

High-resolution field phenotyping: exploiting rice genetic diversity

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IR 8

PETA

DGWG

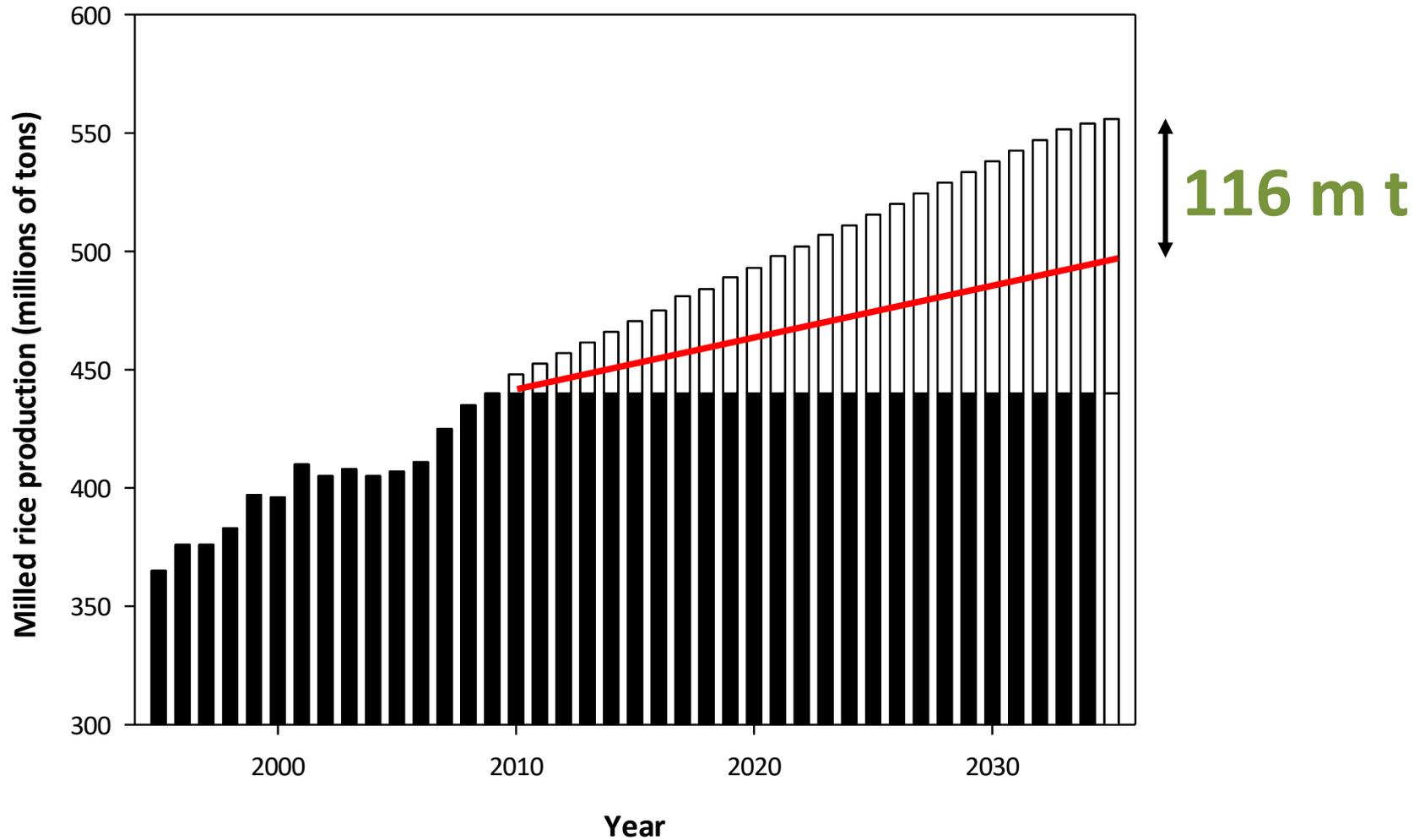
IR 8

PETA

