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Weed Control Research in Agronomic Crops, 1983-84

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Agricultural Experiment Station
Oregon State University, Corvallis

WEED CONTROL RESEARCH
IN AGRONOMIC CROPS, 1983-84

Projects #41 and #732

Department of Crop Science
Oregon State University

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WEED CONTROL RESEARCH REPORT

The weed control research reports contained herein are compiled from the work of Oregon Agricultural Experiment Station personnel in the Crop Science Department, Oregon State University, Corvallis. Bill D. Brewster and Robert L. Spinney have major responsibility in this connection.

In addition to the work reported here, weed research on Oregon agronomic crops is also conducted by the following personnel:

Larry C. Burrill	- IPPC, Crop Science Department, Corvallis
Donald J. Rydrych	- Columbia Basin Agricultural Research Center, Pendleton
Charles E. Stanger	- Malheur Branch Experiment Station, Ontario
John A. Yungen	- Southern Oregon Branch Experiment Station, Medford

The research of these personnel is published in separate reports.

Many other research and Extension personnel, including graduate students and county agents, have been instrumental in the conduct of research reported here.

We gratefully acknowledge the financial support received from grower organizations and chemical companies. Without such support, much of our research would not have been possible.

Questions concerning our research may be directed to the persons named above or to me.

Arnold P. Appleby
Crop Science Department

NOT FOR PUBLICATION

The data contained in this report are neither intended nor authorized for publication. In no way should data be construed as recommendations for application of any material mentioned in the report.

Explanation of Rating System

The rating system used for visual evaluation of weed control and crop injury is a percentage scale with 0 = no effect and 100 = complete kill. In the case of weed control, each rating represents an estimate of the *percent reduction of competitive ability* of the particular species. This could be primarily caused by a reduction in weed stand, weed vigor, or a combination of the two.

Each rating is based upon an estimate solely of the effects of the treatment applied. The evaluator(s) had attempted to eliminate from his rating any variation in weed stand or vigor caused by extraneous factors. This was done by frequent comparisons with nearby untreated areas. Therefore, all check plots received a 0 rating for weed control and crop injury in spite of the fact that check plots sometimes contained few weeds or a suboptimum crop.

If the meaning of data is not clear, further information can be obtained from the researcher involved or from the Crop Science Department, Oregon State University, Corvallis.

INTRODUCTION AND SUMMARY

Weed control trials were conducted in winter wheat, winter oats, spring wheat, spring barley, peppermint, small-seeded legumes, hops, pyrethrum, and meadowfoam. In addition, several trials were conducted on weeds growing in non-crop situations.

The winter wheat trials were planted to wider-than-normal rows to facilitate visual evaluation of weeds and to provide a more sensitive measure of crop injury. The wheat was harvested with a Hege combine (1.5 m header) and the grain samples were weighed in the field.

DPX B5881 and SD 95481 provided good control of most grasses in wheat but SD 95481 caused considerable injury. Fluorochloridone and clopyralid were effective on broadleaf weeds and appeared safe on the crop. SMY 1500, a herbicide that has been effective in the eastern part of the state, was quite poor on most species tested. Large differences in sensitivity to herbicides among brome species were found. Reduced rates of diclofop-methyl effectively controlled Italian ryegrass but were less effective on wild oats. March applications of diclofop-methyl were more effective than December applications on late-emerging wild oats. Diclofop-methyl was also effective on slender foxtail when applied in fall or early winter. Chlorsulfuron provided a slight increase in bedstraw control when used in combination with dinoseb.

Chlorsulfuron seemed to protect winter oats from frost injury while providing some improvement in Italian ryegrass control.

AC 222293 injured sugarbeets planted 2 years after application. Overhead irrigation reduced the performance of this herbicide on wild oats, while surfactants and higher spray volumes improved control.

Surfactants and crop oil concentrates improved wild oat control with diclofop-methyl in spring grain, while high rates of liquid fertilizer and DPX M6316 appeared to be antagonistic with diclofop-methyl.

Low rates of oxyfluorfen with paraquat provided good control of most annual weeds in dormant peppermint. Even good control of simple perennials such as spotted catsear and common dandelion was achieved. Fluorochloridone, SD 95481, and prodiamine did not cause serious injury to dormant peppermint. Haloxyfop-methyl was the most effective herbicide on quackgrass, but DPX Y6202 and

fluazifop-P-butyl provided good season-long control. DPX Y6202 was much more effective than was sethoxydim on established Kentucky bluegrass. No injury on mint was observed from applications of these new grass killers. A large screening trial at Hyslop Farm indicated that haloxyfop-methyl, DPX Y6202, and fluazifop-P-butyl were the most active of nine compounds on several seedling grasses.

In forages, several useful results were obtained. A single application of MCPA greatly reduced the number of Italian thistle seedlings the following year. Fall-planted small-seeded legumes tolerated repeated applications of dinoseb amine. Haloxyfop-methyl was the most effective herbicide in alfalfa on established Kentucky bluegrass. The addition of oil concentrate to 2,4-DB increased injury to established alfalfa. AC 263499 and SD 95481 may have some utility in seedling legumes.

In a trial on herbicide timing with postemergent grass killers on five grass species, control was usually better when the plants were small.

Propachlor stunted meadowfoam in the fall, but plots treated with propachlor and several grass-control herbicides provided large seed yield increases in a field infested with Italian ryegrass. Several herbicides were found to have potential for use in transplanted pyrethrum. A stale-seedbed technique for pyrethrum was also developed.

Exp. No. 84-12

Grass Screening in Winter Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

A trial was conducted in winter wheat to evaluate the efficacy of several herbicide treatments. The wheat was planted in the back of each plot in fourteen 14-inch wide rows. Downy brome, rattail fescue, Italian ryegrass, and wild oat seeds were broadcast in 3-foot wide strips in front of the wheat and were incorporated into the soil with a harrow.

After seeding, 45 consecutive days of measureable rain were recorded. In late December, cold weather injured many of the weeds and killed most of the wild oats that had emerged. More wild oats germinated in late February, so all of the treatments were applied essentially preemergence to this weed. Annual bluegrass, prostrate knotweed, and mayweed chamomile were the main naturally occurring weeds.

DPX B5882 provided good to excellent control of all weeds when applied preemergence. Less effective downy brome control was obtained with the postemergence applications.

SD 95481 controlled all species but probably caused too much injury on the wheat.

Diclofop-methyl provided better residual control of wild oats than did AC 222293.

Grass Screening in Winter Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Exp. No. 84-12

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated January 19, 1984															
		Wheat				Downy brome ^b				Rattail fescue				Italian ryegrass			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>Preemergence, October 18, 1983</u>																	
1. DPX B5882	0.031	5	0	0	2	70	60	70	67	85	85	95	88	85	95	90	90
2. DPX B5882	0.047	10	10	0	7	90	85	60	78	90	99	99	96	90	99	95	95
3. DPX B5882	0.062	15	15	0	10	90	70	60	73	90	90	90	90	90	95	95	93
4. SD 95481	0.75	30	15	15	20	100	100	99	99	100	100	100	100	100	100	100	100
5. SD 95481	1.5	60	60	50	57	100	100	100	100	100	100	100	100	100	100	100	100
6. SD 95481 + chlorsulfuron	0.75 + 0.023	20	20	10	17	100	100	100	100	100	100	100	100	100	100	100	100
7. SD 95481 + diuron	0.75 + 1.6	20	15	20	18	100	100	100	100	100	100	100	100	100	100	100	100
8. pendimethalin + metribuzin	1.0 + 0.25	0	0	0	0	20	20	30	23	100	99	90	96	85	99	80	88
<u>Postemergence, November 2, 1983</u>																	
9. DPX B5882 + X-77	0.031 + 0.5%	0	10	0	3	60	60	70	63	95	99	100	98	95	99	99	98
10. DPX B5882 + X-77	0.047 + 0.5%	0	15	10	8	60	75	60	65	100	100	99	99	99	99	99	99
11. DPX B5882 + X-77	0.062 + 0.5%	10	15	10	12	85	75	60	73	100	95	100	98	100	100	100	100
<u>Postemergence, November 15, 1983</u>																	
12. diclofop-methyl + X-77	0.5 + 0.5%	0	0	0	0	15	15	10	13	70	70	70	70	100	100	100	100
13. AC 222293	0.38	0	0	0	0	0	0	0	0	0	20	0	7	0	0	0	0
14. AC 222293 + diclofop-methyl + pendimethalin	0.38 + 0.25 + 1.0	10	0	0	3	15	0	0	5	85	80	85	83	100	100	100	100
15. diclofop-methyl + SMY 1500	0.5 + 0.75	0	0	0	0	30	20	20	23	90	90	90	90	99	100	100	99
16. diclofop-methyl + chlorsulfuron + X-77	0.5 + 0.008 + 0.5%	0	0	0	0	20	20	15	18	40	70	60	57	100	100	100	100
17. diclofop-methyl + chlorsulfuron + X-77	0.5 + 0.016 + 0.5%	0	0	0	0	30	30	30	30	40	40	40	40	100	100	100	100
18. chlorsulfuron + X-77	0.016 + 0.5%	0	0	0	0	0	0	15	5	0	0	15	5	30	50	50	43
19. chlorsulfuron + X-77	0.023 + 0.5%	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50
20. chlorsulfuron + metribuzin	0.023 + 0.125	0	0	0	0	50	30	30	37	85	90	90	88	80	70	85	78
21. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued on next page)

Evaluated April 26, 1984																								
Trt.	Wheat				Annual bluegrass				Downy brome				Rattail fescue				Italian ryegrass				Wild oats			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1.	0	10	5	5	100	100	100	100	30	40	60	43	100	100	100	100	95	95	95	95	90	90	90	90
2.	10	20	0	10	100	100	100	100	80	85	75	80	100	100	100	100	99	99	100	99	95	90	90	92
3.	15	10	10	12	100	100	100	100	85	90	75	83	100	100	100	100	99	99	100	99	95	90	90	92
4.	30	25	25	27	100	100	100	100	100	99	99	99	100	100	100	100	100	100	100	100	95	90	90	92
5.	60	70	50	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	95	99	95	96
6.	15	20	20	18	100	100	100	100	100	99	99	99	100	100	100	100	100	100	100	100	95	85	90	90
7.	40	50	30	40	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	90	90	90	90
8.	0	15	0	5	99	100	99	99	0	0	0	0	99	100	100	99	20	40	0	20	70	50	0	40
9.	10	5	0	5	100	100	100	100	40	40	50	43	100	100	100	100	95	95	95	95	90	80	80	83
10.	10	20	15	15	100	100	100	100	50	60	60	57	100	100	100	100	99	100	99	99	95	90	85	90
11.	15	15	20	17	100	100	100	100	85	70	75	77	100	100	100	100	100	99	100	99	95	90	90	92
12.	0	0	0	0	50	90	60	67	0	0	0	0	0	0	0	0	100	99	100	99	70	70	80	73
13.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.	0	0	0	0	80	95	90	88	0	0	0	0	50	50	40	47	99	99	99	99	80	90	85	85
15.	0	0	0	0	80	95	85	87	0	10	20	10	70	50	60	60	100	100	100	100	90	70	70	77
16.	0	10	0	3	50	80	70	67	0	0	0	0	0	0	40	13	100	99	100	99	80	60	70	70
17.	0	0	15	5	70	70	70	70	0	0	10	3	0	0	0	0	99	99	99	99	85	80	70	88
18.	0	0	0	0	40	70	60	57	0	0	0	0	0	0	0	0	20	0	0	7	0	0	0	0
19.	0	5	10	5	40	85	40	55	0	0	0	0	0	0	0	0	30	0	0	10	0	0	0	0
20.	5	0	0	2	99	100	99	99	0	0	10	3	60	60	40	53	60	40	60	53	60	0	50	37
21.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Exp. No. 84-12
(continued)

Trt.	Evaluated April 26, 1984								Wheat grain yield				bu/A
	Prostrate knotweed				Mayweed chamomile				(lbs/plot)				
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	
1.	80	75	85	80	100	100	100	100	11.4	9.1	8.8	9.8	90.0
2.	85	85	90	88	100	100	100	100	10.4	11.4	10.1	10.6	97.9
3.	100	95	90	95	100	100	100	100	10.8	9.7	11.4	10.6	97.9
4.	90	95	95	93	90	100	100	97	10.1	9.5	9.3	9.6	88.7
5.	100	100	100	100	100	100	100	100	6.6	5.1	6.9	6.2	57.1**
6.	100	95	95	97	100	100	100	100	10.9	9.1	10.2	10.1	92.7
7.	99	95	95	96	100	100	100	100	9.9	11.6	12.6	11.4	104.7*
8.	80	100	95	92	100	70	50	73	9.9	9.9	9.3	9.7	89.3
9.	70	80	80	77	100	100	100	100	9.7	10.4	9.7	9.9	91.5
10.	70	80	95	82	100	100	100	100	9.7	10.5	14.9	11.7	107.8**
11.	80	85	90	85	100	100	100	100	10.2	10.0	10.0	10.1	92.7
12.	0	0	0	0	0	0	0	0	9.7	9.1	11.3	10.0	92.4
13.	0	0	0	0	0	0	0	0	10.6	10.2	9.2	10.0	92.1
14.	100	100	85	95	100	70	50	73	9.9	9.3	9.5	9.6	88.1
15.	0	0	0	0	70	60	0	43	9.9	8.9	9.9	9.6	88.1
16.	40	60	60	53	90	40	40	57	10.4	10.3	10.2	10.3	94.9
17.	70	80	70	73	100	90	50	80	10.7	9.4	9.0	9.7	89.3
18.	90	80	90	87	100	100	60	87	11.3	9.6	8.2	9.7	89.3
19.	90	90	95	92	100	100	100	100	10.0	8.5	9.3	9.3	85.3
20.	80	100	100	93	100	50	100	83	10.4	9.6	9.6	9.9	90.9
21.	0	0	0	0	0	0	0	0	9.9	9.4	8.5	9.3	85.3

C.V. = 10.2%

LSD_{.05} = 1.66 15.2

LSD_{.01} = 2.22 20.4

Exp. No. 84-12
(continued)

^aDPX B5882 = DuPont 75 WP
SD 95481 = Cinch 7 EC
chlorsulfuron = Glean 75 DF
diuron = Karmex 80 WP
pendimethalin = Prowl 4 EC
metribuzin = Lexone 75 DF
AC 222293 = Assert 2.5 EC
diclofop-methyl = Hoelon 3 EC
SMY 1500 = Mobay 60 WP

^bdowny brome = Bromus tectorum
rattail fescue = Valpia myuros
Italian ryegrass = Lolium multiflorum
wild oats = Avena fatua
annual bluegrass = Poa annua
prostrate knotweed = Polygonum aviculare
mayweed chamomile = Anthemis cotula

Title: Grass Screening in Winter WheatLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: January 19, April 26, 1984Crop (cultivar): Winter wheat (Stephens)Planting date: October 17, 1983 Harvest date: August 2, 1984Seeding rate; planting depth: 45 lbs/A; 1.5 inchesPlot size; row spacing: 8 by 40 ft; 14 inchesSoil series and type: Woodburn silt loam O.M. 2.6 pH 5.5Fertilizer: 300 lbs/A 16-20-0 PPI; 250 lbs/A urea, March 7, 1984

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	October 18, 1983	November 2, 1983
Treatments applied: _____	1-8 (pre)	9-11 (1 leaf)
Temperature (F) _____	Air: 60 Soil: 60	Air: 59 Soil: 59
% Relative humidity _____	83	99
% Cloud cover _____	100	100
Wind speed & direction _____	2-3 mph, Northeast	3-5 mph, Southwest
Dew present? _____	No	Yes
Time of day _____	11:30-12:30 p.m.	12:30-1:00 p.m.
Soil moisture _____	Powdery dry	Slightly muddy
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft.; 9.6 inches	8 ft.; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Wheat</u>	Pre	1 leaf
Weeds <u>Italian ryegrass</u>	Pre	1 leaf
<u>Wild oats</u>	Pre	1 leaf
<u>Downy brome</u>	Pre	1 leaf
<u>Rattail fescue</u>	Pre	1 leaf

Title: Grass Screening in Winter WheatLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____ O.M. _____ pH _____

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: _____

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	November 15, 1983	
Treatments applied:	12-20	
Temperature (F)	Air: 54 Soil: 51	Air: Soil:
% Relative humidity	76	
% Cloud cover	100	
Wind speed & direction	Calm	
Dew present?	Yes	
Time of day	8:30-9:30 a.m.	
Soil moisture	Slightly muddy	
Soil surface	Small clods	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	8 ft.; 9.6 inches	
Nozzle size and type	8002 flat fan	
Boom height	18 inches	
Pressure (psi)	18	
Crop	Wheat	2 leaf
Weeds	Ryegrass	1-2 leaf
	Wild oats	1-2 leaf
	Downy brome	1-2 leaf
	Rattail fescue	1-2 leaf

Exp. No. 84-27

Broadleaf Screening in Winter Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

A trial was conducted to evaluate several herbicides, a "herbicide enhancer," and a "growth stimulant" on winter wheat. Four rows each of rapeseed (Brassica napus), mayweed chamomile (Anthemis cotula), and subclover (Trifolium subterraneum) were planted across each plot in front of the wheat. Large patches of ivyleaf speedwell (Veronica hederefolia) occurred throughout the trial area. Cold weather in late December injured the weeds and made accurate visual evaluations impossible. However, notes were taken on overall performance of each treatment.

Fluorochloridone, RH 3385, and RH 0265 were very effective on ivyleaf speedwell. The later application of fluorochloridone was more effective than the preemergence application in controlling spring-germinating weeds, especially mayweed chamomile. Since the weeds were not planted in the wheat and few weeds other than speedwell occurred in the trial area, none of the treatments produced statistically significant increases in wheat yield. However, all treatments that included 2,4-D reduced yields.

SCI-40 had no visible effect in increasing the activity of dicamba or 2,4-D. Reward did not produce any visible effects on the wheat or affect wheat yield.

Broadleaf Screening in Winter Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Treatment ^a	Rate lb a.i./A	Overall weed control Evaluated May 15, 1984	Visual evaluations - % injury								Wheat grain yield (lbs/plot)					bu/A
			Evaluated Feb. 27, 1984				Evaluated May 15, 1984									
			R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg		
<u>Preemergence (Oct. 20)</u>																
1. RH 3385	0.031	Fair	0	0	0	0	5	0	0	2	13.1	10.8	11.9	11.9	109.9	
2. RH 3385	0.062	Fair	0	0	0	0	0	0	0	0	12.4	16.1	11.6	13.4	123.1	
3. RH 3385	0.125	Good	10	5	5	7	0	0	0	0	12.0	12.4	11.4	11.9	109.9	
4. RH 3385	0.25	Very good	15	10	15	13	5	0	0	2	12.4	14.0	12.0	12.8	117.9	
5. diuron	1.6	Good	10	5	5	7	0	0	0	0	11.1	13.1	13.0	12.4	114.2	
6. fluorchloridone	0.5	Fair	0	0	0	0	0	0	0	0	12.1	11.4	12.2	11.9	109.6	
<u>2-3 leaves (wheat) (Nov. 21)</u>																
7. dicamba	0.125	Poor	5	0	0	2	0	5	0	2	14.0	12.8	12.7	13.2	121.3	
8. dicamba + bromoxynil	0.125 + 0.375	Poor	0	0	10	3	5	0	5	3	11.0	12.3	12.6	12.0	110.2	
9. diuron + chlorsulfuron	0.8 + 0.023	Good	15	5	5	8	0	5	0	2	14.9	14.3	12.4	13.9	127.7	
10. metribuzin + chlorsulfuron	0.125 + 0.023	Good	5	0	5	3	0	0	0	0	12.2	13.3	11.8	12.4	114.5	
11. bentazon	0.5	Poor	0	0	0	0	0	0	0	0	12.3	12.3	12.8	12.5	114.8	
12. RH 0265 + chlorsulfuron	0.06 + 0.004	Fair	5	0	0	2	0	0	0	0	11.9	12.0	11.5	11.8	108.7	
13. RH 0265 + chlorsulfuron	0.03 + 0.004	Poor	5	0	0	2	0	0	0	0	13.4	11.9	12.3	12.5	115.4	
14. RH 0265 + chlorsulfuron	0.03 + 0.008	Fair	0	0	0	0	0	0	0	0	11.0	14.9	12.0	12.6	116.4	
15. RH 0265 + diuron	0.06 + 0.8	Fair	10	5	10	8	0	0	0	0	12.0	12.6	13.5	12.7	117.0	
16. RH 0265 + diuron	0.06 + 1.0	Good	20	5	5	10	5	0	5	3	11.8	11.6	11.7	11.7	107.8	
17. RH 0265	0.06	Poor	0	5	0	2	5	0	0	2	12.9	12.0	14.0	13.0	119.4	
18. RH 0265	0.125	Poor	0	0	5	2	0	0	0	0	13.7	11.8	11.4	12.3	113.3	
19. RH 0265 + diuron + chlorsulfuron	0.03 + 0.8 + 0.004	Good	10	0	5	5	0	0	0	0	11.9	11.7	12.3	12.0	110.2	
20. diuron	1.6	Fair	20	10	15	15	5	0	5	3	13.2	12.3	12.7	12.7	117.3	
21. chlorsulfuron	0.023	Good	0	0	0	0	0	5	0	2	12.5	11.6	12.9	12.3	113.6	
22. fluorchloridone	0.5	Very good	5	5	0	3	0	0	0	0	11.2	12.6	17.0	13.6	125.3	
<u>3 tillers (Jan. 12, 1984)</u>																
23. dicamba	0.125	Fair	0	5	0	2	0	10	0	3	13.3	12.4	11.1	12.3	113.0	
24. dicamba + bromoxynil	0.125 + 0.38	Poor	0	0	0	0	0	0	0	0	12.5	16.1	11.6	13.4	123.4	
25. dicamba + SCI-40	0.125 + 1 qt	Poor	0	0	0	0	0	5	0	2	10.4	11.7	10.4	10.8	99.8	
26. 2,4-D	0.5	Poor	0	0	0	0	0	0	10	3	9.1	9.3	8.8	9.1	83.5	
27. 2,4-D + SCI-40	0.5 + 1 qt	Poor	0	0	0	0	0	10	0	3	9.1	10.0	9.7	9.6	88.4	
28. 2,4-D + MCPP + dicamba	0.33 + 0.16 + 0.11	Poor	5	5	0	3	5	5	0	3	9.2	11.2	9.7	10.0	98.4	
29. MCPA + MCPP + dicamba	0.36 + 0.16 + 0.08	Poor	0	5	0	2	0	5	0	2	11.7	11.7	10.9	11.4	105.3	
30. bentazon	0.5	Poor	0	0	0	0	0	0	0	0	11.0	12.2	14.2	12.5	114.8	

(Continued on next page)

Exp. No. 84-27
(continued)

Treatment ^a	Rate lb a.i./A	Overall weed control Evaluated May 15, 1984	Visual evaluations - % injury								Wheat grain yield (lbs/plot)				bu/A
			Evaluated Feb. 27, 1984				Evaluated May 15, 1984								
			R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	
3-4 tillers (Jan. 31, 1984)															
31. Reward + X-77	12 oz + 0.5%	Poor	0	0	0	0	0	0	0	0	11.0	12.4	11.6	11.7	107.5
32. Reward + X-77	24 oz + 0.5%	Poor	0	0	0	0	0	0	0	0	12.6	11.2	15.3	13.0	120.0
33. RH 3385	0.06	Fair	10	5	0	5	0	0	0	0	14.4	13.1	12.6	13.4	123.1
34. Check	0	Poor	0	0	0	0	0	0	0	0	13.6	12.0	11.6	12.4	114.2

^aRH 3385 = Rohm & Haas 2 lb/gal

LSD .05 = 2.0 18.3

diuron = Karmex 80%

LSD .01 = 2.6 24.4

R 40244 = fluoroachloridone = Racer 2 lb/gal

dicamba = Banvel 4 lb/gal

C.V. = 10.0%

bromoxynil = Buctril 1 lb/gal

chlorsulfuron = Glean 75%

metribuzin = Lexone 75%

bentazon = Basagran 4 lb/gal

RH 0265 = Rohm & Haas 2 lb/gal

2,4-D + MCPP + dicamba = Trimec D

MCPA + MCPP + dicamba = Trimec M

Reward = growth stimulator

SCI-40 = herbicide enhancer

Title: Broadleaf Screening in Winter WheatLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 27, May 15, 1984Crop (cultivar): Winter wheat (Stephens)Planting date: October 17, 1983 Harvest date: July 30, 1984Seeding rate; planting depth: 50 lbs/A, 1.5 inchesPlot size; row spacing: 8 by 35 ftSoil series and type: Woodburn silt loam O.M. 3.2 pH 5.5Fertilizer: 200 lbs/A 16-20-0 preplant; 250 lbs/A urea March 7

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	October 20, 1983	November 21, 1983
Treatments applied: _____	1-6 (Pre)	7-22 (2-3 leaf)
Temperature (F) _____	Air: 54 Soil: 54	Air: _____ Soil: _____
% Relative humidity _____	92	74
% Cloud cover _____	100	50
Wind speed & direction _____	Calm	Calm, Southeast
Dew present? _____	Yes	No
Time of day _____	7:15 a.m.	2:15-4:30 p.m.
Soil moisture _____	Dry	Muddy
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft; 9.6 inches	8 ft; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Wheat</u>	Pre	2-3 leaf stage
Weeds <u>Rape</u>	Pre	
<u>Mayweed</u>	Pre	
<u>Subclover</u>	Pre	

Title: Broadleaf Screening in Winter WheatLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: _____

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	January 12, 1984	January 31, 1984
Treatments applied: _____	23-30	31-33
Temperature (F) _____	Air: 43 Soil: 44	Air: 39 Soil: 37
% Relative humidity _____	84	90
% Cloud cover _____	100	100 (fog)
Wind speed & direction _____	Calm	Calm
Dew present? _____	Yes	Yes
Time of day _____	8:30-10:30 a.m.	9:30 a.m.
Soil moisture _____	Slightly muddy	Very moist
Soil surface _____	Small clods	Smooth
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 21 gpa
Length of boom & nozzle spacing _____	8 ft; 9.6 inches	7 ft; 16.8 inches
Nozzle size and type _____	8002 flat fan	8003 flat fan
Boom height _____	18 inches	14 inches
Pressure (psi) _____	18	28
Crop <u>Wheat</u>	3 tillers	3-4 tillers
Weeds <u>Speedwell</u>		1-inch branches
<u>Henbit</u>		4-6 leaves
<u>Common chickweed</u>		2-4 leaves
<u>Subclover</u>		1-2 inches diameter
<u>Annual bluegrass</u>		3-leaf, 2 tillers

Exp. No. 84-13

Grass Control in Winter Wheat with SMY 1500 and Metribuzin
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

A trial was established to evaluate SMY 1500 on annual grasses in winter wheat. Downy brome, rattail fescue, Italian ryegrass, and wild oats were seeded in 3-ft wide strips in the front of each plot. Fourteen rows of wheat were seeded 14 inches apart in the back of each plot. Annual bluegrass, prostrate knotweed, and common chickweed grew throughout the trial area. Measureable rain was recorded on 45 consecutive days during the fall of 1983. This heavy precipitation may have affected the performance of the herbicides in this trial.

The SMY 1500 was most effective when applied on the later post-emergence timing. However, control of downy brome, Italian ryegrass, wild oats, and prostrate knotweed was not adequate at any timing.

The late application of metribuzin at the high rate produced the highest grain yield.

