Integrated management for improved yield in oilseed rape

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The ‘GLAD’ project
(11 site-seasons, 2014 - 2018)

Components of yield in oilseed rape

Yield

number of seeds * seed weight

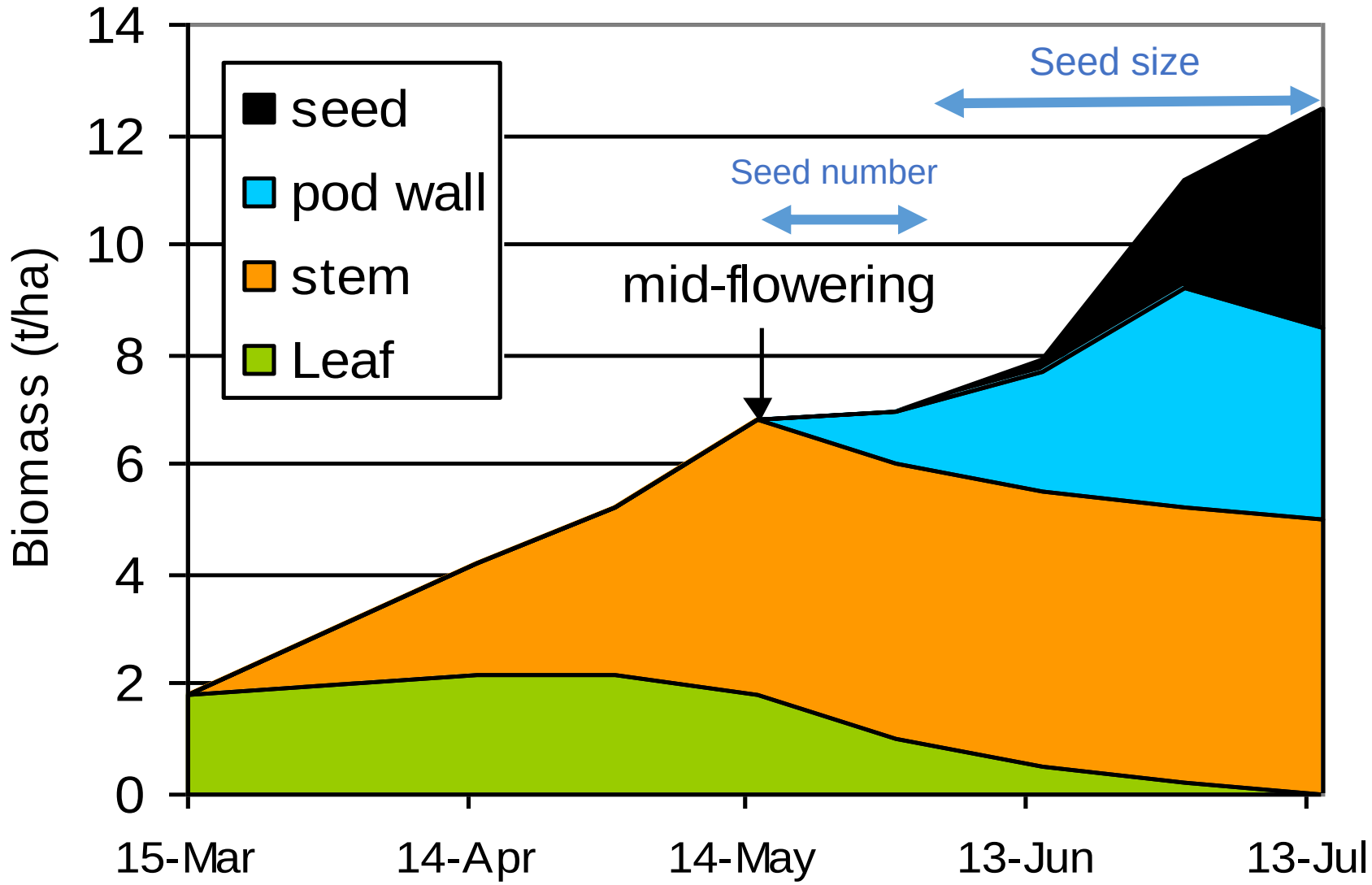
Source

PAR (MJ) x RUE (g/MJ) + WSC (g)

