

Connecting rapeseed plant architecture to yield via 3D imaging

Part of: Increase of N-efficiency through extension of genetic diversity

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2023

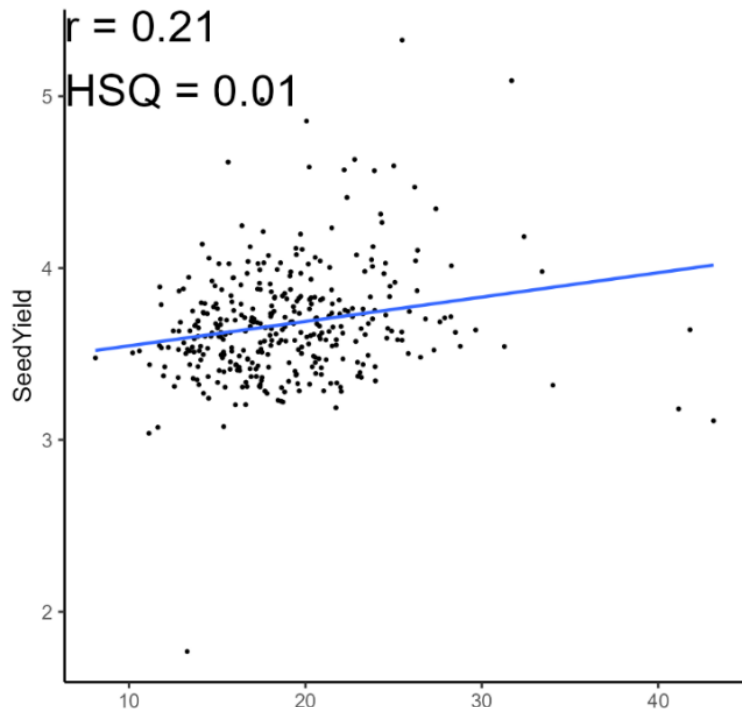




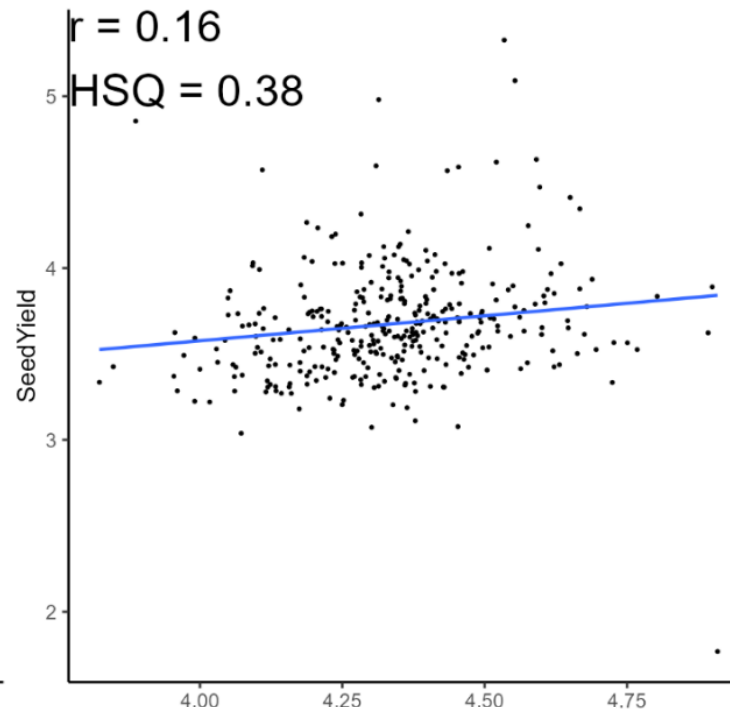
$$Yield = Seeds\ silique^{-1} * TSW * Siliques\ plant^{-1} * Plants\ m^{-2}$$

- BnNAM
 - 36 families
 - 164 genotypes
 - 323 Test hybrids with two elite hybrid mothers
- Phenotyping in two environments
 - Low N input

