

Table S1 List of primer sets used in developing molecular detection and quantification of *S. hermonthica* seeds in soil. For each primer set, the predicted PCR fragment length is given.

Marker gene	primer set	Primer sequence (5'→3')	PCR fragment length (bp)
StHe0GB1_1	1	CTGGTGGTCTCGTTGAGCTT GAGTTAGAACCCGGCGAACA	145
	2	GTTCCGCCGGTTCTAACTCT CTAGCTCAGACGGACAACCG	161
	3	CGTCTTCTCGAGGTGTGGTT AAATTAGCGCCAAAGGCGAG	170
StHe0GB1_9	4	ACTGCGATCTTGGCAGCAT CAGTCCACTCACTCTTGCC	115
	5	TGGCAGCATCCATTGGTCAT TGCATGTCTGAGCAAAGCAG	157
StHe0GB1_20	6	GCAAAATGGGATCGTCTGGA CAGCACGAAAGTTCTTCTGCC	111
	7	CGAGGACAAAAGTCTGAGGCCA TTATACCGGGCCTCAAGGGA	200
StHe0GB1_76	8	TCGGATAGCGACGTGGAAAG ATTGTTGGGACCTCGGACTG	112
	9	CGTTGGGCCCCGTATTACAT AGACGTGCTAGCCGTAAACA	154
	10	GAGGTCCCAACAATGCGAGA ATGTAATACGGGGCCCAACG	101
	11	GTGAGATTGACCTCGGGTGT CCCAGCACTACCACTGAGTT	100
StHe0GB1_93	12	AGACGGGCTGACTGGTAAAC GCATTTTCTGGGGCTGATCG	276
	13	TTGTTTCGGCCCATCGGATTT GTTTACCAGTCAGCCCGTCT	70
	14	TCGGCCCATCGGATTTAGAA TCGAGACGGTTGAGTTAGG	520

Table S2 Chemical properties of Dutch agricultural soil samples used to assess the impact of soil physicochemical properties on DNA recovery and qPCR efficiency by introducing 65 *S. hermonthica* seeds in 100 mg of each soil.

Soil sample	pH	Fe (mg/kg)	K (mg/kg)	Mg (mg/kg)	P (mg/kg)	S (mg/kg)	OM (%)	C (%)	N (%)
D08	6.87	0.076	181.542	109.681	16.226	1.141	2.808	1.936	0.155
D10	7.49	0.024	97.074	70.883	1.117	2.956	2.924	2.622	0.157
D11	7.28	0.112	68.772	56.435	5.432	1.174	3.485	1.491	0.159
D13	7.55	0.044	207.126	122.521	3.401	7.568	7.033	3.816	0.338
D17	7.75	0.015	87.171	74.542	1.029	2.272	4.232	2.631	0.148
D20	7.30	0.101	234.447	299.632	2.688	6.975	8.003	2.877	0.363
D21	5.56	0.821	58.819	484.438	4.856	24.700	20.589	9.295	1.042

Table S3 Descriptive statistics of the number of *S. hermonthica* seeds detected per 150 g of soil in 48 samples collected from sorghum fields of Ethiopia.

Soil sample	Striga seeds per 150 g of soil	Standard deviation	Standard error	Minimum	Maximum
E01	1	1.7	1.0	0	3
E02	2	3.5	2.0	0	6
E03	25	11.0	6.4	18	38
E04	5	4.7	2.7	0	9
E05	3	3.5	2.0	0	7
E06	11	5.3	3.1	5	15
E07	3	5.8	3.3	0	10
E08	12	4.6	2.6	8	17
E09	12	5.5	3.2	6	17
E10	5	8.7	5.0	0	15
E11	11	6.1	3.5	4	16
E12	67	31.4	18.1	31	90
E13	0	0.0	0.0	0	0
E14	23	9.0	5.2	17	33
E16	0	0.0	0.0	0	0
E17	0	0.0	0.0	0	0
E18	5	5.7	3.3	0	11
E19	0	0.0	0.0	0	0
E20	0	0.0	0.0	0	0
E21	0	0.0	0.0	0	0
E22	86	14.0	8.1	100	72
E23	8	7.6	4.4	3	17
E24	3	4.6	2.7	0	8
E25	7	2.5	1.5	4	9
E26	15	1.2	0.7	14	16
E27	46	33.0	19.1	13	79
E28	3	2.6	1.5	0	5
E29	1	1.2	0.7	0	2
E30	0	0.0	0.0	0	0
E31	2	4.0	2.3	0	7
E32	12	8.2	4.7	3	19
E33	0	0.0	0.0	0	0

E34	1	1.7	1.0	0	0
E35	12	2.1	1.2	10	14
E36	24	9.5	5.5	18	35
E37	2	1.7	1.0	0	3
E38	0	0.0	0.0	0	0
E39	6	8.5	4.9	0	16
E40	0	0.0	0.0	0	0
E41	4	1.0	0.6	3	5
E42	2	2.5	1.5	0	5
E43	0	0.0	0.0	0	0
E44	8	14.4	8.3	0	25
E45	0	0.0	0.0	0	0
E46	2	2.9	1.7	0	5
E47	1	1.2	0.7	0	2
E49	12	2.9	1.7	10	15
E50	1	2.3	1.3	0	4
Significance level	≤ 0.0001				
CV (%)	91.8				
LSD (0.05)	13.7				