

Table S1: Raw average values by measured trial for each treatment and specie. Plus minus values standard errors of these.

Species	Alnus					Ulmus				
Trial/Treatment	Outdoor trial	6%B	25% B	35%B	62%B	Outdoor trial	6%B	25% B	35%B	62%B
Biomass and Morphology										
Height (cm)	22.32±1.2	20.2±0.21	10.45±0.82	11.62±2.28	8.53±1.5	31.18±3.44	48.51±2.7	45.35±2.38	48.95±2.89	31.19±2.55
Dry weight leaves (g)	1.06±0.1	0.5±0.05	0.27±0.04	0.33±0.11	0.32±0.07	1.33±0.28	2.66±0.32	2.75±0.26	2.85±0.29	1.52±0.25
Dry weight shoot (g)	0.51±0.05	0.22±0.03	0.13±0.02	0.15±0.05	0.12±0.02	0.66±0.16	1.69±0.23	1.71±0.19	1.79±0.23	0.79±0.16
Dry weight roots (g)	0.52±0.05	0.58±0.07	0.17±0.03	0.17±0.05	0.3±0.06	0.55±0.13	1.98±0.24	2.5±0.28	2.4±0.33	1.45±0.36
Total dry weight (g)	2.09±0.19	1.3±0.13	0.57±0.09	0.64±0.2	0.74±0.15	2.54±0.56	6.34±0.77	6.96±0.66	7.05±0.82	3.76±0.75
Root to Shoot ratio	0.34±0.03	0.8±0.07	0.42±0.05	0.44±0.04	0.68±0.01	0.27±0.02	0.46±0.02	0.57±0.05	0.5±0.04	0.55±0.07
SLA (m ² kg ⁻¹)	34.76±1.24	36.41±2.99	33.61±0.99	35.49±2.45	31.67±1.18	28.35±0.85	28.45±0.79	23.08±0.62	24.23±0.92	25.05±0.78
Chlorophyll										
Chlorophyll a (mg g ⁻¹)	7.35±0.97	4.58±0.37	4.62±0.35	6.88±0.74	6.93±0.46	6.8±0.43	3.18±0.39	3.28±0.63	2.06±0.34	4.1±0.31
Chlorophyll b (mg g ⁻¹)	1.45±0.25	1.02±0.11	1±0.07	1.49±0.15	1.45±0.11	1.54±0.09	0.71±0.09	0.74±0.15	0.45±0.07	0.88±0.09
Chl a: b ratio	1.94±0.18	1.68±0.04	1.99±0.18	2.9±0.21	2.56±0.11	1.15±0.09	0.98±0.09	1.06±0.17	0.72±0.11	1.11±0.08
Carotenoids (mg g ⁻¹)	5.12±0.23	4.55±0.1	4.61±0.09	4.6±0.07	4.79±0.09	4.42±0.05	4.53±0.09	4.48±0.14	4.44±0.17	4.7±0.13
Fv/Fm	0.78±0.01	0.74±0.01	0.77±0.01	0.76±0.02	0.8±0	0.81±0	0.73±0.02	0.77±0.01	0.78±0.01	0.79±0.01
Standardized light										
Max photosynthesis (CO ₂ μmol m ⁻² s ⁻¹)	14.35±1.48	10.22±1.52	6.78±1.05	11.6±1.33	12.31±1.21	12.87±1.9	9.01±0.68	11.82±0.36	11.51±0.5	12.68±0.95
Initial slope	0.044±0.001	0.037±0.002	0.026±0.004	0.038±0.004	0.041±0.005	0.045±0.002	0.043±0.003	0.042±0.002	0.04±0.001	0.05±0.006
Dark respiration (CO ₂ μmol m ⁻² s ⁻¹)	-1.05±0.15	-0.86±0.2	-1.09±0.13	-1.59±0.16	-1.39±0.27	-1.33±0.22	-1.46±0.26	-1.13±0.14	-1.1±0.19	-1.83±0.39
Compensation point (PPFD μmol m ⁻² s ⁻¹)	22.67±4.33	21.67±3.76	41.33±4.29	38.67±2.33	29±2.65	24.33±2.85	25.83±3.76	25.5±2.64	25±3.46	28.17±1.38
In-situ' light										
Max photosynthesis (CO ₂ μmol m ⁻² s ⁻¹)	8.37±0.29	10.97±0.66	9.81±1.48	9.03±1.57	8.86±3.41	7.3±0.39	7.21±0.89	11.47±0.99	9.6±0.76	5.53±1.23
Initial slope	0.044±0.002	0.048±0.009	0.054±0.006	0.049±0.004	0.039±0.008	0.034±0.002	0.048±0.004	0.055±0.003	0.052±0.003	0.034±0.005
Dark respiration (CO ₂ μmol m ⁻² s ⁻¹)	-1.74±0.07	-1.54±0.37	-1.58±0.24	-1.45±0.21	-1.13±0.32	-1.27±0.15	-1.16±0.13	-1.3±0.12	-1.33±0.15	-1.11±0.23
Compensation point (PPFD μmol m ⁻² s ⁻¹)	30.33±2.67	37.67±19.19	26.67±4.17	26.67±4.67	26.33±3.38	30.33±0.88	18.83±1.19	20.83±1.92	22.83±2.98	24.67±3.21
Species	Ocimum					Lactuca				
Trial/Treatment	Outdoor	6%B	25% B	35%B	62%B	Outdoor	6%B	25% B	35%B	62%B

