

2009 Green Onion Weed Control Studies

University of California Cooperative Extension, Monterey County
Richard Smith, Vegetable Crops and Weed Science Farm Advisor

Methods: Trial was conducted in a commercial green onion field near Gonzales. Each plot was one 80-inch bed wide by 10 feet long and replicated three times in a randomized complete block design. The trial was planted with the variety Lisbon on July 17 and the post plant preemergence applications were made on the same day (temperature at application was 71 °F and wind was 1-2 mph from the north); one and a half inches of water was applied in the first irrigation on July 18 to germinate up the crop and incorporate the herbicide. The post emergence application was applied when the plants had 2-3 true leaves on August 13 (temperature was 74 °F and wind was 2-3 mph from the north). All applications were made with a CO₂ backpack sprayer with four passes of a one-nozzle wand with an 8008E tip at 30 psi; the application was made to the entire 80-inch bed and two passes were made to half of the bed on one side and two passes were then made to two passes on the other side. The equivalent of 72 gallons of water per acre was used to apply the material. The soil at the site was Mocho silt loam (Organic matter – 1.07%; sand – 52, silt – 27 and clay – 27%).

Results: This site had high weed pressure that was dominated by shepherd's purse. Goal Tender and Prowl H2O applied preemergence provided good weed control on the first evaluation date on July 27 (9 days after germination) (Table 1). Goal Tender had an unacceptably high phytotoxicity rating and Prowl H2O had a moderate rating on this date. Goal Tender provided good weed control, but had unacceptably high phytotoxicity on the second evaluation date on August 13 (26 days after germination) (Table 2). The preemergence application of Prowl H2O had complete weed control and moderate phytotoxicity on this evaluation date. Of the remainder of the preemergence treatments, only Nortron significantly reduced the number of weeds on this evaluation date. Post emergence applications of Prowl H2O were applied on August 13, but many weeds were emerged by this time in the plots that were treated only with Prowl H2O. Prowl H2O does not control weeds post emergence. The plots were hand weeded two weeks later. As a result, yield evaluations may indicate more the impact of weed pressure on the green onions than of the herbicide phytotoxicity. Post emergence applications of Prowl H2O have low yields compared to the preemergence application (Table 3). The highest yield was the preemergence application of Prowl H2O which provided excellent, season-long weed control.

Photos on August 13



Overview of plot



Untreated



Prowl H2O 2.0 FB 2.0 lb a.i./A



Dacthal 8.0 lb a.i./A

Table 1. Weed count (per 2 sq ft) and phytotoxicity rating on July 27¹

Treatment	Material/A	Lbs a.i./A	Application Timing	Shepherd's Purse	Burning Nettle	Common Purslane	Total Weeds	Phyto ²
Untreated	----	----	----	10.7	2.7	0.3	14.0	0.0
Dacthal 6F	1.33 gals	8.0	Preemergence	7.7	0.3	0.3	8.3	0.0
Goal Tender 4F	1.0 oz	0.0312	Preemergence	0.0	0.0	0.0	0.0	6.7
Nortron 4SC	32 oz	1.00	Preemergence	11.3	0.7	0.3	13.0	0.0
Prowl H2O 3.8	33.7 oz	1.00	2-3 true leaf	8.3	2.7	0.3	12.0	0.0
Prowl H2O 3.8	67.4 oz	2.00	2-3 true leaf	10.3	3.3	0.3	14.0	0.0
Prowl H2O 3.8	134.8 oz	4.00	2-3 true leaf	13.0	2.3	1.0	16.3	0.0
Prowl H2O 3.8	67.4 oz	2.00	Preemergence	0.7	0.7	0.3	1.7	2.3
FB Prowl H2O 3.8	67.4 oz	2.00	2-3 true leaf					
Pr>Treat				0.008	0.481	0.732	0.007	<0.001
Pr>Block				0.850	0.262	0.393	0.487	0.579
LSD _{0.05}				7.0	NS	NS	8.5	0.8

1 – Prowl H₂O post emergence treatments were not applied prior to this evaluation

2 – Phytotoxicity rating: 0 = no crop damage to 10 crop dead.

Table 2. Weed count (per 2 sq ft) and phytotoxicity rating on August 13

Treatment	Material/A	Lbs a.i./A	Application Timing	Shepherd's Purse	Burning Nettle	Little Mallow	Common Purslane	Total Weeds	Phyto ¹
Untreated	----	----	----	21.7	2.3	0.7	2.3	27.0	0.0
Dacthal 6F	1.33 gals	8.0	Preemergence	21.0	0.0	0.3	0.0	21.3	0.0
Goal Tender 4F	1.0 oz	0.0312	Preemergence	4.3	0.0	0.0	0.0	4.3	5.3
Nortron 4SC	32 oz	1.00	Preemergence	18.7	0.7	0.0	0.0	19.3	0.0
Prowl H2O 3.8	33.7 oz	1.00	2-3 true leaf	16.3	2.7	0.0	3.0	22.0	0.0
Prowl H2O 3.8	67.4 oz	2.00	2-3 true leaf	18.0	2.7	0.3	3.3	24.3	0.0
Prowl H2O 3.8	134.8 oz	4.00	2-3 true leaf	16.0	2.3	0.0	1.7	20.0	0.0
Prowl H2O 3.8	67.4 oz	2.00	Preemergence	0.0	0.0	0.0	0.0	0.0	3.0
FB Prowl H2O 3.8	67.4 oz	2.00	2-3 true leaf						
Pr>Treat				<0.001	0.135	0.149	<0.001	<0.001	<0.001
Pr>Block				0.471	0.605	0.090	0.943	0.456	0.801
LSD _{0.05}				7.1	NS	0.6	1.5	7.6	0.8

1 – Phytotoxicity rating: 0 = no crop damage to 10 crop dead.

Table 3. Yield (per 2 ft² of bed top) on September 17, 2009

Treatment	Material/A	Lbs a.i./A	Application Timing	Onion wt kilograms	Number of plants	Wt/plant grams
Untreated	----	----	----	0.09	64	1.3
Dacthal 6F	1.33 gals	8.0	Preemergence	0.32	69	4.6
Goal Tender 4F	1.0 oz	0.0312	Preemergence	0.17	50	3.8
Nortron 4SC	32 oz	1.00	Preemergence	0.33	80	4.1
Prowl H2O 3.8	33.7 oz	1.00	2-3 true leaf	0.17	74	2.3
Prowl H2O 3.8	67.4 oz	2.00	2-3 true leaf	0.29	73	3.9
Prowl H2O 3.8	134.8 oz	4.00	2-3 true leaf	0.38	80	4.9
Prowl H2O 3.8	67.4 oz	2.00	Preemergence	0.60	85	7.1
FB Prowl H2O 3.8	67.4 oz	2.00	2-3 true leaf			
Pr>Treat				<0.001	0.158	<0.001
Pr>Block				0.830	0.565	0.128
LSD _{0.05}				0.16	NS	1.6