

Weed Control in Snap Beans

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The program started in 1987 in anticipation of the loss of the registration status of dinoseb for use in snapbean production was continued in 1988 with the same objectives:

1. Obtain data on the weed control efficacy and crop safety of herbicides currently registered for use in snapbeans.
2. Identify other herbicides not currently registered in snapbeans which may serve as a substitute for dinoseb.
3. Obtain data which could be used toward the registration of suitable herbicides.
4. Develop recommendations of weed control options for growers in the Willamette Valley of Oregon.

Six field trials at three sites were established using procedures similar to those reported in 1987. At two grower-cooperator locations one trial each evaluated registered and unregistered herbicides. At the Oregon State University Vegetable Research Farm one trial included both registered and unregistered herbicides of potential value for selective weed control in beans and one trial was designed to evaluate interactions between herbicides and precipitation (rainfall or sprinkler irrigation). A complex design was used for this last trial to compare irrigation immediately after the preemergence herbicide application with delayed irrigation, to measure relative to the amount of irrigation applied (line-source technique), and to evaluate the interaction between herbicide and water relative to crop response to herbicides and crop response to competition from weeds.

Experimental procedures, treatment lists the recorded data with analyses, and a brief discussion of the results are included in this report

for each experiment or set of experiments. Discussion of the irrigation interaction study is pending statistical analysis of the results.

EXPERIMENTAL PROCEDURES

Ray Kauer Farm

The first two 1988 Alternatives to Dinoseb field trials were established on 4-26-88, at the Ray Kauer farm located approximately five miles Northeast of Amity OR, near the community of Whiteson. Trial A contained 18 herbicide treatments, all with materials and combinations which are currently registered for use in snap beans in the Willamette valley. This treatment list included an EPTC-Treflan-Premerge treatment. Trial B had 20 treatments, which were made up of non-registered materials alone, and also in combination with registered materials. An EPTC-Treflan-Premerge treatment was included in this trial also.

The soil series at this site was a Woodburn silty clay loam. The previous crop was sweet corn. Site preparation was accomplished by discing, followed by chisel plowing two times, followed by a dixon harrow and cultipacker. Next, the site was rototilled. 275 lbs./acre of 16-0-36 was incorporated before planting. 300 lbs./acre of 13-39-0 fertilizer was banded at planting.

Prior to planting, preplant incorporated treatments (ppi) were applied to both tests. This operation was followed by incorporation, 3-4 inches deep with a rototiller. The site was planted with OSU 91-G snap beans, 30 inches between rows, 0.75 inches deep. Seeding rate was 10 seeds per foot of row, which amounted to 60 to 70 lbs. of seed per acre. Following planting, both tests site were rolled. Preemergence (pre) treatments were then applied to both tests. Test B was irrigated by overhead sprinklers on 4/27/88. 0.33 to 0.50 inch of water was applied. Frequent rainfall occurred for the next

two weeks.

A randomized complete block experimental design was used, with four replications. The plot size was 8x30 feet with a 1 foot boader between plots. Treatments were applied with a compressed air propelled, uni-cycle, small plot sprayer. Treatments were broadcast with water at 22.68 gallons per acre at 30psi pressure. The sprayer had five 8003 nozzles.

Evaluations for crop injury and weed control were taken on 5/18/88, 6/1/88, and 6/30/88. The predominate weed species present in these trials were; red root pigweed (Amaranthus retroflexus), pineapple weed (Matricaria matricariodes), dog fennel (Anthemis cotula), annual bluegrass (Poa annua), and escaped cabbage.

All plots in the 2 trials were harvested on 7/20/88. 10 feet of the center row within each plot was harvested and weighed for a yield comparison between treatments. The 4 replications of each treatment were then bulked and graded together.

Vegetable Farm

The third 1988 Alternatives to Dinoseb, snap bean field experiment was established on 5-25-88, at the Oregon State University Vegetable Research Farm in Corvallis. This trial included all the treatments in the two trial at the Kauer farm, including both the registered and the non-registered treatments.

The soil series at the site was a Chehalis silty clay loam with 3.3% organic matter, and a pH of 6.5. The site was planted in a variety of crops during the previous season. One half was fallow, one quarter was planted in sweet corn, and the remaining quarter had been used in a vegetable crop-metalochor herbicide trial.

Sited preparation included moldboard plowing, followed by 4 passes with

a rotera. The soil was then subjected to 2 passes with a gyrospike and 3 passes with a land roller. 2 Lbs./acre of dyfonate was incorporated for symplum control. 450 lbs./acre of 12-29-10-8 fertilizer was banded in at the time of planting. Preplant incorporated treatments were applied on 5-25-88 and incorporated in with a rotera. OSU 91-G snap beans were then planted, 36 inches between rows. Seeding depth was 1.5-2.0 inches deep and the in-row spacing was approximately 1 seed per 1.5 inches of row. Preemergence treatments were then applied on 5-26-88. Spray application methods were identical to those at the Kauer farm trials. The entire site was then irrigated with 0.5 inches of water. The entire trial was then overseeded with diakon sprouting radish and annual ryegrass. Heavy rainfall occurred for the next week.

Evaluations for crop injury and weed control occurred on 6-14-88, and 7-6-88. The predominate weed species present were; diakon radish (Raduphanus sativus), annual ryegrass (Lolium multiflorum) and hairy nightshade (Solanum sarachoides). All plots were harvested on 8-2-88. The harvest methods were identical to those used at the Kauer farm trials.

Roger Hildebrandt Farm

The next two Alternatives to Dinoseb in snap beans field trials for 1988 were established on 6-17-88 at the Roger Hildebrant farm, located on Grand Island, about 15 miles north of Salem OR, near the community of Unionvale. Trial A at this site was identical to trial A at the Ray Kauer farm. Trial B, included all the treatments of trial B at the Kauer farm, but also included 6 additional treatments made up with differing rates and combinations of Reflex, a herbicide from ICI.

The soil series at the site is a Newburg fine sandy loam. The site had been planted in sweet corn the previous growing season. Site preparation was

accomplished by; first discing, followed by rip plowing and then passes with a cultipacker. Fertilizer was banded in at the time of planting.

Preplant incorporated treatments were then applied and incorporated to a depth of 3 inches using a rototiller. The site was then planted to OR 91-G snap beans at the rate of 12.5 seeds per foot of row. Between row spacing was 30 inches. The preemergence treatments were then applied. Both trials received irrigation the following day. Post-emergence sprays were applied to trial B on 7-1-88, 2 weeks later. At this timing, the bean's first trifoliolate leaves were just emerging. As with the 3 trials, both A and B were randomized complete block designs, with four replications. Spray application details are identical to the 3 previously mentioned sites.

Crop injury ratings were taken on both sites 7-1-88 and 8-11-88. Crop injury ratings were also taken on 7-11-88 on plots which had received post-emergence treatments as well as on the weedy check treatments. A weed control rating was recorded on 8-11-88. The major weed species present was redroot pigweed. Test B was harvested on 8-31-88 in a similar fashion to the other three trials. Test A was not harvested.

