

Fennel Weed Control Studies 2014

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Summary: These trials were conducted to evaluate both pre transplant and post transplant applications of Caparol and Lorox on weed control and crop safety to fennel. The results indicate that pre transplant application of both of these materials is safe and efficacious on fennel. However, post transplant applications of Caparol were safer on fennel than Lorox at the rates evaluated in these trials.

Methods: *Trial No. 1:* This trial was conducted in a commercial planting of fennel west of Gonzales, CA. The soil type at the site was Mocho silty clay loam. The field was transplanted on August 1, 2014 and the post emergence treatments were applied on August 21 when the plants were 6-7 inches tall. Each plot was one 80-inch bed wide by 10 feet long and replicated three times in a randomized complete block design. Table 1 has the treatment list as well as weed, phytotoxicity and yield evaluations. Yield was measured by harvesting 5 untrimmed heads per plot and weighing them. ***Trial No. 2:*** This trial was conducted in a commercial planting of fennel west of Soledad, CA. The soil type at the site was Pico fine sandy loam. The pretransplant treatments were applied on August 20 and the field was transplanted on August 21. The post emergence treatments were applied on September 5. Each plot was one 40-inch bed wide by 20 feet long and replicated three times in a randomized complete block design. Table 2 has the treatment list as well as weed, phytotoxicity and yield evaluations. Yield was measured by harvesting 5 untrimmed heads per plot and weighing them.

Results: *Trial No. 1:* All treatments were applied post emergence and the weed counts and phytotoxicity ratings were made 10 days after the application. All treatments provided improved reduction in the number of purslane plants over the untreated control (Table 1). Lorox at 2.0 lbs material/A had the greatest phytotoxicity of all the treatments (Photo 1). There were no significant differences in mean head weight among the treatments. ***Trial No. 2:*** This trial measured the impact of pre and post emergence treatments on weed control and crop safety of transplanted fennel. The first weed and phytotoxicity rating on September 4 measured the effect of the pre transplant application on August 20 (15 days prior). Caparol at 3.0 pints and Lorox at 3.0 lbs provided the best control of purslane (Photo 2, 3 & 4). Post emergence treatments were applied on September 5 and the effect of both the pre transplant and post emergence treatments are seen in the September 9 phytotoxicity rating and the September 25 weed count and phytotoxicity ratings. Lorox applied post emergence at 1.0 lbs/A had the greatest phytotoxicity on September 9 and 25 (Photo 5). The post emergence treatment also had significantly lower mean plant weight than all other treatments.



Photo 1. Lorox @2.0 lbs/A



Photo 2. Level of purslane in the untreated



Photo 3. Caparol at 3.0 pints, pre transplant



Photo 4. Lorox at 3.0 lbs, pre transplant



Photo 5. Arrow shows the stunted plants
In the post emergence plot of Lorox
@ 1.0 lb/A.

Table 1. Trial No. 1 (post emergence), treatments and rates and purslane counts and phytotoxicity ratings

Treatments	a.i./A	Material/A	Purslane Per m ² Sept 4	Phyto-toxicity ¹ Sept 4	Mean plant wt Oct 9
Lorox	0.5	1.0 lb	3.3	1.0	2.27
Lorox	1.0	2.0 lbs	3.3	2.3	2.59
Caparol	0.5	1.0 pt	3.0	0.0	2.21
Caparol	0.75	1.5 pt	4.3	0.3	2.50
Caparol	1.0	2.0 pt	3.3	1.3	2.19
Untreated	----	----	10.0	0.0	2.34
Pr>F treat			0.0097	<0.0001	0.4240
LSD 0.05			3.57	0.64	NS

1 – Scale: 0 = no crop damage to 10 = crop dead

Table 2. Trial No. 2 (pre transplant and post emergence), weed counts and phytotoxicity and yield evaluation (October 24)

Treatments	a.i./A	Material/A	Application timing	Purslane per m ² Sept 4	Phyto-toxicity ¹ Sept 4	Phyto-toxicity ¹ Sept 9	Purslane per m ² Sept 25	Phyto-toxicity ¹ Sept 4	Mean plant wt lbs
Caparol	0.75	1.5 pt	Pre	29.9	0.0	0.0	7.2	0.0	1.68
Caparol	1.5	3.0 pt	Pre	12.0	0.0	0.0	2.4	0.0	1.79
Caparol	1.0	2.0 pt	Post	65.8	0.0	0.3	0.0	0.2	1.62
Lorox	1.5	3.0 lb	Pre	7.2	0.0	0.0	1.2	0.0	1.79
Lorox	0.5	1.0 lbs	Post	41.9	0.0	1.5	0.0	4.7	1.26
Untreated	----	----	----	56.2	0.0	0.0	22.7	0.0	1.84
Pr>F treat				0.0173	NA	<0.0001	0.3147	<0.0001	0.0062
LSD 0.05				34.0	NA	0.3953	NS	0.4598	0.26

1 – Scale: 0 = no crop damage to 10 = crop dead