

NOT FOR PUBLICATION

1969 WEED CONTROL RESEARCH IN VEGETABLE CROPS

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Field trials of weed control research on several vegetable crops are reported in this summary. Unless otherwise indicated these trials were conducted at the Vegetable Crops Research Farm at Corvallis. Soil type at this location is a silty clay loam and all plots were sprinkler irrigated as needed to provide adequate moisture for good crop growth. All pre-plant soil incorporated (PPI) treatments were mixed into the soil immediately after application by a power driven rotary tiller and to a depth of approximately three inches unless otherwise specified. Both crop response and weed control ratings were made on the same scale with 0 equal to no effect and 10 equal to complete kill of all weeds or crop plants. Results are reported as the average of observations from all replications.

BEANS, BUSH SNAP

A field trial for evaluation of new herbicides for this crop was established at the OSU vegetable research farm at Corvallis. Preplant herbicide applications were made on May 21 and crop was planted following this on the same day. Pre-emergence herbicide applications were made on May 23 and followed with sprinkler irrigation on May 24. Crop response and weed control ratings were made June 27 and August 1. Predominant weed species evaluated in this trial were redroot pigweed, groundsel, barnyardgrass and lambsquarters.

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating	Ave. Weed Control Rating	
					June 27	Aug. 1
1	Amiben (ester)	2	PE	0	5	4
2	"	3	"	0	5	5
3	"	4	"	0	7	5
4	" (undiluted)	3	"	0	4	5
5	{ Amiben Dinoseb Amine	3 4½	"	}	7	6
6	{ Amiben Alachlor	3 1	"		8	8
7	{ Amiben Preforan	3 3	"	}	8	7
8	Alachlor	1	"		6	6
9	"	2	"	1	7	7
10	"	3	"	0	8	7
11	{ Alachlor Dinoseb Amine	1 4½	"	}	8	8
12	{ Alachlor Preforan	1 3	"		9	9

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating	Ave. Weed Control Rating	
					June 27	Aug. 1
13	Preforan	3	PE	0	8	8
14	"	4	"	0	8	7
15	"	5	"	0	8	9
16	"	6	"	1	10	9
17	{ Preforan Trifluralin	3 3/4	{ " PPI	1	10	9
18	VCS 438	1	PE	0	4	4
19	"	2	"	0	4	3
20	"	3	"	0	4	3
21	"	4	"	0	5	4
22	{ VCS 438 Alachlor	2 1	{ " "	0	7	7
23	{ VCS 438 Trifluralin	2 3/4	{ " PPI	0	8	8
24	NC 4838	1	"	0	6	6
25	"	3	"	2	6	6
26	"	1	PE	1	3	2
27	"	3	"	0	4	4
28	AC 72986	3/4	"	0	4	4
29	"	1	"	2	7	7
30	"	1½	"	4	8	8
31	AC 78126	3/4	"	0	8	8
32	"	1	"	0	8	7
33	"	1½	"	1	9	8
34	{ Trifluralin Dinoseb	3/4 4½	{ PPI PE	0	10	9
35	Untreated Check	---	---	0	2	2

BEETS, TABLE

Potential selective herbicides and herbicide combinations were screened in the field trial reported here. Pre-plant treatments were sprayed May 15 and mixed into the soil to a depth of 1½ inches or 3 inches for shallow and deep incorporations respectively. Beets were seeded on May 16 and the pre-emergence applications were made on May 19. Post-emergence treatments were applied on May 28 at which time the beets were mostly in the cotyledonary stage and weeds had up to two true leaves. Crop response and weed control was evaluated on June 13. Predominant weed species present were redroot pigweed and groundsel.

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating	Ave. Weed Control Rating
1	Cycloate	2	PPI	0	4
2	"	4	"	0	3
3	"	6	"	0	6
4	CP 52223	2	"	0	7
5	"	4	"	4	8
6	"	6	"	3	8
7	{ Cycloate Pyrazon	4 4	} PPI shallow	0	5
8	{ EPTC Pyrazon	2 4	} "	0	4
9	{ Cycloate Pyrazon	4 4	} PPI PE	1	5
10	{ EPTC Pyrazon	2 4	} PPI PE	0	8
11	{ Cycloate Phenmedephan	4 2	} PPI PE	0	3
12	{ EPTC Phenmedephan	2 2	} PPI PE	1	6
13	{ Cycloate Pyrazon	4 4	} PPI PE	2	5
14	{ EPTC Pyrazon	2 4	} PPI Post	3	7
15	{ EPTC Phenmedephan	2 2	} PPI Post	2	7
16	{ Cycloate Phenmedephan	4 1	} PPI Post	1	7
17	{ Cycloate Phenmedephan	4 2	} PPI Post	3	8
18	{ Cycloate Phenmedephan	4 4	} PPI Post	5	9
19	Phenmedephan	1	PE	0	2
20	"	2	PE	0	4
21	"	4	PE	0	0
22	EP 474	1	PE	1	3
23	"	2	"	0	4
24	"	4	"	0	4
25	EP 475	1	"	1	6
26	"	2	"	0	2
27	"	4	"	1	4
28	BASF 2430	2	"	0	5
29	"	4	"	2	4
30	"	6	"	2	2
31	Phenmedephan	1	Post	0	4
32	"	2	"	1	5
33	"	4	"	6	6
34	EP 474	1	"	1	6
35	"	2	"	3	8
36	"	4	"	3	9

