Table S1. Characteristics of amended soils.

Parameter	Unit	Control	BD1	BD2	D	SS	HW	*p*-value
pH (H_2O)	-	5.65 ± 0.20 d	8.48 ± 0.13 a	8.48 ± 0.13 a	8.95 ± 0.09 a	6.18 ± 0.32 c	7.65 ± 0.05 b	< 0.001
Organic matter	%	4.60 ± 0.30 a	3.01 ± 0.18 b	3.32 ± 0.18 b	3.09 ± 0.20 b	2.90 ± 0.22 b	3.02 ± 0.16 b	< 0.05
Available P	mg kg^{-1}	50.6 ± 2.00	40.1 ± 8.30	42.3 ± 8.43	42.9 ± 12.8	41.2 ± 9.59	39.8 ± 7.33	0.995
Available K	mg kg^{-1}	315 ± 9.80	279 ± 37.0	288 ± 37.8	305 ± 0.15	282 ± 38.9	289 ± 46.0	0.979
Available Ca	mg kg^{-1}	1 769 ± 80.5	1733 ± 131	1777 ± 133	1832 ± 189	1783 ± 158	1837 ± 141	0.955
Available Mg	mg kg^{-1}	258 ± 7.30	266 ± 43.3	275 ± 42.0	296 ± 64.8	281 ± 52.9	286 ± 49.1	0.944

Table S2. Nematode community abundance and taxonomic diversity under soil amendments application and *M* × *g* growth.

Taxon	Control	BD1	BD2	D	SS	HW
			Pi			
Paratylenchus projectus	21 ± 10	23 ± 1	22 ± 11	29 ± 9	29 ± 9	25 ± 4
Paratylenchus aculentus	10 ± 2	–	–	–	–	–
Geocenamus quadrifer	15 ± 3	10 ± 2	14 ± 2	15 ± 3	14 ± 2	–
Merlinius nothus	17 ± 7	12 ± 0	14 ± 4	26 ± 2	10 ± 2	–
Merlinius joctus	10 ± 2	15 ± 3	19 ± 2	–	–	–
Helicotylenchus digonicus	14 ± 2	16 ± 2	13 ± 5	–	21 ± 1	12 ± 12
Helicotylenchus pseudorobustus	10 ± 2	9 ± 1	12 ± 0	–	19 ± 1	10 ± 10
Helicotylenchus vulgaris	8 ± 2	–	–	7 ± 1	–	–
Paratrophurus hungaricus	3 ± 1	–	–	–	–	–
Pratylenchus fallax	12 ± 12	25 ± 17	24 ± 18	40 ± 6	26 ± 2	66 ± 20
Pratylenchus thornei	19 ± 19	26 ± 12	18 ± 12	24 ± 0	31 ± 9	45 ± 5
Acrobeloides	16 ± 6	17 ± 7	22 ± 12	14 ± 2	6 ± 2	–
Cephalobus	15 ± 3	11 ± 1	11 ± 1	14 ± 2	6 ± 1	3 ± 1
Panagrolaimus	12 ± 4	11 ± 1	11 ± 1	15 ± 3	5 ± 1	2 ± 1
Plectus	13 ± 1	6 ± 4	6 ± 2	5 ± 1	14 ± 2	5 ± 3
Rhabditis	12 ± 0	–	10 ± 10	15 ± 3	–	–
Aphelenchoides	19 ± 1	12 ± 0	24 ± 4	21 ± 9	28 ± 4	29 ± 8
Aphelenchus	76 ± 8	80 ± 46	36 ± 4	76 ± 4	32 ± 11	–
Ditylenchus	50 ± 8	16 ± 4	18 ± 3	3 ± 1	35 ± 7	–
Filenchus	19 ± 1	24 ± 4	28 ± 4	15 ± 3	17 ± 2	14 ± 2
Dorylaimus	10 ± 2	11 ± 1	9 ± 1	37 ± 5	5 ± 1	11 ± 1
Eudorylaimus	11 ± 1	8 ± 8	9 ± 9	–	10 ± 2	11 ± 1
Mesodorylaimus	9 ± 1	6 ± 6	6 ± 6	5 ± 5	–	–
Enchodelus	–	7 ± 1	8 ± 4	–	–	–
Coomansus	2 ± 2	4 ± 2	4 ± 2	3 ± 1	7 ± 2	9 ± 2
Iotonchus	1 ± 1	1 ± 1	1 ± 1	–	2 ± 2	2 ± 0
Mylonchulus	7 ± 1	5 ± 1	3 ± 1	3 ± 1	9 ± 4	7 ± 1
Prionchulus	2 ± 1	3 ± 1	2 ± 0	3 ± 1	4 ± 3	6 ± 2
Total	**411 ± 101**	**357 ± 125**	**342 ± 117**	**368 ± 60**	**325 ± 65**	**254 ± 70**
			Pf1			
Paratylenchus projectus	34 ± 9	28 ± 3	19 ± 6	21 ± 5	25 ± 8	22 ± 4
Paratylenchus aculentus	14 ± 3	–	–	–	–	–
Geocenamus quadrifer	22 ± 0	14 ± 5	14 ± 3	15 ± 2	12 ± 1	–

