**Data Bootcamp for Genomic Prediction in Plant Breeding**

This course will cover common data structures, analysis techniques, and tools used for genomic selection in plant breeding. This course will include lectures and hands-on activities.

* Monday: Formatting and quality control of genotype/phenotype data for genomic prediction. Model implementation and exploration of various types of models. Techniques in cross validation for assessing prediction accuracy.
* Tuesday: Training population optimization, multi-trait prediction, genomic prediction for GxE, predictions of all possible crosses.
* Wednesday: Other special topics in genomic prediction, tour of available tools for implementing genomic prediction.

General schedule

* 8:15-9:45: Morning session 1
* 9:45-10:05: Coffee break
* 10:05-11:45: Morning session 2
* 11:45-1:00: Lunch
* 1:00-2:30: Afternoon session 1
* 2:30-2:50: Coffee break
* 2:50-4:30: Afternoon session 2

Day 1

* 8:15-9:45: Genomic selection in a nutshell (lecture, discussion)
* 9:45-10:05: Coffee break
* 10:05-11:45: Data loading, formatting, cleaning, and imputing
* 11:45-1:00: Lunch
* 1:00-2:30: Model fitting and assessing accuracy
* 2:30-2:50: Coffee break
* 2:50-4:30: Comparison of models

Day 2

* 8:15-9:45: Multi-trait prediction
* 9:45-10:05: Coffee break
* 10:05-11:45: Training population optimization
* 11:45-1:00: Lunch
* 1:00-2:30: GxE
* 2:30-2:50: Coffee break
* 2:50-4:30: Predicting all possible crosses

Day 3

* 8:15-9:45: Morning session 1
* 9:45-10:05: Coffee break
* 10:05-11:45: Morning session 2