

**Table S1. Information on the 40 sampled fields, including farming system (OF, organic farming; CF, conventional farming), agricultural management (Cereal or Mixed crops), type of cereal sown, type of legume sown, and geographical coordinates of the centroids of fields (X, Y in Lambert 93).**

Field ID	Farming system	Agricultural management	Cereal	Legume	X	Y
BIOHME- 02	OF	Mixed	Triticale	Pea	333958.23	6770041.94
BIOHME- 03	OF	Mixed	Triticale	Pea	333977.97	6770420.40
BIOHME- 05	CF	Cereal	Wheat		334784.02	6769663.86
BIOHME- 06	OF	Cereal	Oat		369341.46	6779351.74
BIOHME- 07	OF	Cereal	Wheat		372651.42	6767062.04
BIOHME- 08	OF	Mixed	Wheat	Pea	374262.22	6768877.77
BIOHME- 09	OF	Cereal	Wheat		334654.81	6764298.01
BIOHME- 10	OF	Cereal	Wheat		371222.70	6783500.25
BIOHME- 11	CF	Cereal	Wheat		371435.02	6783969.07
BIOHME- 12	CF	Cereal	Wheat		333414.08	6769704.06
BIOHME- 15	OF	Mixed	Triticale	Pea	371757.94	6779016.34
BIOHME- 16	CF	Cereal	Wheat		371301.91	6777595.01
BIOHME- 17	CF	Cereal	Wheat		371312.17	6776879.13
BIOHME- 18	CF	Cereal	Wheat		334307.26	6764886.78
BIOHME- 20	CF	Cereal	Wheat		356135.55	6771350.36
BIOHME- 21	OF	Cereal	Wheat		367827.84	6781428.36
BIOHME- 22	CF	Cereal	Wheat		368436.15	6781375.84
BIOHME- 23	CF	Cereal	Wheat		368561.94	6779962.87
BIOHME- 24	CF	Cereal	Wheat		364699.40	6780285.84
BIOHME- 25	CF	Cereal	Wheat		364658.23	6780099.37
BIOHME- 28	CF	Cereal	Wheat		367118.76	6780810.42
BIOHME- 30	OF	Cereal	Wheat		372766.13	6776644.83
BIOHME- 31	OF	Cereal	Wheat		369612.23	6779471.08
BIOHME- 33	CF	Cereal	Wheat		329237.83	6771400.20
BIOHME- 34	CF	Cereal	Wheat		327280.54	6766995.57
BIOHME- 36	CF	Cereal	Wheat		374344.55	6788438.26
BIOHME- 39	CF	Cereal	Wheat		348971.40	6754516.46
BIOHME- 42	OF	Cereal	Wheat		356087.50	6770944.10
BIOHME- 43	OF	Mixed	Wheat	Faba bean	347115.93	6754965.30
BIOHME- 44	OF	Mixed	Wheat	Faba bean	348732.40	6757501.45
BIOHME- 45	CF	Cereal	Wheat		327654.21	6777238.06
BIOHME- 47	OF	Mixed	Triticale	Faba bean	379421.67	6773881.05
BIOHME- 49	OF	Mixed	Triticale	Pea and Faba bean	375543.91	6784937.66
BIOHME- 50	OF	Cereal	Wheat		373653.06	6788907.00
BIOHME- 51	CF	Cereal	Wheat		348060.25	6756878.08
BIOHME- 54	OF	Mixed	Triticale	Pea	336148.18	6769064.83
BIOHME- 57	OF	Mixed	Oat and triticale	Pea and Faba bean	339624.43	6768034.24
BIOHME- 58	CF	Cereal	Wheat		339417.04	6768238.26

BIOHME- 60	CF	Cereal	Triticale	374062.94	6769136.01
BIOHME- 99	OF	Cereal	Wheat	332336.10	6772639.80

**Table S2. Spearman correlation matrix between landscape variables at 250, 500 and 1000 m.** OF, Organic farming; SNH, Semi-natural habitats (including woodlands and grass strips); HD, Hedgerow density.