Merlinius nothus	23 ± 4	20 ± 7	14 ± 5	23 ± 2	10 ± 2	–
Merlinius joctus	15 ± 2	15 ± 5	17 ± 4	–	–	–
Helicotylenchus digonicus	22 ± 0	20 ± 1	12 ± 4	–	20 ± 1	11 ± 11
Helicotylenchus pseudorobustus	20 ± 1	10 ± 1	10 ± 1	–	12 ± 5	9 ± 9
Helicotylenchus vulgaris	11 ± 3	–	–	6 ± 1	–	–
Paratrophurus hungaricus	4 ± 2	–	–	–	–	–
Pratylenchus fallax	17 ± 17	30 ± 15	24 ± 9	37 ± 8	19 ± 4	24 ± 11
Pratylenchus thornei	20 ± 20	27 ± 13	10 ± 2	25 ± 0	24 ± 3	19 ± 11
Acrobeloides	21 ± 3	24 ± 13	24 ± 11	22 ± 0	5 ± 2	–
Cephalobus	17 ± 0	15 ± 5	16 ± 6	20 ± 1	7 ± 1	2 ± 2
Panagrolaimus	14 ± 2	11 ± 2	14 ± 6	19 ± 2	6 ± 1	1 ± 0
Plectus	18 ± 2	3 ± 1	5 ± 2	4 ± 1	13 ± 5	2 ± 1
Rhabditis	18 ± 2	–	5 ± 5	19 ± 6	–	–
Aphelenchoides	36 ± 5	16 ± 3	22 ± 6	21 ± 0	21 ± 5	21 ± 2
Aphelenchus	92 ± 14	89 ± 45	61 ± 5	90 ± 4	27 ± 9	5 ± 1
Ditylenchus	69 ± 8	22 ± 6	21 ± 2	6 ± 1	42 ± 6	–
Filenchus	34 ± 1	29 ± 4	35 ± 4	20 ± 7	19 ± 1	9 ± 1
Dorylaimus	12 ± 1	21 ± 6	17 ± 1	42 ± 6	7 ± 1	23 ± 1
Eudorylaimus	14 ± 2	10 ± 10	9 ± 9	–	12 ± 1	18 ± 2
Mesodorylaimus	10 ± 1	8 ± 8	9 ± 9	6 ± 6	1 ± 1	–
Enchodelus	–	7 ± 1	8 ± 4	1 ± 1	–	–
Coomansus	2 ± 2	3 ± 3	4 ± 2	3 ± 0	5 ± 1	5 ± 1
Iotonchus	1 ± 1	2 ± 2	2 ± 1	–	2 ± 2	2 ± 1
Mylonchulus	8 ± 2	2 ± 1	3 ± 0	1 ± 0	6 ± 1	5 ± 1
Prionchulus	4 ± 2	1 ± 1	2 ± 1	3 ± 0	4 ± 3	3 ± 2
Total	**565 ± 102**	**422 ± 156**	**373 ± 104**	**400 ± 49**	**295 ± 60**	**176 ± 56**
			Pf2			
Paratylenchus projectus	58 ± 10	37 ± 9	20 ± 2	18 ± 4	23 ± 8	19 ± 7
Paratylenchus aculentus	16 ± 4	–	–	–	–	–
Geocenamus quadrifer	30 ± 6	15 ± 5	11 ± 1	16 ± 0	11 ± 1	–
Merlinius nothus	32 ± 2	27 ± 12	12 ± 4	19 ± 1	9 ± 1	–
Merlinius joctus	27 ± 9	18 ± 5	16 ± 1	–	–	–
Helicotylenchus digonicus	33 ± 1	30 ± 8	12 ± 4	–	18 ± 3	9 ± 9
Helicotylenchus pseudorobustus	27 ± 6	11 ± 1	9 ± 1	–	11 ± 3	6 ± 6
Helicotylenchus vulgaris	13 ± 3	–	–	7 ± 1	–	–
Paratrophurus hungaricus	5 ± 1	–	–	–	–	–
Pratylenchus fallax	16 ± 16	32 ± 16	18 ± 3	39 ± 7	21 ± 4	49 ± 17