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Ray Kauer Farm Amity OR
Test A

TREATMENT LIST

TRT. NUM.	COMPOUND TESTED	FORMUL. AI/UNIT	RATE LBai/A	APPLIC. TYPE
01A	TREFLAN	EC 4.00	0.75	PPI
02A	PROWL	EC 4.00	1.50	PPI
03A	GENEP	EC 7.00	3.50	PPI
04A	DUAL	EC 8.00	2.00	PRE
05A	DUAL	EC 8.00	2.00	PPI
06A	DUAL	EC 8.00	3.00	PPI
07A	AMIBEN	DF 75%	2.50	PRE
08A	TREFLAN	EC 4.00	0.75	PPI
08B	DUAL	EC 8.00	2.00	PPI
09A	PROWL	EC 4.00	1.50	PPI
09B	DUAL	EC 8.00	2.00	PPI
10A	GENEP	EC 7.00	3.50	PPI
10B	DUAL	EC 8.00	2.00	PRE
11A	GENEP	EC 7.00	3.50	PPI
11B	AMIBEN	DF 75%	2.50	PRE
12A	DUAL	EC 8.00	2.00	PRE
12B	AMIBEN	DF 75%	2.50	PRE
13A	TREFLAN	EC 4.00	0.75	PPI
13B	GENEP	EC 7.00	3.50	PPI
13C	AMIBEN	DF 75%	2.50	PRE
14A	TREFLAN	EC 4.00	0.75	PPI
14B	GENEP	EC 7.00	3.50	PPI
14C	DUAL	EC 8.00	2.00	PPI
15A	TREFLAN	EC 4.00	0.75	PPI
15B	GENEP	EC 7.00	3.50	PPI
15C	DUAL	EC 8.00	2.00	PRE
16A	TREFLAN	EC 4.00	0.75	PPI
16B	GENEP	EC 7.00	3.50	PPI
16C	PREMERGE	EC 3.00	4.50	PRE
17A	GENEP	EC 7.00	3.50	PPI
17B	DUAL	EC 8.00	2.00	PRE
17C	AMIBEN	DF 75%	2.50	PRE
18A	CHECK			

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Roger Hildebrandt Farm Grand Island OR
Test A

TREATMENT LIST

TRT. NUM.	COMPOUND TESTED	FORMUL. AI/UNIT	RATE LBai/A	APPLIC. TYPE
01A	TREFLAN	EC 4.00	0.75	PPI
02A	PROWL	EC 4.00	1.50	PPI
03A	EPTAM	EC 7.00	3.50	PPI
04A	DUAL	EC 8.00	2.00	PRE
05A	DUAL	EC 8.00	2.00	PPI
06A	DUAL	EC 8.00	3.00	PPI
07A	AMIBEN	DF 75%	2.50	PRE
08A	TREFLAN	EC 4.00	0.75	PPI
08B	DUAL	EC 8.00	2.00	PPI
09A	PROWL	EC 4.00	1.50	PPI
09B	DUAL	EC 8.00	2.00	PPI
10A	EPTAM	EC 7.00	3.50	PPI
10B	DUAL	EC 8.00	2.00	PPI
11A	EPTAM	EC 7.00	3.50	PPI
11B	AMIBEN	DF 75%	2.50	PRE
12A	DUAL	EC 8.00	2.00	PRE
12B	AMIBEN	DF 75%	2.50	PRE
13A	TREFLAN	EC 4.00	0.75	PPI
13B	EPTAM	EC 7.00	3.50	PPI
13C	AMIBEN	DF 75%	2.50	PRE
14A	TREFLAN	EC 4.00	0.75	PPI
14B	EPTAM	EC 7.00	3.50	PPI
14C	DUAL	EC 8.00	2.00	PPI
15A	TREFLAN	EC 4.00	0.75	PPI
15B	EPTAM	EC 7.00	3.50	PPI
15C	DUAL	EC 8.00	2.00	PRE
16A	TREFLAN	EC 4.00	0.75	PPI
16B	EPTAM	EC 7.00	3.50	PPI
16C	PREMERGE	EC 3.00	4.50	PRE
17A	EPTAM	EC 7.00	3.50	PPI
17B	DUAL	EC 8.00	2.00	PRE
17C	AMIBEN	DF 75%	2.50	PRE
18A	CHECK			

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Ray Kauer Farm Amity OR
Test A

CROP INJURY AND HARVEST AVERAGES

DATE OF RATING: TRT. NO. NAME	%INJURY			YIELD
	BEANS 5-18-88	BEANS 6-1-88	BEANS 6-30-88	TONS/ACRE 7-20-88
01 TREFLAN	8	0	6	7.4
02 PROWL	16	5	44	4.7
03 GENEP	3	3	4	6.5
04 DUAL	0	0	0	7.2
05 DUAL	0	0	1	6.5
06 DUAL	1	0	0	6.4
07 AMIBEN	1	0	9	6.5
08 TREFLAN	6	0	10	6.6
DUAL				
09 PROWL	21	15	50	4.1
DUAL				
10 GENEP	0	0	0	8.0
DUAL				
11 GENEP	1	3	3	7.2
AMIBEN				
12 DUAL	1	1	5	6.7
AMIBEN				
13 TREFLAN	6	1	6	6.6
GENEP				
AMIBEN				
14 TREFLAN	8	1	13	6.4
GENEP				
DUAL				
15 TREFLAN	5	0	6	6.5
GENEP				
DUAL				
16 TREFLAN	9	3	5	7.0
GENEP				
PREMERGE				
17 GENEP	4	0	4	7.1
DUAL				
AMIBEN				
18 CHECK	1	0	0	2.6
LSD(0.05) =	5	3	9	1.7
STD DEVIATION =	4	2	6	1.2
CV =	74	134	70	18.6

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Ray Kauer Farm
Test A

BEAN GRADES BY TREATMENT

TRT.		GRADE 1&2T/A	GRADE #3T/A	GRADE #4T/A	GRADE #5T/A	GRADE #6T/A	GRADE CUL T/A	GRADE 1-4 T/A	TOTAL 1-7 T/A	% 1-4 OF TOTL
01	TREFLAN	1.1	1.7	1.9	1.8	.4	0	4.7	6.9	68
02	PROWL	.8	1.1	1.1	.9	.3	0	3.0	4.2	71
03	GENEP	1.1	1.4	1.7	1.5	.7	.5	4.2	6.9	61
04	DUAL	1.0	1.4	1.9	1.9	.6	0	4.3	6.8	63
05	DUAL	1.0	1.3	1.7	1.5	.3	0	4.0	5.8	69
06	DUAL	.9	1.4	1.6	1.6	.3	0	3.9	5.8	67
07	AMIBEN	.8	1.4	1.7	1.7	.4	.1	3.9	6.1	64
08	TREFLAN	1.0	1.6	1.7	1.5	.5	.1	4.3	6.4	67
	DUAL									
09	PROWL	.7	1.0	1.1	.8	.3	0	2.8	3.9	72
	DUAL									
10	GENEP	.9	1.7	2.0	2.4	.6	0	4.6	7.6	61
	DUAL									
11	GENEP	.9	1.7	1.8	1.9	.3	0	4.4	6.6	67
	AMIBEN									
12	DUAL	.9	1.5	1.7	1.9	.4	.1	4.1	6.5	63
	AMIBEN									
13	TREFLAN	1.1	1.7	1.7	1.5	.2	0	4.5	6.2	73
	GENEP									
	AMIBEN									
14	TREFLAN	1.0	1.5	1.6	1.5	.3	.1	4.1	6.0	68
	GENEP									
	DUAL									
15	TREFLAN	.9	1.5	1.7	1.7	.4	.1	4.1	6.3	65
	GENEP									
	DUAL									
16	TREFLAN	1.0	1.7	1.8	1.5	.3	.1	4.5	6.4	70
	GENEP									
	PREMERGE									
17	GENEP	1.0	1.5	1.9	1.9	.4	0	4.4	6.7	66
	DUAL									
	AMIBEN									
18	CHECK	.7	.7	.6	.4	.1	0	2.0	2.5	80

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Ray Kauer Farm Amity OR
Test A

WEED CONTROL RATING AVERAGES

DATE OF RATING: TRT. NO. NAME	%CONTROL					
	PIGWEEED 6-1-88	PINAPLE 6-1-88	DOGFENL 6-1-88	BLUEGRS 6-1-88	PIGWEEED 6-30-88	CABBAGE 6-30-88
01 TREFLAN	86	76	96	73	92	8
02 PROWL	85	91	90	26	79	8
03 GENEPE	96	80	93	90	69	58
04 DUAL	100	99	96	28	94	21
05 DUAL	54	68	73	58	63	3
06 DUAL	85	79	81	63	69	40
07 AMIBEN	96	78	76	36	76	46
08 TREFLAN	94	75	69	70	90	21
DUAL						
09 PROWL	96	85	81	19	86	19
DUAL						
10 GENEPE	100	100	98	90	97	49
DUAL						
11 GENEPE	100	75	85	98	89	69
AMIBEN						
12 DUAL	100	69	75	80	100	80
AMIBEN						
13 TREFLAN	100	86	96	95	99	61
GENEPE						
AMIBEN						
14 TREFLAN	100	81	99	92	93	83
GENEPE						
DUAL						
15 TREFLAN	100	90	98	95	100	95
GENEPE						
DUAL						
16 TREFLAN	100	96	96	98	99	100
GENEPE						
PREMERGE						
17 GENEPE	100	95	98	96	100	98
DUAL						
AMIBEN						
18 CHECK	0	0	0	0	0	0
LSD(0.05) =	19	44	25	34	11	31
STD DEVIATION =	13	30	18	23	8	22
CV =	15	38	21	35	9	46