	% OF_1000 m	% SNH_1000 m	HD_1000 m	% OF_500 m	% SNH_500 m	HD_500 m	% OF_250 m	% SNH_250 m	HD_250 m
% OF_1000 m	1								
% SNH_1000 m	-0.23	1							
HD_1000 m	0.07	-0.07	1						
% OF_500 m	0.77	-0.25	0.10	1					
% SNH_500 m	-0.39	0.84	-0.06	-0.41	1				
HD_500 m	0.05	-0.10	0.61	0.08	-0.03	1			
% OF_250 m	0.51	-0.01	0.11	0.83	-0.15	0.19	1		
% SNH_250 m	-0.27	0.55	0.05	-0.50	0.68	0.06	-0.29	1	
HD_250 m	-0.13	-0.04	0.36	-0.04	0.06	0.71	0.12	0.13	1

1 **Table S3. Abundance of arthropods trapped using the vacuum method (D-vac).** N,  
2 number of replicates; CF, conventional fields; OF, organic fields.

	N	Spiders	Carabids	Ladybug larvae	Staphylinids	Aphids
Hedgerows	40	10,623	6689	64	6356	366
Crop fields (all)	40	7197	4274	95	2034	3048
CF	20	2336	1838	12	649	436
OF 'Cereal crops'	10	1277	717	13	271	266
OF 'Mixed crops'	10	3584	1719	70	1114	2346

3

4 **Table S4. Results from generalised linear mixed models (GLMMs) of the effects of**  
 5 **habitat type (crop fields vs. hedgerows) on the biodiversity-related multifunctionality**  
 6 **index (standardised using the maximum value) and ecological performance (i.e.**  
 7 **conservation, pollination, pest control and pest infestation).** Values in bold indicate  
 8 significant effects (\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ ; ns, not significant).  
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Multifunctionality index	Ecological performance									
	Conservation		Pollination		Pest control		Pest infestation			
	Estimate ± SE	$p$	Estimate ± SE	$p$	Estimate ± SE	$p$	Estimate ± SE	$p$	Estimate ± SE	$p$
(Intercept)	<b>-0.16 ± 0.06</b>	**	<b>1.08 ± 0.16</b>	***	<b>-1.81 ± 0.18</b>	***	<b>-0.84 ± 0.13</b>	***	<b>-0.76 ± 0.17</b>	***
Habitat type (Field)	<b>-0.21 ± 0.07</b>	**	<b>-0.73 ± 0.15</b>	***	-0.35 ± 0.22	ns	<b>-0.74 ± 0.17</b>	***	<b>-0.47 ± 0.24</b>	*

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11 **Table S5. Results from linear mixed models (LMMs) of the effects of habitat type (crop  
 12 fields vs. hedgerows) on the biodiversity-related multifunctionality index (standardised  
 13 using the z-score) and ecological performance (i.e. conservation, pollination, pest control  
 14 and pest infestation). Values in bold indicate significant effects (\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p  
 15 < 0.001$ ; ns, not significant).**

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Multifunctionality index	Ecological performance							
	Conservation		Pollination		Pest control		Pest infestation	
	Estimate ± SE	$p$	Estimate ± SE	$p$	Estimate ± SE	$p$	Estimate ± SE	$p$
(Intercept)	<b>0.18 ± 0.08</b>	*	<b>0.38 ± 0.15</b>	*	0.16 ± 0.16	ns	<b>0.36 ± 0.15</b>	*
Habitat type (Field)	<b>-0.37 ± 0.10</b>	***	<b>-0.76 ± 0.17</b>	***	-0.32 ± 0.22	ns	<b>-0.73 ± 0.19</b>	***

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18   **Table S6. Results from generalised linear models (GLMs) of the effects of agricultural**  
 19   **management (CF vs. OF ‘Cereal crops’ vs. OF ‘Mixed crops’) on the agroecosystem**  
 20   **multifunctionality index (standardised using the maximum value) and individual**  
 21   **functions. Values in bold indicate significant effects (\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ ; ns,**  
 22   **not significant).**

