

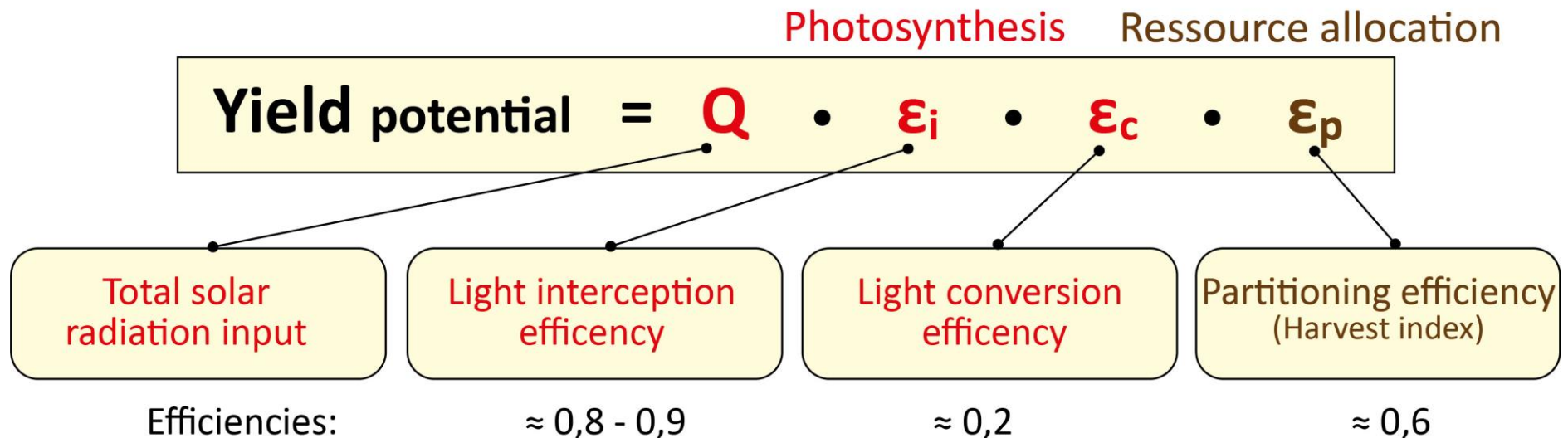


Improving Photosynthesis

- Focus Group Y-1 -

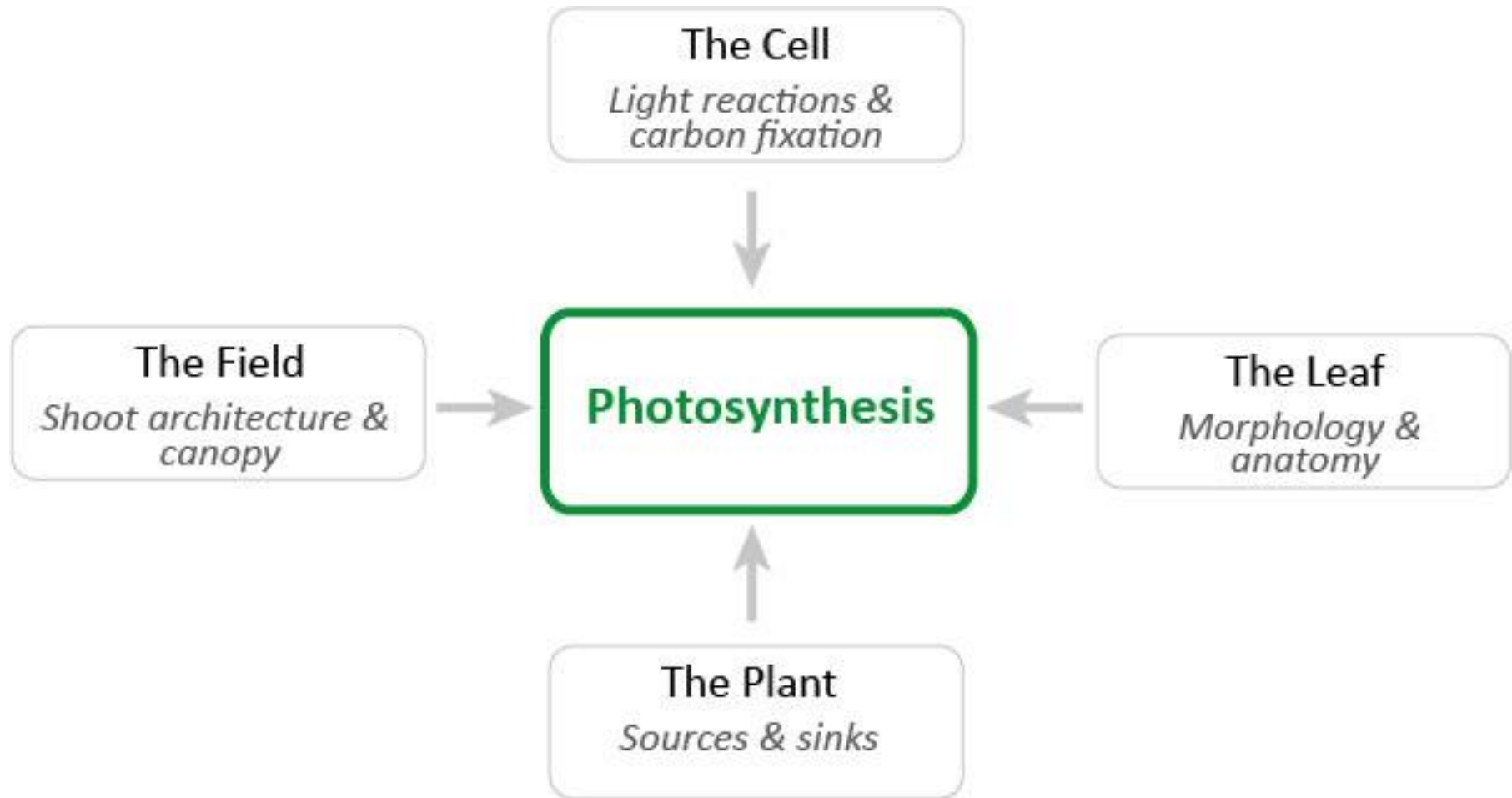
Peter Westhoff (HHU Düsseldorf, Coordinator)