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Roger Hildebrandt Farm Grand Island OR
Test A

DATE OF RATING: TRT.	NO.	NAME	% INJURY		% CONTROL
			BEANS 7-1-88	BEANS 8-11-88	PIGWEEED 8-11-88
	01	TREFLAN	0	0	100
	02	PROWL	0	0	100
	03	EPTAM	0	0	100
	04	DUAL	0	0	83
	05	DUAL	0	0	85
	06	DUAL	0	0	99
	07	AMIBEN	0	0	100
	08	TREFLAN	0	0	100
		DUAL			
	09	PROWL	0	0	96
		DUAL			
	10	EPTAM	0	0	100
		DUAL			
	11	EPTAM	0	0	100
		AMIBEN			
	12	DUAL	0	0	96
		AMIBEN			
	13	TREFLAN	0	0	100
		EPTAM			
		AMIBEN			
	14	TREFLAN	0	0	100
		EPTAM			
		DUAL			
	15	TREFLAN	0	0	100
		EPTAM			
		DUAL			
	16	TREFLAN	0	0	99
		EPTAM			
		PREMERGE			
	17	EPTAM	0	0	100
		DUAL			
		AMIBEN			
	18	CHECK	0	0	0
		LSD(0.05) =	NA	NA	11
		STD DEVIATION =	NA	NA	8
		CV =	NA	NA	8

DISCUSSION

Ray Kauer Farm, Test A and Roger Hidebrandt Farm Test A

In these two trials evaluating registered herbicides for selective weed control in beans, significant crop injury occurred only in plots treated with Prowl. This herbicide was used at the high end of the application rate scale which may have been inappropriate for the soils present at the Kauer site where this injury was observed.

Inadequate weed control with treatments 1-9, again mostly at the Kauer site, was associated with single herbicides or combinations that were ineffective in controlling one or more weed species present. Treatment 10 (Genep/Dual) did not control cabbage, the only cruciferous species evaluated, and treatment 13 (Treflan/Genep/Amiben) was only marginally effective in this respect.

Other herbicide combinations in these trials were not significantly different from the standard treatment (Treatment 16 - Treflan/Genep/Premerge) in either weed control or crop response. Outstanding among these were Treatment 17 (Genep/Dual/Amiben) and Treatment 15 (Treflan/Genep/Dual). Treatment 10 (Genep/Dual) performed quite well in these trials and may be useful in situations where cruciferous weeds are not a problem.

From the bean grade data, it appeared that there were no materials that severely influenced bean maturity. This remained constant through the rest of the 1988 trials.

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ALTERNATIVES FOR DINOSEB IN SNAPBEANS, 1988

Ray Kauer Farm Amity OR
Test B

TREATMENT LIST

TRT. NUM.	COMPOUND TESTED	FORMUL. AI/UNIT	RATE LBai/A	APPLIC. TYPE
01A	PURSUIT	SC 2.00	.062	PRE
02A	PURSUIT	SC 2.00	.062	PPI
03A	COBRA	EC 2.00	0.25	PRE
04A	COBRA	EC 2.00	0.50	PRE
05A	COMMAND	EC 4.00	0.50	PPI
06A	COMMAND	EC 4.00	1.00	PPI
07A	TREFLAN	EC 4.00	0.75	PPI
07B	PURSUIT	SC 2.00	0.062	PPI
08A	GENEP	EC 7.00	3.50	PPI
08B	PURSUIT	SC 2.00	0.062	PRE
09A	DUAL	EC 8.00	2.00	PRE
09B	PURSUIT	SC 2.00	.062	PRE
10A	TREFLAN	EC 4.00	0.75	PPI
10B	COBRA	EC 2.00	0.25	PRE
11A	GENEP	EC 7.00	3.50	PPI
11B	COBRA	EC 2.00	0.25	PRE
12A	DUAL	EC 8.00	2.00	PRE
12B	COBRA	EC 2.00	0.25	PRE
13A	TREFLAN	EC 4.00	0.75	PPI
13B	COMMAND	EC 4.00	0.50	PPI
14A	GENEP	EC 7.00	3.50	PPI
14B	COMMAND	EC 4.00	0.50	PPI
15A	DUAL	EC 8.00	2.00	PPI
15B	COMMAND	EC 4.00	0.50	PPI
16A	PURSUIT	SC 2.00	0.062	PPI
16B	COMMAND	EC 4.00	0.50	PPI
17A	COBRA	EC 2.00	0.25	PRE
17B	COMMAND	EC 4.00	0.50	PPI
18A	TREFLAN	EC 4.00	0.75	PPI
18B	GENEP	EC 7.00	3.50	PPI
18C	DUAL	EC 8.00	2.00	PRE
19A	TREFLAN	EC 4.00	0.75	PPI
19B	GENEP	EC 7.00	3.50	PPI
19C	PREMERGE	EC 3.00	4.50	PRE
20A	CHECK			

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Roger Hildebrandt Farm Grand Island OR
Test B

TREATMENT LIST

TRT. NUM.	COMPOUND TESTED	FORMUL. AI/UNIT	RATE LBai/A	APPLIC. TYPE
01A	PURSUIT	SC 2.00	.062	PRE
02A	PURSUIT	SC 2.00	.062	PPI
03A	COBRA	EC 2.00	0.25	PRE
04A	COBRA	EC 2.00	0.50	PRE
05A	COMMAND	EC 4.00	0.50	PPI
06A	COMMAND	EC 4.00	1.00	PPI
07A	TREFLAN	EC 4.00	0.75	PPI
07B	PURSUIT	SC 2.00	.062	PPI
08A	EPTAM	EC 7.00	3.50	PPI
08B	PURSUIT	SC 2.00	0.062	PPI
09A	DUAL	EC 8.00	2.00	PRE
09B	PURSUIT	SC 2.00	.062	PRE
10A	TREFLAN	EC 4.00	0.75	PPI
10B	COBRA	EC 2.00	0.25	PRE
11A	EPTAM	EC 7.00	3.50	PPI
11B	COBRA	EC 2.00	0.25	PRE
12A	DUAL	EC 8.00	2.00	PRE
12B	COBRA	EC 2.00	0.25	PRE
13A	TREFLAN	EC 4.00	0.75	PPI
13B	COMMAND	EC 4.00	0.50	PPI
14A	EPTAM	EC 7.00	3.50	PPI
14B	COMMAND	EC 4.00	0.50	PPI
15A	DUAL	EC 8.00	2.00	PPI
15B	COMMAND	EC 4.00	0.50	PPI
16A	PURSUIT	SC 2.00	0.062	PPI
16B	COMMAND	EC 4.00	0.50	PPI
17A	COBRA	EC 2.00	0.25	PRE
17B	COMMAND	EC 4.00	0.50	PPI

OREGON UNIVERSITY

ALTERNATIVES IN SNAP BEANS, 1988

Roger Hildebrandt Farm Grand Island OR
Test B

TREATMENT LIST (Continued)

TRT. NUM.	COMPOUND TESTED	FORMUL. AI/UNIT	RATE LBai/A	APPLIC. TYPE
18A	TREFLAN	EC 4.00	0.75	PPI
18B	EPTAM	EC 7.00	3.50	PPI
18C	DUAL	EC 8.00	2.00	PRE
19A	TREFLAN	EC 4.00	0.75	PPI
19B	EPTAM	EC 7.00	3.50	PPI
19C	PREMERGE	EC 3.00	4.50	PRE
20A	SURPASS	EC 6.70	6.14	PPI
21A	REFLEX	SC 2.00	0.375	POST
21B	X-77	EC 1.00	.0567	POST
22A	REFLEX	SC 2.00	0.250	POST
22B	X-77	EC 1.00	.0567	POST
22C	EPTAM	EC 7.00	3.50	PPI
23A	REFLEX	SC 2.00	0.375	POST
23B	X-77	EC 1.00	.0567	POST
23C	EPTAM	EC 7.00	3.50	PPI
24A	REFLEX	SC 2.00	0.500	POST
24B	X-77	EC 1.00	.0567	POST
24C	EPTAM	EC 7.00	3.50	PPI
25A	REFLEX	SC 2.00	0.500	PRE
25B	EPTAM	EC 7.00	3.50	PPI
26A	CHECK			

