Supplementary Content

Martino et al. - Modeling the Effect of Temperature on the Severity of Blueberry Stem Blight and Dieback with a Focus on *Neofusicoccum parvum* and Cultivar Susceptibility

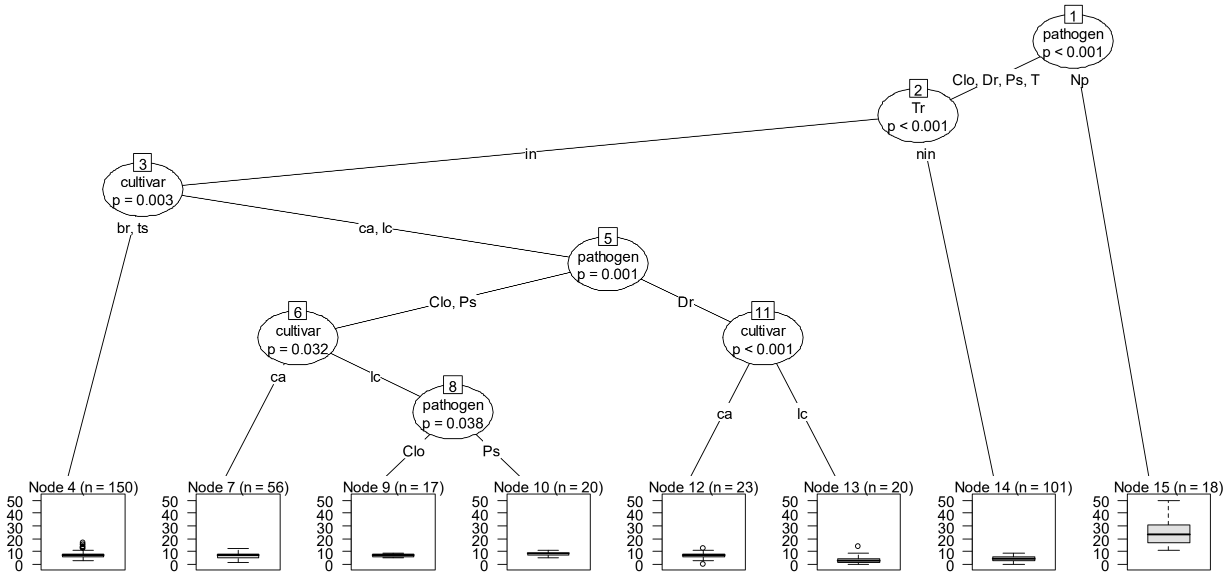

Figure S1 Graph of the unbiased recursive partitioning tree model fitted to the length of the external necrosis displayed by blueberry plants. Intermediate nodes are labeled numerically and display the acronym of the associated input variable determining the significant split, along with the corresponding *P*-value (p). Terminal nodes are labelled accordingly and show the number of blueberry plants included within each cluster (n) with the related boxplot of the external necrosis length (*y*-axis, in mm). Graph edges are labelled with the levels of the significant (*P*<0.05) input variables resulting from the binary split. Acronyms are defined as follows [in alphabetical order]: [br] 'Blue Ribbon' (blueberry cultivar); [ca] 'Cargo' (blueberry cultivar); [Clo] *Cadophora luteo-olivacea* (pathogen); [cultivar] blueberry cultivar; [Dr] *Diaporthe rudis* (pathogen); [in] plants inoculated with isolates of the target fungal pathogens; [lc] 'Last Call' (blueberry cultivar); [nin] control plants mock-inoculated with plugs of sterile agar medium; [Np] *Neofusicoccum parvum* (pathogen); [pathogen] species of the fungal pathogen inoculated in blueberry plants; [Ps] *Peroneutypa scoparia* (pathogen); [T] plug of sterile agar medium; [Tr] inoculation treatment; and [ts] 'Top Shelf' (blueberry cultivar).

