

## 2005 Pepper Weed Control Trials

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**Summary:** The pepper weed control studies over the past few years have focused on pretransplant applications of Goal 2XL and Tender onto shaped beds which are left undisturbed and pepper transplants are planted directly into. This technique looked good again this year. This year we added layby applications of Dual Magnum, Outlook and Dacthal to extend the level of weed control farther into the production season. Surprisingly, we did not see large impacts in this study from the layby applications. Outlook provided excellent control of Hairy Nightshade in this trial, but over-the-top applications caused too much stunting of the transplants and next year we will apply this material prior to transplanting. Flumioxazin impregnated on fertilizer and applied following transplant provided good weed control, but getting an even distribution with this granular material is a challenge.

**Methods: *Trial No. 1.*** The trial was established in cooperation with Paul Mirasou in Gilroy. Goal Tender treatments were applied onto shaped beds two weeks prior to transplanting the peppers on April 28. The field was transplanted on May 13. The at-planting treatments were applied over-the-top of the plants immediately following transplanting. Sprinkler irrigation was started 5 hours following transplanting applying 0.38 inch of water. Layby applications were made on June 16 and the material was incorporated with one last sprinkler irrigation before the field was switched to drip irrigation. The plots were hand weeded on June 3 and the July 1 weed evaluations reflect newly sprouted weeds following the layby application. The plots were not cultivated prior to the July 1 weed evaluation. Each plot was one 40-inch bed wide by 25 feet long and replicated four times in a randomized complete block design. All sprayed treatments were applied to the entire bed in 74 gallons of water per acre with two passes of a one nozzle wand with an 8008E teejet nozzle at 30 psi. Flumioxazin on fertilizer granules was spread by hand on the bed top immediately following transplanting. Soil type was Pacheco silt loam and the variety was Baron (planted in greenhouse on March 17). ***Trial No. 2.*** The trial was applied in the same field as Trial No. 1. The treatments were applied as a directed spray to the base of the plant (some spray did contact the plant tissue) at layby on June 16. All other details are the same as outlined in above. See table for treatments and evaluation dates.

**Results: *Trial No. 1.*** The best weed control was provided by Outlook, followed by Dual Magnum and then Goal Tender on the June 3 evaluation date (Table 2). Flumioxazin impregnated on fertilizer had good weed control in two treatments, but not in one which may be due to problems with getting an even application of this granular material on the bed top. Devrinol does not control Hairy Nightshade, which was the main weed at this site. Outlook caused stunting of the plants on the June 3 evaluation date and the stunting was reduced, but still noticeable on the June 10 evaluation. There was no difference in the stand among treatments. All herbicides except Devrinol reduce time to weed the plots, but Goal and flumioxazin on fertilizer tended to take more time than Dual Magnum and Outlook. There were no differences in weed control among the layby applications

(Table 3), and it appeared there was still significant residual effect from the transplant applications. All materials except the flumioxazin on fertilizer + Dacthal and the Devrinol treatments had reduced hours per acre to weed over the untreated control. There was more fruit in the Goal Tender treatments as a group than the other treatments (Table 4). There was no difference in the mean fruit weight among the treatments. ***Trial No. 2.*** V10142 did not have greater phytotoxicity rating than the untreated (Table 5). It was applied at layby and there was less weed pressure, but it did not appear to reduce numbers of nightshade. There was no adverse impact on yield.

Table 1. Trial No. 1. Transplant and layby treatments and application rates

No.	Transplant Application	Lbs a.i./A	Material/A	Layby Application	Lbs a.i./A	Material/A
1	Dual Magnum 7.62	1.43	1.50 pts	Dual Magnum 7.62	1.43	1.50 pts
2	Dual Magnum 7.62	1.43	1.50 pts	Outlook 6.0	0.60	0.80 pt
3	Dual Magnum 7.62	1.43	1.50 pts	Dacthal 75W (standard)	7.00	9.3 lbs
4	Goal Tender 4F <sup>1</sup>	0.50	1.00 pt	Dual Magnum 7.62	1.43	1.50 pts
5	Goal Tender 4F <sup>1</sup>	0.50	1.00 pt	Outlook 6.0	0.60	0.80 pt
6	Goal Tender 4F <sup>1</sup>	0.50	1.00 pt	Dacthal 75W (standard)	7.00	9.3 lbs
7	Outlook 6.0	0.60	0.80 pt	Dual Magnum 7.62	1.43	1.50 pts
8	Outlook 6.0	0.60	0.80 pt	Outlook 6.0	0.60	0.80 pt
9	Outlook 6.0	0.60	0.80 pt	Dacthal 75W (standard)	7.00	9.3 lbs
10	Flumioxazin (Chateau) impregnated on fertilizer 0.125 lb ai/A per 250 lbs	0.094	188 lbs	Dual Magnum 7.62	1.43	1.50 pts
11	Flumioxazin (Chateau) impregnated on fertilizer	0.094	188 lbs	Outlook 6.0	0.60	0.80 pt
12	Flumioxazin (Chateau) impregnated on fertilizer	0.094	188 lbs	Dacthal 75W (standard)	7.00	9.3 lbs
13	Devrinol	1.50	3.0 lbs	Dacthal 75W (standard)	7.00	9.3 lbs
14	Untreated	---	---	---	---	---