OREGON STATE UNIVERSITY

ALTERNATIVES FOR DINOSEB IN SNAPBEANS, 1988

Ray Kauer Farm Amity OR
Test B

CROP INJURY AND HARVEST AVERAGES

DATE OF RATING: TRT.	%INJURY			YIELD	
	BEANS 5-18-88	BEANS 6-2-88	BEANS 6-30-88	TONS/ACRE 7-20-88	
<u>NO.</u>	<u>NAME</u>				
01	PURSUIT	1	0	4	5.1
02	PURSUIT	1	0	4	5.3
03	COBRA	0	0	0	4.8
04	COBRA	3	3	3	6.2
05	COMMAND	9	0	7	3.4
06	COMMAND	25	11	21	2.7
07	TREFLAN	8	4	15	4.6
	PURSUIT				
08	GENEP	1	0	3	5.9
	PURSUIT				
09	DUAL	1	1	4	6.1
	PURSUIT				
10	TREFLAN	8	1	9	4.8
	COBRA				
11	GENEP	6	1	6	5.5
	COBRA				
12	DUAL	4	1	10	5.3
	COBRA				
13	TREFLAN	14	6	11	4.2
	COMMAND				
14	GENEP	8	3	14	4.3
	COMMAND				
15	DUAL	5	0	5	5.6
	COMMAND				
16	PURSUIT	11	4	33	3.5
	COMMAND				
17	COBRA	3	1	3	5.9
	COMMAND				
18	TREFLAN	3	0	1	5.8
	GENEP				
	DUAL				
19	TREFLAN	6	3	10	5.0
	GENEP				
	PREMERGE				
20	CHECK	1	0	0	2.7
	LSD(0.05) =	5	4	13	2.0
	STD DEVIATION =	4	3	9	1.4
	CV =	63	143	117	28.4

OREGON STATE UNIVERSITY

ALTERNATIVES FOR DINOSEB IN SNAPBEANS, 1988

Ray Kauer Farm Amity OR
Test B

WEED CONTROL RATING AVERAGES

DATE OF RATING: TRT. NO. NAME	% CONTROL						
	PIGWEEED 6-2-88	PINEAPL 6-2-88	DOGFENL 6-2-88	VERONCA 6-2-88	PIGWEEED 6-30-88	COMPOSIT 6-30-88	CABBAGE 6-30-88
01 PURSUIT	93	63	63	75	100	61	100
02 PURSUIT	100	51	54	79	100	68	99
03 COBRA	98	85	85	59	86	81	94
04 COBRA	100	100	99	95	98	98	100
05 COMMAND	35	75	70	100	35	50	39
06 COMMAND	51	73	73	100	60	66	40
07 TREFLAN	100	69	73	91	100	76	100
PURSUIT							
08 GENEP	100	71	75	100	100	76	100
PURSUIT							
09 DUAL	100	90	93	100	100	94	100
PURSUIT							
10 TREFLAN	100	95	95	100	100	86	83
COBRA							
11 GENEP	100	95	95	100	99	91	99
COBRA							
12 DUAL	100	95	96	100	100	89	96
COBRA							
13 TREFLAN	89	70	73	100	88	45	15
COMMAND							
14 GENEP	94	84	84	100	73	76	68
COMMAND							
15 DUAL	69	85	85	100	76	81	74
COMMAND							
16 PURSUIT	99	84	86	100	100	88	100
COMMAND							
17 COBRA	100	95	95	100	96	84	94
COMMAND							
18 TREFLAN	100	81	86	100	100	68	63
GENEP							
DUAL							
19 TREFLAN	100	99	100	100	99	96	100
GENEP							
PREMERGE							
20 CHECK	0	0	0	0	0	0	0
LSD(0.05) =	17	18	19	18	13	21	18
STD DEV =	12	13	13	12	9	14	13
CV =	14	16	17	14	10	20	16

OREGON STATE UNIVERSITY

ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Ray Kauer Farm
Test B

BEAN GRADES BY TREATMENT

TRT.		GRADE 1&2T/A	GRADE #3T/A	GRADE #4T/A	GRADE #5T/A	GRADE #6T/A	GRADE CUL T/A	GRADE 1-4 T/A	TOTAL 1-7 T/A	% 1-4 OF TOTL
01	PURSUIT	.7	1.2	1.4	1.3	.3	.1	3.3	5.0	66
02	PURSUIT	.8	1.2	1.4	1.2	.3	.1	3.4	5.0	68
03	COBRA	.7	1.0	1.4	1.4	.3	0	3.1	4.8	65
04	COBRA	.9	1.4	1.7	1.5	.3	0	4.0	5.8	69
05	COMMAND	.6	1.0	.7	.6	.2	0	2.3	3.1	74
06	COMMAND	.5	.4	.7	.4	.1	0	1.6	2.1	76
07	TREFLAN	.8	1.2	1.3	.8	.2	0	3.3	4.3	77
08	PURSUIT GENEP	.9	1.4	1.7	1.6	.5	.1	4.0	6.2	65
09	DUAL PURSUIT	.8	1.5	1.7	1.6	.3	0	4.0	5.9	68
10	TREFLAN COBRA	.7	1.2	1.3	.8	.2	0	3.2	4.2	76
11	GENEP COBRA	.6	1.3	1.5	1.4	.4	0	3.4	5.2	65
12	DUAL COBRA	.7	1.2	1.5	1.3	.3	.1	3.4	5.1	67
13	TREFLAN COMMAND	.8	1.1	1.1	.7	.2	0	3.0	3.9	77
14	GENEP COMMAND	.6	1.2	1.0	.9	.3	0	2.8	4.0	70
15	DUAL COMMAND	.7	1.3	1.5	1.5	.3	0	3.5	5.3	66
16	PURSUIT COMMAND	.5	1.1	.9	.7	.2	0	2.5	3.4	74
17	COBRA COMMAND	.7	1.3	1.7	1.5	.4	.1	3.7	5.7	65
18	TREFLAN GENEP DUAL	.8	1.5	1.6	1.2	.2	0	3.9	5.3	74
19	TREFLAN GENEP PREMERG	.8	1.4	1.3	.9	.2	0	3.5	4.6	76
20	CHECK	.6	.6	.6	.6	.2	0	1.8	2.6	69

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Roger Hildebrandt Farm Grand Island OR
Test B

CROP INJURY, WEED CONTROL, AND HARVEST
AVERAGES

DATE OF RATING: TRT. NO. NAME	%INJURY			%CONTROL	YIELD
	BEANS 7-01-88	BEANS 7-11-88	BEANS 8-11-88	FIGWEED 8-11-88	TONS/ACRE 8-31-88
01 PURSUIT	0	NA	0	59	3.907
02 PURSUIT	1	NA	0	70	6.970
03 COBRA	0	NA	0	97	5.078
04 COBRA	0	NA	0	100	4.492
05 COMMAND	9	NA	2	51	3.717
06 COMMAND	30	NA	11	74	4.425
07 TREFLAN PURSUIT	0	NA	0	100	4.846
08 EPTAM PURSUIT	0	NA	0	98	4.383
09 DUAL PURSUIT	0	NA	0	78	3.635
10 TREFLAN COBRA	0	NA	0	100	3.825
11 EPTAM COBRA	1	NA	0	100	4.710
12 DUAL COBRA	0	NA	0	100	6.153
13 TREFLAN COMMAND	8	NA	0	100	4.370
14 EPTAM COMMAND	9	NA	0	99	4.806
15 DUAL COMMAND	8	NA	1	94	5.663

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Roger Hildebrant Farm Grand Island OR
Test B