Pratylenchus thornei		20 ± 20	33 ± 11	15 ± 5	27 ± 4	29 ± 9	34 ± 6
Acrobeloides		27 ± 1	31 ± 19	36 ± 22	27 ± 3	4 ± 2	–
Cephalobus		18 ± 3	16 ± 4	18 ± 6	25 ± 5	9 ± 1	–
Panagrolaimus		17 ± 5	20 ± 9	15 ± 4	27 ± 3	7 ± 2	–
Plectus		21 ± 3	1 ± 1	–	4 ± 2	16 ± 6	–
Rhabditis		19 ± 3	–	9 ± 9	30 ± 6	–	–
Aphelenchoides		42 ± 6	18 ± 4	22 ± 10	23 ± 9	13 ± 11	16 ± 2
Aphelenchus		119 ± 1	113 ± 45	71 ± 1	115 ± 5	27 ± 9	11 ± 1
Ditylenchus		70 ± 2	24 ± 6	25 ± 7	9 ± 3	59 ± 11	–
Filenchus		43 ± 1	43 ± 1	47 ± 7	45 ± 3	22 ± 2	6 ± 2
Dorylaimus		17 ± 1	22 ± 2	17 ± 5	69 ± 13	9 ± 1	31 ± 1
Eudorylaimus		17 ± 1	11 ± 11	10 ± 10	–	20 ± 2	20 ± 2
Mesodorylaimus		11 ± 1	11 ± 11	9 ± 9	6 ± 6	–	–
Enchodelus		–	11 ± 1	10 ± 4	–	–	–
Coomansus		3 ± 3	4 ± 2	5 ± 3	4 ± 0	5 ± 3	5 ± 1
Iotonchus		2 ± 2	1 ± 1	1 ± 1	–	1 ± 1	1 ± 0
Mylonchulus		12 ± 0	5 ± 2	3 ± 2	3 ± 0	4 ± 2	5 ± 1
Prionchulus		6 ± 3	3 ± 1	3 ± 1	4 ± 2	3 ± 2	4 ± 2
	Total	**718 ± 111**	**534 ± 184**	**410 ± 118**	**515 ± 75**	**317 ± 80**	**214 ± 55**

Table S3. Multivariate GLM results examining the effect of soil amendment type and sampling time on PC1–PC4 scores.

Effect	Wilks-λ	F-ratio	Effect df	Error df	p-value	Effect size (η^2)
Intercept	0.00	0.00	4	15.00	1.00	1.000
Sampling time (T) *	0.45	3.05	8	30.00	< 0.01	0.998
Amendment type (A) **	0.87	16.59	20	50.70	< 0.001	0.999
T × A	0.45	1.22	40	58.73	0.24	0.922

Note: * Sampling time: May 21 (Pi - beginning of the vegetation), July 26 (Pf1 - middle of the vegetation), and October 30, 2021 (Pf2 - end of the vegetation); ** Amendment type: BD1, BD2, D, SS, and HM.

Table S4. Response of given nematode taxa abundance to soil amendment type and sampling time from multivariate GLMs.

PC	Pf2/Pf1	Pi/Pf2	BD1	BD2	D	SS	HM	R_{adj}^2	*p*-value
1	–	–	–	–	↓	↑	–	0.69	< 0.001
2	–	↓	↑	↑	↑	↑	↑	0.75	< 0.001
3	–	↓	–	–	↑	↑	–	0.39	0.04
4	–	–	–	–	–	–	–	0.28	0.12

Note: BD1, BD2, D, SS, and HW – planned comparison with control as the second member of pairwise comparison; for planned comparison: ↓ – by results of planned comparison the abundance of taxa decreases under the influence of the first member of pairwise comparison ($p < 0.05$); ↑ – by the results of planned comparison the abundance of taxa increases under the influence of the first member of pairwise comparison ($p < 0.05$).

