Supplementary Material
Supplementary Figures (Fig. S1 – S15)
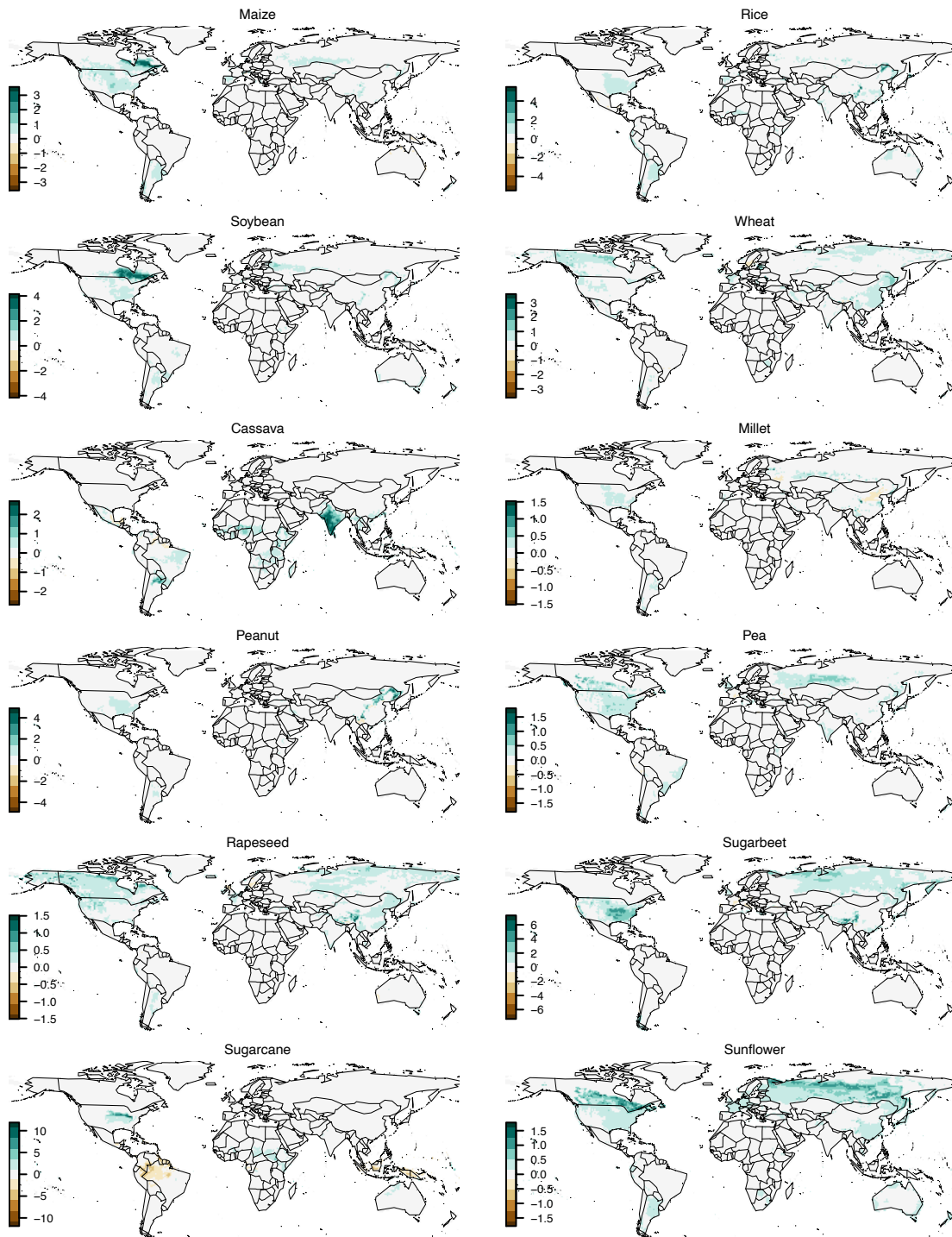*Supplementary Tables (Table S1 – S6)*

Fig. S1. Projected yield differences (2020 – 2070), LPJmL crop model. Values are difference between 2061 – 2080 mean and 2011 – 2030 mean (t ha^{-1}), averaged over four climate models (GFDL-ESM2M, HADGEM2-ES, IPSL-CM5A-LR, MIROC5).
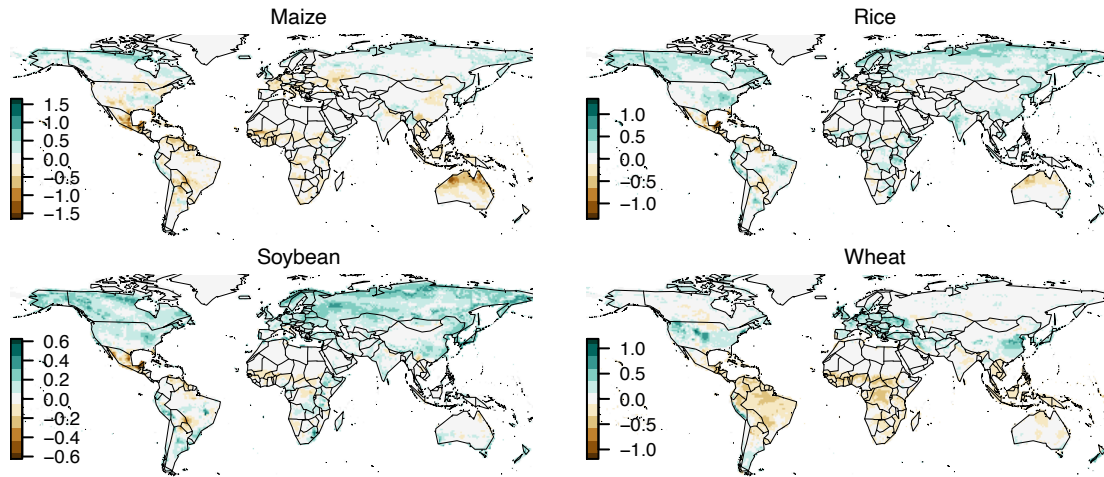
Fig. S2. Projected yield differences (2020 – 2070), GEPIC crop model. Values are difference between 2061 – 2080 mean and 2011 – 2030 mean (t ha⁻¹), averaged over four climate models (GFDL-ESM2M, HADGEM2-ES, IPSL-CM5A-LR, MIROC5).
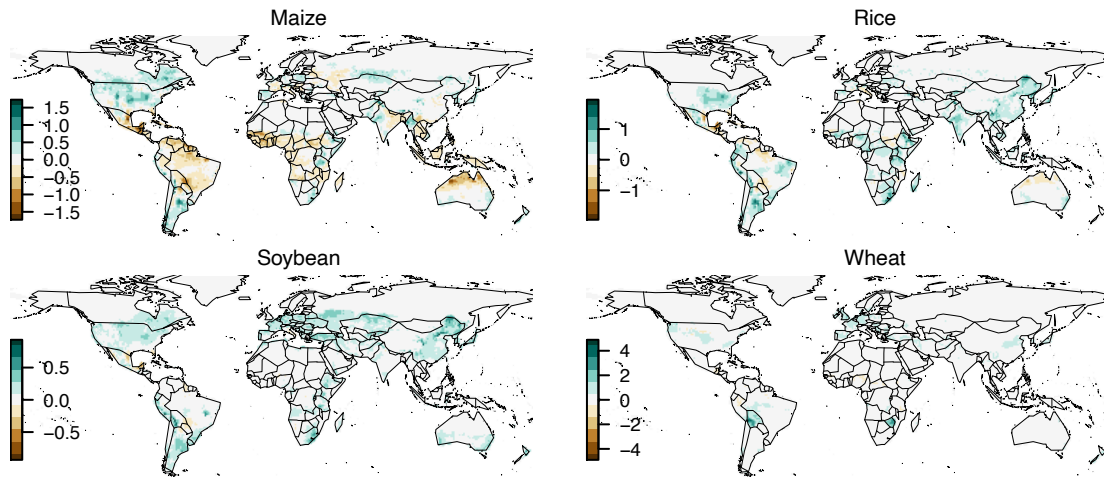

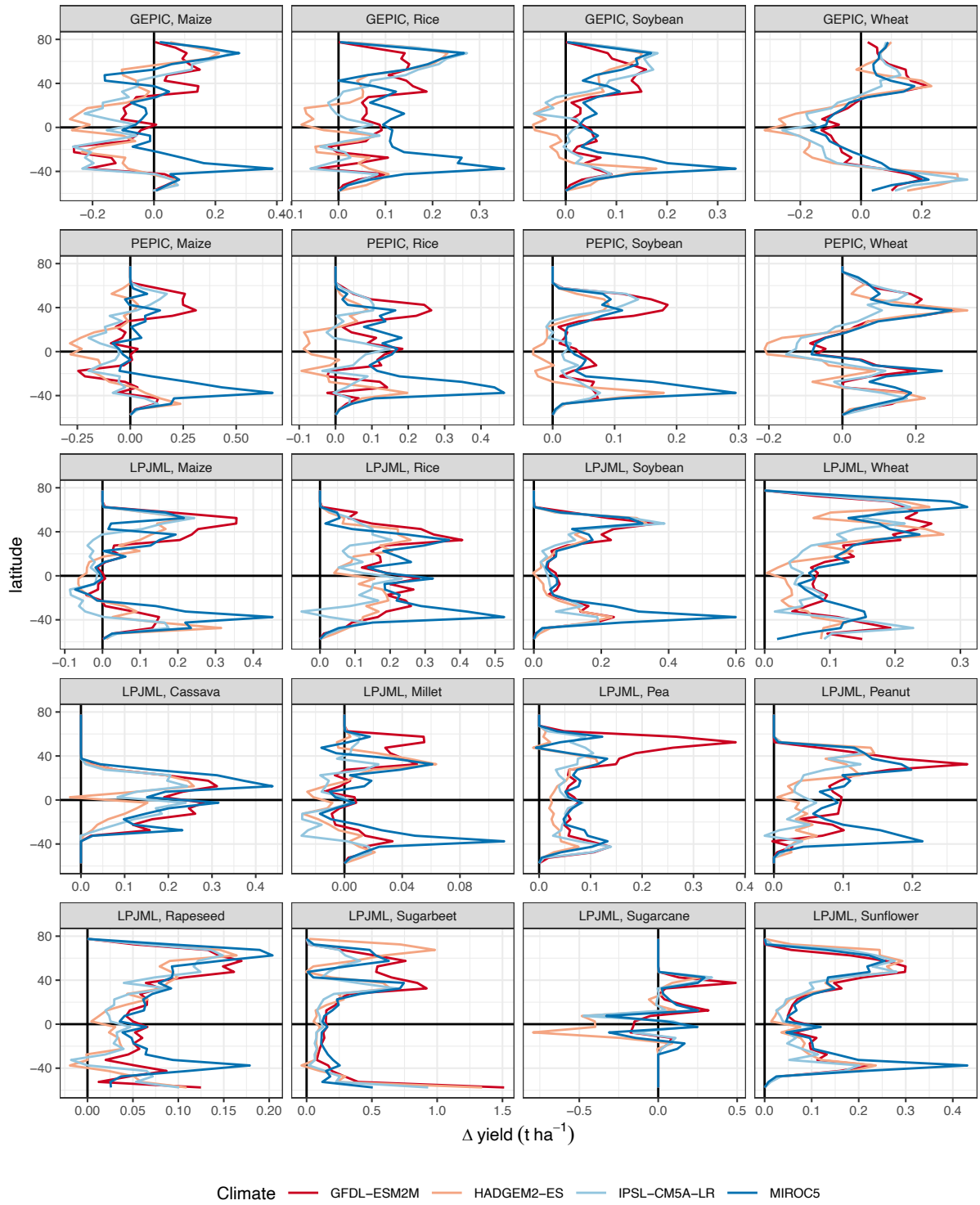Fig. S3. Projected yield differences (2020 – 2070), PEPIC crop model.