DGWG

IR8 – 3x yield
1962, Peter Jennings

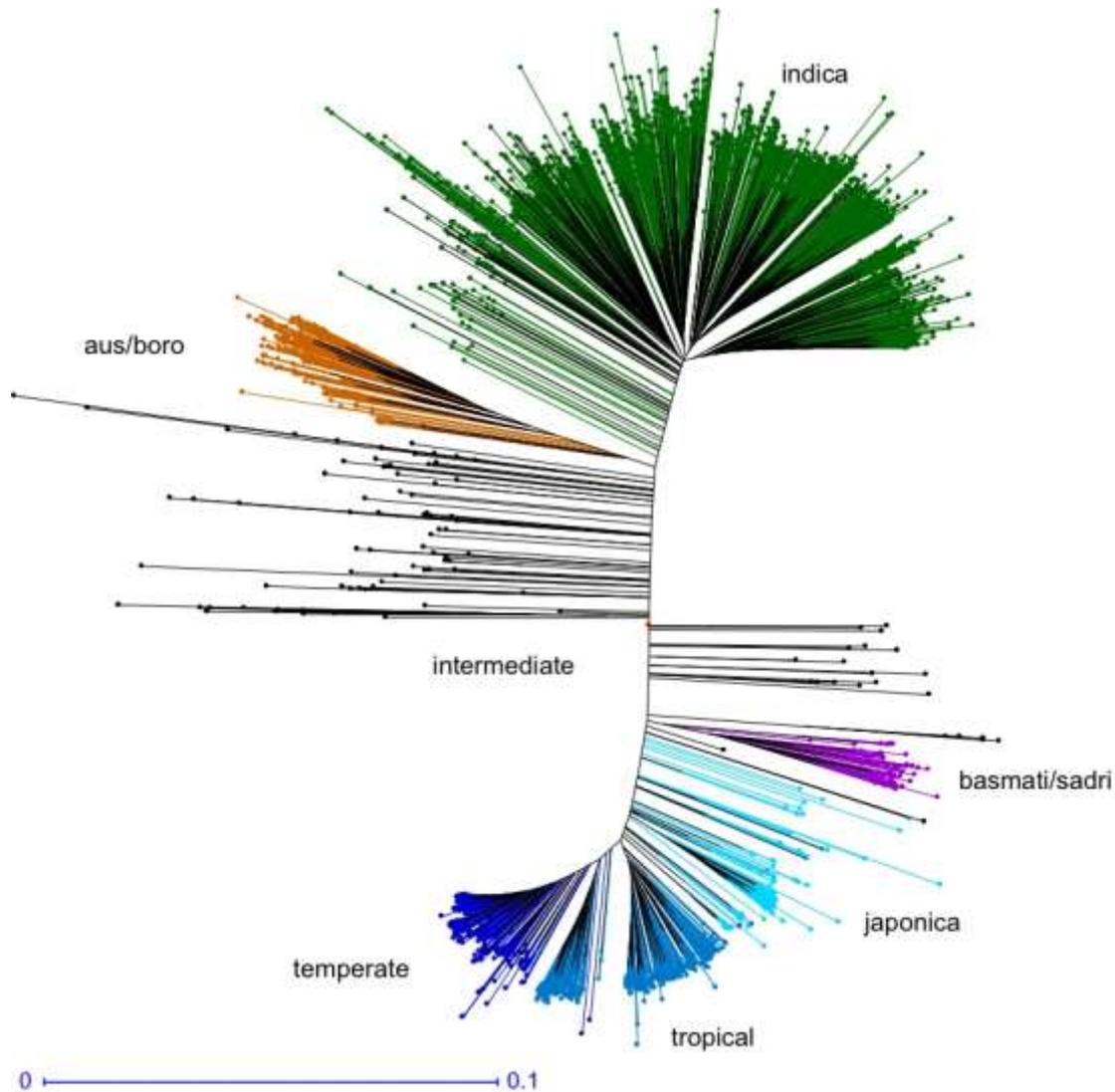
Yield Gap





The International Rice Genebank
127,000 rice accessions and wild relatives

The 3,000 rice genomes project



