

**Table S1.** Summary of evaluated morphological and physiological response variables for data analysis.

Model	Response variable group	Response variable	Error distribution (Power lambda link function) <sup>1</sup>
II	Morphology (biomass)	Roots (<2mm)	Gaussian (1)
		LMF	Gaussian (1)
		FRMF	Gaussian (1)
		R/S ratio	Gamma (0.182)
		FR/LB ratio	Gaussian (1)
III	Morphology (size)	Height (H)	Gaussian (1)
		Diameter (D)	Gaussian (1)
		H/D ratio	Gaussian (1)
IV	Physiology	PN	Gaussian (1)
		GS	Gamma (-0.101)
		Ci	Gaussian (1)
		ETR	Gamma (0.020)
		E	Gaussian (1)
		Pn/Gs ratio	Gaussian (1)
		Pn/E ratio	Gaussian (1)
		Ψ	Gamma (-0.062)

<sup>1</sup>Power lambda link function [ $g(\lambda) = \lambda^{\lambda}$ ] is the lambda ( $\lambda$ , numeric value inside the brackets) used for the monotonic transformations.

LMF: leaf mass fraction; FRMF: fine-root mass fraction; R/S ratio: root/shoot ratio; FR/LB ratio: fine-root-to-leaf biomass fraction; Height: height of the oak seedling; Diameter: basal diameter of the oak seedling; H/D ratio: height diameter ratio; Pn net photosynthesis; Gs: stomatal conductance; Ci: internal CO<sub>2</sub> concentration; ETR: electron transport rate; E: transpiration; Ψ: leaf water potential.

**Table S2.** Summary of Kaplan–Meier non-parametric models fitted to analyse the main factors—soil treatment and *P.c* infection—affecting the survival of oak seedlings.

Soil treatment	<i>P.c</i> infection	Time	N. risk	N. event	Survival	SE	Lower 95% CI	Upper 95% CI
0% BIO	Control	140	39	1	0.974	0.0253	0.926	1
		146	38	1	0.949	0.0353	0.882	1
		154	34	2	0.893	0.0507	0.799	0.998
		160	32	2	0.837	0.061	0.726	0.966
		162	25	2	0.77	0.0722	0.641	0.925
		166	23	2	0.703	0.0799	0.563	0.879
		168	18	3	0.586	0.0908	0.432	0.794
		174	6	2	0.391	0.128	0.206	0.743
	<i>P.c</i>	56	52	1	0.981	0.019	0.944	1
		76	51	2	0.942	0.0323	0.881	1
		83	49	1	0.923	0.037	0.853	0.998
		89	48	3	0.865	0.0473	0.777	0.963
		105	45	2	0.827	0.0525	0.73	0.936
		112	43	3	0.769	0.0584	0.663	0.893
		119	40	3	0.712	0.0628	0.598	0.846
		133	37	3	0.654	0.066	0.537	0.797
		140	32	2	0.613	0.0679	0.493	0.762
		147	27	2	0.568	0.07	0.446	0.723
		155	24	1	0.544	0.071	0.421	0.703
		162	20	1	0.517	0.0725	0.393	0.68
		166	19	1	0.49	0.0736	0.365	0.657
		174	7	1	0.42	0.0904	0.275	0.64
	Control	104	54	1	0.981	0.0183	0.946	1
		127	53	1	0.963	0.0257	0.914	1
		140	52	2	0.926	0.0356	0.859	0.998
		146	50	1	0.907	0.0394	0.833	0.988
		147	47	1	0.888	0.0431	0.808	0.977
		160	41	3	0.823	0.0538	0.724	0.936
		162	32	4	0.72	0.0673	0.6	0.865
		168	24	4	0.6	0.0784	0.465	0.775
12.5% BIO	<i>P.c</i>	70	56	1	0.982	0.0177	0.948	1
		74	55	1	0.964	0.0248	0.917	1
		83	54	2	0.929	0.0344	0.864	0.999
		89	52	1	0.911	0.0381	0.839	0.989
		90	51	1	0.893	0.0413	0.815	0.978
		92	50	2	0.857	0.0468	0.77	0.954
		96	48	1	0.839	0.0491	0.748	0.941
		97	47	2	0.804	0.0531	0.706	0.915
		103	45	1	0.786	0.0548	0.685	0.901
		105	44	2	0.75	0.0579	0.645	0.872
		109	42	1	0.732	0.0592	0.625	0.858
		111	41	4	0.661	0.0633	0.548	0.797
		119	37	3	0.607	0.0653	0.492	0.75
		125	34	1	0.589	0.0657	0.474	0.733
		127	33	1	0.571	0.0661	0.455	0.717
		133	32	2	0.536	0.0666	0.42	0.684
		147	28	2	0.497	0.0672	0.382	0.648

		154	22	1	0.475	0.0678	0.359	0.628
		168	15	3	0.38	0.0731	0.26	0.554
		105	54	1	0.981	0.0183	0.946	1
		123	50	1	0.962	0.0265	0.911	1
		127	47	1	0.941	0.0329	0.879	1
		139	46	1	0.921	0.038	0.849	0.999
		140	44	1	0.9	0.0425	0.82	0.987
	Control	146	43	1	0.879	0.0464	0.793	0.975
		147	38	2	0.833	0.0543	0.733	0.946
		154	33	3	0.757	0.0646	0.641	0.895
		162	22	3	0.654	0.0786	0.517	0.828
		168	17	3	0.538	0.0886	0.39	0.743
		174	8	2	0.404	0.1059	0.242	0.675
		62	57	1	0.982	0.0174	0.949	1
		78	56	1	0.965	0.0244	0.918	1
		82	55	1	0.947	0.0296	0.891	1
		83	54	1	0.93	0.0338	0.866	0.999
		89	53	1	0.912	0.0375	0.842	0.989
		90	52	1	0.895	0.0406	0.819	0.978
		103	51	1	0.877	0.0435	0.796	0.967
		104	50	1	0.86	0.046	0.774	0.955
		105	49	1	0.842	0.0483	0.753	0.942
	<i>P.c</i>	106	48	1	0.825	0.0504	0.732	0.929
		111	47	1	0.807	0.0523	0.711	0.916
		112	46	1	0.789	0.054	0.69	0.903
		119	45	2	0.754	0.057	0.651	0.875
		127	43	2	0.719	0.0595	0.612	0.846
		140	39	1	0.701	0.0608	0.591	0.831
		154	32	1	0.679	0.0627	0.567	0.814
		160	31	1	0.657	0.0644	0.542	0.796
		161	26	1	0.632	0.0667	0.514	0.777
		168	22	4	0.517	0.0753	0.388	0.688