Grass Control in Winter Wheat with SMY 1500 and Metribuzin
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Exp. No. 84-13

Treatment	Rate lbs a.i./A	Visual evaluations - % injury or control																							
		Evaluated January 11, 1984																							
		Wheat				Downy brome				Rattail fescue				Italian ryegrass				Annual bluegrass				Common chickweed			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>Prem emergence (October 18, 1983)</u>																									
1. SMY 1500	1.5	0	0	0	0	50	30	30	37	60	40	50	50	70	70	70	70	100	90	100	97	100	100	100	100
2. metribuzin	0.25	0	0	0	0	20	0	30	13	50	40	40	43	40	50	60	50	80	90	95	88	80	90	90	87
3. SMY 1500 + metribuzin	0.75 + 0.125	0	0	0	0	50	60	50	53	70	70	60	67	70	80	70	73	90	100	90	93	100	90	100	97
<u>Pre/2 leaf (October 18/November 8, 1983)</u>																									
4. diuron/diclofop-methyl	1.6/1.0	10	5	5	7	50	50	30	43	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
<u>2 leaf (November 8, 1983)</u>																									
5. SMY 1500	0.75	0	0	0	0	40	20	20	27	80	40	60	60	85	60	60	65	100	100	90	97	100	100	90	97
6. SMY 1500	1.0	0	0	0	0	50	50	40	47	60	70	70	67	80	80	75	78	100	99	100	99	100	100	100	100
7. SMY 1500	1.5	0	10	0	3	60	60	20	47	70	75	70	72	85	80	85	83	95	100	100	98	100	100	100	100
8. metribuzin	0.25	0	0	5	2	50	60	50	53	85	80	90	85	90	90	95	92	95	95	100	97	100	100	100	100
9. SMY 1500 + metribuzin	0.75 + 0.125	0	0	0	0	50	20	30	33	70	80	70	73	80	80	75	78	95	100	90	95	100	90	90	93
<u>2 leaf/1 tiller November 8/December 13, 1983)</u>																									
10. diuron/diclofop-methyl	1.6/1.0	15	20	10	15	20	20	20	20	95	95	99	96	100	90	85	92	95	100	100	98	100	100	100	100
<u>1 tiller (December 13, 1983)</u>																									
11. SMY 1500	0.75	0	0	0	0	0	0	0	0	70	70	50	63	50	50	50	50	80	100	100	93	100	100	100	100
12. SMY 1500	1.0	0	0	0	0	0	0	0	0	80	90	80	83	50	50	60	53	95	100	100	98	100	100	100	100
13. SMY 1500	1.5	0	0	0	0	0	0	0	0	90	80	90	87	60	50	60	57	95	100	100	98	100	100	100	100
14. metribuzin	0.25	0	0	0	0	0	0	10	3	70	70	70	70	50	50	50	50	95	100	100	98	100	100	100	100
15. metribuzin	0.5	10	0	0	3	30	20	20	23	70	90	85	82	60	70	50	60	95	100	100	98	100	100	100	100
16. SMY 1500 + metribuzin	0.75 + 0.125	0	0	0	0	0	0	0	0	80	85	90	85	50	50	40	47	100	95	100	98	100	100	100	100
17. SMY 1500 + metribuzin	1.5 + 0.25	0	5	0	2	20	50	20	30	85	85	70	80	60	60	60	60	95	100	100	98	100	100	100	100
18. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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(Continued on next page)

Evaluated April 26, 1984																				
Trt.	Wheat				Annual bluegrass				Downy brome				Rattail fescue				Italian ryegrass			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1.	0	0	0	0	60	60	70	63	0	0	0	0	0	0	0	0	0	0	0	0
2.	0	0	0	0	50	30	40	40	0	0	0	0	0	0	0	0	0	0	0	0
3.	0	0	0	0	70	60	70	67	0	0	0	0	0	0	0	0	0	0	0	0
4.	20	0	5	8	100	100	100	100	0	10	10	7	100	99	100	99	100	99	100	99
5.	0	0	0	0	100	100	90	97	20	0	0	7	40	0	60	33	30	0	0	10
6.	0	0	0	0	60	80	90	77	0	0	0	0	50	0	70	40	0	0	20	7
7.	0	0	0	0	85	99	90	91	20	10	10	13	70	90	50	70	0	20	0	7
8.	0	0	0	0	70	60	90	73	0	0	0	0	80	60	85	75	0	20	50	23
9.	0	0	0	0	70	80	90	80	0	0	0	0	0	50	60	37	0	0	0	0
10.	20	10	5	12	100	100	100	100	0	10	10	7	100	100	100	100	100	100	100	100
11.	0	0	0	0	90	95	90	92	0	0	0	0	80	80	40	67	0	0	0	0
12.	0	0	0	0	100	100	100	100	0	0	0	0	80	100	90	90	0	0	0	0
13.	0	0	0	0	100	100	100	100	0	10	0	3	95	100	95	97	40	0	0	13
14.	0	0	0	0	100	100	80	93	0	10	0	3	60	50	80	63	0	0	0	0
15.	0	0	5	2	100	100	100	100	20	0	0	7	100	100	100	100	0	20	0	7
16.	0	0	0	0	99	100	100	99	0	0	0	0	100	100	100	100	0	0	20	7
17.	5	5	0	3	100	100	100	100	40	60	20	40	100	100	100	100	60	70	60	63
18.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued on next page)

Exp. No. 84-13
(Continued)

Trt.	Evaluated April 26, 1984												Wheat yield (lbs/plot)				
	Wild oats				Prostrate knotweed				Common chickweed				R1	R2	R3	Avg	bu/A
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg					
1.	20	0	0	7	0	0	0	0	80	50	90	73	10.4	10.5	11.2	10.7	98.5
2.	20	0	0	7	0	0	0	0	70	0	80	50	10.4	11.9	10.6	11.0	101.0
3.	20	0	0	7	0	0	0	0	90	80	90	87	11.0	10.7	11.4	11.0	101.6
4.	95	80	85	87	70	60	90	73	95	95	100	97	11.5	10.7	11.3	11.2	102.8
5.	0	0	0	0	0	0	0	0	50	90	90	77	10.8	10.8	9.8	10.5	96.4
6.	0	0	0	0	0	0	0	0	70	90	100	87	10.5	9.9	11.4	10.6	97.6
7.	0	0	0	0	0	0	0	0	90	100	80	90	10.0	10.0	10.1	10.0	92.4
8.	0	0	0	0	0	0	0	0	90	90	90	90	11.8	10.5	10.5	10.9	100.7
9.	0	0	0	0	0	0	0	0	80	30	90	67	11.4	10.9	9.5	10.6	97.6
10.	99	95	95	96	50	60	50	53	100	100	100	100	11.4	10.9	10.2	10.8	99.8
11.	0	0	0	0	0	0	0	0	99	100	100	99	11.7	11.4	11.2	11.4	105.3
12.	0	0	0	0	0	0	0	0	95	100	90	95	11.3	11.1	11.7	11.4	104.7
13.	0	0	0	0	50	60	60	57	100	100	100	100	10.8	10.2	10.6	10.5	97.0
14.	0	0	0	0	0	50	0	17	100	100	100	100	11.2	11.5	11.5	11.4	105.0
15.	0	0	20	7	50	70	90	70	100	100	100	100	15.9	11.6	11.4	13.0	119.4*
16.	40	0	0	13	0	0	0	0	100	100	95	98	12.5	11.5	10.9	11.6	107.1
17.	80	60	70	70	90	60	90	80	100	100	100	100	12.7	11.6	10.8	11.7	107.8
18.	0	0	0	0	0	0	0	0	0	0	0	0	12.0	10.5	11.0	11.2	102.8

^aSMY 1500 = Mobay 60 WP
metribuzin = Lexone 75 df
diuron = Karmex 80 WP
diclofop-methyl = Hoelon 3 EC

^bdowny brome = Bromus tectorum
rattail fescue = Vulpia myuros
Italian ryegrass = Lolium multiflorum
annual bluegrass = Poa annua
common chickweed = Stellaria media
wild oats = Avena fatua
prostrate knotweed = Polygonum aviculare

LSD_{.05} = 1.3 11.9

C.V. = 7.0%

Title: Grass Control in Wheat with SMY 1500 and MetribuzinLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: January 11, April 26, 1984Crop (cultivar): Winter wheat (Stephens)Planting date: October 17, 1983 Harvest date: July 30, 1984Seeding rate; planting depth: 45 lbs/A; 1.5 inchesPlot size; row spacing: 8 by 40 ft; 14 inchesSoil series and type: Woodburn silt loam O.M. 2.6% pH 5.5Fertilizer: 200 lb/A 16-20-0 PPI; 240 lb/A urea, March 5, 1984

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	October 18, 1983	November 8, 1983
Treatments applied: _____	1-4 (pre)	4-10 (2 leaf)
Temperature (F) _____	Air: 63 Soil: 60	Air: 42 Soil: 46
% Relative humidity _____	70	85
% Cloud cover _____	50	100
Wind speed & direction _____	3-5 mph, Northeast	Calm
Dew present? _____	No	Yes
Time of day _____	2:00-2:20 p.m.	10:00-10:45 a.m.
Soil moisture _____	Powdery dry	Muddy
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft.; 9.6 inches	8 ft.; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Winter wheat</u>	Pre	2 leaf
Weeds <u>Downy brome</u>	Pre	1 leaf
<u>Italian ryegrass</u>	Pre	1-2 leaf
<u>Wild oats</u>	Pre	1 leaf
<u>Rattail fescue</u>	Pre	1 leaf

Title: Grass Control in Winter Wheat with SMY 1500 and MetribuzinLocation (farm, town, county, year): Hyslip Farm, Corvallis, Benton County, Oregon
1983-84

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____ O.M. _____ pH _____

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: _____

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	December 13, 1983	
Treatments applied:	10-17	
Temperature (F)	Air: 50 Soil: 50	Air: _____ Soil: _____
% Relative humidity	99	
% Cloud cover	100	
Wind speed & direction	2-4 mph, Southwest	
Dew present?	Yes	
Time of day	10:30-11:00 a.m.	
Soil moisture	Muddy	
Soil surface	Small clods	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	8 ft.; 9.6 inches	
Nozzle size and type	8002 flat fan	
Boom height	18 inches	
Pressure (psi)	18	
Crop	Wheat 4-5 leaf, 1-2 tillers	
Weeds	Downy brome 3 leaf	
	Rattail fescue 3-5 leaf	
	Italian ryegrass 4-5 leaf, 1-2 tillers	
	Wild oats 2-4 leaf, 1 tiller	
	Annual bluegrass 2-4 leaf	

Exp. No. 84-11

Diclofop-methyl Tank Mixes on Winter Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

✓ A trial was conducted to evaluate the efficacy and crop tolerance of several tank-mix combinations of diclofop-methyl with broadleaf herbicides. Italian ryegrass seed was broadcast over the wheat while wild oats were seeded outside ~~of~~ the wheat, in the back of each plot. With this planting arrangement, interference from ryegrass caused the greatest reduction in wheat yield. Annual bluegrass and prostrate knotweed undoubtedly contributed to yield loss while wild oats had no effect on the crop.

Cold weather in late December killed most of the wild oats that were emerged when the treatments were applied, so the April evaluations of wild oat control were essentially on preemergence treatments. Although more of the treatments provided adequate wild oat control, some appeared much better than others. The combination with diuron and metribuzin was particularly weak on wild oats. Although chlorsulfuron seemed to be reducing diclofop-methyl activity on ryegrass when evaluated in December, all treatments produced complete control by April.

Chlorsulfuron and RH 0265 were the weakest treatments on annual bluegrass.

Chlorsulfuron and fluorochloridone were particularly effective on prostrate knotweed.

All treatments increased yields over the untreated check by at least 40 bu/A. There were no differences in grain yield among the treatments.

Diclofop-Methyl Tank-Mixes on Winter Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Exp. No. 84-11

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control																			
		Evaluated December 6, 1983 ^b																			
		Wheat					Italian ryegrass					Wild oats					Annual bluegrass				
		R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg
<u>Preemergence/postemergence</u> <u>(October 18/November 7, 1983)</u>																					
1. diuron/diclofop-methyl	1.6/1.0	5	0	5	5	4	100	99	100	99	99	99	99	99	99	99	100	99	90	100	97
<u>Postemergence</u>																					
2. diclofop-methyl + fluorochloridone	1.0 + 0.38	10	10	15	15	12	100	100	99	99	99	99	99	99	99	99	90	100	90	90	92
3. diclofop-methyl + bromoxynil	1.0 + 0.38	0	10	0	0	2	100	99	100	99	99	99	99	99	99	99	70	20	30	70	47
4. diclofop-methyl + chlorsulfuron	1.0 + 0.023	0	0	0	0	0	100	95	99	99	98	90	90	95	95	92	0	50	60	30	35
5. diclofop-methyl + diuron	1.0 + 0.4	0	5	0	10	4	99	99	99	95	98	95	99	99	95	97	50	60	70	90	68
6. diclofop-methyl + metribuzin	1.0 + 0.125	0	10	5	5	5	100	95	99	99	98	99	99	99	99	99	99	100	99	100	99
7. diclofop-methyl + RH 0265	1.0 + 0.125	15	20	10	15	15	100	100	100	99	99	99	99	99	99	99	70	70	70	80	72
8. diclofop-methyl + dinoseb amine	1.0 + 1.5	10	15	5	5	9	100	100	100	99	99	90	99	95	99	96	99	90	100	100	97
9. diclofop-methyl + diuron + chlorsulfuron	1.0 + 0.4 + 0.023	5	10	5	5	6	99	95	95	95	96	90	95	99	99	96	60	30	60	60	52
10. diclofop-methyl + diuron + fluorochloridone	1.0 + 0.4 + 0.38	15	15	15	15	15	100	99	99	100	99	99	99	99	99	99	100	100	80	100	95
11. diclofop-methyl + diuron + metribuzin	1.0 + 0.4 + 0.125	10	0	5	0	4	100	100	100	99	99	99	99	99	99	99	100	100	100	100	100
12. diclofop-methyl + diuron + RH 0265	1.0 + 0.4 + 0.125	20	20	15	15	17	100	99	100	95	98	99	99	99	99	99	100	80	80	80	85
13. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued on next page)

Evaluated April 26, 1984																															
Trt	Wheat					Wild oats					Italian ryegrass					Annual bluegrass					Prostrate knotweed					Wheat yield (lbs/plot)					bu/A
	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	
1.	0	0	0	0	0	70	60	70	75	69	100	100	100	100	100	100	100	100	100	100	90	70	60	60	70	8.7	8.9	11.6	7.4	9.2	84.3
2.	0	0	0	0	0	70	50	80	75	69	100	100	100	100	100	90	100	90	95	94	100	100	100	100	100	8.6	8.2	8.8	9.7	8.8	81.3
3.	0	0	0	0	0	70	70	60	60	65	100	100	100	100	100	60	60	60	50	58	0	0	0	0	0	8.5	9.5	12.3	8.5	9.7	89.3
4.	0	0	0	0	0	70	60	80	80	78	100	100	100	100	100	85	85	85	80	84	100	100	100	100	100	8.7	8.3	8.7	9.9	8.9	82.0
5.	0	0	0	0	0	60	50	50	60	55	100	100	100	100	100	75	90	90	90	86	0	0	0	0	0	9.0	8.4	9.5	8.8	8.9	82.2
6.	0	0	0	0	0	50	50	80	70	62	100	100	100	100	100	95	95	90	80	90	0	0	0	0	0	8.5	10.7	8.6	9.3	9.3	85.4
7.	0	0	0	0	0	60	50	50	30	48	100	100	100	100	100	70	70	80	90	78	0	0	0	0	0	9.3	8.9	9.2	9.9	9.3	85.9
8.	0	0	0	5	1	70	50	80	60	65	100	100	100	100	100	90	90	90	90	90	0	50	0	0	12	8.6	8.7	9.4	8.1	8.7	80.1
9.	0	0	10	5	4	50	60	80	75	68	100	100	100	100	100	95	90	95	100	95	100	100	100	99	99	9.5	8.4	10.1	8.7	9.2	84.5
10.	10	10	10	10	10	60	50	70	70	62	100	100	100	100	100	100	100	100	100	100	100	100	99	100	99	8.8	7.8	9.3	11.2	9.3	85.4
11.	0	0	0	0	0	30	20	60	40	38	100	100	100	100	100	100	95	99	90	96	50	0	0	0	12	8.3	8.5	7.9	9.1	8.5	77.8
12.	15	15	0	10	10	50	60	70	60	60	100	100	100	100	100	95	95	90	95	94	0	0	0	0	0	8.5	8.4	8.9	9.2	8.8	80.6
13.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.6	3.5	4.3	3.7	4.0	37.1

^a diuron = Karmex 80 WP
diclofop-methyl = Hoelon 3 EC
fluorochloridone = Racer 2 EC
bromoxynil = Buctril 2 EC
chlorsulfuron = Glean 75 df
metribuzin = Lexone 75 df
RH 0265 = Rohm & Haas 2 EC
dinoseb amine = Clean Crop 3 EC

^b Italian ryegrass = Lolium multiflorum
wild oats = Avena fatua
annual bluegrass = Poa annua
prostrate knotweed = Polygonum aviculare

LSD_{.05} = 1.3 12.4
LSD_{.01} = 1.8 16.6
C.V. = 10.8

Title: Diclofop-Methyl Tank-Mixes on Winter WheatLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: December 6, 1983 - April 26, 1984Crop (cultivar): Winter wheat (Stephens)Planting date: October 17, 1983 Harvest date: July 30, 1984Seeding rate; planting depth: 45 lbs/A; 1.5 inchesPlot size; row spacing: 8 by 30 ftSoil series and type: Woodburn silt loam O.M. 2.6% pH 5.5Fertilizer: 200 lbs/A 16-20-0

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	October 18, 1983	November 7, 1983
Treatments applied:	1 (pre)	All (post)
Temperature (F)	Air: 62 Soil: 60	Air: 54 Soil: 56
% Relative humidity	82	70
% Cloud cover	70	50
Wind speed & direction	3-5 mph; Northeast	4-6 mph; Southwest
Dew present?	No	No
Time of day	2:00 p.m.	1:30-2:00 p.m.
Soil moisture	Powdery dry	Slightly muddy
Soil surface	Small clods	Small clods
Method of application:	Broadcast	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water; 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing	8 ft.; 9.6 inches	8 ft.; 9.6 inches
Nozzle size and type	8002 flat fan	8002 flat fan
Boom height	18 inches	18 inches
Pressure (psi)	18	18
Crop	Wheat	Pre
Weeds	Ryegrass	Pre
	Wild oats	Pre

Exp. No. 84-9

Annual Grass Control in Winter Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

A trial was conducted to evaluate herbicides for annual grass control in winter wheat. Six rows of wheat and two rows of each weed were seeded with Planet Jr. seeders. The wheat was seeded about 1 inch deep. This shallow seeding and 45 consecutive days of measureable precipitation followed by unusually cold weather led to unusually severe damage to the wheat from several treatments, including diuron.

Soft brome was controlled surprisingly well by diuron, possibly because of the unusually cold weather. Large differences in sensitivity to herbicides among the three brome species occurred. Downy brome was usually the most resistant species except to diclofop-methyl.

All treatments except SMY 1500 provided good control of Italian ryegrass.

Annual Grass Control in Winter Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Exp. No. 84-9

		Visual evaluations - % injury or control																			
		Evaluated December 5, 1983																			
Treatment ^a	Rate lbs a.i./A	Wheat				Annual bluegrass ^b				Field brome				Soft brome				Downy brome			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>Preplant incorporated (Oct. 13, 1983)</u>																					
1. diclofop-methyl	1.25	0	5	10	5	50	70	95	72	50	80	80	70	50	70	70	63	80	85	90	85
2. triallate	1.25	0	5	0	2	75	20	20	38	85	80	80	82	90	85	85	87	60	80	85	75
<u>Preemergence (Oct. 18, 1983)</u>																					
3. diuron	1.6	0	0	10	3	80	95	100	92	40	30	60	43	20	30	50	33	10	0	30	13
4. diclofop-methyl	1.25	0	0	0	0	85	100	100	95	50	80	70	67	50	60	70	60	40	70	75	62
5. pendimethalin	1.0	0	0	0	0	95	95	100	97	40	0	60	33	20	0	30	17	20	0	30	17
6. diclofop-methyl + diuron	1.25 + 1.6	10	5	10	8	95	100	100	98	30	60	70	53	50	60	65	58	50	70	80	67
7. pendimethalin + diuron	1.0 + 1.6	10	0	0	3	100	100	100	100	50	75	80	68	60	85	80	75	40	50	70	53
8. diclofop-methyl + pendimethalin	1.25 + 1.0	5	0	10	5	100	100	100	100	50	85	70	68	70	70	70	70	60	70	75	68
9. SD 95481	0.75	30	30	40	33	100	100	100	100	99	99	100	99	95	99	100	98	100	100	100	100
10. napropamide	1.0	30	30	30	30	100	100	100	100	85	80	85	83	70	70	85	75	70	85	85	80
<u>Postemergence (October 31, 1983)</u>																					
11. diuron	1.6	10	10	10	10	85	90	80	85	80	60	75	72	60	70	70	67	30	40	50	40
12. DPX B5882 + X-77	0.062 + 0.25% v/v	5	5	0	3	85	60	50	65	85	75	80	80	70	60	70	67	75	70	75	73
<u>Postemergence (October 31/November 8, 1983)</u>																					
13. diuron/diclofop-methyl	1.6/1.25	10	10	15	12	95	100	100	98	70	50	75	65	80	80	85	82	40	50	30	40
<u>Postemergence (November 8, 1983)</u>																					
14. metribuzin	0.38	10	10	10	10	90	70	60	73	75	70	70	72	75	70	80	75	50	60	70	60
15. diuron	1.6	10	5	10	8	70	80	100	83	50	60	60	57	50	40	60	50	50	30	40	40
16. SMY 1500	1.0	0	0	5	2	60	50	50	53	40	40	50	43	60	40	60	53	30	60	60	50
17. barban	0.38	0	0	0	0	60	20	60	47	0	0	0	0	0	0	0	0	0	0	0	0
18. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued on next page)

Annual Grass Control in Winter Wheat (continued)

Exp. No. 84-9
(continued)

Trt.	Evaluated December 5, 1983											
	Wild oats				Italian ryegrass				Rattail fescue			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1.	70	80	85	78	100	99	100	99	70	60	95	75
2.	100	99	95	98	70	70	90	77	30	60	85	58
3.	10	10	50	23	40	60	75	58	90	99	100	96
4.	60	85	70	72	100	100	100	100	95	99	100	98
5.	40	80	70	63	80	95	85	87	90	90	100	93
6.	60	85	85	77	100	100	100	100	100	100	100	100
7.	70	50	70	63	80	85	99	88	100	100	100	100
8.	90	90	85	88	100	100	100	100	100	100	100	100
9.	85	99	90	91	100	100	100	100	100	100	100	100
10.	70	75	70	72	85	85	95	88	100	100	100	100
11.	10	10	30	17	80	90	95	88	99	100	100	99
12.	85	80	80	82	60	60	85	68	85	80	90	85
13.	100	95	90	95	99	100	100	99	100	100	100	100
14.	75	80	80	78	80	80	80	80	85	95	95	92
15.	50	70	70	63	60	60	80	67	85	80	95	87
16.	30	40	30	33	30	50	50	43	60	75	50	62
17.	50	60	60	57	60	50	50	53	0	50	0	17
18.	0	0	0	0	0	0	0	0	0	0	0	0

(Continued on next page)

Annual Grass Control in Winter Wheat (continued)

Exp. No. 84-9
(continued)

Evaluated April 19, 1984																																
Trt.	Wheat				Annual bluegrass				Field brome				Soft brome				Downy brome				Wild oats				Italian ryegrass				Rattail fescue			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1.	0	15	10	8	50	0	70	40	60	60	70	63	0	40	70	37	70	70	85	75	50	0	85	45	99	100	100	99	30	20	90	47
2.	0	10	0	3	50	0	70	40	60	60	75	65	100	99	95	98	30	70	75	58	100	80	100	93	100	95	100	98	70	70	100	80
3.	0	0	0	0	100	95	100	98	30	0	70	33	100	99	100	99	0	0	0	0	20	20	0	13	95	95	99	96	100	100	100	100
4.	0	0	10	3	70	90	100	87	30	30	60	40	0	0	50	17	30	30	60	40	40	70	70	60	100	100	100	100	90	90	90	90
5.	0	0	0	0	100	100	100	100	20	30	50	33	0	60	75	45	0	20	0	7	80	90	85	85	99	99	100	99	100	100	100	100
6.	0	15	15	10	99	100	100	99	30	75	80	62	20	80	90	63	20	60	60	47	0	0	50	17	95	100	100	98	100	100	100	100
7.	0	10	15	8	100	99	100	99	40	70	90	67	100	100	100	100	20	30	40	30	85	80	95	87	100	100	100	100	100	100	100	100
8.	0	0	15	5	100	100	100	100	40	85	85	70	0	75	85	53	30	60	60	50	95	80	85	87	100	100	100	100	100	100	100	100
9.	80	80	90	83	100	100	100	100	95	100	100	98	95	100	100	98	95	100	100	98	75	85	80	80	100	100	100	100	100	100	100	100
10.	50	50	50	50	100	100	100	100	95	100	95	97	100	99	100	99	90	95	95	93	85	85	90	87	85	100	100	95	100	100	100	100
11.	10	25	20	18	99	85	100	95	60	60	70	63	100	100	100	100	20	30	25	25	30	0	0	10	95	90	100	95	99	95	100	98
12.	15	0	10	8	100	100	100	100	100	100	100	100	100	100	90	97	90	90	90	90	90	85	90	88	100	95	100	98	100	100	100	100
13.	15	15	40	23	100	100	100	100	80	75	85	80	100	99	100	99	60	60	60	60	70	30	80	60	100	99	100	99	100	100	100	100
14.	15	20	20	18	80	85	80	82	60	70	60	63	100	100	100	100	60	40	50	50	20	0	0	7	99	90	85	91	100	85	99	95
15.	25	30	70	42	99	100	99	99	60	70	60	63	100	100	100	100	20	0	10	10	20	70	0	30	90	100	100	97	99	90	100	97
16.	10	15	15	13	0	80	0	27	20	20	50	30	80	40	80	67	30	20	20	20	20	0	0	7	80	70	60	70	80	70	80	77
17.	0	0	10	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	7	85	80	100	88	0	0	0	0
18.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a diclofop-methyl = Hoelon 3 EC
 triallate = Fargo 4 EC
 diuron = Karmex 80 WP
 pendimethalin = Prowl 4 EC
 SD 95481 = Cinch 7 EC
 napropamide = Devrinol 50 WP
 DPX 85882 = du Pont 75 df
 metribuzin = Lexone 75 df
 SMY 1500 = Mobay 60 WP
 barban = Carbyne 2 EC

^b annual bluegrass = Poa annua
 field brome = Bromus arvensis
 soft brome = Bromus mollis
 downy brome = Bromus tectorum
 wild oats = Avena fatua
 Italian ryegrass = Lolium multiflorum
 rattail fescue = Vulpia myuros

Title: Annual grass control in winter wheatLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: December 5, 1983; April 19, 1984Crop (cultivar): Wheat (Stephens)Planting date: October 13, 1983

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 7 by 30 feet; 12 inchesSoil series and type: Woodburn silt loam O.M. 2.6 pH 5.5Fertilizer: 200 lb/A 16-20-0 preplant; 250 lb/A urea, March 5, 1984

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	October 13, 1983	October 18, 1983
Treatments applied: _____	<u>1 & 2 (PPI)</u>	<u>3-10 (pre)</u>
Temperature (F) _____	Air: <u>55</u> Soil: <u>62</u>	Air: <u>59</u> Soil: <u>58</u>
% Relative humidity _____	<u>88</u>	<u>80</u>
% Cloud cover _____	<u>100</u>	<u>75</u>
Wind speed & direction _____	<u>3-5 mph, Southwest</u>	<u>2-4 mph, Northeast</u>
Dew present? _____	<u>Yes</u>	<u>No</u>
Time of day _____	<u>3:00 p.m.</u>	<u>1:00-1:30 p.m.</u>
Soil moisture _____	<u>Powdery dry</u>	<u>Powdery dry</u>
Soil surface _____	<u>Small clods</u>	<u>Small clods</u>
Method of application: _____	<u>Broadcast</u>	<u>Broadcast</u>
Type of sprayer _____	<u>Unicycle</u>	<u>Unicycle</u>
Ground speed _____	<u>3 mph</u>	<u>3 mph</u>
Type of carrier & volume _____	<u>Water</u>	<u>Water</u>
Length of boom & nozzle spacing _____	<u>6 ft.; 18 inches</u>	<u>6 ft.; 18 inches</u>
Nozzle size and type _____	<u>8002 flat fan</u>	<u>8002 flat fan</u>
Boom height _____	<u>18 inches</u>	<u>18 inches</u>
Pressure (psi) _____	<u>25</u>	<u>25</u>
Crop <u>Wheat</u>	<u>Preplant</u>	<u>Preemergence</u>
Weeds <u>Annual bluegrass</u>	<u>Preplant</u>	<u>Preemergence</u>
<u>Field brome</u>	<u>Preplant</u>	<u>Preemergence</u>
<u>Soft brome</u>	<u>Preplant</u>	<u>Preemergence</u>
<u>Downy brome</u>	<u>Preplant</u>	<u>Preemergence</u>
<u>Wild oats</u>	<u>Preplant</u>	<u>Preemergence</u>
<u>Ryegrass</u>	<u>Preplant</u>	<u>Preemergence</u>
<u>Rattail fescue</u>	<u>Preplant</u>	<u>Preemergence</u>

Title: Annual grass control in winter wheatLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____ O.M. _____ pH _____

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: _____

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	October 31, 1983	November 8, 1983
Treatments applied: _____	11-13	13-17
Temperature (F) _____	Air: 59 Soil: 59	Air: 52 Soil: 48
% Relative humidity _____	99	83
% Cloud cover _____	100	100
Wind speed & direction _____	3-5 mph, Southwest	2-3 mph, Northeast
Dew present? _____	Yes	Yes
Time of day _____	11:30-12:00 noon	2:00-2:30 p.m.
Soil moisture _____	Slightly muddy	Slightly muddy
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water	Water
Length of boom & nozzle spacing _____	6 ft.; 18 inches	6 ft.; 18 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	25	25
Crop <u>Wheat</u>	1 leaf	2-3 leaf
Weeds <u>Annual bluegrass</u>	Pre	1 leaf
<u>Field brome</u>	1 leaf	1 leaf
<u>Soft brome</u>	1 leaf	1-2 leaf
<u>Downy brome</u>	1 leaf	1 leaf
<u>Wild oats</u>	1 leaf	1-2 leaf
<u>Ryegrass</u>	1 leaf	1-2 leaf
<u>Rattail fescue</u>	1 leaf	1 leaf

Diclofop-Methyl Timing on Wild Oats in Winter Wheat
Wahl Farm, Corvallis, Benton County, Oregon
1983-84

Two trials with different wild oat densities were conducted in the same field to evaluate timing of herbicide application. Diclofop-methyl was applied to two treatments in each trial on December 15, 1983. In late December, all the wild oats that had emerged died because of cold weather. By late February, more wild oats had emerged so stand counts in the check plots were done by counting the wild oats in three 1-sq ft quadrats per plot. On March 7, difenzoquat was applied to one of the December diclofop-methyl treatments in each trial. The later diclofop-methyl treatment was also applied.

Results from the two trials were very similar. Diclofop-methyl did not provide adequate wild oat control when applied in December. Difenzoquat improved the control of the December diclofop-methyl treatment, but it was still not as good as the March diclofop-methyl treatment.

In many instances, especially when Italian ryegrass is present, significant yield reductions can occur if herbicide application is delayed until March. In such cases, two applications of diclofop-methyl may be superior to single applications made early or late.

Diclofop-Methyl Timing on Wild Oats in Winter Wheat
Wahl Farm, Corvallis, Benton County, Oregon
1983-84

Treatment ^a	Rate lb ai/A	Visual evaluations - % injury or control																Plants/sq ft								Wheat yield (lbs/plot)								bu/A																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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		R1	R2	R3	R4	R5	R6	Avg	R1	R2	R3	R4	R5	R6	Avg	R1	R2	R3	R4	R5	R6	Avg	R1	R2	R3	R4	R5	R6	Avg																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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1. diclofop-methyl	1.0	0	0	0	0	0	0	0	50	50	50	50	60	80	57																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

Treatment	Wheat							Wild oats							Wild oats							Wheat yield (lbs/plot)							bu/A						
	R1	R2	R3	R4	R5	R6	Avg	R1	R2	R3	R4	R5	R6	Avg	R1	R2	R3	R4	R5	R6	Avg	R1	R2	R3	R4	R5	R6	Avg							
Trial 2																																			
1.	0	0	0	0	0	0	0	99	85	85	50	50	50	70								6.8	6.5	7.2	6.2	6.4	6.7	6.6	46.4						
2.	0	0	0	0	0	0	0	90	90	99	99	85	50	86								8.1	9.8	8.6	11.2	9.3	9.8	9.5	66.3						
3.	0	0	0	0	0	0	0	85	99	99	99	99	99	97								11.6	10.9	10.4	11.6	11.7	10.6	11.1	77.9						
4.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	5	11	4	6	18	8	4.1	4.5	3.3	3.6	3.3	3.8	3.8	26.4						
a diclofop-methyl = Hoelon 3 ec																												C.V. = 9.3%		LSD .05 = 0.9					6.2
difenzoquat = Avenge 2 1																												LSD .01 = 1.2					8.6		

^adiclofop-methyl = Hoelon 3 ec
difenzoquat = Avenge 2 l

^bwild oats = Avena fatua

Title: Diclofop-Methyl Timing on Winter WheatLocation (farm, town, county, year): Wahl Farm, Corvallis, Benton County, Oregon,
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: April 12, 1984Crop (cultivar): Winter wheat (Hill 81)Planting date: October 11, 1983 Harvest date: August 7, 1984Seeding rate; planting depth: 120 lbs/A; 2 inchesPlot size; row spacing: 8 by 25 ftSoil series and type: Chehalis silty clay loam O.M. 5.1 pH 4.9Fertilizer: 175 lb/A 10-20-20 fallOther pesticides: diuron 1.6 lb/A Irrigation: _____Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	December 15, 1983	March 7, 1984
Treatments applied:	1 and 2	2 and 3
Temperature (F)	Air: 45 Soil: 44	Air: 68 Soil: 72
% Relative humidity	90	56
% Cloud cover	95	50
Wind speed & direction	3-4 mph, North	2-3 mph, North
Dew present?	Yes	No
Time of day	10:30 a.m.	2:00 p.m.
Soil moisture	Muddy	Dry on surface
Soil surface	Small clods	Granular
Method of application:	Broadcast	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water, 25 gpa	Water, 26 gpa
Length of boom & nozzle spacing	8 ft; 9.6 inches	7 ft; 9.3 inches
Nozzle size and type	8002 flat fan	8002 flat fan
Boom height	18 inches	19 inches
Pressure (psi)	18	18
Crop	Wheat	3-4 leaf, 0-1 tillers
Weeds	Wild oats	1-3 leaf

Exp. No. 84-10

Effect of Reduced Diclofop-Methyl Rates on
Wheat and Wild oats
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

A trial was conducted to evaluate the effect of adjuvant, rate, and timing of diclofop-methyl on wild oat control in winter wheat. Wheat was sown with a grain drill in the front of each plot. Wild oats were broadcast in the back of each plot and were incorporated into the soil with a harrow.

