

Supplementary material

Table S1. Three-way ANOVA test on leaf-level WUE and iWUE

Sources	numDF	Sum Square	Mean Square	F-value	p-value
Leaf-level WUE					
<i>Model formula: aov(leaf-level WUE~ Thinning*Aspect*Date)</i>					
Thinning	1	4	3.9	0.534	0.465
Aspect	1	2	2.3	0.317	0.573
Date	1	1413	1412.9	193.612	<0.001
Thinning × Aspect	1	0	0.4	0.059	0.808
Thinning × Date	1	0	0.4	0.048	0.826
Aspect × Date	1	8	8.5	1.160	0.282
Thinning × Aspect × Date	1	1	0.6	0.077	0.781
Residuals	538	3926	7.3		
Leaf-level WUEi					
<i>Model formula: aov(leaf-level WUEi~ Thinning*Aspect*Date)</i>					
Thinning	1	89634	89634	43.709	<0.001
Aspect	1	10	10	0.005	0.946
Date	1	271598	271598	132.443	<0.001
Thinning × Aspect	1	468	468	0.228	0.633
Thinning × Date	1	4540	4540	2.214	0.137
Aspect × Date	1	1221	1221	0.595	0.441
Thinning × Aspect × Date	1	5	5	0.003	0.959
Residuals	538	1103266	2051		

