Supplementary material

Corresponding article:

Coline C. Jaworski, Eva Thomine, Adrien Rusch, Anne-Violette Lavoir, Chunli Xiu, Di Ning, Yanhui Lu, Su Wang, and Nicolas Desneux (2022). At which spatial scale does crop diversity enhance natural enemy populations and pest control? An experiment in a mosaic cropping system. *Agronomy*.

Supplementary Figures

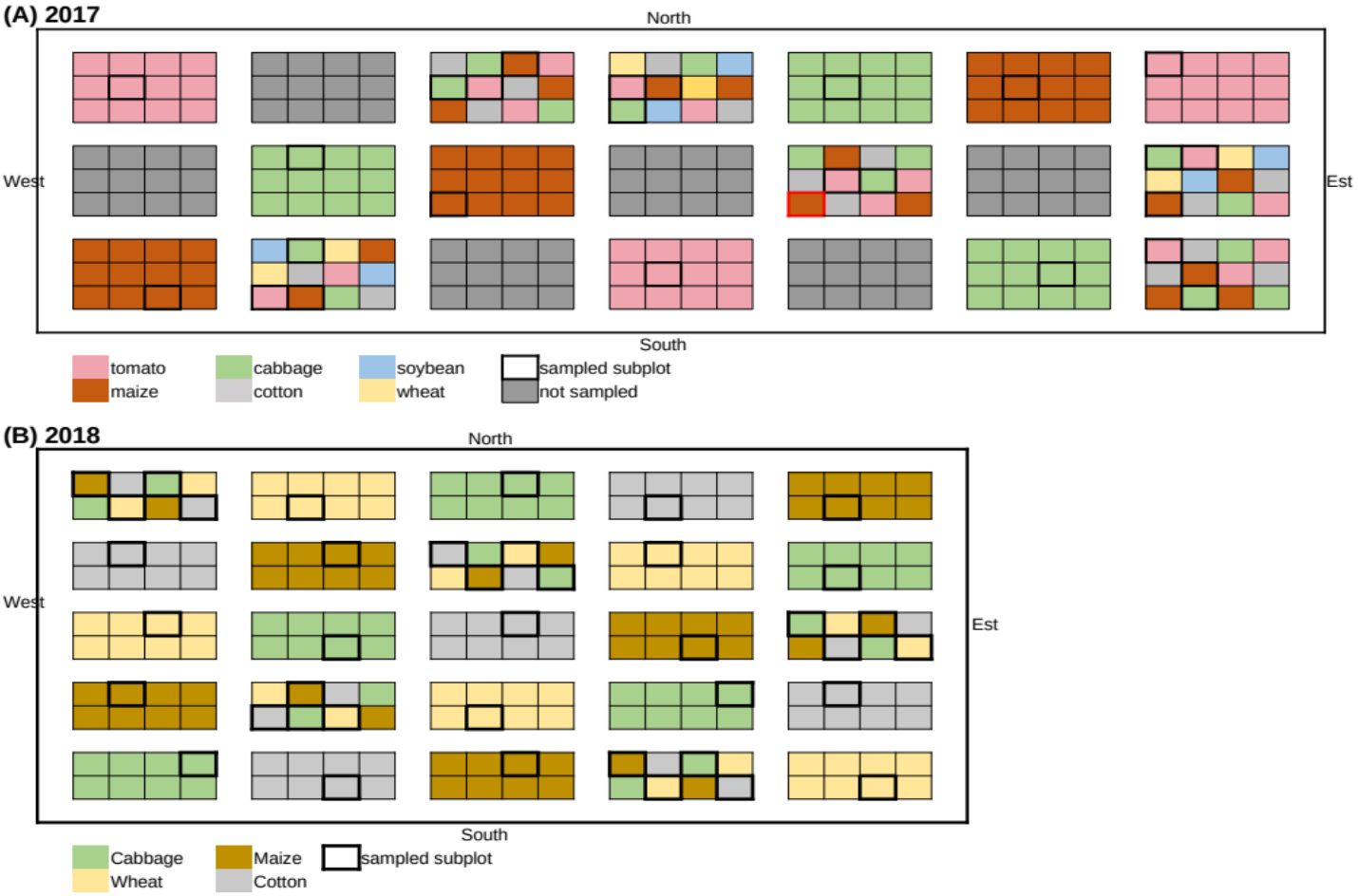

Figure S1. Field plans in 2017 (A; N = 3 per treatment and per crop) and in 2018 (B; N = 5 per treatment and per crop). Each plot is divided into 12 subplots in 2017 and eight subplots in 2018, either planted with the same crop or with different crops. Plots are separated by bare soil (shown in white). The sampled sub-plots are shown in black.

