

## SUPPLEMENTARY MATERIALS

Table S1. Pearson correlation coefficient between the *Parastagosnopora nodorum* occurrence and meteorological factors. The data in red indicates significant correlations, (\*)  $p < 0.05$ .

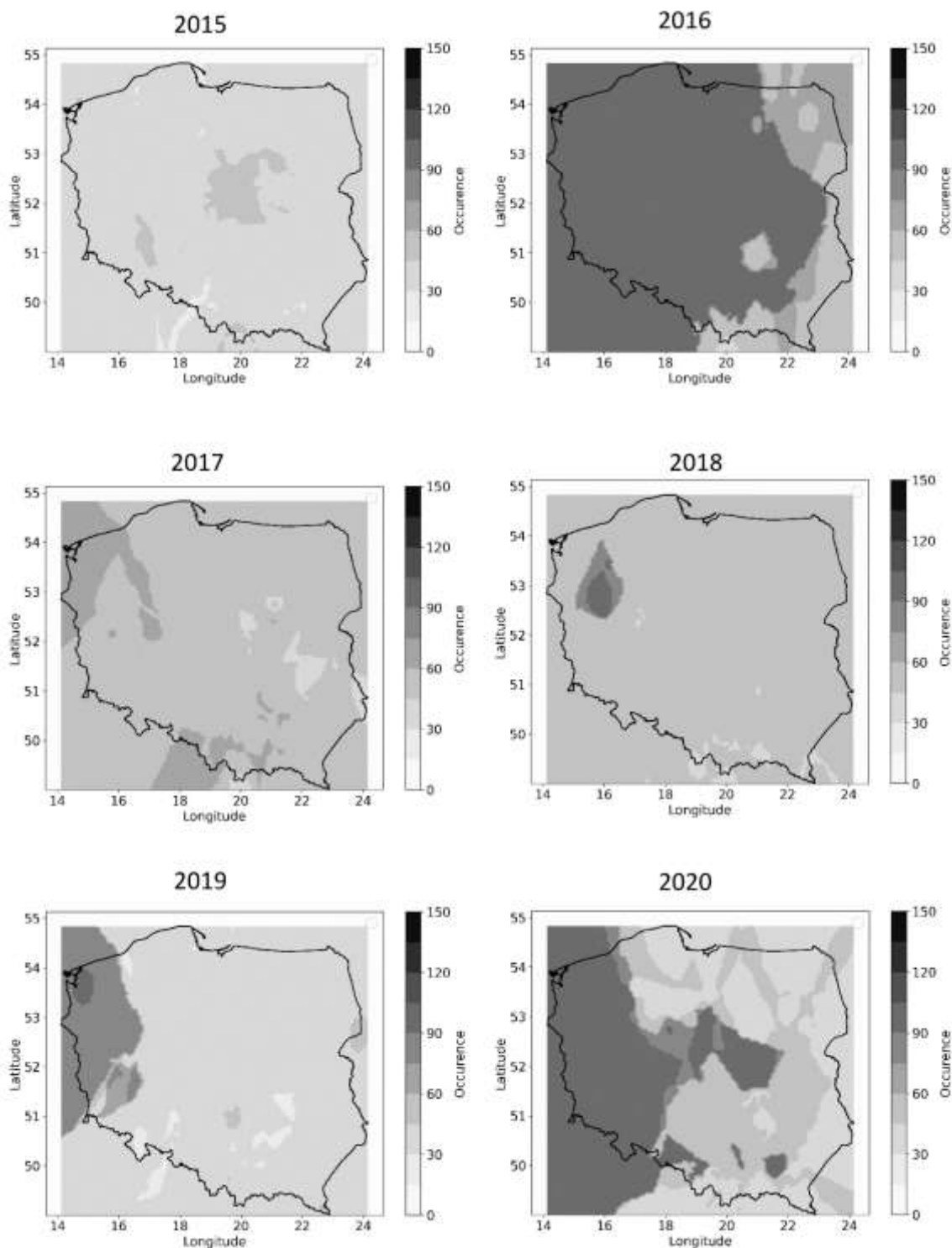
Variable	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Absolute maximum temperature	-0.064	0.009	-0.098	-0.176	0.233*	-0.046	-0.076	0.116	0.113	-0.431*	-0.123	0.140
Absolute minimum temperature	-0.105	0.090	0.089	-0.039	0.042	-0.049	0.039	-0.018	0.008	0.015	0.040	0.153
Number of days with rainfall	-0.118	0.247*	0.059	0.115	-0.109	0.081	0.140	-0.178	-0.106	-0.004	0.257*	0.126
Number of days with snowfall	0.084	-0.116	-0.091	-0.131	0.111				-0.025	-0.012	0.021	- 0.247*
Number of days with snow cover	0.202*	-0.156	-0.075	-0.167	-0.025					-0.011	-0.156	-0.144
Daily maximum sum of rainfall	-0.062	0.139	0.010	-0.050	0.106	0.296*	0.023	-0.097	-0.191	-0.080	0.097	0.165
Monthly sum of rainfall	-0.095	0.164	0.024	-0.032	-0.014	0.298*	-0.046	-0.164	-0.149	-0.053	0.281*	0.058
Minimum near-surface temperature	-0.055	0.160	0.120	0.058	0.067	-0.090	-0.117	-0.020	-0.092	-0.016	0.092	0.195
First day of maximum rainfall	-0.018	0.225	0.064	-0.026	0.322*	0.111	0.083	-0.082	-0.172	-0.151	0.186	-0.124
Average maximum temperature	-0.192	0.031	-0.109	-0.182	0.155	-0.060	-0.267*	0.126	0.023	-0.253*	-0.016	0.276*
Monthly average temperature	-0.165	0.088	-0.055	-0.157	0.142	-0.019	-0.276*	0.118	-0.057	-0.272*	-0.006	0.297*
Average minimum temperature	-0.147	0.124	-0.024	-0.101	0.091	0.040	-0.181	0.118	-0.130	-0.190	-0.039	0.285*