CROP INJURY, WEED CONTROL, AND HARVEST
AVERAGES
(CONTINUED)

DATE OF RATING: TRT. NO. NAME	%INJURY			%CONTROL	YIELD
	BEANS 7-01-88	BEANS 7-11-88	BEANS 8-11-88	PIGWEED 8-11-88	TONS/ACRE 8-31-88
16 PURSUIT COMMAND	8	NA	1	81	4.955
17 COBRA COMMAND	6	NA	0	99	5.840
18 TREFLAN EPTAM DUAL	0	0	1	100	4.642
19 TREFLAN EPTAM PREMERGE	0	0	0	100	6.221
20 SURPASS	5	NA	3	94	6.071
21 REFLEX X-77	0	5	3	100	3.689
22 REFLEX X-77 EPTAM	0	8	4	100	6.262
23 REFLEX X-77 EPTAM	0	9	4	100	4.724
24 REFLEX X-77 EPTAM	1	10	0	100	4.615
25 REFLEX EPTAM	0	NA	1	99	5.405
26 CHECK	0	NA	NA	0	3.403
LSD(0.05) =	4	2	5	16	1.988
STD DEVIATION =	3	1	4	11	1.377
CV =	81	111	316	12	28.237

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Roger Hildebrandt Farm
Test B

BEAN GRADES BY TREATMENT

TRT.	GRADE 1&2T/A	GRADE #3T/A	GRADE #4T/A	GRADE #5T/A	GRADE #6T/A	GRADE CUL T/A	GRADE 1-4 T/A	TOTAL 1-7 T/A	% 1-4 OF TOTL
01 PURSUIT	.7	.5	.6	.9	.7	.2	1.9	3.7	51
02 PURSUIT	.6	.7	1.0	1.7	2.0	.6	1.7	5.9	28
03 COBRA	.8	.6	.8	1.3	1.1	.3	2.2	4.9	45
04 COBRA	.5	.4	.6	1.1	1.2	.4	1.5	4.2	35
05 COMMAND	.5	.5	.6	.9	.7	.2	1.5	3.4	45
06 COMMAND	.4	.4	.6	1.1	1.3	.4	1.4	4.2	34
07 TREFLAN PURSUIT	.7	.5	.8	1.2	1.0	.2	2.0	4.6	45
08 EPTAM PURSUIT	.8	.5	.5	1.0	1.1	.3	1.8	4.2	42
09 DUAL PURSUIT	.5	.4	.6	.8	.8	.2	1.5	3.3	45
10 TREFLAN COBRA	.5	.4	.4	.8	1.0	.3	1.4	3.5	39
11 EPTAM COBRA	.8	.5	.7	1.1	1.1	.3	1.9	4.4	44
12 DUAL COBRA	.7	.5	.7	1.7	1.8	.5	1.9	5.8	22
13 TREFLAN COMMAND	.6	.5	.7	1.0	1.0	.3	1.8	4.1	43
14 EPTAM COMMAND	.7	.4	.5	1.0	1.4	.4	1.6	4.5	36
15 DUAL COMMAND	.5	.5	.7	1.5	1.6	.7	1.6	5.4	30
16 PURSUIT COMMAND	.7	.4	.6	1.2	1.4	.4	1.7	4.7	36
17 COBRA COMMAND	.6	.4	.7	1.5	1.7	.6	1.8	5.6	32
18 TREFLAN EPTAM DUAL	.9	.4	.7	1.0	1.0	.3	1.9	4.3	45
19 TREFLAN EPTAM PREMERG E	1.0	.5	.8	1.6	1.6	.4	2.2	5.9	38
20 SURPASS	.6	.6	.8	1.6	1.7	.4	2.0	5.7	34
21 REFLEX X-77	.6	.3	.4	.8	.9	.4	1.3	3.5	38
22 REFLEX X-77 EPTAM	1.0	.7	.9	1.5	1.4	.4	2.6	6.0	44
23 REFLEX X-77 EPTAM	.8	.3	.4	.8	1.4	.8	1.5	4.4	33

OREGON STATE UNIVERSITY

ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Roger Hildebrandt Farm
Test B

BEAN GRADES BY TREATMENT(CONTINUED)

TRT.	GRADE 1&2T/A	GRADE #3T/A	GRADE #4T/A	GRADE #5T/A	GRADE #6T/A	GRADE CUL T/A	GRADE 1-4 T/A	TOTAL 1-7 T/A	% 1-4 OF TOTL
24 REFLEX X-77 EPTAM	.6	.5	.6	1.2	1.0	.3	1.7	4.2	42
25 REFLEX EPTAM	1.0	.5	.7	1.3	1.2	.3	2.1	4.9	32
26 CHECK	.6	.3	.4	.6	.5	.1	1.3	2.5	52

DISCUSSION

Ray Kauer Farm, Test B and Roger Hildebrandt Farm, Test B

Evaluation of herbicides with potential selectivity but not yet registered in green beans, was carried out at two sites with grower cooperators in 1988. Of the candidate herbicides Cobra showed the most promise in these trials with the herbicide used alone at the application rate of 0.5 lbs ai/A or at half that rate in combination with Dual giving selective weed control comparable to the standard treatment of Treflan/Eptam/Premerge. Of interest for possible combination treatments, Pursuit when used alone was somewhat less effective than Cobra in controlling most weeds present in these trials.

Reflex was included in only one trial and results with this herbicide were inconclusive. This material should be tested further to determine if it may have a place in a weed control program for Oregon growers. Command caused severe symptoms (chlorosis) on beans and probably will not be a suitable herbicide as used in these trials. Symptom development was not always associated with significant reductions in crop yield but the potential for yield reduction must be associated with loss in photosynthetic capacity in the chlorotic bean plants.

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ALTERNATIVES FOR DINOSEB IN SNAPBEANS, 1988

Oregon State University Vegetable Research Farm

TREATMENT LIST

TRT. NUM.	COMPOUND TESTED	FORMUL. AI/UNIT	RATE LBai/A	APPLIC. TYPE
01A	TREFLAN	EC 4.00	0.75	PPI
02A	TREFLAN	EC 4.00	0.75	PPI
02B	EPTAM	EC 7.00	3.50	PPI
03A	TREFLAN	EC 4.00	0.75	PPI
03B	DUAL	EC 8.00	2.00	PPI
04A	TREFLAN	EC 4.00	0.75	PPI
04B	PURSUIT	SC 2.00	0.032	PPI
05A	TREFLAN	EC 4.00	0.75	PPI
05B	PURSUIT	SC 2.00	0.047	PPI
06A	TREFLAN	EC 4.00	0.75	PPI
06B	PURSUIT	SC 2.00	0.062	PPI
07A	TREFLAN	EC 4.00	0.75	PPI
07B	COBRA	EC 2.00	0.25	PRE
08A	TREFLAN	EC 4.00	0.75	PPI
08B	COMMAND	EC 4.00	0.50	PPI
09A	AMIBEN	DF 75%	2.50	PRE
10A	PROWL	EC 4.00	1.50	PPI
11A	PROWL	EC 4.00	1.50	PRE
12A	PROWL	EC 4.00	1.50	PPI
12B	EPTAM	EC 7.00	3.50	PPI
13A	PROWL	EC 4.00	1.50	PPI
13B	DUAL	EC 8.00	2.00	PPI
14A	PROWL	EC 4.00	1.50	PPI
14B	COBRA	EC 2.00	0.25	PRE
15A	PROWL	EC 4.00	1.50	PPI
15B	COMMAND	EC 4.00	0.50	PPI
16A	EPTAM	EC 7.00	3.50	PPI
17A	EPTAM	EC 7.00	3.50	PPI
17B	DUAL	EC 8.00	2.00	PPI
18A	EPTAM	EC 7.00	3.50	PPI
18B	AMIBEN	DF 75%	2.50	PRE
19A	EPTAM	EC 7.00	3.50	PPI
19B	PURSUIT	SC 2.00	0.062	PPI
20A	EPTAM	EC 7.00	3.50	PPI
20B	COBRA	EC 2.00	0.25	PRE
21A	DUAL	EC 8.00	2.00	PRE
22A	DUAL	EC 8.00	2.00	PPI
23A	DUAL	EC 8.00	3.00	PPI
24A	DUAL	EC 8.00	2.00	PRE
24B	AMIBEN	DF 75%	2.50	PRE
25A	DUAL	EC 8.00	2.00	PRE
25B	PURSUIT	SC 2.00	0.047	PRE
26A	DUAL	EC 8.00	2.00	PRE
26B	PURSUIT	SC 2.00	0.062	PRE