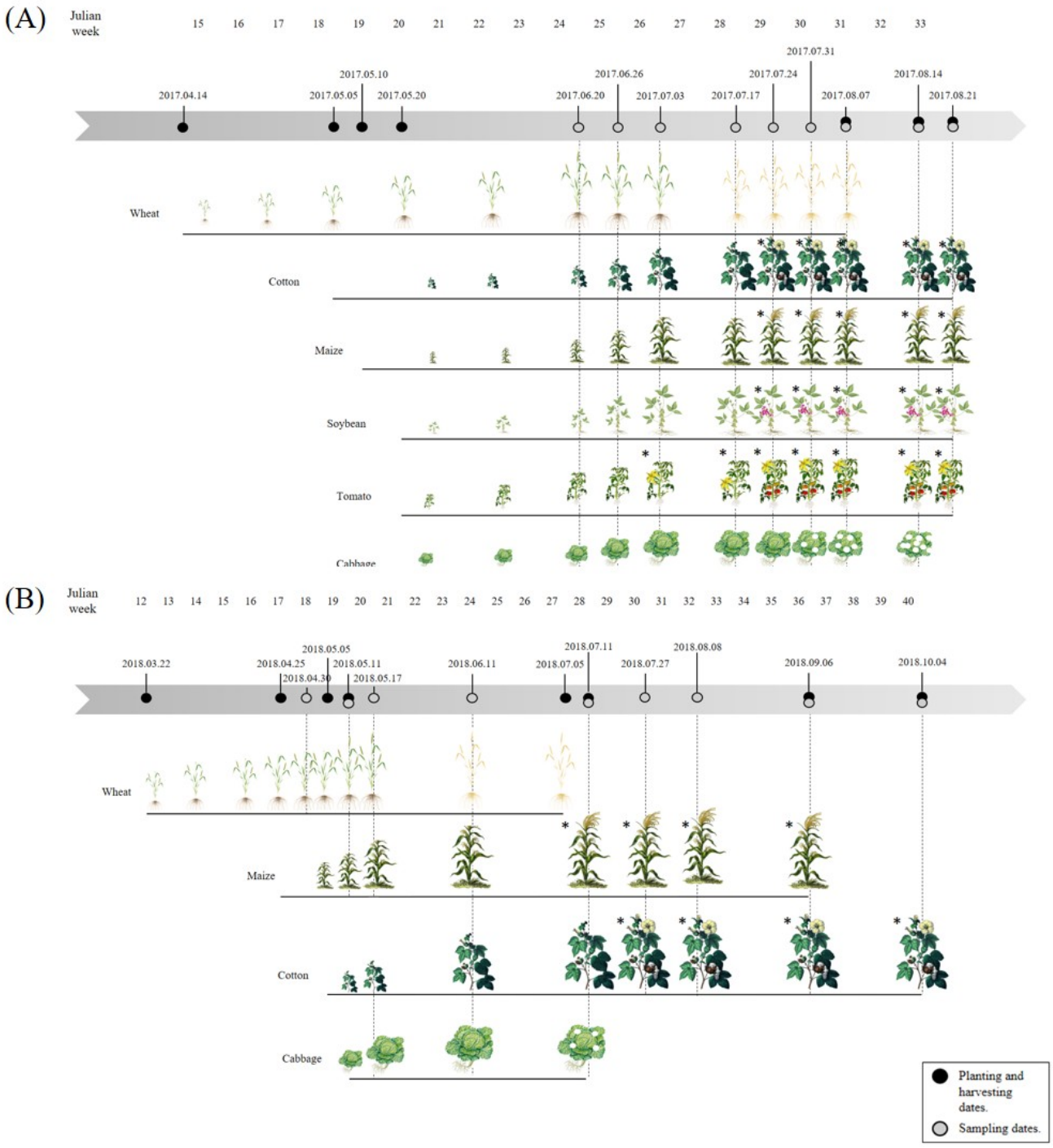

Figure S2. Schedule of 2017 (A) and 2018 (B) planting, sampling and harvest of the different crops in the experiments, and associated crop phenology. Dashed lines shows the dates of the sampling dates. The stars show the presence of flower in the different crops.