Fig. S4. Projected yield differences (2020 – 2070) by latitude, per crop model and crop. Data are averaged over 5° latitudes. Major crops are in the first three rows.
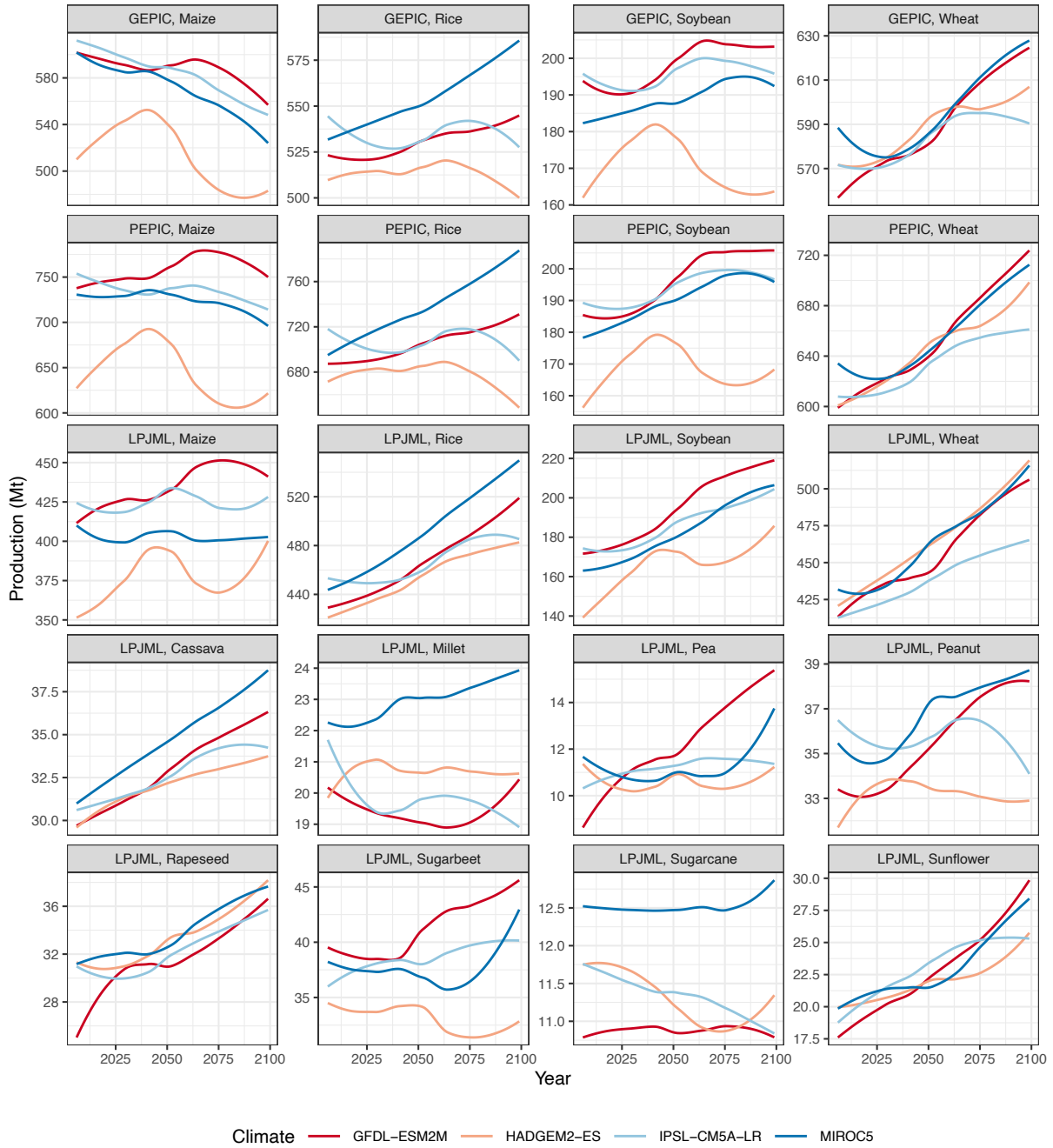
Fig. S5. Projected global production (2006 – 2099) by crop model and crop, for four climate models. Production estimates derived by product of projected yields and crop harvested area in year 2000 at 0.5° resolution. Lines show local polynomial regression (loess) smooths of the data. Changes in crop distributions were not considered.

Fig S6. Average increase in temperature between current (1970 - 2000 average) and predicted future (2061 - 2080 average) climate under four Representative Concentration Pathways (RCP) scenarios. RCP (a) 2.6, (b) 4.5, (c) 6.0, (d) 8.5. For clarity, temperature changes < 0 ºC and > 14 °C are excluded.

