

Supplementary Materials

Table S1. Contribution (r^2) of nursery, variety and treatment to variation in chlorophyll in graft unions. Annotation next to the numbers indicates significance level: ** < 0.01, n.s. = not significant (>0.05).

Factor	Graft Unions (r^2)
Nursery	0.089 **
Variety	0.028 n.s.
Treatment	0.000 n.s.
Full model	0.13 n.s.

Table S2. Indicator species for control and HWT plants in **(a)** graft union and **(b)** root collars for all OTUs. Graft unions and root collars were analyzed separately by variety and rootstock, respectively. Correlation values (stat) and the statistical significance of the correlation (p-values) are reported. GTD-related indicator species are marked with a cross (†) and biocontrol species are marked with an asterisk (*).

a. Graft unions: control vs HWT

50 species associated with control plants			
Indicator Species	stat	p value	significance
<i>Acaromyces ingoldii</i>	0.58	0.001	***
<i>Acrocalymma</i> sp._3	0.26	0.03	*
<i>Bionectria byssicola</i> _1	0.56	0.011	*
<i>Cadophora luteo-olivacea</i> †	0.826	0.001	***
<i>Cadophora luteo-olivacea</i> †	0.387	0.003	**
<i>Cadophora</i> sp. †	0.767	0.001	***
<i>Cadophora</i> sp._1 †	0.368	0.001	***
<i>Calloria</i> sp.	0.449	0.002	**
<i>Clonostachys</i> sp.	0.483	0.026	*
<i>Cortinarius</i> sp.	0.424	0.046	*
<i>Cystobasidium</i> sp._2	0.26	0.029	*
<i>Devriesia</i> sp._1	0.309	0.015	*
<i>Diaporthe</i> sp._1 †	0.654	0.001	***
<i>Diaporthe</i> sp._2 †	0.26	0.03	*
<i>Hannaella luteola</i>	0.385	0.003	**
<i>Leptosphaeria</i> sp._5	0.778	0.005	**
<i>Lophiostoma</i> sp.	0.801	0.002	**
<i>Lophiostoma</i> sp._15	0.26	0.027	*
<i>Lophiostoma</i> sp._4	0.329	0.002	**
<i>Lophiostoma</i> sp._6	0.384	0.014	*
<i>Meira nashicola</i>	0.26	0.031	*
<i>Meira</i> sp.	0.553	0.004	**
<i>Mycoarthris corallina</i>	0.337	0.007	**

<i>Niesslia</i> sp._4	0.666	0.001	***
<i>Niesslia</i> sp._5	0.377	0.021	*
<i>Occultifur</i> sp.	0.26	0.033	*
<i>Ophiobolus</i> sp.	0.56	0.001	***
<i>Pyrenochaeta</i> sp.	0.458	0.038	*
<i>Rosellinia</i> sp.	0.359	0.011	*
<i>Rosellinia</i> sp._1	0.285	0.012	*
<i>Sarocladium strictum</i> _1	0.54	0.05	*
<i>Sebacina</i> sp.	0.259	0.045	*
<i>Stagonospora</i> sp._4	0.572	0.008	**
<i>unknown</i> _109	0.329	0.005	**
<i>unknown</i> _117	0.462	0.001	***
<i>unknown</i> _121	0.329	0.005	**
<i>unknown</i> _17	0.432	0.005	**
<i>unknown</i> _30	0.406	0.001	***
<i>unknown</i> _31	0.26	0.03	*
<i>unknown</i> _32	0.34	0.015	*
<i>unknown</i> _33	0.444	0.005	**
<i>unknown</i> _39	0.535	0.001	***
<i>unknown</i> _53	0.546	0.004	**
<i>unknown</i> _61	0.349	0.026	*
<i>unknown</i> _77	0.251	0.039	*
<i>unknown</i> _84	0.338	0.011	*
<i>unknown</i> _88	0.377	0.015	*
<i>unknown</i> _9	0.285	0.014	*
<i>unknown</i> _98	0.582	0.008	**
<i>Vishniacozyma</i> sp._2 *	0.26	0.03	*
38 species associated with HWT plants			
Indicator species	stat	p value	significance
<i>Acremonium</i> sp._1 †	0.648	0.007	**
<i>Acremonium</i> sp._12 †	0.426	0.024	*
<i>Acremonium</i> sp._13 †	0.786	0.001	***
<i>Acremonium</i> sp._14 †	0.658	0.001	***
<i>Acremonium</i> sp._15 †	0.724	0.001	***
<i>Acremonium</i> sp._5 †	0.401	0.013	*
<i>Articulospora</i> sp.	0.424	0.002	**
<i>Cystobasidium laryngis</i>	0.55	0.001	***
<i>Cystobasidium lysinophilum</i>	0.762	0.001	***
<i>Cystobasidium slooffiae</i> _1	0.695	0.001	***
<i>Cystobasidium</i> sp.	0.329	0.047	*
<i>Entyloma</i> sp.	0.557	0.031	*
<i>Entyloma</i> sp._1	0.503	0.044	*
<i>Fusarium</i> sp._10	0.4	0.002	**
<i>Fusarium</i> sp._12	0.315	0.017	*
<i>Fusarium</i> sp._20	0.527	0.001	***
<i>Fusarium</i> sp._22	0.786	0.004	**