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating	Ave. Weed Control Rating
37	EP 475	1	Post	3	6
38	"	2	"	8	9
39	"	4	"	9	9
40	Pyrazon	4	"	2	5
41	Pyrazon + Dalapon	4+3.7	"	3	7
42	{ Pyrazon T-mulz	{ 4 0.5% }	"	5	6
43	{ Pyrazon T-mulz	{ 4 2.0% }	"	5	7
44	{ Pyrazon X-77	{ 4 0.5% }	"	2	6
45	{ Pyrazon X-77	{ 4 2.0% }	"	4	6
46	{ Pyrazon Trionic	{ 4 0.5% }	"	3	4
47	{ Pyrazon Trionic	{ 4 2.0% }	"	4	7
48	{ Pyrazon Adjuvan-T	{ 4 0.5% }	"	2	6
49	{ Pyrazon Adjuvan-T	{ 4 2.0% }	"	6	8
50	{ Pyrazon Superior oil	{ 4 2.0% }	"	3	7
51	{ Pyrazon Superior oil	{ 4 5.0% }	"	3	7
52	{ Pyrazon Superior oil	{ 2 5.0% }	"	1	7
53	Untreated check	---	---	0	0

BROCCOLI

A late planting of broccoli was used to evaluate new chemicals and chemical combinations for selective weed control. Pre-plant herbicide applications were made and seeding of the crop completed on July 2, 1969. Pre-emergence herbicide application was on a dry soil surface on July 3 and followed with an overhead irrigation. Crop response and weed control ratings were made on August 4. Predominant weed species was redroot pigweed but was not present as a uniform heavy infestation.

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating	Ave. Weed Control Rating
1	Trifluralin	3/4	PPI	0	9
2	"	1	"	1	10
3	Nitralin	1	"	0	10
4	"	1 1/3	"	1	10
5	"	2	"	2	9
6	EL 179	1	"	0	10
7	"	2	"	2	7
8	"	3	"	2	10
9	"	4	"	2	10
10	{ Trifluralin Nitrofen	{ 3/4 3	{ " PE	{ 3	10
11	{ Trifluralin Nitrofen	{ 3/4 6	{ PPI PE	{ 4	10
12	{ Trifluralin Nitrofen	{ 3/4 3	{ PPI Post	{ 3	10
13	{ Trifluralin Nitrofen	{ 3/4 6	{ PPI Post	{ 4	10
14	{ Nitralin Nitrofen	{ 1 1/3 3	{ PPI PE	{ 3	10
15	{ Nitralin Nitrofen	{ 1 1/3 6	{ PPI PE	{ 2	10
16	{ Nitralin Nitrofen	{ 1 1/3 3	{ PPI Post	{ 4	10
17	{ Nitralin Nitrofen	{ 1 1/3 6	{ PPI Post	{ 5	10
18	EL 179	2	PE	2	10
19	"	4	"	7	10
20	"	6	"	7	10
21	Nitrofen	6	"	5	10
22	BAS 2903	3	"	3	10
23	"	5	"	1	10
24	Bay 83775	2	"	6	8
25	"	4	"	10	10
26	C 20482	2	"	8	10
27	"	3	"	9	10
28	Alachlor	3/4	"	2	10
29	"	1 1/2	"	0	10
30	"	3	"	0	10
31	Mon 901	1	"	1	9
32	"	2	"	2	10
33	MBR 5073	2	"	4	9
34	"	4	"	6	10
35	PP 493	1/16	"	2	10
36	"	1/8	"	2	10
37	"	1/4	"	2	10
38	"	1/2	"	4	10