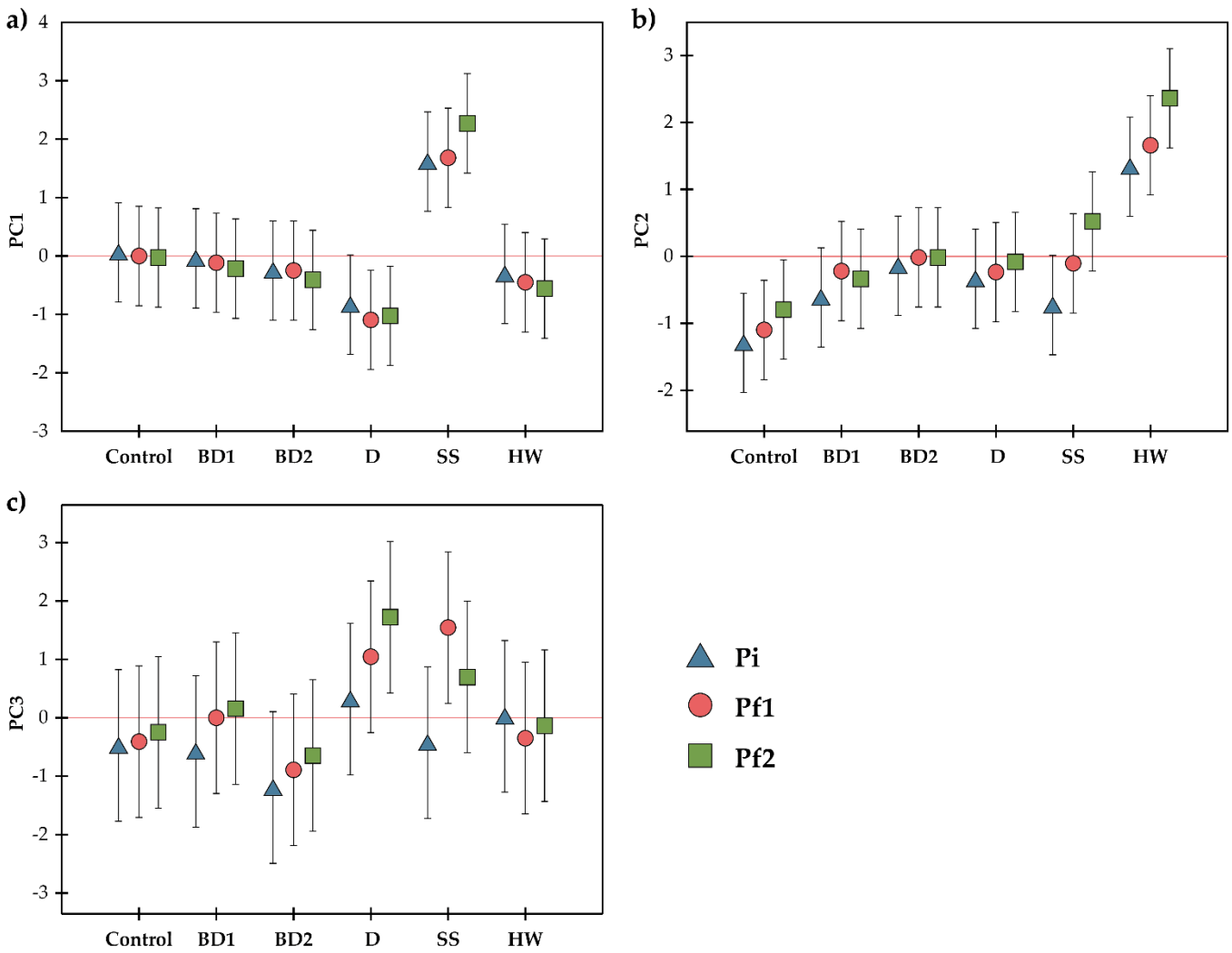

Figure S1. Response of PC scores to the effects of soil amendments at different sampling time: Pi, Pf1, and Pf2; amendment type: BD1, BD2, D, SS, and HW. a) PC1; b) PC2; c) PC3.

Table S5. Parameters of $M \times g$ harvest value depending on the soil treatment by amendments.

Treatment	Fresh weight, t ha^{-1} $F = 0.88$, $p = 0.51$			Dry weight, t ha^{-1} $F = 0.63$, $p = 0.68$			Dry matter, % $F = 1.95$, $p = 0.14$		
	Mean ± SE	**Min**	**Max**	**Mean ± SE**	**Min**	**Max**	**Mean ± SE**	**Min**	**Max**
Control	0.94 ± 0.12	0.72	1.24	0.63 ± 0.21	0.35	1.22	47.8 ± 1.3	45.0	51.0
BD1	1.36 ± 0.40	0.48	2.44	0.63 ± 0.18	0.25	1.10	47.5 ± 1.7	45.0	52.0
BD2	2.00 ± 0.83	1.00	4.48	0.90 ± 0.36	0.49	1.97	46.0 ± 1.1	44.0	49.0
D	1.17 ± 0.33	0.52	1.88	0.55 ± 0.15	0.25	0.88	47.0 ± 0.4	46.0	48.0
SS	0.97 ± 0.27	0.52	1.72	0.47 ± 0.12	0.27	0.81	48.8 ± 0.9	47.0	51.0
HW	1.10 ± 0.11	0.88	1.40	0.48 ± 0.04	0.40	0.57	44.3 ± 1.1	41.0	46.0
All groups	1.26 ± 0.17	0.48	4.48	0.61 ± 0.08	0.25	1.97	46.9 ± 0.5	41.0	52.0