	trial					trial				
Biomass and Morphology										
Height (cm)	21.17±1.38	30.42±0.89	26.09±0.79	28.15±1.48	23.99±1.03	-	-	-	-	-
Dry weight leaves (g)	1.18±0.15	2.32±0.15	2.03±0.13	2.12±0.18	1.72±0.14	8.97±0.49	8.98±0.55	10.01±0.53	10.17±0.47	10.42±0.49
Dry weight shoot (g)	0.37±0.04	0.78±0.06	0.62±0.04	0.75±0.07	0.51±0.05	-	-	-	-	-
Dry weight roots (g)	0.36±0.06	1.93±0.28	1.02±0.14	0.98±0.11	1.24±0.24	3.21±0.3	10.65±1.11	9.33±1.46	9.37±1.36	11.5±1.18
Total dry weight (g)	1.91±0.23	5.03±0.31	3.67±0.27	3.85±0.33	3.47±0.3	12.18±0.77	19.64±1.53	19.34±1.83	19.54±1.72	21.91±1.43
Root to Shoot ratio	0.24±0.02	0.7±0.12	0.37±0.04	0.34±0.03	0.63±0.14	0.35±0.02	1.18±0.08	0.9±0.12	0.88±0.11	1.1±0.11
SLA (m ² kg ⁻¹)	20.7±1.32	13.86±0.77	18.09±0.84	17.09±0.85	19.56±0.74	25.07±1.5	39.57±2.23	33.26±1.94	24.45±1.38	32.23±1.03
Chlorophyll										
Chlorophyll a (mg g ⁻¹)	2.19±0.29	2.33±0.14	3.51±0.2	2.99±0.26	4.29±0.37	2.51±0.53	2.06±0.24	2.84±0.42	1.8±0.13	3.99±0.51
Chlorophyll b (mg g ⁻¹)	0.54±0.08	0.49±0.03	0.74±0.05	0.7±0.08	0.93±0.09	0.57±0.12	0.35±0.04	0.5±0.08	0.33±0.02	0.71±0.09
Chl a: b ratio	0.55±0.08	0.66±0.05	0.96±0.04	0.77±0.04	1.09±0.1	0.68±0.14	0.99±0.05	1.05±0.13	0.73±0.05	1.43±0.15
Carotenoids (mg g ⁻¹)	4.08±0.05	4.8±0.19	4.81±0.08	4.39±0.15	4.62±0.06	4.38±0.33	5.93±0.16	5.84±0.19	5.46±0.09	5.62±0.2
Fv/Fm	0.77±0.02	0.83±0.01	0.82±0	0.84±0	0.84±0	0.85±0.01	0.8±0.01	0.84±0.01	0.84±0.01	0.84±0.01
Standardized light										
Max photosynthesis (CO ₂ μmol m ⁻² s ⁻¹)	10.18±2.77	19.17±0.95	20.43±1.1	22.52±0.49	23.13±1	4.63±0.99	14.62±1.6	11.99±1.87	17.28±2.34	17.67±3.01
Initial slope	0.043±0.002	0.047±0.003	0.044±0.003	0.045±0.001	0.053±0.001	0.043±0.003	0.045±0.004	0.042±0.004	0.044±0.003	0.052±0.004
Dark respiration (CO ₂ μmol m ⁻² s ⁻¹)	-3.99±0.29	-2.44±0.23	-2.02±0.13	-1.99±0.12	-2.11±0.06	-1.12±0.15	-1.99±0.22	-1.68±0.18	-1.96±0.22	-2.29±0.27
Compensation point (PPFD μmol m ⁻² s ⁻¹)	91.33±3.84	49±5.22	45.5±4.43	42.5±1.65	36.17±2.14	16±2.08	41±4.15	40.33±7.82	41.5±4.93	38.67±3.03
In-situ' light										
Max photosynthesis (CO ₂ μmol m ⁻² s ⁻¹)	6.73±0.3	13.78±0.92	17.65±1.42	17.24±0.98	16±1.07	5.77±0.65	7.11±1.67	10.48±1.59	12.08±1.5	8.49±2.04
Initial slope	0.037±0.001	0.059±0.003	0.059±0.004	0.061±0.003	0.057±0.003	0.038±0.002	0.045±0.007	0.053±0.003	0.055±0.002	0.047±0.005
Dark respiration (CO ₂ μmol m ⁻² s ⁻¹)	-2.8±0.21	-1.78±0.14	-1.98±0.23	-1.95±0.26	-2.1±0.11	-1.85±0.17	-1.33±0.25	-1.56±0.19	-1.81±0.12	-1.56±0.22
Compensation point (PPFD μmol m ⁻² s ⁻¹)	76.33±3.38	28.17±2.61	33±4.38	31.67±5.63	34.67±3.33	38.33±6.12	23.67±3.29	27.83±4.61	30.83±2.43	24.5±3.27