	Pseudo R <sup>2</sup>	Intercept	OF ‘Cereal crops’	OF ‘Mixed crops’
		Estimate ± SE	Estimate ± SE	Estimate ± SE
Multifunctionality index	0.114	-0.09 ± 0.06 ns	0.17 ± 0.11 ns	<b>0.23 ± 0.1 *</b>
Ecological performance	Conservation	0.691	<b>-0.56 ± 0.12 ***</b>	<b>1.56 ± 0.23 ***</b>
	Pollination	0.682	<b>-2.15 ± 0.28 ***</b>	<b>2.30 ± 0.43 ***</b>
	Pest control	0.442	<b>-1.09 ± 0.19 ***</b>	0.00 ± 0.31 ns
	Pest infestation	0.389	<b>1.73 ± 0.25 ***</b>	<b>-0.84 ± 0.38 *</b>
Socio-economic performances	Labour	0.135	<b>0.47 ± 0.17 **</b>	<b>-0.70 ± 0.29 *</b>
	Semi-net margin	0.116	<b>-0.57 ± 0.18 **</b>	0.58 ± 0.30 ns
Agronomic performance	Yield	0.651	<b>1.71 ± 0.18 ***</b>	<b>-1.79 ± 0.26 ***</b>
				<b>-2.13 ± 0.27 ***</b>

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24 **Table S7. (a) Results from linear models (LMs) of the effects of agricultural**  
 25 **management (CF vs. OF ‘Cereal crops’ vs. OF ‘Mixed crops’) on the agroecosystem**  
 26 **multifunctionality index (standardised using the z-score) and individual functions.**  
 27 Values in bold indicate significant effects (\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ ; ns, not  
 28 significant). **(b) Details of the mean values ( $\pm$  SE) of the standardised proxies of**  
 29 **functions.** Different letters indicate significant differences between the two habitats (pairwise  
 30 comparison with least squares means calculated using the ‘emmeans’ R package).

31  
 32 a)

		Adjusted R <sup>2</sup>	Intercept	OF ‘Cereal crops’	OF ‘Mixed crops’
			Estimate $\pm$ SE	Estimate $\pm$ SE	Estimate $\pm$ SE
Multifunctionality index		0.013	-0.08 $\pm$ 0.08 ns	0.11 $\pm$ 0.13 ns	0.21 $\pm$ 0.13 ns
Ecological performance	Conservation	0.724	<b>-0.84 <math>\pm</math> 0.12 ***</b>	<b>1.42 <math>\pm</math> 0.21 ***</b>	<b>1.94 <math>\pm</math> 0.21 ***</b>
	Pollination	0.576	<b>-0.75 <math>\pm</math> 0.15 ***</b>	<b>1.77 <math>\pm</math> 0.26 ***</b>	<b>1.22 <math>\pm</math> 0.26 ***</b>
	Pest control	0.476	<b>-0.39 <math>\pm</math> 0.16 *</b>	-0.06 $\pm$ 0.28 ns	<b>1.62 <math>\pm</math> 0.28 ***</b>
	Pest infestation	0.285	<b>-0.52 <math>\pm</math> 0.19 **</b>	<b>0.74 <math>\pm</math> 0.33 *</b>	<b>1.36 <math>\pm</math> 0.33 ***</b>
Socio-economic performance	Labour	0.070	0.17 $\pm$ 0.22 ns	-0.76 $\pm$ 0.38 ns	0.09 $\pm$ 0.38 ns
	Semi-net margin	0.052	-0.10 $\pm$ 0.22 ns	0.63 $\pm$ 0.38 ns	-0.22 $\pm$ 0.38 ns
Agronomic performance	Yield	0.689	<b>0.83 <math>\pm</math> 0.13 ***</b>	<b>-1.49 <math>\pm</math> 0.22 ***</b>	<b>-1.83 <math>\pm</math> 0.22 ***</b>

33  
 34 b)

