

Table 2. Effect of application of glyphosate 15 days prior to seeding on canola seedling emergence and damping-off, growth parameters, and final population density of *Rhizoctonia solani* (colony forming units, CFU) under greenhouse conditions in soil inoculated with different concentrations of the pathogen.

Inoculum ratio and glyphosate application ^a	Emergence (%)	Damping-off (%)	Live plant height (mm)	Shoot dry wt. (mg)	Root dry wt. (mg)	CFU/g soil
No inoculum						
Pre-seeding	76 a ^b	0 a	12 b	58 a	9 b	0 a
Pre- + Post-	90 a	0 a	13 b	51 a	20 ab	0 a
Post-seeding	52 b	0 a	15 a	55 a	26 a	0 a
Non-sprayed control	81 a	0 a	13 b	34 a	4 b	0 a
Inoc: Soil (1: 4000)						
Pre-seeding	34 bc	43 a	13 a	80 a	15 a	28 a
Pre- + Post-	19 c	70 a	13 a	29 b	14 a	25 a
Post-seeding	52 b	0 b	14 a	36 b	15 a	27 a
Non-sprayed control	74 a	10 b	14 a	65 a	10 a	33 a
Inoc: Soil (1: 3000)						
Pre-seeding	40 bc	47 b	17 b	49 b	20 a	122 b
Pre- + Post-	25 c	78 a	13 c	63 b	6 a	165 a
Post-seeding	50 b	0 c	15 bc	59 b	9 a	133 b
Non-sprayed control	69 a	4 c	20 a	159 a	14 a	163 a
Inoc: Soil (1: 2000)						
Pre-seeding	22 c	39 a	14 a	18 b	3 b	182 c
Pre- + Post-	32 c	57 a	11 b	8 b	9 ab	217 bc
Post-seeding	54 b	5 b	14 a	26 b	3 b	332 a
Non-sprayed control	72 a	1 b	14 a	48 a	10 a	250 b
Inoc: Soil (1: 1000)						
Pre-seeding	49 b	65 a	18 ab	35 b	5 b	310 a
Pre- + Post-	53 b	45 a	15 b	33 b	7 b	367 a
Post-seeding	45 b	35 b	16 b	31 b	8 b	377 a
Non-sprayed control	73 a	15 b	21 a	158 a	16 a	395 a

^aPre-seeding = Glyphosate applied at 680 g a.i. ha⁻¹ 15 days prior to seeding the crop plants; Post = Glyphosate applied at 680 g a.i. ha⁻¹ 14 days after seeding (DAS). Pre- + Post- = Glyphosate was applied at 440 g a.i. ha⁻¹ 15 days prior to and 14 DAS; emergence and damping off were recorded 9 DAS, seedling height was measured 10 DAS; and the other parameters were recorded after harvest.

^bMeans followed by the same letter within each inoculation treatment do not differ significantly ($P \leq 0.05$) according to Fisher's Protected Least Significant Difference test.

Table 3. Effect of pre-seeding application of glyphosate 33 days prior to seeding on canola seedling emergence and damping-off, growth parameters, and final population density of *Rhizoctonia solani* (colony forming units, CFU) under greenhouse conditions in soil inoculated with different concentrations of the pathogen.

Inoculum ratio and glyphosate application ^a	Emergence (%)	Damping-off (%)	Live plant height (mm)	Shoot dry wt. (mg)	Root dry wt. (mg)	CFU/g soil
No inoculum						
Pre-seeding	83 a ^b	0 a	14 b	142 bc	19 a	0 a
Pre- + Post-	96 a	0 a	17 ab	187 ab	16 ab	0 a
Post-seeding	84 a	0 a	14 b	98 c	8 b	0 a
Non-sprayed control	99 a	0 a	19 a	222 a	20 a	0 a
Inoc: Soil (1: 4000)						
Pre-seeding	73 bc	0 b	12 c	105 b	11 b	23 a
Pre- + Post-	66 c	9 a	15 b	83 b	10 c	22 a
Post-seeding	88 ab	0 b	15 b	222 a	17 b	27 a
Non-sprayed control	96 a	0 b	18 a	223 a	26 a	52 a
Inoc: Soil (1: 3000)						
Pre-seeding	51 c	0 a	12 b	65 c	9 c	207 a
Pre- + Post-	74 b	8 a	16 a	230 b	15 bc	153 c
Post-seeding	98 a	0 a	17 a	357 a	23 ab	163bc
Non-sprayed control	88 ab	4 a	19 a	321 a	25 a	177 b
Inoc: Soil (1: 2000)						
Pre-seeding	53 b	0 a	13 a	54 b	6 b	160 b
Pre- + Post-	59 ab	4 a	14 a	74 b	8 b	162 b
Post-seeding	81 a	0 a	15 a	224 a	19 a	155 b
Non-sprayed control	84 a	2 a	15 a	95 b	10 b	213 a
Inoc: Soil (1: 1000)						
Pre-seeding	57 a	0.0 a	13 b	179 b	15 a	175 a
Pre- + Post-	76 a	3.8 a	17 a	210 b	13 a	168 a
Post-seeding	75 a	2.0 a	16 ab	301 a	19 a	158 a
Non-sprayed control	60 a	5.0 a	14 ab	137 b	15 a	167 a

^aPre-seeding = Glyphosate applied at 680 g a.i. ha⁻¹ 33 days prior to seeding the crop plants; Post = Glyphosate applied at 680 g a.i. ha⁻¹ 14 days after seeding. Pre- + Post- = Glyphosate applied at 440 g a.i. ha⁻¹ 15 days prior to and 14 days after seeding; emergence and damping off were recorded 9 DAS, seedling height was measured 10 DAS; and the other parameters were recorded after harvest.

^bMeans followed by the same letter within each inoculation treatment do not differ significantly ($P \leq 0.05$) according to Fisher's Protected Least Significant Difference test.