A

Ruozzi farm

	September 2014	June 2015	November 2015	March 2017
Conventional (CNV)	After annual forage crop, soil covered by crop residues	Corn	Wheat	Bare soil

Land cover:

October 2013-May2014: feed wheat	May 2014-August 2014: tillage/annual forage crop	September 2014-April 2015: tillage/bare soil	April 2015-September 2015: corn	October 2015-June2016: tillage/wheat	July 2016-March 2017: tillage/bare soil

	September 2014	June 2015	November 2015	March 2017
Conservation (CNS)	After annual forage crop, soil covered by crop residues	Corn	Wheat	After wheat, soil covered by crop residues

Land cover:

October 2013-May2014: feed wheat	May 2014-August 2014: annual forage crop	September 2014-April 2015: annual forage crop	April 2015-September 2015: corn	October 2015-June2016: wheat	July 2016-March 2017: Crop residues

B

Gli Ulivi farm

Management	September 2014	May 2015	November 2015	March 2017
Conventional (CNV)	Alfalfa	Wheat	Bare soil	Wheat
Land use:	2010-September 2014: alfalfa	October 2014-July2015: tillage/wheat	August 2015-March 2016: tillage/bare soil May 2016-October 2016: sorghum	October 2016-July 2017: tillage/wheat
Conservation (CNS)	Alfalfa	Wheat	Cover crop	Wheat
Land use:	2010-September 2014: alfalfa	October 2014-July2015: wheat	August 2015-March 2016: cover crop May 2016-October 2016: sorghum	October 2016-July2017: wheat

C

Cavallini farm

Management	October 2014	June 2015	November 2015	March 2017
Conservation with subirrigation system (S)	Dried weed	Soybean	Wheat seeding	After wheat, soil covered by crop residues

Land use:

October 2013-June2014: wheat	July 2014-October 2014: weeds	November 2014-April 2015 cover crop	May 2015-October 2015: soybean	October 2015-June 2016: wheat	June 2016-March 2017: crop residues

Conservation with no subirrigation system (NS)	Cover crop	Soybean	Cover crop seeding	After soybean, soil covered by crop residues

Land use:

October 2013-June 2014: wheat	July 2014-April 2015: Cover crop	June 2015-October 2015: soybean	November 2015-May 2016: cover crop	June 2016-October 2016: soybean	October 2016-March 2017: crop residues

Scheme SI. Farms management and crop type in the sampling period. Under every farm management, the land use in the study period was indicated. **A**: Ruozzi farm; **B**: Gli Ulivi farm; **C**: Cavallini farm.

Table S1. Analytical data of the three farms soils.

Farm	Orizon	Depth (cm)	Sand %	Silt %	Clay %	pH H2O	CaCO3 %	CO%	N g/kg	CEC
	Ap1	0-40	14	40	46	8.3	17	1.5	3.3	18.0
	Ap2	40-55	13	43	45	8.5	16	1.2	2.4	14.2
Ruozzi	Bkg	55-90	5	51	55	8.5	20	1.1	1.8	14.7
	Cg1	90-105	11	68	21	8.3	28	0.5	1.0	10.9
	Cg2	105-150	6	72	22	8.4	29	0.6	1.0	9.8
	Ap	0-40	24	52	25	8.3	26	0.9	1.6	16.9
	Bw	40-90	34	40	25	8.7	25	0.8	1.2	10.7
Gli Ulivi	Bk1	90-140	37	39	24	8.6	25	0.3	0.7	10.6
	Bk2	140-170	46	32	22	8.6	26	0.2	0.6	9.2
	Ap1	0-30	24	49	27	8.4	15	1.0	2.0	16.7
	Ap2	30-45	23	51	26	8.4	14	1.0	2.2	14.3
	Bw	45-60	22	55	23	8.5	15	0.4	2.0	9.9
Cavallini	Bk	60-100	46	42	12	8.5	19	0.6	1.0	8.8
	Bg	100-135	49	40	11	8.6	19	0.2	1.1	9.9
	BCg	135-155	48	42	10	8.6	20	0.4	0.8	9.5

Sand 0.05-2.0 mm, silt 0.002-0.05 mm, clay < 0.002 mm, CaCO3 total calcium carbonate, CO organic carbon, N total nitrogen, CEC cation-exchange capacity

Further descriptions of farms, activities and results of the monitoring program, as well as soil analysis, are published in http://www.lifehelpsoil.eu/aziende-dimostrative/

Table S2. Taxa abundance (ind./m^2) ± standard error for every crop type within agricultural system in the three farms. A: Ruozzi farm; B. Gli Ulivi farm; C: Cavallini farm.