Table S2. Pearson correlation coefficient between the *Parastagosnopora avenae* occurrence and meteorological factors. The data in red indicates significant correlations, (\*)  $p < 0.05$ .

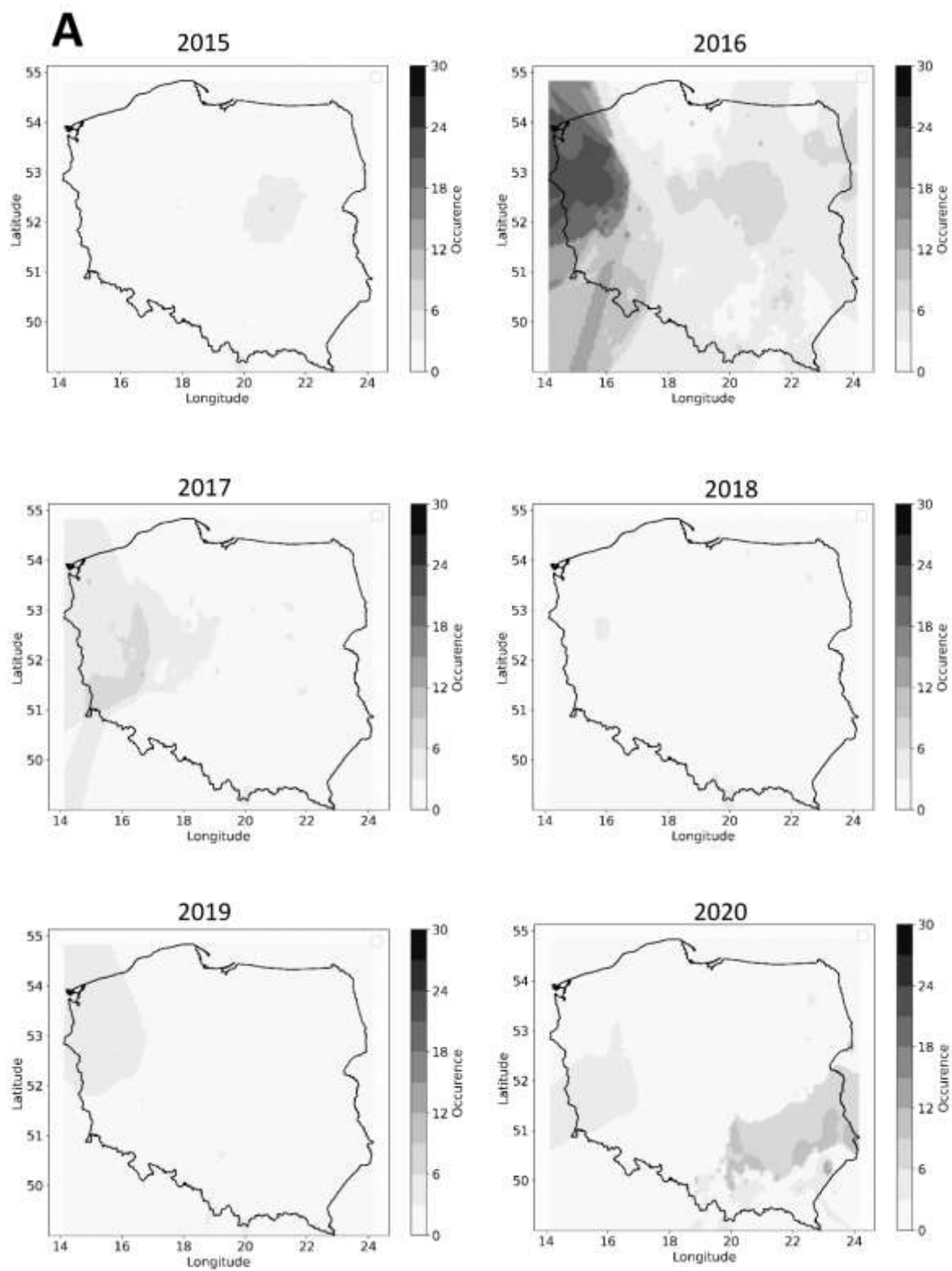
Variable	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Absolute maximum temperature	0.035	0.132	-0.036	-0.095	0.153	0.202*	0.177	0.341*	0.342*	-0.165	0.043	0.264*
Absolute minimum temperature	-0.144	0.214*	0.182	-0.044	0.091	0.063	-0.138	-0.085	-0.020	-0.084	-0.035	0.141
Number of days with rainfall	-0.093	0.292*	0.265*	0.090	-0.002	0.010	-0.008	-0.325*	-0.123	-0.193	0.154	0.170
Number of days with snowfall	0.151	-0.048	-0.201*	-0.174	-0.037				0.057	-0.018	-0.048	-0.294*
Number of days with snow cover	0.182	-0.177	-0.057	-0.181	0.057					0.042	-0.133	-0.172
Daily maximum sum of rainfall	-0.066	0.208*	-0.020	0.006	0.120	0.082	-0.018	-0.193	-0.235*	-0.186	0.073	-0.002
Monthly sum of rainfall	-0.066	0.249*	0.049	-0.027	0.046	0.092	-0.110	-0.298*	-0.178	-0.209*	0.161	-0.095
Minimum near-surface temperature	-0.096	0.287*	0.192	0.037	0.114	0.103	-0.268*	-0.094	-0.101	-0.098	-0.061	0.156
First day of maximum rainfall	-0.065	0.293*	0.074	0.025	0.296*	-0.094	-0.048	0.041	-0.062	-0.041	0.186	-0.142
Average maximum temperature	-0.189	0.193	-0.012	-0.141	0.098	0.105	0.031	0.368*	0.154	-0.143	0.157	0.399*
Monthly average temperature	-0.192	0.227	0.067	-0.125	0.102	0.123	0.002	0.350*	0.063	-0.258*	0.084	0.394*
Average minimum temperature	-0.195	0.241	0.114	-0.085	0.092	0.112	-0.040	0.267*	-0.069	-0.279*	-0.015	0.362*