Cold weather in late December killed many of the wild oats that had emerged, but a second flush germinated in late February. All of the wild oats that had been treated with diclofop-methyl ~~prior to the~~ freezing weather died, regardless of timing or rate of application. The ratings in the following table reflect control of wild oats that emerged 3 to 4 months after application.

Excellent wild oat control was obtained from the March application. Some improvement in control was obtained with the higher rates. In normal wheat culture, spray coverage on the wild oats would have been much reduced by late March because of the advanced wheat growth. Under such conditions, greater differences among rates of diclofop-methyl could be expected.

Effect of Reduced Diclofop-Methyl Rates on Wheat and Wild Oats
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control									
		Evaluated April 26, 1984									
		Wheat					Wild oats ^b				
		R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg
November 8, 1983											
1. diclofop-methyl + Herbimax	0.25	0	0	0	0	0	50	60	40	0	38
2. diclofop-methyl + Herbimax	0.38	0	0	0	0	0	50	70	40	30	48
3. diclofop-methyl + Herbimax	0.5	0	0	0	0	0	50	60	40	80	58
4. diclofop-methyl	0.5	0	0	0	0	0	60	50	50	70	58
5. diclofop-methyl + Herbimax	0.625	0	0	0	0	0	60	60	40	80	60
6. diclofop-methyl	0.625	0	0	0	0	0	20	60	60	70	52
7. diclofop-methyl + Herbimax	0.75	0	0	0	0	0	20	50	70	85	55
8. diclofop-methyl	0.75	0	0	0	0	0	20	40	75	60	49
December 15, 1983											
9. diclofop-methyl + Herbimax	0.25	0	0	0	0	0	40	50	50	60	50
10. diclofop-methyl + Herbimax	0.38	0	0	0	0	0	40	50	60	70	55
11. diclofop-methyl + Herbimax	0.5	0	0	0	0	0	50	60	60	60	58
12. diclofop-methyl	0.5	0	0	0	0	0	50	70	60	80	65
13. diclofop-methyl + Herbimax	0.625	0	0	0	0	0	60	60	70	70	65
14. diclofop-methyl	0.625	0	0	0	0	0	60	60	60	70	62
15. diclofop-methyl + Herbimax	0.75	0	0	0	0	0	70	60	60	70	65
16. diclofop-methyl	0.75	0	0	0	0	0	70	60	60	60	62
March 27, 1984											
17. diclofop-methyl + Herbimax	0.25	0	0	0	0	0	90	95	99	95	95
18. diclofop-methyl + Herbimax	0.38	0	0	0	0	0	95	90	95	99	95
19. diclofop-methyl + Herbimax	0.5	0	0	0	0	0	99	95	99	99	98
20. diclofop-methyl	0.5	0	0	0	0	0	99	99	99	99	99
21. diclofop-methyl + Herbimax	0.625	0	0	0	0	0	99	99	99	99	99
22. diclofop-methyl	0.625	0	0	0	0	0	99	99	90	99	97
23. diclofop-methyl + Herbimax	0.75	0	0	0	0	0	99	99	99	99	99
24. diclofop-methyl	0.75	0	0	0	0	0	99	99	95	99	98
25. Check	0	0	0	0	0	0	0	0	0	0	0
26. Check	0	0	0	0	0	0	0	0	0	0	0

^a diclofop-methyl = Hoelon 3 EC
Herbimax added @ 1 qt/A

^b wild oats = Avena fatua

Title: Effect of Reduced Diclofop-Methyl Rates on Wheat and Wild OatsLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon, 1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: April 26, 1984Crop (cultivar): Winter wheat (Stephens)Planting date: October 17, 1983 Harvest date: _____Seeding rate; planting depth: 45 lbs/A; 1.5 inchesPlot size; row spacing: 8 by 25 ft; 14 inchesSoil series and type: Woodburn silt loam O.M. 2.6 pH 5.5Fertilizer: 200 lbs/A 16-20-0 PPI; 250 lbs/A urea, March 7, 1984

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	November 8, 1983	December 15, 1983
Treatments applied: _____	1-8	9-16
Temperature (F) _____	Air: 41 Soil: 43	Air: 43 Soil: 44
% Relative humidity _____	99	92
% Cloud cover _____	100 (fog)	80
Wind speed & direction _____	Calm	2-4 mph, North
Dew present? _____	Yes	Yes
Time of day _____	9:00-10:00 a.m.	9:00-9:30 a.m.
Soil moisture _____	Slightly muddy	Muddy
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft; 9.6 inches	8 ft; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Wheat</u>	1.5 leaf	4-5 leaf; 1-2 tillers
Weeds <u>Ryegrass</u>	1 leaf	3-4 leaf; 1-2 tillers
<u>Wild oats</u>	1 leaf	2-4 leaf; 0-1 tiller

Title: Effect of Reduced Diclofop-Methyl Rates on Wheat and Wild Oats

Location (farm, town, county, year): _____

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: _____

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	March 27, 1984	
Treatments applied:	17-24	
Temperature (F)	Air: 60 Soil: 58	Air: Soil:
% Relative humidity	82	
% Cloud cover	20	
Wind speed & direction	2-5 mph, Southwest	
Dew present?	Yes	
Time of day	10:30-11:30 a.m.	
Soil moisture	Moist	
Soil surface	Smooth	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	7 ft; 9.3 inches	
Nozzle size and type	8002 flat fan	
Boom height	27 inches	
Pressure (psi)	20	
Crop	Wheat	1 node, 14-18 inches
Weeds	Ryegrass	8 to 12 inches
	Wild oats	1 leaf to 3 tillers

Exp. No. 84-57

Ryegrass and Wild Oat Control in Winter Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Winter wheat was seeded on January 24, 1984, with Planet Jr. seeders mounted on an International cub tractor. Four rows of wild oats were seeded in the back of each plot, but outside of the wheat. Italian ryegrass was broadcast across the plots with a spin spreader prior to seeding the wheat.

Diclofop-methyl and barban combinations were applied when the ryegrass was in the 2-4 leaf stage and the wild oats were in the 2-3 leaf stage. Treatments 15 and 16 were not applied until the weeds had several tillers.

Because the wild oats were not growing in the wheat, most of the wheat-yield reduction was caused by the ryegrass. Annual bluegrass also occurred in the trial area and probably contributed to the variability in yield.

All treatments caused large increases in wheat yields, and all treatments that contained diclofop-methyl produced at least 89% control of Italian ryegrass. The addition of Herbimax at 1 qt/A to diclofop-methyl, at 0.5 or 0.625 lb/A, did not result in better ryegrass control or higher wheat yields, although wild oat control may have been slightly improved.

The addition of barban to diclofop-methyl stunted the wheat and did not produce an economic increase in ryegrass or wild oat control. Barban applied alone or in combination with difenzoquat did not provide adequate control of ryegrass or wild oats.

The crop injury rating on the two late diclofop-methyl treatments probably reflect the damage done by competition from the ryegrass. The 3-week delay between the early and late applications caused a loss in yield of 20 to 45 bu/A.

Ryegrass and Wild Oat Control in Winter Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Exp. No. 84-57

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control Evaluated April 11, 1984																	
		Wheat						Italian ryegrass						Wild oats					
		R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg
1. diclofop-methyl + Herbimax	0.25 + 1 qt	0	0	0	0	0	0	95	100	99	100	100	99	70	50	70	85	95	74
2. diclofop-methyl + Herbimax	0.38 + 1 qt	0	0	0	0	0	0	100	100	100	100	100	100	90	95	85	95	90	91
3. diclofop-methyl + Herbimax	0.5 + 1 qt	0	0	0	0	0	0	100	100	100	100	100	100	90	90	95	95	99	94
4. diclofop-methyl	0.5	0	0	0	0	0	0	100	100	100	100	100	100	90	95	90	95	99	94
5. diclofop-methyl + Herbimax	0.625 + 1 qt	0	0	0	0	0	0	100	100	100	100	100	100	99	90	95	90	90	93
6. diclofop-methyl	0.625	0	0	0	0	0	0	100	100	100	100	100	100	99	90	90	99	95	95
7. diclofop-methyl	0.75	0	0	0	0	0	0	100	100	100	100	100	100	100	95	95	95	99	94
8. diclofop-methyl + bromoxynil	0.5 + 0.38	0	5	0	5	0	2	99	100	100	100	100	99	90	99	85	99	99	94
9. diclofop-methyl + bromoxynil	0.5 + 0.38	0	0	0	0	0	0	95	100	100	100	100	99	85	80	95	95	95	90
10. barban	0.38	10	15	15	25	15	16	85	85	90	85	90	87	85	90	85	85	90	87
11. barban + difenzoquat	0.38 + 0.25	20	15	20	10	15	16	85	85	90	85	85	86	90	95	85	85	90	89
12. barban + difenzoquat	0.38 + 0.5	10	15	15	10	20	14	85	80	90	85	85	85	85	90	90	90	99	91
13. barban + diclofop-methyl	0.38 + 0.25	15	20	20	25	20	20	100	100	100	90	99	98	90	90	95	95	95	93
14. barban + diclofop-methyl	0.38 + 0.5	20	20	20	30	25	23	100	100	100	100	100	100	90	90	95	99	95	94
15. diclofop-methyl + Herbimax	0.38 + 1 qt	0	0	0	0	0	0	40	60	50	50	50	50	40	50	50	50	60	50
16. diclofop-methyl + Herbimax	0.5 + 1 qt	0	0	0	0	0	0	50	50	60	50	60	52	50	50	50	50	60	52
17. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued on next page)

Exp. No. 84-57
(continued)

Trt.	Evaluated June 7, 1984																								
	Wheat						Italian ryegrass						Wild oats						Wheat yield (lbs/plot)						
	R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg	bu/A
1.	0	0	0	0	0	0	90	90	90	85	90	89	40	20	20	60	60	40	11.6	12.8	13.9	13.8	12.5	12.9	108.4
2.	0	0	0	0	0	0	95	90	95	99	95	95	70	75	75	90	85	79	11.8	20.5	16.0	14.9	17.7	16.2	135.8
3.	0	0	0	0	0	0	95	99	99	95	95	97	80	85	80	95	95	87	11.6	13.5	13.0	13.6	16.1	13.6	113.8
4.	0	0	0	0	0	0	95	95	100	95	95	96	85	70	60	95	95	81	13.3	11.8	17.0	15.1	13.5	14.1	118.6
5.	0	0	0	0	0	0	100	90	100	100	99	98	85	85	90	85	85	86	14.2	11.3	13.0	15.3	16.5	14.1	118.0
6.	0	0	0	0	0	0	95	100	99	95	99	98	90	85	90	90	85	88	15.1	12.2	14.4	15.1	14.1	14.2	119.0
7.	0	0	10	0	10	4	95	100	100	100	100	99	90	90	75	90	85	86	15.3	12.5	13.6	16.5	13.7	14.3	120.1
8.	0	0	0	0	0	0	95	100	99	95	100	98	80	85	75	85	90	83	14.8	14.1	13.5	13.5	12.1	13.6	114.1
9.	0	0	0	0	0	0	100	100	100	95	100	99	80	85	70	90	90	83	14.9	20.4	13.2	13.3	14.9	15.3	128.7
10.	0	0	0	10	15	5	80	80	80	80	90	82	70	60	60	60	70	64	12.6	14.4	12.8	13.3	10.4	12.7	106.6
11.	10	0	0	0	0	2	80	80	85	80	80	81	70	70	75	60	70	69	11.3	11.3	10.6	15.9	11.1	12.0	101.0
12.	0	0	0	0	10	2	80	80	80	85	80	81	70	75	70	60	60	69	12.6	10.3	16.3	14.1	11.5	13.0	108.7
13.	0	10	0	10	5	5	90	90	95	90	90	91	70	80	75	60	70	71	11.4	12.1	14.5	12.6	11.2	12.4	103.7
14.	0	10	10	0	0	4	95	99	95	95	99	97	75	85	85	85	90	84	12.9	13.5	12.2	12.1	12.4	12.6	105.9
15.	20	20	30	30	25	25	90	95	95	99	90	94	60	50	70	60	70	62	12.6	9.4	12.7	9.3	10.2	10.8	90.9
16.	0	20	20	15	20	15	95	95	100	99	95	97	85	70	75	85	60	75	12.9	10.1	10.6	11.4	10.4	11.1	93.0
17.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.1	3.8	4.4	4.7	3.2	3.8	32.2

^adiclofop-methyl = Hoelon 3 EC
barban = Carbyne 2 EC
difenzoquat = Avenge 2 L
Herbimax = oil concentrate
bromoxynil trmt. 8 = Buctril 2 EC
bromoxynil trmt. 9 = Buctril 4 EC

^bItalian ryegrass = Lolium multiflorum
wild oats = Avena fatua

LSD .05 = 2.3 19.2

LSD .01 = 3.0 25.6

C.V. = 14.2%

Title: Ryegrass and Wild Oat Control in Winter WheatLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: April 11, June 7, 1984Crop (cultivar): Winter wheat (Stephens, Yamhill)Planting date: January 24, 1984 Harvest date: August 6, 1984

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 30 ft; 10 inchesSoil series and type: Woodburn silt loam O.M. 2.3% pH 7.0

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	March 7, 1984	March 27, 1984
Treatments applied: _____	1-14	15, 16
Temperature (F) _____	Air: 60 Soil: 64	Air: 62 Soil: 64
% Relative humidity _____	58	60
% Cloud cover _____	70	30
Wind speed & direction _____	203 mph, North	2-4 mph, Southwest
Dew present? _____	No	Yes
Time of day _____	11:30-12:30 p.m.	Noon
Soil moisture _____	Moist	Moist
Soil surface _____	Smooth	Smooth
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Backpack, CO ₂	Backpack, CO ₂
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 16 spa	Water, 16 spa
Length of boom & nozzle spacing _____	6 ft.; 18.0 inches	6 ft.; 18.0 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	20 inches	20 inches
Pressure (psi) _____	30	30
Crop Wheat _____	3-4 leaf	2-4 tillers
Weeds Ryegrass _____	2-4 leaf	4-6 tillers
Wild oats _____	2-3 leaf	2-4 tillers

Exp. No. 84-15

Slender Foxtail Control in Winter Wheat
Cutting Farm, Bellvue, Yamhill County, Oregon
1983-84

Slender foxtail (blackgrass) is a new weed problem in western Oregon winter wheat. Research in 1982-83 indicated that diclofop-methyl can control slender foxtail if applied early in the season. This trial was conducted to evaluate the efficacy of diclofop-methyl on slender foxtail at four stages of development early in the season. AC 222293 was included in the two earliest timings. Diuron was applied to all treatments except the check, but few weeds other than slender foxtail occurred in the trial area. Diuron had no visible effect on blackgrass in previous work.

All timings of diclofop-methyl were effective on the slender foxtail and increased by about 50 bu/A. AC 222293 was partially effective, but a higher rate was required to achieve satisfactory control.

Slender Foxtail Control in Winter Wheat
Cutting Farm, Bellvue, Yamhill County, Oregon
1983-84

Exp. No. 84-15

Treatment ^a		Visual evaluations - % injury or control																				Wheat yield (lbs/plot)					bu/A
		Evaluated February 9, 1984										Evaluated June 14, 1984															
		Wheat					Blackgrass ^b					Wheat					Blackgrass										
		R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg						
<u>Preemergence</u>																											
1. diclofop-methyl + diuron	1.0 + 1.6	0	0	0	0	0	95	99	99	99	98	0	0	0	0	0	99	100	100	90	97	15.3	13.0	15.0	13.5	14.2	96.6
2. AC 222293 + diuron	0.5 + 1.6	0	0	0	0	0	40	80	50	90	65	0	0	0	0	0	0	80	80	95	64	7.6	11.1	11.1	14.5	11.1	75.3
<u>Preemergence/1 leaf</u>																											
3. diuron/ diclofop-methyl	1.6/ 1.0	0	0	0	0	0	95	95	99	99	97	0	0	0	0	0	99	100	100	100	99	12.9	12.4	14.4	14.8	13.6	92.7
4. diuron/ AC 222293 + X-77	1.6/ 0.5	0	0	0	0	0	99	80	80	80	85	0	0	0	0	0	80	0	20	70	42	14.2	9.9	11.5	10.6	11.6	78.5
<u>Preemergence/2-3 leaf</u>																											
5. diuron/ diclofop-methyl	1.6/ 1.0	0	0	0	0	0	100	99	95	99	98	0	0	0	0	0	100	100	100	100	100	15.7	14.8	12.6	15.3	14.6	99.3
<u>Preemergence/3-4 leaf</u>																											
6. diuron/ diclofop-methyl	1.6/ 1.0	0	0	0	0	0	90	80	90	70	82	0	0	0	0	0	100	90	100	100	98	16.2	13.6	15.9	15.4	15.3	103.9
7. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.5	5.5	7.3	8.9	6.8	46.2

^adiclofop-methyl = Hoelon 3 EC
diuron = Karmex 80 WP
AC 222293 = Assert 2.5 L
X-77 added at the rate of 0.5% v/v

^bSlender foxtail = *Alopecurus myosuroides*
Avg of 40 plants/sq ft on February 9, 1984

LSD₀₅ = 2.4 16.6
LSD₀₁ = 3.3 22.7
C.V. = 13.2%

Title: Slender Foxtail Control in WheatLocation (farm, town, county, year): Cutting Farm, Bellvue, Yamhill County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 9, June 14, 1984Crop (cultivar): Winter wheat (Stephens)Planting date: October 24, 1983 Harvest date: August 3, 1984Seeding rate; planting depth: 100 lbs/A; 1.5 inchesPlot size; row spacing: 8 by 25 ft; 7 inchesSoil series and type: Willamette silt loam O.M. 3.4% pH 4.7

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	October 25, 1983	November 7, 1983
Treatments applied: _____	All (pre)	3 and 4
Temperature (F) _____	Air: 51 Soil: 50	Air: 53 Soil: 52
% Relative humidity _____	80	95
% Cloud cover _____	0	80
Wind speed & direction _____	Calm	Calm
Dew present? _____	No	Yes
Time of day _____	10:00-10:30 a.m.	10:00 a.m.
Soil moisture _____	Dry on surface	Muddy
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft; 9.6 inches	8 ft; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop _____	Wheat	Pre
Weeds _____	Slender foxtail	Pre
		Emerging to 1 leaf
		Emerging to 1 leaf

Title: Slender Foxtail Control in Wheat (continued)

Location (farm, town, county, year):

Evaluation scale:

Evaluation date:

Crop (cultivar):

Planting date: Harvest date:

Seeding rate; planting depth:

Plot size; row spacing:

Soil series and type: O.M. pH

Fertilizer:

Other pesticides: Irrigation:

Experimental design:

LSD: 0.05 0.01 C.V.

Method and depth of inc.:

Notes:

Date:	December 12, 1983	January 17, 1984
Treatments applied:	5	6
Temperature (F)	Air: 43 Soil: 42	Air: 40 Soil: 36
% Relative humidity	75	46
% Cloud cover	100 (light rain)	0
Wind speed & direction	2-3 mph, Southwest	3-5 mph, Northeast
Dew present?	Yes	No
Time of day	9:30 a.m.	2:00 p.m.
Soil moisture	Muddy	Muddy
Soil surface	Small clods	Granular
Method of application:	Broadcast	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing	8 ft; 9.6 inches	8 ft; 9.6 inches
Nozzle size and type	8002 flat fan	8002 flat fan
Boom height	18 inches	18 inches
Pressure (psi)	18	18
Crop	Wheat	1-2 tillers
Weeds	Slender foxtail	3-4 leaf

Exp. No. 84-7

Brome Control in Winter Wheat
Grainger Farm, Monmouth, Polk County, Oregon
1983-84

Several herbicide treatments were applied to winter wheat infested with soft brome and wild oats. Although all treatments except the standard (diuron/diclofop-methyl) provided some soft brome control, none of the treatments were satisfactory. An unusually wet fall and colder-than-usual winter may have adversely affected some of the treatments. The field was put into a government set-aside program so the trial was not harvested.

Title: Brome Control in Winter WheatLocation (farm, town, county, year): Grainger Farm, Monmouth, Polk County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 2, May 4, 1984Crop (cultivar): Winter wheat (Stephens)Planting date: October 15, 1983 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 25 ft.; 7 inchesSoil series and type: Amity silty clay loam O.M. 3.8% pH 4.5

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	October 6, 1983	October 20, 1983
Treatments applied: _____	1 and 2 (PoPI)	1-6 (pre)
Temperature (F) _____	Air: 65 Soil: 62	Air: 58 Soil: 58
% Relative humidity _____	45	85
% Cloud cover _____	0	100
Wind speed & direction _____	5 mph, Northeast	2-3 mph, Northeast
Dew present? _____	No	Yes
Time of day _____	9:30-10:00 a.m.	10:30-11:00 a.m.
Soil moisture _____	Powdery dry	Powdery dry
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft; 9.6 inches	8 ft; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Wheat</u>	Pre	Pre
Weeds <u>Brome</u>	Pre	Few in 1 leaf
<u>Ryegrass</u>	Pre	Pre
<u>Wild oats</u>	Pre	Pre

Title: Brome Control in Winter WheatLocation (farm, town, county, year): Grainger Farm, Monmouth, Polk County, Oregon1983-84

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____ O.M. _____ pH _____

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: _____

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	December 1, 1983	
Treatments applied:	1-6	
Temperature (F)	Air: 42 Soil: 42	Air: Soil:
% Relative humidity	78	
% Cloud cover	70	
Wind speed & direction	1-3 mph, North	
Dew present?	No	
Time of day	3:00 p.m.	
Soil moisture	Slightly muddy	
Soil surface	Granular	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	8 ft; 9.6 inches	
Nozzle size and type	8002 flat fan	
Boom height	18 inches	
Pressure (psi)	18	
Crop	Wheat	3 leaf
Weeds	Brome	2 leaf
	Ryegrass	2 leaf
	Wild oats	2 leaf

Brome Control in Winter Wheat
Grainger Farm, Monmouth, Polk County, Oregon
1983-84

		Visual observations - % injury or control																								
		Evaluated February 2, 1984										Evaluated May 4, 1984														
		Wheat					Soft brome ^b					Wheat					Soft brome					Wild oats				
Treatment ^a	Rate lbs a.i./A	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg
<u>Post-plant incorporated/preemergence/3 leaf</u>																										
1. triallate/diuron/ diclofop-methyl	1.25/1.6/ 0.75	0	0	0	0	0	90	80	70	80	80	0	0	0	0	0	70	50	50	70	60	80	95	90	80	86
2. triallate/diuron/ metribuzin	1.25/1.6/ 0.38	0	15	0	0	4	95	90	80	80	86	15	15	0	0	8	75	60	60	80	69	80	80	90	80	82
<u>Preemergence/3 leaf</u>																										
3. diuron/diclofop-methyl	1.6/0.75	0	0	0	0	0	50	80	60	80	68	0	0	0	0	0	50	0	50	0	25	30	80	50	0	40
4. diuron/metribuzin	1.6/0.38	15	0	0	0	4	80	70	60	60	68	0	0	0	0	0	50	50	50	50	50	50	50	50	50	50
5. diclofop-methyl + diuron/ diclofop-methyl + X-77	1.0 + 1.6/ 0.25 + 0.5%	0	0	0	0	0	70	80	80	60	72	0	10	0	0	2	70	80	70	50	68	100	100	90	80	92
6. diclofop-methyl + diuron/ metribuzin	1.0 + 1.6/ 0.38											0	0	0	0	0	80	50	80	60	68	100	100	100	90	98
7. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a triallate = Fargo 4 EC
diuron = Karmex 80 WP
diclofop-methyl = Hoelon 3 EC
metribuzin = Lexone 75 DF
X-77 = surfactant @ 0.5% v/v

^b soft brome = Bromus mollis
wild oats = Avena fatua

Exp. No. 84-17

Catchweed Bedstraw Control in Winter Wheat
Metge Farm, Corvallis, Benton County, Oregon
1983-84

Combinations of dinoseb amine and chlorsulfuron were compared for bedstraw control in winter wheat. The addition of Herbimax, a crop oil concentrate, to dinoseb increased wheat injury. Injury was most severe when chlorsulfuron was added to the dinoseb-Herbimax treatment. Dinoseb alone caused very little injury.

All treatments provided excellent bedstraw control.

Catchweed Bedstraw Control in Winter Wheat
Metge Farm, Corvallis, Benton County, Oregon
1983-84

Treatment ^a	Rate lb ai/A	Visual evaluations - % injury or control																				Wheat grain yield (lbs/plot)					bu/A
		Evaluated February 15, 1984										Evaluated April 17, 1984															
		Wheat					Catchweed bedstraw ^b					Wheat					Catchweed bedstraw										
		R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg						
1. dinoseb + Herbimax	1.5	20	20	10	20	18	100	100	100	100	100	10	15	0	10	9	99	100	100	99	99	11.7	12.5	11.3	10.1	11.4	77.6
2. dinoseb	1.5	0	0	0	10	2	100	100	100	100	100	0	0	0	0	0	100	100	100	100	100	14.2	9.8	11.6	12.1	11.9	81.2
3. dinoseb + chlorsulfuron + Herbimax	1.5 + 0.023	20	20	10	20	18	100	100	100	100	100	15	20	10	20	16	100	100	100	100	100	10.8	11.5	11.4	8.6	10.6	72.0
4. dinoseb + chlorsulfuron	1.5 + 0.023	10	20	0	10	10	100	100	100	100	100	10	10	0	10	8	100	100	100	100	100	12.1	12.0	12.2	12.1	12.1	82.4
5. dinoseb	0.75	0	0	0	0	0	100	100	100	99	99	0	0	0	0	0	100	100	100	100	100	11.0	12.8	13.0	10.8	11.9	81.0
6. dinoseb + Herbimax	0.75	20	0	10	10	10	100	99	100	100	99	0	0	5	0	1	100	100	100	95	99	11.5	11.4	12.3	12.7	12.0	81.5
7. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14.7	11.0	12.5	14.6	13.2	89.9

^a dinoseb = Clean Crop Dinitro 3
Herbimax applied @ 1% v/v
chlorsulfuron = Glean 75%

^b catchweed bedstraw = Galium aparine

LSD_{.05} = n.s. n.s.

C.V. = 11.0%

Title: Catchweed Bedstraw Control in Winter WheatLocation (farm, town, county, year): Metge Farm, Corvallis, Benton County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 15, April 17, 1984Crop (cultivar): Winter wheat (Yamhill - Stephens)Planting date: October 27, 1983 Harvest date: August 2, 1984

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 25 ftSoil series and type: Willamette silt loam O.M. 2.5% pH 4.9Fertilizer: 220 lbs/A urea, March 20, 1984

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	December 15, 1983	
Treatments applied:	1-6	
Temperature (F)	Air: 43	Soil: 44
% Relative humidity	92	
% Cloud cover	100	
Wind speed & direction	Calm	
Dew present?	Yes	
Time of day	10:30 a.m.	
Soil moisture	Muddy	
Soil surface	Small clods	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	8 ft; 9.6 inches	
Nozzle size and type	8002 flat fan	
Boom height	18 inches	
Pressure (psi)	18	
Crop	Wheat	3-4 leaf, 0-1 tiller
Weeds	Bedstraw	Cotyledon- 1 whorl

Exp. No. 84-16

Catchweed Bedstraw Control in Winter Wheat
Roth Farm, Albany, Linn County, Oregon
1983-84

Herbicides were applied as single or repeat treatments on two dates to evaluate catchweed bedstraw control in winter wheat. Although initial evaluations indicated excellent control from several treatments, later emerging seedlings caused lower ratings in the spring for all treatments. Severe take-all root rot in part of the trial prevented accurate assessment of treatment effects on grain yield.