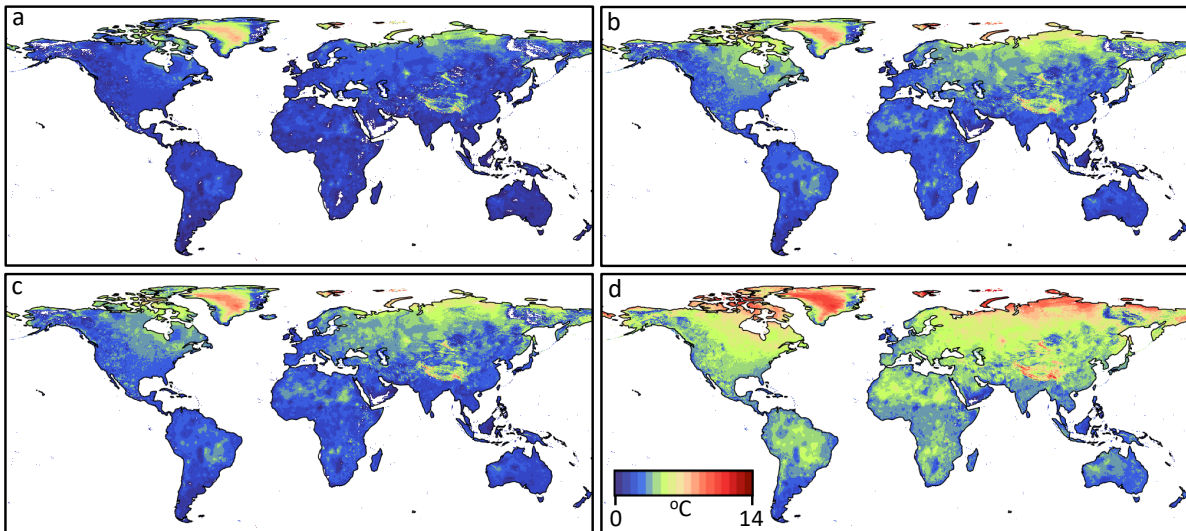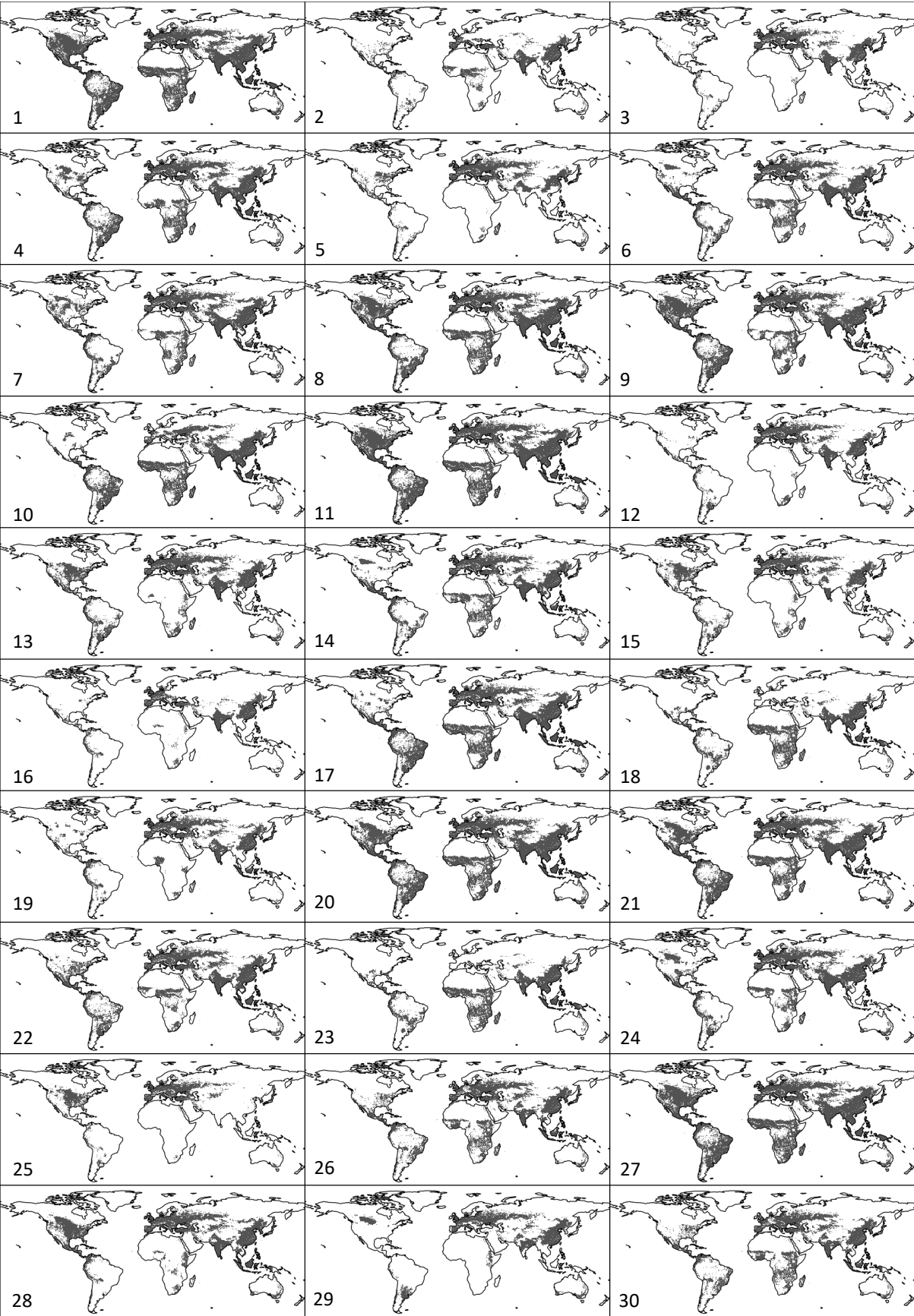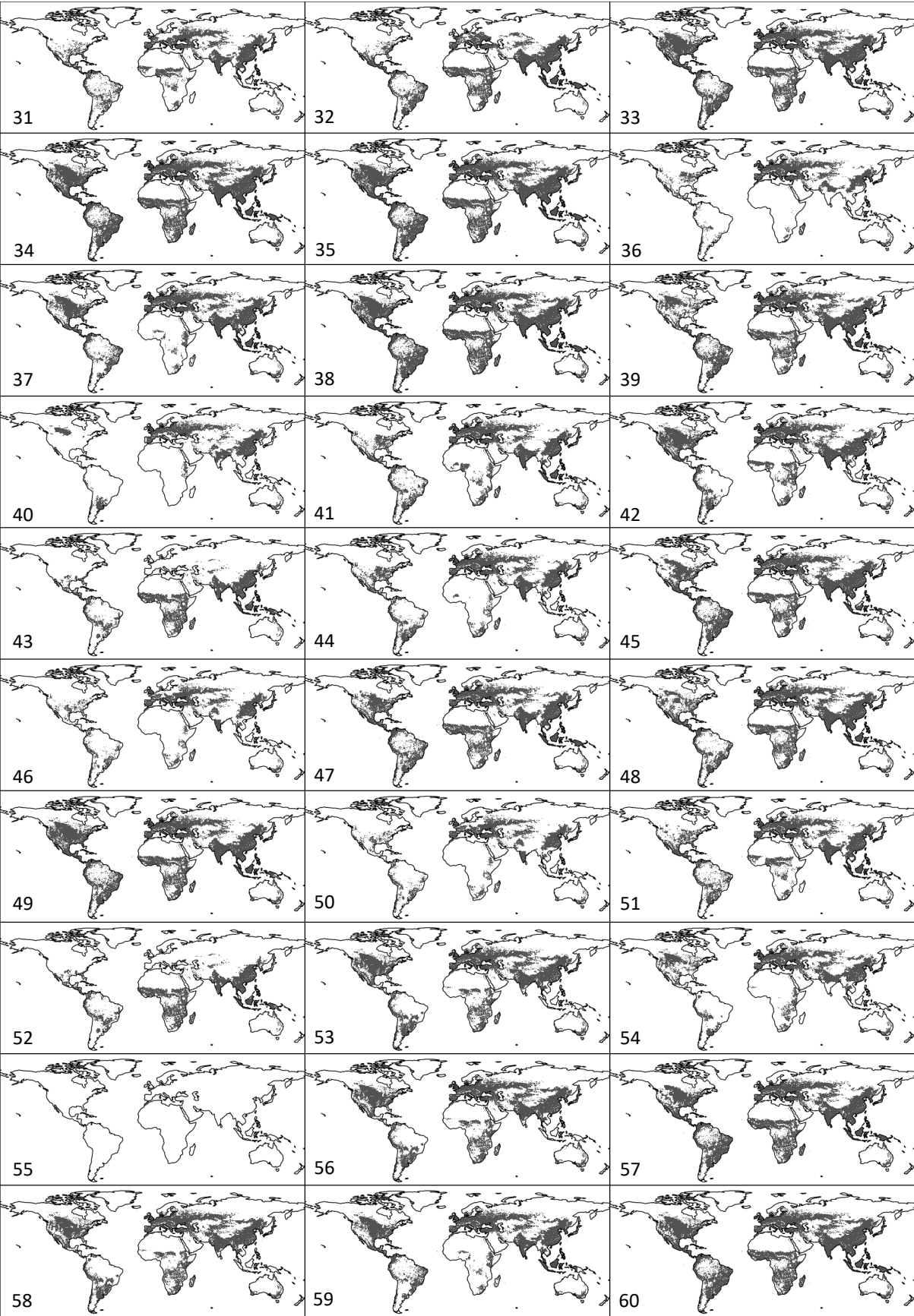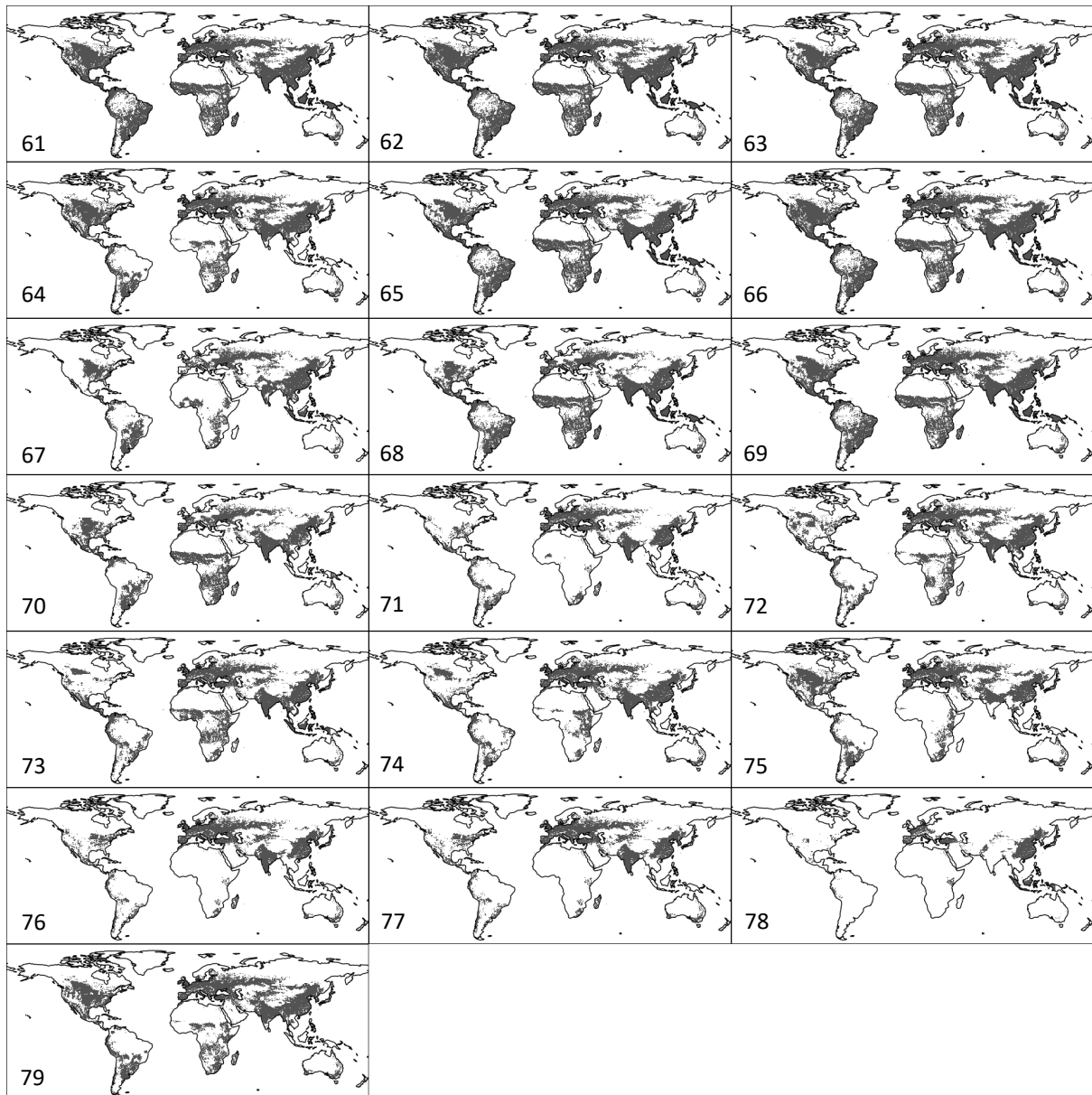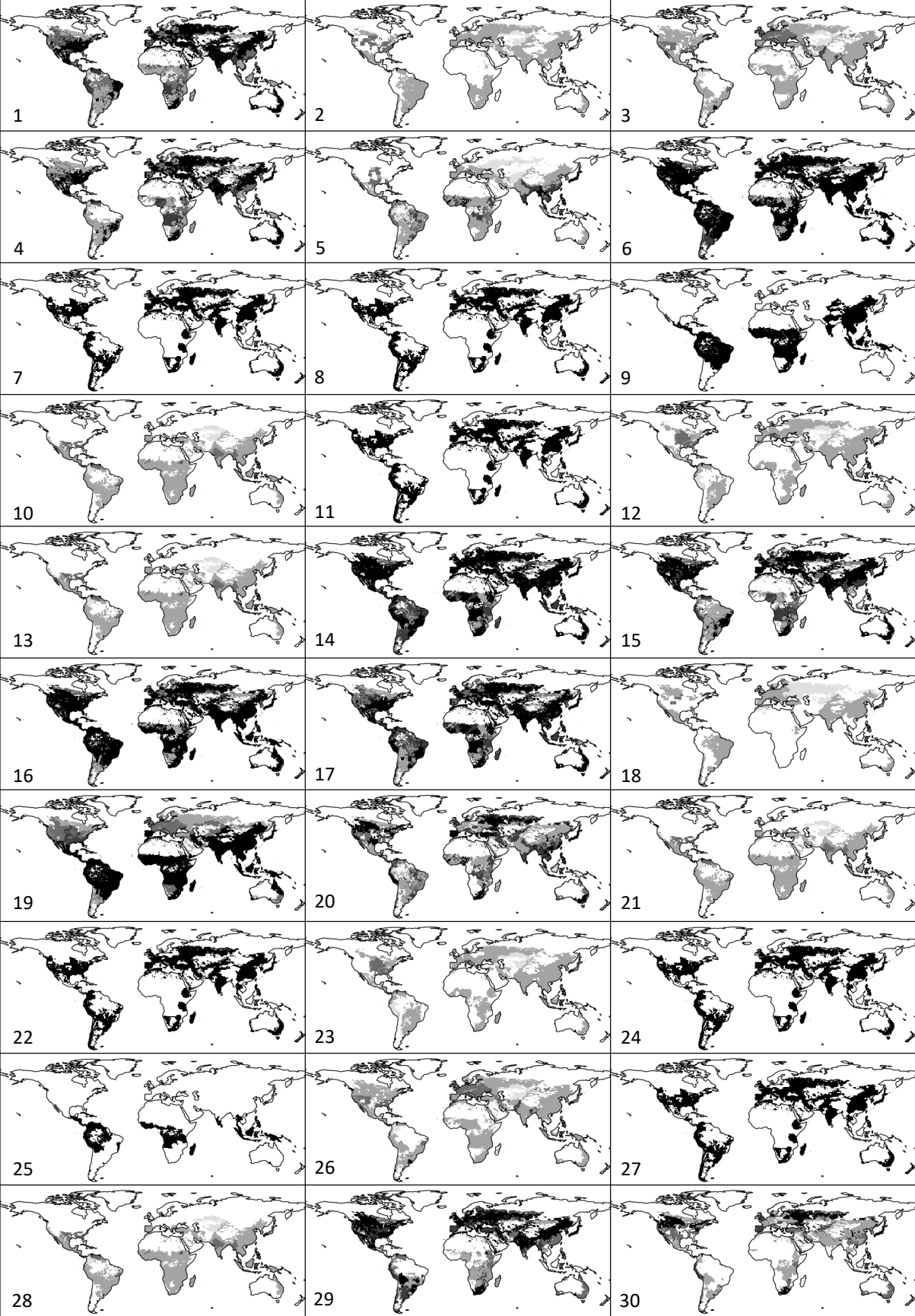Fig S7. Binary host distributions estimated from EarthStat. In cases where a pathogen was recorded in the PlantWise database as being able to infect > 1 hosts recorded in EarthStat, host distributions were combined and converted to binary presence/absence. (1) *A. brassicae*, (2) *A. cucumerina*, (3) *A. gaisen*, (4) *A. longipes*, (5) *A. mali*, (6) *A. porri*, (7) *A. radicina*, (8) *A. solani*, (9) *A. euteiches*, (10) *B. oryzae*, (11) *B. sorokiniana*, (12) *B. jaapii*, (13) *B. dothidea*, (14) *B. squamosa*, (15) *B. cinerea*, (16) *B. lactucae*, (17) *C. fimbriata*, (18) *C. arachidicola*, (19) *C. carotae*, (20) *C. acutatum*, (21) *C. lindemuthianum*, (22) *C. orbiculare*, (23) *D. arachidicola*, (24) *D. pinodes*, (25) *D. earlianum*, (26) *F. fulva*, (27) *F. graminearum*, (28) *F. oxysporum f.sp. conglutinans*, (29) *F. oxysporum f.sp. lini*, (30) *F. oxysporum f.sp. lycopersici*, (31) *F. oxysporum f.sp. niveum*, (32) *F. oxysporum f.sp. vasinfectum*, (33) *F. roseum*, (34) *G. debaryanum*, (35) *G. ultimum*, (36) *G. juniperi-virginianae*, (37) *L. maculans*, (38) *M. phaseolina*, (39) *M. oryzae*, (40) *M. lini*, (41) *M. fructicola*, (42) *M. rabiei*, (43) *N. personata*, (44) *P. obtusa*, (45) *P. pachyrhizi*, (46) *P. ampelicida*, (47) *P. cactorum*, (48) *P. infestans*, (49) *P. nicotianae*, (50) *P. viticola*, (51) *P. cubensis*, (52) *P. arachidis*, (53) *P. graminis*, (54) *P. hordei*, (55) *P. menthae*, (56) *P. recondita*, (57) *P. sorghi*, (58) *P. striiformis*, (59) *P. brassicae*, (60) *P. teres*, (61) *P. arrhenomanes*, (62) *R. solani*, (63) *R. stolonifer*, (64) *R. secalis*, (65) *S. graminicola*, (66) *S. sclerotiorum*, (67) *S. glycines*, (68) *S. cruentum*, (69) *S. reilianum*, (70) *S. sorghi*, (71) *S. carpophila*, (72) *S. endobioticum*, (73) *U. cepulae*, (74) *U. viciae-fabae*, (75) *U. avenae*, (76) *V. inaequalis*, (77) *V. pyrina*, (78) *W. occidentalis*, (79) *Z. tritici*.
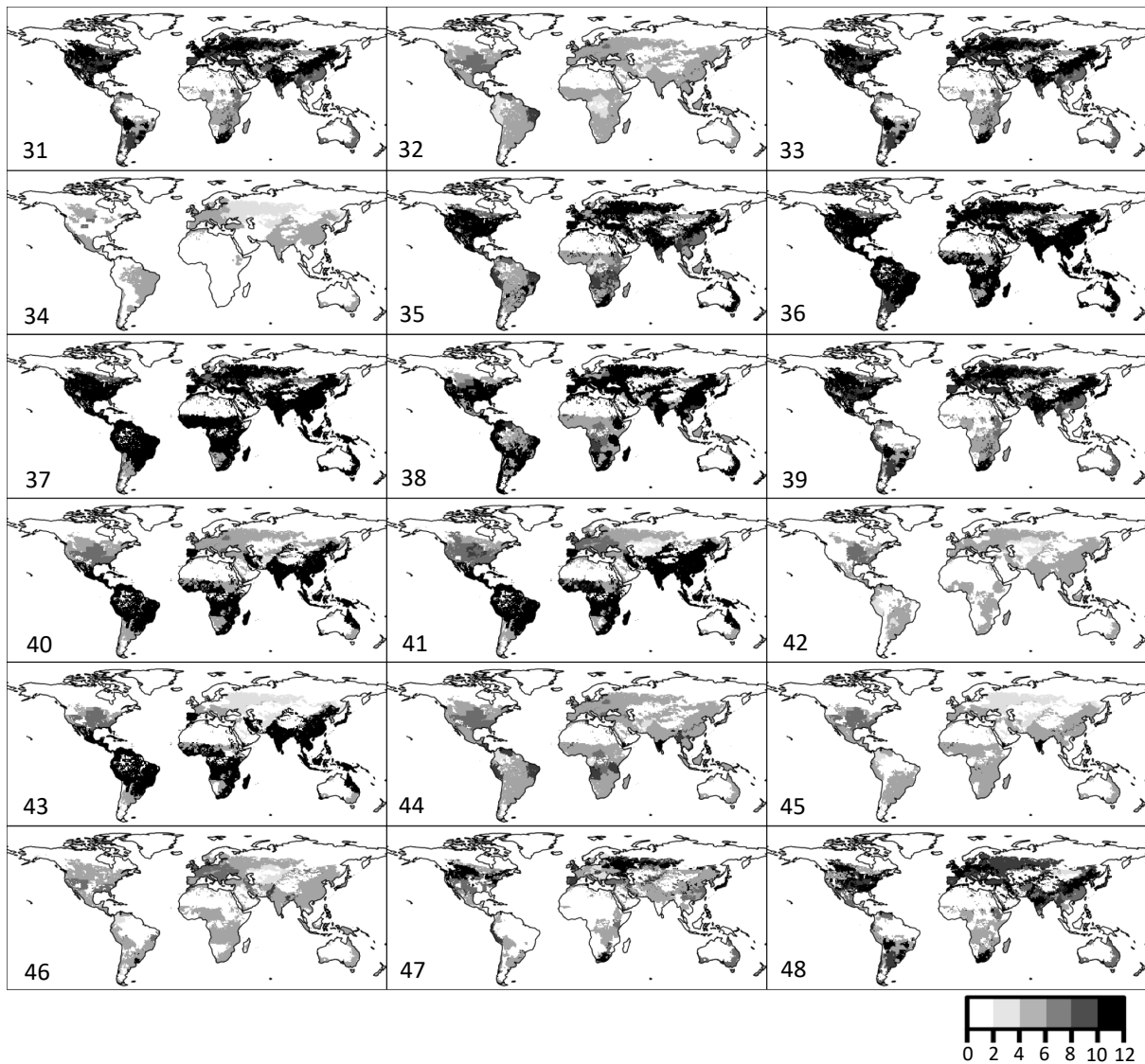
Fig S8. Binary host distributions estimated from MIRCA2000. In cases where a pathogen was recorded in the PlantWise database as being able to infect > 1 hosts recorded in MIRCA2000, host distributions were combined and converted to binary presence/absence. Grey scale refers to the number of months a grid cell was recorded to contain at least one host. (1) *A. brassicae*, (2) *A. longipes*, (3) *A. radicina*, (4) *A. solani*, (5) *B. oryzae*, (6) *B. sorokiniana*, (7) *B. dothidea*, (8) *B. cinerea*, (9) *C. fimbriata*, (10) *C. arachidicola*, (11) *C. acutatum*, (12) *C. lindemuthianum*, (13) *D. arachidicola*, (14) *F. graminearum*, (15) *F. roseum*, (16) *G. debaryanum*, (17) *G. ultimum*, (18) *L. maculans*, (19) *M. phaseolina*, (20) *M. oryzae*, (21) *N. personata*, (22) *P. obtusa*, (23) *P. pachyrhizi*, (24) *P. ampelicida*, (25) *P. cactorum*, (26) *P. infestans*, (27) *P. viticola*, (28) *P. arachidis*, (29) *P. graminis*, (30) *P. hordei*, (31) *P. recondita*, (32) *P. sorghi*, (33) *P. striiformis*, (34) *P. brassicae*, (35) *P. teres*, (36) *P. arrhenomanes*, (37) *R. solani*, (38) *R. stolonifer*, (39) *R. secalis*, (40) *S. graminicola*, (41) *S. sclerotiorum*, (42) *S. glycines*, (43) *S. cruentum*, (44) *S. reilianum*, (45) *S. sorghi*, (46) *S. endobioticum*, (47) *U. avenae*, (48) *Z. tritici*.