Sink

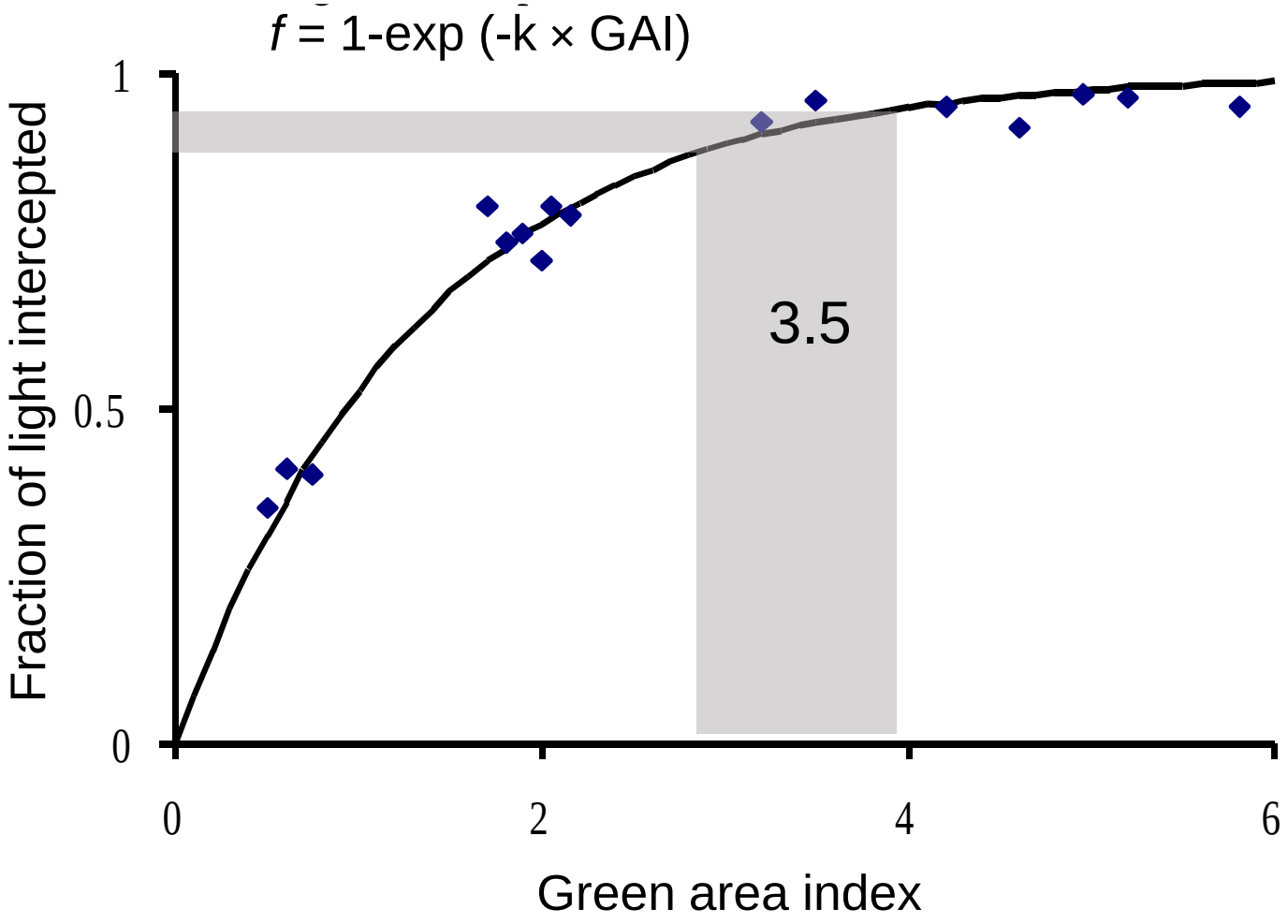
Seeds/pod x pods/m^2 x seed weight

Yield formation in oilseed rape

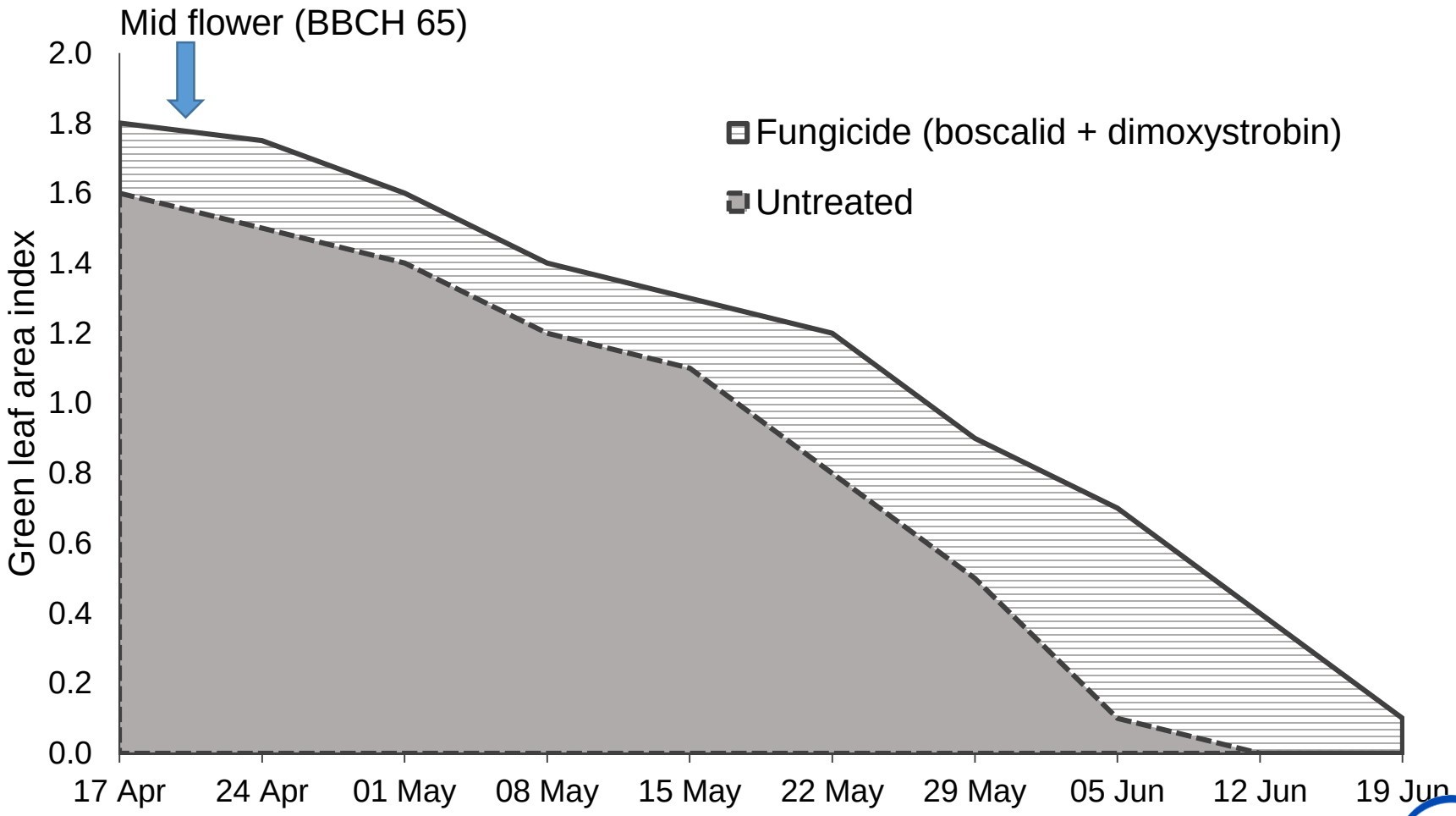


AHDB Oilseed rape guide, January 2014

Optimum canopy size at flowering



Integrating green canopy area through time;
Green Leaf Area & Duration (GLAD)