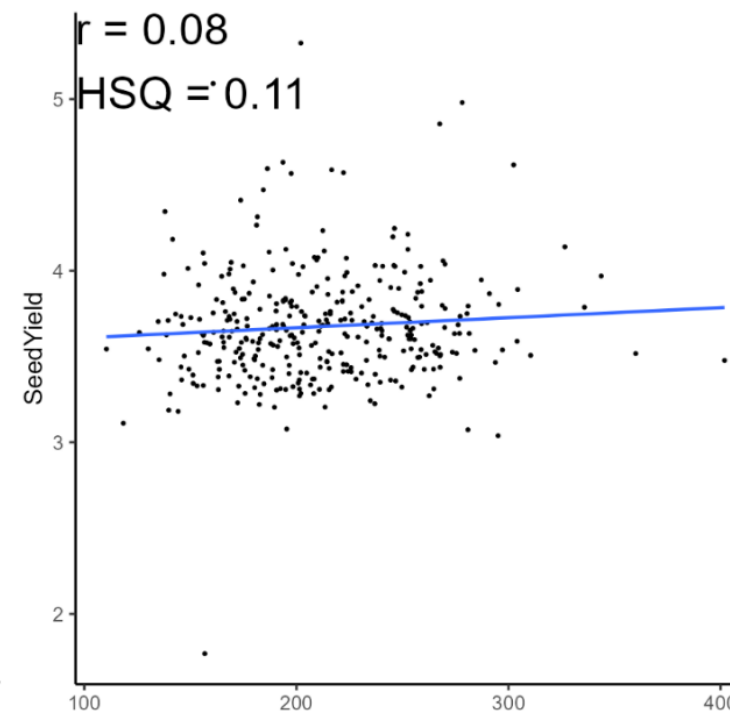
Field test parameters



Seeds silique⁻¹



TSW



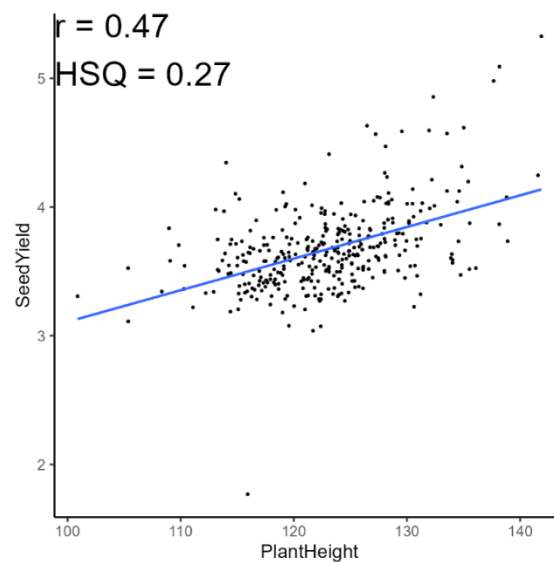
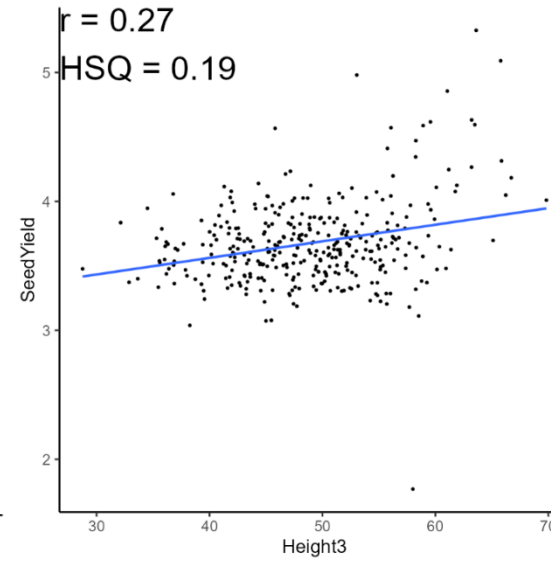
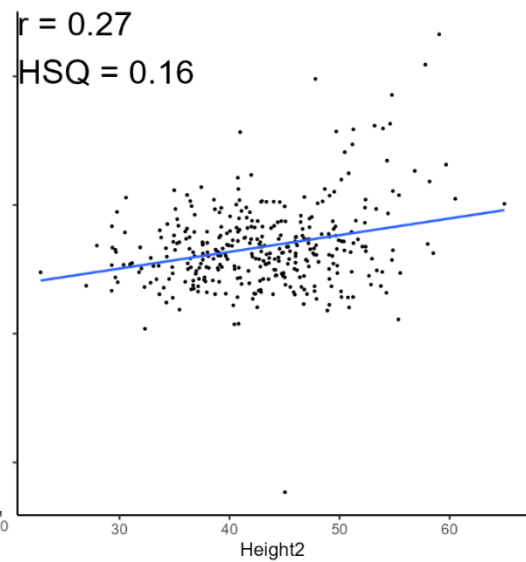
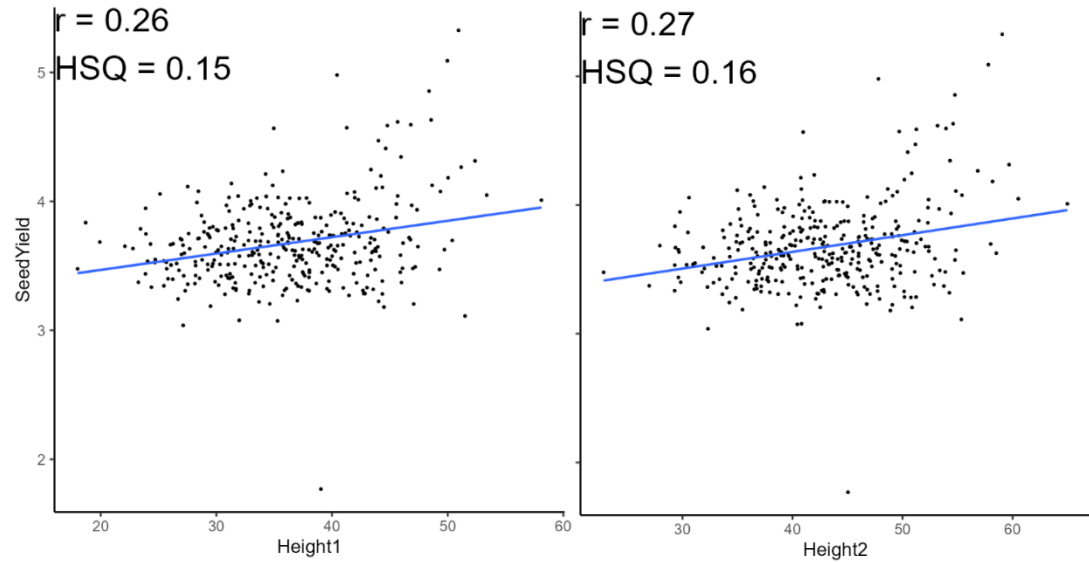
Siliques plant⁻¹