Fig S9. Model comparison under 'current' climate conditions. (a - d) Example model output maps (*P. striiformis*). (a, c) Spatial resolution of model. Red grid cells indicate areas where *P. striiformis* was modelled as present 'current' climate conditions. Grey and white regions indicate where 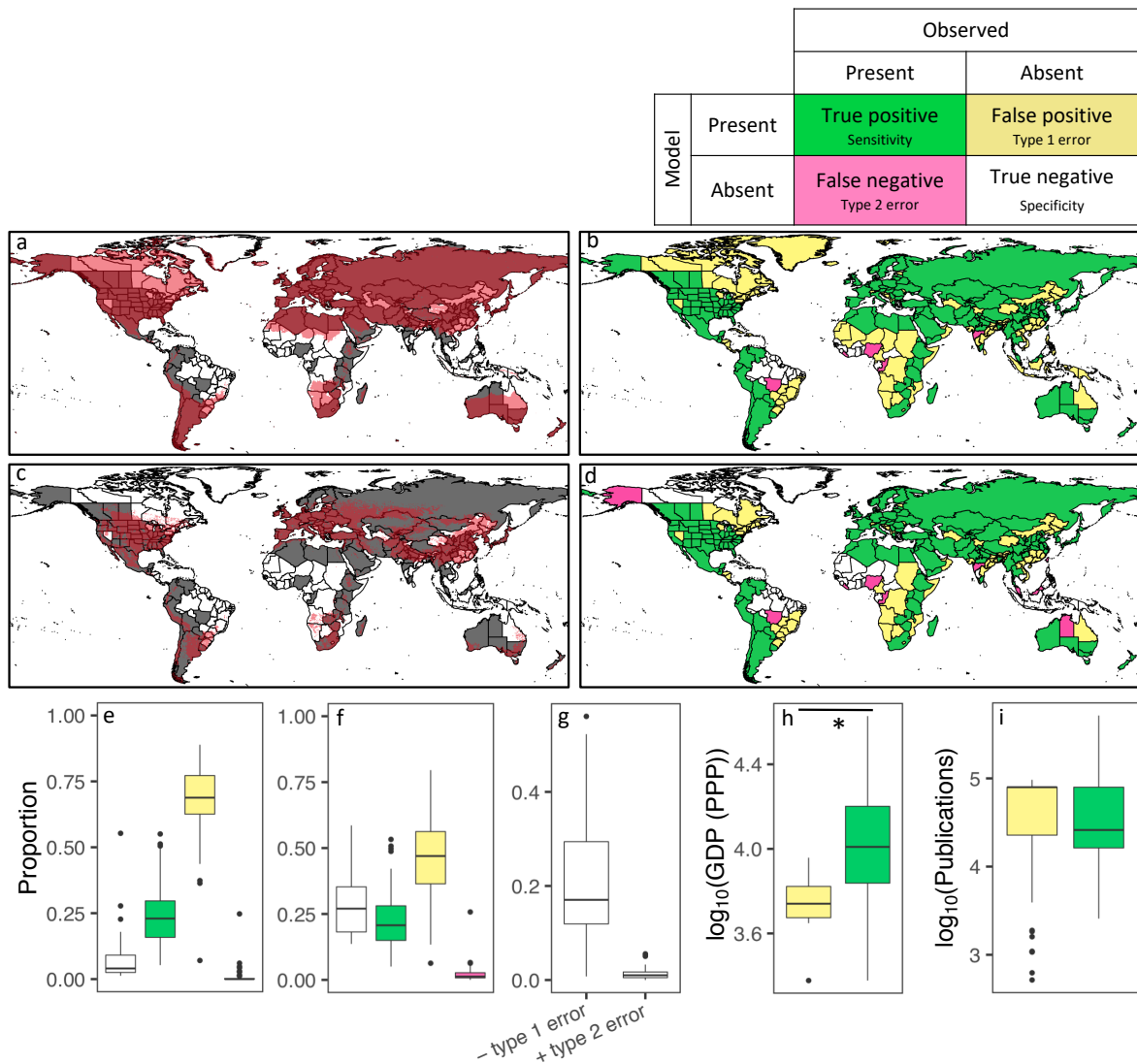*P. striiformis* has, or has not, been reported, respectively (Pasiecznik et al., 2005; Bebber et al., 2013). (b, d) Conversion of model output to regional scale. For a particular pathogen, white indicates regions modelled as not climatically suitable (Absent) and where the pathogen has not been reported (Absent) (True negative, Specificity), green indicates regions modelled as climatically suitable (Present) and where the pathogen has been reported (Present) (True positive, Sensitivity), yellow indicates regions modelled as climatically suitable (Present) but where the pathogen has not been reported (Absent) (False positive, Type 1 error), and pink indicates regions modelled as not climatically suitable (Absent) but where the pathogen has been reported (Present) (False negative, Type 2 error). A pathogen was modelled as 'present' in a region if it was modelled as 'present' in any grid cell (j), for any month (i), in the region. (a, b) Model A. (c, d) Model B. Proportion True negative, True positive, False positive and False negative for (e) Model A and (f) Model B outputs. Proportions calculated as the number of regions of a particular colour, relative to the total number of regions per map (396), for each pathogen (n = 66). (g) Comparison of Model A and B output. Decrease (-) in type 1 error refers to regions that transition from yellow to white and increase (+) in type 2 error refers to regions that transition from green to pink, as a result of host restriction (Model B). For Model B, (h) gross domestic product based on purchasing power parity (GDP (PPP)) was lower for yellow regions than green regions. t = -7.09, df = 73.6, p < 0.001; (i) however, research output was not t = 0.02, df = 119.9, p > 0.05. Pathogens restricted by host distributions extracted from EarthStat.
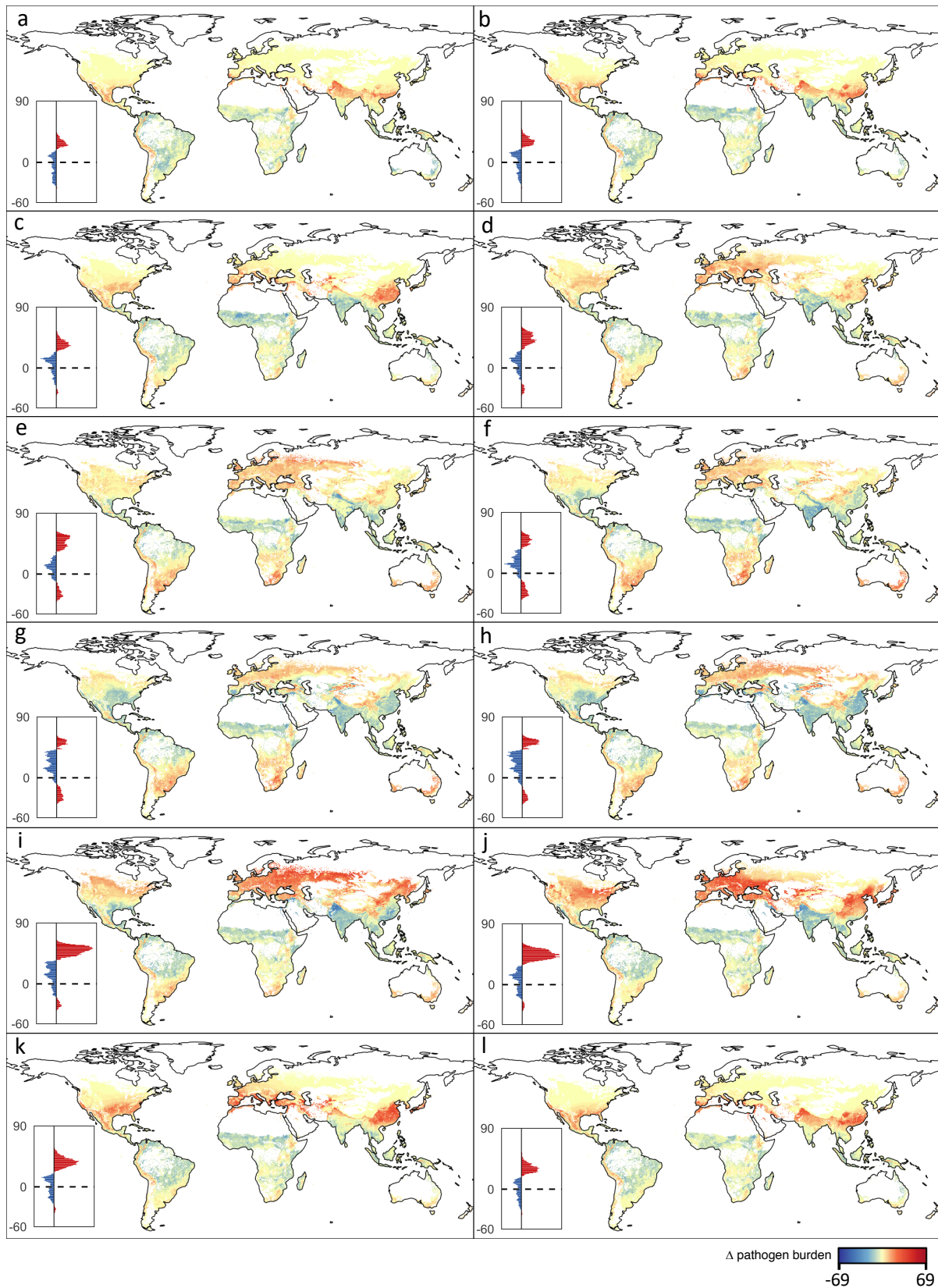
Fig. S10. Monthly change in global pathogen burden under RCP 6.0. (a) Jan., (b) Feb., (c) Mar., (d) Apr., (e) May, (f) June, (g) July, (h) Aug., (i) Sept., (j) Oct., (k) Nov., (l) Dec. White grid cells contain no hosts (EarthStat database), and were excluded from the analysis. Values on histograms refer to latitude. Red and blue bars reflect increases and decreases in pathogen burden, respectively.
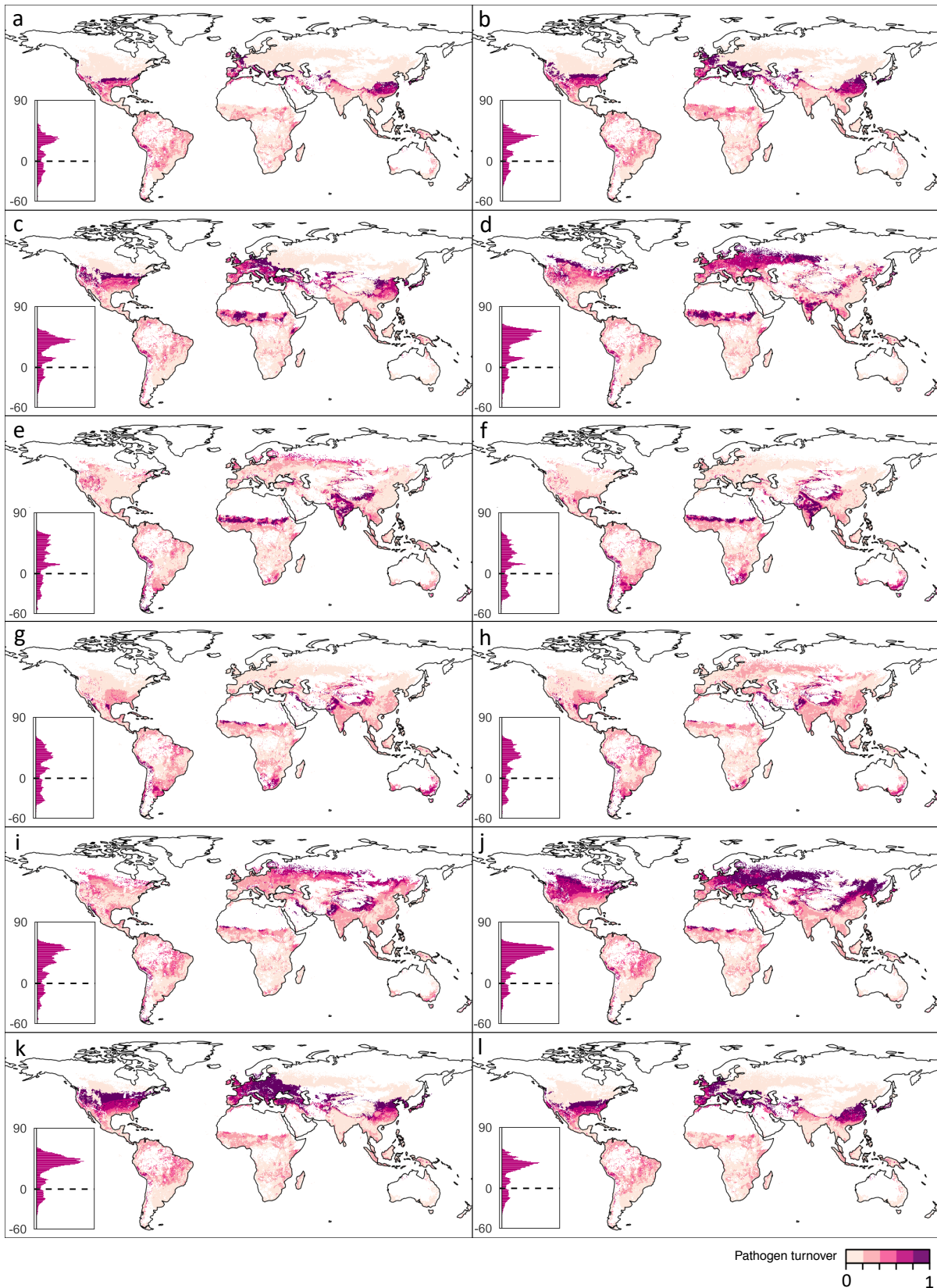
Fig. S11. Monthly change in global pathogen turnover under RCP 6.0. (a) Jan., (b) Feb., (c) Mar., (d) Apr., (e) May, (f) June, (g) July, (h) Aug., (i) Sept., (j) Oct., (k) Nov., (l) Dec. White grid cells contain no hosts (EarthStat database), and were excluded from the analysis. Values on histograms refer to latitude. Pink bars reflect increases in pathogen turnover.
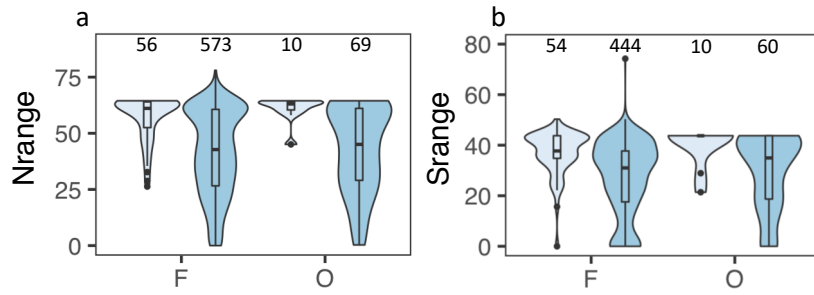
Fig S14. Violin plots of total (a) northern (Nrange) and (b) southern (Srange) latitudinal ranges of fungi (F) and oomycetes (O) included in this study. Light blue represents 66 of the 79 pathogens included in this study. Dark blue represents all pathogens included in the CABI Plantwise distribution database. Sample sizes shown above each plot.
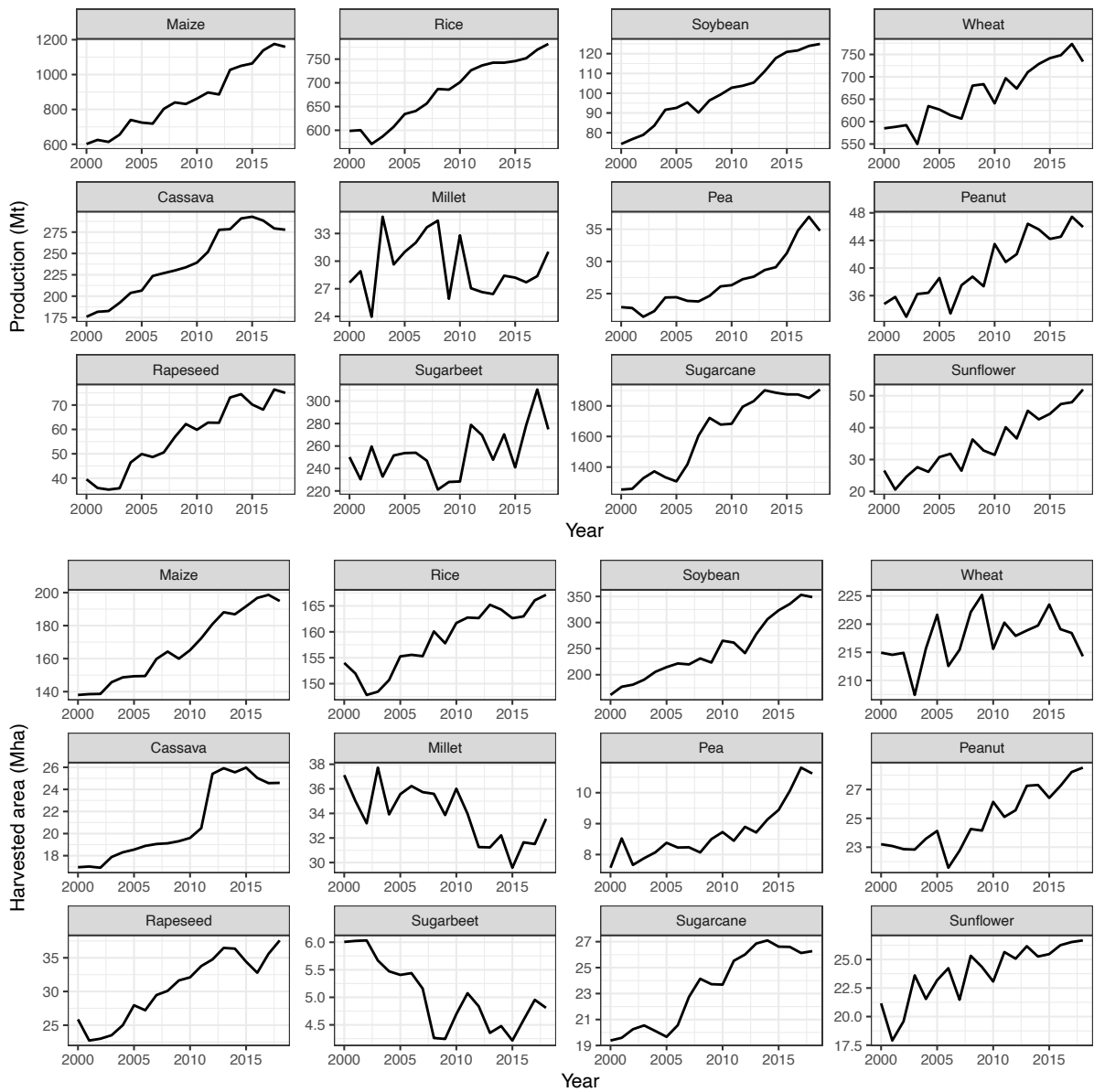
Fig. S15. Production (Mt) and harvested area (Mha), 2000 – 2018, FAO data. Major crops present in all crop models are in the first row, with crops only in LPJmL below.