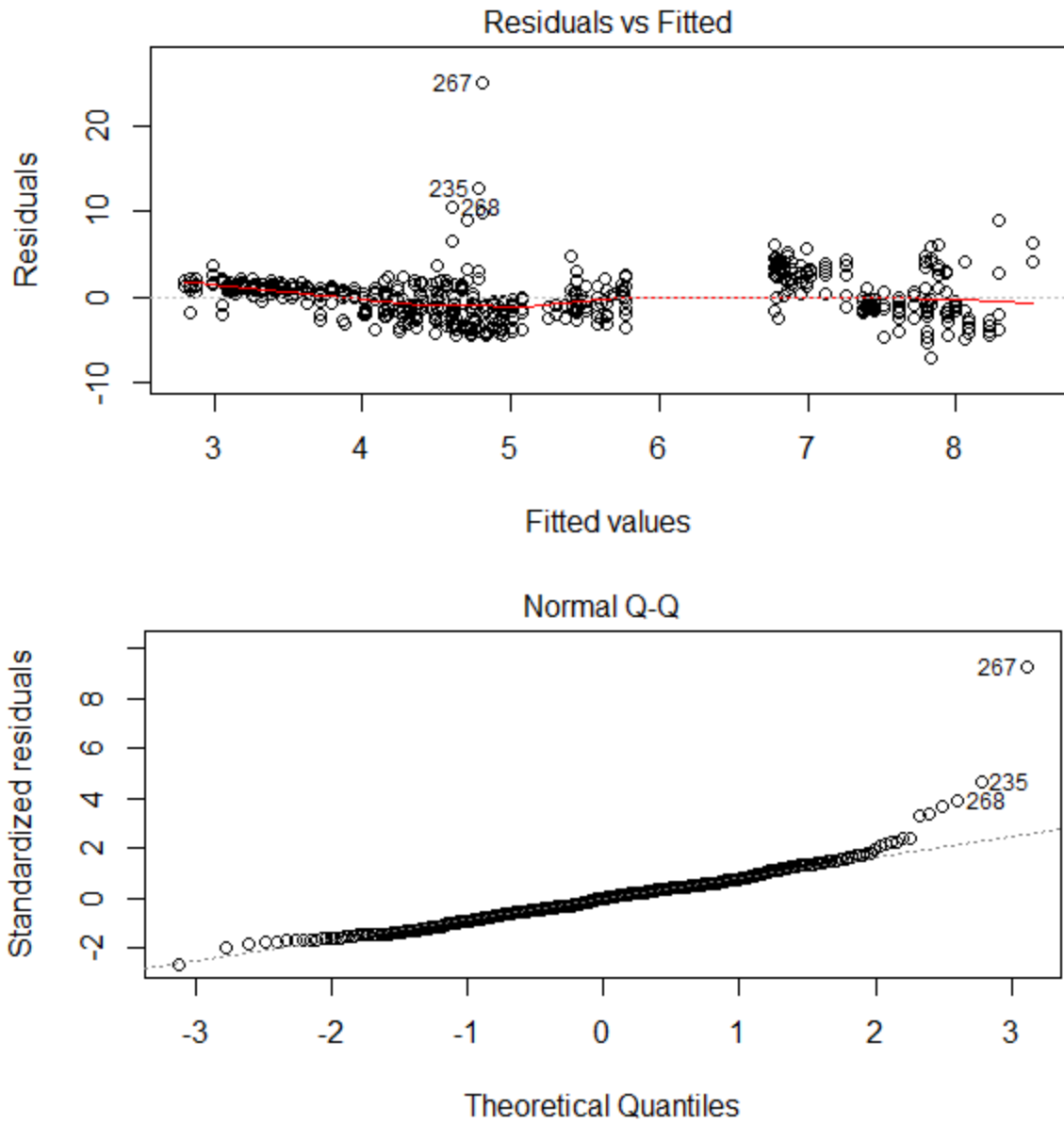


Figure S1 Residual check for the three-way ANOVA model for leaf-level WUE.