Genotype to Phenotype

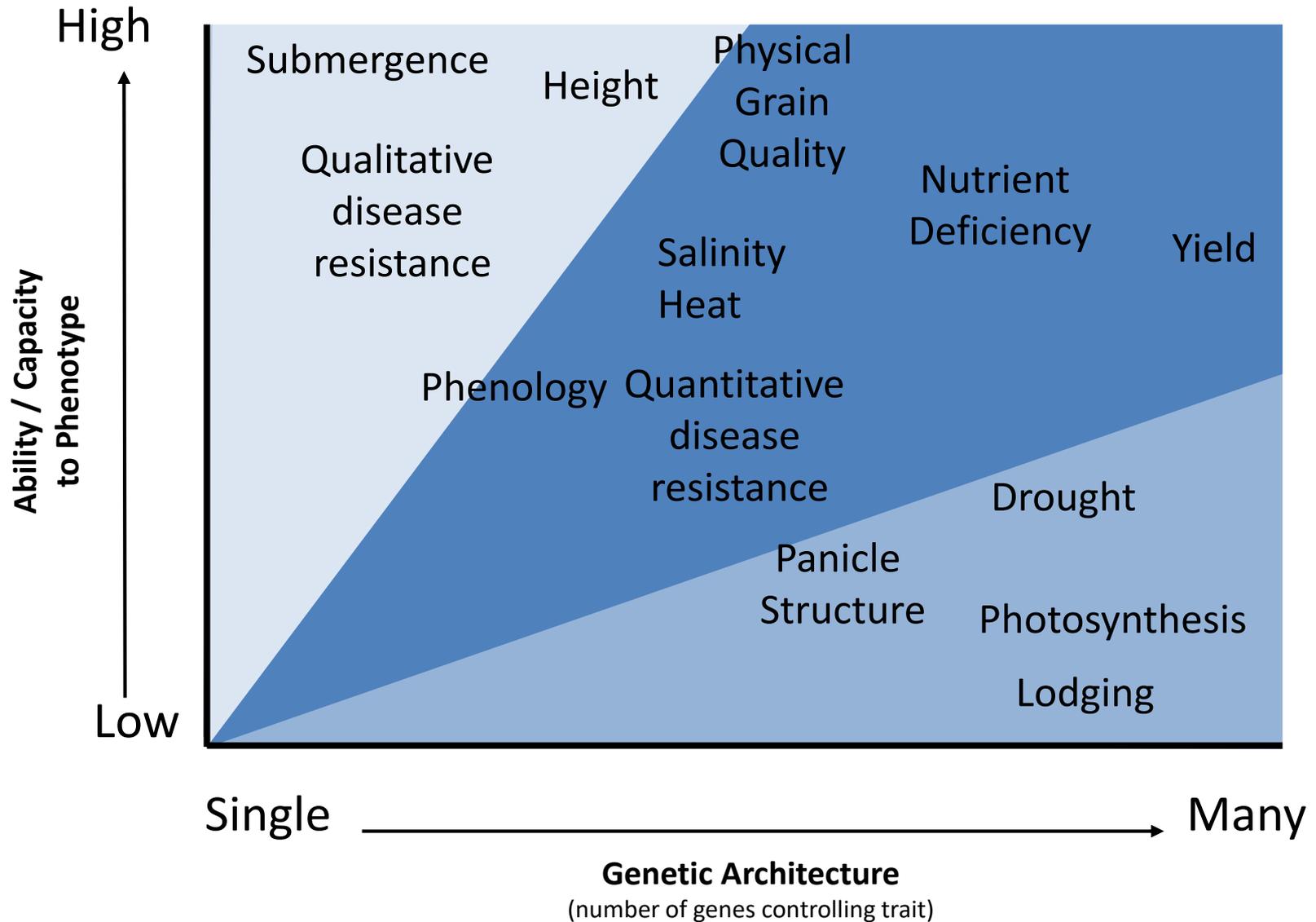


Traditional Methods

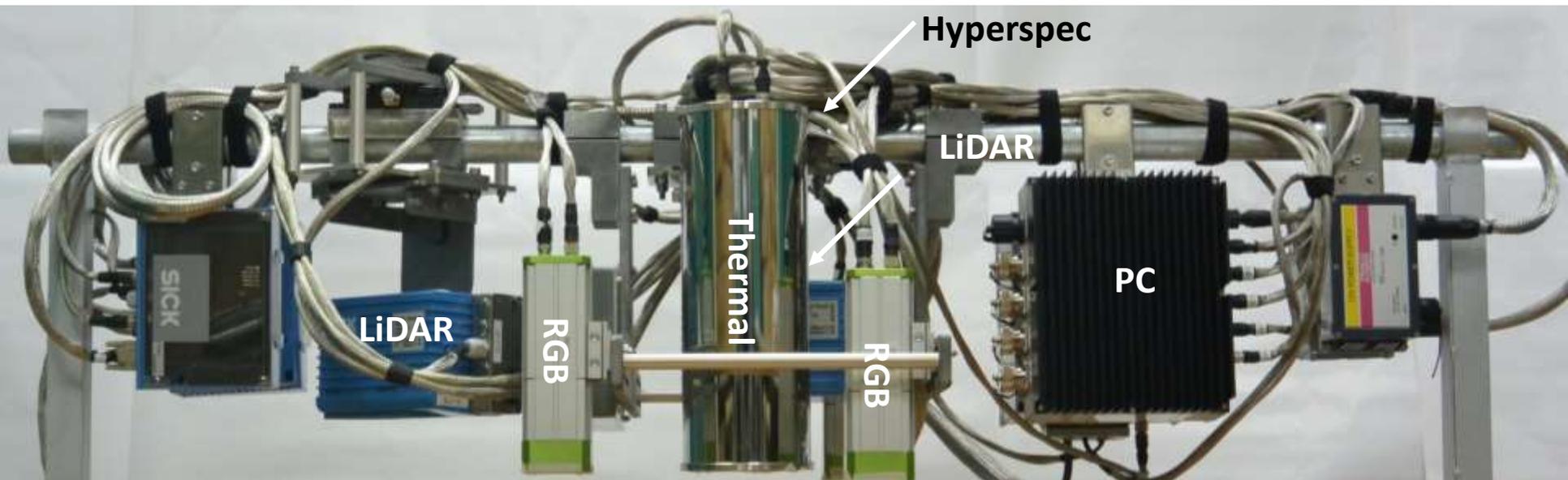


C₄ Rice Centre, 2011

Trait Selection