Table S1. Summary information. ID refers to pathogen ID in Fig 1. Where multiple data were available, T_{min}, T_{opt} and T_{max} were averaged. T_{range} calculated as T_{max} - T_{min}. $T_{range(0.5)}$ calculated as the $T_{max(0.5)}$ - $T_{min(0.5)}$. Hosts refers to the number of hosts in EarthStat (ES) or MIRCA2000 (MI) database that a pathogen was reported to infect in the Plantwise database. Data from ref (3) refer to the 'Togashi dataset' therein.

| Pathogen	Ref	ID	T_{min}	T_{opt}	T_{max}	$T_{min0.5}$	$T_{max0.5}$	$T_{range0.5}$	Hosts (ES)	Hosts (MI)
Alternaria brassicae	3,32	56	3.80	25.00	35.23	14.62	32.50	17.88	24	4
Alternaria cucumerina	32	17	12.00	19.00	25.00	14.37	23.28	8.91	2	0
Alternaria gaisen	3	72	10.00	28.00	36.00	19.62	33.88	14.26	1	0
Alternaria longipes	3	63	16.50	25.75	27.00	23.97	26.70	2.72	4	1
Alternaria mali	32	47	1.00	23.00	35.00	11.43	31.75	20.32	1	0
Alternaria porri	32	48	1.00	23.00	35.00	11.43	31.75	20.32	3	0
Alternaria radicina	3	73	-0.60	28.00	34.00	20.15	32.51	12.36	3	1
Alternaria solani	3	23	5.00	19.88	25.00	14.01	23.68	9.67	6	2
Aphanomyces euteiches	3	42	10.00	22.50	30.00	15.57	27.95	12.38	9	0
Bipolaris oryzae	3,32	67	15.20	26.94	37.17	19.11	34.23	15.12	2	2
Bipolaris sorokiniana	3	77	9.00	29.00	34.75	22.05	33.29	11.24	32	11
Blumeriella jaapii	32	13	6.75	18.00	29.00	10.12	25.79	15.67	4	0
Botryosphaeria dothidea	32	74	8.00	28.00	35.00	20.02	33.19	13.16	10	1
Botryotinia squamosa	3,32	9	2.50	17.25	25.50	9.38	23.26	13.88	2	0
Botrytis cinerea	3,32	29	3.82	20.04	28.37	11.80	26.13	14.33	2	1
Bremia lactucae	32	2	1.00	15.00	25.00	6.50	22.20	15.70	1	0
Ceratocystis fimbriata	3	57	9.75	25.00	35.13	16.08	32.32	16.24	13	3
Cercospora arachidicola	32	52	13.30	24.00	35.00	16.35	31.76	15.42	1	1
Cercospora carotae	32	53	11.00	24.00	32.00	16.69	29.80	13.11	2	0
Colletotrichum acutatum	32	71	7.00	27.50	35.00	19.08	33.05	13.97	17	1
Colletotrichum lindemuthianum	3	58	9.63	25.00	28.80	20.22	27.84	7.63	10	1
Colletotrichum orbiculare	32	54	11.50	24.00	30.00	17.90	28.40	10.50	5	0
Didymella arachidicola	32	15	13.30	18.50	35.00	13.55	29.20	15.65	1	1
Didymella pinodes	32	24	1.40	20.00	35.00	8.03	30.74	22.71	4	0
Diplocarpon earlianum	32	43	2.90	22.50	35.00	11.27	31.55	20.28	1	0
Fulvia fulva	3	46	7.20	22.53	26.70	17.42	25.64	8.23	1	0
Fusarium graminearum	3	35	10.00	20.91	31.30	13.35	28.28	14.93	29	10
Fusarium oxysporum f.sp. conglutinans	3	66	18.75	26.50	34.00	21.09	31.81	10.72	3	0
Fusarium oxysporum f.sp. lini	3	25	12.64	20.00	38.00	13.26	31.93	18.67	2	0
Fusarium oxysporum f.sp. lycopersici	3	76	21.00	28.19	33.00	23.96	31.67	7.70	1	0
Fusarium oxysporum f.sp. niveum	3	39	17.30	22.00	30.00	18.03	27.46	9.43	3	0
Fusarium oxysporum f.sp. vasinfectum	3	78	14.20	29.30	31.60	26.10	31.04	4.94	7	0
Fusarium roseum	3	5	0.00	15.63	30.75	4.72	26.34	21.62	15	4
Globisporangium debaryanum	3	65	9.67	26.17	31.50	19.94	30.13	10.19	30	7
Globisporangium ultimum	3	10	2.00	17.38	32.25	6.65	27.91	21.26	36	9
Gymnosporangium juniperi-virginianae	32	31	5.50	20.20	35.00	9.78	30.66	20.88	1	0
Leptosphaeria maculans	32	16	2.60	18.50	35.00	7.09	30.14	23.05	6	1
Macrophomina phaseolina	3	79	18.78	34.67	37.00	31.40	36.43	5.03	70	13
Magnaporthe oryzae	33	70	7.90	27.40	34.10	19.72	32.37	12.65	2	2
Melampsora lini	3	18	7.00	19.00	30.00	10.82	26.82	16.00	2	0
Monilinia fructicola	32	26	10.00	20.00	35.00	11.84	30.33	18.48	9	0
Mycosphaerella rabiei	32	59	1.00	25.00	35.00	14.27	32.37	18.10	6	0
Nothopassalora personata	32	27	8.00	20.00	35.00	10.77	30.46	19.69	1	1
Peyronellaea obtusa	32	64	1.00	26.00	35.00	15.84	32.67	16.83	9	1
Phakopsora pachyrhizi	32	49	10.00	23.00	28.00	17.48	26.70	9.22	8	1
Phyllosticta ampelicida	32	69	7.00	27.00	35.00	18.29	32.91	14.62	1	1
Phytophthora cactorum	3,32	44	5.50	22.50	33.17	12.84	30.23	17.39	13	1
Phytophthora infestans	3,32	20	3.62	19.31	31.50	9.39	28.05	18.67	5	1
Phytophthora nicotianae	3	75	20.00	28.00	34.00	23.02	32.31	9.29	14	0
Plasmopara viticola	3,32	34	7.88	20.50	29.33	12.91	26.87	13.96	1	1
Pseudoperonospora cubensis	3,32	22	6.30	19.80	29.20	11.71	26.58	14.87	6	0
Puccinia arachidis	32	61	5.00	25.00	35.00	15.00	32.32	17.32	1	1
Puccinia graminis	3	37	13.31	21.03	27.08	16.12	25.36	9.24	5	3
Puccinia hordei	3	12	8.00	17.88	27.17	11.07	24.47	13.40	1	1
Puccinia menthae	32	3	5.00	15.00	35.00	6.21	28.47	22.27	1	0
Puccinia recondita	3,32	38	8.80	21.75	29.67	14.50	27.50	13.00	5	3
Puccinia sorghi	3	14	8.00	18.00	32.00	10.02	27.68	17.67	3	1
Puccinia striiformis	32	1	2.60	10.50	21.12	4.27	17.87	13.59	4	3
Pyrenopeziza brassicae	32	6	2.60	16.00	24.00	8.59	21.81	13.22	3	1
Pyrenophora teres	32	40	2.60	22.00	35.00	10.59	31.39	20.80	6	3