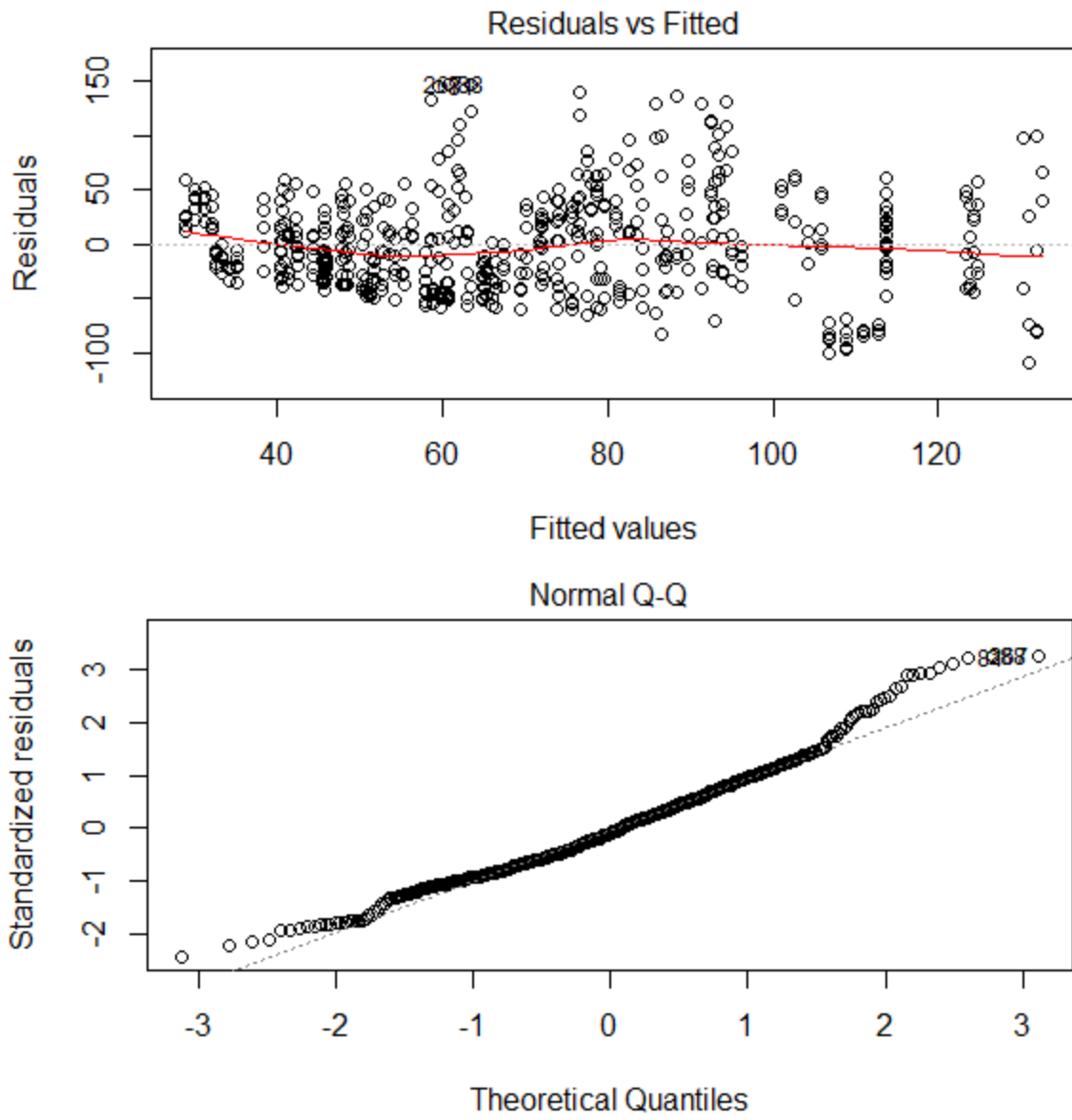


Figure S2 Residual check for the three-way ANOVA model for leaf-level WUEi.

Table S2. ANCOVA test on tree-level WUE

Model structure: Intercept + Initial DBH + Thinning + Year + Thinning * Year					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	14.667 ^a	6	2.445	2.962	.028
Intercept	12.089	1	12.089	14.651	.001
Initial DBH	8.484	1	8.484	10.282	.004
Thinning	6.578	2	3.289	3.986	.033
Year	.608	1	.608	.736	.400
Thinning * Year	.294	2	.147	.178	.838
Error	18.154	22	.825		
Total	42.966	29			
Corrected Total	32.821	28			

Note:

a. R Squared = .447 (Adjusted R Squared = .296)

Levene's Test of Equality of Error Variances p =0.532.

Table S3. ANCOVA test on initial tree DBH

Model structure: Intercept + Treatment + Year + Treatment * Year					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	344.282 ^a	5	68.856	.408	.838
Intercept	98275.994	1	98275.994	582.642	.000
Thinning	224.560	2	112.280	.666	.524
Year	107.138	1	107.138	.635	.434
Thinning * Year	31.272	2	15.636	.093	.912
Error	3879.482	23	168.673		
Total	102542.208	29			
Corrected Total	4223.764	28			

Note:

a. R Squared = .082 (Adjusted R Squared = -.118)

Levene's Test of Equality of Error Variances p =0.987.

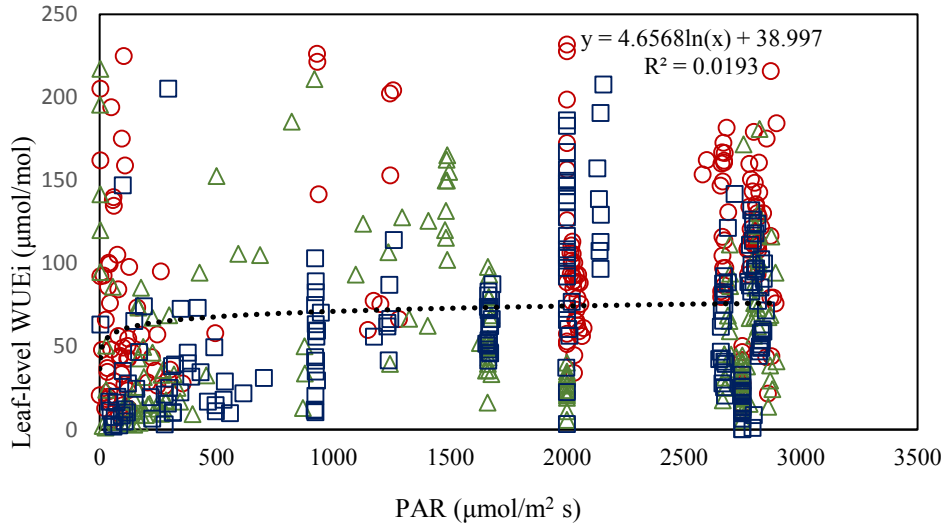
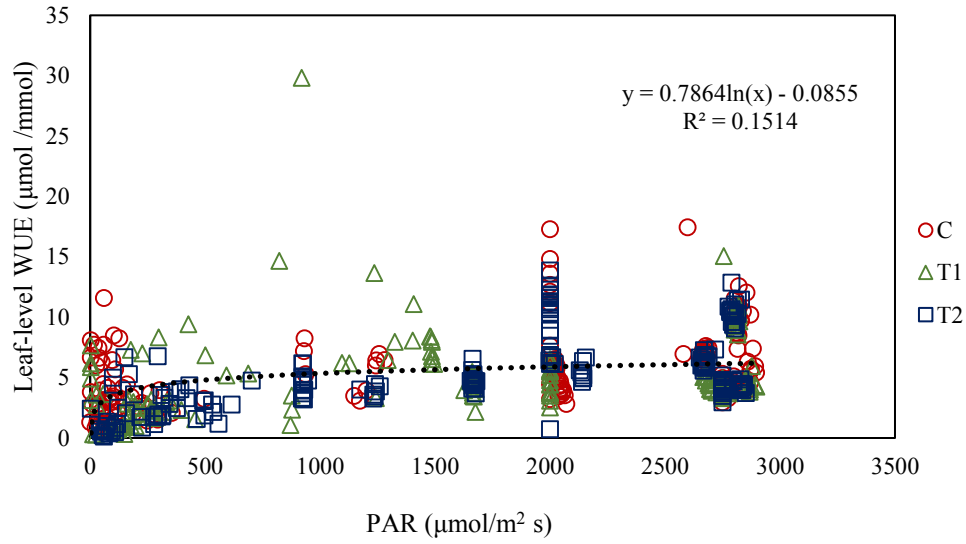