	CF	OF ‘Cereal crops’		OF ‘Mixed crops’	
Multifunctionality index	-0.08 $\pm$ 0.04	n.s.	0.03 $\pm$ 0.16	n.s.	0.13 $\pm$ 0.12
Conservation	-0.82 $\pm$ 0.12	a	0.58 $\pm$ 0.19	b	1.10 $\pm$ 0.15
Pollination	-0.75 $\pm$ 0.006	a	1.03 $\pm$ 0.40	b	0.47 $\pm$ 0.15
Pest regulation	-0.39 $\pm$ 0.12	a	-0.45 $\pm$ 0.14	a	1.23 $\pm$ 0.37
Pest infestation	-0.53 $\pm$ 0.09	a	0.21 $\pm$ 0.27	ab	0.83 $\pm$ 0.44
Labour	-0.17 $\pm$ 0.13	ns	0.59 $\pm$ 0.46	ns	-0.26 $\pm$ 0.33
Semi-net margin	-0.10 $\pm$ 0.13	ns	0.53 $\pm$ 0.47	ns	-0.32 $\pm$ 0.33
Yield	0.83 $\pm$ 0.10	a	-0.66 $\pm$ 0.24	b	-1.00 $\pm$ 0.18

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36 **Table S8. Results from the model averaging procedure based on generalised linear  
 37 models (GLMs) of the effects of local farming system (conventional vs. organic) and  
 38 landscape heterogeneity on the agroecosystem multifunctionality index (standardised  
 39 using the maximum value) and individual functions, at three spatial scales. Values in  
 40 bold indicate significant effects (i.e. the confidence interval at 0.95 does not encompass the  
 41 zero value).**