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating	Ave. Weed Control Rating
39	R 12084	3	PE	4	10
40	"	6	"	8	10
41	R 16194	4	"	8	8
42	"	8	"	9	9
43	RH 315	2	"	6	9
44	"	4	"	6	10
45	RH 892	2	"	7	10
46	"	4	"	10	10
47	SP 17115	2	"	5	8
48	"	4	"	8	10
49	Nitrofen	3	Post	4	8
50	"	4 $\frac{1}{2}$	"	4	10
51	"	6	"	4	10
52	Untreated Check	---	---	1	6

CORN, SWEET

A field trial with various herbicides and herbicide combinations on sweet corn was conducted at Corvallis with pre-plant applications and planting done on June 6. Pre-emergence herbicide application was on June 9 with no irrigation until June 13. Post-emergence sprays were applied on June 25 when the corn plants were approximately 8 inches tall. Crop response and weed control ratings were made on July 16; predominant weed species were redroot pigweed and groundsel.

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating	Ave. Weed Control Rating
1	Butylate	4	PPI	0	8
2	{ Butylate Atrazine	4 1	" PE	{ 0	10
3	{ Butylate R 11913	4 4	PPI PE	{ 1	10
4	{ Butylate R 15302	4 1	PPI "	{ 0	6
5	{ Butylate R 15302	4 1	" PE	{ 1	9
6	{ Butylate R 15302	4 2	PPI PE	{ 0	8
7	S-6115	1	PPI	1	10
8	Atrazine	1	"	0	9
9	"	1	PE	0	9
10	{ Atrazine Propachlor	1 3	" "	{ 0	10
11	S-6115	1	"	0	9
12	"	2	"	0	10

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating	Ave. Weed Control Rating
13	{ S-6115 Propachlor	1 3	PE "	} 0	10
14	{ Atrazine Alachlor	1 2	" "	} 0	10
15	{ Propachlor 2,4-D amine	4 1	" "	} 1	10
16	{ Alachlor 2,4-D amine	2 1	" "	} 0	10
17	NC 4838	1	PPI	0	4
18	"	3	"	5	7
19	"	1	PE	0	6
20	"	3	"	0	9
21	R 15302	$\frac{1}{2}$	"	0	4
22	"	1	"	0	4
23	"	2	"	0	5
24	Bas 2903	3	"	1	10
25	"	5	"	0	10
26	Bay 86791	$\frac{1}{2}$	"	0	6
27	"	1	"	0	6
28	AC 78126	$\frac{3}{4}$	"	0	8
29	"	$1\frac{1}{2}$	"	0	9
30	Amchem 68-72	1	"	0	5
31	"	2	"	0	6
32	PP 493	$\frac{1}{8}$	"	1	7
33	"	$\frac{1}{4}$	"	2	8
34	"	$\frac{1}{2}$	"	4	9
35	TH 469H	4	"	0	0
36	"	8	"	0	9
37	SD 15418	1	"	0	5
38	"	2	"	0	9
39	"	4	"	1	10
40	"	8	"	3	10
41	VCS 438	1	"	0	7
42	"	2	"	0	7
43	"	4	"	1	10
44	Atrazine	1	Post	0	10
45	{ Atrazine Oil	1 $1\frac{1}{2}$ gal	" "	} 0	10
46	{ Atrazine Oil 2,4-D	1 $1\frac{1}{2}$ gal 1	" " "	} 5	10
47	S-6115	1	"	0	10
48	{ S-6115 Oil	1 $1\frac{1}{2}$ gal	" "	} 3	10
49	AC 78126	$\frac{1}{4}$	"	0	9
50	"	$\frac{1}{2}$	"	0	10
51	{ AC 78126 Surfactant	$\frac{1}{4}$ 0.5%	" "	} 2	9
52	Bay 86791	$\frac{1}{2}$	"	5	10
53	Untreated Check	---	---	0	3

CUCUMBERS

Three field trials of weed control in cucumbers were completed in 1969. An off-station trial near Salem included only pre-plant applications of herbicides. These were applied May 8 and the field planted about one week later. The heavy soil in this field was in poor physical condition at the time of herbicide application but rainfall and tillage resulted in a good seedbed by planting time. Weed control and crop response ratings were made on June 30. Weeds present were lambsquarters and to a lesser extent red-root pigweed and barnyardgrass.