High-resolution Phenotyping



Paddy Field



IRRI Zeigler Experiment Station

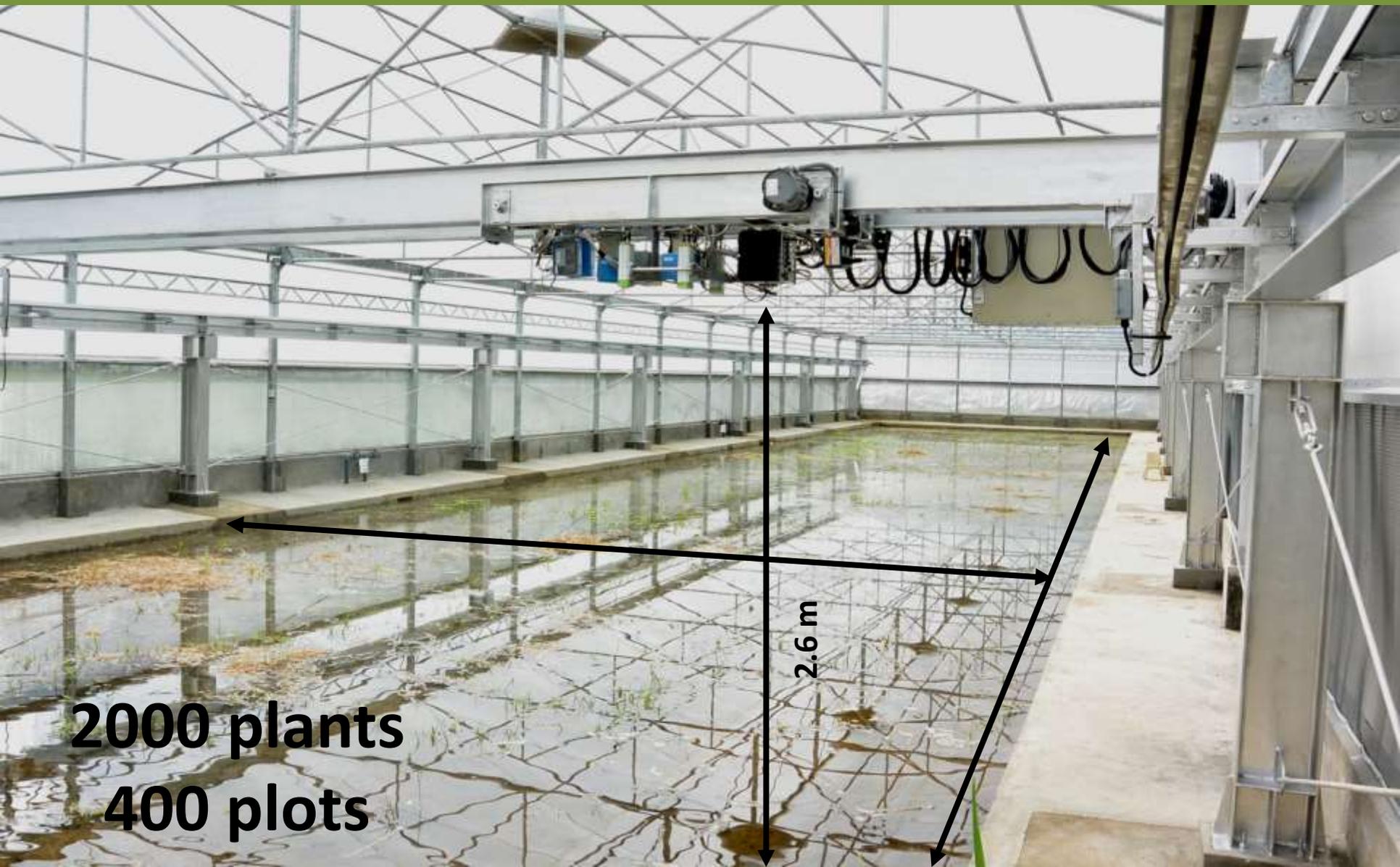
High-throughput phenotyping



Australian
Plant Phenomics Facility
The High Resolution Plant Phenomics Centre



Paddy 'Field'



2000 plants
400 plots

2.6 m

Automation and Control



Scaling Up: IRRI Farm



Steve Klassen, IRRI



IRRI Zeigler Experiment Station (Upland Farm)