Pythium arrhenomanes	3	7	12.00	16.00	38.00	12.04	29.60	17.56	17	8
Rhizoctonia solani	3	68	21.07	26.94	34.10	22.47	31.94	9.47	38	14
Rhizopus stolonifer	3	32	7.52	20.29	27.23	13.59	25.35	11.76	28	6
Rhynchosporium secalis	32	45	2.60	22.50	30.00	14.16	28.05	13.88	5	3
Sclerospora graminicola	3	19	11.00	19.25	34.00	12.19	29.27	17.08	5	3
Sclerotinia sclerotiorum	3,32	41	0.38	22.00	28.63	14.13	26.93	12.80	62	7
Septoria glycines	32	60	10.00	25.00	35.00	16.20	32.23	16.02	1	1
Sporisorium cruentum	3	50	15.00	23.00	35.00	16.48	31.26	14.79	4	3
Sporisorium reilianum	3	55	16.00	24.00	36.00	17.48	32.26	14.79	6	3
Sporisorium sorghi	3	51	12.50	23.50	35.00	15.58	31.61	16.03	3	2
Stigmina carpophila	32	62	5.00	25.00	35.00	15.00	32.32	17.32	5	0
Synchytrium endobioticum	3	4	9.60	15.60	26.18	10.48	22.79	12.31	1	1
Urocystis cepulae	3	11	10.00	17.50	27.20	11.66	24.25	12.58	3	0
Uromyces viciae-fabae	3	28	4.00	20.00	33.00	9.66	29.30	19.64	5	0
Ustilago avenae	3	30	5.29	20.04	30.33	11.18	27.46	16.28	2	1
Venturia inaequalis	3,32	21	3.50	19.40	29.00	10.55	26.37	15.82	2	0
Venturia pyrina	32	36	1.00	21.00	35.00	8.98	31.10	22.12	2	0
Wilsoniana occidentalis	32	8	6.00	16.00	28.00	8.42	24.39	15.97	1	0
Zymoseptoria tritici	34	33	4.90	20.30	33.50	10.11	29.72	19.61	3	2

Table S2. The number of pathogens included for each host in analysis of change in infection rate under RCP 6.0.

Host	Pathogens
Cassava	3
Peanut	9
Maize	13
Millet	12
Pea	7
Rapeseed	7
Rice	8
Soybean	9
Sugar beet	7
Sugar cane	7
Sunflower	7
Wheat	15

Table S3. Pathogen distribution model accuracy. Median and interquartile range for pathogen projected global distributions, for distribution based on temperature only, or temperature and host availability.

Classification	Temperature model	Temperature + host model
True positive (Sensitivity)	0.23 (0.16 – 0.30)	0.21 (0.15 – 0.28)
True negative (Specificity)	0.04 (0.03 – 0.09)	0.27 (0.18 – 0.35)
False positive (Type 1 error)	0.69 (0.62 – 0.77)	0.47 (0.36 – 0.56)
False negative (Type 2 error)	0.00 (0.00 – 0.00)	0.01 (0.01-0.03)

Table S4. All global climate models (GCMs) of Representative Concentration Pathways (RCP) 2.6, 4.5, 6.0 and 8.5 used in this study. 'Y' detonates GCMs that were available for each RCP. For each GCM, average future monthly temperature was calculated as the median point of average maximum and minimum monthly temperature, as no average estimates were available.

GCM	RCP 2.6	RCP 4.5	RCP 6.0	RCP 8.5
ACCESS1-0		Y		Y
BCC-CSM1-1	Y	Y	Y	Y
CCSM4	Y	Y	Y	Y
CESM1-CAM5-1-FV2		Y		Y
CNRM-CM5	Y	Y		Y
GFDL-CM3	Y	Y		Y
GFDL-ESM2G	Y	Y	Y	Y
GISS-E2-R	Y	Y	Y	Y
HadGEM2-AO	Y	Y	Y	Y
HadGEM2-CC		Y		Y
HadGEM2-ES	Y	Y	Y	Y
INMCM4		Y		Y
IPSL-CM5A-LR	Y	Y	Y	Y
MIROC-ESM-CHEM	Y	Y	Y	Y
MIROC-ESM	Y	Y	Y	Y
MIROC5	Y	Y	Y	Y
MPI-ESM-LR	Y	Y		Y
MRI-CGCM3	Y	Y	Y	Y
NorESM1-M	Y	Y	Y	Y

Table S5. Updated names of pathogens recorded in Magarey et al., (2005). Species Fungorum (SF) was used to update species names to ensure correcting matching to species recorded in Chaloner et al., (2019). Where species were not reported in SF, MycoBank (MB) was also used as an alternative. Species discovery name author(s) and sanction name author(s) are not reported in Magarey et al., (2005) and so were not considered here.

