Table S1. Data of airborne *B. cinerea* conidia concentrations (Spores, in spores/m^3), protein concentrations (Protein, in ng/m^3), mean temperature in °C (Tmean) and rainfall in L/m^2 (Rain) during the study period in 2017. Data used in Figure 4a.

2017				
Date	**Spores**	**Protein**	**Tmean**	**Rain**
4-May-17	45	0.298	18.94	0.00
5-May-17	67	0.275	13.28	9.00
6-May-17	42	0.243	15.08	2.80
7-May-17	83	0.289	19.01	0.00
8-May-17	120	0.272	20.46	0.00
9-May-17	162	0.359	17.86	2.80
10-May-17	269	0.292	14.49	14.00
11-May-17	77	0.255	12.97	33.20
12-May-17	100	0.258	13.52	9.20
13-May-17	288	0.268	13.56	16.00
14-May-17	178	0.270	17.02	0.00
15-May-17	252	0.246	20.25	0.00
16-May-17	319	0.412	22.37	0.00
17-May-17	259	0.265	18.32	0.00
18-May-17	112	0.266	13.44	0.00
19-May-17	96	0.248	13.37	0.00
20-May-17	134	0.259	17.79	0.00
21-May-17	185	0.290	21.35	0.00
22-May-17	197	0.381	21.76	0.00
23-May-17	120	0.339	23.04	0.00
24-May-17	125	0.298	25.59	0.00
25-May-17	171	0.238	20.57	8.80
26-May-17	129	0.244	17.72	24.20
29-May-17	235	0.251	17.86	0.00
30-May-17	227	0.268	18.48	0.00
2-Jun-17	260	0.283	18.70	0.00
3-Jun-17	177	0.251	16.21	0.00
4-Jun-17	112	0.264	16.44	0.00
5-Jun-17	186	0.259	15.83	1.40
6-Jun-17	107	0.267	17.33	0.00
7-Jun-17	203	0.267	19.97	0.00
8-Jun-17	237	0.279	19.94	0.00
9-Jun-17	140	0.240	20.22	0.00
10-Jun-17	165	0.250	21.51	0.00
11-Jun-17	94	0.248	20.21	0.00

Table S2. Date of start and end of the phenological stages 61, 65 and 69 (BBCH scale) of the considered grapevine varieties 'Treixadura', 'Godello', 'Loureira' and 'Albariño' in 2017. Data used in Figure 4a.

2017			
Variety	**Stage**	**Start**	**End**
Treixadura	**61**	13-May	20-May
	65	21-May	23-May
	69	24-May	04-Jun
Godello	**61**	11-May	19-May
	65	20-May	21-May
	69	22-May	25-May
Loureira	**61**	20-May	25-May
	65	26-May	27-May
	69	28-May	11-Jun
Albariño	**61**	07-May	13-May
	65	14-May	16-May
	69	17-May	22-May

Table S3. Data of airborne *B. cinerea* conidia concentrations (Spores, in spores/m^3), protein concentrations (Protein, in ng/m^3), mean temperature in °C (Tmean) and rainfall in L/m^2 (Rain) during the study period in 2018. Data used in Figure 4b.

2018				
Date	**Spores**	**Protein**	**Tmean**	**Rain**
1-Jun-18	151	0.314	14.93	0.00
2-Jun-18	224	0.275	16.33	0.00
3-Jun-18	125	0.256	15.14	0.00
4-Jun-18	120	0.283	13.08	6.40
5-Jun-18	110	0.244	12.91	5.40
6-Jun-18	161	0.224	15.96	0.00
7-Jun-18	275	0.273	14.48	2.60
9-Jun-18	360	0.222	13.36	17.40
10-Jun-18	215	0.323	15.10	3.80
11-Jun-18	153	0.237	15.35	1.00
12-Jun-18	279	0.235	16.94	0.00
13-Jun-18	495	0.268	17.05	0.00
14-Jun-18	366	0.322	18.44	0.00
15-Jun-18	369	0.229	19.41	0.00
16-Jun-18	307	0.223	18.52	0.00
17-Jun-18	316	0.243	21.21	0.00
18-Jun-18	238	0.246	22.47	0.00
19-Jun-18	282	0.305	23.96	0.00
20-Jun-18	269	0.245	23.39	0.00
21-Jun-18	276	0.331	23.24	3.00
22-Jun-18	367	0.239	22.43	0.00
23-Jun-18	303	0.282	25.35	0.00
24-Jun-18	352	0.272	26.61	0.00
25-Jun-18	144	0.271	21.86	0.00
26-Jun-18	103	0.312	18.52	0.00
27-Jun-18	179	0.289	19.69	0.00
28-Jun-18	446	0.255	19.10	0.00
29-Jun-18	446	0.280	19.86	1.20
30-Jun-18	131	0.218	17.14	37.40

Table S4. Date of start and end of the phenological stages 61, 65 and 69 (BBCH scale) of the considered grapevine varieties 'Treixadura', 'Godello', 'Loureira' and 'Albariño' in 2018. Data used in Figure 4b.

2018			
Variety	**Stage**	**Start**	**End**
Treixadura	**61**	03-Jun	14-Jun
	65	15-Jun	17-Jun
	69	18-Jun	22-Jun
Godello	**61**	02-Jun	11-Jun
	65	12-Jun	15-Jun
	69	16-Jun	17-Jun
Loureira	**61**	06-Jun	13-Jun
	65	14-Jun	16-Jun
	69	17-Jun	18-Jun
Albariño	**61**	02-Jun	09-Jun
	65	10-Jun	14-Jun
	69	15-Jun	19-Jun

Table S5. Data of *B. cinerea* airborne protein concentrations of 2018 (Protein), and forecast values for the same year obtained from the developed regression model (Estimated). Protein values are expressed in ng/m^3. Data used in Figure 7.

Date	Protein	Estimated
1-Jun-18	0.3137	0.2804
2-Jun-18	0.2750	0.2810
3-Jun-18	0.2556	0.2636
4-Jun-18	0.2828	0.2477
5-Jun-18	0.2440	0.2487
6-Jun-18	0.2242	0.2619
7-Jun-18	0.2734	0.2854
9-Jun-18	0.2224	0.3137
10-Jun-18	0.3232	0.2743
11-Jun-18	0.2367	0.2445
12-Jun-18	0.2350	0.2903
13-Jun-18	0.2678	0.3686
14-Jun-18	0.3222	0.3281
15-Jun-18	0.2286	0.3163
16-Jun-18	0.2226	0.3035
17-Jun-18	0.2428	0.3317
18-Jun-18	0.2462	0.3130
19-Jun-18	0.3049	0.3045
20-Jun-18	0.2449	0.2966
21-Jun-18	0.3313	0.2941
22-Jun-18	0.2392	0.3039
23-Jun-18	0.2820	0.2922
24-Jun-18	0.2722	0.2890
25-Jun-18	0.2709	0.2177
26-Jun-18	0.3119	0.2001
27-Jun-18	0.2887	0.2333
28-Jun-18	0.2553	0.2816
29-Jun-18	0.2796	0.2886
30-Jun-18	0.2177	0.2115