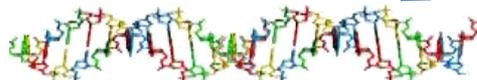
Scaling Up: Global Rice Array



Rice
Array
Sites



Database &
Bioinformatics



New Genetics For Climate
Adaptation



New Varieties For a Climate
Challenged World

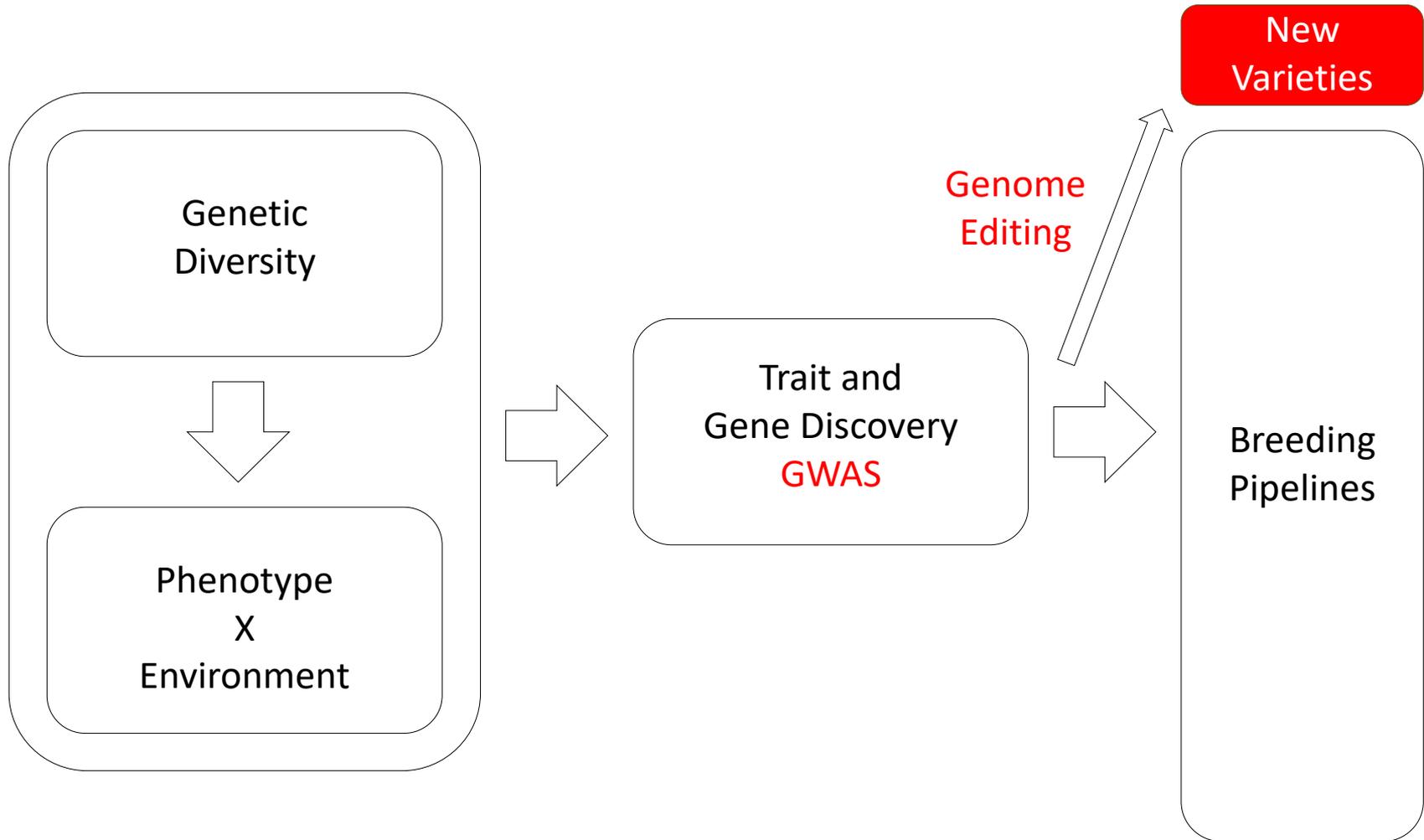
Future Challenges



IRRI, Rwanda, East Africa



Begin with the end in mind...