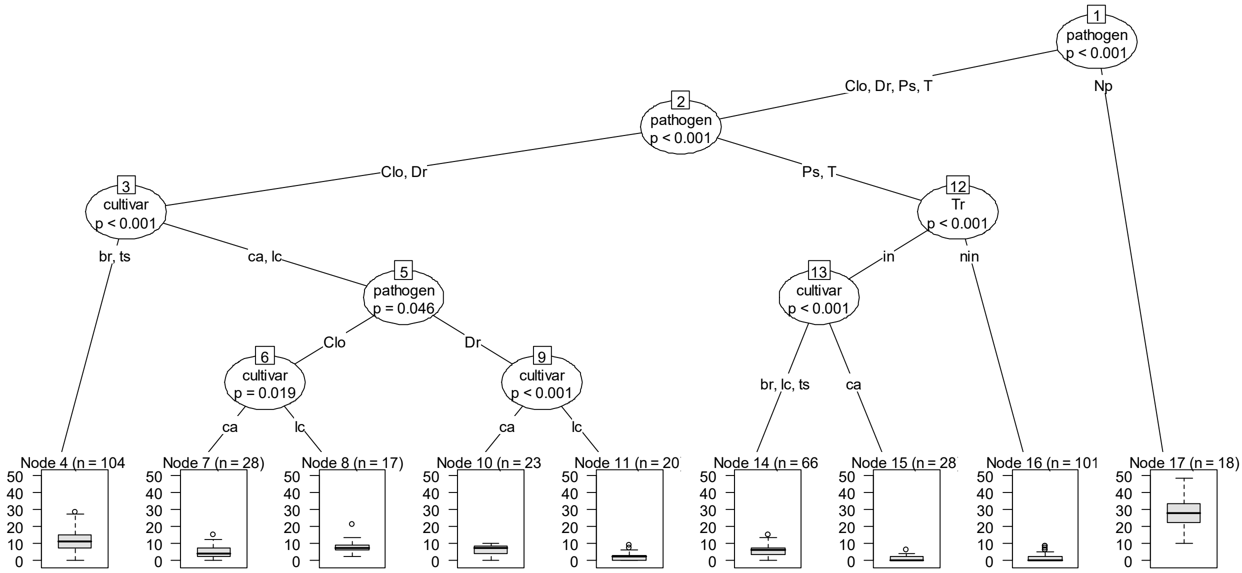

Figure S2 Graph of the unbiased recursive partitioning tree model fitted to the length of the internal necrosis displayed by blueberry plants. Intermediate nodes are labeled numerically and display the acronym of the associated input variable determining the significant split, along with the corresponding *P*-value (p). Terminal nodes are labelled accordingly and show the number of blueberry plants included within each cluster (n) with the related boxplot of the internal necrosis length (*y*-axis, in mm). Graph edges are labelled with the levels of the significant (*P*<0.05) input variables resulting from the binary split. Acronyms are defined as follows [in alphabetical order]: [br] 'Blue Ribbon' (blueberry cultivar); [ca] 'Cargo' (blueberry cultivar); [Clo] *Cadophora luteo-olivacea* (pathogen); [cultivar] blueberry cultivar; [Dr] *Diaporthe rudis* (pathogen); [in] plants inoculated with isolates of the target fungal pathogens; [lc] 'Last Call' (blueberry cultivar); [nin] control plants mock-inoculated with plugs of sterile agar medium; [Np] *Neofusicoccum parvum* (pathogen); [pathogen] species of the fungal pathogen inoculated in blueberry plants; [Ps] *Peroneutypa scoparia* (pathogen); [T] plug of sterile agar medium; [Tr] inoculation treatment; and [ts] 'Top Shelf' (blueberry cultivar).

