

Pea herbicide management trial at Waseca, MN - 2000. Becker, Roger L., Vincent A. Fritz, James B. Hebel, Douglas W. Miller, and Bradley D. Kinkaid. The objective of this experiment was to evaluate weed control and pea injury with several soil applied and postemergence herbicides. This study was conducted on a Webster clay loam soil with pH 6.4. A randomized complete block design with three reps was utilized. Plot size was 10 feet by 20 feet. 'Brule 297' peas were seeded at 550,000 plants/A on May 23, 2000. Herbicide application data are provided below. Weed control data are provided in the tables below.

Application Data

Treatment	PPI	PRE	POST
Date	5/4/00	5/23/00	6/17/00
Air Temp (°F)	72	70	65
Sky	partly cloudy	partly cloudy	partly cloudy
Wind (mph)	S 10-15	NW 5-10	W 0-5
Peas			
Stage	--	--	3-6 nodes
Weeds			
Size (inch)	--	--	1-3
Rainfall before Application			
Week 1 (inch)	0.00	3.46	2.08
Rainfall after Application			
Week 1 (inch)	0.75	1.08	1.34
Week 2 (inch)	3.41	5.00	0.55

The pea herbicide screening area was under water two times during the study. Excessive rainfall in late May and early June flooding 85% of rep 3 and 60% of rep 2. This flooding resulted in erratic weed control and high LSD values. About the only take-home message from weed control in the study was the expected trends of common lambsquarter control being lower with clomazone and trifluralin treatments, and redroot pigweed escaped in clomazone treated plots compared to other herbicide options (Table 1.). The most notable outcome of this study was pea injury, particularly where peas were temporarily under standing water (Table 2.). Of note was the severe injury with metolachlor which was most evident early as chlorosis which evolved into necrotic plant tissue and long term, severe growth reduction. Sulfentrazone also caused severe growth reduction that persisted, however, the sulfentrazone rate was higher than rates likely to be used if labeled for this crop. CGA 248757 (Action) caused lingering injury that was not seen in past trials. Bentazon caused significant growth reduction which persisted compared to other possible alternative treatments such as clomazone or imadazolinone and dinitroaniline herbicides. (Department of Agronomy and Plant Genetics, University of Minnesota, St. Paul).

Table 1. Pea herbicide weed management trial at Waseca, MN - 2000. (Becker et al.)

Treatment ¹	Rate ¹ (lb ai/A)	Weed control								
		Gift		Cocb		Colq		Rrpw		Vele
		6/30	7/14	6/30	7/14	6/30	7/14	6/30	7/14	6/30/7/14
		----- (%) -----								
Preplant Incorporated										
Trifluralin	0.75	96	89	0	23	76	70	83	68	37 23
Pendimethalin	1.5	96	96	17	35	99	83	99	98	67 43
Clomazone ²	0.5	88	87	38	51	72	84	0	27	62 98
Clomazone ² + trifluralin	0.5 + 0.375	78	70	20	40	73	83	28	72	50 86
Clomazone ³ + trifluralin	0.5 + 0.375	88	77	34	63	56	61	26	71	56 66
Pendimethalin + imazethapyr	0.75 + 0.032	96	85	65	71	96	99	99	99	94 99
Preemergence										
Clomazone ³	0.5	98	96	19	48	93	89	26	36	93 99
Sulfentrazone	0.31	98	84	75	72	99	96	99	99	98 99
Metolachlor & CGA-154281 ⁴	3.0	99	99	0	39	98	99	85	99	65 64
Postemergence										
Imazamox + NIS ⁵ + 28%N ⁶	0.032 + 0.25% + 1.25%	99	99	89	99	99	99	99	99	99 99
Imazethapyr + NIS + 28%N	0.047 + 0.25% + 1.25%	--	97	--	48	--	99	--	99	-- 93
CGA 248757 + imazethapyr + NIS + 28%N	0.0036 + 0.047 + 0.25% + 1.25%	99	99	98	99	100	99	100	99	100 99
Quizalofop + COC ⁷ + NIS	0.096 + 1.0% + 0.25%	99	99	--	--	--	--	--	--	-- --
Preplant Incorporated and (Postemergence)										
Trifluralin + (CGA 248757 + COC)	0.75 + (0.0045 + 1.25%)	98	87	98	92	99	96	99	96	99 99
Trifluralin + CGA 248757 + bentazon + COC)	0.75 + (0.0036 + 1.0 + 1.25%)	96	88	99	96	100	99	100	99	99 99
Trifluralin + (bentazon + COC)	0.75 + (1.0 + 1.25%)	87	76	99	99	99	99	99	98	99 99
Trifluralin + (MCPB)	0.75 + (0.75)	90	87	98	99	98	99	96	88	83 73
Handweeded check		100	100	100	100	100	100	100	100	100 100
Weedy check		--	--	--	--	--	--	--	--	-- --
LSD (0.05)		11	17	24	29	21	24	23	28	30 29

¹ Treatments and rates in parenthesis represent a separate application.² Command 4EC³ Command 3ME.⁴ Dual II.⁵ NIS = Class Preference nonionic surfactant.⁶ 28%N = 28% UAN fertilizer solution.⁷ COC = Class Crop Oil Concentrate.

Table 2. Pea herbicide weed management trial at Waseca, MN - 2000. (Becker et al.)

Treatment ³	Rate ³ (lb ai/A)	Pea Injury			
		Necrosis	S.R. ¹	G.R. ²	G.R.
		6/30	7/14	6/30	7/14
		----- (%) -----			
Preplant Incorporated					
Trifluralin	0.75	0	0	0	0
Pendimethalin	1.5	0	3	9	7
Clomazone ²	0.5	0	3	9	5
Clomazone ² + trifluralin	0.5 + 0.375	0	5	10	5
Clomazone ³ + trifluralin	0.5 + 0.375	0	2	9	5
Pendimethalin + imazethapyr	0.75 + 0.032	0	0	16	12
Preemergence					
Clomazone ³	0.5	0	1	10	10
Sulfentrazone	0.31	0	12	43	68
Metolachlor & CGA-154281 ⁴	3.0	14	10	37	56
Postemergence					
Imazamox + NIS ⁵ + 28%N ⁶	0.032 + 0.25% + 1.25%	0	0	7	8
Imazethapyr + NIS + 28%N	0.047 + 0.25% + 1.25%	--	--	--	0
CGA 248757 + imazethapyr + NIS + 28%N	0.0036 + 0.047 + 0.25% + 1.25%	21	3	18	28
Quizalofop + COC ⁷ + NIS	0.096 + 1.0% + 0.25%	0	0	4	0
Preplant Incorporated and (Postemergence)					
Trifluralin + (CGA 248757 + COC)	0.75 + (0.0045 + 1.25%)	27	0	19	32
Trifluralin + CGA 248757 + bentazon + COC)	0.75 + (0.0036 + 1.0 + 1.25%)	9	2	18	27
Trifluralin + (bentazon + COC)	0.75 + (1.0 + 1.25%)	1	5	22	31
Trifluralin + (MCPB)	0.75 + (0.75)	0	0	7	7
Handweeded check		3	0	11	10
Weedy check		0	3	7	3
LSD (0.05)		10	ns	15	15

¹ Treatments and rates in parenthesis represent a separate application.

² Command 4EC

³ Command 3ME.

⁴ Dual II.

⁵ NIS = Class Preference nonionic surfactant.

⁶ 28%N = 28% UAN fertilizer solution.

⁷ COC = Class Crop Oil Concentrate.