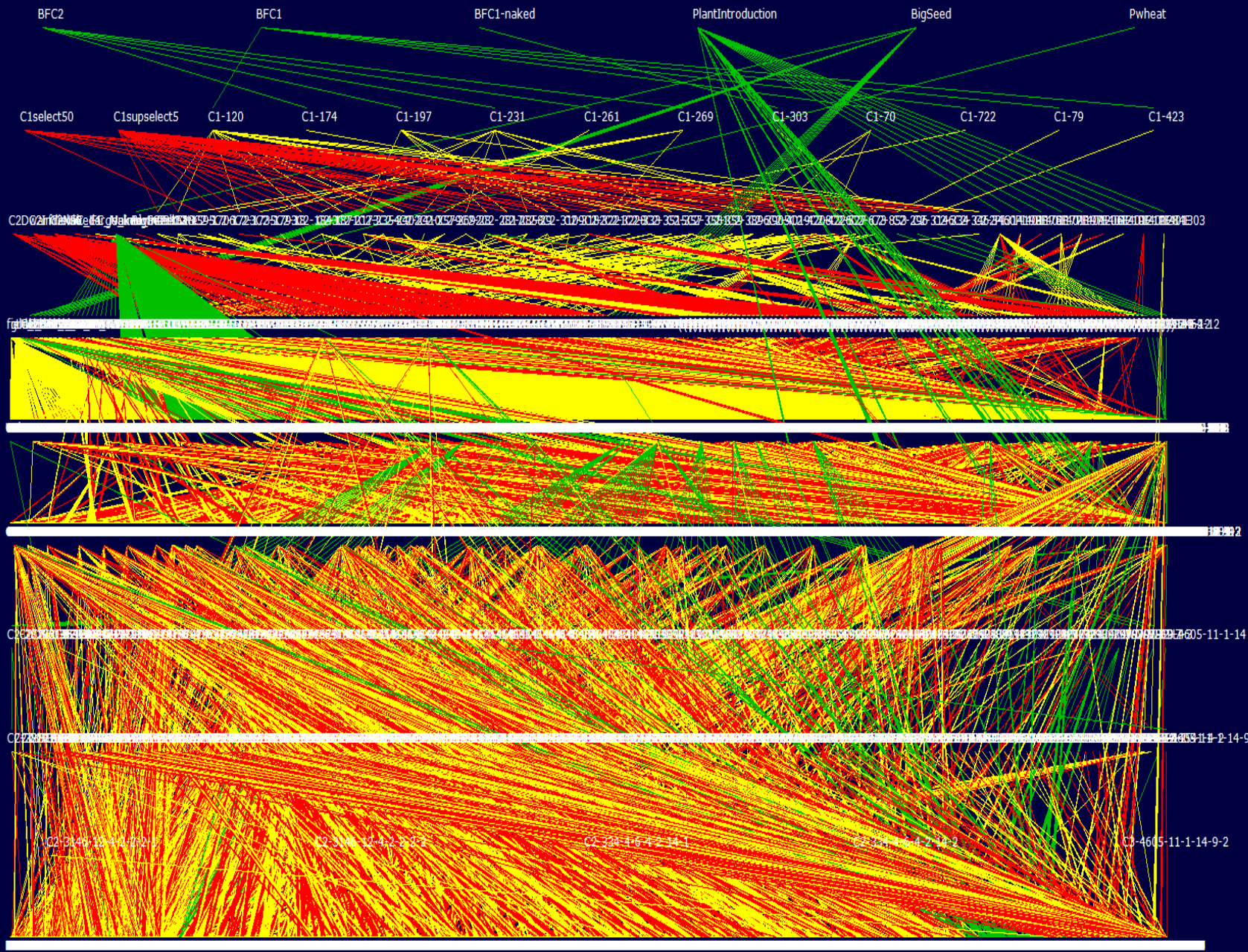
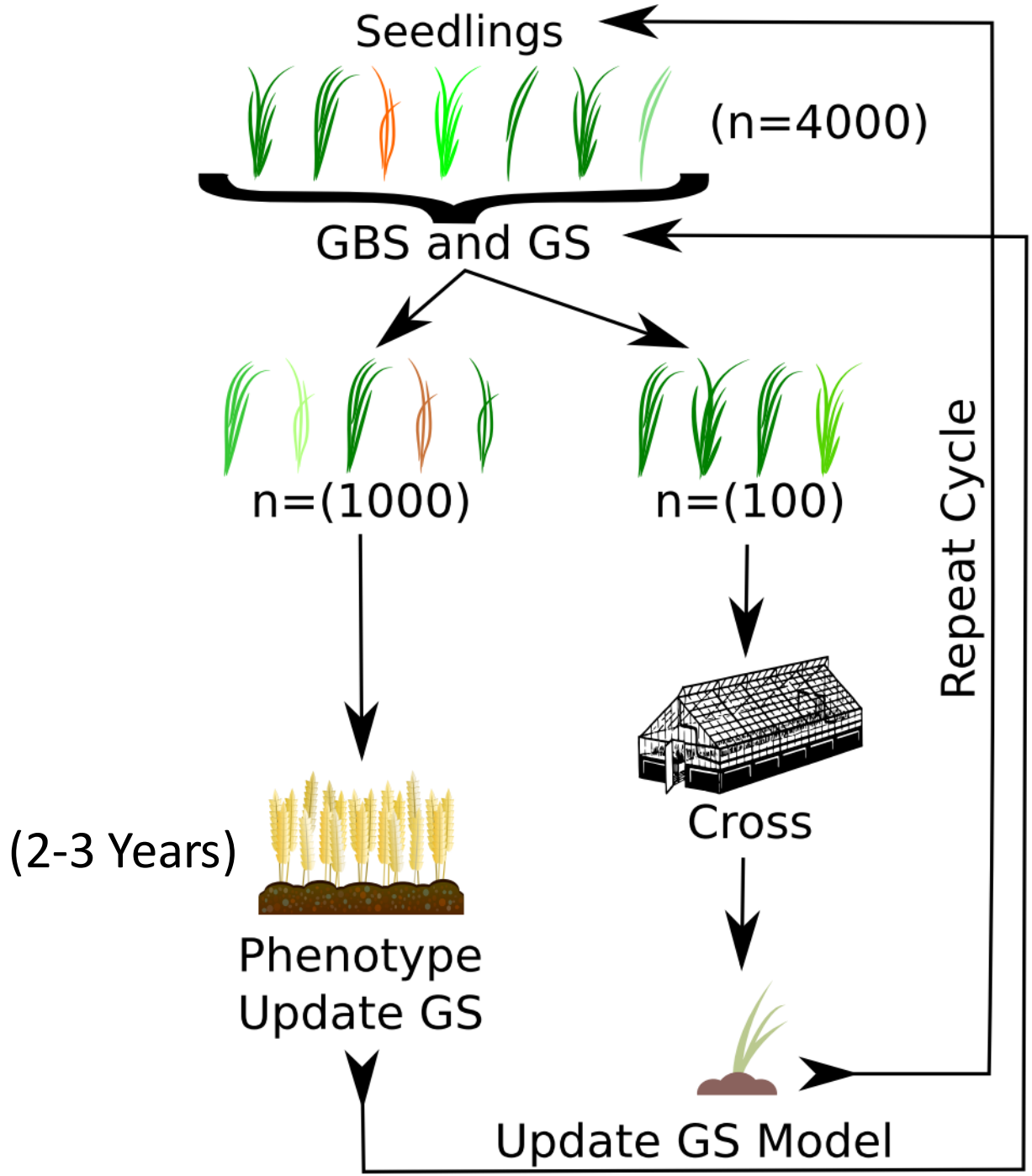
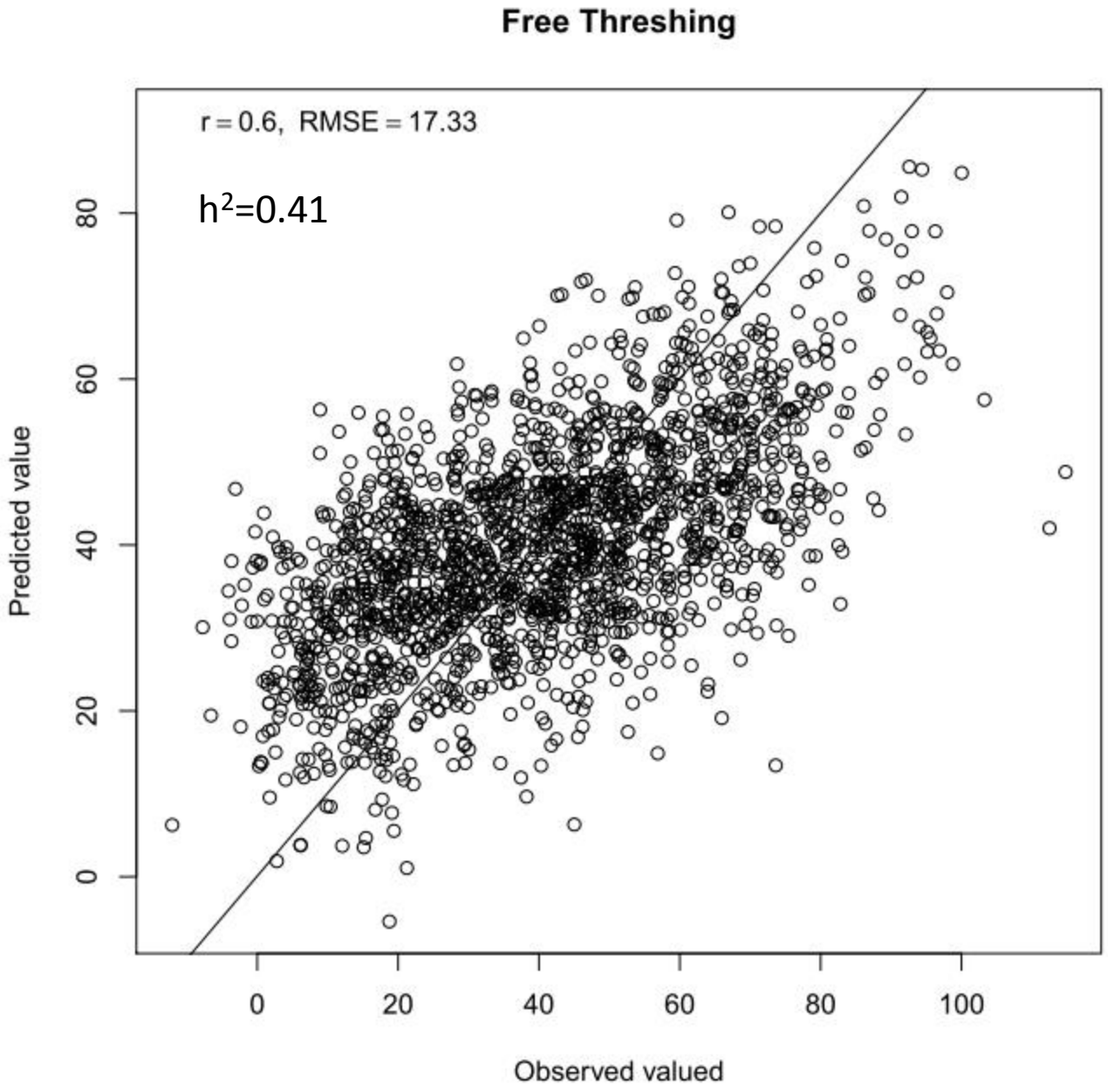

BFC2
BFC1
BFC1-naked
PlantIntroduction
BigSeed
Pwheat
C1select50