Catchweed Bedstraw Control in Winter Wheat
Roth Farm, Albany, Linn County, Oregon
1983-84

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control																			
		Evaluated February 17, 1984										Evaluated April 17, 1984									
		Wheat					Catchweed bedstraw ^b					Wheat					Catchweed bedstraw				
		R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg
<u>December 13, 1983</u>																					
1. chlorsulfuron + X-77	0.023	0	0	0	0	0	80	80	60	90	78	0	0	0	0	0	60	50	70	80	65
2. dinoseb	1.5	0	0	0	0	0	90	70	80	90	82	0	0	0	0	0	80	60	50	90	70
3. dicamba + chlorsulfuron	0.125 + 0.023	0	0	0	0	0	99	80	90	80	88	0	0	0	0	0	90	70	60	70	72
4. dicamba + bromoxynil	0.125 + 0.38	0	0	10	0	2	90	90	90	100	92	0	0	0	0	0	80	50	70	85	71
5. dinoseb + chlorsulfuron	1.5 + 0.023	0	0	0	0	0	90	90	90	95	91	0	0	0	0	0	70	80	90	85	81
6. fluorochloridone	0.5	0	0	0	0	0	50	90	85	99	81	0	0	0	0	0	50	70	70	80	68
<u>January 25, 1984</u>																					
7. dinoseb	1.5	10	-	15	0	8	100	-	100	100	100	0	-	0	0	0	80	-	85	85	83
8. terbutryn	2.2	10	-	10	0	7	80	-	100	90	90	10	-	0	0	3	50	-	80	70	67
9. dinoseb + terbutryn	1.5 + 2.2	15	20	20	15	18	100	100	99	99	99	10	10	10	10	10	90	80	85	90	86
<u>December 13, 1983/January 25, 1984</u>																					
10. dinoseb/terbutryn	1.5/2.2	10	10	10	10	10	99	90	95	95	95	0	10	0	0	2	70	70	80	90	78
11. dinoseb/dinoseb	1.5/1.5	10	10	0	5	6	99	100	99	100	99	0	0	0	0	0	60	85	70	70	71
12. dinoseb/chlorsulfuron + X-77	1.5/0.023	0	0	0	5	1	80	95	85	99	90	0	0	0	0	0	80	95	85	90	88
13. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a chlorsulfuron = Glean 75%
 dinoseb = Clean Crop Dinitro 3
 dicamba = Banvel 4 lb/gal
 bromoxynil = Buctril 2 lb/gal
 fluoroachloridone = Racer 2 lb/gal
 terbutryn = Igran 80%
 X-77 added @ 0.25% v/v

^b catchweed bedstraw = Galium aparine

Title: Catchweed Bedstraw Control in Winter WheatLocation (farm, town, county, year): Roth Farm, Albany, Linn County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 17, April 17, 1984Crop (cultivar): Winter wheat (Stephens)Planting date: October 27, 1983

Harvest date: _____

Seeding rate; planting depth: 100 lbs/A; 1.5 inchPlot size; row spacing: 8 by 25 feet; 6 inchesSoil series and type: Chehalis silty dry loam O.M. 4.4% pH 5.2

Fertilizer: _____

Other pesticides: diuron 0.8 lbs/A, Oct. 28 Irrigation: _____Experimental design: Randomized complete block

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	December 13, 1983	January 25, 1984
Treatments applied: _____	1-6, 10-12	7-9, 10-12
Temperature (F) _____	Air: 50 Soil: 49	Air: 53 Soil: 54
% Relative humidity _____	98	90
% Cloud cover _____	100	60
Wind speed & direction _____	3-6 mph, Southwest	Calm
Dew present? _____	Yes	Yes
Time of day _____	9:00-9:30 a.m.	11:00-12:30 p.m.
Soil moisture _____	Muddy	Muddy
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft; 9.6 inches	8 ft; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Winter wheat</u>	2-3 leaf	5 leaf; 1-2 tiller
Weeds <u>Bedstraw</u>	Cotyledon - 1 whorl	1-2 whorl
_____	_____	_____
_____	_____	_____

Exp. No. 84-40

Tolerance of Winter Wheat to Clopyralid
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Clopyralid was applied at four rates to winter wheat to evaluate crop tolerance. Combinations with 2,4-D and MCPA were also included. The trial site had few weeds and interference with the crop was minimal.

No herbicide symptoms were observed on the wheat. Although there was a trend toward higher yields with increasing rates of herbicide, none of the differences were statistically significant.

Tolerance of Winter Wheat to Clopyralid
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury								Wheat yield (lbs/plot)				
		Evaluated Apr. 13, 1984				Evaluated June 5, 1984								bu/A
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	
1. clopyralid	0.062	0	0	0	0	0	0	0	0	10.8	10.5	10.9	10.7	98.9
2. clopyralid	0.125	0	0	0	0	0	0	0	0	10.9	10.6	11.6	11.0	101.6
3. clopyralid	0.25	0	0	0	0	0	0	0	0	11.1	11.8	11.5	11.5	105.6
4. clopyralid	0.5	0	0	0	0	0	0	0	0	11.4	11.4	12.1	11.6	107.1
5. clopyralid + 2,4-D	0.125 + 0.5	0	0	0	0	0	0	0	0	11.7	11.9	10.6	11.4	105.0
6. clopyralid + MCPA	0.125 + 0.5	0	0	0	0	0	0	0	0	11.6	11.7	10.5	11.3	103.8
7. Check	0	0	0	0	0	0	0	0	0	10.6	10.6	10.1	10.4	96.1

55

^aclopyralid = Lontrel 3 L
2,4-D = Rhodia amine 4 L
MCPA = Weedar 64 4 L

n.s.

C.V. = 4.6%

Title: Winter Wheat Tolerance to Clopyralid

Location (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Evaluation scale: 0 = no effect, 100 = complete kill

Evaluation date: April 13, June 5, 1984

Crop (cultivar): Winter wheat (Stephens)

Planting date: October 17, 1983 Harvest date: July 27, 1984

Seeding rate; planting depth: 50 lbs/A; 1.5 inches

Plot size; row spacing: 8 by 25 ft; 14 inches

Soil series and type: Woodburn silt loam O.M. 2.6% pH 5.5

Fertilizer: 16-20-0 200 lbs/A PPI; 240 lbs/A March 7

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	March 27, 1984	
Treatments applied:	All	
Temperature (F)	Air: 60 Soil: 62	Air: _____ Soil: _____
Relative humidity	61	
Cloud cover	90	
Wind speed & direction	Calm	
Dew present?	No	
Time of day	4:30-5:00 p.m.	
Soil moisture	Very moist	
Soil surface	Smooth	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	7 ft.; 9.3 inches	
Nozzle size and type	8002 flat fan	
Boom height	28 inches	
Pressure (psi)	20	
Crop	Wheat	1-2 node, 16-18 inches
Weeds	Shepherdspurse	4-6 inches diameter
	Bittercress	Flowering
	Henbit	2-3 inches tall
	Prickly lettuce	3-4 inches diameter

Exp. No. 84-29

Speedwell Control in Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Several herbicides were applied to a natural infestation of Persian speedwell in winter wheat. Cold weather in late December followed by frost heaving in late January eliminated most of what originally was a heavy stand. All of the herbicides affected the speedwell, but it was not clear that chlorsulfuron or SMY 1500 would have been adequate if the winter had been milder.

No significant effects on wheat yields occurred since the weed pressure was minimal and none of the treatments seriously injured the wheat.

Speedwell Control in Wheat
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Exp. No. 84-29

Treatment ^a	Rate lbs ai/A	Visual evaluations - % injury or control								Wheat yield (lbs/plot)				bu/A
		Evaluated January 11, 1984								R1	R2	R3	Avg	
		Wheat				Speedwell ^b								
		R1	R2	R3	Avg	R1	R2	R3	Avg					
<u>November, 1983</u>														
1. dinoseb amine	1.5	0	0	0	0	100	90	100	97	16.0	15.5	14.6	15.4	106.9
2. chlorsulfuron + X-77	0.023	0	0	0	0	80	80	100	87	15.3	15.2	16.4	15.6	108.8
3. fluorochloridone	0.5	0	0	0	0	100	100	100	100	14.9	16.1	19.2	16.7	116.5
4. RH 0265	0.06	5	5	5	5	100	100	100	100	14.8	14.9	16.4	15.4	107.0
5. SMY 1500	0.75	0	0	0	0	100	100	60	87	15.1	16.2	17.7	16.3	113.7
6. bromoxynil	0.5	0	0	5	2	100	100	100	100	15.6	15.4	15.2	15.4	107.2
<u>December, 1983</u>														
7. metribuzin	0.25	0	0	0	0	100	100	100	100	15.6	15.1	15.6	15.4	107.4
8. Check	0	0	0	0	0	0	0	0	0	15.1	15.3	15.1	15.2	105.6

^a dinoseb amine = Premerge 3 EC
chlorsulfuron = Glean 75 DF
fluoroachloridone = Racer 2 EC
RH 0265 = Rohm and Haas 2 EC
SMY 1500 = Mobay 60 WP
bromoxynil = Buctril 2 EC
metribuzin = Lexone 75 DF
X-77 added at 0.25% v/v

^b Persian speedwell = Veronica persica

n.s. n.s.

C.V. = 6.1%

Title: Speedwell Control in Wheat

Location (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Evaluation scale: 0 = no effect, 100 = complete kill

Evaluation date: January 11, 1984

Crop (cultivar): Winter wheat (Stephens)

Planting date: October 19, 1983 Harvest date: July 27, 1984

Seeding rate; planting depth: 100 lbs/A; 1.5 inches

Plot size; row spacing: 8 by 25 ft; 7 inches

Soil series and type: Woodburn silt loam O.M. 2.3% pH 7.0

Fertilizer: 200 lbs/A 16-20-0 PPI; 240 lbs/A urea March 5, 1984

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	November 8, 1983	December 15, 1983
Treatments applied: _____	1-6	7
Temperature (F) _____	Air: 51 Soil: 50	Air: 43 Soil: 44
% Relative humidity _____	90	92
% Cloud cover _____	100	90
Wind speed & direction _____	3-5 mph, Northwest	2-3 mph, North
Dew present? _____	Yes	Yes
Time of day _____	2:30-3:00 p.m.	10:00 a.m.
Soil moisture _____	Slightly muddy	Muddy
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water	Water
Length of boom & nozzle spacing _____	6 ft; 18 inches	6 ft; 18 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Wheat</u>	1.5-2 leaf	3-4 leaf, 1-2 tillers
Weeds <u>Speedwell</u>	Cotyledon	2-4 leaf
<u>Groundsel</u>	Pre	2-4 leaf
<u>Annual bluegrass</u>	1 leaf	2-4 leaf

Exp. No. 84-59

Effect of Liquid Fertilizer and Surfactant on 2,4-D + Dicamba
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

A trial was conducted to investigate possible adverse interactions between liquid fertilizer and 2,4-D and dicamba on winter wheat. The entire trial area had previously been fertilized with a normal rate of urea.

None of the treatments caused visible adverse effects on the wheat. Although the check had the lowest average yield, none of the means were significantly different. The treatments that contained Solution 32 caused some minor tip burn that lasted about 10 days.

Effect of Liquid Fertilizer and Surfactant on 2,4-D + Dicamba
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Treatment ^a	Rate lbs a.i./A	Visual evaluations % wheat injury				Wheat yield (lbs/plot)				bu/A
		R1	R2	R3	Avg	R1	R2	R3	Avg	
1. Soln. 32	20 gal	0	0	0	0	10.7	10.7	10.4	10.6	97.6
2. Soln. 32 + X-77	20 gal + 0.5%	0	0	0	0	10.6	10.9	11.2	10.9	100.4
3. urea	141 lbs	0	0	0	0	10.7	10.4	11.4	10.8	99.8
4. Soln. 32 + X-77 + + 2,4-D + dicamba	20 gal + 0.5% + 0.75 lb + 0.2516	0	0	0	0	10.0	11.4	11.5	11.0	101.0
5. 2,4-D + dicamba + X-77/urea	0.75 lb + 0.2516 + 0.5%/141 lb	0	0	0	0	11.0	11.6	12.6	11.7	108.1
6. 2,4-D + dicamba/ urea	0.75 lb + 0.25 lb 141 lb	0	0	0	0	11.2	11.3	12.2	11.6	106.5
7. Check	0	0	0	0	0	10.5	9.9	11.1	10.2	93.9

^aSolution 32 = liquid fertilizer (32% N)
X-77 = surfactant
urea = dry fertilizer (46% N)
2,4-D + dicamba = Weedmaster

LSD_{.05} = n.s. n.s.
C.V. = 5.0%

Title: Effect of Liquid Fertilizer and Surfactant on 2,4-D + DicambaLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: June 5, 1984Crop (cultivar): Wheat (Stephens)Planting date: October 17, 1984 Harvest date: July 27, 1984Seeding rate; planting depth: 45 lbs/A; 1.5 inchesPlot size; row spacing: 8 ft x 20 ftSoil series and type: Woodburn silt loam O.M. 2.6 pH 5.5Fertilizer: 200 lb/A 16-20-0 PPI; 200 lb/A urea, March 5, 1984

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: April 20, 1984Treatments applied: AllTemperature (F) _____ Air: 58 Soil: 65 Air: _____ Soil: _____Relative humidity _____ 65Cloud cover _____ 50Wind speed & direction _____ CalmDew present? _____ YesTime of day _____ 2:30 p.m.Soil moisture _____ Very moistSoil surface _____ GranularMethod of application: _____ BroadcastType of sprayer _____ UnicycleGround speed _____ 3 mphType of carrier & volume _____ Water, 25 gpaLength of boom & nozzle spacing _____ 7 ft., 9.3 inchesNozzle size and type _____ 8002 flat fanBoom height _____ 42 inchesPressure (psi) _____ 20Crop Wheat 3 node

Weeds _____

Exp. No. 84-14

Metribuzin Banding in Winter Wheat
East Farm, Corvallis, Linn County, Oregon
1983-84

A trial was established to compare between-row banding of herbicides to conventional broadcast treatments. The band between the rows was 1 inch wide with the same total amount of herbicide used as in the broadcast treatments.

Forty-five consecutive days of measureable precipitation occurred after the preemergence and banded treatments were applied. This heavy precipitation and coarse soil texture caused significant wheat injury from the preemergence diuron treatments. Banded treatments caused less injury but were less effective on weeds in the wheat row. Combinations of banded and postemergence treatments caused minimal wheat injury and produced excellent weed control.

Metribuzin Banding in Winter Wheat
East Farm, Corvallis, Linn County, Oregon
1983-84

Exp. No. 84-14

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control																								
		Evaluated February 2, 1984															Evaluated April 27, 1984									
		Wheat					Common chickweed ^b					Common groundsel					Wheat					Birdsrape mustard				
		R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg
<u>Preemergence</u>																										
1. metribuzin	0.25	0	0	0	0	0	90	80	90	80	85	90	80	90	80	85	0	0	0	0	0	100	100	100	100	100
2. diuron	1.6	15	15	15	15	15	100	100	99	100	99	100	100	99	100	99	10	20	20	15	16	100	100	100	100	100
3. metribuzin + diuron	0.25 + 1.6	15	15	20	15	16	100	100	100	100	100	100	100	100	100	100	25	15	20	20	20	100	100	100	100	100
<u>Banded</u>																										
4. metribuzon	0.25	0	0	0	0	0	90	70	60	50	68	90	70	60	50	68	0	0	0	0	0	50	40	0	50	35
5. diuron	1.6	0	0	0	0	0	100	90	90	90	92	100	90	90	80	90	0	0	0	0	0	90	100	100	90	95
6. metribuzin + diuron	0.25 + 1.6	0	0	0	0	0	100	90	90	100	95	100	90	90	100	95	0	0	0	0	0	100	100	100	100	100
<u>Preemergence/Postemergence</u>																										
7. diuron/metribuzin	1.6/0.38	20	20	20	20	20	100	100	100	100	100	100	100	100	100	100	20	20	25	20	21	100	100	100	100	100
<u>Banded/Postemergence</u>																										
8. metribuzin	0.25/0.38	0	0	5	5	2	100	100	100	100	100	100	100	100	100	100	0	0	0	0	0	100	100	100	100	100
9. diuron/metribuzon	1.6/0.38	5	0	5	5	4	100	100	100	100	100	100	100	100	100	100	0	0	0	0	0	100	100	100	100	100
10. diuron + metribuzin/ metribuzin	1.6 + 0.25/ 0.38	5	0	5	5	4	100	100	100	100	100	100	100	100	100	100	0	0	15	0	4	100	100	100	100	100
<u>Postemergence</u>																										
11. metribuzin	0.38	0	0	0	0	0	100	100	100	90	98	100	100	90	90	95	0	0	0	0	0	100	100	100	100	100
12. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a metribuzin = Lexone 75 df
diuron = Karmex 80 WP

^b common chickweed = Stellaria media
common groundsel = Senecio vulgaris
birdsrape mustard = Brassica rapa

Title: Metribuzin Banding in Winter WheatLocation (farm, town, county, year): East Farm, Corvallis, Linn County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 2, April 27, 1984Crop (cultivar): Winter wheat (Stephens)Planting date: October 14, 1983 Harvest date: _____Seeding rate; planting depth: 90 lb/A; 0.5 inchesPlot size; row spacing: 8 by 25 feet; 7 inchesSoil series and type: Chehalis sandy loam O.M. 2.1 pH 5.3

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	October 14, 1983	October 14, 1983
Treatments applied:	1-3, 7 (Pre)	4-6, 8-10 (banded)
Temperature (F)	Air: 64 Soil: 63	Air: _____ Soil: _____
% Relative humidity	60	
% Cloud cover	70	
Wind speed & direction	4 mph. West	
Dew present?	No	
Time of day	2:30-4:00 p.m.	
Soil moisture	Dry	
Soil surface	Small clods	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	3 mph
Type of carrier & volume	Water, 25 gpa	Water, 175 gpa
Length of boom & nozzle spacing	8 ft; 9.6 inches	8.17 ft; 7 inches
Nozzle size and type	8002 flat fan	1502 flat fan
Boom height	18 inches	8 inches
Pressure (psi)	18	30
Crop	Wheat	Pre
Weeds	Mustard	Pre
	Groundsel	Pre
	Annual bluegrass	Pre
	Chickweed	Pre

Title: Metribuzin Banding in Winter Wheat (continued)

Location (farm, town, county, year): _____

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: _____

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	December 1, 1983	
Treatments applied:	7-11 (post)	
Temperature (F)	Air: 42 Soil: 42	Air: Soil:
% Relative humidity	78	
% Cloud cover	100	
Wind speed & direction	1-2 mph, North	
Dew present?	No	
Time of day	4:00 p.m.	
Soil moisture	Slightly muddy	
Soil surface	Small clods	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	8 ft; 9.6 inches	
Nozzle size and type	8002 flat fan	
Boom height	18 inches	
Pressure (psi)	18	
Crop	Wheat	3 leaf
Weeds	Mustard	2 leaf
	Groundsel	2-4 leaf
	Annual bluegrass	2-3 leaf
	Chickweed	2-4 leaf

Exp. No. 84-39

Effect of Reward on Winter Wheat Yield
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

A trial was conducted on winter wheat to examine the effect of an experimental growth enhancer on grain yield. The work was done for Northwest Chemical Company of Salem, Oregon. Neither rate of Reward stimulated a yield increase and no benefit to wheat growth was observed.

Exp. No. 84-39

Effect of Reward on Winter Wheat Yield
 Hyslop Farm, Corvallis, Benton County, Oregon
 1983-84

Treatment ^a	Rate/A (fl. oz)	Wheat yield (lbs/plot)			bu/A
		R1	R2	Avg	
1. Reward + X-77	12	17.6	16.3	17.0	113.2
2. Reward + X-77	24	19.5	15.8	17.7	117.9
3. Check		20.4	16.8	18.6	124.2

^aX-77 added @ 0.25% v/v

n.s. n.s.

C.V. = 5.4%

Title: Effect of Reward on Winter WheatLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon,
1983-84

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): Winter wheat (Stephens)Planting date: October 17, 1983Harvest date: July 27, 1984Seeding rate; planting depth: 90 lbs/A; 1.5 inchesPlot size; row spacing: 7 by 25 ft; 7 inchesSoil series and type: Woodburn silt loamO.M. 3.2pH 5.5Fertilizer: 200 lbs/A 16-20-0 preplant; 80 lbs/A urea March 7

Other pesticides: _____

Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: March 8, 1984Treatments applied: 1 and 2

Temperature (F) _____

Air: 53Soil: 54

Air: _____

Soil: _____

% Relative humidity _____

78

% Cloud cover _____

0

Wind speed & direction _____

2-3 mph; southwest

Dew present? _____

Yes

Time of day _____

9:00 a.m.

Soil moisture _____

Moist

Soil surface _____

Smooth

Method of application: _____

Broadcast

Type of sprayer _____

Unicycle

Ground speed _____

3 mph

Type of carrier & volume _____

Water; 25

Length of boom & nozzle spacing _____

7 ft; 9.3 inches

Nozzle size and type _____

8002 flat fan

Boom height _____

20 inches

Pressure (psi) _____

20Crop Wheat3-6 tillers

Weeds _____

Ryegrass Control in Winter Oats
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Winter oats were sown on October 17, 1983 for use in evaluating chlorsulfuron and diuron for crop tolerance. Italian ryegrass was broadcast in front of the oats in a 3-ft-wide strip. The ryegrass seeds were incorporated into the soil with a harrow. Cold weather in late December killed many of the naturally occurring weeds in the trial area, and since the ryegrass was not planted in the oats, little competition from weeds occurred. The cold weather also severely injured the oat crop.

Percent ground cover of the oats was determined by estimating the area covered in three 1-sq yd quadrats per plot.

Chlorsulfuron increased the percent ground cover over the check in all treatments except those that contained the higher rate of diuron. The postemergence applications of chlorsulfuron were more effective than the preemergence applications in increasing the percent ground cover. Oat seed yield followed a similar pattern to the percent ground cover, but the data was too variable to produce statistically different means.

Since the oat stand loss was caused by the cold weather, chlorsulfuron must have played some role in protecting the crop.

Ryegrass Control in Winter Oats
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Treatment ^a	Rate lbs ai/A	Visual evaluations - % injury or control										% ground cover March 26					Oat yield (lbs/plot)					bu/A
		Evaluated December 5, 1983										Winter oats					Winter oats					
		Winter oats					Italian ryegrass ^b															
		R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	
<u>Preemergence (October 18, 1983)</u>																						
1. diuron	0.8	0	0	0	0	0	30	60	30	30	38	12	3	13	20	12	4.3	2.8	4.4	4.5	4.0	74.3
2. diuron	1.6	5	5	0	0	2	80	75	80	75	78	8	5	2	17	8	4.0	3.5	1.2	4.0	3.2	59.0
3. chlorsulfuron	0.023	5	0	0	0	1	50	50	50	40	48	28	32	21	25	26	5.4	4.9	6.3	3.5	5.0	93.4
4. diuron + chlorsulfuron	0.8 + 0.023	5	5	0	0	2	60	60	60	50	58	32	15	22	33	26	4.9	5.2	3.8	3.8	4.4	82.2
5. diuron + chlorsulfuron	1.6 + 0.023	0	0	0	0	0	85	85	75	60	76	12	15	18	7	13	5.2	4.2	4.4	3.7	4.4	81.3
<u>Preemergence/early postemergence (October 18/November 7, 1983)</u>																						
6. diuron/chlorsulfuron + X-77	0.8/0.023 + 0.25%	0	0	0	0	0	75	60	60	60	64	42	27	33	53	39	7.5	6.3	4.7	3.7	5.6	103.1
7. diuron/chlorsulfuron + X-77	1.6/0.023 + 0.25%	0	0	0	0	0	90	85	75	70	80	23	17	25	25	22	5.0	6.6	6.6	2.7	5.2	97.1
<u>Early postemergence (November 7, 1983)</u>																						
8. chlorsulfuron + X-77	0.023 + 0.25%	0	0	0	0	0	50	70	60	50	58	43	42	50	53	47	5.8	5.1	6.2	4.5	5.4	100.3
9. Check	0	0	0	0	0	0	0	0	0	0	0	15	27	4	15	15	2.5	5.4	2.8	4.2	3.7	69.2

^adiuron = Karmex 80 WP
chlorsulfuron = Glean 75 DF
X-77 = surfactant

^bItalian ryegrass = Lolium multiflorum

LSD_{.05} = 9.9

LSD_{.01} = 13.4

C.V. = 29%

C.V. = 25.8%

n.s.

Title: Ryegrass Control in Winter OatsLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: December 5, 1983, March 26, 1984Crop (cultivar): Winter oats (Grey)Planting date: October 17, 1983 Harvest date: August 7, 1984Seeding rate; planting depth: 95 lbs/A; 1.5 inchesPlot size; row spacing: 8 by 30 ft; 7 inchesSoil series and type: Woodburn silt loam O.M. 2.6 pH 5.5Fertilizer: 200 lbs/A 16-20-0 PPI - 240 lbs/A urea March 7

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	October 18, 1983	November 7, 1983
Treatments applied: _____	1-7 (pre)	6-8 (early post)
Temperature (F) _____	Air: 55 Soil: 55	Air: 54 Soil: 56
% Relative humidity _____	90	70
% Cloud cover _____	100 (fog)	50
Wind speed & direction _____	Calm	3-5 mph; Southwest
Dew present? _____	Yes	No
Time of day _____	10:30 a.m.	12:30-1:00 p.m.
Soil moisture _____	Powdery dry	Slightly muddy
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water; 25 gpa	Water; 25 gpa
Length of boom & nozzle spacing _____	8 ft.; 9.6 inches	8 ft.; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Oats</u>	Pre	1 leaf
Weeds <u>Ryegrass</u>	Pre	1 leaf
_____	_____	_____
_____	_____	_____

Exp. No. 82-43

AC 222293 Rotation and Rate of Disappearance
East Farm, Corvallis, Linn County, Oregon
1982-84

This is the final report on a study begun in 1982 to collect information on the soil persistence of AC 222293. Previous data is presented in the 1983 annual report.

The trial was rototilled and planted to sugarbeets on September 6, 1983. On April 20, 1984, about 2 yrs after AC 222293 was applied, one-half of each plot was moldboard-plowed, disked, and harrowed, while the other half was just disked and harrowed. On June 12, 1984, the trial was re-planted to sugarbeets.

Visual evaluations of the fall planting indicated severe injury to the sugarbeets from all rates of AC 222293. Fresh weights from the spring planting were variable, but the weights decreased with increasing rates of herbicides. It is unclear why the beets grew better in the non-plowed than in the plowed area. Because the area had not been plowed since 1982, residual fertilizer may have accumulated near the soil surface and was buried too deep for the seedling beet roots to absorb in the plowed area.

AC 222293 Rotation and Rate of Disappearance
East Farm, Corvallis, Linn County, Oregon
1982-84

Treatment ^a	Rate lbs a.i./A	Evaluated Oct. 10, 1983				Sugarbeet fresh weight, July 23, 1984									
		% sugarbeet injury				(g/12 ft of row)					% of check				
		R1	R2	R3	Avg	Plowed				%	Non-plowed				%
						R1	R2	R3	Avg		R1	R2	R3	Avg	
1. AC 222293 + Necdo1	0.38 + 0.5%	60	60	60	60	162	94	192	149	56	273	417	466	385	82
2. AC 222293 + Neodo1	0.75 + 0.5%	80	70	85	78	92	31	136	86	32	166	120	648	311	66
3. AC 222293 + Necdo1	1.5 + 0.5%	80	80	80	80	71	36	37	48	18	26	100	91	72	15
4. Check	0	0	0	0	0	323	150	322	265	100	394	444	567	468	100

Applied May 7, 1982

Sugarbeets planted September 6, 1983

^aAC 222293 = American Cyanamid 2.5 lb/gal LC

One-half of each plot plowed April 20, 1984
Sugarbeets planted June 12, 1984

LSD_{.05} = 81 g

LSD_{.01} = 123 g

C.V. = 30%

LSD_{.05} = 254 g

LSD_{.01} = n.s.

C.V. = 41%

Exp. No. 84-61

Greenhouse Bioassay of AC 222293 Soil Residues
O.S.U., Corvallis, Benton County, Oregon
1983

Soil samples were collected 5 months after application of AC 222293 to spring wheat. Five sugarbeet seeds were sown in 4-inch by 4-inch pots filled with soil from either check plots or treated plots. The soil was a Chehalis sandy loam with a pH of 5.1 and an organic matter content of 2.0.

Fresh weights obtained 3 weeks after planting reflected the stunted growth of the beets from the treated soil.

Exp. No. 84-61

Greenhouse Bioassay of AC 222293 Soil Residues
O.S.U., Corvallis, Benton County, Oregon
1983

Treatment ^a	Rate lbs a.i./A	Sugarbeet fresh weight (grams/plant)			
		R1	R2	R3	Avg
AC 222293	0.625	0.02	0.02	0.04	0.03
Check	0	0.05	0.09	0.09	0.08

^aAC 222293 = 2.5 lb/gal LC, American Cyanamid

AC 222293 applied to spring grain on April 29, 1983.
Soil samples from top 3 inches collected and planted to sugarbeets
on October 10, 1983.

Exp. No. 84-51

Effect of Rainfall on AC 222293 Efficacy
Hyslop Farm, Corvallis, Benton County, Oregon
1984

A trial was conducted to evaluate the effect of rainfall on AC 222293 efficacy. Wild oats were planted in 7-inch rows with a grain drill on two dates in the spring of 1984. Fourteen rows were seeded on each date in each plot. Because of unsettled weather conditions, AC 222293 had to be applied later than desired so the wild oats were too large for best control. Herbicide applications began 24 hrs prior to irrigation and continued at intervals, concluding with an application 4 hrs after irrigation. Sprinkler irrigation was used to simulate rainfall. One-half inch of water was applied with a solid-set system. Difenzoquat was included for comparison.

Both herbicides seemed to be affected by the irrigation, but the effect was greater with difenzoquat. Wild oat control was greatest with the post-irrigation treatment. This may have resulted from greater herbicide uptake because of the pre-irrigation. The dropoff in wild oat control was most dramatic with the applications 4 hrs and 1 hr prior to irrigation. There was little difference between rates of AC 222293 or between planting dates.

Exp. No. 84-51

Effect of Rainfall on AC 222293 Efficacy
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Treatment ^a	Rate lbs a.i./A	% wild oat control ^b									
		Second planting					First planting				
		R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg
July 2: 3:30 p.m. - 24 hours before irrigation											
1. AC 222293	0.38	80	80	70	80	78	70	70	70	70	70
2. AC 222293	0.62	90	80	80	85	84	85	80	75	80	80
3. difenzoquat	0.75	90	85	80	85	85	80	80	80	80	80
July 3: 3:30 a.m. - 12 hours before irrigation											
4. AC 222293	0.38	80	80	70	70	75	70	75	60	70	69
5. AC 222293	0.62	90	85	75	85	84	85	80	60	80	76
6. difenzoquat	0.75	90	80	75	85	82	80	80	80	80	80
July 3: 7:30 a.m. - 8 hours before irrigation											
7. AC 222293	0.38	80	50	70	60	65	60	50	70	50	58
8. AC 222293	0.62	80	70	80	80	78	70	60	70	60	65
9. difenzoquat	0.75	90	80	80	75	81	80	75	75	75	76
July 3: 11:30 a.m. - 4 hours before irrigation											
10. AC 222293	0.38	80	60	60	60	65	70	60	60	60	62
11. AC 222293	0.62	80	70	80	60	72	70	65	70	60	66
12. difenzoquat	0.75	80	70	80	70	75	75	70	80	70	74
July 3: 2:30 p.m. - 1 hour before irrigation											
13. AC 222293	0.38	70	75	60	50	64	50	60	50	50	52
14. AC 222293	0.62	75	70	60	60	66	65	60	60	60	61
15. difenzoquat	0.75	60	60	70	65	64	60	60	70	65	64
July 3: 7:30 p.m. - 4 hours after irrigation											
16. AC 222293	0.38	80	80	80	80	80	70	75	80	75	75
17. AC 222293	0.62	90	85	85	85	86	80	75	80	75	78
18. difenzoquat	0.75	95	90	90	90	91	90	80	85	80	84
19. Check	0	0	0	0	0	0	0	0	0	0	0
20. Check	0	0	0	0	0	0	0	0	0	0	0

^aAC 222293 = Assert 2.5 L
difenzoquat = Avenge 2 L

^bwild oats = Avena fatua

Title: AC 222293 Simulated RainfallLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: July 24, 1984

Crop (cultivar): _____

Planting date: May 23, June 12, 1984 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 feetSoil series and type: Woodburn silt loam O.M. 2.5% pH 6.0

Fertilizer: _____

Other pesticides: _____ Irrigation: SprinklerExperimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	July 2, 1984	July 3, 1984
Treatments applied:	1-3	4-6
Temperature (F)	Air: 80 Soil: 92	Air: 60 Soil: 65
% Relative humidity	60	80
% Cloud cover	0	0
Wind speed & direction	5 mph, North	Calm
Dew present?	No	Yes
Time of day	3:30 p.m.	3:30 a.m.
Soil moisture	Dry	Dry
Soil surface	Small clods	Small clods
Method of application:	Broadcast	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water;	Water;
Length of boom & nozzle spacing	7 ft.; 9.3 inches	7 ft.; 9.3 inches
Nozzle size and type	8002 flat fan	8002 flat fan
Boom height	73 inches	73 inches
Pressure (psi)	20	20
Crop		
Weeds <u>Second</u> planting	4 leaf, 1 tiller	4 leaf, 1 tiller
<u>First</u> planting	6 leaf, 1-3 tiller	6 leaf, 1-3 tiller

Title: AC 222293 Simulated Rainfall(Continued)

Location (farm, town, county, year):

Evaluation scale:

Evaluation date:

Crop (cultivar):

Planting date:

Harvest date:

Seeding rate; planting depth:

Plot size; row spacing:

Soil series and type:

O.M.

pH

Fertilizer:

Other pesticides:

Irrigation:

Experimental design:

LSD: 0.05

0.01

C.V.

