

**Project Number:** 13K 3419 5228

**Title:** Weed control in green peas.

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**Reporting Period:** 2003-04

**Accomplishments:** Two studies were conducted in 2003: (1) reduced rate, combination treatment study, and (2) a new herbicide test of Spartan and Valor alone or in combination with Dual Magnum or Prowl. In both trials, weed control and yield parameters were measured. Eight herbicides alone and in various combinations were tested for crop safety in green peas. A total of thirty treatments were applied. Peas were also tested for Sandea (halosulfuron) carryover sensitivity in two cucumber trials.

**Results:** All results will be presented at the Western Washington Horticultural Association meeting in January, 2004. Initial results are as follows:

*Reduced rate trial.* Green peas were planted June 2, 2003 at WSU Mount Vernon. Herbicides were applied June 3 (PRE) and June 6 (POST). Pea plants within a randomly placed 1-m<sup>2</sup> quadrat in each plot were pulled from the soil August 7 through 11. These plants were counted and pods containing harvestable peas stripped and counted. From those pods, 100 pods were randomly selected and opened, and peas weighed. Total pea yield for each plot was then calculated. The experimental design was a randomized complete block with four replicates. Results are included in Tables 1 and 2.

Herbicide treatments in 2003 gave no significant differences in weed control or biomass, pea population, pod production, pea yield, or pea biomass. Weed population was quite variable in the plots, with mid-season grass control ranging from 28 to 73% and broadleaf control from 41 to 97%. As in previous years (2001-02), the full rate of Command + Basagran provided excellent weed control and treated peas were excellent yielders. MCPA alone or in combinations with Sencor (PRE), Command + Sencor, and treatments with Basagran were also good this year. Untreated peas yielded similarly to most herbicide-treatment peas, although the impact to next year's crop due to weed seed production may tell a different story. Weeds from these plots were dried in the greenhouse and their seeds will be grown out in the greenhouse during the winter to determine number and species of weeds that result from the various herbicide treatments.

*Spartan/Valor trial.* Green peas were planted June 2, 2003 at WSU Mount Vernon. Herbicides were applied June 4 PRE. Weed control and crop injury were visually evaluated May 24 and June 6. Pea plants within a randomly placed 1-m<sup>2</sup> quadrat in each plot were pulled from the soil August 5 and 6. These plants were counted and pods containing harvestable peas stripped and counted. From those pods, 100 pods were randomly selected and opened, and peas weighed. Total pea yield for each plot was then calculated. The experimental design was a randomized complete block with four replicates. Results are included in Tables 3 and 4.

Visual pea injury was not apparent from any herbicide applications, nor did weed counts significantly differ among treatments. Yield parameters (pea population, pod production, and pea yield) were also not significantly affected by herbicide treatment. In general, however, plots with a high population of peas yielded poorer than did plots with lower plant populations, indicating that our very dry May, June, and July was probably more important than herbicide treatment this year.

Table 1. Weed control on pea yield parameters from several herbicides at full and reduced rates.

Treatment	Rate product/a	Timing <sup>a</sup>	Weed control		Pea population <sup>b</sup> plants/a	Pod production pods/plant	Pea yield tons/a
			Grass %	Broadleaf %			
Command	5.3 fl.oz	PRE	56	64	2.19	5.2	3.4
Command	10.7 fl.oz	PRE	73	93	2.27	4.9	3.7
Sencor	2.7 oz	PRE	61	72	2.64	4.6	3.5
Sencor	5.3 oz	PRE	59	52	2.22	4.8	2.9
Sencor	1.3 oz	POST	28	68	2.50	5.0	3.9
Sencor	2.7 oz	POST	60	92	1.90	6.7	4.0
Basagran	3/4 pt	POST	40	64	2.41	5.9	4.6
Basagran	1 2 pt	POST	66	82	2.76	5.4	4.6
MCPA	2 fl.oz	POST	60	61	2.03	7.1	4.3
MCPA	4 fl.oz	POST	55	50	2.52	5.5	4.5
Command + Sencor	2.7 fl.oz + 1.3 oz	PRE + PRE	51	64	2.33	4.8	3.7
Command + Sencor	2.7 fl.oz + 0.7 oz	PRE + POST	39	55	2.57	5.8	4.7
Command + Basagran	2.7 fl.oz + 2/3 pt	PRE + POST	53	63	2.70	4.9	4.1
Command + MCPA	2.7 fl.oz + 1 fl.oz	PRE + POST	69	75	2.47	4.7	3.6
Sencor + Basagran	1.3 oz + 2/3 pt	PRE + POST	73	75	2.21	5.5	4.0
Sencor + MCPA	1.3 oz + 1 fl.oz	PRE + POST	53	69	3.04	5.3	5.1
Sencor + Basagran	0.7 oz + 2/3 pt	POST + POST	61	75	2.44	5.6	4.2
Sencor + MCPA	0.7 oz + 1 fl.oz	POST + POST	53	74	2.29	5.6	3.9
Basagran + MCPA	1/3 pt + 1 fl.oz	POST + POST	63	75	2.37	5.4	3.7
Command + Basagran	10.7 fl.oz + 1 2 pt	PRE + POST	71	97	2.59	5.6	4.8
Untreated	---	---	45	41	2.27	5.3	3.6
LSD <sub>0.05</sub>	---	---	ns	ns	ns	ns	ns

<sup>a</sup>PRE = preemergence; POST = postemergence.

<sup>b</sup>Pea population x 100,000.

Table 2. Crop injury and weed following application of various herbicides.

Treatment	Rate product/a	Weed count no./plot	Pea count no./plot	Pea population <sup>a</sup> plants/a	Pod production pods/plant	Pea yield tons/a
Valor	1 oz	29	83	2.42	3.7	2.7
Valor	1.5 oz	11	89	2.47	4.5	3.3
Valor	1.9 oz	10	85	2.27	4.2	3.0
Valor + Prowl	1 oz + 1.8 pt	34	78	2.30	3.9	2.8
Valor + Prowl	1.5 oz + 1.8 pt	9	79	2.22	5.2	3.7
Valor + Dual Magnum	1 oz + 1 pt	14	78	2.40	4.8	3.5
Valor + Dual Magnum	1.5 oz + 1 pt	11	84	2.22	5.1	3.7
Spartan	1.3 oz	13	86	2.31	4.7	3.5
Spartan	2 oz	12	88	2.81	3.8	3.2
Spartan	2.7 oz	16	89	2.99	3.5	3.2
Spartan	4 oz	22	79	2.46	4.2	3.0
Spartan + Prowl	1.3 oz + 1.8 pt	28	83	2.30	4.7	3.5
Spartan + Prowl	2 oz + 1.8 pt	9	95	2.61	4.1	3.4
Spartan + Dual Magnum	1.3 oz + 1 pt	12	89	3.15	4.2	4.1
Spartan + Dual Magnum	2 oz + 1 pt	15	89	2.96	4.4	4.1
Prowl	1.8 pt	8	79	2.67	4.1	3.3
Dual Magnum	1 pt	14	94	3.09	3.9	3.8
Untreated	---	32	82	2.30	3.8	2.9
LSD <sub>0.05</sub>	---	ns	ns	ns	ns	ns

<sup>a</sup>Pea population x 100,000.