C1supselect5
C1-120
C1-174
C1-197
C1-231
C1-261
C1-269
C1-303
C1-70
C1-722
C1-79
C1-423

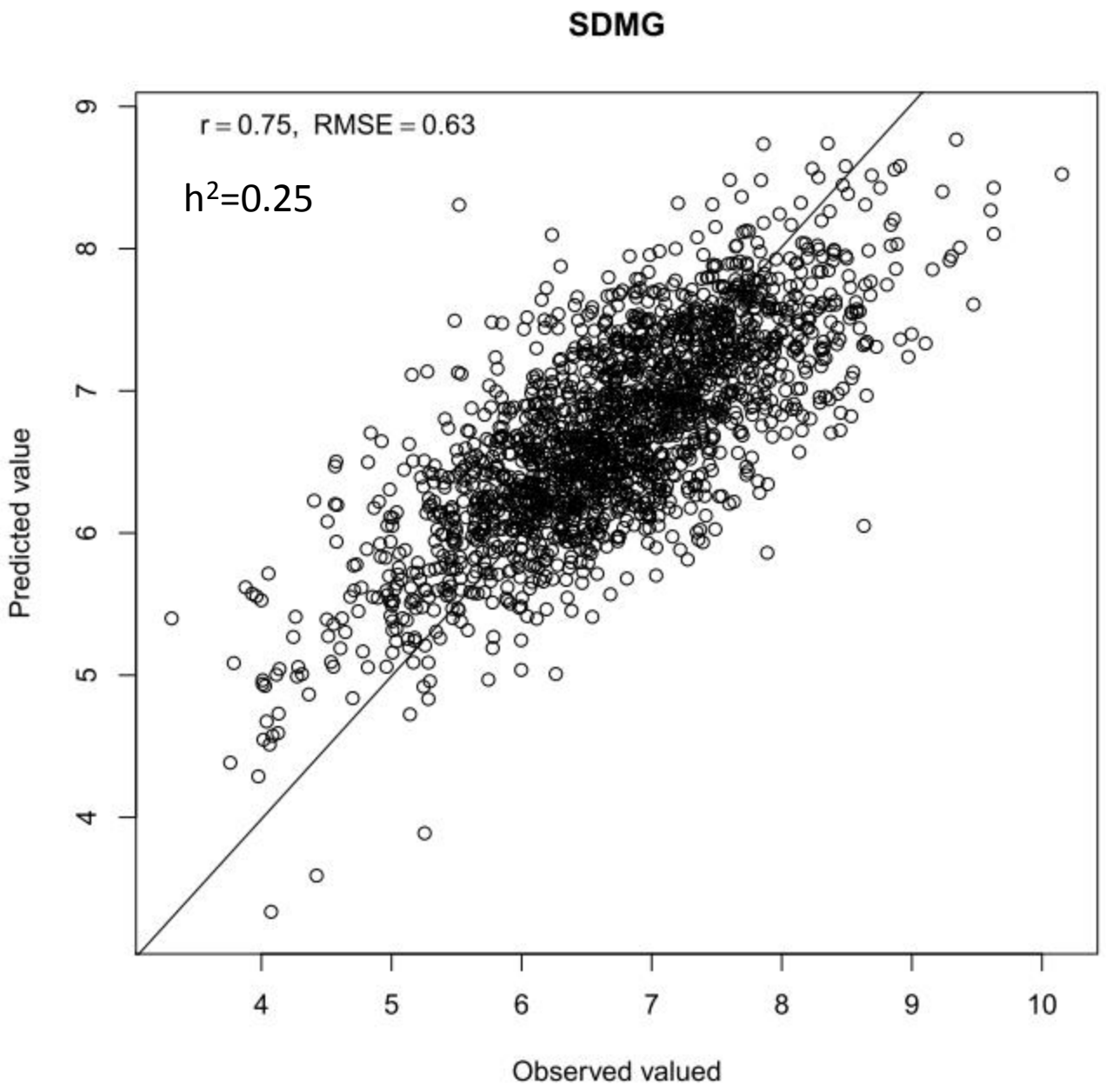

Seedlings
(n=4000)
GBS and GS
n=(1000)
n=(100)
Repeat Cycle
Cross