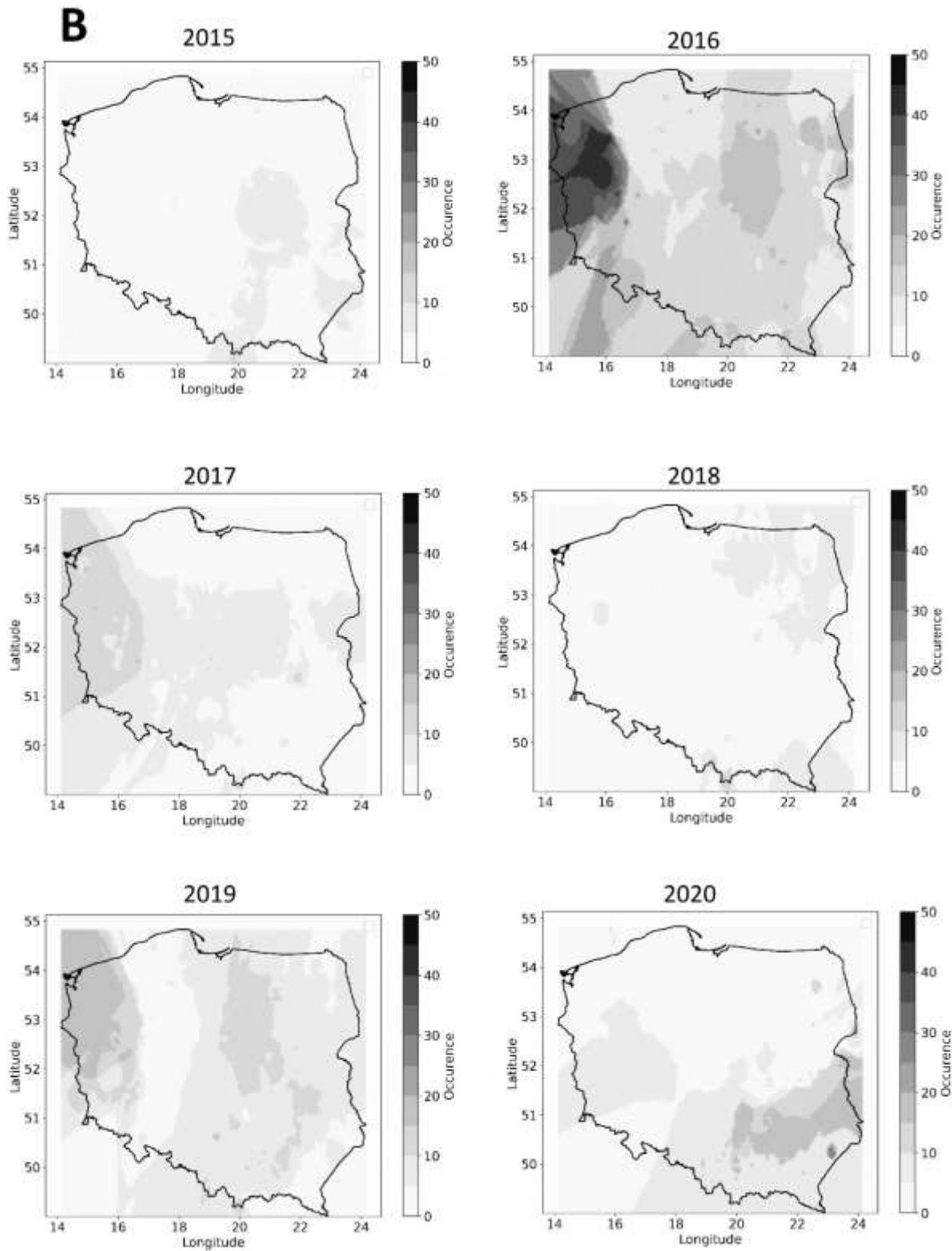
Table S3. Pearson correlation coefficient between the *Zymoseptoria tritici* occurrence and meteorological factors. The data in red indicates significant correlations, (\*)  $p < 0.05$ .