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating	Ave. Weed Control Rating
1	Nitralin	1	PPI shallow	2	8
2	{ Nitralin Amiben	{ 1 3 }	{ " "	{ 2 1	{ 8 9
3	{ Nitralin Naptalam	{ 1 3 }	{ " "	{ 1 1	{ 9 8
4	{ Bensulide Amiben	{ 4 3 }	{ " "	{ 1 1	{ 8 7
5	{ Bensulide Naptalam	{ 4 3 }	{ " "	{ 1 2	{ 7 7
6	{ Bensulide Nitralin	{ 4 1 }	{ " "	{ 2 1	{ 7 9
7	{ Amiben Naptalam	{ 3 3 }	{ " "	{ 1 0	{ 9 1
8	Untreated Check	---	---	0	1

Two trials at Corvallis included plots on a heavy soil type (silty clay loam) and some of the same treatments on a light soil (sandy loam). Incorporation of herbicides with a power driven rotary tiller included the variable of depth of incorporation, with the tiller at 1½ inches for shallow and 3 inches for deep incorporation. Pre-plant applications were made on both soils on May 29 and most plots planted on May 31. Pre-emergence sprays were applied on June 5. A stale seedbed planting for treatments 30-33 was made on June 13 and the herbicides applied on June 16. Weed control and crop response ratings were made on July 8. Predominant weed species were redroot pigweed and groundsel on the heavy soil and these plus purslane on the light soil. At the end of the growing season the number of fruits in each plot was counted as a measure of yield.

Trt. No.	Chemical	Lbs. ai/A	Application and Timing	Ave. Crop Response Rating		Ave. Weed Control Rating		Ave. Number of Fruits	
				Heavy Soil	Light Soil	Heavy Soil	Light Soil	Heavy Soil	Light Soil
1	Nitralin	3/4	PPI-deep	3	1	8	8	114	58
2	"	1	PPI-shallow	2		8		76	
3	"	1	PPI-deep	4	3	7	7	103	50
4	"	1½	PPI-deep	6	7	9	8	58	27
5	EL 179	3/4	PPI-deep	1		8		125	
6	"	1	PPI-shallow	5		8		141	
7	"	1	PPI-deep	2	2	8	7	125	63
8	"	1½	PPI-deep	4	4	9	8	101	71
9	Trifluralin	3/4	PPI-deep	8		9		81	
10	Naptalam	3	PPI-shallow	0		8		131	
11	Bensulide	4	PPI-shallow	1		6		114	
12	"	6	PPI-shallow	0		6		134	
13	Amiben	3	PPI-shallow	4		9		102	
14	{ Nitralin Amiben	{ 1 3	{ PPI-shallow	6		8		79	
15	{ Nitralin Amiben	{ 1 3	{ PPI-deep PE	4		8		113	
16	{ Nitralin Naptalam	{ 1 3	{ PPI-shallow	2		8		121	
17	{ EL 179 Amiben	{ 1 3	{ PPI-shallow	4		9		69	
18	{ EL 179 Amiben	{ 1 3	{ PPI-deep PE	3		10		120	
19	{ EL 179 Naptalam	{ 1 3	{ PPI-shallow	2		10		101	
20	{ Bensulide Amiben	{ 4 3	{ PPI-shallow	4		9		105	
21	{ Bensulide Amiben	{ 4 3	{ PE	0		8		143	
22	{ Bensulide Naptalam	{ 4 3	{ PPI-shallow	0		7		142	
23	{ Bensulide Nitralin	{ 4 1	{ PPI-shallow	6		8		85	
24	Amiben	2	PE	1		7		159	
25	"	3	PE	0		7		132	
26	"	4	PE	3		9		131	
27	Untreated Check	---	---	0		3		123	
28	Naptalam	3	PE	0		5		106	
29	{ Amiben Naptalam	{ 3 3	{ PE	1		7		115	
30	Paraquat	1	Delayed planting	0		8		127	
31	{ Paraquat Amiben Naptalam	{ 1 3 3	{ Delayed planting	2		10		110	
32	Dinoseb amine	3	Delayed planting	0		8		123	
33	{ Dinoseb amine Amiben Naptalam	{ 3 3 3	{ Delayed planting	2		10		126	
34	AC 72986	1	PE	0		7		198	
35	Untreated Check	---	---	0	0	3	2	113	80

ONIONS

Two onion weed control trials were established on peat soil near Salem, Oregon in 1969. The first (N) was planted on March 29, herbicides were applied on April 8 pre-emergence to the crop and evaluations of crop response and weed control were made on May 15. The second trial (H) was planted on April 17, pre-emergence herbicide applications made on April 20 and post-emergence applications on May 26 when onions were mostly in 3-leaf stage. Weed control ratings were made on May 20 for the pre-emergence applications and weed control and crop response ratings were made on June 6. Principal weed species present in both trials were smartweed, purslane and redroot pigweed. Some grass was present but not as a uniform stand.