1 – applied 16 days prior to transplanting

Table 2. Trial No. 1. Post transplant evaluations: Number of weeds (per 6ft<sup>2</sup>), and phytotoxicity (two dates), stand count and time of weed evaluations.

<b>Applications</b>	<b>Lbs a.i./A</b>	<b>Material/A</b>	<b>Nightshade June 3</b>	<b>Total Weeds June 3</b>	<b>Phyto June 3</b>	<b>Phyto June 10</b>	<b>Plants per plot June 3</b>	<b>Time to weed (hrs/A) June 3</b>
Dual Magnum 7.62	1.43	1.50 pts	0.5	0.5	0.3	0.0	36.8	1.6
Dual Magnum 7.62	1.43	1.50 pts	0.8	0.8	0.8	0.3	35.5	1.3
Dual Magnum 7.62	1.43	1.50 pts	1.3	1.3	0.3	0.1	36.0	1.3
Goal Tender 4F <sup>1</sup>	0.50	1.00 pt	2.3	3.3	0.8	0.4	35.3	3.6
Goal Tender 4F <sup>1</sup>	0.50	1.00 pt	2.5	2.8	0.3	0.0	35.0	3.3
Goal Tender 4F <sup>1</sup>	0.50	1.00 pt	2.3	2.3	0.5	0.0	35.8	2.8
Outlook 6.0	0.60	0.80 pt	0.3	0.3	1.0	1.3	34.8	1.2
Outlook 6.0	0.60	0.80 pt	0.3	0.3	1.5	0.8	35.3	1.2
Outlook 6.0	0.60	0.80 pt	0.5	0.5	1.3	0.8	36.5	1.1
Flumioxazin (Chateau)	0.094	188 lbs	1.0	1.3	1.3	1.0	35.0	2.2
Flumioxazin (Chateau)	0.094	188 lbs	1.0	1.0	1.5	1.0	35.5	2.2
Flumioxazin (Chateau)	0.094	188 lbs	4.0	4.0	0.8	0.5	36.5	3.4
Devrinol	1.50	3.0 lbs	11.8	12.0	0.0	0.0	35.8	8.4
Untreated	---	---	11.8	13.3	0.0	0.0	36.3	7.7
LSD (0.05)			3.8	3.7	1.4	1.0	NS	2.5

1 – applied 16 days prior to transplanting

Table 3. Trial No. 1. Post layby evaluations: Number of weeds (per 25ft<sup>2</sup>), phytotoxicity and time to weed on July 1.

<b>Applications</b>	<b>Lbs a.i./A</b>	<b>Material/A</b>	<b>Nightshade</b>	<b>Phyto</b>	<b>Time to weed (hrs/A)</b>
Dual Magnum 7.62	1.43	1.50 pts	0.3	0.0	1.2
FB Dual Magnum 7.62	1.43	1.50 pts			
Dual Magnum 7.62	1.43	1.50 pts	0.3	0.0	1.3
FB Outlook 6.0	0.60	0.80 pt			
Dual Magnum 7.62	1.43	1.50 pts	1.3	0.0	1.8
FB Dacthal 75W	7.00	9.3 lbs			
Goal Tender 4F <sup>1</sup>	0.50	1.00 pt	3.0	0.3	2.4
FB Dual Magnum 7.62	1.43	1.50 pts			
Goal Tender 4F <sup>1</sup>	0.50	1.00 pt	3.3	0.0	2.0
FB Outlook 6.0	0.60	0.80 pt			
Goal Tender 4F <sup>1</sup>	0.50	1.00 pt	2.3	0.0	1.9
FB Dacthal 75W	7.00	9.3 lbs			
Outlook 6.0	0.60	0.80 pt	0.0	0.7	1.2
FB Dual Magnum 7.62	1.43	1.50 pts			
Outlook 6.0	0.60	0.80 pt	0.0	0.3	1.2
FB Outlook 6.0	0.60	0.80 pt			
Outlook 6.0	0.60	0.80 pt	0.0	1.0	1.2
FB Dacthal 75W	7.00	9.3 lbs			
Flumioxazin (Chateau) impregnated on fertilizer	0.094	188 lbs	0.3	0.0	1.3
FB Dual Magnum 7.62	1.43	1.50 pts			
Flumioxazin (Chateau) impregnated on fertilizer	0.094	188 lbs	0.7	0.0	1.4
FB Outlook 6.0	0.60	0.80 pt			
Flumioxazin (Chateau) impregnated on fertilizer	0.094	188 lbs	4.7	0.7	3.1
FB Dacthal 75W	7.00	9.3 lbs			
Devrinol	1.50	3.0 lbs	9.3	0.0	3.1
FB Dacthal 75W	7.00	9.3 lbs			
Untreated	---	---	8.7	0.0	3.4
LSD (0.05)			4.5	0.9	1.3

