



Genomes to Fields Initiative

2015: Publications & G X E Project Plans

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Publications

✧ Perspectives Manuscript:

- ✧ Introduction of the project using examples of phenological traits
- ✧ Target Journal: Nature Plants
- ✧ Timeline: February 1, 2015

✧ 2014 G X E Data Manuscript:

- ✧ Analysis of 2014 data
- ✧ Target Journal: Crop Science
- ✧ Timeline: July 1, 2015



Perspectives Manuscript

- ✧ Use the 2014 G X E phenological data to support specific hypotheses to be addressed in this manuscript
- ✧ **GOAL: UNDERSTANDING PLANT DEVELOPMENT (PHENOLOGY) IN THE CONTEXT OF VARIABLE/EXTREME CLIMATES AND TO BE ABLE TO PREDICT GENOTYPES AND MANAGEMENT PRACTICES THAT CAN BUFFER DAILY AND ANNUAL CLIMATE CHANGE TO MITIGATE RISK**
- ✧ Phenology in our particular case will include development (flowering time and plant height as it relates to heat units)



2014 G X E Data Manuscript

- ✧ Use the 2014 G X E data to test environmental covariates at phenotype and genotype levels
 - ✦ Use environmental covariates to predict G x E interactions at hybrid level to test prediction of G x E interactions for phenotypes
 - ✦ Use environmental covariates to predict G x E interactions at the allele level using GBS data available on inbred parents



For 2015

- ✧ Four isolations in summer 2014:
 - ✦ 400 SS + 600 NSS
 - ✦ more ex-pvps, diverse materials and similar lines as 2014 trial
 - ✦ PHB47 – WI
 - ✦ PHZ51 – IA
 - ✦ LH195 – TX
 - ✦ LH82 – Guelph
- ✧ Goal: ~35 to 40 environments and 250 to 300 hybrids per rep
- ✧ Increasing set of inbreds to be evaluated



Collaborators and Sponsors

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- ✧ *Carolyn Lawrence (ISU)
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