O R E G O N S T A T E U N I V E R S I T Y

ALTERNATIVES FOR DINOSEB IN SNAPBEANS, 1988

Oregon State University Vegetable Research Farm

TREATMENT LIST (CONTINUED)

<u>TRT. NUM.</u>	<u>COMPOUND TESTED</u>	<u>FORMUL. AI/UNIT</u>	<u>RATE LBai/A</u>	<u>APPLIC. TYPE</u>
27A	DUAL	EC 8.00	2.00	PRE
27B	COBRA	EC 2.00	0.25	PRE
28A	DUAL	EC 8.00	2.00	PPI
28B	COMMAND	EC 4.00	0.50	PPI
29A	PURSUIT	SC 2.00	0.047	PRE
30A	PURSUIT	SC 2.00	0.047	PPI
31A	PURSUIT	SC 2.00	0.062	PRE
32A	PURSUIT	SC 2.00	0.062	PPI
33A	PURSUIT	SC 2.00	0.125	PPI
34A	PURSUIT	SC 2.00	0.062	PPI
34B	TREFLAN	EC 4.00	0.75	PPI
34C	EPTAM	EC 7.00	3.50	PPI
35A	PURSUIT	SC 2.00	0.062	PPI
35B	COBRA	EC 2.00	0.25	PRE
35C	TREFLAN	EC 4.00	0.75	PPI
36A	COBRA	EC 2.00	0.25	PRE
37A	COBRA	EC 2.00	0.50	PRE
38A	COBRA	EC 2.00	0.25	PRE
38B	COMMAND	EC 4.00	0.50	PPI
39A	COBRA	EC 2.00	0.25	PRE
39B	TREFLAN	EC 4.00	0.75	PPI
39C	EPTAM	EC 7.00	3.50	PPI
40A	COMMAND	EC 4.00	0.50	PPI
41A	COMMAND	EC 4.00	1.00	PPI
42A	COMMAND	EC 4.00	0.50	PPI
42B	TREFLAN	EC 4.00	0.75	PPI
42C	EPTAM	EC 7.00	3.50	PPI
43A	SURPASS	EC 6.70	6.14	PPI
44A	TREFLAN	EC 4.00	0.75	PPI
44B	EPTAM	EC 7.00	3.50	PPI
44C	DUAL	EC 8.00	2.00	PPI
45A	TREFLAN	EC 4.00	0.75	PPI
45B	EPTAM	EC 7.00	3.50	PPI
45C	DUAL	EC 8.00	2.00	PRE
46A	TREFLAN	EC 4.00	0.75	PPI
46B	EPTAM	EC 7.00	3.50	PPI
46C	AMIBEN	DF 75%	2.50	PRE
47A	EPTAM	EC 7.00	3.50	PPI
47B	DUAL	EC 8.00	2.00	PRE
47C	AMIBEN	DF 75%	2.50	PRE
48A	TREFLAN	EC 4.00	0.75	PPI
48B	EPTAM	EC 7.00	3.50	PPI
48C	PREMERGE	EC 3.00	4.50	PRE
49A	HNDWDCHK			POST
50A	CHECK			

OREGON STATE UNIVERSITY

ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Oregon State University Vegetable Research Farm

CROP INJURY, WEED CONTROL AND HARVEST AVERAGES

DATE OF RATING: TRT.	%INJURY			%CONTROL			YIELD TONS/ACRE
	BEANS 6-14-88	BEANS 7-6-88	RADISH 6-14-88	NITESH 7-6-88	RADISH 7-6-88	ANN RYE 7-6-88	
NO. NAME							
01 TREFLAN	4	5	0	14	20	86	2.4
02 TREFLAN	3	3	18	49	18	97	2.7
EPTAM							
03 TREFLAN	6	8	29	40	49	98	2.5
DUAL							
04 TREFLAN	5	10	33	51	46	79	2.9
PURSUIT							
05 TREFLAN	6	11	50	86	79	84	2.5
PURSUIT							
06 TREFLAN	3	5	31	70	78	94	4.0
PURSUIT							
07 TREFLAN	15	19	93	98	99	94	3.2
COBRA							
08 TREFLAN	34	28	20	86	43	89	3.0
COMMAND							
09 AMIBEN	5	5	88	97	92	88	3.7
10 PROWL	19	40	5	56	41	91	1.6
11 PROWL	5	4	30	50	48	100	4.6
12 PROWL	15	15	0	71	13	94	2.5
EPTAM							
13 PROWL	9	18	19	59	23	100	2.8
DUAL							
14 PROWL	11	13	85	99	95	87	3.5
COBRA							
15 PROWL	28	29	30	82	46	95	2.9
COMMAND							
16 EPTAM	0	1	0	58	29	85	2.3
17 EPTAM	1	0	15	78	24	100	3.8
DUAL							
18 EPTAM	3	1	83	99	84	100	4.0
AMIBEN							
19 EPTAM	3	1	43	95	91	94	3.4
PURSUIT							
20 EPTAM	5	0	77	95	86	91	4.3
COBRA							
21 DUAL	0	4	4	98	38	100	4.7
22 DUAL	4	6	13	75	33	100	3.0
23 DUAL	0	1	15	58	28	100	3.6
24 DUAL	6	11	91	99	97	100	3.4
AMIBEN							

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Oregon State University Vegetable Research Farm

CROP INJURY, WEED CONTROL AND HARVEST AVERAGES

(CONTINUED)

DATE OF RATING: TRT.	NO. NAME	%INJURY		%CONTROL			YIELD TONS/ACRE	
		BEANS 6-14-88	BEANS 7-6-88	RADISH 6-14-88	NITESH 7-6-88	RADISH ANN RYE 7-6-88		8-2-88
	25 DUAL PURSUIT	3	1	46	99	97	100	4.4
	26 DUAL PURSUIT	1	0	61	97	92	100	4.9
	27 DUAL COBRA	11	4	83	100	89	100	4.2
	28 DUAL COMMAND	29	23	23	89	45	99	2.6
	29 PURSUIT	0	0	30	86	88	31	4.1
	30 PURSUIT	0	4	23	59	50	25	3.7
	32 PURSUIT	0	0	41	57	86	54	4.5
	33 PURSUIT	1	14	43	88	98	79	4.0
	34 PURSUIT TREFLAN EPTAM	4	8	53	90	77	100	3.5
	35 PURSUIT COBRA TREFLAN	18	11	98	97	99	95	3.6
	36 COBRA	1	5	80	96	96	34	4.7
	37 COBRA	8	9	76	84	81	31	3.9
	38 COBRA COMMAND	29	23	83	100	95	83	3.9
	39 COBRA TREFLAN EPTAM	10	13	91	100	96	98	4.5
	40 COMMAND	29	28	16	84	43	79	2.3
	41 COMMAND	43	46	31	90	55	96	2.0
	42 COMMAND TREFLAN EPTAM	19	9	20	94	44	99	3.0
	43 SURPASS	4	4	15	71	30	99	3.6
	44 TREFLAN EPTAM DUAL	4	3	5	74	35	99	3.3
	45 TREFLAN EPTAM DUAL	4	7	14	97	20	100	3.5
	46 TREFLAN EPTAM AMIBEN	13	21	88	99	95	100	3.9

O R E G O N S T A T E U N I V E R S I T Y

ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Oregon State University Vegetable Research Farm

CROP INJURY, WEED CONTROL AND HARVEST AVERAGES

(CONTINUED)

