Circadian Clock Editing to Increase Wheat Yield

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Abstract

It is imperative that Canada and the world protects its wheat production by developing next-generation germplasm that is adaptable to anticipated variable climatic conditions. Circadian clock core genes widely affect aspects of plant development, contribute to crop improvement and higher yield. The fundamental role of the plant circadian clock is to optimize plant cellular processes with respect to external conditions. This project will employ an integrative approach of accelerated evolution through genome editing and conventional breeding to modulate the circadian clock creating climate adapted wheat germplasm for breeders in Canada and the UK, that have been evaluated for abiotic stress tolerance and photosynthetic responses.