DELIVERY OF AN INNOVATIVE WINTER WHEAT AGRONOMIC PACKAGE TO ACHIEVE SUSTAINABLE WHEAT PRODUCTION IN THE CANADIAN PRAIRIES

Principal Investigator: Dr. Brian Beres, Agriculture and Agri-Food Canada, Lethbridge Research & Development Centre

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Summary

Although winter wheat has been grown for many years, for most western Canadian producers it is still perceived as a new and alternative crop. Producers, ag-industry and society recognize that there is a need to develop agricultural production practices that provide enhanced agronomic and economic benefits to producers while contributing to the health of the ecosystem concomitant with the expanding needs of society. Winter wheat is a crop that can meet these requirements at a much greater pace than other cereal crops currently grown on the Prairies. For example, some of the key agronomic benefits of winter wheat include pest management, time management, reduced risk to soil erosion, improved water use in spring, and high yield potential.

This project will build upon the knowledge developed from previously funded Growing Forward I and II winter wheat agronomy projects with a focus of overcoming issues related to successful integration of winter wheat into cropping systems common to Canada's agro-ecozones. A suite of experiments are proposed that will employ a multi-site, cross-disciplinary team approach toward 1) improving crop sequencing of winter wheat following canola, 2) quantifying the environmental and economic value of winter wheat over spring wheat, 3) elucidating the carbon and water storage potential of a winter wheat-based cropping system vs. a spring wheat system, and 4) quantifying wheat responses to intensified management and a range of break crops including pulses, cereals and oilseeds. Studies will be conducted at five core sites in western Canada: southern Alberta (AAFC-Lethbridge), north-central (Parkland) Alberta (AAFC-Lacombe & Alberta Agriculture & Forestry - Edmonton), Saskatchewan (University of Saskatchewan; AAFC-Indian Head), and southern Manitoba (AAFC-Brandon).

Objectives

1) Determine how best to manipulate agronomic factors for optimum canola harvest timing, productivity and crop sequencing with winter wheat.
2) Understand the role of growth habit (spring vs. winter) in relation to differential crop and soil responses
3) Determine how system integration and intensity effects influence winter wheat production and interactions with disease, weed, and insect pests.

4) Elucidate the influence of preceding break crops on succeeding winter wheat crop responses in the Canadian Prairies.