

Evaluation of Chemical Weed Control and Application Timing on Field Pea at Hettinger

Treatment	Application Timing	Product Rate	Crop Stand	----- May 25 -----			----- June 10 -----			-- July 22 --		Seed Yield	
				Inj.	kocz	wibw	Inj.	kocz	wibw	kocz	wibw		
				----- % Control -----								Bu/ac	
* oz/ac				#/ft ²									
1	Untreated		4	0	0	0	0	0	0	0	0	16.2	
2	Spartan	Fall	2	5	0	92	95	0	89	50	82	42	16.7
3	Spartan	Fall	4	4	0	91	95	0	96	94	91	82	20.3
4	Pursuit	Fall	2	4	0	81	82	0	80	99	59	96	23.0
5	Pursuit / Spartan	Fall / PP	2 / 2	4	0	94	92	0	99	97	97	95	21.8
6	Roundup / Spartan	Fall / PP	16 / 2	3	0	94	94	0	98	95	91	88	22.3
7	Spartan / Roundup	Fall / PRE	2 / 16	4	0	92	92	0	90	90	90	86	25.5
8	Spartan / Extreme	Fall / PRE	2 / 24	4	0	95	94	0	93	94	92	97	27.6
9	Spartan / Spartan + Roundup	Fall / PRE	2 / 2 + 16	3	0	96	95	0	99	97	98	97	22.2
10	Spartan / Prowl H ₂ O	Fall / PP	2 / 32	4	1	92	94	0	94	96	92	97	22.3
11	Spartan + Roundup	PP	2 + 16	3	0	92	95	0	96	96	89	94	22.1
12	Spartan + Roundup	PP	6 + 16	3	0	95	95	0	99	94	99	97	20.4
13	Spartan + Roundup	PRE	2 + 16	4	0	90	95	0	96	99	90	91	21.8
14	Spartan + Roundup	PRE	6 + 16	4	0	95	95	0	99	99	99	97	22.5
15	Spartan + Prowl H ₂ O	PP	2 + 32	4	0	94	91	0	91	90	90	92	20.2
16	Extreme	PP	24	3	0	69	90	0	78	98	50	90	22.3
17	Harmony GT + Roundup	PRE	1/6 + 16	3	0	0	0	0	30	28	22	0	16.2
18	Express + Roundup	PRE	1/10 + 16	4	0	0	0	0	0	0	12	0	15.4
19	Roundup	PRE	16	3	0	0	0	0	12	0	9	0	18.8
20	Prowl H ₂ O + Roundup	PRE	32 + 16	5	0	90	95	0	86	52	94	45	22.0
21	Rezult	POST	51	3	--	--	--	0	78	5	55	0	16.5
22	Raptor + Basagran	POST	2 + 16	4	--	--	--	0	88	85	81	86	24.0
23	Pursuit	POST	2	4	--	--	--	0	85	79	75	89	22.1
24	Spartan / Basagran	PP / POST	2 / 16	4	0	92	94	0	97	92	98	90	24.4
Trial Mean				4	0	64	66	0	78	72	73	69	21.1
C.V. %				29.8	566	9.1	7.1	980	7.9	7.2	10.5	10.2	9.7
LSD .05				NS	NS	8	7	NS	9	7	11	10	2.9
LSD .01				NS	NS	11	9	NS	12	10	14	13	3.8

* Application Timing: Fall = 10/12/04, PP (pre-plant) = 4/7/05, PRE (pre-emergence) = 4/20/05, POST (post emergence) = 5/24/05

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Fall treatments (Fall) were applied on October 12, 2004. Pre-plant treatments (PP) were applied on April 7, 2005. 'CDC Mozart' yellow field pea was seeded on April 18. Pre-emergence treatments (PRE) were applied on April 20. Pea emergence was on May 10. Post-emergence (POST) treatments were applied on May 24 to 5 node peas (3 ½"), ¼" kochia and to 1 leaf wild buckwheat. Kochia and wild buckwheat populations were 12 and 0.25 plants / ft², respectively. Treatments were applied with a tractor mounted CO² propelled plot sprayer delivering 10 gpa at 30 psi to 5 foot wide by 20 foot long plots. The experiment was a randomized complete block design with four replications. The trial was sprayed with 9 oz/A Assure II on May 19 to control grassy weeds. Soil pH was 6.6 and soil organic matter was 3.1%. Plots were evaluated for crop stand on May 23, for crop injury on May 25 and on June 10, and for weed control on May 25, June 10 and on July 22. The trial was harvested on July 29.

Summary

Crop stands were very uniform across the trial and Fall, pre-plant and pre-emergence treatments did not appear to cause problems with seed germination or seedling emergence. Crop injury caused by herbicide treatments were inconsistent and very minor when observed. Spartan herbicide applied alone at a low rate in the Fall (trt 2) did not provide adequate season long weed control, however, Fall applied Spartan at the 4 oz/A rate (trt 3) significantly improved weed control and seed yield. Low rates of Fall applied Spartan followed with a spring treatment (trts 7 – 10) provided excellent season long kochia and wild buckwheat control. Spartan treatments applied either pre-plant (trts 6, 11 and 12) or pre-emergence (trts 13 and 14) also provided excellent season long kochia and buckwheat control, regardless of the rate applied. Pursuit herbicide treatments (trts 4 and 23) and Extreme herbicide (which is a pre-mixture of Pursuit and glyphosate) treatment 16, were very effective at controlling wild buckwheat but did not provide adequate control of kochia. The addition of Spartan to these herbicides (trts 5 and 8) picked up kochia control, providing for an excellent herbicide combination. Harmony GT (trt 17), Express (trt 18) and Roundup (trt 19) applied pre-emergence, and Rezult (trt 21) applied post emergence did not provide adequate kochia or wild buckwheat control and seed yields were similar to the untreated check. The pre-emerge Prowl H₂O treatment (trt 20) provided excellent kochia control but was relatively weak on wild buckwheat. The post emergence Raptor + Basagran treatment (trt 22) provided adequate wild buckwheat control but tended to be weaker on kochia. The kochia population in this study is believed to be ALS resistant (resistant to Pursuit, Raptor, Express and Harmony GT herbicides).

In general, Spartan herbicide applied in the Fall, pre-plant or pre-emergence was very effective in controlling kochia and wild buckwheat in this study. Higher rates of Spartan and the addition of Pursuit in Fall applications tended to enhance weed control. Harmony GT and Express herbicides applied pre-emergence did not cause crop injury and did not provide adequate weed control.