Table S1 (continuation): Raw average values by measured trial for each treatment and specie. Plus minus values standard errors of these

Species	Melissa	Raphanus
---------	---------	----------

Trial\Treatment	Outdoor trial	6%B	25% B	35%B	62%B	Outdoor trial	6%B	25% B	35%B	62%B
Biomass and Morphology										
Height (cm)	26.75±0.76	22.05±1.38	17.51±1.58	23.48±0.5	10.97±0.59	5.84±0.19	8.62±0.56	6.41±0.24	6.73±0.61	5.43±0.41
Dry weight leaves (g)	2.93±0.48	2.85±0.39	2.91±0.43	3.27±0.25	1.58±0.13	2.35±0.18	1.88±0.15	1.86±0.15	1.61±0.13	1.46±0.09
Dry weight shoot (g)	=	=	=	=	=	0.53±0.06	0.6±0.07	0.51±0.04	0.57±0.08	0.35±0.03
Dry weight roots (g)	1.73±0.33	1.92±0.28	1.82±0.23	1.94±0.19	1.11±0.13	4.41±0.51	4.97±0.24	6.14±0.74	5.13±0.44	3.3±0.15
Total dry weight (g)	4.67±0.81	4.77±0.65	4.73±0.63	5.21±0.43	2.69±0.25	7.3±0.67	7.46±0.41	8.52±0.87	7.31±0.56	5.12±0.18
Root to Shoot ratio	0.58±0.03	0.68±0.05	0.72±0.07	0.59±0.03	0.7±0.05	1.52±0.13	2.16±0.13	2.56±0.22	2.44±0.17	1.92±0.13
SLA (m ² kg ⁻¹)	38.1±2.97	31.28±1.6	29.08±0.91	31.64±1.49	35.73±1.02	23.71±0.98	27.15±0.99	31.13±2.12	30.57±0.97	27.43±0.77
Chlorophyll										
Chlorophyll a (mg g ⁻¹)	8.04±1.54	5.57±0.65	4.58±0.7	5.27±0.39	6.76±0.29	2.72±0.8	3.24±0.29	5.08±0.71	3.48±0.39	4.84±0.51
Chlorophyll b (mg g ⁻¹)	1.82±0.3	1.31±0.15	1.03±0.15	1.22±0.09	1.54±0.1	0.67±0.16	0.74±0.06	1.17±0.15	0.79±0.08	1.16±0.07
Chl a: b ratio	1.94±0.39	1.79±0.15	1.5±0.21	1.71±0.1	2.07±0.04	0.63±0.18	1.09±0.06	1.49±0.19	1.2±0.12	1.55±0.08
Carotenoids (mg g ⁻¹)	4.35±0.18	4.25±0.05	4.43±0.04	4.31±0.05	4.43±0.1	3.92±0.24	4.35±0.1	4.32±0.14	4.43±0.16	4.13±0.25
Fv/Fm	0.81±0.01	0.78±0.02	0.82±0	0.78±0.01	0.82±0	0.83±0.01	0.82±0.01	0.83±0.01	0.82±0.01	0.83±0.01
Standardized light										
Max photosynthesis (PPFD μmol m ⁻² s ⁻¹)	19.11±2.88	13.64±1.24	17.2±0.81	15.78±1.59	15.96±1.07	10.31±1.25	24.72±1.12	18.19±1.52	22.66±1.72	24.02±2.44
Initial slope	0.054±0.004	0.041±0.003	0.048±0.002	0.04±0.003	0.051±0.006	0.053±0.002	0.053±0.002	0.057±0.004	0.052±0.002	0.062±0.005
Dark respiration (CO ₂ μmol m ⁻² s ⁻¹)	-1.08±0.08	-1.21±0.2	-1.4±0.17	-1.42±0.11	-2.11±0.56	-1.23±0.11	-2.19±0.15	-1.63±0.24	-1.85±0.14	-2.36±0.23
Compensation point (PPFD μmol m ⁻² s ⁻¹)	18.33±0.88	26±3.81	27.67±3.7	33.67±2.03	35±4.23	20.33±2.85	40.67±3.22	26.67±5.3	34.83±2.68	35.17±3.05
In-situ' light										
Max photosynthesis (PPFD μmol m ⁻² s ⁻¹)	11.08±0.33	12.34±1.87	14.29±0.9	16.26±0.86	11.88±1.54	13.77±1.97	12.57±2.16	14.81±2.41	14.59±1.14	11.46±1.51
Initial slope	0.051±0.004	0.064±0.003	0.067±0.002	0.06±0.004	0.056±0.003	0.046±0.003	0.069±0.004	0.068±0.003	0.069±0.002	0.055±0.005
Dark respiration (CO ₂ μmol m ⁻² s ⁻¹)	-1.63±0.09	-1.47±0.14	-1.51±0.14	-1.6±0.11	-1.79±0.16	-1.05±0.01	-1.64±0.1	-1.53±0.32	-1.56±0.16	-1.57±0.14
Compensation point (PPFD μmol m ⁻² s ⁻¹)	24.33±1.2	20.5±2.19	21±2.8	26±3.49	26.5±3.27	22.33±1.33	20.67±1.38	21±4.77	21.5±2.38	25.17±6.28

Table S1 (continuation): Raw average values by measured trial for each treatment and specie. Plus minus values standard errors of these