<i>Fusarium</i> sp._3	0.823	0.001	***
<i>Fusarium</i> sp._5	0.423	0.04	*
<i>Fusarium</i> sp._6	0.689	0.001	***
<i>Fusarium</i> sp._9	0.283	0.026	*
<i>Microstroma</i> sp.	0.415	0.017	*
<i>Nectria</i> sp._1 †	0.367	0.037	*
<i>Phaeosphaeria</i> sp._3	0.367	0.04	*
<i>Phoma</i> sp. †	0.417	0.022	*
<i>Phoma</i> sp._1 †	0.358	0.021	*
<i>Quambalaria</i> sp.	0.342	0.026	*
<i>Sporisorium</i> sp.	0.414	0.003	**
<i>Stagonospora</i> sp.	0.526	0.004	**
<i>Stagonospora</i> sp._1	0.499	0.024	*
<i>Stagonospora</i> sp._5	0.671	0.001	***
Unknown	0.473	0.001	***
unknown_1	0.32	0.015	*
unknown_106	0.416	0.001	***
unknown_11	0.443	0.004	**
unknown_22	0.416	0.001	***
unknown_57	0.572	0.001	***
unknown_70	0.478	0.029	*

b. Root collars: control vs HWT

23 species associated with control plants			
Indicator species	stat	p value	significance
<i>Acaromyces ingoldii</i>	0.494	0.0213	*
<i>Bionectria byssicola</i>	0.698	0.0409	*
<i>Bionectria byssicola</i> _1	0.315	0.0451	*
<i>Cercophora samala</i>	0.309	0.0285	*
<i>Cystofilobasidium macerans</i>	0.603	0.0324	*
<i>Exophiala</i> sp._1	0.603	0.0002	***
<i>Leptosphaeria</i> sp._5	0.761	0.0063	**
<i>Meira</i> sp._1	0.296	0.025	*
<i>Ophiobolus</i> sp.	0.504	0.0094	**
<i>Phaeomoniella chlamydospora</i> _3 †	0.715	0.0293	*
<i>Phaeomoniella chlamydospora</i> _4 †	0.327	0.0052	**
<i>Phaeomoniella chlamydospora</i> _5 †	0.322	0.0096	**
<i>Phaeomoniella</i> sp. †	0.359	0.0163	*
<i>Phaeosphaeria</i> sp._4	0.375	0.0419	*
<i>Rhizoctonia</i> sp.	0.551	0.0001	***
<i>Serendipita</i> sp.	0.567	0.0122	*
<i>Stagonospora</i> sp._4	0.551	0.0106	*
<i>Thysanorea asiatica</i>	0.487	0.0001	***
unknown_101	0.497	0.0003	***

<i>unknown_108</i>	0.306	0.0142	*
<i>unknown_3</i>	0.353	0.0472	*
<i>unknown_79</i>	0.283	0.0296	*
<i>unknown_89</i>	0.323	0.0208	*
29 species associated with HWT plants			
Indicator species	stat	p value	significance
<i>Cercophora</i> sp._1	0.264	0.0255	*
<i>Chaetomium</i> sp._12	0.513	0.0056	**
<i>Cylindrocarpon</i> sp._4 †	0.51	0.0467	*
<i>Cystobasidium</i> sp._2	0.283	0.0464	*
<i>Fusarium</i> sp._13	0.635	0.0131	*
<i>Fusarium</i> sp._15	0.422	0.0136	*
<i>Fusarium</i> sp._17	0.319	0.0288	*
<i>Fusarium</i> sp._2	0.289	0.0136	*
<i>Fusarium</i> sp._6	0.421	0.0015	**
<i>Lophiostoma</i> sp.*	0.759	0.0004	***
<i>Lophiostoma</i> sp._10*	0.636	0.0026	**
<i>Lophiostoma</i> sp._11*	0.686	0.0001	***
<i>Minutisphaera aspera</i>	0.697	0.0125	*
<i>Minutisphaera</i> sp._1	0.403	0.0041	**
<i>Phaeosphaeria</i> sp._2	0.335	0.0259	*
<i>Phoma</i> sp._1 †	0.351	0.0335	*
<i>Symmetrospora symmetrica</i>	0.275	0.0271	*
<i>Thelonectria olida</i> †	0.453	0.001	***
<i>Thelonectria</i> sp. †	0.548	0.0006	***
<i>unknown_107</i>	0.46	0.0215	*
<i>unknown_119</i>	0.363	0.002	**
<i>unknown_16</i>	0.403	0.0139	*
<i>unknown_28</i>	0.42	0.0073	**
<i>unknown_38</i>	0.417	0.0006	***
<i>unknown_4</i>	0.413	0.0208	*
<i>unknown_45</i>	0.427	0.0293	*
<i>unknown_6</i>	0.376	0.0123	*
<i>unknown_62</i>	0.405	0.0301	*
<i>unknown_96</i>	0.533	0.0003	***