- Branch *Siliques plant⁻¹*
- Branch angle

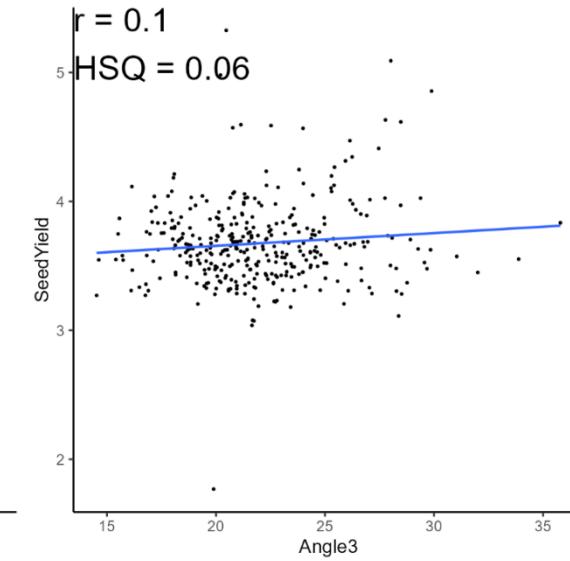
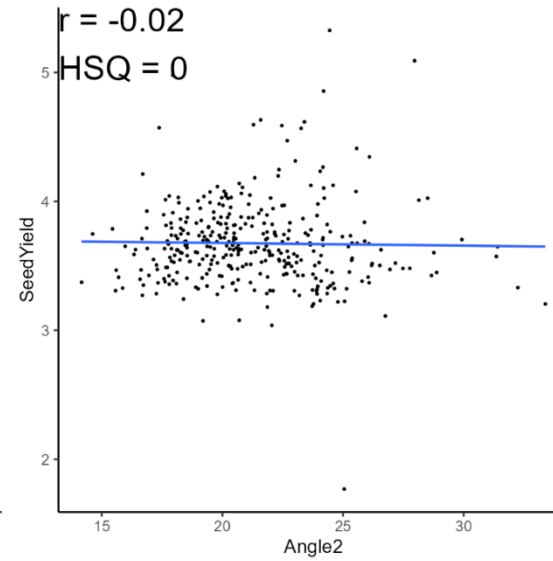
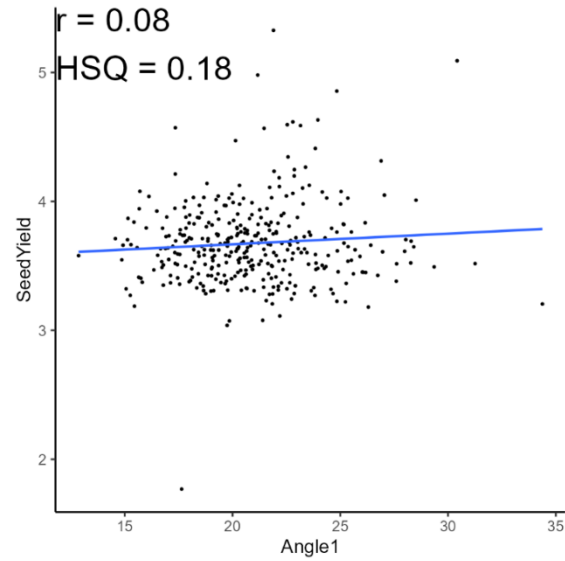
Architectural traits