	Pseudo R <sup>2</sup> full model	Intercept Estimate ± SE	Local OF Estimate ± SE	% OF Estimate ± SE	% SNH Estimate ± SE	Hedgerow density Estimate ± SE	X coord. Estimate ± SE	Y coord. Estimate ± SE
<b>a) 250 m</b>								
Multifunctionality index	0.16	-0.06 ± 0.07	0.13 ± 0.11	0 ± 0.04	0.003 ± 0.04	0.08 ± 0.10	-	-
Ecological performance	Conservation	0.71	-0.59 ± 0.14	<b>1.93 ± 0.22</b>	-0.18 ± 0.24	0.24 ± 0.24	0.05 ± 0.13	-
	Pollination	0.68	-2.11 ± 0.29	<b>1.97 ± 0.37</b>	0.10 ± 0.25	0.02 ± 0.15	-0.04 ± 0.17	-
	Pest control	0.47	-1.23 ± 0.20	<b>1.00 ± 0.29</b>	-0.20 ± 0.29	0.01 ± 0.13	-0.004 ± 0.11	-0.25 ± 0.33
	Pest infestation	0.36	1.76 ± 0.27	<b>-1.26 ± 0.35</b>	0.12 ± 0.27	-0.04 ± 0.17	0.14 ± 0.27	-
Socio-economic performance	Labour	0.12	-0.38 ± 0.7	0.12 ± 0.22	0.18 ± 0.26	-0.02 ± 0.12	-0.28 ± 0.31	-
	Semi-net margin	0.11	-0.49 ± 0.15	0.03 ± 0.14	0.02 ± 0.13	-0.22 ± 0.29	0.17 ± 0.26	-
Agronomic performance	Yield	0.65	1.71 ± 0.18	<b>-1.97 ± 0.23</b>	0.04 ± 0.14	-0.11 ± 0.19	0.02 ± 0.11	-
<b>b) 500 m</b>								
Multifunctionality index	0.12	-0.07 ± 0.07	0.15 ± 0.11	0.01 ± 0.05	0.004 ± 0.03	0.006 ± 0.04	'-	'-
Ecological performance	Conservation	0.72	-0.63 ± 0.129	<b>2.06 ± 0.21</b>	-0.30 ± 0.28	0.44 ± 0.25	0.003 ± 0.08	-
	Pollination	0.67	-2.11 ± 0.29	<b>1.97 ± 0.36</b>	0.08 ± 0.22	-0.03 ± 0.15	0.01 ± 0.13	-
	Pest control	0.34	-1.14 ± 0.21	<b>0.95 ± 0.30</b>	-0.23 ± 0.33	0.64 ± 0.35	-0.32 ± 0.33	-
	Pest infestation	0.39	-1.79 ± 0.27	<b>1.29 ± 0.35</b>	-0.19 ± 0.32	0.09 ± 0.23	-0.17 ± 0.29	-
Socio-economic performance	Labour	0.09	-0.34 ± 0.15	0.07 ± 0.17	0.23 ± 0.28	-0.07 ± 0.18	0.01 ± 0.09	-
	Semi-net margin	0.14	-0.49 ± 0.15	0.02 ± 0.13	0.22 ± 0.30	-0.18 ± 0.28	0.17 ± 0.25	-
Agronomic performance	Yield	0.69	1.71 ± 0.18	<b>-2.07 ± 0.25</b>	0.23 ± 0.27	-0.25 ± 0.27	0.02 ± 0.11	-
<b>c) 1000 m</b>								
Multifunctionality index	0.14	-0.07 ± 0.07	0.16 ± 0.11	0.01 ± 0.05	0.01 ± 0.04	-0.02 ± 0.06	'-	'-
Ecological performance	Conservation	0.70	-0.58 ± 0.13	<b>1.95 ± 0.20</b>	-0.08 ± 0.16	0.385 ± 0.24	-0.06 ± 0.14	-
	Pollination	0.69	-2.15 ± 0.28	<b>1.98 ± 0.36</b>	0.32 ± 0.39	-0.03 ± 0.16	-0.04 ± 0.17	-
	Pest control	0.27	-1.05 ± 0.21	<b>0.82 ± 0.29</b>	-0.13 ± 0.24	0.38 ± 0.35	-0.20 ± 0.29	-
	Pest infestation	0.37	-1.72 ± 0.26	<b>1.19 ± 0.33</b>	-0.08 ± 0.21	-0.01 ± 0.12	-0.06 ± 0.19	-
Socio-economic performance	Labour	0.10	-0.35 ± 0.15	0.08 ± 0.18	0.21 ± 0.27	-0.07 ± 0.17	0.05 ± 0.16	-
	Semi-net margin	0.11	-0.49 ± 0.14	0.02 ± 0.12	0.05 ± 0.16	-0.30 ± 0.31	0.08 ± 0.19	-
Agronomic performance	Yield	0.68	1.71 ± 0.18	<b>-1.99 ± 0.23</b>	0.11 ± 0.19	-0.15 ± 0.22	-0.006 ± 0.10	-

42 **Table S9. Results from the model averaging procedure using linear models (LMs) of the**  
 43 **effects of local farming system (conventional vs. organic) and landscape heterogeneity on**  
 44 **the agroecosystem multifunctionality index (standardised using the z-score) and**  
 45 **individual functions at three spatial scales. Values in bold indicate significant effects (i.e.**  
 46 **the confidence interval at 0.95 does not encompass the zero value).**