Table S3. Indicator species for control and HWT plants in **(a)** Nursery I and **(b)** Nursery II. Nurseries were analyzed separately. Correlation values (stat) and the statistical significance of the correlation (p-values) are reported. GTD-related indicator species are marked in bold and biocontrol species are marked with an asterisk (*).

a. Nursery I

7 species associated with control plants			
Indicator species	stat	p value	significance
<i>Cadophora luteo-olivacea</i> _2 †	0.854	0.0001	***
<i>Cadophora</i> sp. †	0.766	0.0008	***

<i>Cortinarius</i> sp.	0.483	0.0339	*
<i>Diaporthe</i> sp._1 †	0.782	0.0025	**
<i>Lophiostoma</i> sp.*	0.847	0.0004	***
<i>Niesslia</i> sp._4	0.575	0.0152	*
<i>Stagonospora</i> sp._4	0.65	0.0072	**
10 species associated with HWT plants			
<i>Acremonium</i> sp._13 †	0.818	0.0012	**
<i>Acremonium</i> sp._15 †	0.771	0.0028	**
<i>Alternaria</i> sp._6*	0.767	0.0289	*
<i>Cystobasidium lysinophilum</i>	0.789	0.0009	***
<i>Cystobasidium slooffiae</i> _1	0.692	0.0012	**
<i>Fusarium</i> sp._22	0.888	0.0001	***
<i>Fusarium</i> sp._3	0.923	0.0001	***
<i>Fusarium</i> sp._6	0.853	0.0001	***
<i>Stagonospora</i> sp._5	0.636	0.0372	*

b. Nursery II

Nine species associated with control plants			
Indicator species	stat	p value	significance
<i>Acaromyces ingoldii</i>	0.769	0.002	**
<i>Cadophora luteo-olivacea</i> _2 †	0.797	0.0236	*
<i>Cadophora</i> sp. †	0.682	0.0474	*
<i>Diaporthe</i> sp._1 †	0.733	0.0084	**
<i>Niesslia</i> sp._4	0.679	0.0152	*
<i>Ophiobolus</i> sp.	0.656	0.0012	**
<i>Stagonospora</i> sp._4	0.5	0.0257	*
<i>unknown</i> _53	0.777	0.0011	**
<i>unknown</i> _98	0.689	0.0156	*
Five species associated with HWT plants			
<i>Acremonium</i> sp._13 †	0.779	0.0486	*
<i>Cystobasidium lysinophilum</i>	0.743	0.0469	*
<i>Cystobasidium slooffiae</i> _1	0.757	0.0092	**
<i>Fusarium</i> sp._3	0.842	0.0011	**
<i>Fusarium</i> sp._6	0.649	0.0012	**

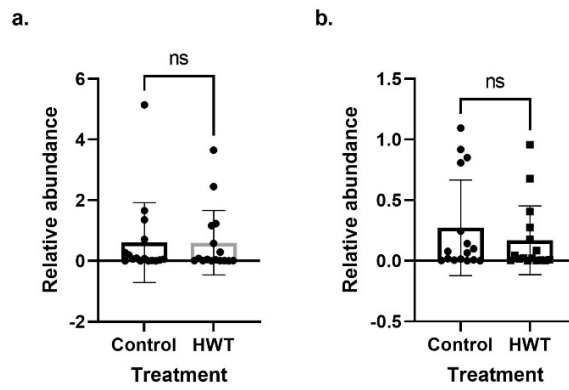


Figure S1. Relative abundance of GTD-related fungi in control and HWT-treated plants in (a) graft unions and (b) root collars.