideration when making barley cultivar recommendations.

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