Method and depth of inc.:

Notes:

Date:	July 3, 1984	July 3, 1984
Treatments applied:	7-9	10-12
Temperature (F)	Air: 65 Soil: 65	Air: Soil: 85
% Relative humidity	72	60
% Cloud cover	0	0
Wind speed & direction	3-4 mph, North	2-4 mph, North
Dew present?	Yes	No
Time of day	7:30 a.m.	11:30 a.m.
Soil moisture	Dry	Dry
Soil surface	Small clods	Small clods
Method of application:	Broadcast	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water;	Water;
Length of boom & nozzle spacing	7 ft.; 9.3 inches	7 ft.; 9.3 inches
Nozzle size and type	8002 flat fan	8002 flat fan
Boom height	73 inches	73 inches
Pressure (psi)	20	20
Crop		
Weeds Second planting	4 leaf, 1 tiller	4 leaf, 1 tiller
First planting	6 leaf, 1-3 tiller	6 leaf, 1-3 tiller

Title: AC 222293 Simulated Rainfall

Location (farm, town, county, year):

Evaluation scale:

Evaluation date:

Crop (cultivar):

Planting date:

Harvest date:

Seeding rate; planting depth:

Plot size; row spacing:

Soil series and type:

O.M.

pH

Fertilizer:

Other pesticides:

Irrigation:

Experimental design:

LSD: 0.05

0.01

C.V.

Method and depth of inc.:

Notes:

Date:	July 3, 1984	July 3, 1984
Treatments applied:	13-15	16-18
Temperature (F)	Air: 85 Soil: 94	Air: 78 Soil: 79
% Relative humidity	50	72
% Cloud cover	0	0
Wind speed & direction	3-4 mph, North	2-3 mph, North
Dew present?	No	Yes
Time of day	2:30 p.m.	7:30 p.m.
Soil moisture	Dry	Dry
Soil surface	Small clods	Small clods
Method of application:	Broadcast	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water;	Water;
Length of boom & nozzle spacing	7 ft.; 9.3 inches	7 ft.; 9.3 inches
Nozzle size and type	8002 flat fan	8002 flat fan
Boom height	73 inches	73 inches
Pressure (psi)	20	20
Crop		
Weeds	Second planting 4 leaf, 1 tiller	4 leaf, 1 tiller
	First planting 6 leaf, 1-3 tiller	6 leaf, 1-3 tiller

Exp. No. 84-45

Effect of Surfactant Rate and Carrier Volume
on Wild Oat Control with AC 222293
Hyslop Farm, Corvallis, Benton County, Oregon
1984

A trial was conducted to evaluate the effect of spray volume, herbicide rate, and surfactant rate on wild oat control with AC 222293. Wild oats were seeded in 7-inch rows on April 4, 1984. Spray volume was varied by changing spray tips but not pressure. Visual evaluations were made twice, and on July 16, fresh weights were obtained by harvesting the wild oats in a 1-sq-yd quadrat 3 ft above the soil surface.

The addition of surfactant greatly increased wild oat control, especially with the lower sprayer volumes. Differences among surfactant rates were relatively small at both herbicide rates and all spray volumes. The best control was achieved with the higher spray volumes and the higher herbicide rate.

Effect of Surfactant Rate and Carrier Volume on Wild Oat Control with AC 222293
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Treatment ^a	Rate lb a.i./A	Surfactant rate (%)	Visual evaluations - % wild oat ^b control										Fresh weight July 16, 1984 g/sq yd				
			Evaluated May 17, 1984					Evaluated July 6, 1984					R1	R2	R3	R4	Avg
			R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg					
5 gpa																	
1. AC 222293	0.25	0	40	50	50	50	48	0	0	0	0	0	356	258	247	371	308
2. "	"	0.25	70	70	70	70	70	40	52	50	60	53	92	138	211	129	143
3. "	"	0.5	60	65	60	70	64	30	50	50	30	40	179	172	220	136	177
4. "	"	0.75	60	60	60	65	61	60	50	50	50	52	31	128	126	165	113
5. "	0.5	0	60	60	60	65	61	50	65	60	60	59	55	77	93	181	102
6. "	"	0.25	60	70	70	75	69	60	70	70	70	68	56	77	43	60	59
7. "	"	0.5	70	70	65	65	68	60	75	70	60	66	48	22	54	50	44
8. "	"	0.75	70	60	70	65	66	65	70	55	75	66	14	13	99	12	35
10 gpa																	
9. AC 222293	0.25	0	60	50	50	55	54	10	0	0	0	2	229	170	308	293	250
10. "	"	0.25	70	60	60	60	62	50	65	40	60	54	64	73	355	96	147
11. "	"	0.5	70	65	70	70	69	60	50	50	65	56	28	52	69	243	98
12. "	"	0.75	70	60	70	65	66	65	60	50	65	60	41	56	89	130	79
13. "	0.5	0	70	70	65	50	64	50	70	65	40	56	69	60	118	542	197
14. "	"	0.25	60	70	70	70	68	60	70	75	70	69	5	39	40	25	27
15. "	"	0.5	60	75	65	70	68	60	80	70	85	74	19	10	23	12	16
16. "	"	0.75	80	70	75	65	72	70	85	85	80	80	2	12	32	38	21
19 gpa																	
17. AC 222293	0.25	0	70	50	60	60	60	30	0	20	50	25	108	339	226	216	222
18. "	"	0.25	75	65	70	65	69	50	50	70	70	60	6	74	183	91	89
19. "	"	0.5	70	80	70	75	74	60	75	65	60	65	22	27	37	137	56
20. "	"	0.75	75	80	70	70	74	65	70	65	70	68	17	61	91	68	59
21. "	0.5	0	75	60	60	70	66	50	60	60	75	61	157	66	94	31	87
22. "	"	0.25	70	75	70	70	71	70	75	80	70	74	5	12	23	52	23
23. "	"	0.5	70	75	70	75	72	70	80	70	80	75	7	32	32	13	21
24. "	"	0.75	80	75	75	80	78	75	80	85	85	81	4	1	6	8	5
35 gpa																	
25. AC 222293	0.25	0	70	70	50	65	64	50	30	40	50	42	58	143	181	183	141
26. "	"	0.25	60	65	70	65	65	50	65	60	60	59	51	44	93	145	83
27. "	"	0.5	70	75	75	80	75	65	70	70	70	69	41	55	23	129	62
28. "	"	0.75	70	75	70	80	74	65	65	70	75	69	19	56	59	33	42
29. "	0.5	0	80	75	65	65	71	70	75	60	70	69	5	16	147	82	63
30. "	"	0.25	80	80	80	80	80	75	85	85	80	81	6	1	3	53	16
31. "	"	0.5	75	75	75	80	76	75	80	80	85	80	2	1	10	5	5
32. "	"	0.75	85	80	75	70	78	80	85	75	85	81	1	3	18	9	8
33. Check	0	-	0	0	0	0	0	0	0	0	0	0	282	318	341	578	403
34. Check	0	-	0	0	0	0	0	0	0	0	0	0	281	681	378	363	

^aAC 222293 = Assert 3 EC^bwild oats = *Avena fatua*

Title: AC 222293 on Wild oats

Location (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1984

Evaluation scale: 0 = no effect, 100 = complete kill

Evaluation date: May 17, July 6, 1984

Crop (cultivar):

Planting date: April 14, 1984

Harvest date:

Seeding rate; planting depth:

Plot size; row spacing: 6 ft by 20 ft; 7 inches

Soil series and type: Woodburn silt loam

O.M. 2.1% pH 6.2

Fertilizer: 340 lb/A 16-20-0 preplant

Other pesticides:

Irrigation:

Experimental design: Randomized complete block

LSD: 0.05

0.01

C.V.

Method and depth of inc.:

Notes:

Date: April 25, 1984

Treatments applied: 1-32

Temperature (F)

Air:

60

Soil:

59

Air:

Soil:

Relative humidity

89

Cloud cover

50

Wind speed & direction

3-4 mph, Southwest

Dew present?

Yes

Time of day

9:00-11:30 a.m.

Soil moisture

Moist

Soil surface

Small clods

Method of application:

Broadcast

Type of sprayer

Unicycle

Ground speed

3 mph

Type of carrier & volume

Water; 4.7, 10.1, 19.4, 35 gpa

Length of boom & nozzle spacing

6 ft; 18 inches

Nozzle size and type

800067, 80015, 8003, 8006

Boom height

20 inches

Pressure (psi)

20

Crop

Weeds Wild oats

2-3 leaf, 0-2 tillers

Exp. No. 84-42

Hoelon Compatibility on Wild Oats
Schmidt Farm, Corvallis, Benton County, Oregon
1984

Diclofop-methyl was applied alone and in combination with several other agricultural chemicals to investigate possible interactions on wild oats. Wild oats were seeded in 7-inch rows with a grain drill.

Two treatments that seemed to reduce the effectiveness of diclofop-methyl were the high rate of liquid fertilizer and DPX M6316. Bromoxynil and fluoro-chloridone may have increased wild oat control somewhat.

Hoelon Compatibility on Wild Oats
Schmidt Farm, Corvallis, Benton County, Oregon
1984

Exp. No. 84-42

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % wild oat control ^b							
		Evaluated May 17, 1984				Evaluated July 6, 1984			
		R1	R2	R3	Avg	R1	R2	R3	Avg
1. diclofop-methyl	1.0	70	65	60	65	85	85	85	85
2. liquid nitrogen	29 gal	0	0	0	0	0	0	0	0
3. diclofop-methyl + liquid nitrogen	1.0 + 14.5 gal	75	70	70	72	85	85	90	87
4. diclofop-methyl + liquid nitrogen	1.0 + 29 gal	75	75	75	75	75	70	60	68
5. diclofop-methyl + benomyl	1.0 + 1.0	60	60	65	62	85	85	90	87
6. diclofop-methyl + thiophanate	1.0 + 0.5	60	65	60	62	80	70	85	78
7. diclofop-methyl + thiabendazole	1.0 + 0.7	60	60	65	62	80	85	85	83
8. diclofop-methyl + clopyralid	1.0 + 0.062	50	60	65	58	75	85	85	82
9. diclofop-methyl + clopyralid	1.0 + 0.125	50	70	60	60	75	85	85	82
10. diclofop-methyl + bromoxynil	1.0 + 0.25	70	75	70	72	90	90	90	90
11. diclofop-methyl + bromoxynil + clopyrilid	1.0 + 0.25 + 0.062	70	75	70	72	90	85	85	87
12. diclofop-methyl + fluoroachloridone	1.0 + 0.5	80	80	70	77	90	90	90	90
13. diclofop-methyl + DPX M6316	1.0 + 0.031	60	60	50	57	80	70	50	67
14. Check	0	0	0	0	0	0	0	0	0

^adiclofop-methyl = Hoelon 3 lb/gal
liquid nitrogen = Soln. 32
benomyl = Benlate 50%
thiophanate = Topsin 70%
thiabendazole = Mertect 3.8 lb/gal

clopyralid = Lontrel 3 lb/gal
bromoxynil = Buctril 2 lb/gal
fluoroachloridone = Racer 2 lb/gal
DPX M6316 = du Pont 75%

^bwild oats = Avena fatua

Title: Hoelon Compatibility on Wild OatsLocation (farm, town, county, year): Schmidt Farm, Corvallis, Benton County, Oregon
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: May 17, July 6, 1984

Crop (cultivar): _____

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 30 ft; 7 inchesSoil series and type: Woodburn silt loam O.M. 3.2% pH 5.5Fertilizer: 500 lbs/A 16-20-0 preplant

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	May 7, 1984	
Treatments applied:	A11	
Temperature (F)	Air: 62 Soil: 60	Air: Soil:
% Relative humidity	60	
% Cloud cover	10	
Wind speed & direction	1-2 mph, Southwest	
Dew present?	No	
Time of day	9:00-10:00 a.m.	
Soil moisture	Moist	
Soil surface	Small clods	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water; 38 gpa	
Length of boom & nozzle spacing	7 ft.; 9.3 inches	
Nozzle size and type	8003 flat fan	
Boom height	20 inches	
Pressure (psi)	20	
Crop		
Weeds	Wild oats	3 leaf

Exp. No. 84-41

Diclofop-Methyl Adjuvants in Spring Barley
Schmidt Farm, Corvallis, Benton County, Oregon
1984

A trial was conducted to evaluate adjuvants with diclofop-methyl. Barley was planted in twenty-six 7-inch rows across each plot. Wild oats were seeded in thirteen 7-inch rows behind the barley. Herbimax, bromoxynil, and X-77 improved the activity of diclofop-methyl on the wild oats, while cottonseed oil appeared to have less effect. None of the adjuvants were antagonistic.

Variable barley growth made assessment of crop tolerance difficult. Fluoxypyr seemed to cause some stunting, but no statistically significant yield differences were found.

Diclofop-Methyl Adjuvants in Spring Barley
Schmidt Farm, Corvallis, Benton County, Oregon
1984

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control																Barley yield (lbs/plot)				bu/A
		Evaluated May 17, 1984								Evaluated July 6, 1984												
		Barley				Wild oats ^b				Barley				Wild oats								
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg					
1. diclofop-methyl	0.75	0	0	0	0	80	70	60	70	0	0	0	0	50	70	50	57	4.3	8.2	6.4	6.3	87.0
2. diclofop-methyl	1.0	0	0	0	0	80	80	80	80	0	0	0	0	85	75	70	77	3.6	7.4	5.6	5.5	76.4
3. diclofop-methyl + Herbimax	0.63 + 1 pint	0	0	0	0	85	80	85	83	0	0	0	0	75	70	75	73	4.5	8.3	6.3	6.4	87.9
4. diclofop-methyl + Herbimax	0.63 + 1 quart	0	0	0	0	85	85	70	80	0	0	0	0	75	85	60	73	6.1	7.7	7.6	7.1	98.5
5. diclofop-methyl + Herbimax	0.75 + 1 pint	0	0	0	0	85	75	70	77	0	0	0	0	75	80	90	82	7.3	8.4	8.7	8.1	112.3
6. diclofop-methyl + Herbimax	0.75 + 1 quart	0	0	0	0	85	80	75	80	0	0	0	0	80	80	90	83	7.2	7.6	8.4	7.7	106.8
7. diclofop-methyl + cottonseed oil	0.63 + 1 pint	0	0	0	0	70	70	65	68	0	0	0	0	50	60	75	62	7.5	8.3	8.8	8.2	113.2
8. diclofop-methyl + cottonseed oil	0.75 + 1 pint	0	0	0	0	75	75	65	72	0	0	0	0	70	65	65	67	7.3	4.7	8.0	6.7	92.1
9. diclofop-methyl + fluoxyppr	0.75 + 0.125	10	10	10	10	75	70	65	70	0	0	0	0	70	60	60	63	7.9	5.9	9.1	7.6	105.4
10. diclofop-methyl + bromoxynil	0.75 + 0.25	0	0	0	0	85	80	70	82	0	0	0	0	70	70	70	70	7.3	7.0	8.2	7.5	103.6
11. diclofop-methyl + cloprralid + bromoxynil	0.75 + 0.062 + 0.25	0	0	0	0	85	80	70	78	0	0	0	0	60	60	75	65	8.3	7.0	8.6	8.0	110.0
12. diclofop-methyl + cloprralid	0.75 + 0.062	0	0	0	0	70	65	60	65	0	0	0	0	60	60	60	60	8.5	8.6	8.0	8.4	115.5
13. diclofop-methyl + X-77	0.75 + 0.5%	0	0	0	0	80	85	75	80	0	0	0	0	75	65	80	73	7.9	5.3	8.3	7.2	99.0
14. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.1	5.9	7.9	6.6	91.6

^a diclofop-methyl = Hoelon 3 EC
Herbimax - crop oil concentrate
fluoxyppyr = Starane 200 1.67 l
bromoxynil = Buctril 2 EC
X-77 = surfactant

^b wild oats = Avena fatua

C.V. = 16.8%

n.s.

Title: Diclofop-Methyl Adjuvants in Spring BarleyLocation (farm, town, county, year): Schmidt Farm, Corvallis, Benton County, Oregon
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: May 17, July 6, 1984Crop (cultivar): Spring barley (Steptoe)Planting date: April 10, 1984Harvest date: August 6, 1984Seeding rate; planting depth: 80 lbs/A; 1.5 inchesPlot size; row spacing: 8 by 30 ft; 7 inchesSoil series and type: Woodburn silt loamO.M. 3.2% pH 5.5Fertilizer: 500 lbs/A 16-20-0 preplant

Other pesticides: _____

Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	May 7, 1984	
Treatments applied:	All	
Temperature (F)	Air: 58 Soil: 58	Air: Soil:
% Relative humidity	85	
% Cloud cover	10	
Wind speed & direction	Calm	
Dew present?	No	
Time of day	8:00-9:00 a.m.	
Soil moisture	Moist	
Soil surface	Small clods	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water; 25 gpa	
Length of boom & nozzle spacing	7 ft.; 9.3 inches	
Nozzle size and type	8002 flat fan	
Boom height	20 inches	
Pressure (psi)	20	
Crop	Barley	3-4 leaf, 0-1 tiller
Weeds	Wild oats	3 leaf

Exp. No. 84-48

Spring Wheat Screening
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Mayweed chamomile and rapeseed were planted in front of spring wheat in a herbicide screening trial. Four rows each of mayweed and rapeseed were sown with Planet Jr. seeders. Twenty-six rows of wheat were sown across each plot with a grain drill. Common groundsel occurred as a natural infestation.

The lowest rate of RH 3385 was adequate for common groundsel control, but the middle rate was necessary to control mayweed and the highest rate was required to control rapeseed.

AC 222293 did not injure the wheat at any of the five timings.

Clopyralid + 2,4-D was considerably better on mayweed than was dicamba + 2,4-D. The advantage on groundsel at these rates was less pronounced. Groundsel was also more sensitive to 2,4-D than it was to MCPA. SCI-40 seemed to reduce the effectiveness of 2,4-D on groundsel.

DPX M6316 was not effective on rapeseed, but in combination with a small amount of metsulfuron produced excellent control of all species.

None of the treatments produced statistically significant differences in wheat yield. Damage by gophers caused variability in yields and might have masked differences.

Spring Wheat Screening
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Exp. No. 84-48

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated May 14, 1984															
		Wheat				Common groundsel				Mayweed chamomile				Rapeseed			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>Preemergence (March 22, 1984)</u>																	
1. RH 3385	0.06	0	0	0	0	100	99	100	99	60	85	100	82	30	40	60	43
2. RH 3385	0.13	5	10	10	8	100	100	100	100	85	100	100	95	85	85	90	87
3. RH 3385	0.25	15	10	15	13	100	100	100	100	100	100	100	100	100	100	100	100
<u>1 leaf (April 5, 1984)</u>																	
4. AC 222293	0.625	0	5	0	2	0	0	0	0	0	0	0	0	50	60	60	57
<u>3-4 leaf (April 23, 1984)</u>																	
5. AC 222293	0.625	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50
6. 2,4-D + MCPP + dicamba	0.24 + 0.12 + 0.09	0	0	0	0	100	85	70	85	60	85	70	72	60	70	70	67
7. MCPA + MCPP + dicamba	0.22 + 0.10 + 0.05	0	0	5	2	75	70	80	75	70	70	60	67	60	60	70	63
8. 2,4-D amine + SCI 40	0.5 + 1 qt	0	0	0	0	80	100	60	80	60	60	60	60	50	40	60	50
9. clopyralid + 2,4-D	0.125 + 0.5	5	0	0	2	90	95	99	95	95	95	100	97	70	75	60	68
10. dicamba + 2,4-D	0.125 + 0.5	5	5	0	3	60	95	100	85	70	85	85	80	70	75	60	68
11. dicamba + chlorsulfuron	0.125 + 0.008	5	5	5	5	100	100	100	100	100	100	100	100	90	90	95	92
12. dicamba + chlorsulfuron	0.125 + 0.016	5	0	5	3	100	100	100	100	100	100	100	100	90	95	95	93
13. dicamba + metribuzin	0.125 + 0.25	10	5	5	7	100	95	100	98	100	100	100	100	95	100	95	97
14. chlorsulfuron + X-77	0.008 + 0.5%	0	5	5	3	100	100	100	100	100	100	100	100	85	99	99	94
15. chlorsulfuron + X-77	0.016 + 0.5%	5	5	0	3	100	100	100	100	100	100	100	100	99	100	95	98
16. chlorsulfuron + X-77	0.023 + 0.5%	10	5	10	8	100	100	100	100	100	100	100	100	99	95	100	98
17. bentazon + MCPA + O.C.	0.5 + 0.25 + 1 qt	0	0	0	0	70	50	100	73	100	100	100	100	80	80	85	82
18. bentazon + 2,4-D + O.C.	0.5 + 0.4 + 1 qt	0	0	0	0	70	100	100	90	100	100	100	100	90	99	99	96
19. MCPA amine	0.5	5	0	0	2	70	60	60	63	40	50	60	50	60	70	80	70
20. 2,4-D amine	0.5	0	0	0	0	90	90	85	88	60	50	70	60	60	50	50	53
21. bentazon + bromoxynil + O.C.	0.5 + 0.3 + 1 qt	0	0	0	0	100	100	100	100	100	100	100	100	90	90	99	93
22. bentazon + MCPA + cyanazine + O.C.	0.5 + 0.25 + 0.1 + 1 qt	0	0	5	2	100	100	100	100	100	100	100	100	99	100	100	99
23. bromoxynil + MCPA	0.38 + 0.38	0	0	0	0	100	100	100	100	90	100	100	97	80	85	85	83
24. bromoxynil	0.5	0	0	0	0	100	100	100	100	100	99	100	99	80	80	90	83
25. DPX M6316 + X-77	0.016 + 0.5%	0	0	0	0	100	100	100	100	100	100	100	100	60	70	70	67
26. DPX M6316 + X-77	0.031 + 0.5%	5	5	0	3	100	100	100	100	100	100	100	100	75	80	80	78
27. DPX M6316 + X-77	0.047 + 0.5%	5	5	0	3	100	100	100	100	100	100	100	100	85	80	85	83
28. DPX M6316 + chlorsulfuron + X-77	0.031 + 0.004 + 0.5%	5	5	5	5	100	100	100	100	100	100	100	100	90	90	99	93
29. DPX M6316 + metsulfuron + X-77	0.031 + 0.002 + 0.5%	5	0	10	5	100	100	100	100	100	100	100	100	95	95	90	93
<u>May 16, 1984</u>																	
30. AC 222293	0.625	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<u>May 29, 1984</u>																	
31. AC 222293	0.625	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<u>June 11, 1984</u>																	
32. AC 222293	0.625	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued on next page)

Trt.	Evaluated June 13, 1984																Wheat yield (lbs/plot)				bu/A
	Wheat				Mayweed chamomile				Common groundsel				Rapeseed				R1	R2	R3	Avg	
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg					
1.	0	0	0	0	30	60	80	57	90	99	90	93	0	20	20	13	8.4 ^c	8.8	6.9 ^c	8.0	79.6
2.	0	0	0	0	70	95	95	87	100	100	100	100	30	80	60	57	8.9	7.4	7.5	7.9	78.6
3.	10	10	0	7	90	95	99	95	100	100	100	100	90	95	99	95	8.7	9.5	7.6	8.6	85.2
4.	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	3	9.2	7.2	7.5	8.0	78.9
5.	0	0	0	0	0	0	0	0	0	0	0	0	70	80	75	75	9.0	9.4	10.8	9.7	96.5
6.	0	0	0	0	50	70	50	57	90	85	85	87	95	99	99	98	8.4	8.8	8.0	8.4	83.2
7.	0	0	0	0	20	30	30	27	50	60	60	57	90	80	85	85	8.7	9.7	6.9 ^c	8.4	83.6
8.	0	0	0	0	20	40	20	27	50	90	80	73	80	85	95	87	8.7	8.6	7.4	8.2	81.6
9.	0	0	0	0	99	100	100	99	100	100	100	100	90	70	95	85	8.2	7.7	7.1	7.7	76.0
10.	0	0	0	0	70	70	60	67	85	99	99	94	90	99	99	96	7.7	10.2	7.8	8.6	84.9
11.	0	0	0	0	100	99	100	99	100	100	100	100	85	95	85	88	8.8	9.8	7.5	8.7	86.2
12.	0	0	0	0	100	100	100	100	100	100	99	99	90	99	99	96	7.8	9.1	7.4	8.1	80.3
13.	10	0	10	7	100	99	99	99	90	95	95	93	90	100	100	97	8.0	7.2	6.6	7.3	72.0
14.	0	0	0	0	99	99	99	99	100	100	100	100	90	99	100	97	8.3	8.8	11.0	9.4	92.8
15.	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	6.0	8.6	7.8	7.5	74.0
16.	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	6.8	8.2	8.9	8.0	78.9
17.	0	0	0	0	85	80	90	85	70	0	50	40	70	75	85	77	9.2	8.8	8.9	9.0	88.9
18.	0	0	0	0	90	95	95	93	70	99	95	88	100	99	99	99	7.9	7.7	7.4	7.7	76.0
19.	0	0	0	0	20	30	40	30	85	70	80	78	99	99	100	99	8.5	9.3	8.2	8.7	85.9
20.	0	0	0	0	30	40	40	37	99	95	90	95	99	90	80	90	8.8	8.1	7.7	8.2	81.3
21.	0	0	0	0	90	85	90	88	100	99	99	99	70	80	85	78	8.7	8.3	7.8	8.3	81.9
22.	0	0	0	0	99	99	99	99	99	90	95	95	90	95	99	95	9.1	9.3	8.9	9.1	90.2
23.	0	0	0	0	80	90	90	87	100	100	100	100	80	85	85	83	8.4	7.9	7.5	7.9	78.6
24.	0	0	0	0	80	85	85	83	100	100	99	99	20	30	70	40	9.8	9.3	7.4 ^c	8.8	87.5
25.	0	0	0	0	90	95	95	93	100	100	100	100	20	20	20	20	8.3	7.5	9.5	8.4	83.6
26.	0	0	0	0	99	99	99	99	99	100	100	99	30	30	30	30	8.6	8.4	8.4	8.5	83.9
27.	0	0	0	0	99	99	100	99	100	100	100	100	30	30	30	30	8.3	7.2	8.3	7.9	78.6
28.	0	0	0	0	100	100	99	99	100	100	100	100	70	70	85	75	8.4	8.3	8.4	8.4	82.9
29.	0	0	0	0	100	100	100	100	100	100	100	100	85	100	99	95	7.4	8.7	9.5	8.5	84.6
30.	0	0	0	0	0	0	0	0	0	0	0	0	30	30	30	30	7.7	7.5	4.8 ^c	6.7	66.1
31.	0	0	0	0	0	0	0	0	0	0	0	0	0	20	30	17	7.8	8.8	8.9	8.5	84.2
32.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.1	9.3	6.8	7.7	76.6
33.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.3	8.7	7.9	8.6	85.6
34.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.7	8.5	8.5	8.2	81.6

C.V. = 10.6% n.s.

^cgopher damage

^a RH 3385 = Rohm & Haas 2 lb/gal
AC 222293 = American Cyanamid 2.5 lb/gal
2,4-D + MCPP + dicamba = Trimec D
MCPA + MCPA + dicamba = Trimec M
2,4-D = Rhodia amine
SCI-40 = herbicide enhancer
clopyralid + 2,4-D = Lontrel 205 0.5 + 2 lb/gal
dicamba = Banvel 4 lb/gal
chlorsulfuron = Glean 75%
metribuzin = Lexone 75%
bentazon + MCPA = Basagran M 0.75 lb/gal
bentazon = Basagran 4 lb/gal
O.C. = oil concentrate
MCPA = Weedar 64 4 lb/gal
bromoxynil = Buctril 2 lb/gal
cyanazine = Bladex 80%
bromoxynil + MCPA = Bronate 2+2 lb/gal
DPX M6316 = du Pont 75%
metsulfuron = Ally 60%

^b common groundsel = Senecio vulgaris
mayweed chamomile = Anthemis cotula
rapeseed = Brassica napus

Title: Spring Wheat ScreeningLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: May 14, June 13, 1984Crop (cultivar): Spring wheat (Twin)Planting date: March 22, 1984 Harvest date: August 6, 1984Seeding rate; planting depth: 90 lbs/A; 1 inchPlot size; row spacing: 8 by 35 ft; 7 inchesSoil series and type: Woodburn silt loam O.M. 2.8 pH 5.9Fertilizer: 340 lbs/A 16-20-0 preplant

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	March 22, 1984	April 5, 1984
Treatments applied: _____	1-3	4
Temperature (F) _____	Air: 65 Soil: 66	Air: 50 Soil: 52
% Relative humidity _____	78	68
% Cloud cover _____	90	70
Wind speed & direction _____	4-6 mph; Southwest	2-3 mph, Southwest
Dew present? _____	No	Yes
Time of day _____	3:00 p.m.	9:30 a.m.
Soil moisture _____	Very moist	Very moist
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water; 25 gpa	Water; 25 gpa
Length of boom & nozzle spacing _____	7 ft.; 9.3 inches	7 ft.; 9.3 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	19 inches	19 inches
Pressure (psi) _____	20	20
Crop <u>Spring wheat</u>	Pre	1 leaf
Weeds <u>Mayweed</u>	Pre	Cotyledon
<u>Pigweed</u>	Pre	Pre
<u>Rapeseed</u>	Pre	Cotyledon

Title: Spring Wheat ScreeningLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1984

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: _____

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	April 23, 1984	May 16, 1984
Treatments applied: _____	5-29 (3-4 leaf)	30
Temperature (F) _____	Air: 62 Soil: 57	Air: 67 Soil: 66
% Relative humidity _____	51	55
% Cloud cover _____	40	20
Wind speed & direction _____	4-6 mph, Northeast	2-3 mph, Northeast
Dew present? _____	No	Yes
Time of day _____	1:00-2:45 p.m.	11:00 a.m.
Soil moisture _____	Dry on surface	Moist
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water; 25 gpa	Water; 25 gpa
Length of boom & nozzle spacing _____	7 ft.; 9.3 inches	7 ft.; 9.3 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	11 inches	24 inches
Pressure (psi) _____	20	20
Crop <u>Wheat</u>	3-4 leaf, 1-2 tillers	4-5 tillers, 10 inches tall
Weeds <u>Mayweed</u>	2-4 leaf, 0.25-1 inch dia.	2-3 inch dia.
<u>Pigweed</u>	Pre	Cotyledon - 2 leaf
<u>Rapeseed</u>	2-4 leaf, 1-4 inch dia.	5-8 inch dia.
<u>groundsel</u>	2 leaf	2-4 inches tall

Title: Spring Wheat ScreeningLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1984

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____ O.M. _____ pH _____

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: _____

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	May 29, 1984	June 11, 1984
Treatments applied: _____	31	32
Temperature (F) _____	Air: 55 Soil: 53	Air: 72 Soil: 70
% Relative humidity _____	85	68
% Cloud cover _____	100	30
Wind speed & direction _____	3-6 mph, Southwest	3-4 mph, Southwest
Dew present? _____	No	No
Time of day _____	9:00 a.m.	1:30 p.m.
Soil moisture _____	Moist	Moist
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water; 25 gpa	Water; 25 gpa
Length of boom & nozzle spacing _____	7 ft.; 9.3 inches	7 ft.; 9.3 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	30 inches	36 inches
Pressure (psi) _____	20	20
Crop <u>Wheat</u>	1 node, 15 inches	18 inches
Weeds <u>Mayweed</u>	2-4 inch dia.	6 inches tall
<u>Pigweed</u>	2-4 leaf	
<u>Rapeseed</u>	5-8 inch dia.	Flowering
<u>Groundsel</u>	2-5 inches tall	Flowering

Exp. No. 84-54

Herbicide Screening in Peppermint
Oakley Farm, Lebanon, Linn County, Oregon
1984

Fluorochloridone, SD 95481, and prodiamine were applied to established, non-plowed peppermint to evaluate crop tolerance. None of the herbicides caused significant injury to the crop.