Variable	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Absolute maximum temperature	-0.120	0.230*	0.011	0.033	-0.030	0.170	0.064	0.116	0.258*	0.022	0.043	-0.021
Absolute minimum temperature	-0.123	0.108	0.093	-0.129	-0.045	0.114	-0.140	-0.014	-0.005	-0.062	-0.080	0.087
Number of days with rainfall	-0.156	0.192	0.136	0.002	0.181	-0.081	-0.047	-0.331*	-0.046	-0.091	-0.067	-0.032
Number of days with snowfall	0.109	0.072	-0.047	-0.142	0.031				0.111	0.147	0.119	0.017
Number of days with snow cover	0.134	0.032	0.034	-0.025	0.111					0.166	0.131	0.091
Daily maximum sum of rainfall	-0.130	0.168	-0.132	0.004	0.118	-0.022	-0.024	-0.014	0.028	0.004	0.181	-0.017
Monthly sum of rainfall	-0.097	0.210*	-0.040	0.056	0.154	0.011	-0.049	-0.171	0.018	-0.021	0.092	-0.008
Minimum near-surface temperature	-0.103	0.139	0.096	-0.080	-0.071	0.136	-0.091	-0.010	0.019	-0.006	-0.112	0.061
First day of maximum rainfall	0.048	0.055	-0.164	0.032	0.145	0.011	-0.056	0.116	0.157	-0.013	-0.017	-0.168
Average maximum temperature	-0.186	0.177	0.046	-0.019	-0.092	0.232*	-0.033	0.263*	0.098	-0.060	0.015	0.095
Monthly average temperature	-0.210*	0.177	0.094	-0.025	-0.071	0.250*	-0.041	0.238*	0.108	-0.152	-0.060	0.077
Average minimum temperature	-0.219*	0.158	0.107	-0.050	-0.031	0.231*	-0.075	0.168	0.049	-0.201*	-0.127	0.060

