

## 2012 Bell Pepper Weed Control Trials

Richard Smith, Farm Advisor

University of California Cooperative Extension, Monterey County

**Summary:** These trials were conducted to evaluate potential new herbicides for use on peppers. Zeus, Nortron and Outlook were compared with the standard herbicides, Dual Magnum and Prowl H<sub>2</sub>O. In addition, a new low VOC formulation of Prefar was compared with the standard EC formulation of Prefar. Two trials were conducted in commercial bell pepper fields with cooperating growers. Trial No. 1 was conducted to evaluate pre transplant applications and Trial No. 2 was conducted to evaluate layby applications. There was a high population of hairy nightshade at trial No. 1, but the population was spotty which made determining statistical differences among the treatments difficult. However, a trend indicated that Zeus and Outlook had greater weed control. Zeus at 3.0 fl oz was safer than 6.0 fl oz on the soil type at the trial site (silty clay). The Nortron and Prefar treatments had the highest yields in this trial. In the layby trial, the treatments were applied between and to the sides of the seedlines. The sprays were directed, but inevitably some material contacted the foliage of the plants. Where Zeus and Nortron contacted the foliage they caused phytotoxicity on the leaves: burned lesions with the use of Zeus and distortion of the foliage with Nortron. All materials reduced the number of hairy nightshade plants on two evaluation dates and there were no differences in yield among the treatments.

**Methods: Trial No. 1:** The trial was conducted in a commercial bell pepper field with a cooperating grower east of Gilroy. The soil at the site was Campbell silty clay. Beds were shaped and treatments were applied prior to transplanting on May 15 with two passes of a one-tip boom (8008EVS) at 30 psi applying the equivalent of 70 GPA of water. The bell pepper variety Baron was transplanted in two seedlines on the beds and was watered the same day. Each plot was one 40-inch bed wide by 20 feet long and replicated three times in a randomized complete block design. Treatments listed in Table 1. See tables for evaluations and dates. Twelve plants per plot were harvested and graded as shown in Table 2. **Trial No. 2:** The trial was conducted in a commercial bell pepper field with a cooperating grower north of Hollister. The soil at the site was Sorrento silty clay loam. The peppers variety Baron planted on two seedlines on a 40 inch wide bed in May. The treatments were applied at the layby stage when the plants were 7-9 inches tall on June 15 with three passes with a one-tip wand with an 8008EVS nozzle applying the equivalent of 104 GPA; one pass was made between the seedlines and the other two were made to either side of the seedlines. The plots were carefully weeded to remove all weed seedlings prior to the layby applications (see photos). The applications were made as directed a spray, however some contact with foliage was inevitable. Seven plants per plot were harvested and graded as shown in Table 4.

**Results: Trial No. 1:** Zeus at 6.0 fl oz had significant phytotoxicity ratings on both evaluation dates (Table 1). There was a great deal of variability between plots in the number of weeds and no statistical differences in total weeds was observed;

however, there are strong trends indicating that Zeus at 6.0 fl oz and Outlook at 14.0 fl oz greatly reduced weed pressure and hand weeding time. The untreated, both Nortron and Prefar treatments had the highest yields in the trial (Table 2). **Trial No. 2:** Both rates of Zeus and Nortron caused phytotoxicity on the leaves of peppers (Table 3). Even though the spray applications were directed, there was some contact with the materials on the foliage. Zeus caused burned lesions and Nortron caused deformity of the foliage. All materials greatly reduce hand weeding time. There were no statistical differences in yield among treatments (Table 4).

Table 1. Trial 1. Phytotoxicity ratings and weed counts (per 20 ft<sup>2</sup>) on two dates and time of weeding

Treatments	Lbs a.i./A	Material/A	June 1				June 14		
			Phyto- toxicity <sup>1</sup>	Night- shade	Sow thistle	Lambs- quarter	Phyto- toxicity <sup>1</sup>	Total weeds	Weed time Hrs/A
Untreated	---	---	0.0	12.0	2.0	0.0	0.0	76.7	19.1
Dual Magnum 7.62	1.43	24.0 fl oz	0.0	1.7	0.0	0.3	0.0	15.7	5.6
Nortron 4SC	0.75	24.0 fl oz	0.3	8.0	0.3	0.3	2.3	43.7	12.4
Nortron 4SC	1.00	32.0 fl oz	0.7	5.0	0.0	0.3	2.3	33.3	10.4
Zeus 4F	0.094	3.0 fl oz	1.0	2.0	0.3	0.0	2.3	11.0	4.8
Zeus 4F	0.188	6.0 fl oz	3.7	0.0	0.0	0.0	4.3	2.3	2.8
Outlook 6.0	0.60	14.0 fl oz	0.7	1.0	0.0	0.0	1.7	6.7	4.0
Prefar 4EC	6.0	6 qt	0.0	2.0	0.7	0.3	0.0	25.0	8.8
Prefar (low VOC)	6.0	6 qt	0.0	1.0	1.7	0.3	0.0	18.0	7.4
		Pr>treatment	0.0001	0.131	0.5116	0.8119	0.0001	0.3963	0.2733
		LSD (0.05)	1.0	ns	ns	ns	1.1	ns	ns