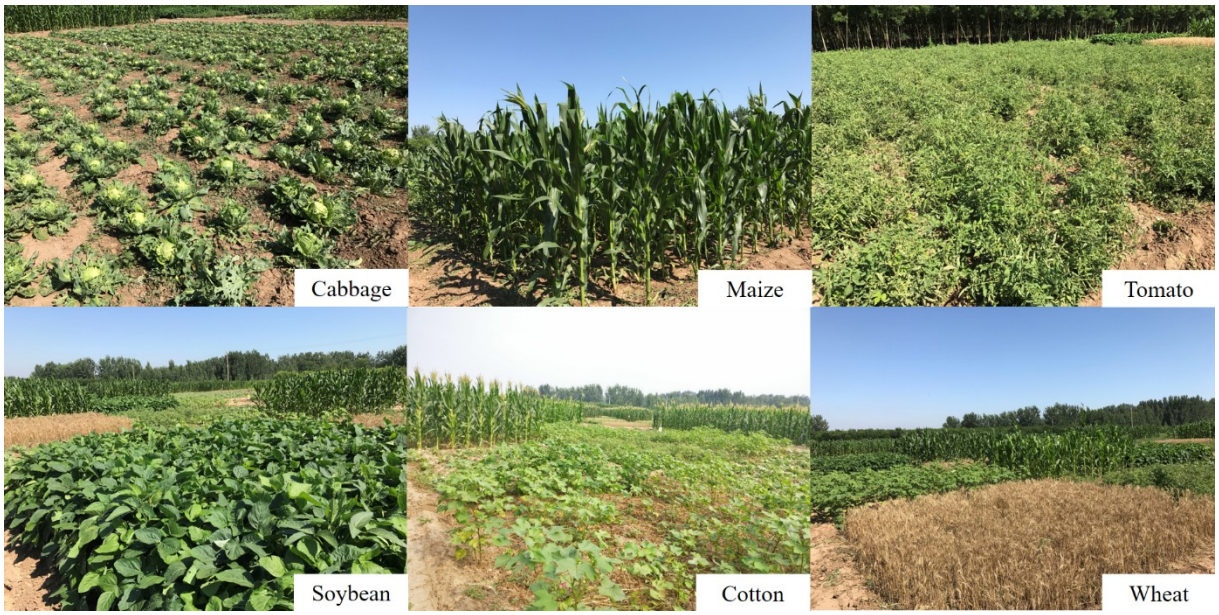

Figure S3. Crops grown in the 2017 experiment and apparent canopy density. Here, cabbage, tomato and maize pictures are in a single crop treatment, and soybean, wheat and cotton are in a multi-crop treatment.

Supplementary Tables

Table S1. Number, identity and functional group of arthropod specimens observed and identified in 2017 and 2018. Total numbers analysed for crop diversity effects. Numbers in parentheses are the total numbers collected over the entire sampling season.