Fluorochloridone and SD 95481 caused some chlorosis and stunting of Canada thistle, but the effect did not appear to be adequate to significantly reduce competition with the crop.

Herbicide Screening in Peppermint
Oakley Farm, Lebanon, Linn County, Oregon
1984

Exp. No. 84-54

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated May 15, 1984								Evaluated June 7, 1984							
		Peppermint				Canada thistle ^b				Peppermint				Canada thistle			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1. fluorochloridone	0.5	5	5	5	5	10	10	5	8	0	0	0	0	20	50	0	23
2. SD 95481	1.0	0	0	0	0	20	30	30	27	0	0	0	0	20	0	40	20
3. prodiamine	0.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. prodiamine	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. prodiamine	0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^afluorochloridone = Racer 2 EC
SD 95481 = Shell 7 EC
prodiamine = Velsicol 50 WP

^bCanada thistle = Cirsium arvense

Title: Herbicide Screening in PeppermintLocation (farm, town, county, year): Oakley Farm, Lebanon, Linn County, Oregon
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: May 15, June 7, 1984Crop (cultivar): Peppermint (Todd's Mitcham)

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 feetSoil series and type: Newberg sandy loam O.M. 4.5% pH 4.7

Fertilizer: _____

Other pesticides: _____ Irrigation: SprinklerExperimental design: Randomized complete block

LSO: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	April 18, 1984	
Treatments applied:	All	
Temperature (F)	Air: 60 Soil: 58	Air: _____ Soil: _____
% Relative humidity	59	
% Cloud cover	50	
Wind speed & direction	4-5 mph, Southwest	
Dew present?	No	
Time of day	10:00 a.m.	
Soil moisture	Moist	
Soil surface	Mint sod	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	7 ft; 9.3 inches	
Nozzle size and type	8002 flat fan	
Boom height	18 inches	
Pressure (psi)	20	
Crop	Peppermint	4-5 inches
Weeds	Canada thistle	2-5 inches tall
	Common dandelion	8-12 inches dia.

Exp. No. 84-31

Canada Thistle Control in Peppermint
Oakley Farm, Lebanon, Linn County, Oregon
1983-84

SD 95481 was applied at two timings and dicamba at one to determine crop tolerance and weed control in established, non-plowed peppermint. SD 95481 caused very little damage to the mint at either timing, and provided some control of common dandelion and Canada thistle. This herbicide is very effective on many germinating broadleaf and grass weeds.

Dicamba was more effective than SD 95481 on the weeds in this trial, but mint injury was too great for commercial acceptance.

Exp. No. 84-31

Canada Thistle Control in Peppermint
Oakley Farm, Lebanon, Linn County, Oregon
1983-84

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control																				
		Evaluated March 30, 1984									Evaluated May 15, 1985						Evaluated June 7, 1984					
		Mint			Dandelion ^b			Canada thistle			Mint			Canada thistle			Mint			Canada thistle		
		R1	R2	Avg	R1	R2	Avg	R1	R2	Avg	R1	R2	Avg	R1	R2	Avg	R1	R2	Avg	R1	R2	Avg
1. SD 95481	2.0	10	0	5	50	70	60	50	60	55	0	0	0	30	0	15	0	0	0	20	0	10
2. dicamba	1.0	50	50	50	90	90	90	60	60	60	50	50	50	50	50	50	50	10	30	20	0	10
3. SD 95481	2.0	0	5	2	30	50	40	40	40	40	0	0	0	20	0	10	0	0	0	0	0	0
4. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^aSD 95481 = Cinch 7 lb/gal
dicamba = Banvel 4 lb/gal

^bdandelion = Taraxacum officinale
Canada thistle = Cirsium arvense

Title: Canada Thistle Control in PeppermintLocation (farm, town, county, year): Oakley Farm, Lebanon, Linn County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: March 30, May 15, June 7, 1984Crop (cultivar): Peppermint (Todd's Mitcham)Planting date: 1976 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 feetSoil series and type: Newberg sandy loam O.M. 4.5% pH 4.7

Fertilizer: _____

Other pesticides: _____ Irrigation: SprinklerExperimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	November 10, 1983	February 3, 1984
Treatments applied:	1 and 2	3
Temperature (F)	Air: 55 Soil: 54	Air: 52 Soil: 51
% Relative humidity	82	82
% Cloud cover	80	20
Wind speed & direction	3-4 mph, Southwest	2-3 mph, West
Dew present?	Yes	No
Time of day	9:30 a.m.	1:30 p.m.
Soil moisture	Slightly muddy	Very moist
Soil surface	Mint sod	Mint sod
Method of application:	Broadcast	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing	8 ft; 9.6 inches	8 ft; 9.6 inches
Nozzle size and type	8002 flat fan	8002 flat fan
Boom height	18 inches	18 inches
Pressure (psi)	18	18
Crop	Peppermint	3-5 inches tall
Weeds	Canada thistle	1 inch tall
	3-5 inches tall	Pre

Exp. No. 84-33

Common Dandelion Control in Peppermint
Oakley Farm, Lebanon, Linn County, Oregon
1983-84

Paraquat was tank-mixed with terbacil, oxyfluorfen, and diuron for common dandelion control in peppermint. The treatments were made as repeated applications 2 months apart.

Paraquat plus oxyfluorfen caused more mint stunting than did the two other treatments, but no damage from any treatment could be seen by May 15. Paraquat plus oxyfluorfen was the only treatment to provide effective suppression of dandelion or salsify. Small plants were more easily controlled than were the well established plants with large taproots.

Common Dandelion Control in Peppermint
Oakley Farm, Lebanon, Linn County, Oregon
1983-84

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated February 15, 1984								Evaluated March 30, 1984							
		Peppermint				Common dandelion				Peppermint				Common dandelion			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1. paraquat + terbacil	0.38 + 0.8/ 0.38 + 0.8	0	10	10	7	0	30	10	13	0	0	0	0	0	0	0	0
2. paraquat + oxyfluorfen	0.38 + 0.38/ 0.38 + 0.38	20	50	50	40	100	100	100	100	15	15	15	15	90	90	70	83
3. paraquat + diuron	0.38 + 1.2/ 0.38 + 1.2	0	0	10	3	20	10	10	13	0	0	0	0	0	0	0	0
4. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Evaluated May 15, 1984							
	Peppermint				Common dandelion			
	R1	R2	R3	Avg	R1	R2	R3	Avg
1.	0	0	0	0	0	0	0	0
2.	0	0	0	0	90	95	80	88
3.	0	0	0	0	0	0	0	0
4.	0	0	0	0	0	0	0	0

^a paraquat = Ortho Paraquat 2L
terbacil = Sinbar 80WP
diuron = Karmex 80WP
oxyfluorfen = Goal 1.6EC
X-77 added to all treatments @ 0.5% v/v

^b common dandelion = Taraxacum officinale
meadow salsify = Tragopogon pratensis

Title: Dandelion Control in PeppermintLocation (farm, town, county, year): Oakley Farm, Lebanon, Linn County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 15, March 30, May 15, 1984Crop (cultivar): Peppermint (Todd's Mitcham)Planting date: 1976

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 ftSoil series and type: Newberg silt loamO.M. 4.5% pH 4.7

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	November 28, 1983	January 20, 1984
Treatments applied: _____	1-3	1-3
Temperature (F) _____	Air: 48 Soil: 52	Air: 33 Soil: 35
% Relative humidity _____	92	79
% Cloud cover _____	100	100
Wind speed & direction _____	1-2 mph, Southwest	Calm
Dew present? _____	Yes	No
Time of day _____	10:00 a.m.	3:00 p.m.
Soil moisture _____	Slightly muddy	Slightly muddy
Soil surface _____	Mint sod	Mint sod
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft.; 9.6 inches	8 ft.; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Peppermint</u>	2-3 inches	Semi-dormant
Weeds <u>Dandelion</u>	3-14 inches dia.	2-8 inches dia.
<u>Salsify</u>	2-8 inches tall	3-6 inches tall

Exp. No. 84-34

Salsify Control in Peppermint
Oakley Farm, Lebanon, Linn County, Oregon
1983-84

A single application of 2,4-DB was compared with a repeated application of 2,4-DB, paraquat + oxyfluorfen, and paraquat + terbacil for meadow salsify control in peppermint.

All treatments produced some control, but none of the treatments were satisfactory. Paraquat + terbacil was the least effective treatment.

Salsify Control in Peppermint
Oakley Farm, Lebanon, Linn County, Oregon
1983-84

Treatment ^a	Rate (lbs a.i./A)	Visual evaluations - % injury or control											
		Evaluated Feb. 15, 1984				Evaluated March 30, 1984							
		Meadow salsify				Peppermint				Meadow salsify			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>November 28, 1983</u>													
1. 2,4-DB	1.0	80	80	70	77	0	15	0	5	70	70	30	57
<u>November 28, 1983/January 20, 1984</u>													
2. 2,4-DB	1.0/1.0	70	70	80	73	15	15	0	10	70	60	60	63
3. paraquat + oxyfluorfen	0.38 + 0.38/ 0.38 + 0.38	80	80	80	80	15	10	15	13	70	80	60	70
4. paraquat + terbaci1	0.38 + 0.8/ 0.38 + 0.8	50	60	50	53	0	0	0	0	0	0	10	3
5. Check	0	0	0	0	0	0	0	0	0	0	0	0	0

^a2,4-DB = Butoxone 1.75 lb/gal
paraquat = Ortho Paraquat 2.0 lb/gal
oxyfluorfen = Goal 1.6 EC
terbacil = Sinbar 80 WP

X-77 was added to paraquat @ 0.25% v/v

X-77 = surfactant

^bMeadow salsify = Tragopogon pratensis

Title: Salsify Control in Peppermint

Location (farm, town, county, year): Oakley Farm, Lebanon, Linn County, Oregon
1983-84

Evaluation scale: 0 = no effect, 100 = complete kill

Evaluation date: February 15, March 30, 1984

Crop (cultivar): Peppermint (Todd's Mitcham)

Planting date: 1976 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 ft

Soil series and type: Newberg silt loam O.M. 4.5% pH 4.7

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	November 28, 1983	January 20, 1984
Treatments applied:	A11	2-4
Temperature (F)	Air: 48 Soil: 52	Air: 33 Soil: 35
% Relative humidity	93	79
% Cloud cover	100	100
Wind speed & direction	1-2 mph, Southwst	Calm
Dew present?	Yes	No
Time of day	10:00 a.m.	3:00 p.m.
Soil moisture	Slightly muddy	Slightly muddy
Soil surface	Mint sod	Mint sod
Method of application:	Broadcast	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing	8 ft.; 9.6 inches	8 ft.; 9.6 inches
Nozzle size and type	8002 flat fan	8002 flat fan
Boom height	18 inches	18 inches
Pressure (psi)	18	18
Crop	Peppermint	Semi-dormant
Weeds	Salsify	2-8 inches tall
	Groundsel	3 inches tall
	Dandelion	4-6 inches dia.

Exp. No. 84-30

Weed Control with Repeated Applications of Herbicides in Peppermint
Faxon Farm, Philomath, Benton County, Oregon
1983-84

Tank-mixes of paraquat with three soil-residual herbicides were applied as repeated applications in November and January for comparison with a single application on December 15 in a non-plowed peppermint field. Treatments that contained oxyfluorfen caused some reduction in mint foliage during the winter, but the symptoms were nearly gone in March.

All treatments provided excellent control of Italian ryegrass, annual bluegrass, panicle willowweed, and annual sowthistle by March. The best treatments for spotted catsear contained oxyfluorfen, with the repeated treatments being superior to the single applications.

Paraquat plus terbacil was also considerably more effective on catsear when applied as a repeated treatment.

By May, ryegrass control was still above 95% for all treatments, but willowweed control had fallen off for the single application of terbacil. Treatments that contained oxyfluorfen were the only ones to provide adequate groundsel control.

Weed Control with Repeated Applications of Herbicides in Peppermint
Faxon Farm, Philomath, Benton County, Oregon
1983-84

Treatment ^a	Rate lbs a. i./A	Visual evaluations - % injury or control															
		Evaluated February 2, 1984															
		Peppermint				Annual sowthistle				Spotted catsear				Italian ryegrass			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>November 15, 1983/January 27, 1984</u>																	
1. paraquat + oxyfluorfen	0.25 + 0.25/ 0.25 + 0.25	20	20	20	20	100	100	100	100	100	100	100	100	100	100	100	100
2. paraquat + diuron	0.25 + 1.2/ 0.25 + 1.2	0	0	0	0	100	100	100	100	90	90	70	83	100	100	100	100
3. paraquat + terbacil	0.25 + 0.8/ 0.25 + 0.8	0	0	0	0	100	100	100	100	90	90	90	90	100	100	100	100
4. paraquat + diuron + oxyfluorfen	0.25 + 1.2 + 0.25/ 0.25 + 1.2 + 0.25	20	20	20	20	100	100	100	100	100	100	100	100	100	100	100	100
5. paraquat + terbacil + oxyfluorfen	0.25 + 0.8 + 0.25/ 0.25 + 0.8 + 0.25	20	20	20	20	100	100	100	100	100	100	100	100	100	100	100	100
<u>December 15, 1983</u>																	
6. paraquat + oxyfluorfen	0.5 + 0.5	20	20	20	20	100	100	100	100	100	100	100	100	100	100	100	100
7. paraquat + diuron	0.5 + 2.4	10	0	0	3	100	100	100	100	80	90	100	90	100	100	100	100
8. paraquat + terbacil	0.5 + 1.6	0	0	0	0	100	100	70	90	90	80	70	80	100	100	100	100
9. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Evaluated March 28, 1984																								
Peppermint				Italian ryegrass				Panicle willowweed				Annual sowthistle				Spotted catsear				Annual bluegrass				
R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	
1.	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	95	98	100	100	100	100	
2.	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	90	90	50	77	100	100	100	100	
3.	0	0	0	0	100	100	100	100	100	100	100	100	90	100	100	97	70	90	90	83	100	100	100	100
4.	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
5.	0	10	0	3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
6.	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	90	90	85	88	100	100	100	100	
7.	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	80	80	50	70	100	100	100	100	
8.	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	50	0	0	17	100	100	100	100	
9.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

(Continued on next page)

Exp. No. 84-30
(continued)

Evaluated May 17, 1984																
	Peppermint				Italian ryegrass				Panicle willowweed				Common groundsel			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1.	0	0	0	0	100	99	100	99	100	100	100	100	100	100	100	100
2.	0	0	0	0	100	99	100	99	100	100	100	100	70	70	70	70
3.	0	0	0	0	95	100	100	98	100	100	100	100	50	0	0	17
4.	0	0	0	0	100	99	100	99	100	100	100	100	100	100	100	100
5.	0	0	0	0	99	100	100	99	100	100	100	100	100	100	100	100
6.	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100
7.	0	0	0	0	90	99	99	96	100	100	100	100	80	70	90	80
8.	0	0	0	0	90	100	100	97	80	70	70	73	70	70	80	73
9.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a paraquat = Ortho Paraquat 2L
oxyfluorfen = Goal 2EC
diuron = Karmex 80 WP
terbacil = Sinbar 80WP
X-77 added to all treatments @ 0.5% v/v

Plants/sq. ft., February 2, 1984

annual sowthistle = 0.5
spotted catsear = 3.0
Italian ryegrass = 0.5

Annual sowthistle = Sonchus oleraceus
Spotted catsear = Hypochaeris radicata
Italian ryegrass = Lolium multiflorum
Panicle willowweed = Epilobium paniculatum
Common groundsel = Senecio vulgaris
Annual bluegrass = Poa annua

Title: Weed Control with Repeated Applications of Herbicides in PeppermintLocation (farm, town, county, year): Faxon Farm, Philomath, Benton County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 2, May 17, 1984Crop (cultivar): Peppermint (Todd's Mitcham)Planting date: 1979

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 ftSoil series and type: Willamette silt loam O.M. 3.6% pH 4.9

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	November 15, 1983	December 15, 1983
Treatments applied: _____	1-5	6-8
Temperature (F) _____	Air: 56 Soil: 56	Air: 54 Soil: 54
% Relative humidity _____	72	75
% Cloud cover _____	95	30
Wind speed & direction _____	3-4 mph, West	2-4 mph, Northeast
Dew present? _____	Yes	Yes
Time of day _____	10:30-11:00 a.m.	2:30 p.m.
Soil moisture _____	Slightly muddy	Muddy
Soil surface _____	Mint sod	Mint sod
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft.; 9.6 inches	8 ft.; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop _____	Peppermint	12 inches tall
_____	Groundsel	Blooming
Weeds _____	Prickly lettuce	3-6 inch, rosette
_____	Spotted catsear	4-6 inch, rosette
_____	Sowthistle	5-6 inch, rosette
_____	Bull thistle	5-6 inch, rosette
_____	Italian ryegrass	4-6 inches tall
		1-7 inches tall
		Blooming
		3-6 inch dia.
		2-6 inch dia.
		2-6 inch dia.
		5-8 inch dia.
		4-10 inches tall

Title: Weed Control with Repeated Applications of Herbicides in PeppermintLocation (farm, town, county, year): Faxon Farm, Philomath, Benton County, Oregon
1983-84

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: _____

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____

January 27, 1984

Treatments applied: _____

1-5

Temperature (F) _____

Air: 40

Soil: 46

Air: _____

Soil: _____

% Relative humidity _____

80

% Cloud cover _____

30

Wind speed & direction _____

2-3 mph

Dew present? _____

Yes

Time of day _____

8:30-9:30 a.m.

Soil moisture _____

Muddy

Soil surface _____

Mint sod

Method of application: _____

Broadcast

Type of sprayer _____

Unicycle

Ground speed _____

3 mph

Type of carrier & volume _____

Water, 25 gpa

Length of boom & nozzle spacing _____

8 ft.; 9.6 inches

Nozzle size and type _____

8002 flat fan

Boom height _____

18 inches

Pressure (psi) _____

18

Crop _____

Peppermint

Dormant

Weeds _____

Efficacy of Oxyfluorfen Plus Paraquat in Peppermint
Falk Farm, Junction City, Lane County, Oregon
1983-84

Tank-mix combinations of paraquat and oxyfluorfen initially caused a high level of injury on peppermint, but the mint eventually outgrew all visible symptoms. All treatments produced good groundsel and chickweed control. However, more groundsel germinated in the spring and none of the treatments provided adequate residual control.

Peppermint was hand-harvested from 2 sq yds in plots in treatments 2, 4, and 9. The mint was air-dried and distilled in a small-scale distillery at O.S.U. No significant differences among treatments were found, although the high rate of oxyfluorfen produced the highest average oil yield.

Efficacy of Oxyfluorfen Plus Paraquat in Peppermint
Falk Farm, Junction City, Lane County, Oregon
1983-84

Exp. No. 84-21

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated Feb. 16, 1984				Evaluated March 28, 1984								Evaluated May 31, 1984			
		Peppermint				Peppermint				Common groundsel ^b				Peppermint			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1. paraquat + oxyfluorfen	0.25 + 0.25	December 15, 1983				0	0	0	0	80	80	85	82	100	100	100	100
2. paraquat + oxyfluorfen	0.25 + 0.38	0	30	50	27	0	0	0	0	99	90	90	93	100	100	100	100
3. paraquat + oxyfluorfen	0.25 + 0.5	30	50	80	53	0	0	0	0	100	95	100	98	100	90	100	97
4. paraquat + oxyfluorfen	0.25 + 0.75	50	20	20	30	0	0	0	0	100	100	100	100	100	100	100	100
5. paraquat + oxyfluorfen	0.25 + 0.25	January 18, 1984				0	0	0	0	90	95	99	95	100	100	100	100
6. paraquat + oxyfluorfen	0.25 + 0.38	90	90	50	77	0	0	0	0	99	99	90	96	100	100	100	100
7. paraquat + oxyfluorfen	0.25 + 0.5	90	90	80	87	0	0	0	0	99	99	100	99	100	100	100	100
8. paraquat + oxyfluorfen	0.25 + 0.75	90	90	80	87	0	0	0	0	99	99	100	99	100	99	100	99
9. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a paraquat = Ortho Paraquat 2L
oxyfluorfen = Goal 1.6EC
X-77 added to all treatments @ 0.25% v/v

^b common groundsel = Senecio vulgaris
mouseear chickweed = Cerastium vulgatum

Treatment	Mint fresh hay (lbs/2 sq yds)				Mint oil							
					(mls/10 lbs)				(lbs/A)			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
2.	14.2	21.5	18.4	18.0	7.3	6.8	8.8	7.6	49.8	70.2	77.7	65.9
4.	12.6	14.6	18.2	15.1	10.3	10.3	9.5	10.0	62.3	72.2	83.0	72.5
9.	19.2	14.5	12.0	15.2	8.1	10.2	11.0	9.8	74.7	49.0	63.4	62.4
LSD .05 = n.s.												
LSD .05 = n.s.												
LSD .05 = n.s.												

Title: Efficacy of Oxyfluorfen Plus Paraquat on PeppermintLocation (farm, town, county, year): Falk Farm, Junction City, Lane County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 16, March 28, May 31, 1984Crop (cultivar): PeppermintPlanting date: _____ Harvest date: August 12, 1984

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 feetSoil series and type: Amity silty clay loam O.M. 3.0% pH 5.1

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	December 15, 1983	January 18, 1984
Treatments applied: _____	1-4	5-8
Temperature (F) _____	Air: 45 Soil: 44	Air: 37 Soil: 33
% Relative humidity _____	90	59
% Cloud cover _____	100	100
Wind speed & direction _____	2-4 mph. North	3-4 mph. North
Dew present? _____	Yes	No
Time of day _____	11:30 a.m.	3:00 p.m.
Soil moisture _____	Muddy	Muddy
Soil surface _____	Mint sod	Mint sod
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft.; 9.6 inches	8 ft.; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Peppermint</u>	1-2 inches tall	Semi-dormant
Weeds <u>Groundsel</u>	Senescing	Dead
<u>Spotted catsear</u>	2-5 inch dia.	2-5 inch dia.
<u>Mouseear chickweed</u>	-	4-6 leaf

Exp. No. 84-22

Efficacy of Oxyfluorfen Plus Paraquat on Peppermint
Holm Farm, Junction City, Lane County, Oregon
1983-84

Paraquat-oxyfluorfen tank-mixes caused considerable injury initially but all visible symptoms were outgrown by spring. The December application seemed superior to the January application for spotted catsear control, but little difference in timing could be seen in groundsel control.

Although higher rates of oxyfluorfen produced better groundsel control, none of the treatments were adequate to control the groundsel that germinated in May.

Efficacy of Oxyfluorfen Plus Paraquat on Peppermint
Holm Farm, Junction City, Lane County, Oregon
1983-84

Exp. No. 84-22

		Visual evaluations - % injury or control																							
		Evaluated February 16, 1984								Evaluated March 28, 1984								Evaluated May 31, 1984							
Treatment ^a	Rate lbs a.i./A	Peppermint				Spotted catsear ^b				Peppermint				Spotted catsear				Peppermint				Common groundsel			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
December 2, 1983																									
1. paraquat + oxyfluorfen	0.25 + 0.25	10	20	50	27	100	100	100	100	0	0	0	0	100	90	100	97	0	0	0	0	50	80	50	60
2. paraquat + oxyfluorfen	0.25 + 0.38	20	30	50	33	100	100	100	100	0	0	0	0	100	100	100	100	0	0	0	0	50	70	0	40
3. paraquat + oxyfluorfen	0.25 + 0.5	50	30	90	57	100	100	100	100	0	0	5	2	100	100	100	100	0	0	0	0	70	50	60	60
4. paraquat + oxyfluorfen	0.25 + 0.75	50	70	30	50	100	100	100	100	0	0	0	0	100	100	100	100	0	0	0	0	85	95	80	87
January 18, 1984																									
5. paraquat + oxyfluorfen	0.25 + 0.25	80	90	90	87	100	100	100	100	0	0	0	0	90	100	100	97	0	0	0	0	50	40	70	53
6. paraquat + oxyfluorfen	0.25 + 0.38	90	90	70	83	80	100	100	93	0	0	0	0	90	100	100	97	0	0	0	0	60	50	50	53
7. paraquat + oxyfluorfen	0.25 + 0.5	90	60	50	67	80	100	100	93	0	0	0	0	80	100	100	93	0	0	0	0	70	85	70	75
8. paraquat + oxyfluorfen	0.25 + 0.75	90	80	90	87	80	100	100	93	0	0	10	3	70	100	100	90	0	0	0	0	80	85	85	83
9. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a paraquat = Ortho Paraquat CL 2L
oxyfluorfen = Goal 1.6 lb/gal EC
X-77 added to all treatments @ 0.25% v/v

^b spotted catsear = Hypochaeris radicata: 0.5/sq ft
common groundsel = Senecio vulgaris: 30/sq ft

Title: Efficacy of Oxyfluorfen Plus Paraquat on PeppermintLocation (farm, town, county, year): Holm Farm, Junction City, Lane County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 16, March 28, May 31, 1984Crop (cultivar): Peppermint (Todd's Mitcham)Planting date: 1979

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 ftSoil series and type: Willamette silty clay loam O.M. 4.3% pH 5.6

Fertilizer: _____

Other pesticides: _____ Irrigation: SprinklerExperimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	December 2, 1983	January 18, 1984
Treatments applied: _____	1-4	5-8
Temperature (F) _____	Air: 42 Soil: 41	Air: 37 Soil: 33
% Relative humidity _____	85	57
% Cloud cover _____	100	90
Wind speed & direction _____	2-3 mph, Southwest	3-4 mph, North
Dew present? _____	Yes	No
Time of day _____	10:00 a.m.	2:30 p.m.
Soil moisture _____	Muddy	Muddy
Soil surface _____	Mint sod	Mint sod
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft; 9.6 inches	8 ft; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Peppermint</u>	2-3 inches tall	Semi-dormant
Weeds <u>Groundsel</u>	Cotyledon to full bloom	Dead
<u>Spotted catsear</u>	2-5 inches diameter	2-5 inches diameter

Exp. No. 84-24

Broadleaf Weed Control in Peppermint
Crocker Farm, Madras, Jefferson County, Oregon
1984

A trial was conducted in an old, non-plowed peppermint field to evaluate weed control and crop tolerance with combinations of four herbicides. All herbicide treatments included a tank-mix of paraquat plus oxyfluorfen in January. This application was followed by no herbicide, fluoroachloridone, bromoxynil, or bromoxynil plus fluoroachloridone in April.

Mint treated with fluoroachloridone showed some chlorosis soon after application, but no injury was seen in May. All treatments provided complete control of prickly lettuce and common groundsel.

Broadleaf Weed Control in Peppermint
Crocker Farm, Madras, Jefferson County, Oregon
1984

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated April 20, 1984												Evaluated May 24, 1984			
		Peppermint				Prickly lettuce ^b				Common groundsel				Peppermint			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
January 26/April 6, 1984																	
1. paraquat + oxyfluorfen/ fluorochloridone	0.25 + 0.5/ 0.5	20	15	15	17	100	100	100	100	100	100	100	100	0	0	0	0
2. paraquat + oxyfluorfen/ bromoxynil + fluoro- chloridone	0.25 + 0.5/ 0.25 + 0.5	20	15	15	17	100	100	100	100	100	100	100	100	0	0	0	0
3. paraquat + oxyfluorfen/ bromoxynil	0.25 + 0.5/ 0.38	0	0	0	0	100	100	100	100	100	100	100	100	0	0	0	0
January 26, 1984																	
4. paraquat + oxyfluorfen	0.25 + 0.5	0	0	0	0	100	100	100	100	100	100	100	100	0	0	0	0
5. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a paraquat = Ortho Paraquat CL 2L
fluorochloridone = Racer 2 EC
oxyfluorfen = Goal 1.6 EC
bromoxynil = Buctril 2 EC
X-77 added to paraquat @ 0.5% v/v

^b prickly lettuce = Lactuca serriola
common groundsel = Senecio vulgaris

Title: Broadleaf Weed Control in PeppermintLocation (farm, town, county, year): Crocker Farm, Madras, Jefferson County, Oregon
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: April 20, May 24, 1984Crop (cultivar): Peppermint (Mitcham)Planting date: 1977

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 feetSoil series and type: Madras sandy loamO.M. 1.3% pH 4.8

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: Randomized complete blockLSD: 0.050.01

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	January 27, 1984	April 6, 1984
Treatments applied: _____	All	1-3
Temperature (F) _____	Air: 41 Soil: 33	Air: 62 Soil: 60
% Relative humidity _____	60	44
% Cloud cover _____	0	10
Wind speed & direction _____	Calm	2-3 mph, North
Dew present? _____	Yes	No
Time of day _____	9:00 a.m.	3:00 p.m.
Soil moisture _____	Slightly muddy	Dry on surface
Soil surface _____	Mint sod	Mint sod
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 21 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	7 ft; 16.8 inches	7 ft; 9.3 inches
Nozzle size and type _____	8003 flat fan	8002 flat fan
Boom height _____	14 inches	20 inches
Pressure (psi) _____	28	20
Crop <u>Peppermint</u>	Dormant	Emerging
Weeds <u>Common groundsel</u>	2-3 inches	Flowering
<u>Downy brome</u>	Tillered	4-5 inches tall
<u>Prickly lettuce</u>	Pre	2-5 inches dia.