A. Ruozzi farm

	Conventional (CNV)				Conservation (CNS)			
	Crop residues after forage crop	Corn	Wheat	Bare soil	Crop residues after forage crop	Corn	Wheat	Crop residues of wheat
Pseudoscorpionidae								
Opiliones								
Araneae		7±7	7±7		7 ± 7	28±28	42±32	7 ± 7
Acari	3241 ± 752	333±148	4380±2405	2725±288	2774 ± 399	5081±1407	10721±2082	3928 ± 2475
Isopoda					7 ± 7			7 ± 7
Diplopoda								14 ± 7
Pauropoda							7±7	14 ± 7
Symphyla					14 ± 7			28 ± 19
Chilopoda					14 ± 7			
Protura							21±12	42 ± 42
Diplura				14±7				
Collembola	3340 ± 643	283±159	510±123	2279±362	3453 ± 950	2845±1306	17486±7643	2201 ± 1390
Psocoptera	42 ± 21			64±32	28 ± 7	14±7		21 ± 21
Hemiptera	71 ± 14		7±7		354 ± 230	78±78	64±37	
Thysanoptera		14±14	7±7		7 ± 7	14±14		
Orthroptera								
Coleoptera	78 ± 14	64±12	42±32	28±19	85 ± 25	64±-	28±19	7 ± 7
larvae	21 ± 21	234±203	50±19	42±12	14 ± 7	28±7	42±42	127 ± 80
Hymenoptera	1755 ± 1360	177±78			594 ± 374	318±202	1805±1539	
larvae				234±61				
Diptera								
larvae	14 ± 7		35±19		14 ± 14	14±7	219±209	42 ± 25
Lepidoptera	7 ± 7							
larvae					7 ± 7			

B. Gli Ulivi farm

	Conventional (CNV)				Conservation (CNS)			
	Alfalfa	Wheat	Bare soil	Wheat	Alfalfa	Wheat	Cover crop	Wheat
Pseudoscorpionidae								
Opiliones								
Araneae		42 ± 12		7 ± 7	7 ± 7	64 ± 25	106 ± 21	
Acari	2859 ± 1283	2505 ± 1074	1062 ± 201	2781 ± 702	1026 ± 622	6242 ± 2194	6440 ± 1271	2880 ± 501
Isopoda			7 ± 7	7 ± 7			7 ± 7	
Diplopoda						7 ± 7	7 ± 7	
Pauropoda	64 ± 64		28 ± 28	7 ± 7	21 ± 21	42 ± 42	28 ± 28	
Symphyla	42 ± 42	92 ± 63	7 ± 7	14 ± 14	42 ± 32	57 ± 26	21 ± -	78 ± 78
Chilopoda			7 ± 7	7 ± 7		7 ± 7	28 ± 14	7 ± 7
Protura								28 ± 28
Diplura			14 ± 7		21 ± 21			
Collembola	764 ± 181	1571 ± 859	573 ± 222	2802 ± 1350	2484 ± 1057	885 ± 338	8457 ± 2271	2548 ± 1242
Psocoptera	163 ± 152	212 ± 110	7 ± 7		14 ± 7	14 ± 14	42 ± 25	
Hemiptera	14 ± 14	71 ± 26		35 ± 26	28 ± 19	156 ± 103	78 ± 58	21 ± 12
Thysanoptera	7 ± 7	14 ± 7				14 ± 7		
Orthroptera								
Coleoptera	21 ± -	50 ± 14	7 ± 7	21 ± 12	21 ± 12	142 ± 78	120 ± 43	21 ± 21
larvae	57 ± 26	92 ± 72	57 ± 37	191 ± 12	42 ± 42	212 ± 97	205 ± 7	283 ± 213
Hymenoptera	7 ± 7	10735 ± 10386	120 ± 120	71 ± 60	85 ± 65	2894 ± 1462	1889 ± 1681	50 ± 50
larvae								
Diptera								
larvae	28 ± 19	35 ± 19		21 ± 12	50 ± 19	42 ± 12	262 ± 123	57 ± 14
Lepidoptera								
larvae								

