

Weed control with soil- and POST-applied herbicides in field pea. Endres, Gregory J., Robert A. Henson, and Blaine G. Schatz. Weed control and field pea response to selected soil- and POST-applied herbicides were evaluated in a randomized complete block with four replicates. The experiment was conducted on a loam soil with 7.2 pH and 2.9% organic matter at Carrington, ND in 2001. The trial area was cultivated on May 9 with a Melroe culti-harrow. Herbicide treatments were made to 5 by 25 ft plots with a CO₂ pressurized hand-held plot sprayer. PPI treatments were applied at 17 gal/A and 30 psi through 8002 flat fan nozzles on May 9 with 79 F, 21% RH, and 14 mph wind. PPI treatments were immediately incorporated twice using a Melroe culti-harrow set at a 2-inch depth. On May 10, inoculated 'Majoret' field pea was planted in 7-inch rows at pure live seed rates of 300,000 seeds/A. Guard plots were planted between treated plots. PRE treatments were applied on a dry soil surface at 17 gal/A and 30 psi through 8002 flat fan nozzles on May 11 with 62 F, 38% RH, 70% clear sky, and 8 mph wind. Late preemergence (LPRE) treatments were applied on a wet soil surface at 18 gal/A and 30 psi through 8002 flat fan nozzles on May 17 with 52 F, 77% RH, 70% clear sky, and 18 mph wind. A total of 0.74 inches of rainfall occurred during the 10-day period following application of PRE treatments. A total of 0.61 inches of rainfall occurred during the 10-day period following application of LPRE treatments. POST treatments were applied at 10 gal/A and 30 psi through 8001 flat fan nozzles. Early postemergence (EPOST) treatments were applied on June 1 with 49 F, 92% RH, 20% clear sky, and 9 mph wind to 2- to 3-inch tall field pea, 3-leaf yellow foxtail, 1-inch tall common lambsquarters, 0.5-inch tall redroot and prostrate pigweed, and 1- to 1.5-inch tall wild buckwheat. POST treatments were applied on June 8 with 64 F, 83% RH, 90% clear sky, and 12 mph wind to 3- to 6-inch tall field pea, 3- to 5-leaf yellow foxtail, 1- to 3-inch tall common lambsquarters, 0.5- to 1-inch tall redroot and prostrate pigweed, and 1.5- to 3-inch tall wild buckwheat. Late postemergence (LPOST) treatments were applied on June 16 with 55 F, 92% RH, 10% clear sky, and 9 mph wind to 6- to 10-inch tall field pea, 4- to 5-leaf yellow foxtail, 2- to 6-inch tall common lambsquarters, 0.5- to 4-inch tall redroot and prostrate pigweed, and 2- to 6-inch tall wild buckwheat. Field pea was harvested with a plot combine on August 10.

Good to excellent (86 to 99%) weed control was achieved with all PPI and LPRE treatments (Table 1). Sulfentrazone at 0.25 lb/A improved common lambsquarters and pigweed control, and increased seed yield compared to the low rate (Table 2). Weed control and pea response generally was not impacted by application timing of imazamox. Imazethapyr and imazamox generally provided similar weed control and yield. The addition of Quad7 injured the crop (growth reduction), but four of six treatments with Quad7 were in the high-yielding group. Bentazon&sethoxydim+MSO provided poor weed control and yield. (Carrington Research Extension Center, North Dakota Agric. Exp. Stn., North Dakota State Univ., Carrington.)

Table 1. Weed control in field pea (Endres, Henson, and Schatz).