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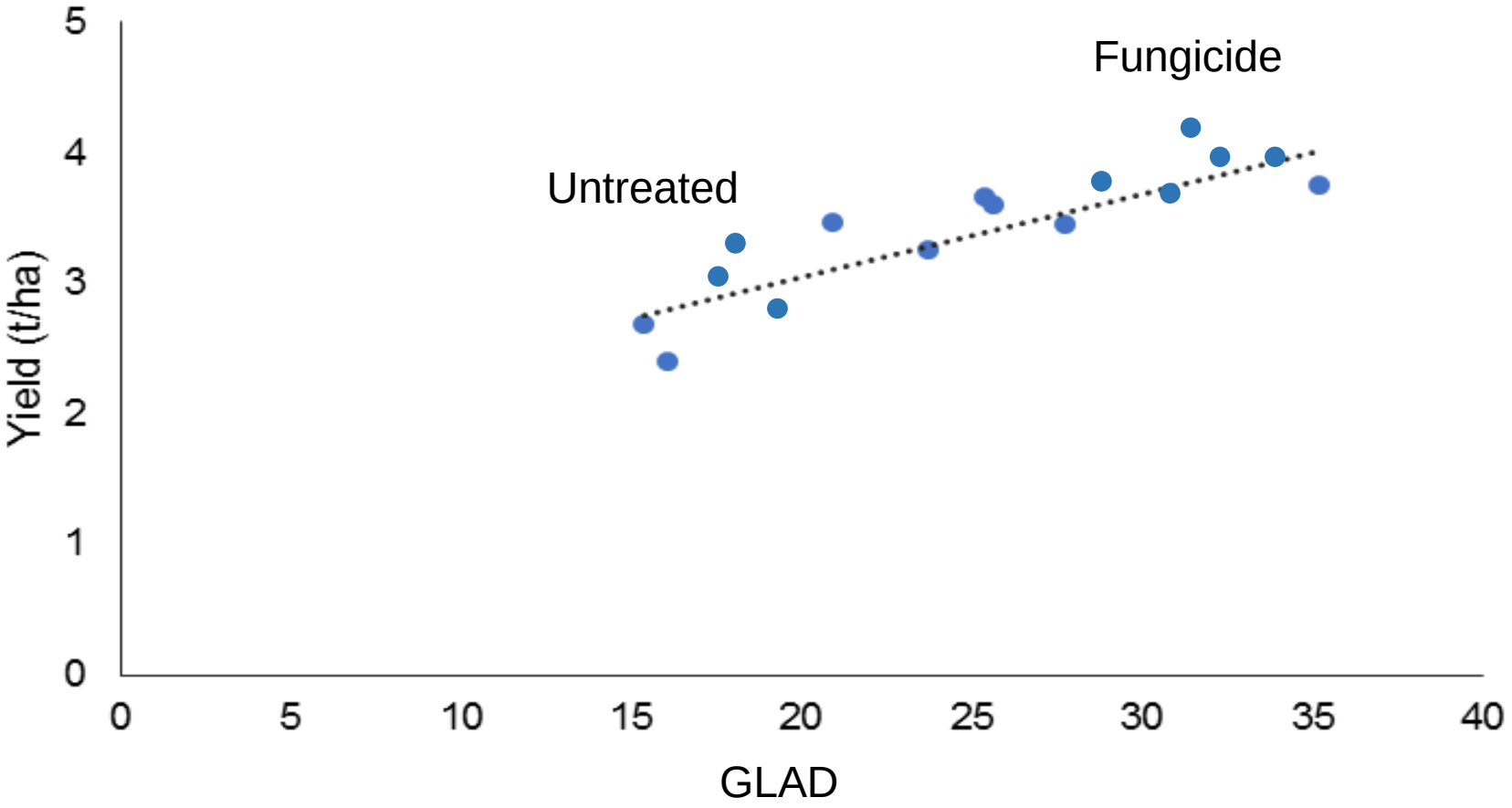
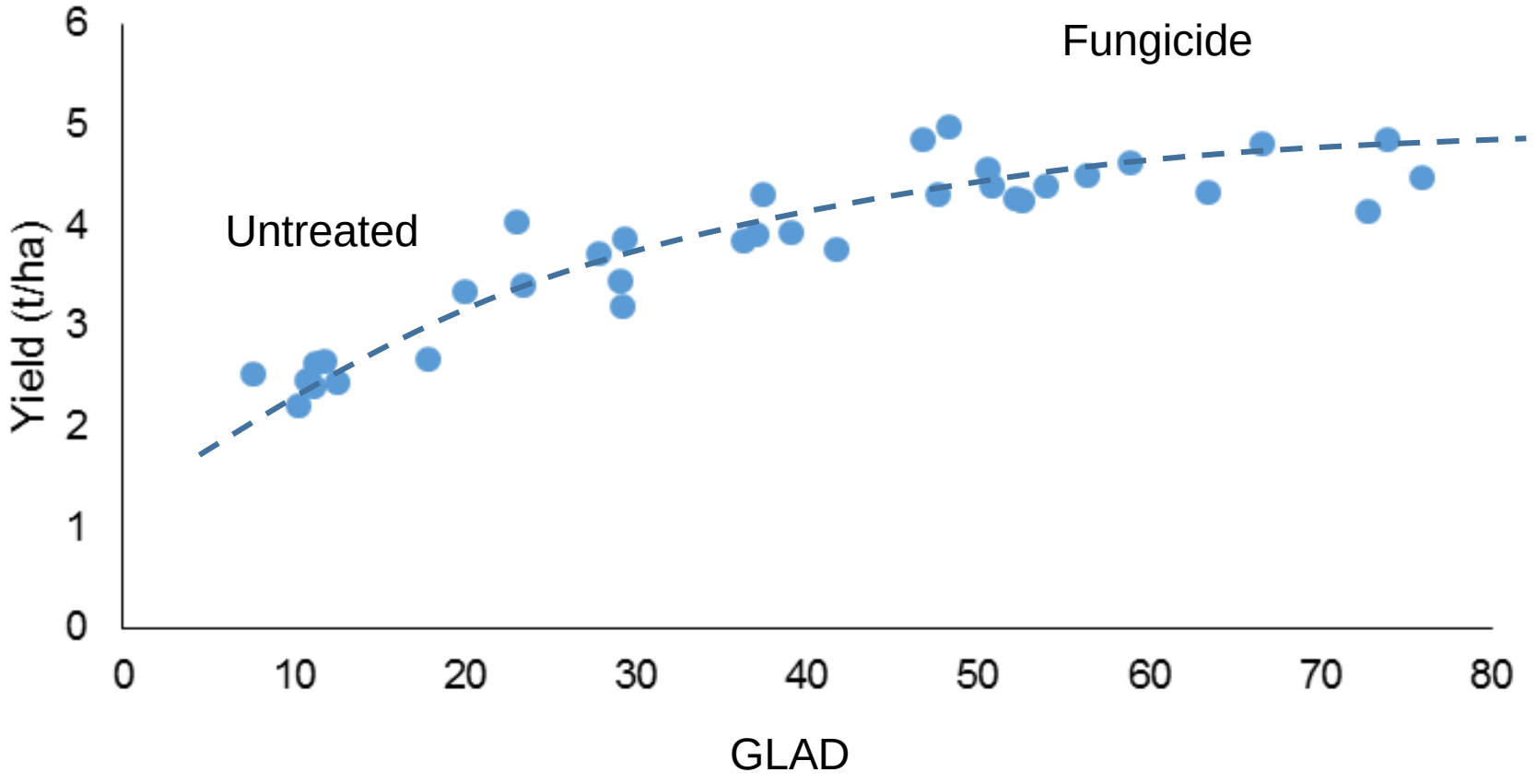