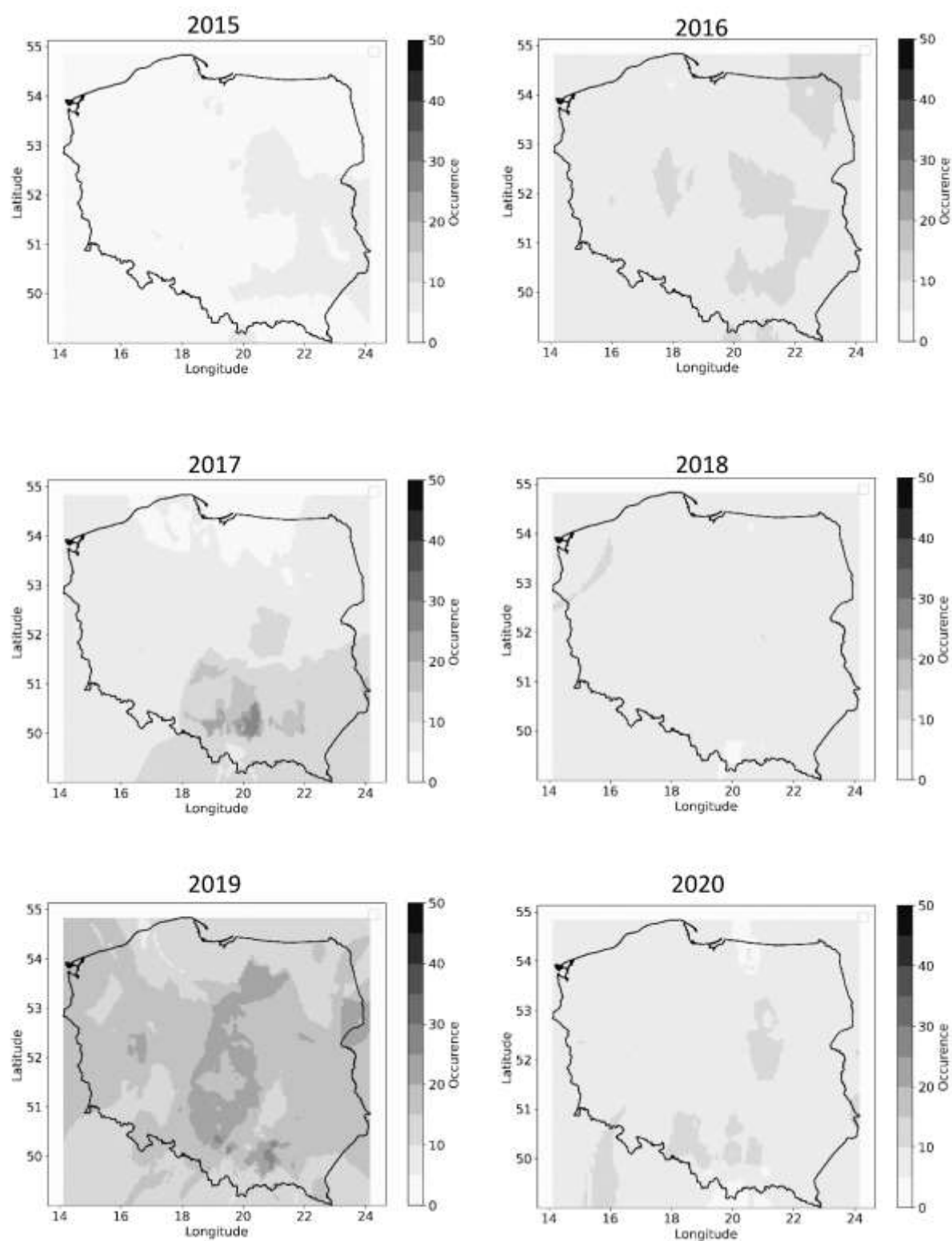


**Figure S1.** Visualisation of the model estimating number of winter wheat and winter triticale leaves affected by *P. nodorum*. Grey scale bar of the occurrence: 150 leaves = 43 %, 120 leaves = 34 %, 90 leaves = 26 %, 60 leaves = 17 %, 30 leaves = 9 % in the 2015-2020 period.





**Figure S2.** Visualisation of the model estimating number of winter wheat leaves (A) and winter triticale leaves (B) affected by *P. avenae*. Grey scale bar of the occurrence: 50 leaves = 14 %, 40 leaves = 11 %, 30 leaves = 9 %, 24 leaves = 7 %, 20 leaves = 6 %, 18 leaves = 5 %, 12, leaves = 3 %, 10 leaves = 3 %, 6 leaves = 2 % in the 2015-2020 period.



**Figure S3.** Visualisation of the model estimating number of winter triticale leaves affected by *Z. tritici*. Grey scale bar of the occurrence: 50 leaves = 14 %, 40 leaves = 11 %, 30 leaves = 9 %, 20 leaves = 6 %, 10 leaves = 3 % in the 2015-2020 period.



**Figure S4.** *Z. tritici* pycnidia on glumes of winter wheat cultivar Fidelius (A, B, C, D), conidia (E) and pycnidia on a leaf (F).