	Pseudo R <sup>2</sup> full model	Intercept	Local OF	% OF	% SNH	Hedgerow density	X coord.	Y coord.
		Estimate ± SE	Estimate ± SE	Estimate ± SE	Estimate ± SE	Estimate ± SE	Estimate ± SE	Estimate ± SE
<b>a) 250 m</b>								
Multifunctionality	0.12	-0.03 ± 0.07	0.06 ± 0.10	0.001 ± 0.05	0.002 ± 0.05	0.11 ± 0.12	-	-
Ecological performance	Conservation	0.76	-0.86 ± 0.13	<b>1.72 ± 0.19</b>	-0.15 ± 0.21	0.26 ± 0.22	0.03 ± 0.10	-
	Pollination	0.57	-0.74 ± 0.15	<b>1.48 ± 0.22</b>	0.03 ± 0.12	0.01 ± 0.09	-0.007 ± 0.09	-
	Pest control	0.55	-0.45 ± 0.18	<b>0.89 ± 0.27</b>	-0.19 ± 0.27	0.008 ± 0.12	0.01 ± 0.09	-0.51 ± 0.38
	Pest infestation	0.33	-0.56 ± 0.20	<b>1.11 ± 0.29</b>	-0.15 ± 0.27	0.06 ± 0.18	-0.07 ± 0.19	-
Socio-economic performance	Labour	0.08	-0.05 ± 0.20	0.108 ± 0.24	0.05 ± 0.19	-0.01 ± 0.13	-0.15 ± 0.28	-
	Semi-net margin	0.10	-0.02 ± 0.18	0.04 ± 0.167	0.04 ± 0.17	-0.22 ± 0.32	0.13 ± 0.26	-
Agronomic performance	Yield	0.72	0.84 ± 0.13	<b>-1.67 ± 0.18</b>	0.03 ± 0.11	-0.15 ± 0.20	0.02 ± 0.10	-
<b>b) 500 m</b>								
Multifunctionality	0.07	-0.03 ± 0.08	0.07 ± 0.11	0.02 ± 0.07	0.01 ± 0.05	0.01 ± 0.05	-	-
Ecological performance	Conservation	0.80	-0.88 ± 0.11	<b>1.76 ± 0.17</b>	-0.18 ± 0.21	<b>0.49 ± 0.17</b>	-0.009 ± 0.07	-
	Pollination	0.56	-0.74 ± 0.15	<b>1.47 ± 0.22</b>	0.03 ± 0.12	-0.02 ± 0.11	0.07 ± 0.16	-
	Pest control	0.38	-0.44 ± 0.20	<b>0.89 ± 0.29</b>	-0.17 ± 0.30	<b>0.74 ± 0.33</b>	-0.14 ± 0.24	-
	Pest infestation	0.34	-0.57 ± 0.20	<b>1.13 ± 0.30</b>	-0.20 ± 0.30	0.09 ± 0.21	-0.06 ± 0.18	-
Socio-economic performance	Labour	0.05	-0.05 ± 0.20	0.09 ± 0.23	0.06 ± 0.20	-0.08 ± 0.22	0.04 ± 0.17	-
	Semi-net margin	0.13	-0.008 ± 0.17	0.02 ± 0.14	0.28 ± 0.36	-0.18 ± 0.31	0.09 ± 0.22	-
Agronomic performance	Yield	0.75	0.88 ± 0.13	<b>-1.75 ± 0.19</b>	0.22 ± 0.24	-0.21 ± 0.22	0.02 ± 0.10	-
<b>c) 1000 m</b>								
Multifunctionality	0.08	-0.03 ± 0.08	0.07 ± 0.11	0.02 ± 0.07	0.01 ± 0.05	0.01 ± 0.05	-	-
Ecological performance	Conservation	0.77	-0.86 ± 0.11	<b>1.73 ± 0.17</b>	-0.06 ± 0.13	<b>0.46 ± 0.16</b>	-0.05 ± 0.12	-
	Pollination	0.59	-0.73 ± 0.15	<b>1.45 ± 0.22</b>	0.17 ± 0.23	-0.04 ± 0.13	-0.006 ± 0.10	-
	Pest control	0.32	-0.43 ± 0.20	<b>0.86 ± 0.29</b>	-0.11 ± 0.23	0.56 ± 0.36	-0.15 ± 0.26	-
	Pest infestation	0.30	-0.54 ± 0.20	<b>1.07 ± 0.28</b>	-0.09 ± 0.21	-0.01 ± 0.12	-0.03 ± 0.14	-
Socio-economic performance	Labour	0.08	-0.04 ± 0.19	0.08 ± 0.22	0.08 ± 0.22	-0.07 ± 0.21	0.11 ± 0.24	-
	Semi-net margin	0.09	-0.02 ± 0.17	0.03 ± 0.15	0.06 ± 0.19	-0.30 ± 0.36	0.02 ± 0.13	-
Agronomic performance	Yield	0.73	0.85 ± 0.13	<b>-1.69 ± 0.18</b>	0.08 ± 0.16	-0.19 ± 0.21	0.001 ± 0.07	-