(2-3 Years)
Phenotype
Update GS
Update GS Model

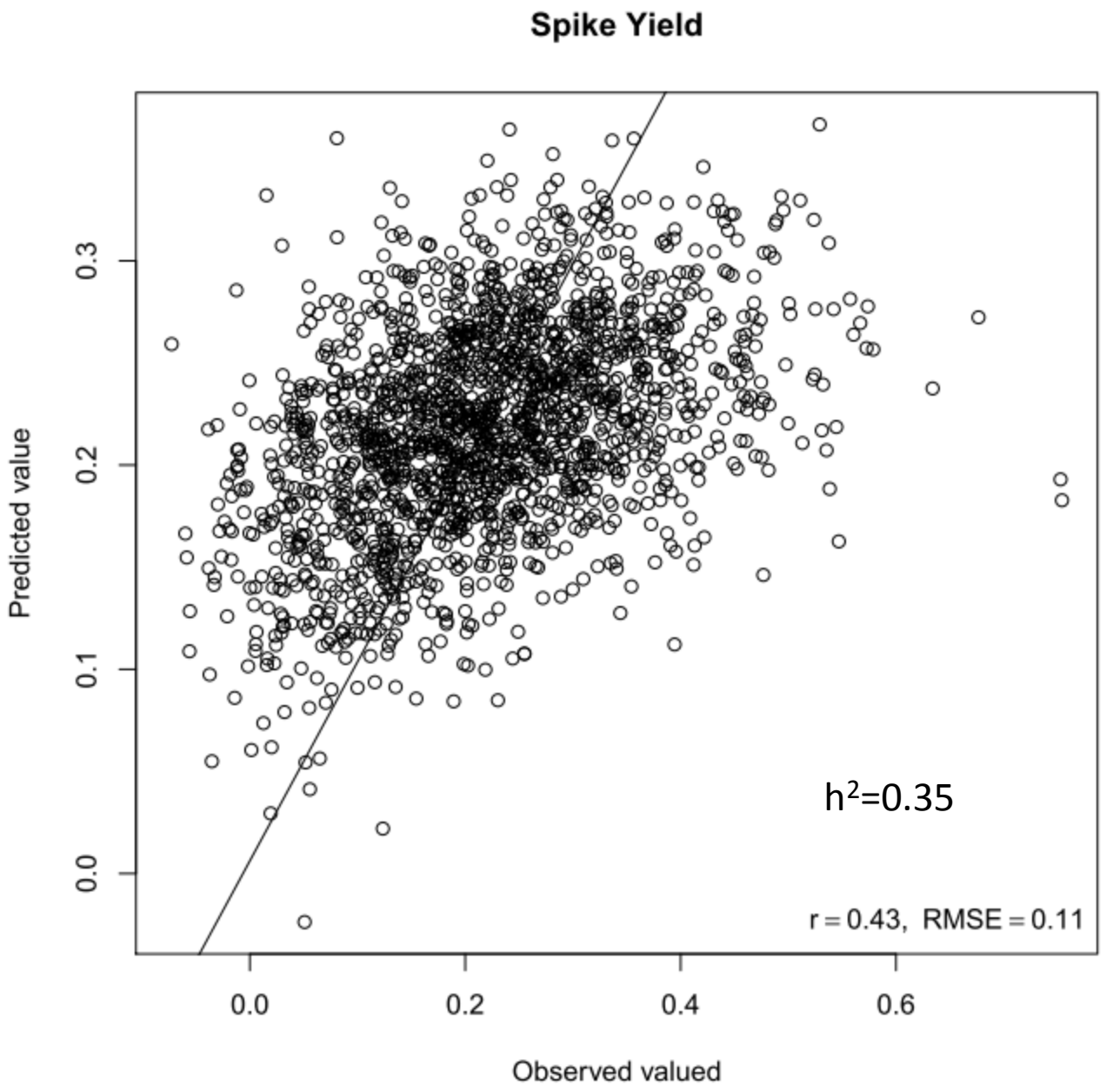
Genomic Selection Model Development and Validation

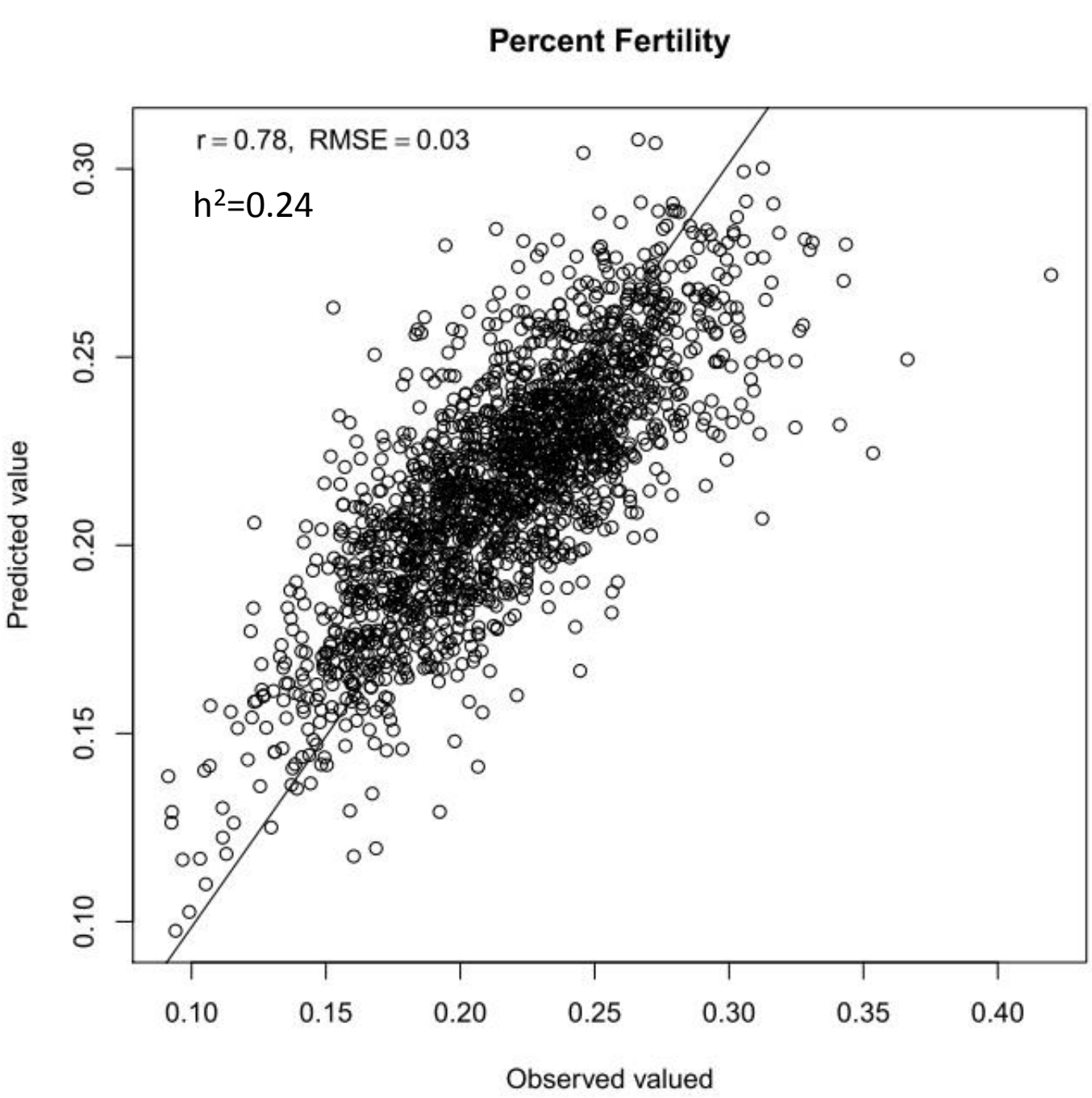