Determinants of Yield Potential



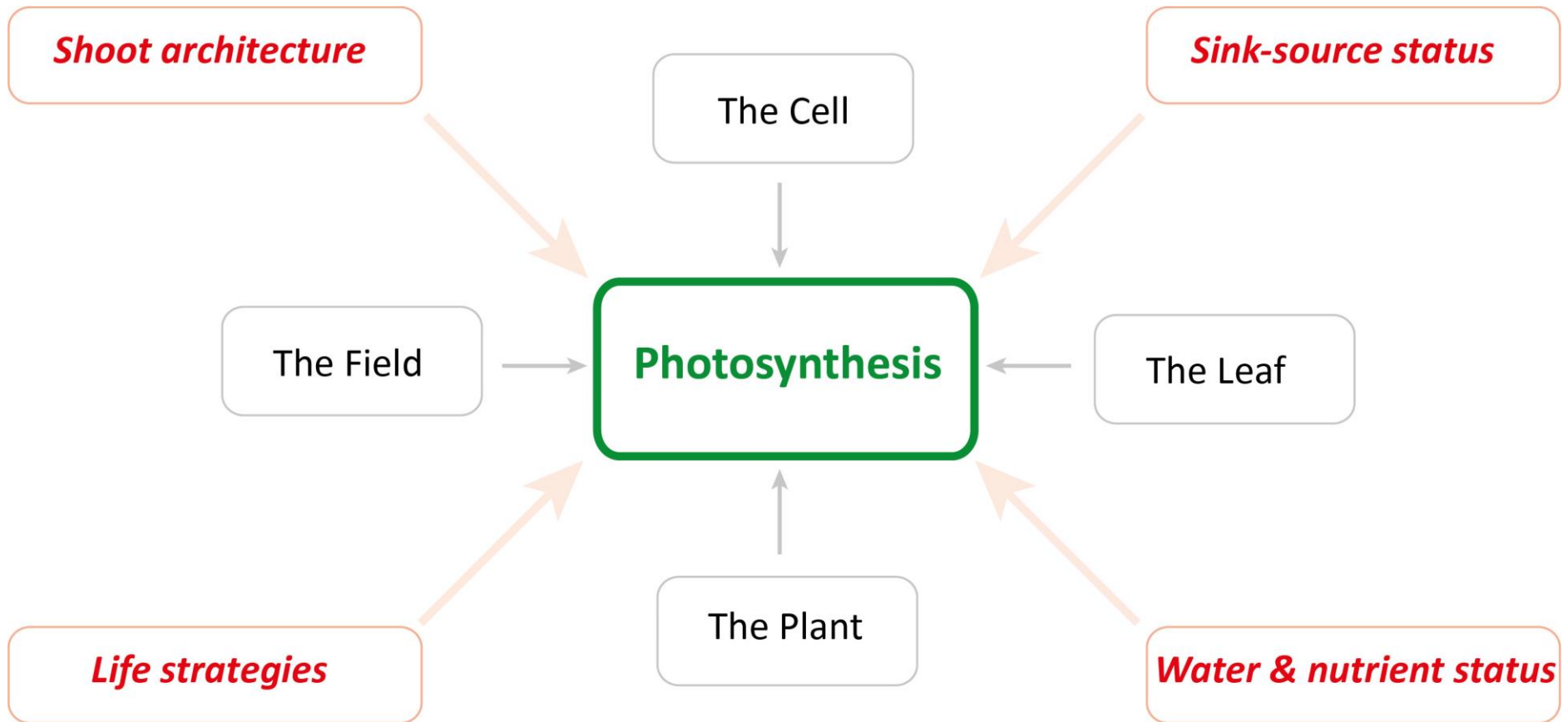
Photosynthesis

- *A Multidimensional Process* -



Photosynthesis

- *Its Integration into Whole-Plant-Physiology -*

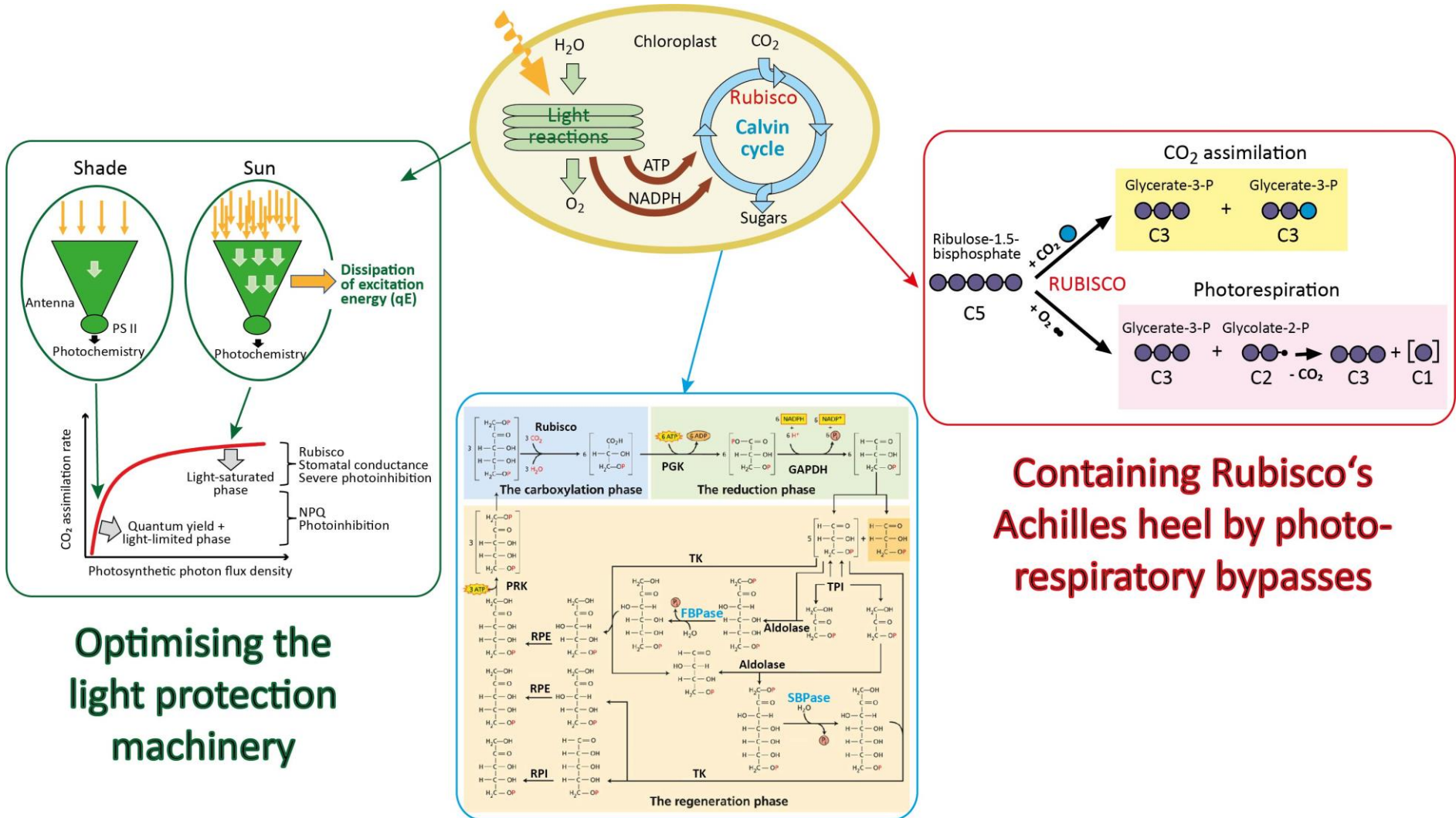


How to Improve Photosynthesis?

- Knowledge-based directed engineering
 - ✓ *Functional photosynthetic submoduls*