... and the relationship to seed yield



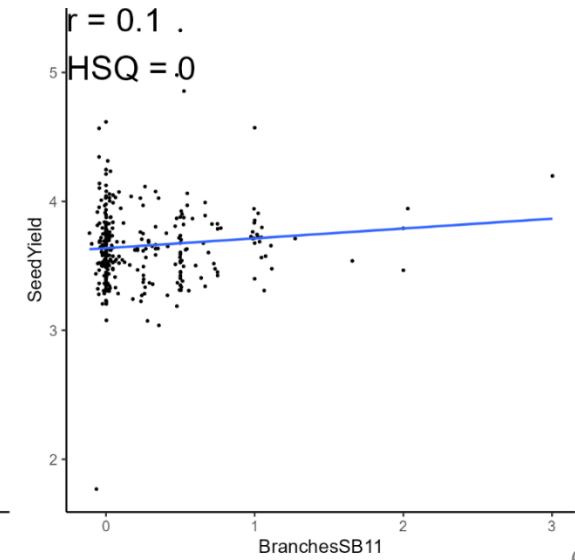
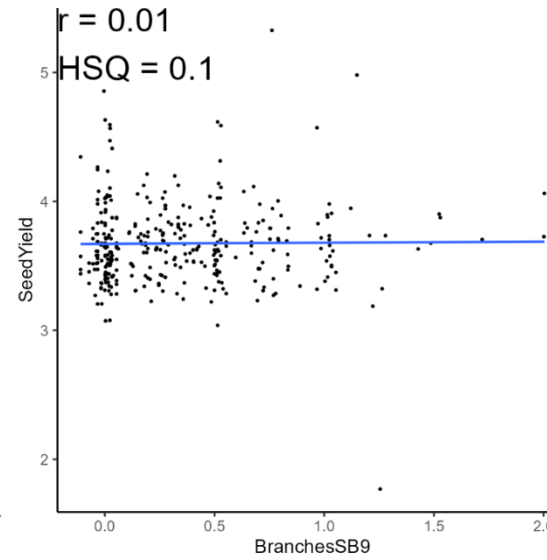
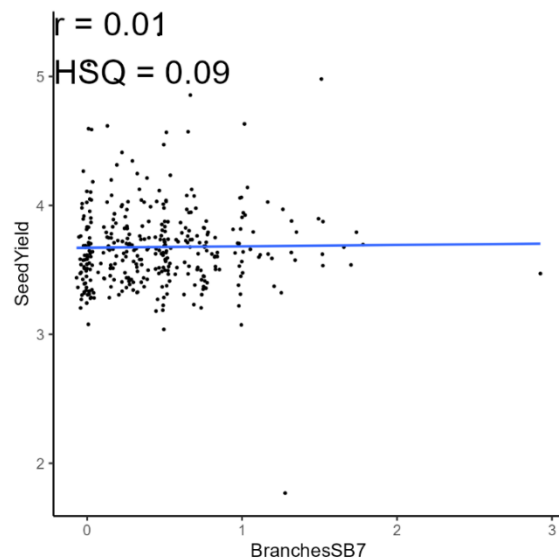
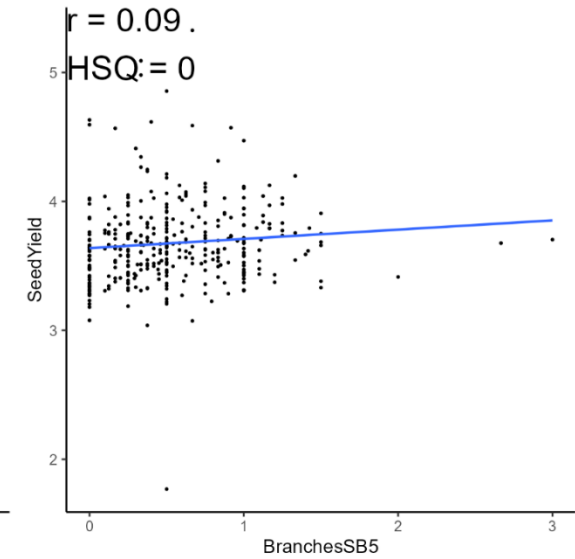
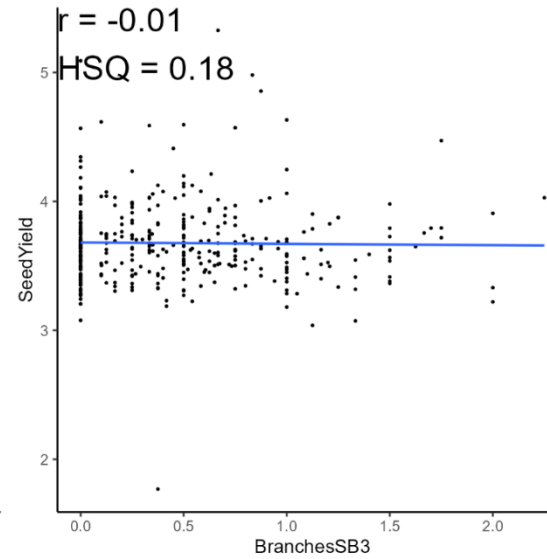
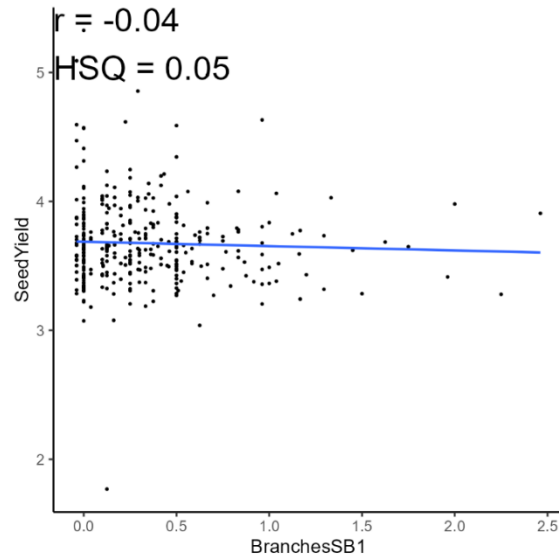
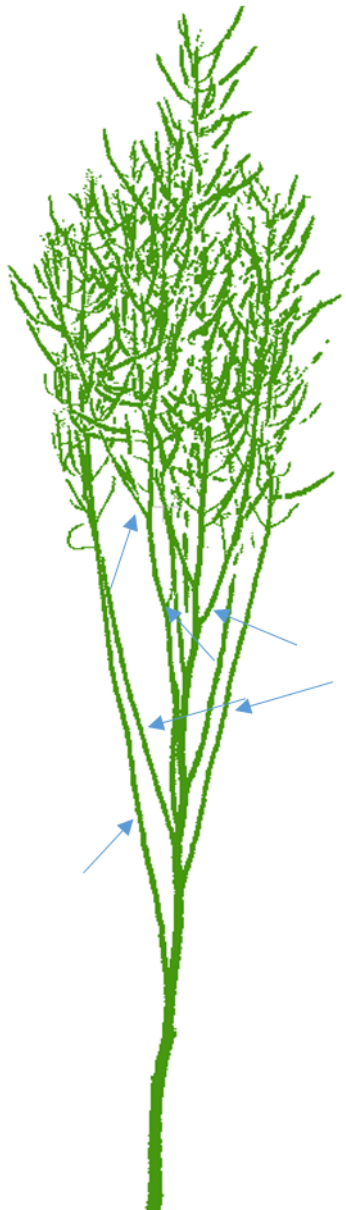
Architectural traits