Species	Triticum				
Trial\Treatment	Outdoor	6%B	25% B	35%B	62%B

<u>trial</u>					
Biomass and Morphology					
Height(cm)	52.41±1.37	51.9±0.98	45.73±2.73	46.78±0.63	39.27±1.19
Dry weight leaves (g)	12.26±0.46	10.45±0.36	9.92±0.44	8.74±0.56	6.8±0.37
Dry weight shoot (g)	=	=	-	-	-
Dry weight roots (g)	21.04±2.43	81.74±7.21	82.1±8.96	56.6±5.24	93.12±6.46
Total dry weight (g)	33.3±2.34	92.19±7.36	92.02±8.77	65.34±5.38	99.91±6.53
Root to Shoot ratio	1.76±0.25	7.78±0.62	8.82±1.2	6.79±0.7	14.21±1.13
SLA (m ² kg ⁻¹)	31.45±0.67	20.07±0.63	24.92±1.94	26.93±1.49	24.14±0.81
Chlorophyll					
Chlorophyll a (mg g ⁻¹)	7.12±0.44	2.88±0.34	4.97±0.43	4.11±0.54	5.45±0.52
Chlorophyll b (mg g ⁻¹)	1.89±0.07	0.67±0.09	1.15±0.11	0.98±0.17	1.14±0.14
Chl a: b ratio	1.45±0.05	0.94±0.08	1.65±0.07	1.18±0.13	1.58±0.11
Carotenoids (mg g ⁻¹)	3.75±0.12	4.37±0.14	4.34±0.1	4.38±0.19	4.89±0.16
Fv/Fm	0.83±0	0.79±0.01	0.81±0.01	0.82±0.02	0.83±0
Standardized light					
Max photosynthesis (CO ₂ μmol m ⁻² s ⁻¹)	16.92±1.13	13.39±0.78	14.52±2.48	13.04±1.4	15.44±1.37
Initial slope	0.056±0.004	0.058±0.009	0.054±0.006	0.046±0.006	0.071±0.005
Dark respiration (CO ₂ μmol m ⁻² s ⁻¹)	-1.5±0.11	-1.95±0.4	-1.72±0.31	-1.42±0.16	-2.1±0.25
Compensation point (PPFD μmol m ⁻² s ⁻¹)	23±2	28.83±6.52	26.17±3.49	30±4.97	22.83±2.97
In-situ' light					
Max photosynthesis (CO ₂ μmol m ⁻² s ⁻¹)	9.12±0.47	9.82±1.93	12.62±0.87	10.27±1.82	9.73±2.83
Initial slope	0.044±0	0.064±0.01	0.073±0.003	0.059±0.009	0.07±0.021
Dark respiration (CO ₂ μmol m ⁻² s ⁻¹)	-1.9±0.05	-1.42±0.26	-1.61±0.3	-1.31±0.26	-1.9±0.41
Compensation point (PPFD μmol m ⁻² s ⁻¹)	35±0	21.67±2.53	19.17±3.57	19±2.24	21.17±3.39

Table S1 (continuation): Raw average values by measured trial for each treatment and specie. Plus minus values standard errors of these

