



Figure S1. Study areas.

Table S1. Detail of soil management (tillage and fertilization applied in the five sites).

<b>Sites</b>	<b>Soil management</b>	<b>Fertilization</b>
<b>FIR</b>	Two tillage using a two-frame grubber with fixed shares in a cultivation depth of 20 cm (Spring and post-harvesting)	Mineral fertilization – NPK 80-50-80 kg/ha Amended fertilization N-organic 3% 1500 kg/ha
<b>SIE</b>	Natural green cover, 32 different species in SHD, 26 different species in TRAD	Organic fertilization - Compost BIO-OLIVO 100 kg/ha (N 6%, P <sub>2</sub> O <sub>5</sub> 3%, K 5%, Organic Carbon 38%)
<b>FOG</b>	Two tillage using rotary hoe or harrow with fixed teeth 10-20 cm depth, 3-4 harrowing at 5-10 cm depth	Mineral fertilization - NPK 50-150-100 kg/ha
<b>RAG</b>	3-4 tillage by clod breaker 15-20 cm of depth	Organic fertilization – Compost Microzymtrio 400 kg/ha (N 3%, P <sub>2</sub> O <sub>5</sub> 3%, CaO 9%, SO <sub>3</sub> 12%, Fe 3% Organic Carbon 38%)
<b>TRP</b>	Green manure with <i>Vicia faba minor</i> L. Green manure was mowed and incorporated into the soil in June by rotary tiller and/or rotary hoe, 10-20 cm depth	Organic fertilization – Stable manure 1000 kg/ha

Table S2. Percentage contribution to the Bray-Curtis dissimilarity in family nematode abundance (SIMPER analysis) among the experimental site.

Mean values and standard errors are reported.

Taxon	Contribution	Cumulative %	FIR	SIE	FOG	RAG	TRP
Hoplolaimidae	10.05	21.8	13.2 ± 3.11	74.0 ± 13.57	1.0 ± 0.41	134.0 ± 28.58	3.8 ± 0.88
Rhabditidae	7.909	38.94	65.0 ± 14.32	55.6 ± 13.94	38.9 ± 9.60	69.0 ± 13.89	54.3 ± 10.39
Tylenchidae	6.381	52.77	29.0 ± 6.81	24.3 ± 7.65	3.2 ± 0.99	28.7 ± 15.60	28.5 ± 4.45
Cephalobidae	6.037	65.86	26.0 ± 5.57	11.7 ± 2.48	7.4 ± 1.36	43.0 ± 6.36	46.5 ± 5.74
Dorylaimidae	4.595	75.82	23.5 ± 3.30	17.5 ± 2.71	5.8 ± 1.17	29.3 ± 4.82	29.5 ± 2.70
Telotylenchidae	3.336	83.05	6.5 ± 4.69	2.2 ± 1.41	0.3 ± 0.22	1.7 ± 0.90	20.8 ± 5.44
Aphelenchidae	3.056	89.68	7.8 ± 1.41	3.4 ± 0.74	2.5 ± 0.81	5.5 ± 1.12	14.5 ± 3.24
Mononchidae	1.453	92.83	2.9 ± 1.70	0.5 ± 0.19	0.3 ± 0.17	0.7 ± 0.34	1.5 ± 0.55
Paratylenchidae	0.9903	94.97	0	0.3 ± 0.12	1.5 ± 0.80	0.1 ± 0.08	0.8 ± 0.35
Pratylenchidae	0.818	96.75	1.1 ± 0.64	1.8 ± 1.45	0.1 ± 0.1	0.4 ± 0.38	0.3 ± 0.22
Anguinidae	0.635	98.12	0.5 ± 0.46	0.1 ± 0.06	0.8 ± 0.33	0.1 ± 0.08	0.3 ± 0.14
Psilenchidae	0.2645	98.7	0	0	0.2 ± 0.11	0	0.5 ± 0.39
Aphelenchoidae	0.211	99.16	0	0	0.3 ± 0.17	0	0
Discolaimidae	0.1025	99.38	0.1 ± 0.10	0	0	0.1 ± 0.10	0
Meloidogynidae	0.09711	99.59	0	0	0.1 ± 0.06	0	0
Criconematidae	0.06157	99.72	0	0	0	0.1 ± 0.08	0
Heteroderidae	0.04424	99.82	0.04 ± 0.04	0	0	0	0
Longidoridae	0.04392	99.91	0.04 ± 0.04	0	0	0	0
Seinuridae	0.04009	100	0	0	0	0.1 ± 0.08	0
<b>Overall average dissimilarity</b>		<b>46.13%</b>					

Table S3. Percentage contribution to the Bray-Curtis dissimilarity in family nematode abundance (SIMPER analysis) per management (SHD, super-high density; TRAD, traditional) on the whole soil nematode community in FOG site. Mean values and standard errors are reported.

Taxon	Contribution	Cumulative %	SHD	TRAD
Rhabditidae	13.81	27.97	$13.8 \pm 2.77$	$64.0 \pm 16.22$
Cephalobidae	6.753	41.65	$5.2 \pm 1.52$	$9.7 \pm 2.14$
Tylenchidae	5.205	52.19	$2.9 \pm 1.62$	$3.4 \pm 1.20$
Aphelenchidae	4.76	61.83	$3.0 \pm 1.61$	$2.0 \pm 0.35$
Dorylaimidae	4.259	70.46	$5.7 \pm 2.06$	$5.8 \pm 1.21$
Paratylenchidae	3.71	77.97	$2.7 \pm 1.54$	$0.3 \pm 0.14$
Hoplolaimidae	3.025	84.1	$0.5 \pm 0.36$	$1.4 \pm 0.73$
Anguinidae	2.105	88.36	$0.7 \pm 0.44$	$0.8 \pm 0.51$
Aphelenchoidae	1.396	91.19	$0.3 \pm 0.18$	$0.4 \pm 0.29$
Mononchidae	1.081	93.38	0	$0.6 \pm 0.34$
Telotylenchidae	0.9185	95.24	$0.4 \pm 0.42$	$0.2 \pm 0.17$
Psilenchidae	0.8511	96.96	$0.3 \pm 0.22$	0
Meloidogynidae	0.7677	98.52	$0.2 \pm 0.11$	0
Pratylenchidae	0.7326	100	$0.2 \pm 0.17$	$0.1 \pm 0.1$
<b>Overall average dissimilarity</b> <b>49.37%</b>				

Table S4. Percentage contribution to the Bray-Curtis dissimilarity in family plant-parasitic nematode abundance (SIMPER analysis) per management (SHD, super-high density; TRAD, traditional) on the whole soil nematode community in RAG site. Mean values and standard errors are reported.

<b>Taxon</b>	<b>Contribution</b>	<b>Cumulative %</b>	<b>SHD</b>	<b>TRAD</b>
Hoplolaimidae	38.53	81.37	$171.8 \pm 38.75$	$96.2 \pm 40.65$
Telotylenchidae	4.335	90.53	$0.3 \pm 0.26$	$3.0 \pm 1.74$
Pratylenchidae	2.393	95.58	$0.8 \pm 0.75$	0
Criconematidae	0.9079	97.5	$0.2 \pm 0.17$	0
Paratylenchidae	0.6392	98.85	0	$0.2 \pm 0.17$
Anguinidae	0.5444	100	0	$0.2 \pm 0.17$
<b>Overall average dissimilarity 47.35%</b>				