1 – applied 16 days prior to transplanting

Table 4. Trial No. 1. Yield evaluation on August 19

<b>Applications</b>	<b>Lbs a.i./A</b>	<b>Material/A</b>	<b>Number of Fruit/Acre</b>	<b>Mean Wt (Tons/Acre)</b>	<b>Mean Individual Fruit Wt (lbs)</b>
Dual Magnum 7.62 FB Dual Magnum 7.62	1.43 1.43	1.50 pts 1.50 pts	148,701	26.2	0.35
Dual Magnum 7.62 FB Outlook 6.0	1.43 0.60	1.50 pts 0.80 pt	153,061	28.1	0.36
Dual Magnum 7.62 FB Dacthal 75W	1.43 7.00	1.50 pts 9.3 lbs	157,858	29.7	0.37
Goal Tender 4F <sup>1</sup> FB Dual Magnum 7.62	0.50 1.43	1.00 pt 1.50 pts	187,511	34.1	0.36
Goal Tender 4F <sup>1</sup> FB Outlook 6.0	0.50 0.60	1.00 pt 0.80 pt	182,714	33.7	0.37
Goal Tender 4F <sup>1</sup> FB Dacthal 75W	0.50 7.00	1.00 pt 9.3 lbs	169,196	29.7	0.35
Outlook 6.0 FB Dual Magnum 7.62	0.60 1.43	0.80 pt 1.50 pts	148,701	27.1	0.36
Outlook 6.0 FB Outlook 6.0	0.60 0.60	0.80 pt 0.80 pt	174,865	33.3	0.38
Outlook 6.0 FB Dacthal 75W	0.60 7.00	0.80 pt 9.3 lbs	158,730	29.6	0.37
Flumioxazin (Chateau) impregnated on fertilizer FB Dual Magnum 7.62	0.094 1.43	188 lbs 1.50 pts	183,586	29.3	0.33
Flumioxazin (Chateau) impregnated on fertilizer FB Outlook 6.0	0.094 0.60	188 lbs 0.80 pt	145,648	27.8	0.38
Flumioxazin (Chateau) impregnated on fertilizer FB Dacthal 75W	0.094 7.00	188 lbs 9.3 lbs	167,888	31.3	0.37
Devrinol FB Dacthal 75W	1.50 7.00	3.0 lbs 9.3 lbs	185,113	34.9	0.38
Untreated	---	---	184,022	29.3	0.32
LSD (0.05)			30,397	NS	NS

1 – applied 16 days prior to transplanting

Table 5. Trial No. 2. Post layby evaluations: Number of weeds (per 15ft<sup>2</sup>), phytotoxicity and time to weed on July 1, and yield on August 19.

<b>Transplant Application</b>	<b>Lbs a.i./A</b>	<b>Material/A</b>	<b>Nightshade</b>	<b>Phyto</b>	<b>Time to weed (hrs/A)</b>	<b>Number of fruit per acre</b>	<b>Mean Wt (Tons/Acre)</b>	<b>Mean Individual Fruit Wt (lbs)</b>
V10142 75WD COC (Herbimax)	0.2 1.0%	1.50 pts	5.3	0.0	1.5	135,716	27.0	0.40
V10142 75WD COC (Herbimax)	0.3 1.0%	1.50 pts	2.7	0.0	1.3	136,533	27.1	0.37
V10142 75WD NIS (X-77)	0.2 0.25%	1.50 pts	1.7	0.0	1.1	142,256	28.8	0.39
V10142 75WD NIS (X-77)	0.3 0.25%	1.00 pt	2.0	0.0	1.1	143,074	29.9	0.37
Untreated	---	---	2.0	0.0	1.3	184,022	29.3	0.32
LSD (0.05)			NS	NS	NS	NS	NS	NS