Source	Updated species name	Species name from Magarey *et al.* (2005)
SF	*Alternaria brassicae*	*Alternaria brassicae*
SF	*Alternaria cucumerina*	*Alternaria cucumerina*
SF	*Alternaria mali*	*Alternaria mali*
SF	*Alternaria porri*	*Alternaria porri*
SF	*Austropuccinia psidii*	*Puccinia psidii*
SF	*Bipolaris oryzae*	*Bipolaris oryzae*
SF	*Blumeriella jaapii*	*Coccomyces hiemalis*
SF	*Botryosphaeria dothidea*	*Botryosphaeria dothidea*
SF	*Botryotinia squamosa*	*Botrytis squamosa*
SF	*Botrytis cinerea*	*Botrytis cinerea*
SF	*Bremia lactucae*	*Bremia lactucae*
SF	*Cercospora arachidicola*	*Cercospora arachidicola*
SF	*Cercospora carotae*	*Cercospora carotae*
SF	*Colletotrichum acutatum*	*Colletotrichum acutatum*
SF	*Colletotrichum orbiculare*	*Colletotrichum orbiculare*
SF	*Didymella arachidicola*	*Didymella arachidicola*
SF	*Didymella pinodes*	*Mycosphaerella pinodes*
SF	*Diplocarpon earlianum*	*Diplocarpon earlianum*
SF	*Gymnosporangium juniperi-virginianae*	*Gymnosporangium juniperi-virginianae*
SF	*Leptosphaeria maculans*	*Leptosphaeria maculans*
SF	*Melampsora medusae*	*Melampsora medusae*
SF	*Monilinia fructicola*	*Monilinia fructicola*
SF	*Mycosphaerella rabiei*	*Ascochyta rabiei*
SF	*Nothopassalora personata*	*Cercosporidium personatum*
SF	*Peyronellaea obtusa*	*Botryosphaeria obtusa*
SF	*Phakopsora pachyrhizi*	*Phakopsora pachyrhizi*
SF	*Phyllosticta ampelicida*	*Guignardia bidwellii*
SF	*Phytophthora cactorum*	*Phytophthora cactorum*
SF	*Phytophthora infestans*	*Phytophthora infestans*
SF	*Plasmopara viticola*	*Plasmopara viticola*
SF	*Pseudoperonospora cubensis*	*Pseudoperonospora cubensis*
SF	*Puccinia arachidis*	*Puccinia arachidis*
SF	*Puccinia menthae*	*Puccinia menthae*
SF	*Puccinia recondita*	*Puccinia recondita*
SF	*Puccinia striiformis*	*Puccinia striiformis*
SF	*Pyrenopeziza brassicae*	*Pyrenopeziza brassicae*
SF	*Pyrenophora teres*	*Pyrenophora teres*
SF	*Rhynchosporium secalis*	*Rhynchosporium secalis*
SF	*Sclerotinia sclerotiorum*	*Sclerotinia sclerotiorum*
SF	*Septoria glycines*	*Septoria glycines*
SF	*Stigmina carpophila*	*Wilsonomyces carpophilus*
SF	*Venturia inaequalis*	*Venturia inaequalis*
MB	*Venturia pyrina*	*Venturia pirina*
SF	*Wilsoniana occidentalis*	*Albugo occidentalis*

Table S6. Hosts and assigned species names. All hosts below were extracted in EarthStat, and a subset of hosts were extracted from MIRCA2000. Host names specified in EarthStat and MIRCA2000 were assigned species names below to enable matching to the PlantWise database, when determining plant-pathogen interactions. Species listed below were only included in climate models if they were recorded to be a host of at least 1 pathogen included in this study. Some hosts present in EarthStat and MIRCA2000 were excluded from the table below, due to uncertainty in assigning species names (i.e. fodder grass, mixed grain, etc).

EarthStat (MIRCA2000) host name	Assigned species name(s)
abaca	*Musa textilis*
agava	*Agave sisalana*
alfalfa	*Medicago sativa*
almond	*Prunus persica*
apple	*Malus*
apricot	*Prunus armeniaca*
areca	*Areca catechu*
artichoke	*Cynara cardunculus*
asparagus	*Asparagus officinalis*
avacado	*Persea americana*
bambara	*Vigna subterranea*
banana	*Musa acuminata*
barley (barley)	*Hordeum vulgare*
bean	*Phaseolus vulgaris*
beet, forage	*Beta vulgaris*
blueberry	*Vaccinium corymbosum*
brazil nut	*Bertholletia excelsa*
broadbean	*Vicia faba*
buckwheat	*Fagopyrum esculentum*
cabbage	*Brassica oleracea*
cabbage, forage	*Brassica oleracea*
canary seed	*Phalaris canariensis*
carob	*Ceratonia siliqua*
carrot	*Daucus carota*
carrot, forage	*Daucus carota*
cashew	*Anacardium occidentale*
cashewapple	*Anacardium occidentale*
cassava (cassava)	*Manihot esculenta*
castor	*Ricinus communis*
cauliflower	*Brassica oleracea var. botrytis*
cherry	*Prunus avium, Prunus cerasus*
chestnut	*Castanea*
chickpea	*Cicer arietinum*
chickory	*Cichorium intybus*
chille etc	*Capsicum*
cinnamon	*Cinnamomum*
clove	*Syzygium aromaticum*
clover	*Trifolium alexandrinum, Trifolium fragiferum, Trifolium hybridum, Trifolium incarnatum, Trifolium pratense, Trifolium repens, Trifolium subterraneum*
cocoa (cocoa)	*Theobroma cacao*
coconut	*Cocos nucifera*
coffee (coffee)	*Coffea arabica, Coffea robusta*
cotton (cotton)	*Gossypium hirsutum, Gossypium barbadense, Gossypium arboreum, Gossypium herbaceum*
cowpea	*Vigna unguiculata*
cranberry	*Vaccinium oxycoccus*
cucumber, etc	*Cucumis sativus*
currant	*Ribes nigrum, Ribes rubrum*
date (date palm)	*Phoenix dactylifera*
eggplant	*Solanum melongena*
fig	*Ficus carica*
flax	*Linum usitatissimum*
fonio	*Digitaria exilis, Panicum exile, Paspalum exile, Syntherisma exile*
garlic	*Allium sativum*
ginger	*Zingiber officinale*
gooseberry	*Ribes uva-crispa*
grape (grape/vine)	*Vitis vinifera*
grapefruit etc	*Citrus paradisi, Citrus maxima*
green bean	*Phaseolus vulgaris*
green corn	*Zea mays*
green onion	*Allium cepa*
green pea	*Pisum sativum*
groundnut (groundnut/peanut)	*Arachis hypogaea*
hazelnut	*Corylus avellana*

hemp	*Cannabis sativa*
hemp seed	*Cannabis sativa*
hop	*Humulus lupulus*
jute	*Corchorus olitorius*
kapok fiber	*Ceiba pentandra*
kapok seed	*Ceiba pentandra*
karite	*Vitellaria paradoxa*
kiwi	*Actinidia chinensis, Actinidia deliciosa, Actinidia arguta*
kolanut	*Cola acuminata, Cola nitida*
lemon, lime	*Citrus limon, Citrus latifolia, Citrus glauca*
lentil	*Lens culinaris*
lettuce	*Lactuca sativa*
linseed	*Linum usitatissimum*
lupin	*Lupinus*
maize (maize)	*Zea mays*
maize, forage	*Zea mays*
mango	*Mangifera indica*
mate	*Ilex paraguariensis*
melon	*Benincasa hispida, Citrullus lanatus, Cucumis melo, Cucumis metuliferus*
melon seed	*Benincasa hispida, Citrullus lanatus, Cucumis melo, Cucumis metuliferus*
millet (millet)	*Eleusine coracana, Panicum miliaceum, Pennisetum glaucum, Setaria italica, Sorghum bicolor*
mustard	*Brassica juncea, Brassica nigra, Sinapis alba*
nutmeg	*Myristica fragrans*
oats	*Avena sativa*
oil palm (oil palm)	*Elaeis guineensis, Elaeis oleifera*
okra	*Abelmoschus esculentus*
olive	*Olea europaea*
onion	*Allium cepa*
orange	*Citrus sinensis*
papaya	*Carica papaya*
Pea (pulses)	*Pisum sativum*
peach etc	*Prunus persica*
pear	*Pyrus*
pepper	*Piper betle, Piper nigrum*
peppermint	*Mentha piperita*
persimmon	*Diospyros kaki, Diospyros virginiana*
pigeon pea	*Cajanus cajan*
pimento	*Capsicum annuum*
pineapple	*Ananas comosus*
pistachio	*Pistacia vera*
plantain	*Musa paradisiaca*
plum	*Prunus domestica, Prunus salicina, Prunus insititia, Prunus cerasifera, Prunus spinosa*
poppy	*Papaver*
potato (potato)	*Solanum tuberosum*
pumpkin etc	*Cucurbita pepo, Cucurbita ficifolia, Cucurbita maxima, Cucurbita moschata*
pyrethrum	*Tanacetum cinerariifolium, Chrysanthemum frutescens, Chrysanthemum indicum*
quince	*Cydonia oblonga*
quinoa	*Chenopodium quinoa*
ramie	*Boehmeria nivea*
rapeseed (rapeseed/canola)	*Brassica napus var. napus*
raspberry	*Rubus idaeus, Rubus occidentalis, Rubus strigosus, Rubus ellipticus*
rice (rice)	*Oryza sativa, Oryza glaberrima*
rubber	*Hevea brasiliensis*
rye (rye)	*Secale cereale*
rye, forage	*Secale cereale*
safflower	*Carthamus tinctorius*
sesame	*Sesamum indicum*
sisal	*Agave sisalana*
sorghum (sorghum)	*Sorghum bicolor*
sorghum, forage	*Sorghum bicolor*
sour cherry	*Prunus cerasus*
soybean (soybean)	*Glycine max*
spinach	*Spinacia oleracea*
strawberry	*Fragaria ananassa*
stringbean	*Phaseolus vulgaris*
sugar beet (sugar beet)	*Beta vulgaris var. saccharifera*
sugarcane (sugar cane)	*Saccharum officinarum, Saccharum spontaneum*
sunflower (sunflower)	*Helianthus annuus*
swede, forage	*Brassica napus var. napobrassica*
sweet potato	*Ipomoea batatas*
tang etc	*Citrus reticulata*

taro	*Colocasia esculenta*
tea	*Camellia sinensis*
tobacco	*Nicotiana tabacum*
tomato	*Solanum lycopersicum*
tung	*Vernicia fordii*
turnip, forage	*Brassica rapa*
vanilla	*Vanilla planifolia*
vetch	*Vicia benghalensis, Vicia cracca, Vicia hirsuta, Vicia sativa, Vicia villosa*
walnut	*Juglans regia, Juglans nigra, Juglans cinerea*
watermelon	*Citrullus lanatus*
wheat (wheat)	*Triticum*
yam	*Dioscorea rotundata, Dioscorea alata, Dioscorea polystachya, Dioscorea bulbifera, Dioscorea esculenta, Dioscorea dumetorum, Dioscorea trifida*
yautia	*Xanthosoma sagittifolium*

Table S7. Pathogen names updated in the CABI Plantwise database to improve matching to the Pathogen dataset.

Species name in the CABI Plantwise	Updated species name
Botryosphaeria obtusa	*Peyronellaea obtusa*
Cochliobolus miyabeanus	*Bipolaris oryzae*
Cochliobolus sativus	*Bipolaris sorokiniana*
Gibberella zeae	*Fusarium graminearum*
Guignardia bidwellii	*Phyllosticta ampelicida*
Magnaporthe grisea	*Magnaporthe oryzae*
Mycosphaerella arachidis	*Cercospora arachidicola*
Mycosphaerella graminicola	*Zymoseptoria tritici*
Mycosphaerella pinodes	*Didymella pinodes*
Passalora fulva	*Fulvia fulva*
Pythium debaryanum	*Globisporangium debaryanum*
Sphacelotheca reiliana	*Sporisorium reilianum*
Thanatephorus cucumeris	*Rhizoctonia solani*