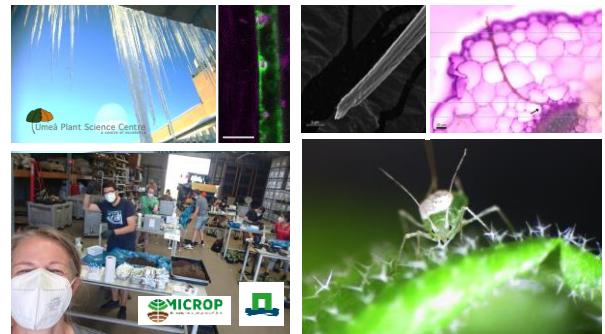
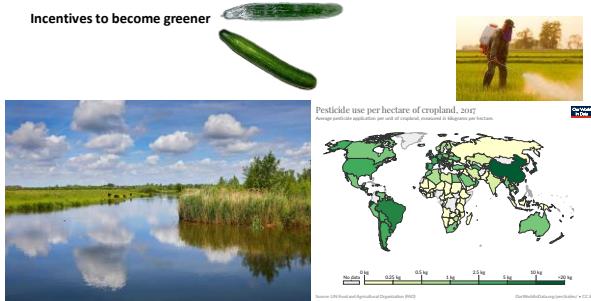




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a Science story

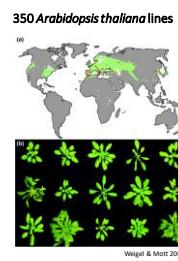
an R gene against aphids, whiteflies and heat stress



4



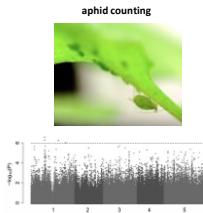
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6

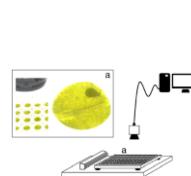


Phenotyping: High ThroughPut (HTP) needs High Specificity (HS)
Genome-Wide Association mapping:

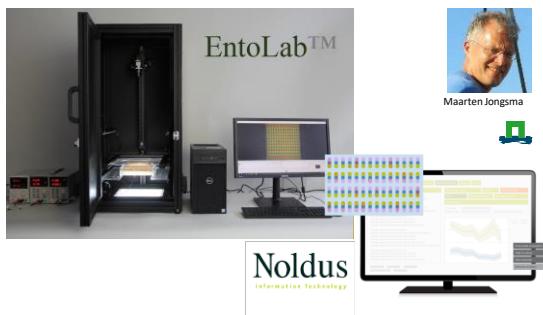


7

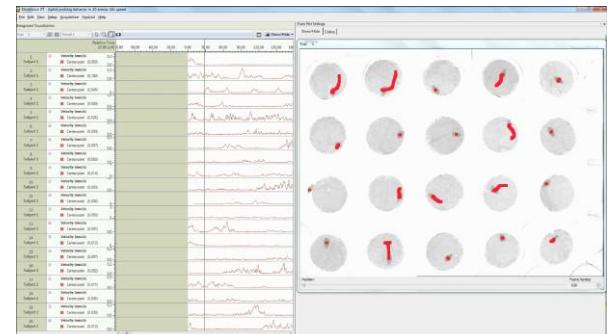
High Throughput Phenotyping (HTP) and High Specificity Phenotyping (HSP)



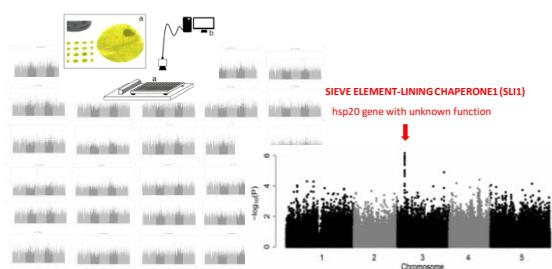
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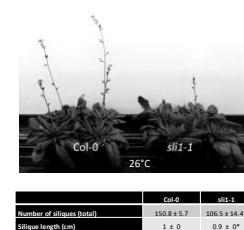
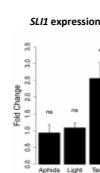