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating		Ave. Weed Control Rating		
				Location		Location N	Location H	
				N	H		May 20	June 6
1	{ CIPC CDAA	4 4 }	PE	0	0	9	10	8
2	Propachlor	6	PE	2	1	9	8	6
3	Alachlor	4	PE	4	5	8	9	7
4	PPG 116	2	PE	0	1	6	4	5
5	PPG 116	4	PE	0	1	7	5	4
6	{ PPG 116 PPG 116	3 3 }	{ PE Post }		0		5	5
7	{ CIPC CDAA RP 2929	4 4 3 }	{ PE PE Post }		1		10	9
8	{ CIPC CDAA Chloroxuron	4 4 3 }	{ PE PE Post }		1		9	10
9	{ CIPC CDAA CIPC CDAA	3 3 3 3 }	{ PE PE Post Post }		1		9	9
10	Chloroxuron	3	Post		1			5
11	Chloroxuron	4	Post		1			5
12	{ Chloroxuron Adjuvan-T	2 0.5% }	Post		7			9
13	{ Chloroxuron Adjuvan-T	3 0.5% }	Post		7			8
14	Untreated Check---		---	0	0	2	1	0
15	Nitrofen	4	Post		3			7
16	RP 17623	2	Post		3			9

PEAS

A small field trial was established at Corvallis with pre-plant herbicide applications on May 12 and the crop seeded on May 13. Pre-emergence herbicides were applied on May 16 followed within two days by rain. Weed control and crop response ratings were made on June 12, and weed control ratings were made again on July 8. Predominant weed species were redroot pigweed, groundsel and mustard.

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating	Ave. Weed Control Rating	
					June 12	July 8
1	Dinoseb amine	4½	PE	0	7	8
2	{ Dinoseb amine Propachlor	1½ 4 }	PE	0	8	9
3	{ Dinoseb amine Propachlor	1½ 4 }	PE	1	9	10
4	Propachlor	6	PE	2	10	10
5	Proforan	3	PE	0	9	10
6	"	4½	PE	0	10	10
7	"	6	PE	1	10	10
8	{ Proforan Propachlor	3 4 }	PE	0	10	10
9	Tandex	1	PE	2	5	6
10	"	3	PE	2	6	7
11	Nia 16476	1	PE	2	7	8
12	"	3	PE	6	10	10
13	AC 72986	3/4	PE	0	8	10
14	"	1	PE	0	9	9
15	"	1½	PE	3	10	10
16	AC 78126	3/4	PE	2	10	10
17	"	1	PE	3	9	10
18	"	1½	PE	4	10	10
19	NC 8438	1	PPI	0	5	8
20	"	3	PPI	0	7	7
21	VCS 438	1	PE	0	4	7
22	"	2	PE	0	4	5
23	"	3	PE	0	4	5
24	Untreated Check	---	---	0	0	0

RHUBARB

Herbicides were applied on February 19, 1969 to an established planting of rhubarb. Crop response and weed control ratings were made on April 15. At the time of application of the herbicides some winter annual weeds such as annual bluegrass and groundsel were present, but very few weeds survived the competition from the crop, even in the untreated check plots.

Trt. No.	Chemical	Lbs. ai/A	Ave. Crop Response Rating	Ave. Weed Control Rating
1	Simazine	3.2	0	9
2	{ Simazine Paraquat	3.2 1 }	0	9
3	Terbacil	3.2	3	10
4	Fluometuron	3.2	1	8
5	Dichlobenil	6	1	9
6	Nortron	4	0	7
7	VCS 438	4	0	8
8	TD 1382	4	0	8
9	Untreated Check	---	0	7

SQUASH

An experiment with summer squash of the Zucchini type was conducted in conjunction with the cucumber trials at Corvallis. Pre-plant treatments were made on May 29, two days before planting and pre-emergence herbicide sprays were applied on June 5. Results were as follows:

Trt. No.	Chemical	Lbs. ai/A	Timing	Ave. Crop Response Rating		Ave. Weed Control Rating		Ave. Number of Fruits	
				Heavy Soil	Light Soil	Heavy Soil	Light Soil	Heavy Soil	Light Soil
1	Nitralin	3/4	PPI	3	2	8	6	26	21
3	Nitralin	1	PPI	5	4	8	8	21	20
4	Nitralin	1½	PPI	6	5	9	8	19	19
7	EL 179	1	PPI	3	2	8	7	23	23
8	EL 179	1½	PPI	6	4	8	8	16	20
35	Untreated Check	---	---	1	0	2	2	27	26