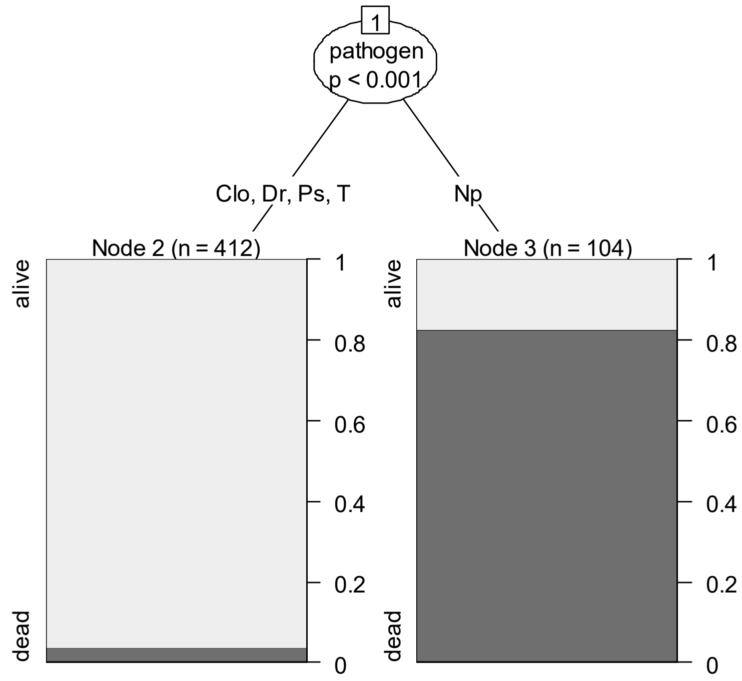

Figure S3. Graph of the unbiased recursive partitioning tree model fitted to mortality displayed by blueberry plants. The intermediate node is labeled numerically and displays the acronym of the associated input variable determining the significant split, along with the corresponding *P*-value (p). Terminal nodes are labelled accordingly and show the number of blueberry plants included within each cluster (n) with the related barchart showing the proportion [0;1] of dead (dark gray) and living (light gray) blueberry plants at the end of the trial. Graph edges are labelled with the levels of the significant (P<0.05) input variables resulting from the binary split. Acronyms are defined as follows [in alphabetical order]: [Clo] *Cadophora luteo-olivacea* (pathogen); [Dr] *Diaporthe rudis* (pathogen); [Np] *Neofusicoccum parvum* (pathogen); [pathogen] species of the fungal pathogen inoculated in blueberry plants; [Ps] *Peroneutypa scoparia* (pathogen); and [T] plug of sterile agar medium.

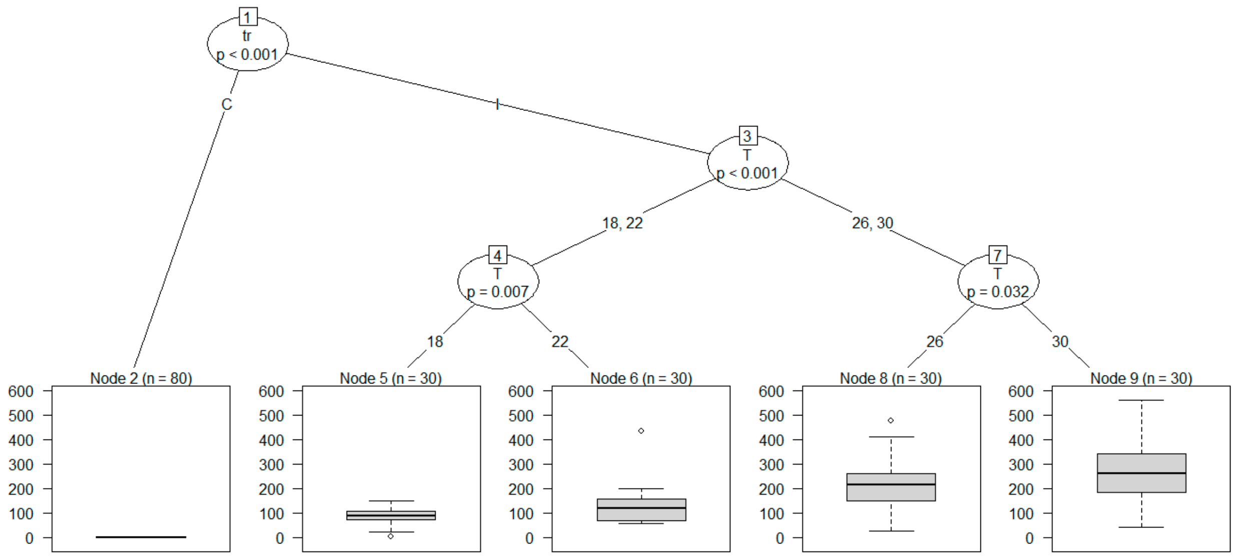

Figure S4. Comparisons of the average lengths of the internal necrosis among blueberry plants inoculated with *Neofusicoccum parvum* and control plants mock inoculated with plugs of sterile agar medium at different temperature levels. Intermediate nodes are labeled numerically and display the acronym of the associated input variable determining the significant split, along with the corresponding *P*-value (p). Terminal nodes are labelled accordingly and show the number of blueberry plants included within each cluster (n) with the related boxplot of the internal necrosis length (*y*-axis, in mm). Graph edges are labelled with the levels of the significant (P<0.05) input variables resulting from the binary split. Acronyms are defined as follows [in alphabetical order]: [C] control plants mock inoculated with plugs of sterile agar medium; [I] blueberry plants inoculated with *Neofusicoccum parvum*; [T] temperature; [tr] treatment; and [18, 22, 26, and 30] temperature levels in °C.

