

Supplementary Tables

Table S1. Effect of depth of placement of weed seeds in anaerobic soil disinfestation (ASD) treatment on weed seed mortality in growth chamber experiments.

Depth	<i>Amaranthus retroflexus</i>	<i>Chenopodium album</i>	<i>Cyperus esculentus</i>	<i>Phytolacca decandra</i>	<i>Solanum nigrum</i>	<i>Taraxacum officinale</i>
15 cm	49.8	57.4	83.3	78.9	61.7	86.5
5 cm	44.7	53.0	82.7	76.9	57.0	85.3
P-value	0.6	0.6	0.9	0.8	0.6	0.9

Average of two experiments and three replications. Analysis of variance was performed on the square-root transformation of mortality percentage. Means were separated using Fisher's least significant difference test on transformed data. Presented values are original means.

Table S2. Effect of different rates of anaerobic soil disinfestation (ASD) carbon sources on weed seed mortality in growth chamber experiments.

Carbon source and rate	<i>Solanum nigrum</i>		<i>Chenopodium album</i>		<i>Amaranthus retroflexus</i>		<i>Cyperus esculentus</i>	
	Increment		Increment		Increment		Increment	
	Mortality (%)	ent (%)	Mortality (%)	ent (%)	Mortality (%)	ent (%)	Mortality (%)	Increment (%)
Aerobic control	16.7	f	4	h	.7	e	8.3	e
Anaerobic control	35.6	e	1	g	.1	e	8	e
Chicken manure 5 g kg ⁻¹	62.1	d	3	g	.7	e	9	d
Chicken manure 10 g kg ⁻¹	68.3	b	8	f	.9	e	3	d
Chicken manure 20 g kg ⁻¹	72.2	b	6	g	.2	e	3	e
Molasses 5 g kg ⁻¹	56.5	cd	4	e	.5	e	3	c
Molasses 10 g kg ⁻¹	70.6	b	8	c	.4	d	9	a
Molasses 20 g kg ⁻¹	94.1	a	9	a	.3	a	0.0	a
Wheat bran 5 g kg ⁻¹	52.9	d	5	d	.1	c	3	b
Wheat bran 10 g kg ⁻¹	64.4	bc	0	c	.0	e	9	b

Wheat bran 15 g kg ⁻¹	90.5 a	71.0	84. a	3 b	49.1	40 a	.5 b	-	10	0.0 a	-
P-value	< 0.001		< 0.001		0.018		0.0001		<		

Means followed by same letter(s) do not differ significantly at 5% level of probability, *P*; Probability value of Analysis of Variance.

Average of two experiments and three replications.

Analysis of variance was performed on the square-root transformation of mortality percentage. Means were separated using Fisher's least significant difference test on transformed data. Presented values are original means.

Seed mortality reduction percent relative to lowest rate of respective carbon source (5 g kg⁻¹ soil).

Table S3. Inhibition of germination of resident weed seeds in soil collected from Badger Farm, OSU CFAES Wooster Campus, Wooster, OH by anaerobic soil disinfestation (ASD) with different carbon source rates.

Carbon sources ^{xy}	<i>Echinochloa crus-galli</i>	Inhibition (%) ^z	<i>Chenopodium album</i>	Inhibition (%) ^z	<i>Amaranthus retroflexus</i>	Inhibition (%) ^z
Aerobic control	17 a		5 a		3 a	
Anaerobic control	13 ab		2 abc		0 bc	
Chicken manure 5 g kg ⁻¹	8 bc	-	1 b-e	-	0 bc	-
Chicken manure 10 g kg ⁻¹	8 bc	-	1 b-e	-	0 bc	-
Chicken manure 20 g kg ⁻¹	2 de	73.7	0 ef	100	0 bc	-
Molasses 5 g kg ⁻¹	6 c	-	3 ab	-	0 c	
Molasses 10 g kg ⁻¹	4 cd	-	1 c-f	72.4	0 bc	
Molasses 20 g kg ⁻¹	1 ef	90.8	0 f	100	0 c	
Wheat bran 5 g kg ⁻¹	7 c	-	2 bcd	-	1.2 b	-
Wheat bran 10 g kg ⁻¹	1 ef	81.8	1.7 bcd	-	0 c	100.0
Wheat bran 15 g kg ⁻¹	0 f	100	0.0 f	100.0	0 c	100.0
<i>P</i> -value	< 0.0001		0.0002		0.0001	

^xValues in a column followed by different letters are significantly different at the indicated *P*-value according to Fisher's LSD test after square root transformation; values are means of two experiments, each with three replications.

^yValues indicate the seedling count for each weed species.

^zSeed germination inhibition percent relative to lowest rate of respective carbon source (5 g kg⁻¹ soil).