Supplementary Materials

Comparison of disease severity caused by four soil-borne pathogens in winter cereal seedlings

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Supplementary Table S1. ANOVA table for analysis of combined leaf sheath disease severity ratings of five winter cereals colonised by the four crown rot and common root rot pathogens used for this study. Mean separations were described using α <0.05.

Term	Num.[1]	Den. DF[2]	*f*-value	*p*-value
(Intercept) (grand mean)	1	7.4	5588.00	<0.001
Experiment	1	8.3	0.00	0.975
Pathogen	4	176.7	645.10	<0.001
Cultivar	4	176.8	467.90	<0.001
Pathogen: Strain	4	176.9	55.20	<0.001
Experiment: Pathogen	4	177.2	1.52	0.197
Experiment: Cultivar	4	177.3	1.42	0.228
Pathogen: Cultivar	16	176.7	106.60	<0.001
Experiment: Pathogen: Strain	4	177.4	1.36	0.248
Pathogen: Strain: Cultivar	16	177.0	7.27	<0.001
Experiment: Pathogen: Cultivar	16	177.2	2.19	0.007
Experiment: Pathogen: Strain: Cultivar	16	177.4	1.98	0.017

[1] Num.: They stand for numerator degrees of freedom.
[2] Den. DF: Denominator degrees of freedom.

Supplementary Table S2. ANOVA table for analysis of sub-crown internode rating of five winter cereals colonised by the four crown rot and common root rot pathogens used for this study. Mean separations of α <0.05.

Term	Num.[1]	Den. DF[2]	f-value	p-value
(Intercept)	1	11.2	1356.00	<0.001
Experiment	1	5.6	0.46	0.524
Pathogen	4	176.8	131.40	<0.001
Cultivar	4	176.9	244.20	<0.001
Pathogen: Strain	4	177.0	18.95	<0.001
Experiment: Pathogen	4	176.2	0.53	0.714
Experiment: Cultivar	4	176.2	0.37	0.831
Pathogen: Cultivar	16	176.8	36.87	<0.001
Experiment: Pathogen: Strain	4	176.3	1.34	0.258
Pathogen: Strain: Cultivar	16	177.0	8.55	<0.001
Experiment: Pathogen: Cultivar	16	176.1	1.26	0.226
Experiment: Pathogen: Strain: Cultivar	16	176.3	1.11	0.344

[1] Num.: They stand for numerator degrees of freedom.
[2] Den. DF: Denominator degrees of freedom.

Supplementary Table S3. ANOVA table for analysis of shoot length of five winter cereals colonised by the four crown rot and common root rot pathogens used for this study. Mean separations of α <0.05.

Term	Num.[A]	Den. DF[B]	*f*-value	*p*-value
(Intercept)	1	177.4	96700.00	<0.001
Experiment	1	177.4	79.81	<0.001
Pathogen	4	177.5	122.20	<0.001
Cultivar	4	177.4	57.29	<0.001
Pathogen: Strain	4	177.4	9.79	<0.001
Experiment: Pathogen	4	177.5	1.25	0.291
Experiment: Cultivar	4	177.4	3.85	0.005
Pathogen: Cultivar	16	177.5	13.72	<0.001
Experiment: Pathogen: Strain	4	177.4	2.22	0.069
Pathogen: Strain: Cultivar	16	177.4	1.65	0.060
Experiment: Pathogen: Cultivar	16	177.5	1.00	0.454
Experiment: Pathogen: Strain: Cultivar	16	177.4	1.65	0.061

[A]Num.: They stand for numerator degrees of freedom.
[B]Den. DF: Denominator degrees of freedom.

Supplementary Table S4. ANOVA table for analysis of dry shoot weight of five winter cereals colonised by four crown rot and common root rot pathogens used for this study. Mean separations of α <0.05

Term	Num.[A]	Den. DF[B]	*f*-value	*p*-value
(Intercept)	1	2.7	5168.00	<0.001
Experiment	1	2.7	3.34	0.174
Pathogen	4	163.9	9.95	<0.001
Cultivar	4	163.8	56.66	<0.001
Pathogen: Strain	4	163.7	0.35	0.843
Experiment: Pathogen	4	164.5	1.76	0.139
Experiment: Cultivar	4	164.4	1.41	0.234
Pathogen: Cultivar	16	163.9	8.25	<0.001
Experiment: Pathogen: Strain	4	164.4	1.36	0.251
Pathogen: Strain: Cultivar	16	163.7	1.80	0.035
Experiment: Pathogen: Cultivar	16	164.5	1.72	0.048
Experiment: Pathogen: Strain: Cultivar	16	164.4	1.46	0.123

[A]Num.: They stand for numerator degrees of freedom.
[B]Den. DF: Denominator degrees of freedom.