DATE OF RATING: TRT. NO. NAME	%INJURY		%CONTROL				YIELD TONS/ACRE
	BEANS 6-14-88	BEANS 7-6-88	RADISH 6-14-88	NITESH 7-6-88	RADISH 7-6-88	ANN RYE 7-6-88	
47 EPTAM DUAL AMIBEN	8	13	92	100	96	100	3.7
48 TREFLAN EPTAM PREMERGE	6	10	83	100	80	100	4.1
49 HNDWDCHK	0	0	0	98	100	99	4.7
50 CHECK	1	3	0	0	0	0	1.8
LSD(0.05) =	9	16	24	25	22	12	1.4
STD DEVIATION =	6	11	17	17	15	8	1.0
CV =	70	112	40	22	23	9	28.5

OREGON STATE UNIVERSITY

ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Oregon State University
Vegetable Research Farm

BEAN GRADES BY TREATMENT

TRT.		GRADE 1&2T/A	GRADE #3T/A	GRADE #4T/A	GRADE #5T/A	GRADE #6T/A	GRADE CUL T/A	GRADE 1-4 T/A	TOTAL 1-7 T/A	% 1-4 OF TOTL
01	TREFLAN	.2	.5	.8	.7	.1	0	1.5	2.3	65
02	TREFLAN EPTAM	.2	.5	.9	.8	.1	0	1.6	2.5	64
03	TREFLAN DUAL	.2	.6	.9	.6	0	0	1.7	2.3	74
04	TREFLAN PURSUIT	.2	.5	.9	.9	.1	0	1.6	2.6	62
05	TREFLAN PURSUIT	.2	.5	.8	.9	.1	0	1.5	2.5	60
06	TREFLAN PURSUIT	.3	.7	1.2	1.4	.2	0	2.2	3.8	58
07	TREFLAN COBRA	.4	.5	.9	.9	.2	0	1.8	2.9	62
08	TREFLAN COMMAND	.3	.5	.9	.9	.3	0	1.7	2.9	59
09	AMIBEN	.3	.6	1.3	1.2	.2	0	2.2	3.6	61
10	PROWL	.2	.4	.5	.3	0	0	1.1	1.4	79
11	PROWL	.3	.8	1.5	1.6	.2	0	2.6	4.4	59
12	PROWL EPTAM	.3	.4	.7	.8	.2	0	1.4	2.4	58
13	PROWL DUAL	.3	.3	.6	.9	.3	0	1.2	2.4	50
14	PROWL COBRA	.4	.5	.9	1.3	.2	0	1.8	3.3	55
15	PROWL COMMAND	.3	.4	.9	1.0	.3	0	1.6	2.9	55
16	EPTAM	.2	.6	.8	.5	0	0	1.6	2.1	76
17	EPTAM DUAL	.2	.7	1.3	1.3	.2	0	2.2	3.7	59
18	EPTAM AMIBEN	.3	.6	1.3	1.4	.2	0	2.2	3.8	58
19	EPTAM PURSUIT	.3	.7	1.2	1.0	.1	0	2.2	3.3	67
20	EPTAM COBRA	.2	.7	1.3	1.6	.3	0	2.2	4.1	54
21	DUAL	.2	.9	1.4	1.7	.3	0	2.5	4.5	56
22	DUAL	.2	.7	1.1	.8	.1	0	2.0	2.9	69
23	DUAL	.2	.7	1.2	1.1	.2	0	2.1	3.4	62
24	DUAL AMIBEN	.3	.4	.9	1.3	.3	0	1.6	3.2	50
25	DUAL PURSUIT	.4	.7	1.5	1.5	.2	0	2.6	4.3	60

OREGON STATE UNIVERSITY

ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Oregon State University
Vegetable Research Farm

BEAN GRADES BY TREATMENT(CONTINUED)

TRT.		GRADE 1&2T/A	GRADE #3T/A	GRADE #4T/A	GRADE #5T/A	GRADE #6T/A	GRADE CUL T/A	GRADE 1-4 T/A	TOTAL 1-7 T/A	% 1-4 OF TOTL
26	DUAL PURSUIT	.2	.7	1.4	2.0	.3	0	2.3	4.6	50
27	DUAL COBRA	.3	.6	1.3	1.5	.3	0	2.2	4.0	55
28	DUAL COMMAND	.2	.4	.8	.7	.2	0	1.4	2.3	61
29	PURSUIT	.3	.8	1.3	1.4	.3	0	2.4	4.1	59
30	PURSUIT	.2	.7	1.0	1.5	.2	0	1.9	3.6	53
31	PURSUIT	.2	.7	1.2	1.7	.4	0	2.1	4.2	50
32	PURSUIT	.3	.8	1.3	1.6	.2	0	2.4	4.2	57
33	PURSUIT	.3	.7	1.1	1.4	.3	0	2.1	3.8	55
34	PURSUIT TREFLAN EPTAM	.2	.5	.9	1.2	.3	0	1.6	3.1	52
35	PURSUIT COBRA TREFLAN	.3	.5	1.1	1.2	.3	0	1.9	3.4	56
36	COBRA	.3	.7	1.3	1.7	.3	0	2.3	4.3	53
37	COBRA	.2	.8	1.2	1.2	.3	0	2.2	3.7	59
38	COBRA COMMAND	.4	.4	1.2	1.5	.2	0	2.0	3.7	54
39	COBRA TREFLAN EPTAM	.4	.7	1.2	1.6	.3	0	2.3	4.2	55
40	COMMAND	.2	.4	.7	.7	.1	0	1.3	2.1	62
41	COMMAND	.3	.3	.5	.6	.1	0	1.1	1.8	61
42	COMMAND TREFLAN EPTAM	.2	.6	1.0	.9	.1	0	1.8	2.8	64
43	SURPASS	.2	.6	1.1	1.3	.2	0	1.9	3.4	56
44	TREFLAN EPTAM DUAL	.2	.6	1.1	.9	.1	0	1.9	2.9	66
45	TREFLAN EPTAM DUAL	.2	.6	1.1	1.1	.2	0	1.9	3.2	59
46	TREFLAN EPTAM AMIBEN	.3	.5	1.2	1.1	.3	0	2.0	3.4	59
47	EPTAM DUAL AMIBEN	.3	.6	1.2	1.3	.2	0	2.1	3.6	58

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ALTERNATIVES FOR DINOSEB IN SNAP BEANS, 1988

Oregon State University
Vegetable Research Farm

BEAN GRADES BY TREATMENT (CONTINUED)

TRT.		GRADE 1&2T/A	GRADE #3T/A	GRADE #4T/A	GRADE #5T/A	GRADE #6T/A	GRADE CUL T/A	GRADE 1-4 T/A	TOTAL 1-7 T/A	% 1-4 OF TOTL
48	TREFLAN EPTAM PREMERG	.5	.6	1.2	1.3	.3	0	2.3	3.9	59
49	HNDWDCH	.3	.8	1.5	1.7	.3	0	2.6	4.6	57
50	CHECK	.1	.4	.5	.3	0	0	1.0	1.3	77

DISCUSSION

Oregon State University Vegetable Research Farm

Responses in this trial were generally as expected with the standard treatment of Treflan/Eptam/dinoseb among the best for selective control of the weeds present. For other herbicides, combination treatments usually provided superior weed control when all species were considered.

The use of Command resulted in significant injury (visual evaluation and reduced yield) to the bean crop and it should not be included in future bean trials unless it is found that it can be used safely under other conditions, which can be controlled. This trial also showed that Prowl applied as a preplant incorporated material resulted injured beans.

Of the herbicides registered for use on beans and included in this trial Dual is known to be relatively ineffective in controlling cruciferous weeds and would appear under these circumstances to be a more reasonable alternative to Treflan/Eptam than to dinoseb. The other herbicide in this category is Amiben which was one of the top performers in this trial. Most promising unregistered herbicides as potential alternatives to dinoseb were Pursuit and Cobra, especially if considered in combination treatments. Of these two, Pursuit was least likely to cause crop injury, but was somewhat less effective in controlling composit weed species.