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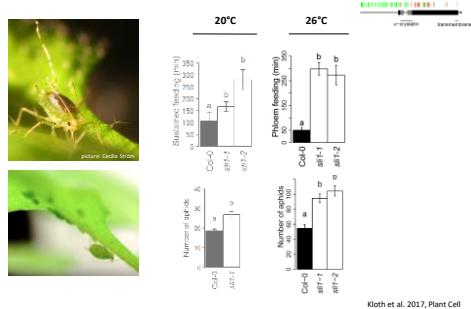


11

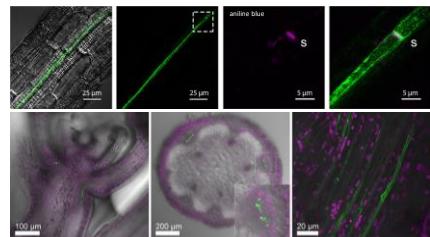
Heat stress tolerance – seed set improvement



12

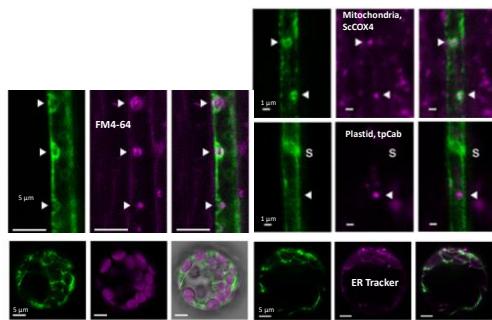


13

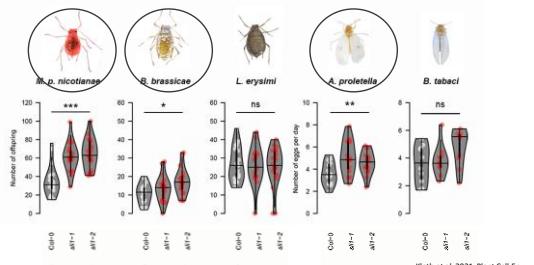
SIEVE ELEMENT-LINING CHAPERONE1 (SLI1)

Kloth et al. 2017, Plant Cell, Kloth et al. 2023, Plant Cell Env.

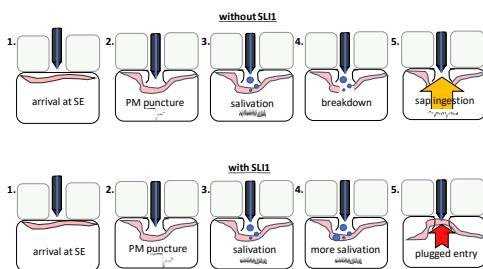
14



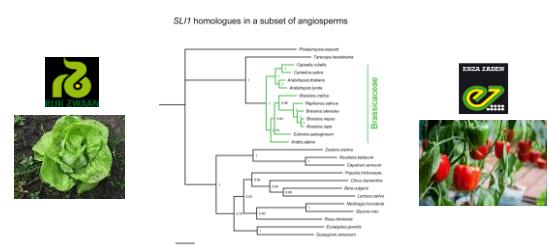
15

How specific is SLI1-mediated resistance?

16



17



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the Game changers

What's next



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Phenomics

- Plant physiological state + insect behaviour
 - HTP spectral imaging + insect tracking

- Multivariate quantitative genetics
 - Dimension reduction
 - Network analyses and machine learning



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The opportunities for industry-academia



- Innovative high-risk, technically demanding projects
- Crop meets model, or crop becomes model - Industry can steer science
- All for one and one for all
 - For a break through we need to combine expertises
 - Finding solutions to environmental, social, and health challenges (= not without positive spin off on branding and economy)

➤ Dare to establish project-based initiatives between corporate units and academia

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Acknowledgements



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