	2017			2018	
	1 crop	4 crops	6 crops	1 crop	4 crops
Pests					
Aleurodidae					
Bemisia tabaci Gennadius, 1889	194	252	351	131 (1793)	105 (1611)
Aphididae	186	77	111	626 (961)	692 (798)
Aphis glycines Matsumara, 1917				0	0
Aphis gossypii Glover, 1877				228 (349)	92 (214)
Lipaphis erysimi Kaltenbach, 1843				120	204
Metopolophium dirhodum Walker, 1849				10 (21)	20 (25)
Myzus persicae Sulzer, 1776				173	235
Rhopalosiphum maidis Fitch, 1856				6 (15)	0 (10)
Rhopalosiphum padi, Linnaeus, 1758				45 (117)	105 (241)
Schizaphis graminum Rondani, 1852				4 (7)	1
Sitobion avenae Fabricius, 1794				40 (149)	35 (103)
Chrysomelidae					
Monolepta hieroglyphica Motschulsky, 1858	0	15	7	0 (2)	4 (6)
Curculionidae	0	0	0		
Curculonidae sp				0 (4)	0 (1)
Lepidoptera	168	159	173	140 (153)	174 (181)
Ascotis selenaria Hübner, 1825				1	0
Conogethes punctiferalis Guenée, 1854				0 (1)	0
Helicoverpa armigera Hübner, 1808				0 (3)	2 (7)
Mythimna separata Walker, 1865				2	1
Ostrinia furnacalis Guenée, 1854				1 (4)	0
Pieris rapae Linnaeus, 1758				95	118
Plutella xylostella Linnaeus, 1758				33	36
Spodoptera litura Fabricius, 1775				8 (9)	6 (7)
Other Lepidoptera sp. and eggs				0 (5)	11 (12)
Hemiptera:Miridae, Pentatomidae	174	317	286	45 (92)	50 (94)
Adelphocoris fasciaticollis Reuter, 1903				1 (5)	0 (1)
Adelphocoris suturalis Jakovlev, 1882				0 (6)	1 (6)
Apolygus lucorum Meyer-Dür, 1843				18 (29)	8 (24)
Dolycoris baccarum Linnaeus, 1758				9 (33)	14 (31)
Erthesina fullo Thunberg, 1783				0	0 (2)
Trigonotylus caelestialum Kirkaldy, 1902				15 (17)	6 (9)
Other Miridae sp. and nymphs				2	21
Thysanoptera					
Thysanoptera sp.				818 (828)	490 (516)
Acarina, Tetranychidae					
Tetranychus cinnabarinus Boisduval, 1867				60	0
Total	**784**	**939**	**1026**	**1821 (3901)**	**1515 (3484)**
Natural enemies					
Anthocoridae					
Orius sp.	10	7	9	88 (119)	65 (102)

	2017			2018	
	1 crop	4 crops	6 crops	1 crop	4 crops
Araneae	153	91	111	146 (167)	169 (187)
Anyphae sp.				1	0 (1)
Dictyni sp.				1	0
Enoplognatha sp.				1	0
Coleosoma octomaculatum Bösenberg & Strand, 1906				0 (2)	0 (2)
Clubiona sp.				4 (10)	6 (9)
Hylyphantes graminicola Sundevall, 1830				24 (28)	27 (32)
Misumenops tricuspidatus Simon, 1932				1	0 (2)
Lycosidae sp.				1 (7)	0 (4)
Neoscona sp.				1	0
Thomisi sp.				112	132
Other spider sp.				0 (3)	4 (5)
Carabidae	16	36	22		
Chlaenius pallipes Reitter, 1908				5	0
Cylindera elisae Motschulsky, 1859				0	1
Dolichus halensis Schaller, 1783				2 (3)	3
Other Carabidae sp.				0	4 (10)
Chrysopidae	3	4	2	61 (142)	118 (161)
Chrysoperla carnea Stephens, 1836				5 (10)	22 (26)
Chrysoperla nipponensis Okamoto				0 (34)	0 (4)
Chrysopa formosa Brauer 1851				55	95
Chrysopa pallens Rambur, 1838				1	0
Chrysopa phyllochroma Wesmael, 1841				0	1
Chrysoperla sinica Tiedet				0 (42)	0 (35)
Other Chrysopidae sp.					
Coccinellidae	215	228	318	106 (192)	116 (199)
Coccinella septempunctata Linnaeus, 1758				1 (14)	2 (8)
Harmonia axyridis Pallas, 1773				49 (115)	71 (135)
Propylea japonica Thunberg, 1780				55 (62)	40 (49)
Other Coccinellidae sp.				1	3 (7)
Aphid parasitoids	2	5	6	170 (186)	174 (184)
Parasitized aphids				167 (181)	172 (182)
Parasitized eggs				3	2
Other parasitoids				0 (2)	0
Syrphidae	0	1	2	4 (8)	8 (11)
Episyrphus balteatus De Geer, 1776				2	4
Other Syrphidae sp.				2 (6)	4 (7)
Total	**399**	**371**	**470**	**583 (826)**	**658 (858)**

Table S2. *Post hoc* comparison of means in species richness between crops in 2018.

Groups	**Estimate ± SE**	***P***
Cabbage - Cotton	3.6 ± 0.51	< 0.001 ***
Cabbage - Maize	-0.1 ± 0.51	0.99
Cabbage - Wheat	-0.9 ± 0.51	0.30
Cotton - Maize	-3.7 ± 0.51	< 0.001 ***
Cotton - Wheat	-4.5 ± 0.51	< 0.001 ***
Maize - Wheat	-0.8 ± 0.51	0.40

***: $P < 0.001$.