- 6364 SNP markers with less than 5% missing data used for model and minor allele frequency >0.05
- 2600 Plants genotyped
- Due to missing data, 1000 to 2600 data points per trait
- Validation by forming model with 90% of data to predict 10%, 10 resamplings without replacement

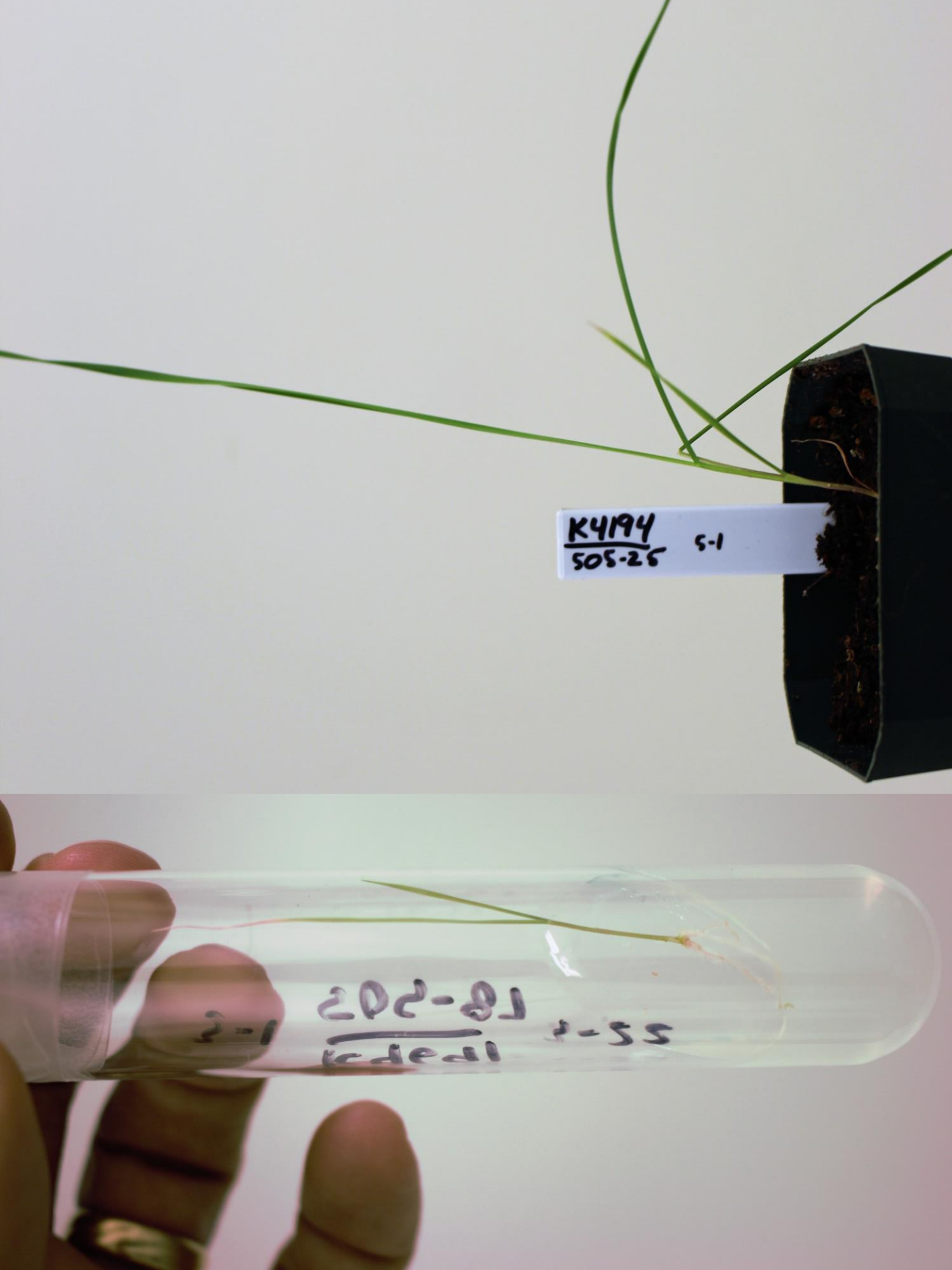
Credit: Jared Crain


Free Threshing
r = 0.6, RMSE = 17.33
h2=0.41
Predicted value
Observed valued
0
20
40
60
80
100


SDMG
r = 0.75, RMSE = 0.63
h2=0.25
Predicted value
Observed valued
4
5
6
7
8
9
10


Spike Yield
Predicted value
0.0
0.1
0.2
0.3
0.0
0.2
0.4
0.6
Observed valued
h2=0.35
r = 0.43, RMSE = 0.11


Percent Fertility
r = 0.78, RMSE = 0.03
h2=0.24
Predicted value
Observed valued
0.10
0.15
0.20
0.25
0.30
0.35
0.40


K4194
505-25
5-1

Sydney Schiffner & Craig Sheaffer