Exp. No. 84-25

Broadleaf Weed Control in Peppermint
Green Farm, Madras, Jefferson County, Oregon
1984

A trial was conducted in a vigorous 1-year-old peppermint field to evaluate efficacy and crop tolerance with applications of four herbicides. All treated plots received an application of paraquat plus oxyfluorfen in January. In April, the treated plots received applications of fluoroachloridone, bromoxynil, or bromoxynil plus fluoroachloridone.

Mint treated with fluoroachloridone showed considerable chlorosis soon after treatment, but by May 24, no injury was detected. All treatments were effective on prickly lettuce and common groundsel. The trial was hoed prior to the second evaluation so only crop injury was recorded on that date.

Broadleaf Weed Control in Peppermint
Green Farm, Madras, Jefferson County, Oregon
1984

		Visual evaluations - % injury or control															
		Evaluated April 20, 1984												Evaluated May 24, 1984			
Treatment ^a	Rate lbs a.i./A	Peppermint				Prickly lettuce ^b				Common groundsel				Peppermint			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
January 27/April 6, 1984																	
1. paraquat + oxyfluorfen/ fluorochloridone	0.25 + 0.5/ 0.5	20	20	20	20	90	100	100	97	100	100	90	97	0	0	0	0
2. paraquat + oxyfluorfen/ bromoxynil + fluoro- chloridone	0.25 + 0.5/ 0.25 + 0.5	20	20	20	20	100	100	100	100	100	100	95	98	0	0	0	0
3. paraquat + oxyfluorfen/ bromoxynil	0.25 + 0.5/ 0.38	0	0	0	0	100	100	100	100	100	100	100	100	0	0	0	0
April 6, 1984																	
4. paraquat + oxyfluorfen	0.25 + 0.5	0	0	0	0	100	100	100	100	100	100	100	100	0	0	0	0

^a paraquat = Ortho Paraquat CL 2 LC
oxyfluorfen = Goal 1.6 EC
bromoxynil = Buctril 2 EC
fluorochloridone = Racer 2 EC
X-77 added to paraquat @ 0.5% v/v

^b prickly lettuce = Lactuca serriola
common groundsel = Senecio vulgaris

Title: Broadleaf Weed Control in Central Oregon Peppermint

Location (farm, town, county, year): Green Farm, Madras, Jefferson County, Oregon
1984

Evaluation scale: 0 = no effect, 100 = complete kill

Evaluation date: April 20, May 24, 1984

Crop (cultivar): Peppermint (Todd's Mitcham)

Planting date: 1982 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 7 by 20 feet

Soil series and type: Madras sandy loam O.M. 1.8% pH 5.5

Fertilizer: _____

Other pesticides: _____ Irrigation: Furrow

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	January 27, 1984	April 6, 1984
Treatments applied: _____	All	1-3
Temperature (F) _____	Air: 49 Soil: 38	Air: 60 Soil: 59
% Relative humidity _____	61	54
% Cloud cover _____	0	20
Wind speed & direction _____	Calm	3-6 mph, North
Dew present? _____	No	No
Time of day _____	11:00 a.m.	2:30 p.m.
Soil moisture _____	Muddy	Dry on surface
Soil surface _____	Mint sod	Mint sod
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 21 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	7 ft; 16.8 inches	7 ft; 9.3 inches
Nozzle size and type _____	8003 flat fan	8002 flat fan
Boom height _____	14 inches	10 inches
Pressure (psi) _____	28	20
Crop <u>Peppermint</u>	Slight green-up	1-2 inches tall
Weeds <u>Prickly lettuce</u>	2-4 inches dia.	3-6 inches dia.
<u>Common groundsel</u>	Pre	Flowering

Exp. No. 84-23

Broadleaf Weed Control in Peppermint
Stahancyk Farm, Prineville, Crook County, Oregon
1984

A trial was conducted in a five-year-old non-plowed peppermint field to evaluate efficacy and crop tolerance with four herbicides. All treated plots received paraquat plus oxyfluorfen in January. In April, the treated plots received fluorochloridone, bromoxynil, or bromoxynil plus fluorochloridone.

Mint treated with fluorochloridone showed some chlorosis initially, but the symptoms were soon outgrown. All treatments provided good weed control, but those that included bromoxynil were better than those that did not.

Broadleaf Weed Control in Peppermint
Stahancyk Farm, Prineville, Crook County, Oregon
1984

Exp. No. 84-23

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated April 20, 1984															
		Peppermint				Umbrella spurry ^b				Common groundsel				Prickly lettuce			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>January 26/April 6, 1984</u>																	
1. paraquat + oxyfluorfen/ fluorchloridone	0.25 + 0.5/ 0.5	15	20	10	15	100	100	80	93	90	100	80	90	80	100	80	87
2. paraquat + oxyfluorfen/ bromoxynil + fluorchlori- done	0.25 + 0.5/ 0.25 + 0.5	15	15	10	13	100	99	99	99	95	100	100	98	100	100	100	100
3. paraquat + oxyfluorfen/ bromoxynil	0.25 + 0.5/ 0.38	0	0	0	0	90	99	99	96	95	100	100	98	100	100	100	100
<u>January 26, 1984</u>																	
4. paraquat + oxyfluorfen	0.25 + 0.5	0	0	0	0	80	90	90	87	90	90	80	87	90	90	90	90
5. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a paraquat = Ortho Paraquat CL 2L
oxyfluorfen = Goal 1.6 EC
fluorchloridone = Racer 2 EC
bromoxynil = Buctril 2 EC
X-77 added to paraquat @ 0.5% v/v

Evaluated May 24, 1984

Peppermint

	R1	R2	R3	Avg
--	----	----	----	-----

1.	0	0	0	0
2.	0	0	0	0
3.	0	0	0	0
4.	0	0	0	0
5.	0	0	0	0

^b umbrella spurry = Holosteum umbellatum
common groundsel = Senecio vulgaris
prickly lettuce = Lactuca serriola

Title: Broadleaf Weed Control in PeppermintLocation (farm, town, county, year): Stahancyk Farm, Prineville, Crook County, Oregon
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: April 20, May 24, 1984Crop (cultivar): Peppermint (Todd's Mitcham)Planting date: 1979

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 feetSoil series and type: Ochoco sandy loam O.M. 1.6% pH 5.9

Fertilizer: _____

Other pesticides: _____ Irrigation: SprinklerExperimental design: Randomized complete blockLSD: 0.050.01

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	January 26, 1984	April 6, 1984
Treatments applied: _____	A11	1-3
Temperature (F) _____	Air: 49 Soil: 33	Air: 55 Soil: 59
% Relative humidity _____	45	48
% Cloud cover _____	30	20
Wind speed & direction _____	Calm	4-8 mph, North
Dew present? _____	No	No
Time of day _____	3:00 p.m.	12:30 p.m.
Soil moisture _____	Very moist	Dry on surface
Soil surface _____	Mint sod	Mint sod
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 21 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	7 ft; 16.8 inches	7 ft; 9.3 inches
Nozzle size and type _____	8003 flat fan	8002 flat fan
Boom height _____	14 inches	10 inches
Pressure (psi) _____	28	20
Crop <u>Peppermint</u>	<u>Dormant</u>	<u>Emerging</u>
Weeds <u>Common groundsel</u>	<u>2 inches tall</u>	<u>Blooming</u>
<u>Umbrella spurry</u>	<u>Cotyledon - 4 leaf</u>	<u>Blooming</u>
<u>Prickly lettuce</u>	<u>2-3 inches dia.</u>	<u>4-5 inches dia.</u>

Exp. No. 84-32

Herbicide Timing on Quackgrass in Peppermint
Oakley Farm, Lebanon, Linn County, Oregon
1983-84

A trial was established in a heavy stand of quackgrass in a non-plowed peppermint field to compare application timing of DPX Y6202, haloxyfop-methyl, and fenthiaprop-ethyl. Part way through the trial, American Hoechst discontinued development of fenthiaprop-ethyl, so fluazifop-P-butyl was substituted in the final application.

Better quackgrass control was obtained with the later applications. Haloxyfop-methyl received the highest control rating in all comparisons, but the differences among the March treatments were small. The difference in timing with DPX Y6202 was the most dramatic, with very poor fall ratings and excellent spring ratings.

No advantage of repeated applications over single applications was observed. None of the treatments caused visible damage to the crop.

Herbicide Timing on Quackgrass in Peppermint
Oakley Farm, Lebanon, Linn County, Oregon
1983-84

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated May 15, 1984				Evaluated June 7, 1984								Evaluated July 6, 1984			
		Quackgrass ^b				Peppermint				Quackgrass				Peppermint			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>October 1983</u>																	
1. DPX Y6202	0.5	50	50	70	57	0	0	0	0	20	30	50	33	0	0	0	0
2. haloxyfop-methyl	0.5	85	85	85	85	0	0	0	0	70	80	70	73	0	0	0	0
3. fenthiaprop-ethyl	0.5	20	50	20	30	0	0	0	0	10	30	0	13	0	0	0	0
<u>October 1983/February 1984</u>																	
4. DPX Y6202/DPX Y6202	0.25/0.25	60	75	75	70	0	0	0	0	20	60	50	43	0	0	0	0
5. haloxyfop-methyl/ haloxyfop-methyl	0.25/ 0.25	85	95	95	92	0	0	0	0	60	85	80	75	0	0	0	0
6. fenthiaprop-ethyl/ fenthiaprop-ethyl	0.25/ 0.25	50	40	20	37	0	0	0	0	20	20	20	20	0	0	0	0
7. paraquat + terbacil + X-77/terbacil + O.C.	0.38 + 1.6 + 0.5%/1.6 + 1%	70	50	70	63	0	0	0	0	70	10	75	52	0	0	0	0
<u>February, 1984</u>																	
8. DPX Y6202	0.5	90	90	85	88	0	0	0	0	90	80	75	82	0	0	0	0
9. haloxyfop-methyl	0.5	99	99	100	99	0	0	0	0	95	95	95	95	0	0	0	0
10. fenthiaprop-ethyl	0.5	50	50	20	40	0	0	0	0	20	20	10	17	0	0	0	0
<u>February/March, 1984</u>																	
11. DPX Y6202/DPX Y6202	0.25/0.25	90	90	95	92	0	0	0	0	75	85	85	82	0	0	0	0
12. haloxyfop-methyl/ haloxyfop-methyl	0.25/ 0.25	100	99	99	99	0	0	0	0	95	95	95	95	0	0	0	0
<u>March, 1984</u>																	
13. DPX Y6202	0.5	99	99	100	99	0	0	0	0	99	95	99	98	0	0	0	0
14. haloxyfop-methyl	0.5	100	100	99	99	0	0	0	0	99	99	99	99	0	0	0	0
15. fluazifop-P-butyl	0.5	100	99	99	99	0	0	0	0	90	95	95	93	0	0	0	0
16. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^aDPX Y6202 = Assure 0.89 EC
haloxyfop-methyl = Verdict 2.0 EC
fenthiaprop-ethyl = A. Hoechst
fluazifop-P-butyl

paraquat = Paraquat CL 2.0L
terbacil = Sinbar 80 WP
Oil concentrate added to 1-6, 8-15 @ 1 qt/A

^bquackgrass = Agropyron repens

Title: Herbicide Timing on Quackgrass in Peppermint

Location (farm, town, county, year): Oakley Farm, Lebanon, Linn County, Oregon
1983-84

Evaluation scale: 0 = no effect, 100 = complete kill

Evaluation date: May 15, June 7, July 6, 1984

Crop (cultivar): Peppermint (Todd's Mitcham)

Planting date: 1976 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 25 ft

Soil series and type: Newberg silt loam O.M. 4.5% pH 4.7

Fertilizer: _____

Other pesticides: _____ Irrigation: Sprinkler

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	October 24, 1983	February 3, 1984
Treatments applied: _____	1-7	4-13
Temperature (F) _____	Air: 45 Soil: 49	Air: 52 Soil: 51
% Relative humidity _____	99	82
% Cloud cover _____	100 (fog)	20
Wind speed & direction _____	2-4 mph, West	2-3 mph, South
Dew present? _____	Yes	No
Time of day _____	9:00-10:00 a.m.	12:30-1:00 p.m.
Soil moisture _____	Slightly muddy	Very moist
Soil surface _____	Sod	Sod
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft; 9.6 inches	8 ft; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Peppermint</u>	3-6 inches tall	1 inch tall
Weeds <u>Quackgrass</u>	8-10 inches tall	3-6 inches tall
_____	_____	_____
_____	_____	_____

Title: Herbicide Timing on Quackgrass in PeppermintLocation (farm, town, county, year): Oaklay Farm, Lebanon, Linn County, Oregon
1983-84

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____ O.M. _____ pH _____

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: _____

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	March 30, 1984	
Treatments applied:	11, 12, 14-16	
Temperature (F)	Air: 47 Soil: 50	Air: Soil:
% Relative humidity	80	
% Cloud cover	100	
Wind speed & direction	3-5 mph, Southwest	
Dew present?	No	
Time of day	10:00-11:00 a.m.	
Soil moisture	Moist	
Soil surface	Mint & quackgrass sod	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	7 ft; 9.3 inches	
Nozzle size and type	8002 flat fan	
Boom height	20 inches	
Pressure (psi)	20	
Crop	Peppermint	1-2 inches
Weeds	Quackgrass	4-6 inches tall

Exp. No. 84-18

Quackgrass Control in Peppermint
Wampler and Werth Farms, Powell Butte, Crook County, Oregon
1983-84

DPX Y6202 applied in October or April, and fluazifop-P-butyl applied in April controlled established quackgrass in non-plowed peppermint. No advantage was seen between the two application dates for DPX Y6202.

Neither herbicide caused visible injury to the peppermint.

Quackgrass Control in Peppermint
Wampler and Werth Farms, Powell Butte, Crook County, Oregon
1983-84

Exp. No. 84-18

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated April 20, 1984								Evaluated May 24, 1984							
		Peppermint				Quackgrass ^c				Peppermint				Quackgrass			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>October 11, 1983</u>																	
1. DPX Y6202	1.0	0	0	0	0	100	100	100	100	0	0	0	0	99	100	100	99
<u>April 6, 1984</u>																	
2. DPX Y6202	1.0	0	0	0	0	20	30	30	27	0	0	0	0	99	99	99	99
3. fluazifop-P-butyl	1.0	0	0	^b	0	30	20	-	17	0	0	-	0	100	100	-	100
4. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^aDPX Y6202 = Assure 0.89 EC
fluazifop-P-butyl = PP005 1.0 EC
Oil conc. added to all treatments @ 1 qt/A

^bPlot oversprayed by grower with paraquat prior to April 20.

^cquackgrass = Agropyron repens

Title: Quackgrass Control in PeppermintLocation (farm, town, county, year): Wampler and Werth Farms, Powell Butte, Crook
County, Oregon 1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: April 20, May 24, 1984Crop (cultivar): Peppermint (Mitcham)Planting date: 1979

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 ftSoil series and type: Deschutes sandy loamO.M. 1.9% pH 5.2

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: Randomized complete blockLSO: 0.050.01

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	October 11, 1983	April 6, 1984
Treatments applied: _____	1	3 and 4
Temperature (F) _____	Air: 72 Soil: 71	Air: 51 Soil: 50
% Relative humidity _____	37	52
% Cloud cover _____	0	40
Wind speed & direction _____	3-4 mph. North	3-5 mph. Northwest
Dew present? _____	No	No
Time of day _____	4:00 p.m.	11:30 a.m.
Soil moisture _____	Moist	Dry on surface
Soil surface _____	Mint and quackgrass sod	Mint & quackgrass sod
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 21 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft; 9.6 inches	7 ft; 9.3 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	20 inches
Pressure (psi) _____	18	20
Crop <u>Peppermint</u>	1-2 inches	Emerging
Weeds <u>Quackgrass</u>	3-4 inches	3-5 inches tall
_____	_____	_____
_____	_____	_____

Exp. No. 84-19

Kentucky Bluegrass Control in Peppermint with DPX Y6202
Sullivan Farm, Madras, Jefferson County, Oregon
1983-84

A trial was established in a non-plowed peppermint field to compare DPX Y6202 with sethoxydim for Kentucky bluegrass control. The bluegrass was well established and was up to 10 inches tall when treated.

DPX Y6202 was more effective than sethoxydim was on the bluegrass. Other research has shown that DPX Y6202 is most effective in the spring on quackgrass, and the same may be true for Kentucky bluegrass.

Exp. No. 84-19

Kentucky Bluegrass Control in Peppermint with DPX Y6202
 Sullivan Farm, Madras, Jefferson County, Oregon
 1983-84

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control							
		Peppermint				Kentucky bluegrass			
		R1	R2	R3	Avg	R1	R2	R3	Avg
1. DPX Y6202 + O.C.	0.25	0	0	0	0	60	60	50	57
2. DPX Y6202 + O.C.	0.5	0	0	0	0	90	80	90	87
3. DPX Y6202 + O.C.	1.0	0	0	0	0	95	95	90	93
4. sethoxydim + O.C.	0.5	0	0	0	0	10	10	20	13
5. Check	0	0	0	0	0	0	0	0	0

^aDPX Y6202 = 0.89 lb/gal EC, duPont
 sethoxydim = Poast 1.53 lb/gal EC
 Oil concentrate added at 1 quart/A

Title: Grass Control in PeppermintLocation (farm, town, county, year): Sullivan Farm, Madras, Jefferson County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: April 6, 1984Crop (cultivar): Peppermint (Todd's Mitcham)Planting date: 1980

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 ftSoil series and type: Madras loamO.M. 2.4%pH 5.4

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	October 11, 1983	
Treatments applied:	A11	
Temperature (F)	Air: 56 Soil: 54	Air: Soil:
% Relative humidity	66	
% Cloud cover	0	
Wind speed & direction	Calm	
Dew present?	Yes	
Time of day	10:00-10:30 a.m.	
Soil moisture	Moist	
Soil surface	Sod	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	8 ft.; 9.6 inches	
Nozzle size and type	8002 flat fan	
Boom height	18 inches	
Pressure (psi)	18	
Crop	Peppermint	1-2 inches tall
Weeds	Kentucky bluegrass	4-10 inches

Italian Ryegrass Control in Peppermint
Sandgathe Farm, Springfield, Lane County, Oregon
1983-84

A trial was conducted in a peppermint field north of Springfield to compare three rates of DPX Y6202 to sethoxydim for Italian ryegrass control. The ryegrass had become established earlier in the year and many plants had seedheads formed when the treatments were applied.

All rates of DPX Y6202 provided a high degree of ryegrass control, but only the 1 lb/A DPX Y6202 and sethoxydim seemed to be about comparable at equal rates. None of the treatments caused visible effects on the peppermint.

Exp. No. 84-20

Italian Ryegrass Control in Peppermint
Sandgathe Farm, Springfield, Lane County, Oregon
1983-84

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control							
		Evaluated February 23, 1984							
		Mint				Italian ryegrass ^b			
		R1	R2	R3	Avg	R1	R2	R3	Avg
1. DPX Y6202	0.25	0	0	0	0	85	90	90	88
2. DPX Y6202	0.5	0	0	0	0	85	99	95	93
3. DPX Y6202	1.0	0	0	0	0	99	100	100	99
4. sethoxydim	0.5	0	0	0	0	95	95	100	97
5. Check	0	0	0	0	0	0	0	0	0

^aDPX Y6202 = Assure 0.89 lb/gal
sethoxydim = Poast 1.53 lb/gal
O.C. = Oil concentrate @ 1 quart/A

^bsethoxydim = Poast 1.53 EC

Title: Italian Ryegrass Control in PeppermintLocation (farm, town, county, year): Sandgathe Farm, Springfield, Lane County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 23, 1984Crop (cultivar): Peppermint (Todd's Mitcham)Planting date: 1979

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 ftSoil series and type: Chehalis silty clay loam

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: October 10, 1983Treatments applied: A11

Temperature (F) _____

Air: 64Soil: 66

Air: _____

Soil: _____

Relative humidity _____

80

Cloud cover _____

30

Wind speed & direction _____

3-5 mph, Southwest

Dew present? _____

No

Time of day _____

3:30 p.m.

Soil moisture _____

Slightly muddy

Soil surface _____

Sod

Method of application: _____

Broadcast

Type of sprayer _____

Unicycle

Ground speed _____

3 mph

Type of carrier & volume _____

Water; 25 gpa

Length of boom & nozzle spacing _____

8 ft; 9.6 inches

Nozzle size and type _____

8002 flat fan

Boom height _____

18 inches

Pressure (psi) _____

18Crop Peppermint1 inch tallWeeds Italian ryegrass8 inches tall to flowering

Exp. No. 84-43

Tolerance of Peppermint to DPX Y6202
Schlegel Farm, Albany, Linn County, Oregon
1984

DPX Y6202 was applied at 0.5 and 1.0 on June 11, to actively growing peppermint in a 9-month-old stand. No injury or color change in the mint was detected throughout the growing season.

This herbicide is very effective on established quackgrass and most seedling grasses and should be very useful in peppermint production.

Treatment ^a	Rate (lbs a.i./A)	Visual evaluations - % mint injury									
		Evaluated June 25, 1984					Evaluated Aug. 1, 1984				
		R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg
1. DPX Y6202	0.5	0	0	0	0	0	0	0	0	0	0
2. DPX Y6202	1.0	0	0	0	0	0	0	0	0	0	0
3. Check	0	0	0	0	0	0	0	0	0	0	0

^aDPX y6202 = Assure 0.8 EC
oil concentrate added @ 1 qt/A

Title: DPX Y6202 Residue in PeppermintLocation (farm, town, county, year): Schlegel Farm, Albany, Linn County, Oregon, 1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: June 25, August 1, 1984Crop (cultivar): Peppermint (Black Mitcham)Planting date: Fall, 1983

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 25 ftSoil series and type: Chehalis silt loamO.M. 2.3% pH 5.6

Fertilizer: _____

Other pesticides: _____ Irrigation: SprinklerExperimental design: Randomized complete block

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: June 11, 1984Treatments applied: 1 and 2

Temperature (F) _____

Air: 62 Soil: 60

Air: _____ Soil: _____

% Relative humidity _____

75

% Cloud cover _____

20

Wind speed & direction _____

Calm

Dew present? _____

Yes

Time of day _____

8:30 a.m.

Soil moisture _____

Very moist

Soil surface _____

Smooth

Method of application: _____

Broadcast

Type of sprayer _____

Unicycle

Ground speed _____

3 mph

Type of carrier & volume _____

Water, 25 gpa

Length of boom & nozzle spacing _____

7 ft; 9.3 inches

Nozzle size and type _____

8002 flat fan

Boom height _____

25 inches

Pressure (psi) _____

20Crop Peppermint8-12 inches

Weeds _____

Exp. No. 84-44

Tolerance of Peppermint to DPX Y6202
Hierman Farm, Lower Bridge, Deschutes County, Oregon
1984

DPX Y6202 was applied to a new planting of peppermint to evaluate crop tolerance. No weeds were present in the trial. Sub-surface drainage problems caused non-uniform mint growth in the trial area. No visible effects of the treatment were detected on the peppermint.

Mint was harvested by hand from 3 sq yds in each plot. The mint was then air-dried and distilled in a small-scale distillery at O.S.U. No significant differences in mint growth or oil yield were detected.

Tolerance of Peppermint to DPX Y6202
 Hierman Farm, Lower Bridge, Deschutes County, Oregon
 1984

Exp. No. 84-44

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % mint injury										Mint fresh weight (lbs/3 sq yds)					Mint oil (ml/plot)					Mint oil (lbs/A)				
		Evaluated July 24, 1984					Evaluated Sept. 6, 1984																			
		R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg
1. DPX Y6202	0.5	0	0	0	0	0	0	0	0	0	0	2.8	3.1	1.2	4.0	2.8	5.1	5.2	2.1	6.7	4.8	16.3	16.6	6.7	21.4	15.2
2. DPX Y6202	1.0	0	0	0	0	0	0	0	0	0	0	4.1	5.9	1.2	2.1	3.3	8.1	7.0	2.3	2.8	5.1	25.9	22.4	7.4	9.0	16.2
3. Check	0	0	0	0	0	0	0	0	0	0	0	3.6	3.9	2.1	3.9	3.4	6.8	7.5	3.2	4.9	5.6	21.8	24.0	10.2	15.7	17.9

^aDPX Y6202 = Assure 0.8 EC
 oil concentrate added @ 1 qt/A

LSD_{.05} = n.s.

LSD_{.05} = n.s.

LSD_{.05} = n.s.

Title: DPX Y6202 Residue in PeppermintLocation (farm, town, county, year): Hierman Farm, Lower Bridge, Deschutes, County, Oregon, 1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: July 24, September 6, 1984Crop (cultivar): Peppermint (Murry)Planting date: Fall, 1983Harvest date: September 6, 1984

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 25 ftSoil series and type: Deschutes loamy sand O.M. 3.7% pH 6.0

Fertilizer: _____

Other pesticides: terbacil, Vydate Irrigation: SprinklerExperimental design: Randomized complete blockLSD: 0.05 n.s. 0.01 n.s. C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: June 15, 1984Treatments applied: 1 and 2Temperature (F) _____ Air: 73 Soil: 70 Air: _____ Soil: _____% Relative humidity 62% Cloud cover 0Wind speed & direction 2-3 mph, NorthDew present? NoTime of day 10:00 a.m.Soil moisture MoistSoil surface GranularMethod of application: BroadcastType of sprayer UnicycleGround speed 3 mphType of carrier & volume Water, 25 gpaLength of boom & nozzle spacing 7 ft; 9.3 inchesNozzle size and type 8002 flat fan

Boom height _____

Pressure (psi) 20Crop Peppermint 1-4 inches

Weeds _____

Exp. No. 84-49

Grass Screening
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Nine herbicides were evaluated for control of seedling grasses which represented 28 species. Two rows of each species were seeded across each plot with tractor-mounted Planet Jr. seeders on May 10, 1984. Two of the herbicides, cloproxydim and fluazifop-P-butyl, had not been tested at OSU in previous years.

Cloproxydim and sethoxydim have similar chemistry which differs considerably from other herbicides in this trial. The greatest difference in activity between these two herbicides was in brome control, where cloproxydim was more active on all species. SC 1084 was distinctly less effective than these two on the ryegrasses and tall fescue.

Fenoxaprop-ethyl was more effective on warm-season species than on cool-season species, but there were a few exceptions. For example, Kentucky bluegrass and roughstalk bluegrass were very sensitive to this herbicide.

Fluazifop-butyl was less effective than fluazifop-P-butyl on several species. Fluazifop-P-butyl, DPX Y6202, and haloxyfop-methyl all were very active on most species.

None of the treatments produced adequate control of annual bluegrass, rattail fescue, or red fescue.

