

Accelerating Yield Improvement in Switchgrass through Genomic Prediction of Floral Anthesis

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Project Goals:

This project aims to accelerate the breeding process for bioenergy switchgrass in the North Central USA by applying genomic selection to yield limiting traits such as cold tolerance and flowering time.

Abstract text:

The timing of the transition from vegetative to reproductive growth has a major impact on biomass accumulation in switchgrass. Late flowering switchgrass varieties produce greater biomass in both spaced and sward conditions. Genomic prediction may allow rapid identification and selection of late flowering individuals without the time and expense of phenotyping. Initial analyses were carried out using the date of anthesis for 1,532 switchgrass individuals in multiple breeding groups. Marker data from genotype-by-sequencing (~450,000 markers after filtering) was used to predict anthesis date within each group. Prediction accuracy within breeding groups indicated accuracy sufficient to reduce the time required to identify individuals with superior breeding value.

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