C. Cavallini farm

	Subirrigation system (S)				No Subirrigation system (NS)			
	Dried weed	Soybean	Wheat seeding	Crop residues of wheat	Cover crop	Soybean	Cover crop seeding	Crop residues of soybean
Pseudoscorpionidae								
Opiliones								
Araneae		7±7			7±7	7±7		198 ± 158
Acari	1005 ± 153	6001±3433	1422 ± 813	1592 ± 447	1550±427	715±114	1861 ± 797	1408 ± 457
Isopoda					7±7			
Diplopoda	7±7	50±50	7 ± 7		28±19			
Pauropoda			7 ± 7		14±14		14 ± 14	7 ± 7
Symphyla	142±31	389±7	7 ± 7	694 ± 367	156±63	99±68	7 ± 7	7 ± 7
Chilopoda		142±70	7 ± 7	42 ± 32	14±14	11±9	35 ± 26	42 ± 25
Protura	28±19		57 ± 57	28 ± 28	28±28	11±9		
Diplura					21±21	11±9		
Collembola	120±70	347±71	1451 ± 294	1026 ± 354	290±206	71±7	1514 ± 1303	4331 ± 1665
Psocoptera	50±19	21±21		7 ± 7	64±37	21±17		14 ± 14
Hemiptera		177±26	7 ± 7			467±74		
Thysanoptera		7±7						
Orthroptera								
Coleoptera	21±12	134±39		7 ± 7		127±61	7 ± 7	
larvae	7±7	64±44	7 ± 7	113 ± 14	21±12		99 ± 37	142 ± 43
Hymenoptera		21±21	7 ± 7		255±234	42±32		
larvae								
Diptera					7±7			
larvae	42±32	21±21	78 ± 58	262 ± 79	14±14		226 ± 174	184 ± 50
Lepidoptera								
larvae								

Table S3. Results of SIMPER analysis in: A. Ruozzi farm; B. Gli Ulivi farm; C: Cavallini farm. Most influential arthropod groups accounting for a cumulative dissimilarity within (x.1.) and between (x.2.) management of 70% are shown, with: Overall (%), average contrasts dissimilarity; Ratio: average contribution to overall dissimilarity to sd ratio; Cum. (%): ordered cumulative contribution of each arthropod group. Asterisks indicated the permutation *p*-value: * ≤0.05; ** ≤0.01; *** ≤0.001.

A.1. Ruozzi farm

Management	Contrasts within management			Overall %	Most influential groups	Ratio	Cum. %
CNV	Crop residues after forage crop	-	Corn	60.04	Collembola *	2.45	30.99
					Acari	2.38	59.01
					Hymenoptera	1.18	76.76
		-	Wheat	43.70	Collembola	2.92	29.08
					Hymenoptera*	1.22	55.88
					Acari	1.66	74.05
		-	Bare soil	29.45	Hymenoptera	1.23	35.52
					Collembola	1.66	48.73
					Diptera larvae	3.16	61.65
					Acari	1.69	72.61
	Corn	-	Wheat	55.65	Acari **	1.97	45.91
					Hymenoptera	1.73	59.77
					Collembola	0.94	72.47
		-	Bare soil	63.22	Acari	2.81	28.81
					Collembola	2.11	56.81
					Diptera larvae	5.18	68.70
					Hymenoptera	1.95	78.57
	Wheat	-	Bare soil	31.69	Collembola	2.78	34.18
					Acari	1.29	59.74
					Diptera larvae	2.74	72.65
CNS	Crop residues after forage crop	-	Corn	24.82	Collembola	1.59	20.74
					Acari	1.24	40.56
					Hemiptera	1.20	55.67
					Hymenoptera	1.36	70.02
		-	Wheat	41.57	Collembola	1.71	34.06
					Acari	4.22	58.92
					Hymenoptera	1.18	70.20
		-	Crop residues of wheat	43.12	Collembola	1.45	20.27
					Acari	1.71	37.42
					Hymenoptera	1.69	53.54
					Hemiptera *	1.19	64.37
					Coleoptera **	2.28	70.02
	Corn	-	Wheat	36.87	Collembola	1.79	43.87
					Acari	1.93	63.36
					Hymenoptera	1.01	75.83
		-	Crop residues of wheat	40.25	Acari	1.71	26.08
					Collembola	1.25	45.67
					Hymenoptera	1.92	59.54
					Coleoptera larvae	3.39	65.40
					Coleoptera *	2.20	70.98
	Wheat	-	Crop residues of wheat	52.04	Collembola **	1.77	38.97
					Acari *	1.63	62.08
					Hymenoptera	1.43	76.88