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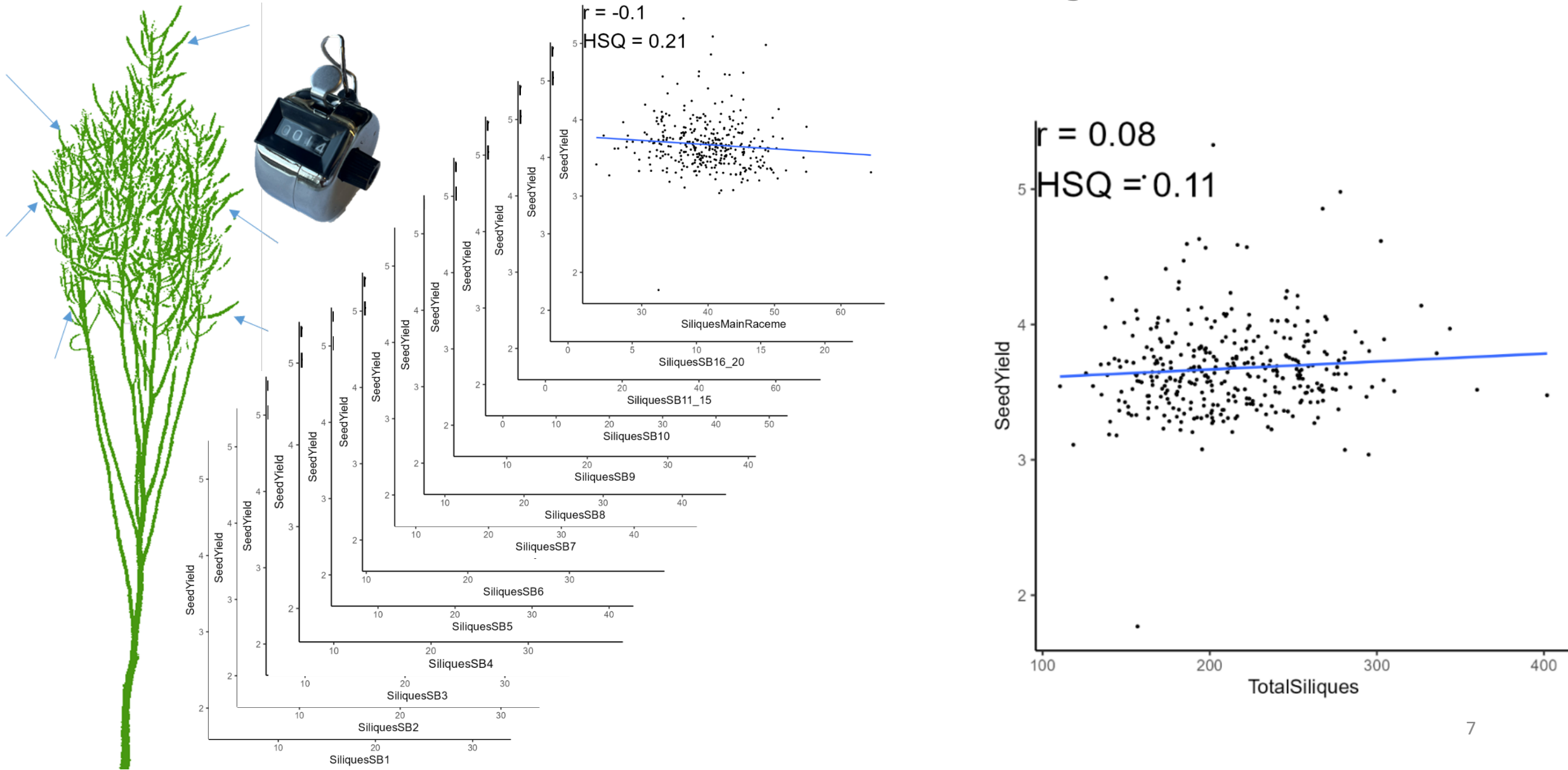
Architectural traits