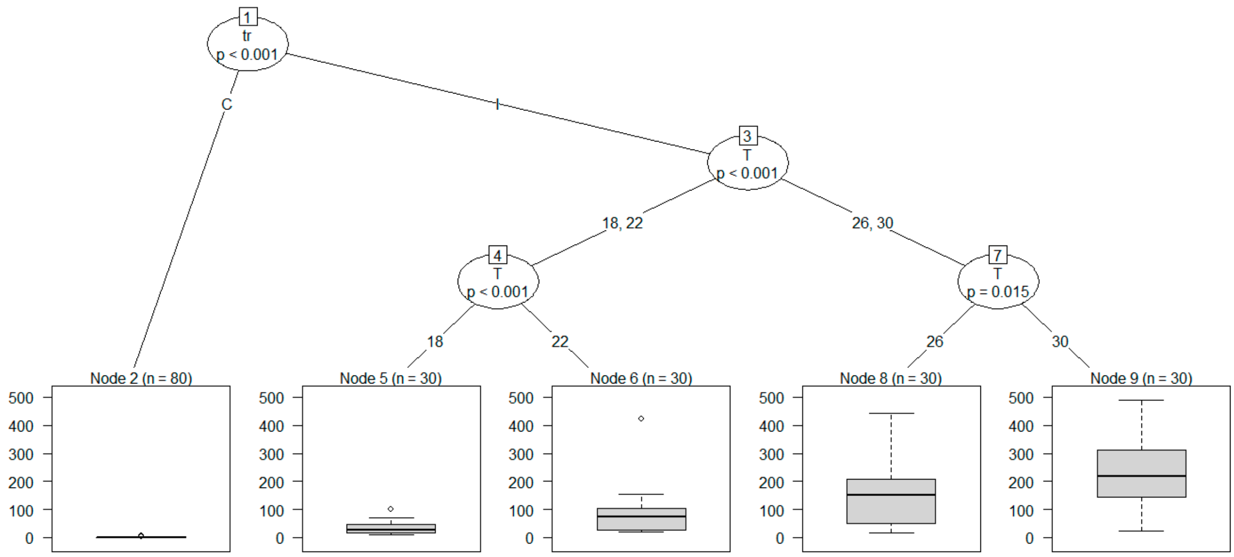

Figure S5. Comparisons of the average lengths of the external necrosis among blueberry plants inoculated with *Neofusicoccum parvum* and control plants mock inoculated with plugs of sterile agar medium at different temperature levels. Intermediate nodes are labeled numerically and display the acronym of the associated input variable determining the significant split, along with the corresponding *P*-value (p). Terminal nodes are labelled accordingly and show the number of blueberry plants included within each cluster (n) with the related boxplot of the external necrosis length (*y*-axis, in mm). Graph edges are labelled with the levels of the significant (P<0.05) input variables resulting from the binary split. Acronyms are defined as follows [in alphabetical order]: [C] control plants mock inoculated with plugs of sterile agar medium; [I] blueberry plants inoculated with *Neofusicoccum parvum*; [T] temperature; [tr] treatment; and [18, 22, 26, and 30] temperature levels in °C.

Table S1 Binary logistic regressions fitted to model the average increase of the necrosis severity (AINS, mm/day) of plants inoculated with *Neofusicoccum parvum* as a function of temperature. AINS values included in the models refer to the internal necrosis length.

Probability[1]	Model[2]	β_1[3]	P(β_1)[4]	β_0[3]	P(β_0)[4]	AIC[5]	AIC_W[6]	*P*(LRT)[7]
Pr(AINS>2 mm/day)	M_2	0.199	2.27×10^{-1}	-0.757	8.27×10^{-1}	30.22	0.480	1.75×10^{-1}
	$M_{2;0}$	-	-	3.664*	3.71×10^{-10}	30.06	0.520	
Pr(AINS>5 mm/day)	M_5	0.115*	4.59×10^{-2}	-1.116	3.97×10^{-1}	111.04	0.756	3.90×10^{-2}
	$M_{5;0}$	-	-	1.551*	1.09×10^{-10}	113.29	0.244	
Pr(AINS>10 mm/day)	M_{10}	0.428*	2.90×10^{-9}	-10.081*	4.80×10^{-9}	107.88	1	3.15×10^{-15}
	$M_{10;0}$	-	-	0.100	5.84×10^{-1}	168.06	0	
Pr(AINS>15 mm/day)	M_{15}	0.454*	4.11×10^{-8}	-12.316*	2.31×10^{-8}	97.62	1	6.48×10^{-14}
	$M_{15;0}$	-	-	-0.769*	8.88×10^{-5}	151.84	0	
Pr(AINS>20 mm/day)	M_{20}	0.414*	4.19×10^{-5}	-12.494*	1.08×10^{-5}	81.73	1	3.50×10^{-8}
	$M_{20;0}$	-	-	-1.609*	5.01×10^{-11}	110.13	0	