A.2. Ruozzi farm

Contrasts between managements	Crop	Overall %	Most influential groups	Ratio	Cum. %
CNV – CNS	Crop residues after forage crop	23.63	Hymenoptera	1.29	29.52
			Collembola	1.87	43.94
			Hemiptera	2.28	58.15
			Acari	1.47	70.10
	Corn	55.07	Acari ***	3.31	42.33
			Collembola	1.89	71.74
	Wheat	54.56	Collembola *	2.91	47.37
			Acari	1.73	68.02
			Hymenoptera	1.46	82.97
	Bare soil – Crop residues of wheat	34.45	Acari	1.79	24.59
			Collembola	1.70	48.60
			Diptera larvae **	1.51	60.33
			Coleoptera larvae	2.70	67.69
			Psocoptera	1.98	73.84

B.1. Gli Ulivi farm

Management	Contrasts within management			Overall %	Most influential groups	Ratio	Cum. %
CNV	Alfalfa	-	Wheat	48.25	Hymenoptera	0.86	42.36
					Acari	1.20	56.41
					Collembola	2.03	68.33
					Psocoptera	1.36	74.90
		-	Bare soil	39.48	Acari	2.60	30.18
					Collembola	1.01	41.16
					Hymenoptera	0.75	50.83
					Psocoptera	0.99	60.44
					Pauropoda	0.94	67.21
					Coleoptera larvae	1.36	73.22
		-	Wheat	35.94	Collembola	1.60	26.67
					Acari	1.27	49.77
					Psocoptera	0.97	58.71
					Coleoptera larvae	1.97	66.35
					Hymenoptera	0.96	72.67
	Wheat	-	Bare soil	57.28	Hymenoptera *	0.86	37.63
					Acari	1.61	49.95
					Collembola	1.53	62.20
					Psocoptera	1.56	69.34
					Hemiptera *	2.76	74.26
		-	Wheat	44.44	Hymenoptera	0.83	40.13
					Collembola	1.54	56.03
					Acari	1.40	66.43
					Psocoptera	1.82	75.05
	Bare soil	-	Wheat	41.60	Collembola *	1.50	29.58
					Acari	1.63	51.78
					Hymenoptera	1.13	61.03
					Coleoptera larvae *	1.50	69.79
					Hemiptera	1.20	74.51
CNS	Alfalfa	-	Wheat	49.89	Acari *	1.83	29.33
					Hymenoptera *	2.38	54.84
					Collembola	1.95	67.99
					Coleoptera larvae	1.52	74.53
		-	Bare soil	48.06	Acari	2.10	28.17
					Collembola	1.50	52.48
					Hymenoptera	0.99	66.73
					Coleoptera larvae	1.74	72.61
		-	Cover crop	38.49	Acari	1.38	28.82
					Collembola	1.49	50.46
					Coleoptera larvae *	1.09	62.31
					Hymenoptera	1.31	69.61
					Symphyla *	1.28	76.52
	Wheat	-	Cover crop	32.95	Collembola	2.95	37.50
					Hymenoptera	1.67	57.92
					Acari	1.46	69.14
					Diptera larvae	1.56	74.88
		-	Wheat	40.10	Hymenoptera *	2.60	31.31
					Acari	1.15	46.70
					Collembola	1.17	60.52
					Coleoptera larvae	1.52	67.35
					Coleoptera	1.42	73.07
	Cover crop	-	Wheat	39.65	Collembola	1.66	26.16
					Hymenoptera	1.04	43.53
					Acari	1.84	59.50
					Araneae *	6.71	65.64
					Coleoptera larvae	1.66	71.38

B.2. Gli Ulivi farm

Contrasts between managements	Crop	Overall %	Most influential groups	Ratio	Cum. %
CNV – CNS	Alfalfa	42.28	Acari	1.48	28.85
			Collembola	2.02	51.12
			Hymenoptera	1.12	58.55
			Psocoptera	0.95	65.84
			Coleoptera larvae	1.98	72.61
	Wheat	36.90	Hymenoptera	1.30	39.57
			Acari	1.26	58.12
			Collembola	1.55	69.46
			Psocoptera	1.57	76.77
	Bare soil/Cover crop	59.87	Collembola	3.17	31.60
			Acari	3.11	53.84
			Hymenoptera	1.05	66.88
			Diptera larvae	1.88	73.77
	Wheat	26.35	Collembola	1.48	29.47
			Acari	1.62	42.84
			Coleoptera larvae	1.56	55.49
			Hymenoptera	1.11	64.25
			Symphyla	0.94	72.19