Factors	Fix factors	Random factors
Variable	Light quality	Specie
Biomass and Morphology		
Height (cm)	$< 2.2 \times 10^{-16}$	$< 2.2 \times 10^{-16}$
Dry weight leaves (g)	3.54×10^{-05}	$< 2.2 \times 10^{-16}$
Dry weight shoot (g)	1.67×10^{-09}	$< 2.2 \times 10^{-16}$
Dry weight roots (g)	7.91×10^{-08}	$< 2.2 \times 10^{-16}$
Total dry weight	4.95×10^{-09}	$< 2.2 \times 10^{-16}$
Root to Shoot ratio	5.88×10^{-07}	$< 2.2 \times 10^{-16}$
SLA ($\text{m}^2 \text{kg}^{-1}$)	0.4753	$< 2.2 \times 10^{-16}$
Chlorophyll		
Chlorophyll a (mg g^{-1})	5.73×10^{-11}	$< 2.2 \times 10^{-16}$
Chlorophyll b (mg g^{-1})	8.51×10^{-11}	$< 2.2 \times 10^{-16}$
Chl a: b ratio	2.37×10^{-05}	$< 2.2 \times 10^{-16}$
Carotenoids (mg g^{-1})	7.59×10^{-13}	$< 2.2 \times 10^{-16}$
Fv/Fm	4.02×10^{-08}	$< 2.2 \times 10^{-16}$
Standardized light		
Max photosynthesis ($\text{CO}_2 \mu\text{mol m}^{-2} \text{s}^{-1}$)	3.73×10^{-05}	$< 2.2 \times 10^{-16}$
Initial slope	2.54×10^{-07}	$< 2.2 \times 10^{-16}$
Dark respiration ($\text{CO}_2 \mu\text{mol m}^{-2} \text{s}^{-1}$)	$< 2.2 \times 10^{-16}$	$< 2.2 \times 10^{-16}$
Compensation point (PPFD $\mu\text{mol m}^{-2} \text{s}^{-1}$)	0.003218	$< 2.2 \times 10^{-16}$
In-situ' light		
Max photosynthesis ($\text{CO}_2 \mu\text{mol m}^{-2} \text{s}^{-1}$)	5.66×10^{-07}	$< 2.2 \times 10^{-16}$
Initial slope	8.14×10^{-07}	1.00×10^{-04}
Dark respiration ($\text{CO}_2 \mu\text{mol m}^{-2} \text{s}^{-1}$)	–	$< 2.2 \times 10^{-16}$
Compensation point (PPFD $\mu\text{mol m}^{-2} \text{s}^{-1}$)	0.003684	$< 2.2 \times 10^{-16}$

Table S2: P-values for the different measured traits in both experiments using normalized data.