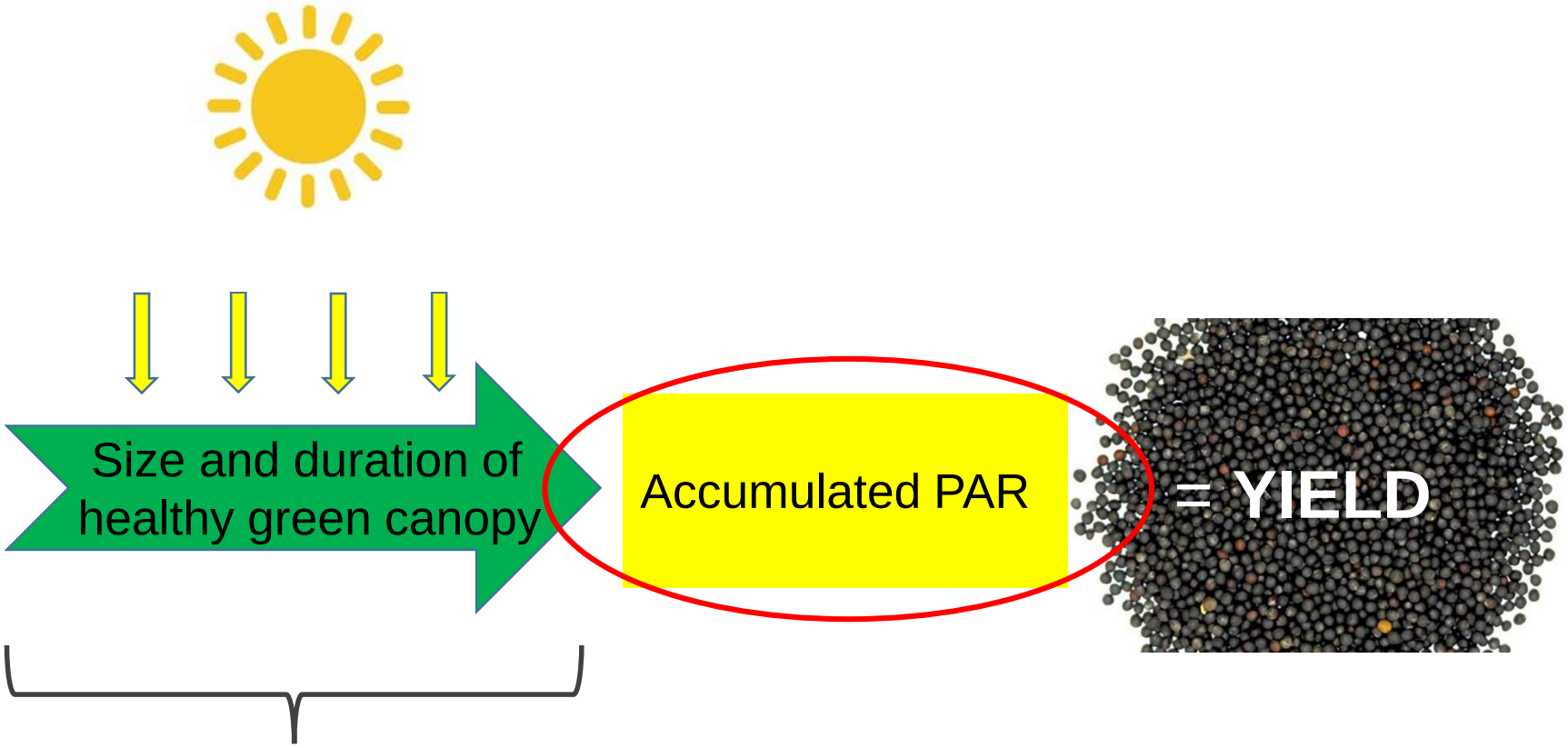
Yield as a function of GLAD, 2014