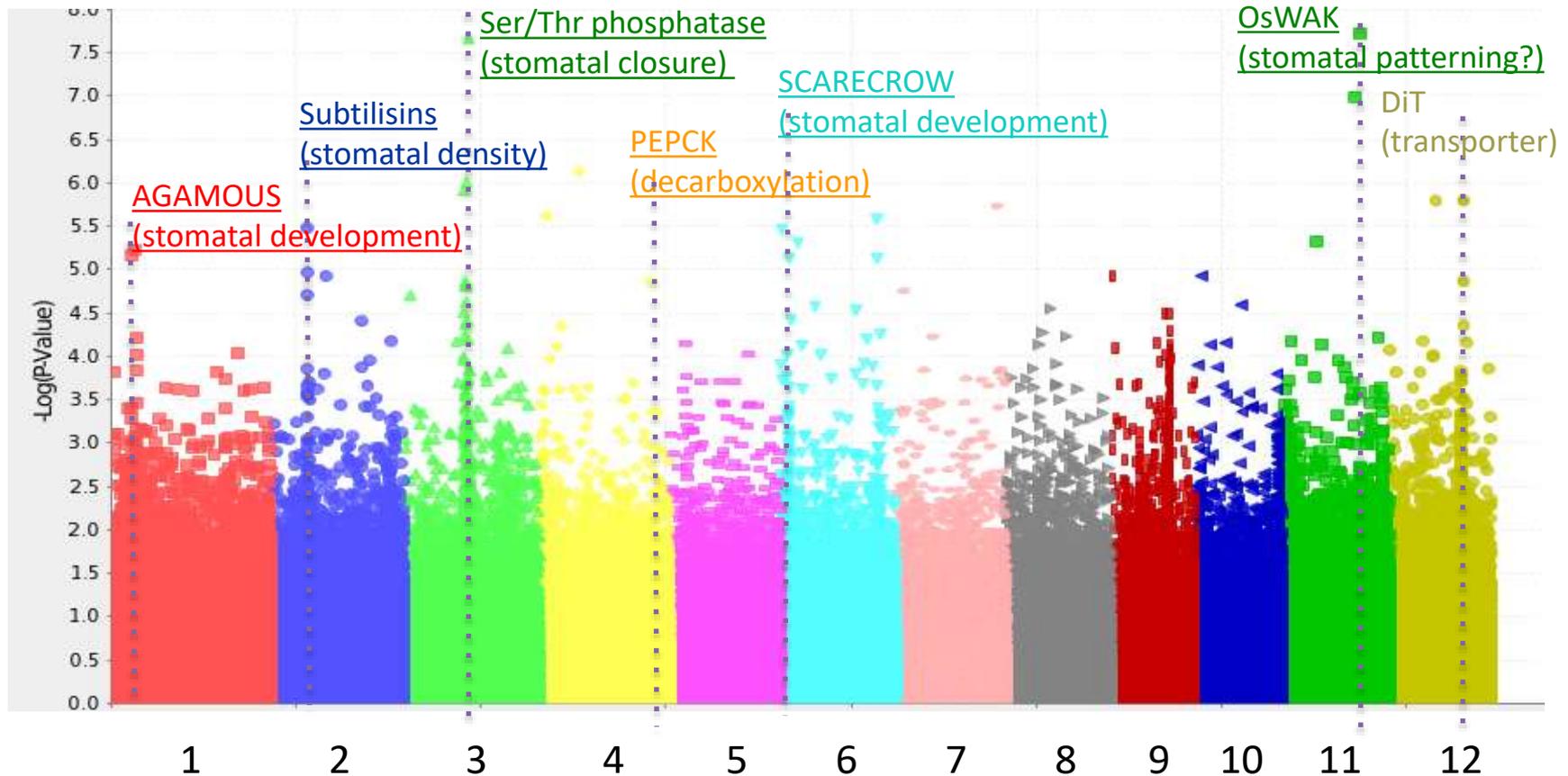
Natural variation in photosynthesis



C₄ Rice Centre, IRRI 2016

47 leaf photosynthesis and anatomy traits

Intercellular CO₂ Concentration



Outcomes

- Find out more about who we are and what we do:
C₄ Rice Centre



High CO₂ Facility

Acknowledgements

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