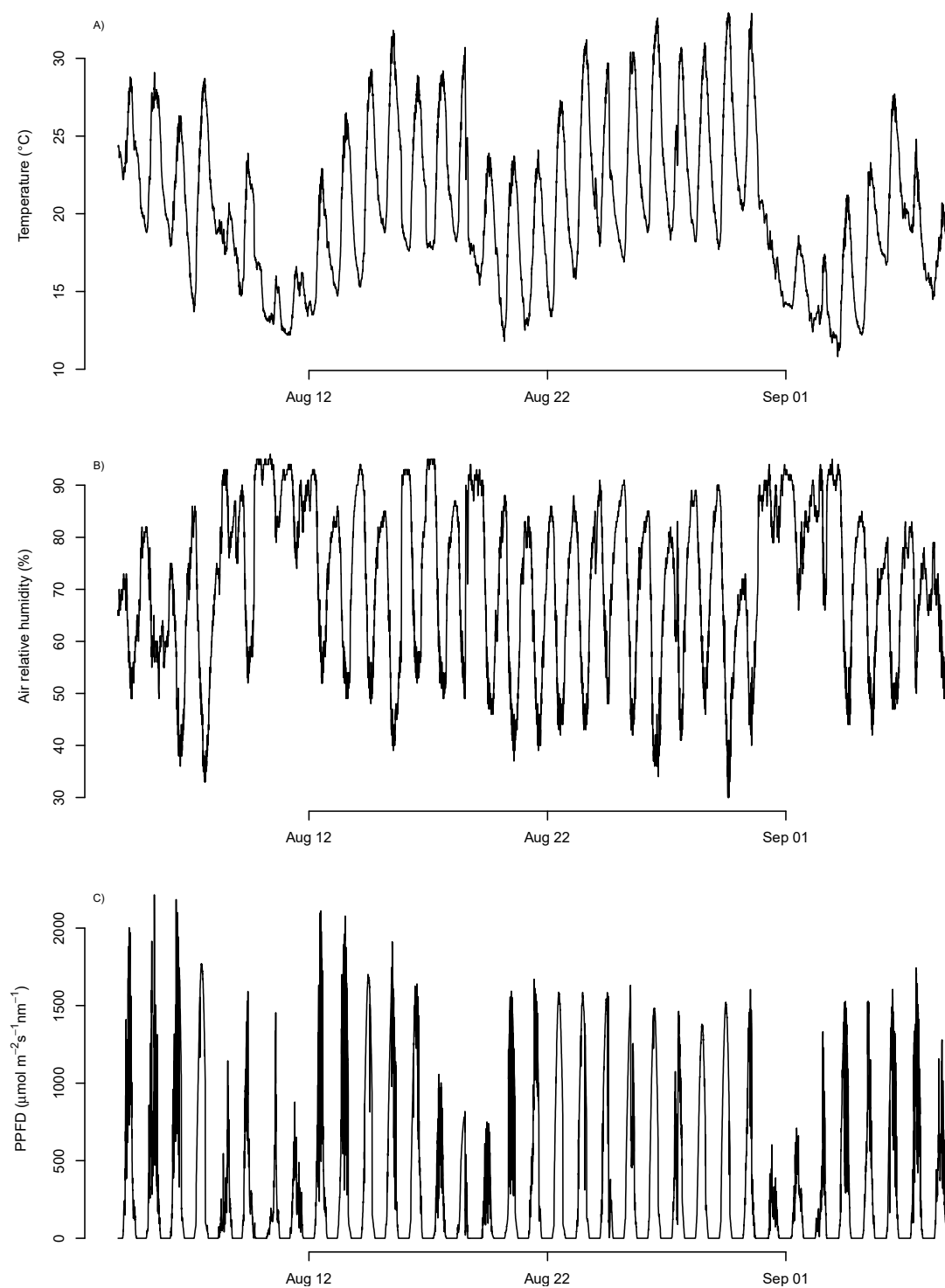


Figure S2. Environmental conditions of temperature (A), air relative humidity (B) and light intensity as PPFD (C) from the field trial at the botanical garden of the University of Basel, Switzerland.