[1]probability of detecting an average increase of the necrosis severity of *Neofusicoccum parvum* (AINS in mm/day) higher than a given threshold
[2] model acronym, with indication of the AINS threshold X (2, 5, 10, 15 and 20 mm/day). The number 0 marks the null model
[3] coefficient associated with the temperature (β_1) or model intercept (β_0). The symbol * marks significant values (*P*<0.05)
[4] *P*-value of the model coefficients β_1 and β_0
[5]Akaike Information Criterion
[6]Akaike Information Criterion weight
[7]*P*-value of the Likelihood Ratio Test comparing each model fitted with temperature as predictor with its corresponding null model

Table S2 Binary logistic regressions fitted to model the average increase of the necrosis severity (AINS, mm/day) of plants inoculated with *Neofusicoccum parvum* as a function of temperature. AINS values included in the models refer to the external necrosis length.

Probability[1]	Model[2]	β_1[3]	P(β_1)[4]	β_0[3]	P(β_0)[4]	AIC[5]	AIC$_W$[6]	*P*(LRT)[7]
Pr(AINS>2 mm/day)	M_2	0.339*	1.92×10^{-6}	-6.578*	1.85×10^{-5}	106.69	1	4.43×10^{-9}
	$M_{2;0}$	-	-	1.055*	4.26×10^{-7}	139.11	0	
Pr(AINS>5 mm/day)	M_5	0.375*	1.01×10^{-8}	-8.574*	2.44×10^{-8}	115.94	1	4.82×10^{-13}
	$M_{5;0}$	-	-	0.268	1.45×10^{-1}	166.22	0	
Pr(AINS>10 mm/day)	M_{10}	0.406*	1.51×10^{-8}	-10.621*	9.78×10^{-9}	108.37	1	1.63×10^{-13}
	$M_{10;0}$	-	-	-0.511*	6.75×10^{-3}	160.78	0	
Pr(AINS>15 mm/day)	M_{15}	0.400*	1.28×10^{-5}	-11.879*	3.21×10^{-6}	88.132	1	8.58×10^{-9}
	$M_{15;0}$	-	-	-1.439*	5.45×10^{-10}	119.27	0	
Pr(AINS>20 mm/day)	M_{20}	0.375*	8.09×10^{-4}	-11.946*	1.68×10^{-4}	70.889	1	9.72×10^{-6}
	$M_{20;0}$	-	-	-2.024*	1.09×10^{-12}	88.455	0	

[1]probability of detecting an average increase of the necrosis severity of *Neofusicoccum parvum* (AINS in mm/day) higher than a given threshold
[2] model acronym, with indication of the AINS threshold X (2, 5, 10, 15 and 20 mm/day). The number 0 marks the null model
[3] coefficient associated with the temperature (β_1) or model intercept (β_0). The symbol * marks significant values (*P*<0.05)
[4] *P*-value of the model coefficients β_1 and β_0
[5]Akaike Information Criterion
[6]Akaike Information Criterion weight
[7]*P*-value of the Likelihood Ratio Test comparing each model fitted with temperature as predictor with its corresponding null model

Table S3 Binary logistic regression fitted to model the probability of death (%) of blueberry plants inoculated with *Neofusicoccum parvum* at different temperatures (°C).

Probability[1]	Model[2]	β_1[3]	P(β_1)[4]	β_0[3]	P(β_0)[4]	AIC[5]	AIC_W[6]	*P*(LRT)[7]
Pr(status=death)	M_m	0.398*	4.53×10^{-4}	-12.487*	1.06×10^{-4}	72.12	1	2.325×10^{-6}
	$M_{m;0}$	-	-	-1.946*	1.79×10^{-12}	92.42	0	

[1]probability of death of plants inoculated with *Neofusicoccum parvum*
[2] model acronym. The number 0 marks the null model
[3] coefficient associated with the temperature (β_1) or model intercept (β_0). The symbol * marks significant values ($P<0.05$)
[4] *P*-value of the model coefficients β_1 and β_0
[5]Akaike Information Criterion
[6]Akaike Information Criterion weight
[7]*P*-value of the Likelihood Ratio Test comparing each model fitted with temperature as predictor with its corresponding null model