Bio 0% = seedlings that received no soil treatment, Bio 12.5% = seedlings that received 12.5% of Biohumim and Bio 25% = seedlings that received 25% of Biohumim. Control = seedlings were not infected by *P. cinnamomi* and *P.c* = seedlings were not infected by *P. cinnamomi*.

**Table S3.** Results of model selection of the generalised linear mixed models fitted to analyse the main factors—soil treatment (S) and biotic stress (B)—affecting different morphological response variables.

Response variable	S	B	S × B	AICc	deltaAICc
Root (<2mm) biomass				25.1	0.00
	+			29.4	4.28
		+		31.1	5.98
	+	+		35.4	10.28
	+	+	+	38.8	13.67
<i>Importance:</i> 0.05 0.11 <0.01					
Leaf mass fraction	+	+	+	223.0	0.00
		+		223.5	0.51
	+	+		224.8	1.8
				225.8	2.76
	+			227.2	4.16
<i>Importance:</i> 0.85 0.60 0.39					
Fine roots mass fraction				198.6	0.00
	+			199.5	0.93
		+		201.7	3.11
	+	+		202.6	4.01
	+	+	+	205.5	6.93
<i>Importance:</i> 0.19 0.40 0.02					
Root/Shoot ratio	+	+		82.3	0.00
	+			83.5	1.17
	+	+	+	83.7	1.35
				87.7	5.37
		+		87.8	5.48
<i>Importance:</i> 0.72 0.94 0.23					
Fine roots/Leaf Biomass ratio				-3.9	0.00
	+			0.6	4.55
		+		6.2	10.12
	+	+		10.7	14.61
	+	+	+	15.3	19.23
<i>Importance:</i> <0.01 0.09 <0.01					
Height (H)		+		367.5	0.00
	+	+		369.5	2.00
				370.7	3.17
	+	+	+	371.3	3.79
	+			372.7	5.17
<i>Importance:</i> 0.84 0.33 0.08					
Basal diameter (D)				180.3	0.00
	+			182.3	1.92
		+		185.4	5.02
	+	+		187.3	6.93
	+	+	+	188.0	7.63
<i>Importance:</i> 0.09 0.29 0.02					
H/D ratio		+		191.3	0.00
	+	+	+	191.4	0.14
	+	+		193.6	2.28
				194.3	2.97
	+			196.2	4.93

<i>Importance:</i>	<i>0.88</i>	<i>0.52</i>	<i>0.36</i>
Importance of predictor variable in the model averaging.			
Maximal model = $T \times B + 1$   Mother tree.			

**Table S4.** Results of model selection of the generalised linear mixed models fitted to analyse the main factors—soil treatment (S) and biotic stress (B)—affecting different physiological response variables.

Response variable	S	B	S × B	AICc	deltaAICc
Pn				328.7	0.00
	+			329.4	0.74
		+		331.0	2.29
	+	+		331.7	2.99
	+	+	+	333.2	4.54
<i>Importance: 0.28 0.44 0.04</i>					
Gs				-125.8	0.00
	+			-124.1	1.63
		+		-124.0	1.80
	+	+		-122.2	3.55
	+	+	+	-120.2	5.62
<i>Importance: 0.31 0.32 0.03</i>					
Ci	+			572.6	0.00
				574.2	1.60
	+	+		576.2	3.69
		+		577.9	5.30
	+	+	+	579.9	7.38
<i>Importance: 0.15 0.69 0.01</i>					
ETR		+		500.2	0.00
	+	+		502.1	1.90
	+	+	+	504.5	4.28
				506.3	6.12
	+			508.3	8.09
<i>Importance: 0.96 0.33 0.07</i>					
E				165.7	0.00
	+			167.7	2.05
		+		170.0	4.28
	+	+		172.1	6.39
	+	+	+	172.3	6.61
<i>Importance: 0.13 0.28 0.02</i>					
Pn/Gs	+			515.1	0.00
				516.2	1.03
	+	+		518.6	3.47
		+		519.7	4.53
	+	+	+	522.4	7.29
<i>Importance: 0.16 0.63 0.01</i>					
Pn/E				178.8	0.00
	+			180.9	2.07
		+		183.6	4.80
	+	+		185.7	6.86
	+	+	+	187.8	9.01
<i>Importance: 0.09 0.27 &lt;0.01</i>					
Ψ	+	+		393.0	0.00
	+	+	+	395.1	2.13
	+			396.0	2.95

	+	399.9	6.90
		402.5	9.44
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<i>Importance:</i>	<i>0.85</i>	<i>0.97</i>	<i>0.21</i>
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Importance of predictor variable in the model averaging.

Maximal model =  $T \times B + 1$  | Mother tree.

Pn net photosynthesis; Gs: stomatal conductance; Ci: internal CO<sub>2</sub> concentration; ETR: electron transport rate; E: transpiration;  $\Psi$ : leaf water potential.