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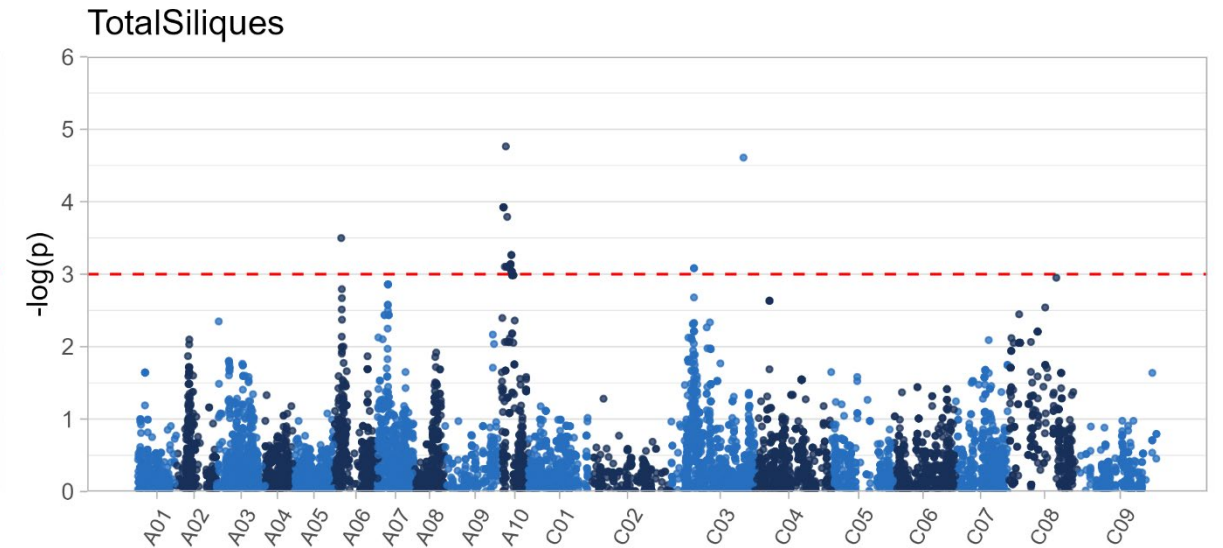
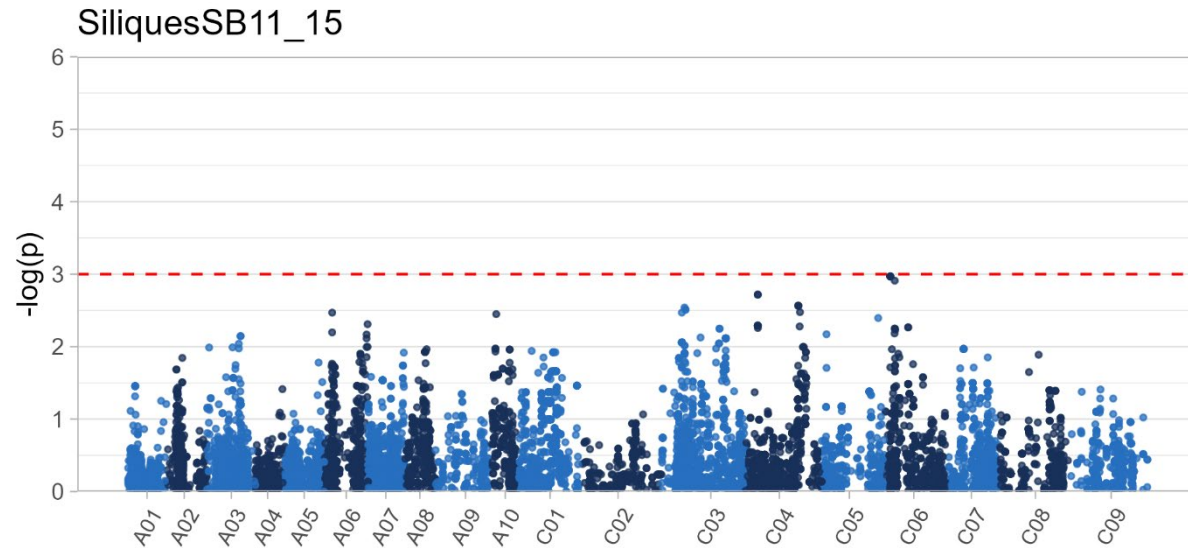
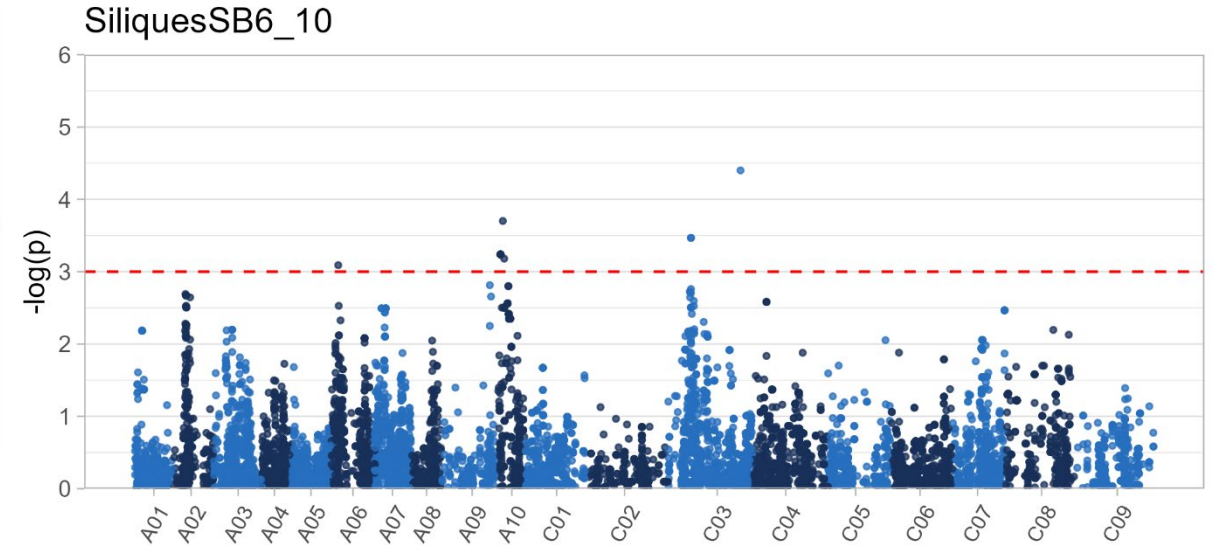
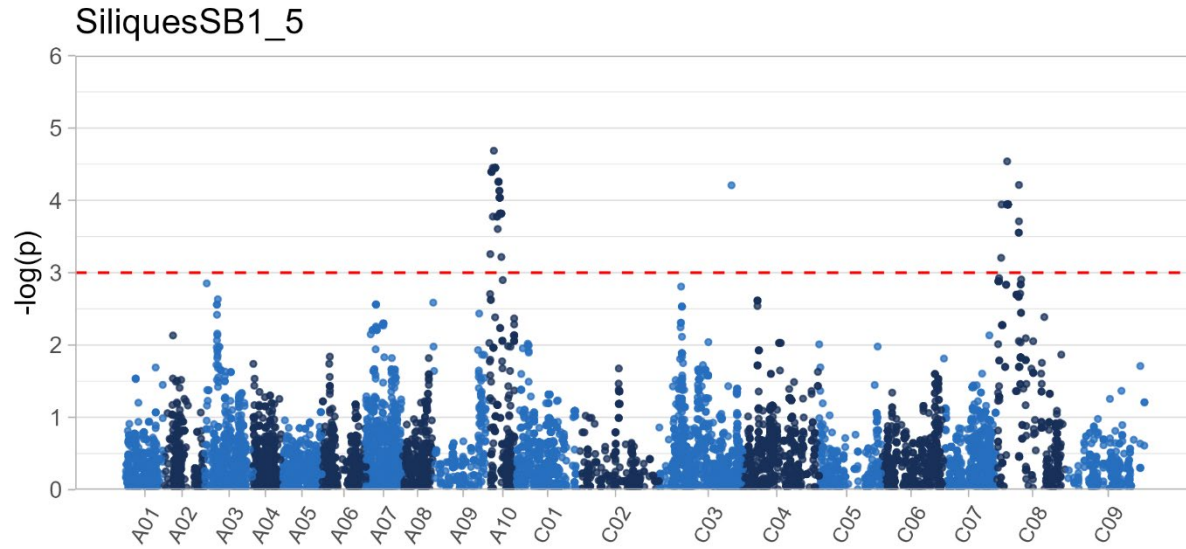


