



Leveraging Phenomics and Genomics Approaches for Efficient Allele Mining and Deployment to Increase Yield in Wheat

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Abstract

To meet the International Wheat Yield Partnership goal of increasing wheat genetic yield potential by 50% in the next 20 years, Canadian wheat yields will need to increase by more than 35% and the world average by almost 70%. This project will test a collection of winter wheat and spring wheat varieties with a range of yield potentials across diverse wheat growing environments in Western Canada, Eastern Canada and Southern England. Field testing will be coupled with detailed phenotyping (plant characterization) and high-density genotyping (genetic characterization) to identify traits and the underlying genetics for increased yield such as increased biomass, increased carbon capture, delayed senescence, harvest index, leaf angle, and kernel size. Phenomics data capture will provide a basis for determining the physiological factors for yield differences while genetic characterization can aid in rapidly moving new traits into commercial spring and winter wheat cultivars.