Fig. S3. Leaf-level WUE (top) WUEi (bottom) versus VPD for C, T1 and T2 with fitted logarithmic equations.

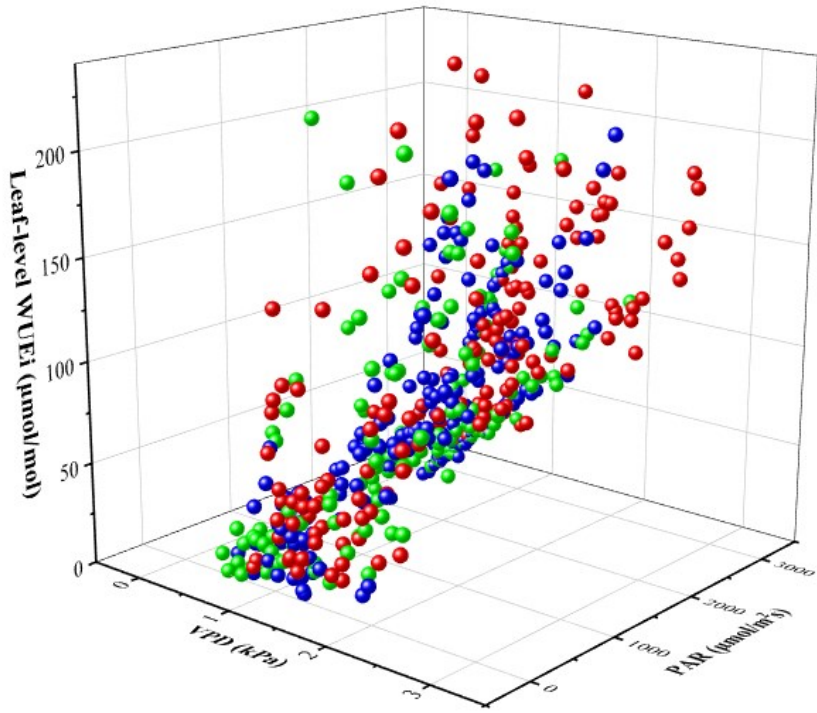


Figure S4. 3D scatter plot of leaf-level WUE_i against VPD and PAR for C (in red), T1 (in green) and T2 (in blue).

Table S4. Two-way ANOVA test on log-transformed stand-level WUE

Model structure: Intercept + Treatment + Year + Treatment * Year					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	0.862 ^a	5	0.172	11.865	0.002
Intercept	0.028	1	0.028	1.913	0.204
Thinning	0.046	2	0.023	1.567	0.267
Year	0.623	1	0.623	42.860	0.000
Thinning * Year	0.077	2	0.039	2.662	0.130
Error	0.116	8	0.015		
Total	1.161	14			
Corrected Total	0.978	13			

Note:

a. R Squared = .881 (Adjusted R Squared = 0.807)

Levene's Test of Equality of Error Variances p =0.103.