Treatment ^a	Rate (lb/A)	4 wk after treatment				8 wk after treatment			
		Pigweed				Pigweed			
		SETLU	CHEAL	spp. ^b	POLCO	SETLU	CHEAL	spp.	POLCO
		----- (% control) -----							
Untreated	---	0	0	0	0	0	0	0	0
<u>PPI</u>									
Imazethapyr &pendimethalin	0.033&0.5	93	93	97	94	88	90	99	99
	0.049&0.75+								
Imep&pend+pend	0.66	98	96	98	98	88	88	91	88
	0.033&0.5+								
Imep&pend+pend	0.94	97	98	99	89	94	88	96	82
Pend/imep+bent- azon&sethoxymim +Quad7(POST)	1.46/0.031+1 &0.2+1%	95	99	93	93	99	96	96	94
Pend/imep+bent& seth+Quad7 (POST)	1.46/0.016+1 &0.2+1%	95	91	92	99	94	91	96	99
<u>PRE</u>									
Sulfentrazone/seth +MSO (POST)	0.125/0.2+ 2pt	96	77	68	65	96	79	60	73
Suen/seth+MSO (POST)	0.25/0.2+2pt	93	99	88	72	92	99	80	85
<u>LPRE</u>									
Glyphosate&imep+ NIS&UAN	0.42&0.047+ 2pt	95	99	92	99	86	98	91	97
<u>EPOST</u>									
Imazamox+NIS	0.031+0.25%	88	81	98	85	91	86	99	83
<u>POST</u>									
	0.031+0.5+								
Imep+bent+Quad7	1%	90	92	77	78	93	86	77	72
Immx+bent+ Quad7	0.031+0.5+ 1%	92	84	91	83	93	86	96	68
Imep+bent&seth+ Quad7	0.031+1&0.2+ 1%	93	98	96	89	88	99	97	88
Immx+bent&seth+ Quad7	0.016+1&0.2+ 1%	83	94	93	89	78	96	94	91
Imep+NIS	0.031+0.25%	90	66	90	81	97	70	99	83
Immx+NIS	0.031+0.25%	84	76	97	82	93	88	99	81
Bent&seth+MSO	1&0.2+2pt	65	40	55	35	57	47	57	48
<u>LPOST</u>									
Immx+NIS	0.031+0.25%	82	73	81	67	86	83	96	73
LSD (0.05)		6	15	9	21	11	16	13	18

^aQuad7=a surfactant blend from AGSCO, Grand Forks, ND; MSO=Destiny, a methylated seed oil from Agrilience, St. Paul, MN; NIS=Induce, a nonionic surfactant from Helena Chemical Co., Memphis, TN; NIS&UAN=Class APM 28, a surfactant+fertilizer from Cenex, St. Paul, MN.

^bPigweed spp.=Redroot and prostrate.

Table 2. Field pea response to herbicide treatments (Endres, Henson, and Schatz).

Treatment ^a	Rate (lb/A)	Stand reduction		Seed yield (bu/A)
		2 WAT ----- (%) -----	4 WAT -----	
Untreated		0	0	44.5
<u>PPI</u>				
Imazethapyr&pendimethalin	0.033&0.5	0	0	56.3
Imep&pend+pend	0.049&0.75+0.66	0	0	63.0
Imep&pend+pend	0.033&0.5+0.94	0	0	61.3
Pend/imep+bentazon&sethoxydim +Quad7(POST)	1.46/0.031+1&0.2+1%	29	19	62.8
Pend/imep+bent& seth+Quad7 (POST)	1.46/0.016+1&0.2+1%	26	18	62.5
<u>PRE</u>				
Sulfentrazone/seth+MSO (POST)	0.125/0.2+ 2pt	0	0	52.2
Suen/seth+MSO (POST)	0.25/0.2+2pt	0	0	60.9
<u>LPRE</u>				
Glyphosate&imep+NIS&UAN	0.42&0.047+2pt	0	0	64.4
<u>EPOST</u>				
Imazamox+NIS	0.031+0.25%	0	0	63.1
<u>POST</u>				
Imep+bent+Quad7	0.031+0.5+1%	12	3	61.0
Immx+bent+Quad7	0.031+0.5+1%	22	15	62.6
Imep+bent&seth+Quad7	0.031+1&0.2+1%	27	18	57.0
Immx+bent&seth+Quad7	0.016+1&0.2+1%	26	18	55.4
Imep+NIS	0.031+0.25%	3	3	56.3
Immx+NIS	0.031+0.25%	0	0	58.0
Bent&seth+MSO	1&0.2+2pt	0	0	42.7
<u>LPOST</u>				
Immx+NIS	0.031+0.25%	0	0	61.5
LSD (0.05)		5	4	7.1

^aQuad7=a surfactant blend from AGSCO, Grand Forks, ND; MSO=Destiny, a methylated seed oil from Agrilience, St. Paul, MN; NIS=Induce, a nonionic surfactant from Helena Chemical Co., Helena, TN; NIS&UAN=Class APM 28, a surfactant+fertilizer from Cenex, St. Paul, MN.