

Supplementary Material

Vertical patterns of photosynthesis and related leaf traits in two contrasting agricultural crops

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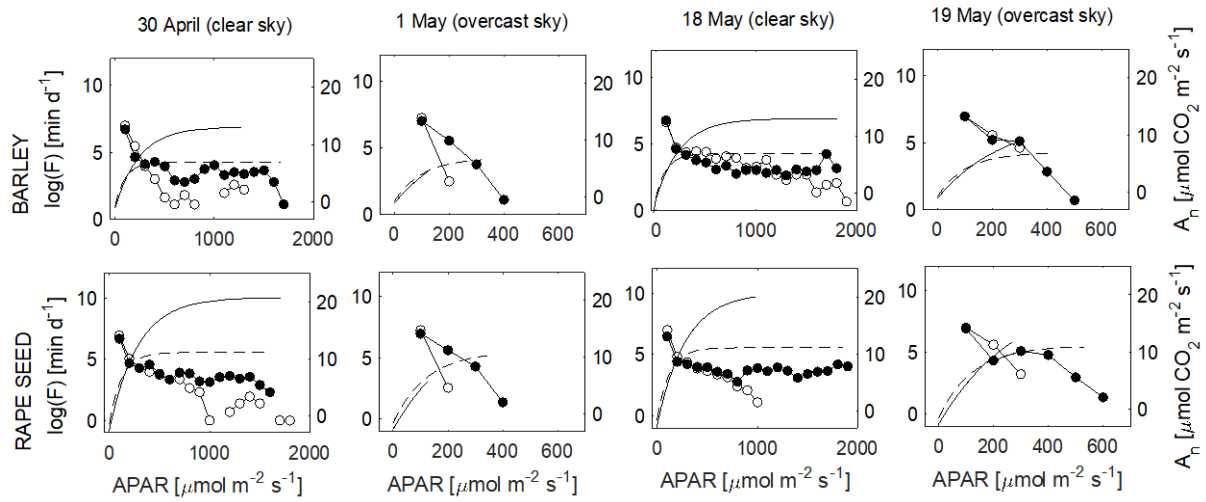


Fig S1. Frequency distribution of the total PAR absorbed by top (unfilled circles) and bottom (filled circles) canopy during subsequent clear and overcast days for barley (top row) and rape seed (bottom row). Each point represents the natural log of number of minutes per day for which absorbed PAR was within a given class of PAR. The leaf-level net photosynthesis light response curves (A_n) as estimated using Eq. 1 for top (solid line) and bottom (dashed line) leaves are also shown for the same days. The measured photosynthesis light response curve parameters (A_{max} , ϕ , R_d) for top and bottom leaves were used in combination with the measured APAR at the respective leaf height.

Table S1. Means (\pm standard deviations) of top and bottom barley and rape seed leaf traits

Statistics for top and bottom leaf mean difference: degree of freedom (df), *P*-values and t-values are given from a two-tailed test. *, $P \leq 0.05$; **, $P \leq 0.01$; ***, $P \leq 0.001$; NS, not significant

Variables	Crop	Top	Bottom	t-value	df	<i>P</i> -value
A_{\max} [$\mu\text{mol m}^{-2} \text{s}^{-1}$]	barley	13.1 (± 6.7)	6.9 (± 2.6)	3.7	32	***
	rape seed	20.8 (± 5.8)	11.1 (± 6.7)	3.7	25	**
ϕ	barley	0.058 (± 0.032)	0.074 (± 0.025)	2.069	32	*
	rape seed	0.083 (± 0.019)	0.103 (± 0.027)	2.17	25	*
R_d [$\mu\text{mol m}^{-2} \text{s}^{-1}$]	barley	1.1 (± 0.5)	0.7 (± 0.3)	2.1	30	*
	rape seed	2.6 (± 1.4)	1.5 (± 0.7)	2.9	25	**
N [g m^{-2}]	barley	2.0 (± 0.2)	1.0 (± 0.2)	14.2	41	***
	rape seed	3.3 (± 1.0)	2.3 (± 0.5)	3.0	25	**
C [g m^{-2}]	barley	23.0 (± 2.4)	18.3 (± 2.3)	6.2	41	***
	rape seed	32.8 (± 9.5)	29.2 (± 7.5)	1.1	25	NS
Chl [mg m^{-2}]	barley	507.6 (± 59.6)	406.2 (± 60.4)	5.2	36	***
	rape seed	518.6 (± 34.9)	511.3 (± 41.6)	0.4	20	NS
LMA [g m^{-2}]	barley	51.9 (± 5.8)	42.7 (± 5.2)	5.4	41	***
	rape seed	77.1 (± 22.6)	70.9 (± 18.1)	0.8	25	NS