Architectural traits

... and the relationship to seed yield



GWAS Siliques on side branches



Digital assessment of plant architecture

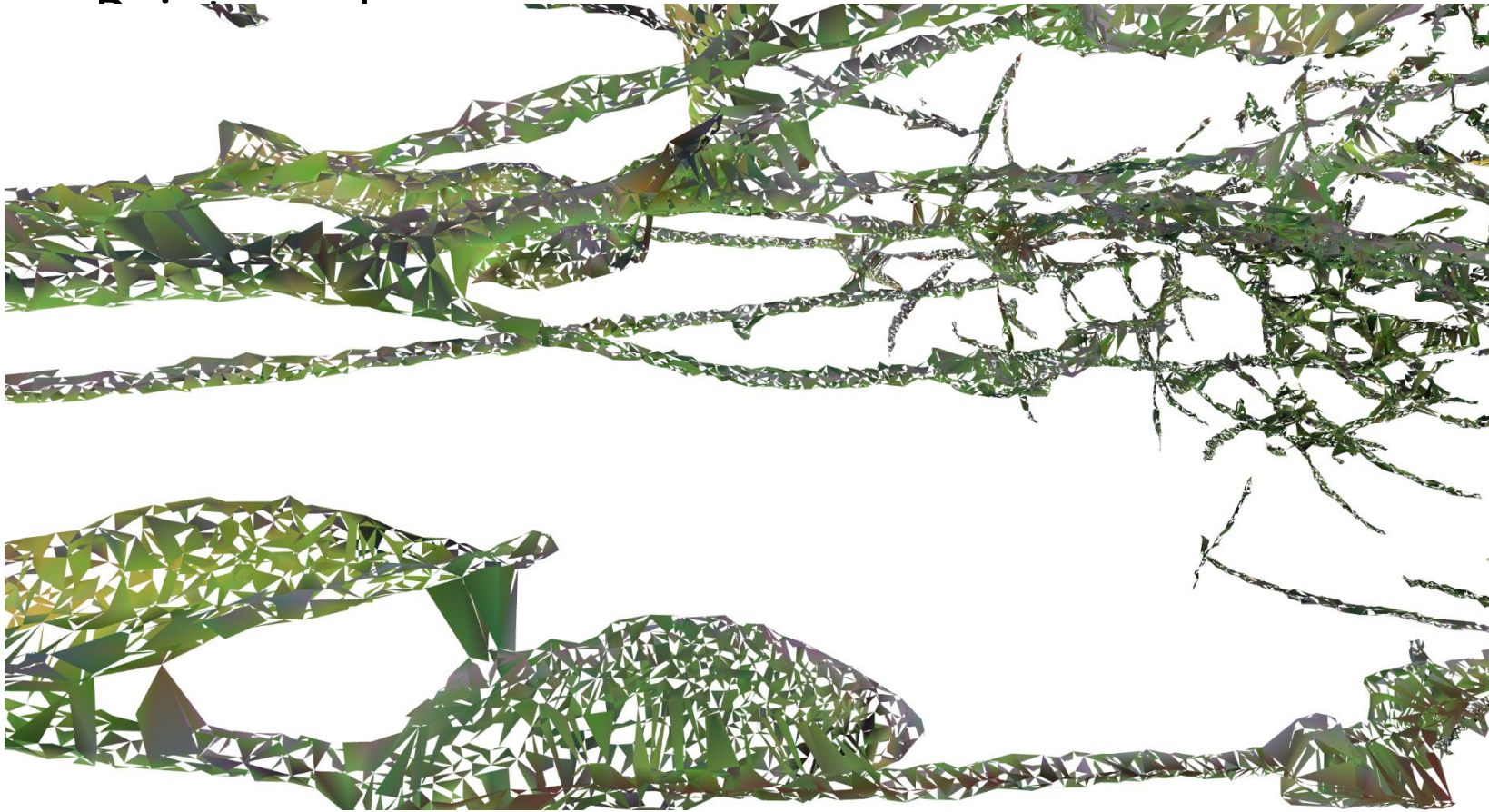


From point cloud to phenotype

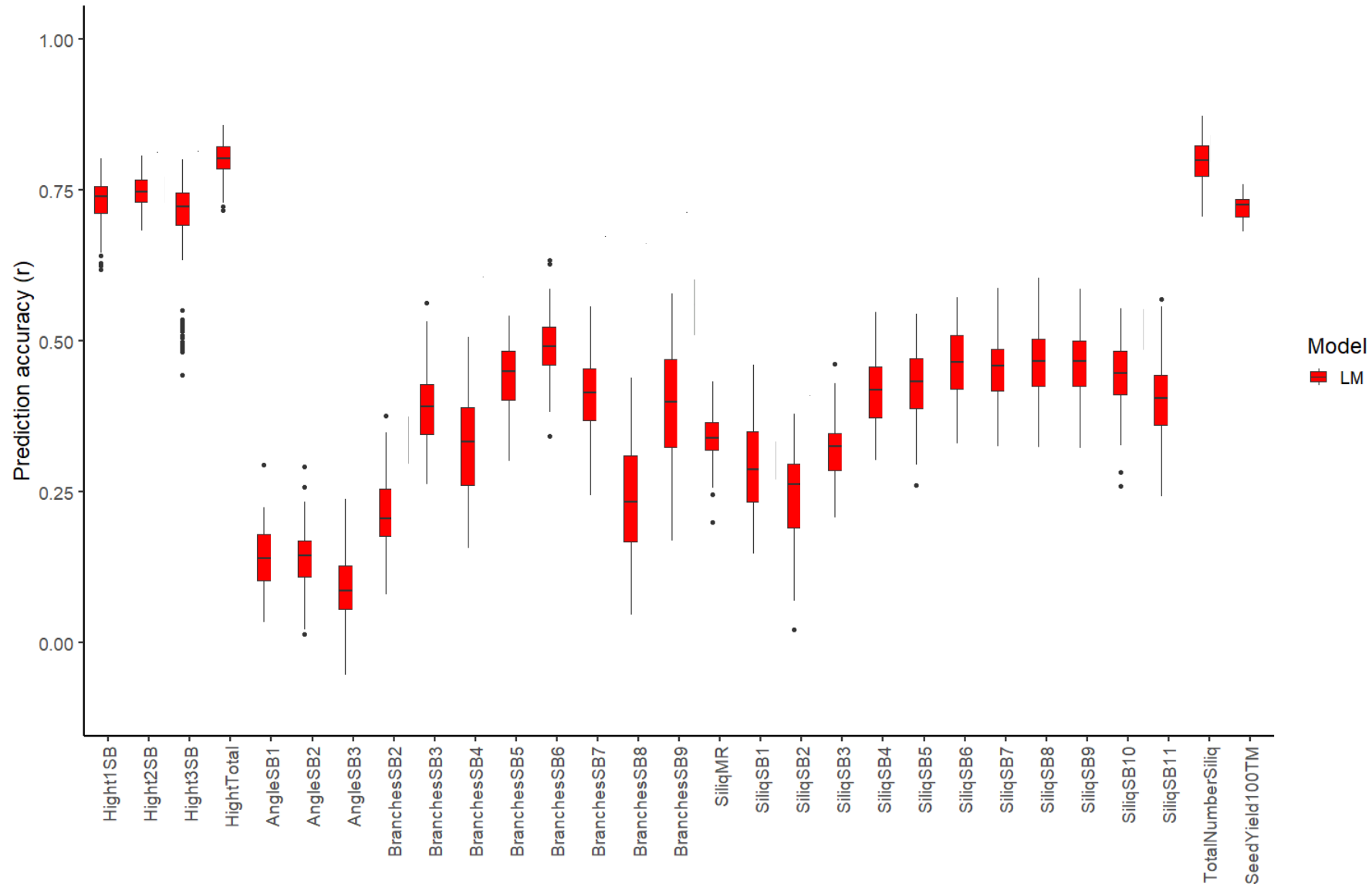


	X	Y	Z
P1	10	5	6
P5	23	17	8
P3	12	22	9
P4	4	1	3
P2	66	55	18

Point cloud properties



Prediction of plant architecture



Thanks for your attention!

Any questions?



 @svenomics

- **Prof. Dr. Andreas Stahl (JKI)**
- Andreas Eckert (PhD-student)
- Stefan Paulus (IFZ)
- Lennard Ehrig

- **Prof. Dr. Rod Snowdon**
- Dr. Benjamin Wittkop

- Charlotte Häuser
- Stjepan Vukasovic
- Anna Langstroff
- Lennard Ehrig
- Lennart Scheer
- Lukas Förter (Master)

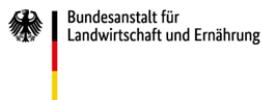


Gefördert durch



aufgrund eines Beschlusses
des Deutschen Bundestages

Projektträger



NPZ INNOVATION
Wir forschen für Qualität.

