

2019 Leek Weed Control Studies

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Methods: *Trial No. 1:* The trial was conducted in a commercial leek production field near Soledad, CA. The trial site was transplanted with the leek variety 'Kypton' on May 21. The post-transplant application was made on June 19 (temperature 70 °F and no wind; transplants had two new emerging leaves). Materials tested included Caparol 4L (prometryn) and Linex 4L (liquid formulation of linuron). The grower standard was 2.0 pints of Prowl H₂O applied prior to transplanting. The soil at the site was Metz fine sandy loam. Each plot was one 40-inch bed wide by 10 feet long and replicated three times in a randomized complete block design. All applications were made with a CO₂ backpack sprayer with one pass of a one-nozzle wand with an 8008E tip at 30 psi applying the equivalent of 35 gallons of water per acre. Weed counts were made on three dates in a 10 ft² area in each plot. Phytotoxicity (Phyto) was evaluated on three dates according to the following scale: 0 = crop unaffected to 10 = crop dead. The harvest evaluation was conducted on September 10 by harvesting 12 whole plants from the middle of each plot; roots were trimmed from the plants and the tops were trimmed to commercial standards and they were weighted. The field was grown with standard production practices in the Salinas Valley and was sprinkler irrigated to establish the crop and drip irrigated for the remainder of the crop cycle. *Trial No. 2:* The trial evaluated the efficacy of Linex 4L to control/suppress yellow nutsedge (YNS) in leeks. The trial was established in a leek field transplanted mid-August with a population of yellow nutsedge. Linex at 2 pints/A was applied on September 12 in the equivalent of 82 gallons of water/A. Yellow nutsedge control was rated September 19 and 24 (7 and 12 days following treatment, respectively) according to the following scale: 0 = no control to 10 = YNS completely controlled; phytotoxicity was rated according to the scale described above.

Results: *Trial No. 1:* There was a low and highly variable population of weeds at this site which complicated getting clear cut weed evaluations difficult. There were no significant differences in the weed control on June 27 and July 5 (Table 1). Part of the reason for this may have been that these evaluation dates were 8 and 17 days following treatment by the Caparol and Linex which were slow to kill the weeds. Little phytotoxicity was observed. The most obvious symptom of phytotoxicity was bending down of some of the recently matured leaves. More definitive weed control by these materials was observed on July 15 evaluation date which was 27 days after treatment (Table 2). Caparol treated leeks at all rates showed little phytotoxicity, but significant phytotoxicity was observed in the 2.0 and 3.0 pint/A Linex 4L treatments. There were no significant differences in weeding time and no significant differences in the yield among the treatments. *Trial No. 2:* Linex 4L was safe to the leeks 7 and 12 days following treatment. Overall YNS control was modest, but it was observed that small YNS plants were more thoroughly controlled (Photo 2), and larger YNS plants exhibited yellowing (Photo 3) on the two evaluation dates.

Table 1. Trial No. 1. Weed counts (No./10 ft²) and phytotoxicity ratings on two dates

Treatment	Active ingredient lbs/acre	Material per acre	June 27				July 5			
			Shepherd's purse	Purslane	Total weeds	Phyto	Shepherd's purse	Purslane	Total weeds	Phyto
Caparol 4L	0.5	1.0 pt	1.0	2.3	3.3	0.0	1.0	1.7	2.7	0.0
Caparol 4L	1.0	2.0 pt	0.3	3.7	4.0	0.0	2.0	7.0	10.7	0.0
Caparol 4L	1.5	3.0 pt	0.0	1.3	1.3	0.3	0.0	3.0	6.3	0.7
Linex 4L	0.5	1.0 pt	0.0	1.3	1.3	0.0	0.0	2.7	2.7	0.0
Linex 4L	1.0	2.0 pt	0.0	4.0	4.0	0.7	0.0	5.0	5.0	0.8
Linex 4L	1.5	3.0 pt	0.3	2.3	2.7	0.8	3.0	5.7	11.7	1.0
Prowl H ₂ O 3.8 ¹	0.95	2.0 pt	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0
Untreated	---	---	0.0	2.7	2.7	0.3	0.0	0.0	0.0	0.3
Pr>F treat			0.5728	0.8530	0.8674	0.0223	0.6288	0.2046	0.2975	0.0441
LSD _{0.05}			ns	ns	ns	0.5	ns	ns	ns	0.8

1 – Grower standard

Table 2. Trial No. 1. Weed counts (No./10 ft²), phytotoxicity ratings and weeding time on July 15 and yield evaluation Sept. 10

Treatment	Active ingredient lbs/acre	Material per acre	July 15					Sept. 10	
			Shepherd's purse	Purslane	Total weeds	Phyto	hrs/A	tons/A	mean plant
Caparol 4L	0.5	1.0 pt	0.3	1.0	1.3	0.3	3.1	26.3	0.66
Caparol 4L	1.0	2.0 pt	0.0	1.0	1.0	0.0	2.4	23.7	0.59
Caparol 4L	1.5	3.0 pt	0.0	0.0	0.0	1.0	1.3	25.6	0.64
Linex 4L	0.5	1.0 pt	0.0	0.0	0.0	1.7	1.4	26.0	0.65
Linex 4L	1.0	2.0 pt	0.0	0.0	0.0	3.3	1.3	24.3	0.61
Linex 4L	1.5	3.0 pt	0.0	0.0	0.0	3.7	1.2	23.4	0.59
Prowl H ₂ O 3.8 ¹	0.95	2.0 pt	0.0	0.0	0.0	0.0	1.4	27.3	0.68
Untreated	---	---	0.0	1.3	1.3	0.0	2.8	27.1	0.68
Pr>F treat			0.4706	0.2720	0.3590	0.0001	0.4608	0.4936	0.4956
LSD _{0.05}			ns	ns	ns	1.4	ns	ns	ns

1 – Grower standard

Table 3. Trial No. 2. Yellow nutsedge control and phytotoxicity ratings on two dates.

Material	Amount/A	Sept. 19		Sept. 24	
		Control	Phyto	Control	Phyto
Linex 4L	2.0 pints	4.7	0.3	5.2	0.8
Untreated Control	---	0.0	0.0	0.0	0.0
Pr>F treat		0.0000	0.0805	0.0002	0.0081
LSD _{0.05}		1.3	ns	1.8	0.5



Photo 1. Untreated control



Photo 2. Small YNS plant at base of leek completely controlled



Photo 3. Larger YNS plants not killed but yellowed and stunted