Yield as a function of GLAD, 2015



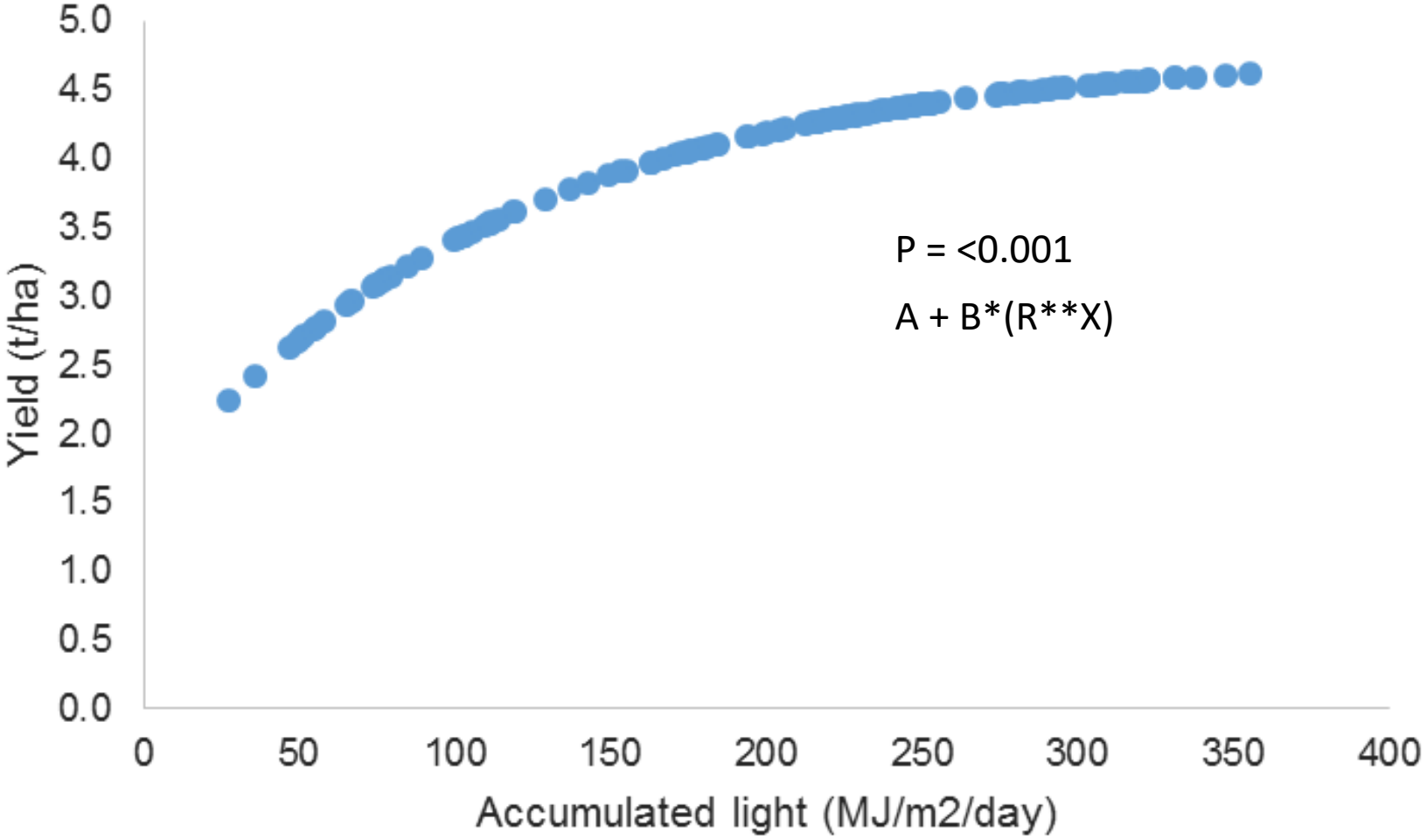
Photosynthetically active radiation (PAR)