 - ✓ *Global regulators of photosynthesis-related gene expression*
- Exploiting genetic diversity for the identification of unknown genes/alleles
 - ✓ *Natural genetic diversity*
 - ✓ *Artificially induced diversity by mutagenesis*

Knowledge-Based Engineering

- Photosynthetic submodules -



Optimising the
light protection
machinery

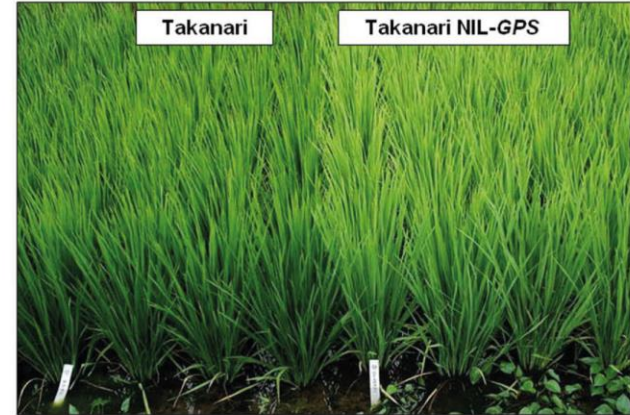
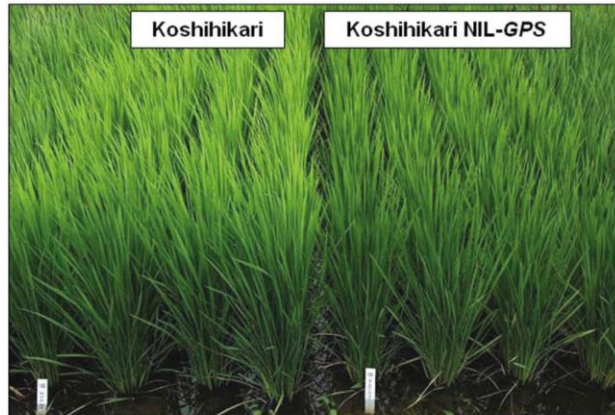
Containing Rubisco's
Achilles heel by photo-
respiratory bypasses

Alleviating enzymatic bottlenecks
in the Calvin-Benson cycle

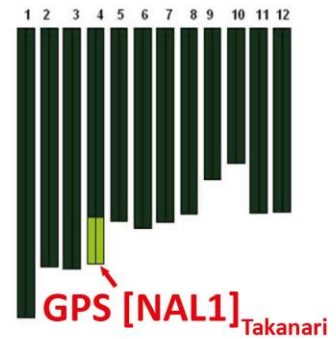
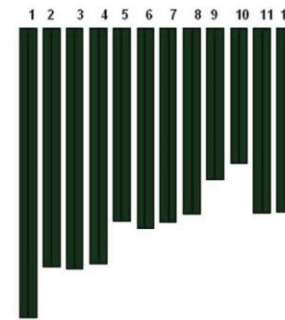
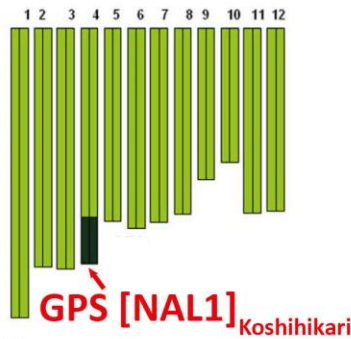
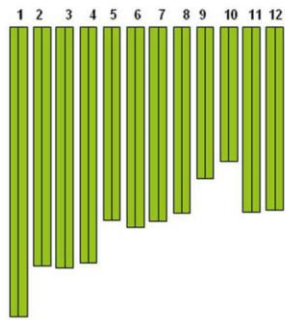
How to Improve Photosynthesis?