Supplementary Figure S1. Mean combined leaf sheath visual discolouration ratings for each experiment by cultivar by strain interaction. Treatments include *Fusarium pseudograminearum* (strains *Fp*1 and *Fp*2), *F. culmorum* (strains *Fc*1 and *Fc*2), *F. graminearum* (strains *Fg*1 and *Fg*2), *Bipolaris sorokiniana* (strains *Bs*1 and *Bs*2), and non-inoculated control for each host. Different letters represent significant differences within a strain and experiment at $\alpha < 0.05$
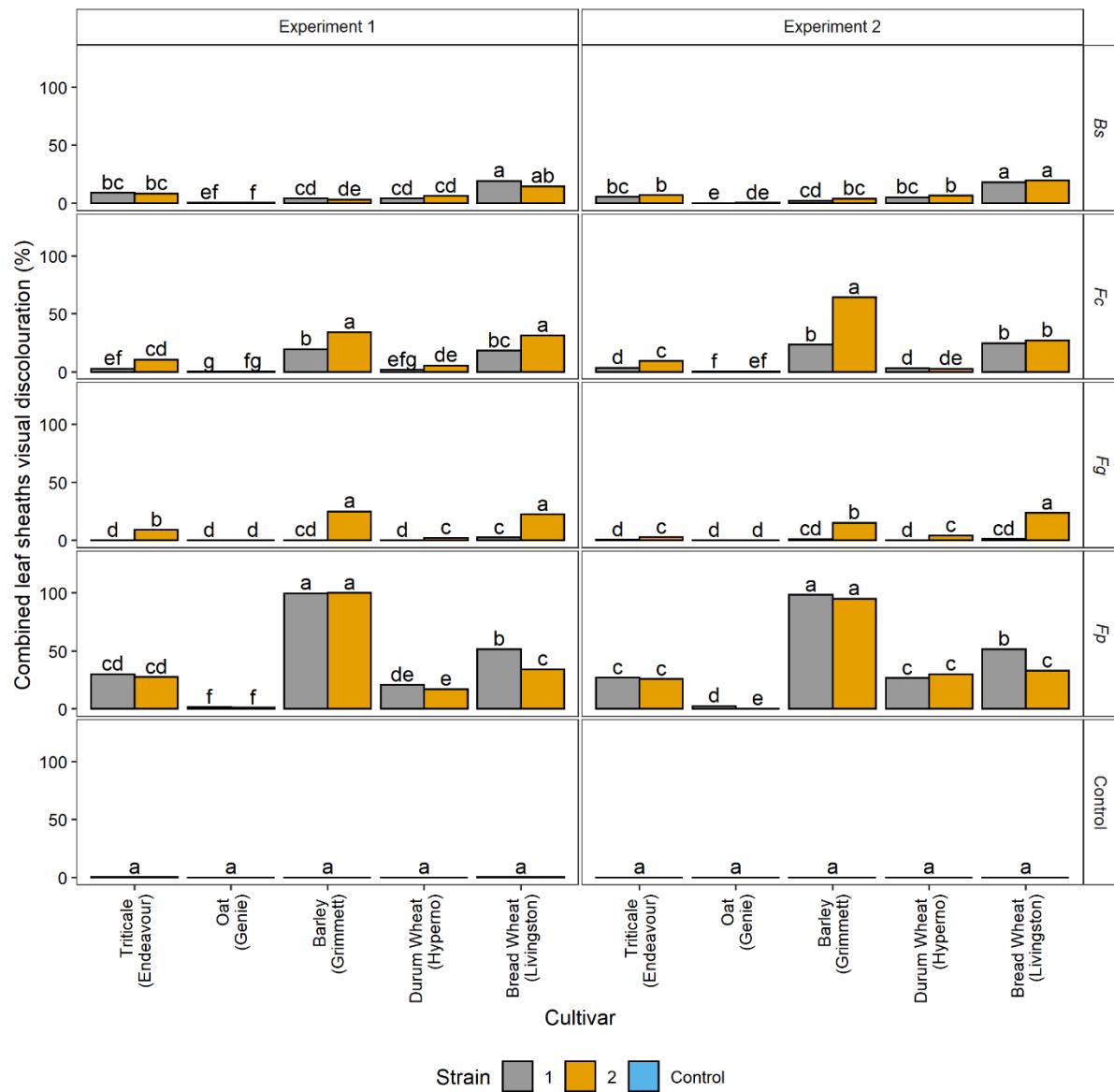
Supplementary Figure S2. Mean values of the sub-crown internode visual discolouration rating for the cultivar by pathogen interaction. Treatments include *Fusarium pseudograminearum* (strains *Fp*1 and *Fp*2), *F. culmorum* (strains *Fc*1 and *Fc*2), *F. graminearum* (strains *Fg*1 and *Fg*2), *Bipolaris sorokiniana* (strains *Bs*1 and *Bs*2), and non-inoculated control for each host. Different letters indicate significant differences between strains within a cultivar at $\alpha < 0.05$.