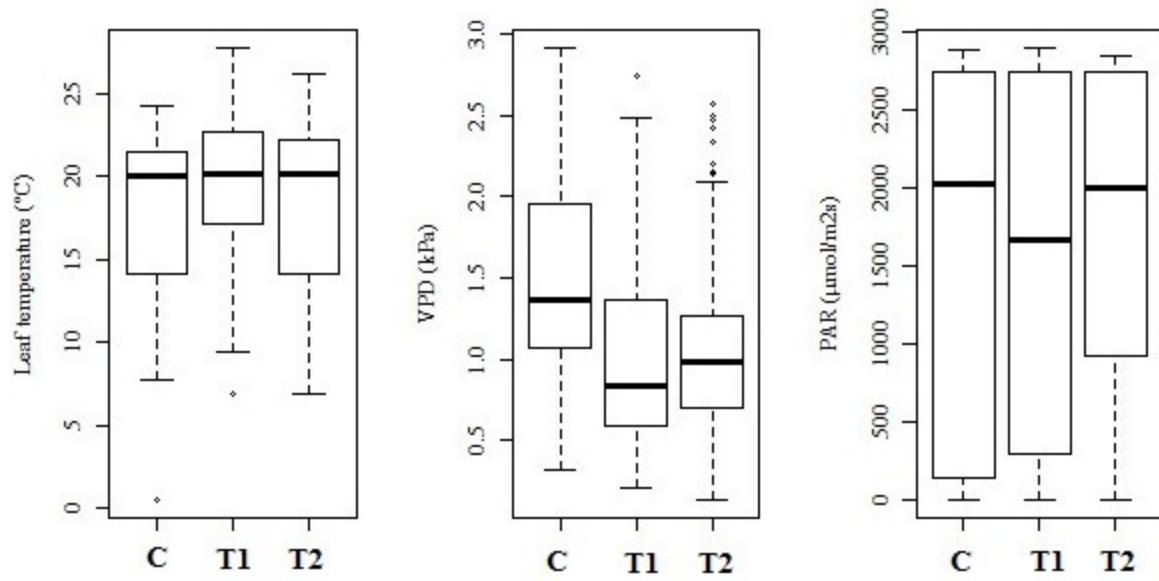


Figure S5. Temperature, VPD and PAR in C, T1 and T2 during leaf measurement periods.

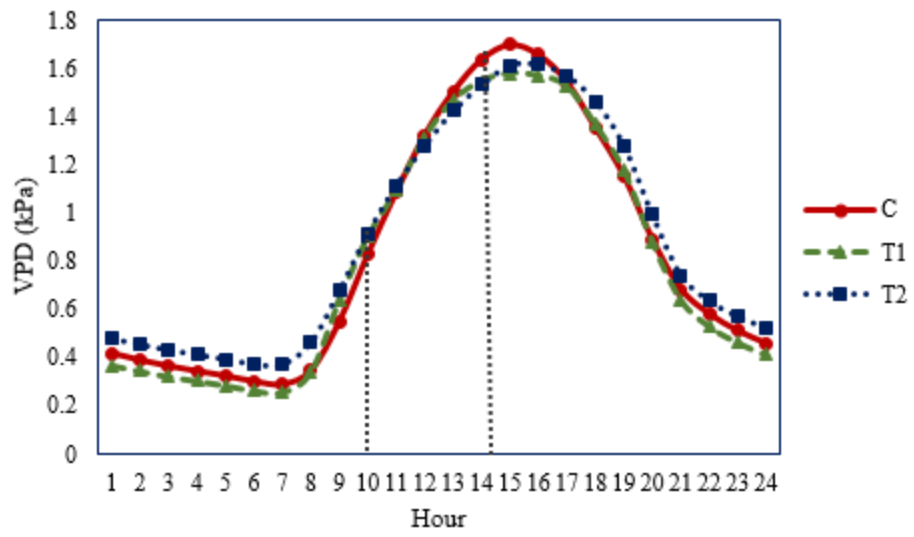


Figure S6. Daily VPD variations in C, T1 and T2. Leaf-level measurements took place between 10 am to 14 pm.