- Exploiting Genetic Diversity in Rice -

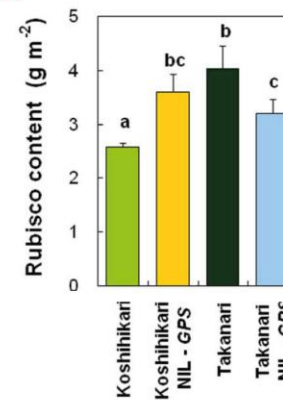
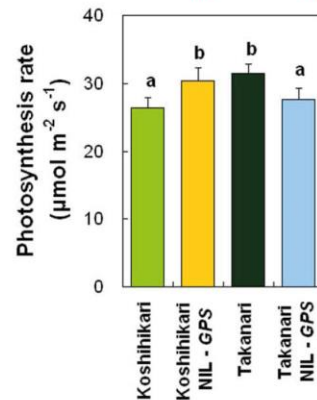
Field growth



Genotype

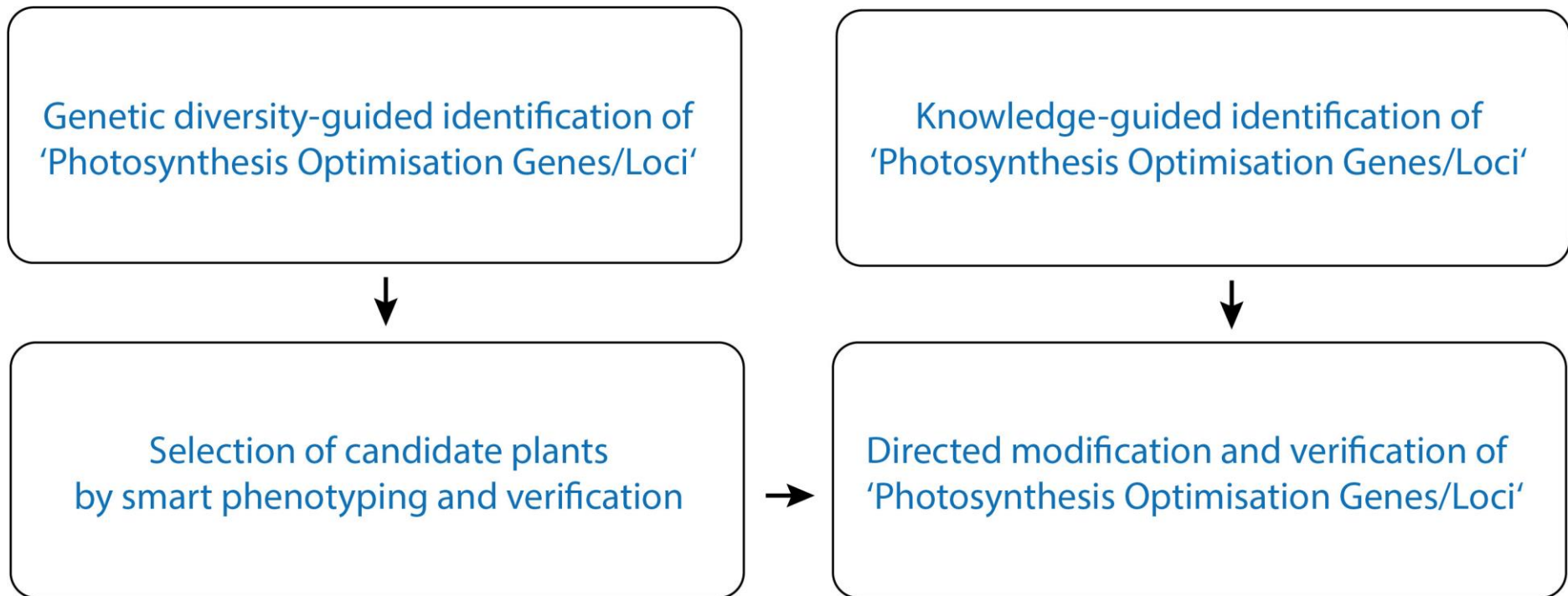


Photosynthetic performance



The Research Strategies

- *Different, but Complimentary* -



Optimising Photosynthesis

- *Single Plants vs. Canopy* -