LINE SOURCE EXPERIMENT

EXPERIMENTAL METHODS

The sixth Alternatives to Dinoseb in snap beans trial was a complex experiment that was designed to give a series of herbicide treatments, differing amounts of initial irrigation in order to observe the role of water activation in the efficacy of those treatments. This field trial was established on 7-8-88. This trial was set up using a split block design with 12 herbicide treatments, at 5 water levels (0 inches - 1.0 inches), with four replications receiving activation irrigation 1 day after application, and four replications receiving activation irrigation 14 days after treatment. This gave a grand total of 120 treatments, repeated four times. Include above is a treatment list and plot map for the first irrigation timing. The 12 herbicide treatments are separated by lines. Water levels are designated with a 1-5, with 1 being the highest level. The second irrigation timing treatment list and plot map were identical to the first, and so are not presented. Applied water profiles are presented in the four graphs.

The soil series at the site is a Chehalis silty clay loam, with a pH of 6.2. The soil was prepared for planting 2 weeks in advance, and then heavily irrigated to ensure that enough moisture for crop germination and growth would be present for the 3 weeks following planting. Dyfonate was incorporated with a rotera 24 hours prior to planting. Preplant incorporated treatments were applied first, and incorporated to a depth of 3 inches. The site was composed of two areas 100 feet wide. Treatments were applied in 50 foot long bands, 9 feet wide, perpendicular to the direction of the rows. The site was then planted with OSU 91-G snap beans. Seed was planted at a depth of 2 inches and 1.5 inches apart in-row. Row width was 36 inches. 450

puond per acre of 12-29-10-8 fertilizer was banded at planting. Next, preemergence-scratch-in treatments were applied and the entire site was over-planted with diakon radish and annual ryegrass at a density of 20 seeds per square foot. The site then received shallow incorporation (scratch-in) using a spring harrow on a three point hitch, set to a depth of less than 1 inch. Preemergence treatments were the applied.

One sprinkler irrigation line, equiped with 5/32 inch single nozzles on 20 foot centers was set up down the center of each 100 foot wide strip running the same direction as the rows. The first line was run for 2 hours and 20 minutes at 50 psi, starting at 4.00 AM on 7-8-88. The second line was run in a similar fashion on 7-23-88. On both initial irrigation timings, water was collected at each of the 2 areas of the site using eight rows of ten buckets, spaced on 5 foot centers, for each area. The collected water in the buckets was then measured and applied water profiles were constructed for each replication in the trial. The five water levels were then staked out on the plot site. Normal irrigation line were then set-up and the entire site started receiving regular irrigations on 8-4-88.

Injury ratings were taken on 7-26-88. Weed control ratings were recorded on 7-26-88, just after the second irrigation timing, and then on 8-3-88, just prior to uniform irrigation, and again on 8-19-88. Both sites were harvested on 9-20-88 and 9-21-88, 2 replications from each area per day. 8 foot of row from the center of each plot was harvested for yield estimates, and then the four replications were then bulked and graded. This trial will be repeated in 1989. Evaluations of the results will be completed shortly.

O R E G O N S T A T E U N I V E R S I T Y

ALTERNATIVES FOR DINOSEB IN SNAP BEANS
LINE SOURCE IRRIGATION EFFECTS (<2 DAYS) ON BEAN HERBICIDES

Oregon State University Vegetable Research Farm

TREATMENT LIST

TRT. NUM.	COMPOUND TESTED	APPLIC. TYPE+ WATER LEVEL	PLOT NUMBERS BY REP			
			1	2	3	4
01A	CLEAN CK	1	101	201	321	416
02A	COBRA	PRE1	106	236	341	431
03A	PURSUIT	PRE1	111	226	306	426
04A	PURSUIT	PPI1	116	256	346	441
05A	DUAL	PRE1	121	216	326	451
06A	DUAL	PPI1	126	246	356	421
07A	DUAL	PRES1	131	206	301	401
08A	TREFLAN	PPI1	136	221	331	446
08B	EPTAM	PPI1				
08C	DUAL	PPI1				
09A	PURSUIT	PRE1	141	231	316	411
09B	DUAL	PRE1				
10A	COBRA	PRE1	146	251	311	406
10B	EPTAM	PPI1				
11A	COBRA	PRE1	151	211	336	436
11B	DUAL	PRE1				
12A	CHECK	1	156	241	351	456
13A	CLEAN CK	2	102	202	322	417
14A	COBRA	PRE2	107	237	342	432
15A	PURSUIT	PRE2	112	227	307	427
16A	PURSUIT	PPI2	117	257	347	442
17A	DUAL	PRE2	122	217	327	452
18A	DUAL	PPI2	127	247	357	422
19A	DUAL	PRES2	132	207	302	402
20A	TREFLAN	PPI2	137	222	332	447
20B	EPTAM	PPI2				
20C	DUAL	PRE2				
21A	PURSUIT	PRE2	142	232	317	412
21B	DUAL	PRE2				
22A	COBRA	PRE2	147	252	312	407
22B	EPTAM	PPI2				
23A	COBRA	PRE2	152	212	337	437
23B	DUAL	PRE2				
24A	CHECK	2	157	242	352	457

O R E G O N S T A T E U N I V E R S I T Y

ALTERNATIVES FOR DINOSEB IN SNAP BEANS
LINE SOURCE IRRIGATION EFFECTS (<2 DAYS) ON BEAN HERBICIDES

Oregon State University Vegetable Research Farm

TREATMENT LIST
(CONTINUED)

TRT. NUM.	COMPOUND TESTED	APPLIC. TYPE+ WATER LEVEL	PLOT NUMBERS BY REP			
			1	2	3	4
25A	CLEAN CK	3	103	203	323	418
26A	COBRA	PRE3	108	238	343	433
27A	PURSUIT	PRE3	113	228	308	428
28A	PURSUIT	PPI3	118	258	348	443
29A	DUAL	PRE3	123	218	328	453
30A	DUAL	PPI3	128	248	358	423
31A	DUAL	PRES3	133	208	303	403
32A	TREFLAN	PPI3	138	223	333	448
32B	EPTAM	PPI3				
32C	DUAL	PRE3				
33A	PURSUIT	PRE3	143	233	318	413
33B	DUAL	PRE3				
34A	COBRA	PRE3	148	253	313	408
34B	EPTAM	PPI3				
35A	COBRA	PRE3	153	213	338	438
35B	DUAL	PRE3				
36A	CHECK	3	158	243	353	458
37A	CLEAN CK	4	104	204	324	419
38A	COBRA	PRE4	109	239	344	434
39A	PURSUIT	PRE4	114	229	309	429
40A	PURSUIT	PPI4	119	259	349	444
41A	DUAL	PRE4	124	219	329	454
42A	DUAL	PPI4	129	249	359	424
43A	DUAL	PRES4	134	209	304	404
44A	TREFLAN	PPI4	139	224	334	449
44B	EPTAM	PPI4				
44C	DUAL	PRE4				
45A	PURSUIT	PRE4	144	234	319	414
45B	DUAL	PRE4				
46A	COBRA	PRE4	149	254	314	409
46B	EPTAM	PPI4				
47A	COBRA	PRE4	154	214	339	439
47B	DUAL	PRE4				
48A	CHECK	4	159	244	354	459

O R E G O N S T A T E U N I V E R S I T Y

ALTERNATIVES FOR DINOSEB IN SNAP BEANS
 LINE SOURCE IRRIGATION EFFECTS (<2 DAYS) ON BEAN HERBICIDES

Oregon State University Vegetable Research Farm

TREATMENT LIST
 (CONTINUED)

TRT. NUM.	COMPOUND TESTED	APPLIC. TYPE+ WATER LEVEL	PLOT NUMBERS BY REP			
			1	2	3	4
49A	CLEAN CK	5	105	205	325	420
50A	COBRA	PRE5	110	240	345	435
51A	PURSUIT	PRE5	115	230	310	430
52A	PURSUIT	PPI5	120	260	350	445
53A	DUAL	PRE5	125	220	330	455
54A	DUAL	PPI5	130	250	360	425
55A	DUAL	PRES5	135	210	305	405
56A	TREFLAN	PPI5	140	225	335	450
56B	EPTAM	PPI5				
56C	DUAL	PRE5				
57A	PURSUIT	PRE5	145	235	320	415
57B	DUAL	PRE5				
58A	COBRA	PRE5	150	255	315	410
58B	EPTAM	PPI5				
59A	COBRA	PRE5	155	215	340	440
59B	DUAL	PRE5				
60A	CHECK	5	160	245	355	460