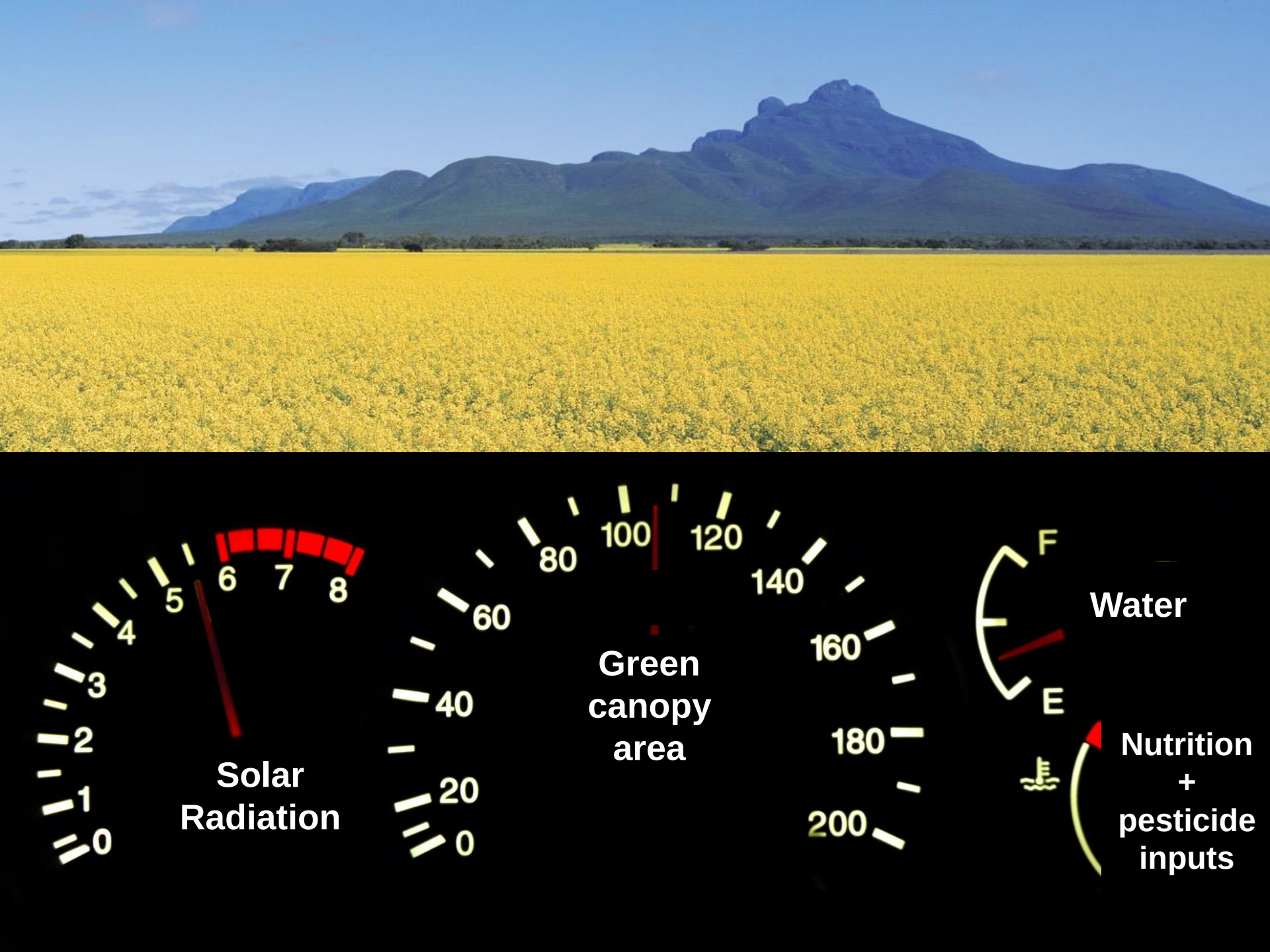


OSR yield building period
(mid- flower to end of seed-fill)

Intercepted light and yield

5 site-seasons fitted values




0
1
2
3
4
5
6
7
8
Solar Radiation
0
20
40
60
80
100
120
140
160
180
200
Green canopy area
F
E
Water
Nutrition + pesticide inputs

Summary

- OSR in UK (and NW Europe) is usually sink limited
- Yield is influenced by GLAD
- GLAD is affected by disease, pests, nutrition, drought, abiotic stress etc.
- Mid-flower fungicide consistently increased GLAD
- Yield responses may not always be realised in large canopies, when solar radiation is ample
- …but the chemistry is still performing
- In-season monitoring of GLAD may be a tool for reducing inputs
- Better understanding of source:sink balance for resource efficiency and yield optimisation

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Thank you

Sponsorship

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Technical assistance

Dennis Churchill

Pete Hawkins

Andrew Francis