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

Table 2. Trial 1. Harvest evaluations on October 1

Treatments	Lbs a.i./A	Material/A	Red		Green		Breaker		Culls		Total Fruit		
			lbs	No.	lbs	No.	lbs	No.	lbs	No.	lbs	No.	Mean fruit wt lbs
Untreated	---	---	31.0	57.7	0.8	2.0	1.3	4.7	6.4	19.7	39.5	84.0	0.47
Dual Magnum 7.62	1.43	24.0 fl oz	25.7	48.7	1.3	3.3	4.2	9.7	4.4	16.0	35.6	77.7	0.46
Nortron 4SC	0.75	24.0 fl oz	30.0	60.7	2.2	5.7	4.4	12.0	3.9	13.0	40.5	91.3	0.44
Nortron 4SC	1.00	32.0 fl oz	26.4	50.0	3.7	8.0	4.2	9.0	5.3	16.3	39.7	83.3	0.48
Zeus 4F	0.094	3.0 fl oz	29.4	56.0	0.0	0.0	3.8	9.7	5.7	17.0	38.9	82.7	0.47
Zeus 4F	0.188	6.0 fl oz	25.9	48.7	1.6	4.7	4.4	11.7	4.5	12.7	36.3	77.7	0.47
Outlook 6.0	0.60	14.0 fl oz	24.8	45.3	1.4	3.3	3.8	8.7	4.3	12.0	34.3	69.3	0.49
Prefar 4EC	6.0	6 qt	31.1	61.3	0.8	2.3	2.5	6.7	6.3	18.7	40.6	89.0	0.46
Prefar (low VOC)	6.0	6 qt	31.5	61.0	0.8	2.0	3.8	11.3	4.3	14.7	40.3	89.0	0.45
		Pr>treatment	0.0467	0.0361	0.2205	0.1917	0.1264	0.2199	0.5881	0.6967	0.0606	0.0245	0.6446
		LSD (0.05)	4.9	11.1	ns	ns	ns	ns	ns	ns	4.6	11.7	ns

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Table 3. Trial 2. Phytotoxicity ratings and weed counts (per 15 ft<sup>2</sup>) on two dates, and time of weeding

Layby Application	Lbs a.i./A	Material/A	June 27		August 27			
			Phyto-toxicity <sup>1</sup>	Night-shade	Phyto-toxicity <sup>1</sup>	Night-shade	Malva	Weed time Hrs/A
Untreated	---	---	0.0	3.7	0.0	15.3	0.7	12.0
Dual Magnum 7.62	1.43	24.0 fl oz	0.0	1.3	0.0	4.3	0.0	4.8
Prowl H2O 3.8EC	1.50	1.58 qt	0.0	1.7	0.0	9.0	0.3	6.1
Dual Magnum 7.62 + Prowl H2O 3.8EC	1.43 1.50	24.0 fl oz 1.58 qt	0.0	0.7	0.0	6.3	0.0	5.3
Outlook 6.0	0.60	14.0 fl oz	0.0	0.0	0.0	3.7	0.0	3.2
Zeus 4F	0.094	3.0 fl oz	2.7	0.0	0.0	3.7	0.0	4.0
Zeus 4F	0.188	6.0 fl oz	3.0	0.0	1.3	3.0	0.0	3.1
Nortron 4SC	0.75	24.0 fl oz	2.3	0.3	0.0	8.0	0.0	6.0
Nortron 4SC	1.00	32.0 fl oz	2.7	0.0	2.3	6.3	0.0	6.6
		Pr>treatment	0.0001	0.0086	0.0014	0.0007	0.5696	0.0001
		LSD (0.05)	0.6	1.8	1.1	4.5	ns	9.7

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



**Trial 1 on June 15**



1. untreated



2. Dual Magnum



3. Zeus 3.0 fl oz



4. Outlook 14.0 fl oz

Note: removed weeds  
in furrow

**Trial 2**



5. Layby timing



6. Small nightshade removed before treatment



7. Plot at harvest