C.1. Cavallini farm

Management	Contrasts within management			Overall %	Most influential groups	Ratio	Cum. %
S	Dried weed	-	Soybean	48.50	Acari *	1.54	31.58
					Hemiptera **	4.22	43.18
					Chilopoda **	3.72	52.39
					Collembola	1.37	60.05
					Symphyla	2.95	67.05
					Coleoptera *	1.74	73.84
		-	Wheat seeding	49.84	Collembola **	3.04	33.63
					Acari	1.66	48.60
					Symphyla	2.51	61.46
					Psocoptera **	2.92	69.76
					Diptera larvae	1.36	76.75
		-	Crop residues of wheat	39.75	Collembola	2.08	24.41
					Symphyla	1.38	39.43
					Acari	1.99	52.08
					Diptera larvae *	1.96	64.51
					Coleoptera larvae **	2.70	75.94
	Soybean	-	Wheat seeding	54.19	Acari *	1.32	27.03
					Collembola	2.91	40.68
					Symphyla	3.56	54.16
					Hemiptera *	2.57	63.00
					Coleoptera **	3.16	71.36
		-	Crop residues of wheat	39.82	Acari	1.07	26.37
					Hemiptera **	3.95	37.93
					Diptera larvae	2.25	49.18
					Collembola	1.62	59.82
					Coleoptera *	2.22	68.56
					Symphyla	1.54	75.80
	Wheat seeding	-	Crop residues of wheat	39.78	Symphyla **	2.25	26.05
					Acari	1.68	44.11
					Collembola	1.09	57.17
					Diptera larvae	1.53	68.70
					Coleoptera larvae *	2.26	79.66
NS	Cover crop	-	Soybean	50.71	Hemiptera *	14.80	21.50
					Acari	1.36	33.88
					Hymenoptera	1.09	44.13
					Coleoptera *	2.47	54.29
					Collembola	0.79	61.19
					Symphyla	1.48	66.98
					Psocoptera *	1.25	72.76
		-	Cover crop seeding	48.87	Collembola	1.14	18.43
					Acari	1.72	32.33
					Diptera larvae	1.23	43.44
					Hymenoptera	0.90	54.39
					Symphyla *	2.03	65.04
					Psocoptera *	1.24	71.41
		-	Crop residues of soybean	52.07	Collembola *	2.43	34.50
					Diptera larvae	2.04	43.42
					Hymenoptera	0.90	51.98
					Symphyla	2.14	60.10
					Acari	1.19	67.28
					Araneae	1.22	74.25
	Soybean	-	Cover crop seeding	60.56	Hemiptera **	4.91	19.05
					Collembola	1.02	35.92
					Acari	1.62	49.36
					Diptera larvae *	1.41	61.03
					Coleoptera larvae **	7.23	69.18
					Coleoptera **	1.63	77.10
		-	Crop residues of soybean	66.04	Collembola *	3.40	33.85
					Hemiptera **	5.31	48.08
					Diptera larvae	2.56	57.26
					Coleoptera larvae *	8.28	64.69
					Coleoptera **	2.23	71.43
	Cover crop seeding	-	Crop residues of soybean	35.88	Collembola	1.69	44.14
					Acari	1. 70	60.79
					Araneae *	1.10	71.58

C.2. Cavallini farm

Contrasts between managements	Crop	Overall (%)	Most influential groups	Ratio	Cum. %
S – NS	Dried weed/ Cover crop	36.68	Hymenoptera *	0.92	16.34
			Collembola	1.12	28.84
			Acari	1.11	41.30
			Diptera larvae	1.17	48.43
			Protura	1.32	55.09
			Psocoptera	1.67	61.67
			Diplopoda	1.14	67.22
			Coleoptera	1.27	72.54
	Soybean	44.42	Acari **	1.76	37.42
			Symphyla	1.95	39.35
			Collembola	2.63	51.80
			Chilopoda **	2.28	62.29
			Hemiptera	3.49	71.12
	Wheat seeding/ Cover crop seeding	41.14	Collembola	3.32	31.02
			Acari	1.48	53.31
			Diptera larvae	1.09	66.07
			Coleoptera larvae **	2.28	76.42
	Crop residues of wheat/ Crop residues of soybean	42.62	Collembola	1.51	33.60
			Symphyla	2.28	57.35
			Acari	1.34	68.31
			Araneae	1.10	78.33