Species	Variety	Planted May 14, 1984		Growth stage ^a
		Genus	Species	
bermudagrass	Highland	<u>Cynodon</u>	<u>dactylon</u>	2-3 lf
bentgrass		<u>Agrostis</u>	<u>tenuis</u>	3 lf
Kentucky bluegrass		<u>Poa</u>	<u>pratensis</u>	3-4 lf
witchgrass		<u>Panicum</u>	<u>capillare</u>	2-3 lf
annual bluegrass		<u>Poa</u>	<u>annua</u>	1-2 t
roughstalk bluegrass		<u>Poa</u>	<u>trivialis</u>	1 t
large crabgrass		<u>Digitaria</u>	<u>sanguinalis</u>	2-3 lf
johnsongrass		<u>Sorghum</u>	<u>halepense</u>	3 lf
barnyardgrass		<u>Echinochloa</u>	<u>crus-galli</u>	2-4 lf
sorghum	Mini Milo	<u>Sorghum</u>	<u>vulgare</u>	3-4 lf
meadow foxtail	Sleipner Blando Manhattan	<u>Alopecurus</u>	<u>pratensis</u>	3-4 lf
downy brome		<u>Bromus</u>	<u>tectorum</u>	1-2 t
cheat		<u>Bromus</u>	<u>secalinus</u>	4 lf/1 t
field brome		<u>Bromus</u>	<u>arvensis</u>	1-2 t
soft brome		<u>Bromus</u>	<u>mollis</u>	1-2 t
perennial ryegrass		<u>Lolium</u>	<u>perenne</u>	3-4 lf
Italian ryegrass		<u>Lolium</u>	<u>multiflorum</u>	3-4 t
tall fescue		<u>Festuca</u>	<u>arundinacea</u>	4 lf/1 t
rattail fescue		<u>Vulpia</u>	<u>myuros</u>	4-5 lf
red fescue		<u>Festuca</u>	<u>rubra</u>	3-4 lf
spring barley	Steptoe	<u>Hordeum</u>	<u>vulgare</u>	3-4 lf/12-13 in.
spring wheat	Twin	<u>Triticum</u>	<u>aestivum</u>	3-4 t/10-12 in.
rye	Cayuse	<u>Secale</u>	<u>cereale</u>	5-6 t/6-8 in.
spring oats		<u>Avena</u>	<u>sativa</u>	3-4 t/8-10 in.
wild oats		<u>Avena</u>	<u>fatua</u>	3-4 t/8-10 in.
corn		<u>Zea</u>	<u>mays</u>	4-5 lf/5 in.
smooth brome		<u>Bromus</u>	<u>inermis</u>	3-4 lf
green foxtail		<u>Setaria</u>	<u>viridis</u>	1-2 lf

^alf = leaf
t = tiller
in = inch

Grass Screening
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Exp. No. 84-49

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated July 11, 1984															
		Bermudagrass				Colonial bentgrass				Kentucky bluegrass				Witchgrass			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1. sethoxydim	0.125	70	75	70	72	100	100	99	99	100	99	100	99	85	100	80	88
2. sethoxydim	0.25	70	85	75	77	100	100	100	100	100	100	99	99	95	100	100	98
3. sethoxydim	0.5	85	75	85	82	100	100	100	100	100	100	100	100	100	90	100	97
4. cloproxydim	0.125	70	90	75	78	100	100	100	100	100	100	99	99	85	100	100	95
5. cloproxydim	0.25	80	75	100	85	100	100	100	100	99	100	100	99	95	100	95	97
6. cloproxydim	0.5	95	80	90	88	100	99	100	99	100	100	99	99	95	100	100	98
7. SC 1084	0.125	80	60	90	77	90	85	90	88	75	80	85	80	85	99	90	91
8. SC 1084	0.25	100	100	100	100	100	100	100	100	90	100	100	97	100	100	100	100
9. SC 1084	0.5	100	100	100	100	100	100	100	100	99	100	100	99	100	100	100	100
10. diclofop-methyl	1.0	85	100	95	93	99	100	100	99	90	95	85	90	85	99	85	90
11. fenoxaprop-ethyl	0.125	95	90	85	90	0	20	0	7	99	95	100	98	99	99	85	94
12. fenoxaprop-ethyl	0.25	100	99	99	99	20	50	70	47	99	100	100	99	100	99	100	99
13. fluazifop-butyl	0.125	99	95	95	96	100	100	100	100	99	100	100	99	100	99	100	99
14. fluazifop-P-butyl	0.062	80	90	95	88	100	100	100	100	99	100	99	99	100	100	99	99
15. fluazifop-P-butyl	0.125	99	100	100	99	100	100	100	100	100	100	100	100	100	100	100	100
16. fluazifop-P-butyl	0.25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
17. DPX Y6202	0.062	95	95	85	92	100	100	99	99	100	100	100	100	100	100	80	93
18. DPX Y6202	0.125	100	99	99	99	100	100	100	100	100	99	100	99	100	100	95	98
19. DPX Y6202	0.25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
20. haloxyfop-methyl	0.062	100	100	99	99	100	99	100	99	100	100	99	99	100	100	90	97
21. haloxyfop-methyl	0.125	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
22. haloxyfop-methyl	0.25	100	99	90	96	100	100	100	100	100	100	99	99	100	100	100	100
23. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued on next page)

Visual evaluations - % injury or control -- Evaluated July 11, 1984																																
Trt.	Large crabgrass				Johnsongrass				Barnyardgrass				Sorghum				Meadow foxtail				Downy brome				Cheat				Field brome			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg				
1.	99	75	90	88	85	95	90	90	80	95	85	87	90	99	99	96	100	100	99	99	20	40	20	27	50	90	60	60	50			
2.	100	85	99	95	90	90	90	90	85	90	90	88	99	100	99	99	100	100	100	100	95	90	75	87	85	100	95	93	75	100	85	87
3.	100	85	100	95	99	90	85	91	90	90	99	93	100	100	100	100	100	100	100	100	99	99	90	96	100	99	95	98	90	99	99	96
4.	95	90	90	92	80	85	90	85	80	99	100	93	75	85	80	80	100	100	100	100	85	99	80	88	100	100	99	99	75	99	80	85
5.	100	100	99	99	85	80	90	85	80	80	95	85	85	99	100	95	100	100	100	100	100	99	99	99	100	100	100	100	95	100	99	98
6.	99	100	99	99	95	85	85	88	99	100	100	99	99	100	99	99	100	100	100	100	100	100	99	99	100	100	100	100	100	100	100	100
7.	80	80	75	78	95	95	95	95	75	85	95	85	99	99	100	99	50	90	90	77	60	60	50	57	60	85	70	72	10	80	30	40
8.	100	99	100	99	100	100	99	99	95	95	90	93	99	100	100	99	90	99	99	96	99	99	99	99	99	100	99	99	75	95	75	82
9.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	90	100	100	97	100	99	99	99	100	100	100	100	85	100	100	95
10.	95	75	70	80	20	0	70	30	85	90	90	88	10	0	0	3	80	100	95	92	0	0	0	0	20	0	0	7	0	0	0	0
11.	100	95	100	98	90	99	85	91	90	95	85	90	100	99	100	99	20	80	80	60	0	0	0	0	0	0	0	0	0	0	0	0
12.	100	100	100	100	100	90	100	97	100	90	95	95	100	100	100	100	40	85	99	75	0	0	0	0	0	0	0	0	0	0	0	0
13.	90	100	100	97	100	100	100	100	85	90	85	87	100	100	100	100	90	100	99	96	85	99	75	87	90	95	90	92	60	85	70	72
14.	90	100	100	97	95	100	100	98	85	99	100	95	100	99	100	99	90	100	100	96	85	95	80	87	85	100	99	95	70	90	90	83
15.	100	100	100	100	99	100	100	99	95	100	90	95	100	100	100	100	95	100	100	98	99	100	99	99	100	100	100	100	90	100	99	96
16.	100	100	100	100	100	100	100	100	99	100	100	99	100	100	100	100	99	100	100	99	100	100	100	100	100	100	100	100	100	100	100	100
17.	100	90	100	97	80	95	85	87	85	100	85	90	100	100	99	99	100	100	100	100	100	99	99	99	100	100	100	100	100	100	99	99
18.	100	100	100	100	99	100	100	99	95	100	95	97	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
19.	100	100	100	100	100	100	100	100	100	100	90	97	100	100	100	100	100	100	100	100	100	100	99	99	100	100	100	100	100	100	100	100
20.	100	100	90	97	100	100	100	100	100	95	90	95	100	100	100	100	100	100	100	100	90	100	85	92	100	100	99	99	90	100	80	90
21.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
22.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
23.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Grass Screening

Exp. No. 84-49
(continued)

Visual evaluations - % injury or control -- Evaluated July 11, 1984																																
Trt.	Soft brome				Perennial ryegrass				Italian ryegrass				Tall fescue				Rattail fescue				Red fescue				Barley				Wheat			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg				
1.	30	60	60	50	95	99	95	96	90	100	90	93	50	85	85	73	0	0	0	0	0	0	0	0	50	75	85	70	50	80	50	60
2.	85	100	99	95	100	100	99	99	100	90	99	96	80	90	90	87	0	0	0	0	0	0	0	0	90	90	95	92	100	100	95	98
3.	99	100	100	99	100	100	99	99	100	100	100	100	90	95	99	95	0	0	0	0	0	0	0	0	99	100	100	99	100	100	100	100
4.	95	99	100	98	99	100	100	99	100	100	100	100	85	95	85	88	0	0	0	0	0	0	0	0	95	99	100	98	100	100	100	100
5.	100	100	100	100	100	100	100	100	100	100	100	100	95	99	95	96	0	0	0	0	0	0	0	0	99	99	99	99	100	100	100	100
6.	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	99	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
7.	30	75	80	62	20	60	40	40	10	50	40	33	0	50	0	17	0	0	0	0	0	0	0	0	85	85	80	83	85	99	95	93
8.	85	90	75	88	60	80	70	70	30	40	40	37	40	0	30	23	0	0	0	0	0	0	0	0	99	95	100	98	100	100	100	100
9.	90	100	100	97	80	95	100	92	75	85	100	87	70	60	80	70	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
10.	0	60	50	37	100	99	100	99	90	95	99	95	90	99	99	96	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	3
11.	0	0	0	0	30	40	20	30	0	20	20	13	0	30	30	20	0	0	0	0	0	0	0	0	90	90	90	90	30	50	50	43
12.	0	60	60	40	70	60	80	70	40	30	50	40	20	50	60	43	0	0	0	0	0	0	0	0	95	90	90	92	50	70	80	67
13.	60	90	99	83	50	90	60	67	70	85	70	75	50	60	30	47	0	0	0	0	0	0	0	0	90	100	100	97	100	100	100	100
14.	70	90	90	83	50	70	85	68	70	70	85	75	50	50	30	43	0	0	0	0	0	0	0	0	95	95	100	97	100	100	100	100
15.	90	100	100	97	95	90	100	95	99	100	100	99	70	85	80	78	0	0	0	0	0	0	0	0	95	100	100	98	100	100	100	100
16.	100	100	100	100	95	100	100	98	100	100	100	100	85	95	85	88	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
17.	100	100	99	99	100	100	99	99	99	100	100	99	50	75	85	70	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
18.	100	100	99	99	100	100	100	100	100	100	100	100	95	99	99	98	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
19.	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	99	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
20.	90	100	100	97	95	99	90	95	85	90	85	87	60	60	40	53	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
21.	100	100	100	100	100	100	100	100	100	100	100	100	90	90	95	92	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
22.	100	100	100	100	100	100	100	100	100	100	100	100	100	95	99	98	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
23.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

(Continued on next page)

Trt.	Visual evaluations - % injury or control -- Evaluated July 11, 1984																			
	Rye				Oats				Wild oats				Corn				Smooth brome			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1.	99	80	90	90	99	100	95	98	95	99	100	98	100	100	100	100	30	60	60	50
2.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	95	95	90	93
3.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
4.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	85	99	80	88
5.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
6.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	99
7.	70	40	20	43	50	50	50	50	70	99	80	83	100	100	100	100	80	99	70	83
8.	90	95	95	93	100	100	99	99	100	100	100	100	100	100	100	100	100	100	100	100
9.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
10.	20	0	0	7	100	100	99	99	100	100	95	98	100	100	100	100	0	0	50	17
11.	40	50	50	47	100	100	100	100	95	100	100	98	100	100	100	100	0	0	0	0
12.	60	60	75	65	100	100	100	100	100	99	100	99	100	100	100	100	0	0	0	0
13.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	99
14.	100	100	100	100	100	100	100	100	99	100	100	99	100	100	100	100	100	100	100	100
15.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
17.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18.	100	100	100	100	100	100	100	100	100	100	100	100	99	100	99	99	100	100	100	100
19.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
20.	100	100	100	100	100	100	100	100	100	100	99	99	100	100	100	100	100	100	100	100
21.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
22.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
23.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^asethoxydim = Poast 1.53 ec
 cloproxydim = Selectone 4 ec
 SC 1084 = Stauffer 4 ec
 diclofop-methyl = Hoelon 3 ec
 fenoxaprop-ethyl = Whip 0.75 ec
 fluazifop-butyl = Fusilade 4 ec

fluazifop-P-butyl = PP005 1 ec
 DPX Y6202 = Assure 0.8 ec
 haloxyfop-methyl = Verdict 2 ec

Title: Grass ScreeningLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: July 11, 1984

Crop (cultivar): _____

Planting date: May 10, 1984 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 40 ftSoil series and type: Woodburn silt loam O.M. 2.5% pH 6.0

Fertilizer: _____

Other pesticides: bromoxynil Irrigation: SprinklerExperimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: June 11, 1984Treatments applied: AllTemperature (F) _____ Air: 66 Soil: 65 Air: _____ Soil: _____% Relative humidity _____ 72% Cloud cover _____ 40Wind speed & direction _____ 3-4 mph, SouthDew present? _____ NoTime of day _____ 10:00-12:00 noonSoil moisture _____ MoistSoil surface _____ GranularMethod of application: BroadcastType of sprayer _____ UnicycleGround speed _____ 3 mphType of carrier & volume _____ Water; 25 gpaLength of boom & nozzle spacing _____ 7 ft; 9.3 inchesNozzle size and type _____ 8002 flat fanBoom height _____ 20 inchesPressure (psi) _____ 20

Crop _____

Weeds _____

Exp. No. 83-12

MCPA Timing on Italian Thistle
Hatfield Ranch, Dixonville, Douglas County, Oregon
1982-84

Plant counts from three 1-sq ft quadrats were made 1 year after a trial had been initiated on Italian thistle in Douglas County. Ratings of Italian thistle control from this trial were reported in the 1983 annual report.

Plant counts in 1983 were about one-third of the previous year's counts, regardless of the month that MCPA had been applied. In plots that had not been sprayed the previous year, the thistle population had nearly doubled. The small plot size and proximity of check plots may have affected the thistle population in the second season. Weather and livestock undoubtedly moved seeds from check plots into adjacent treated plots.

These results indicate that a single application of MCPA in the fall, winter, or early spring can greatly reduce an Italian thistle infestation the following year, but more than one treatment is necessary to eliminate the problem.

Exp. No. 83-12

MCPA Timing on Italian Thistle^b
 Hatfield Ranch, Dixonville, Douglas County, Oregon
 1982-84

Treatment ^a MCPA amine 1.5 lb a.e./A	Plants/sq. ft. October 26, 1983				Plants/sq. ft. October 13, 1982			
	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>Month applied</u>								
1. October	3.4*	13.2**	8.4*	8.3	30.8	18.7	26.9	25.5
2. November	4.0	3.6*	8.4**	5.3				
3. December	6.4*	4.2*	6.0	5.5				
4. January	2.8*	17.6*	8.0**	9.5				
5. February	4.6	3.6*	32.6**	13.6				
6. March	5.0*	4.4	3.6*	4.3				
7. Check	20.8	58.8	37.8	39.1				
8. Check	24.4	50.6	48.2	41.1				
9. Check	37.2	37.4	72.4	49.0	9.3	29.5	42.5	27.1

*Next to a check

**Check both sides

^aMCPA = Weedar 64 amine, 4 lb/gal^bItalian thistle = Carduus pycnocephalus

Exp. No. 84-36

Mayweed Control in Established White Clover
Rucker Farm, Tangent, Linn County, Oregon
1983-84

Paraquat was tank-mixed with oxyfluorfen and applied to established white clover to evaluate crop tolerance and efficacy on mayweed chamomile. Comparisons were made with dinoseb amine, the standard herbicide for mayweed chamomile control in white clover.

November applications of paraquat and oxyfluorfen caused excessive injury to the crop, while the January timing caused only moderate stunting and good mayweed control.

The cold winter weather combined with sheep grazing in the spring probably caused the poor results from the dinoseb treatments.

Mayweed Control in Established White Clover
Rucker Farm, Tangent, Linn County, Oregon
1983-84

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control								
		Evaluated Feb. 22, 1984			Evaluated April 17, 1984					
		White clover			White clover			Mayweed ^b		
		R1	R2	Avg	R1	R2	Avg	R1	R2	Avg
<u>November 29, 1983</u>										
1. paraquat + oxyfluorfen	0.25 + 0.25	90	70	80	90	60	75	100	50	75
2. paraquat + oxyfluorfen	0.25 + 0.5	80	90	85	80	90	85	100	100	100
<u>November 29, 1983/January 26, 1984</u>										
3. dinoseb amine	1.5/1.5	0	20	10	0	0	0	0	0	0
4. dinoseb amine + Herbimax	1.5 + 0.5%/ 1.5/0.5%	0	10	5	10	0	5	40	0	20
5. paraquat + oxy- fluorfen/dinoseb amine	0.25 + 0.25/ 1.5	80	90	85	90	90	90	90	90	90
<u>January 26, 1984</u>										
6. paraquat + oxyfluorfen	0.25 + 0.125	20	20	20	0	20	10	100	80	90
7. paraquat + oxyfluorfen	0.25 + 0.25	20	20	20	0	10	5	80	95	88
8. Check	0	0	0	0	0	0	0	0	0	0

^a paraquat = Ortho Paraquat 2L
oxyfluorfen = Goal 1.6
dinoseb = Premerge 3 EC
X-77 added to paraquat treatments @ 0.25% v/v

^b mayweed = Anthemis cotula

Title: Mayweed Control in White CloverLocation (farm, town, county, year): Rucker Farm, Tangent, Linn County, Oregon, 1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 22, April 17, 1984Crop (cultivar): White clover (S-1)

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 ftSoil series and type: Dayton silt loam O.M. 6.2% pH 4.8

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	November 29, 1983	January 26, 1984
Treatments applied: _____	1-5	3-7
Temperature (F) _____	Air: 43 Soil: 42	Air: 54 Soil: 53
% Relative humidity _____	85	60
% Cloud cover _____	30	60
Wind speed & direction _____	2-3 mph, Northeast	Calm
Dew present? _____	Yes	No
Time of day _____	2:00 p.m.	2:30 p.m.
Soil moisture _____	Slightly muddy	Muddy
Soil surface _____	Clover sod	Clover sod
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	8 ft.; 9.6 inches	8 ft.; 9.6 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>White clover</u>	1 inch tall, grazed	2 inches tall, heaved
Weeds <u>Mayweed</u>	Cotyledon to 0.5 in. dia.	Cotyledon
_____	_____	_____
_____	_____	_____

Exp. No. 84-1

Tolerance of Seedling Legumes to Dinoseb Amine
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Mayweed chamomile is one of the most significant weeds in clover grown for seed in western Oregon. This trial was conducted to determine whether repeated applications of dinoseb amine could be applied to seedling legumes to control mayweed chamomile without causing serious crop injury.

Four rows each of white clover, crimson clover, subclover, alfalfa, and mayweed chamomile were seeded across the plots on September 9, 1983. The first dinoseb application (October 25) was effective on the mayweed. The second treatment on November 8 did little to improve control because of the effective October treatment.

After a cold period in late December and early January, more mayweed began emerging in early February.

The winter treatments were effective on the mayweed that emerged late, and the white clover, alfalfa and crimson clover showed no detrimental effects from the repeated treatments. Sporadic damage to the subclover occurred, especially when more than two applications were made.

Tolerance of Seedling Legumes to Dinoseb Amine
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control																			
		Evaluated April 18, 1984																			
		White clover				Crimson clover				Subclover				Alfalfa				Mayweed chamomile ^b			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
October 25, 1983																					
1. dinoseb	1.5	20	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	75	70	70	72
October 25/November 8, 1983																					
2. dinoseb	1.5/1.5	20	0	0	7	0	0	0	0	20	0	0	7	0	0	0	0	75	75	80	77
October 25/November 8, 1983/January 26, 1984																					
3. dinoseb	1.5/1.5/1.5	0	0	0	0	0	0	0	0	60	0	30	30	0	0	0	0	99	95	80	91
October 25/November 8, 1983/March 5, 1984																					
4. dinoseb	1.5/1.5/1.5	0	0	0	0	0	0	0	0	20	50	50	40	0	0	0	0	95	85	95	92
October 25/November 8, 1983/ February 16/March 5, 1984																					
5. dinoseb	1.5/1.5/1.5/1.5	0	20	0	7	0	0	0	0	20	0	30	17	0	0	0	0	95	90	100	95
October 25, 1983/March 5, 1984																					
6. dinoseb	1.5/1.5	0	0	0	0	0	0	0	0	20	0	0	7	0	0	0	0	90	90	80	87
7. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a dinoseb = Clean Crop Dinitro Amine 3 EC

^b mayweed chamomile = Anthemis cotula

Title: Tolerance of Seedling Legumes to Dinoseb AmineLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: April 18, 1984

Crop (cultivar): _____

Planting date: September 9, 1983 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 6 by 35 ft; 12 inchesSoil series and type: Woodburn silt loam O.M. 2.0% pH 5.2

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: Red clover and trefoil - poor emergence

Date: _____	October 25, 1983	November 8, 1983
Treatments applied: _____	A11	2-5
Temperature (F) _____	Air: 61 Soil: 65	Air: 46 Soil: 46
% Relative humidity _____	58	85
% Cloud cover _____	0	100
Wind speed & direction _____	2-3 mph, Northeast	2-3 mph, Northeast
Dew present? _____	No	Yes
Time of day _____	12:30-1:00 p.m.	1:00 p.m.
Soil moisture _____	Dry on surface	Slightly muddy
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water,	Water,
Length of boom & nozzle spacing _____	6 ft	6 ft
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>Red clover</u>	1-2 leaf	1-3 trifoliolate
Weeds <u>White clover</u>	1-3 leaf	1-3 trifoliolate
<u>Subclover</u>	4-10 leaf	8-12 trifoliolate
<u>Crimson clover</u>	4-6 leaf	6-10 trifoliolate
<u>Alfalfa</u>	3-5 leaf	10-16 trifoliolate
<u>Birdsfoot trefoil</u>	1-3 leaf	3-4 trifoliolate
<u>Mayweed chamomile</u>	2-6 leaf, up to 2 in.dia. 2-4 leaf in treated pl	

Title: Tolerance of Seedling Legumes to Dinoseb AmineLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____ O.M. _____ pH _____

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: _____

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: Severe winter injury on white and sub clover. Large mayweed only in checks

Date: _____	January 26, 1984	February 16, 1984
Treatments applied: _____	3	5
Temperature (F) _____	Air: 50 Soil: 52	Air: 45 Soil: 47
% Relative humidity _____	90	78
% Cloud cover _____	100	50
Wind speed & direction _____	4-5 mph, Southwest	4-6 mph, Southwest
Dew present? _____	Yes	Yes
Time of day _____	10:00 a.m.	9:30 a.m.
Soil moisture _____	Muddy	Muddy
Soil surface _____	Small clods	Smooth
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water,	Water,
Length of boom & nozzle spacing _____	6 ft.; 18 inches	6 ft.; 18 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	18	18
Crop <u>White clover</u>	6-8 leaves	6-8 leaves
Weeds <u>Crimson clover</u>	4-6 inches tall	4-6 inches tall
<u>Subclover</u>	2-4 inches tall	2-4 inches dia.
<u>Alfalfa</u>	3-4 inches tall	3-4 inches tall
<u>Mayweed chamomile</u>	Pre	Cotyledon

Title: Tolerance of Seedling Legumes to Dinoseb AmineLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: _____

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____

March 5, 1984

Treatments applied: _____

4-6

Temperature (F) _____

Air: 51

Soil: 50

Air: _____

Soil: _____

% Relative humidity _____

82

% Cloud cover _____

0

Wind speed & direction _____

2-4 mph, North

Dew present? _____

No

Time of day _____

9:30 a.m.

Soil moisture _____

Moist

Soil surface _____

Smooth

Method of application: _____

Broadcast

Type of sprayer _____

Unicycle

Ground speed _____

3 mph

Type of carrier & volume _____

Water,

Length of boom & nozzle spacing _____

6 ft.; 18 inches

Nozzle size and type _____

8002 flat fan

Boom height _____

18 inches

Pressure (psi) _____

18

Crop White clover

1-3 inches dia.

Weeds Crimson clover

6-8 inches tall

Subclover

2-5 inches dia.

Alfalfa

3-5 inches tall

Mayweed chamomile

Cotyledon to 2 inches dia.

Perennial Grass Control in Alfalfa
Mayfield Farm, Lower Bridge, Deschutes County, Oregon
1984

Kentucky bluegrass is a commonly encountered weed problem in central Oregon alfalfa. A trial was conducted in an old alfalfa stand to compare several new herbicides on established Kentucky bluegrass.

Sethoxydim was applied alone and in combination with 2,4-DB. Four rates of fluazifop-P-butyl were included for comparison with the old fluazifop-butyl formulation.

The addition of 2,4-DB to sethoxydim caused stunting and leaf-cupping of the first cutting, but no symptoms were seen prior to the second cutting. Sethoxydim performance on the bluegrass seemed to be slightly reduced, but sethoxydim alone did not control the bluegrass after the first cutting. The two formulations of Fusilade seemed comparable at equal rates.

The two best treatments were DPX Y6202 and haloxyfop-methyl. Haloxyfop-methyl nearly eliminated the Kentucky bluegrass and was clearly superior to all other treatments.

Exp. No. 84-47

Perennial Grass Control in Alfalfa
Mayfield Farm, Lower Bridge, Deschutes County, Oregon
1984

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control											
		Evaluated April 13, 1984				Evaluated April 20, 1984							
		Alfalfa				Alfalfa				Kentucky bluegrass ^b			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1. sethoxydim	0.5	0	0	0	0	0	5	0	2	10	10	20	13
2. sethoxydim + 2,4-DB	0.3 + 0.7	5	5	5	5	0	5	0	2	10	10	20	13
3. sethoxydim + 2,4-DB	0.3 + 1.4	10	10	10	10	5	5	5	5	10	20	30	20
4. sethoxydim + 2,4-DB	0.5 + 0.7	5	0	10	5	5	0	0	2	10	20	20	17
5. sethoxydim + 2,4-DB	0.5 + 1.4	10	10	10	10	5	0	5	3	10	20	10	13
6. fluazifop-P-butyl	0.063	0	0	0	0	0	0	0	0	10	10	20	13
7. fluazifop-P-butyl	0.125	0	5	0	2	0	0	0	0	10	20	20	17
8. fluazifop-P-butyl	0.25	5	5	0	3	0	0	0	0	10	10	10	10
9. fluazifop-P-butyl	0.5	5	5	0	3	0	0	0	0	10	20	10	13
10. fluazifop-butyl	0.5	5	5	5	5	0	0	0	0	10	20	20	17
11. DPX Y6202	0.5	0	5	0	2	0	0	0	0	10	20	10	13
12. haloxyfop-methyl	0.5	5	0	5	3	0	0	0	0	10	20	20	17
13. Check	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued on next page)

Exp. No. 84-47
(continued)

Trt.	Evaluated May 24, 1984								Evaluated August 14, 1984							
	Alfalfa				Kentucky bluegrass				Alfalfa				Kentucky bluegrass			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1.	0	0	0	0	90	90	90	90	0	0	0	0	30	30	60	40
2.	20	20	20	20	80	60	80	73	0	0	0	0	0	0	20	7
3.	20	20	20	20	70	80	90	80	0	0	0	0	0	30	0	10
4.	20	20	20	20	80	80	85	82	0	0	0	0	30	20	50	33
5.	20	20	20	20	85	80	90	85	0	0	0	0	20	20	50	30
6.	0	0	0	0	60	50	80	63	0	0	0	0	0	20	20	13
7.	0	0	0	0	80	80	90	83	0	0	0	0	0	50	30	27
8.	0	0	0	0	85	80	80	82	0	0	0	0	20	50	30	33
9.	0	0	0	0	90	90	90	90	0	0	0	0	30	50	70	50
10.	0	0	0	0	90	90	85	88	0	0	0	0	30	80	70	60
11.	0	0	0	0	90	90	90	90	0	0	0	0	80	80	90	83
12.	0	0	0	0	90	95	99	95	0	0	0	0	95	100	99	98
13.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a sethoxydim = Poast 1.53 EC
 2,4-DB = Butoxone amine 1.75 LC
 fluazifop-P-butyl = PP 005 1 EC
 fluazifop-butyl = Fusilade 4 EC
 DPX Y6202 = Assure 0.8 EC
 haloxyfop-methyl = Verdict 2 EC
 Oil concentrate added to all treatments @ 1 qt/A

^b Kentucky bluegrass = Poa pratensis

Title: Perennial Grass Control in Alafila

Location (farm, town, county, year): Mayfield Farm, Lower Bridge, Deschutes County, Oregon - 1984

Evaluation scale: 0 = no effect, 100 = complete kill

Evaluation date: April 13, April 20, May 24, August 14, 1984

Crop (cultivar): Alfalfa

Planting date: 1978 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 25 ft

Soil series and type: Deschutes loamy sand O.M. 1.4% pH 5.6

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	April 6, 1984	
Treatments applied:	All	
Temperature (F)	Air: 59 Soil: 60	Air: Soil:
% Relative humidity	46	
% Cloud cover	30	
Wind speed & direction	3-5 mph, North	
Dew present?	No	
Time of day	10:00-11:00 a.m.	
Soil moisture	Dry on surface	
Soil surface	Sod	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 9 gpa	
Length of boom & nozzle spacing	7 ft; 9.3 inches	
Nozzle size and type	800067 flat fan	
Boom height	20 inches	
Pressure (psi)	20	
Crop	Alfalfa	2-3 inches
Weeds	Bluegrass	3-5 inches
	Quackgrass	3-4 inches

Exp. No. 84-38

Weed Control in Alfalfa
Smith Farm, Corvallis, Benton County, Oregon
1983-84

A trial was conducted in established alfalfa to compare nine herbicide treatments for weed control and crop tolerance. The orchardgrass plants were well established when the treatments were applied. The spotted catsear varied from juvenile plants to mature plants with flowers. The unusually cold winter weather killed many of the small spotted catsear and sowthistle plants.

Although all treatments initially caused some injury to the orchardgrass, only the highest rate of norflurazon was causing any visible effects by April. Results on spotted catsear were variable. Most treatments were effective on the juvenile plants, but the mature plants were more resistant. Treatments that contained oxyfluorfen or the higher rates of norflurazon were the most effective on the mature plants.

All treatments provided excellent control of annual sowthistle and good crop tolerance.

Weed Control in Alfalfa
Smith farm, Corvallis, Benton County, Oregon
1983-84

Exp. No. 84-38

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated February 16, 1984															
		Alfalfa				Orchardgrass ^b				Spotted catsear				Annual sowthistle			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1. paraquat + oxyfluorfen	0.38 + 0.25	0	0	0	0	20	20	10	17	100	80	100	93	100	100	100	100
2. paraquat + oxyfluorfen + diuron	0.38 + 0.25 + 1.2	0	0	0	0	20	20	20	20	100	100	100	100	100	100	100	100
3. paraquat + diuron	0.38 + 2.4	0	0	0	0	20	20	10	17	20	50	100	57	100	100	100	100
4. paraquat + hexazinone	0.38 + 1.35	0	0	0	0	20	20	20	20	50	100	100	83	100	100	100	100
5. paraquat + metribuzin	0.38 + 1.0	0	0	0	0	20	20	20	20	80	20	80	60	100	100	100	100
6. paraquat + terbacil	0.38 + 1.5	0	0	0	0	20	20	20	20	60	20	80	53	100	100	100	100
7. paraquat + norflurazon	0.38 + 1.2	0	0	0	0	20	10	10	13	60	50	100	70	100	100	100	100
8. paraquat + norflurazon	0.38 + 1.6	0	0	10	3	10	10	10	10	100	100	100	100	100	100	100	100
9. paraquat + norflurazon	0.38 + 2.4	0	0	10	3	10	20	30	20	90	100	100	97	100	100	100	100
10. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Evaluated April 12, 1984															
	Alfalfa				Orchardgrass				Spotted catsear				Annual sowthistle			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1.	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
2.	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
3.	0	0	0	0	0	0	0	0	0	80	100	60	100	100	100	100
4.	0	0	0	0	0	0	0	0	0	100	100	67	100	100	100	100
5.	0	0	0	0	0	0	0	0	0	0	80	27	100	100	100	100
6.	0	0	0	0	0	0	0	0	0	0	60	20	100	100	100	100
7.	0	0	0	0	0	0	0	0	0	0	100	33	100	100	100	100
8.	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
9.	0	0	0	0	20	20	20	20	100	100	100	100	100	100	100	100
10.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^a paraquat = Ortho Paraquat CL
oxyfluorfen = Goal 1.6EC
diuron = Karmex 80WP
hexazinone = Velpar 2L
metribuzin = Lexone 75DF
terbacil = Sinbar 80WP
norflurazon = Solicam 80WP

X-77 added to all treatments at 0.25% v/v

^b orchardgrass = Dactylis glomerata
spotted catsear = Hypochaeris radicata
annual sowthistle = Sonchus oleraceus

Title: Weed Control in AlfalfaLocation (farm, town, county, year): Smith Farm, Corvallis, Benton County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: February 16, April 12, 1984Crop (cultivar): AlfalfaPlanting date: 1978

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 25 ftSoil series and type: Chehalis silty clay loam O.M. 2.8% pH 5.5

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	December 15, 1983	
Treatments applied:	1-9	
Temperature (F)	Air: 46 Soil: 45	Air: _____ Soil: _____
% Relative humidity	92	
% Cloud cover	90	
Wind speed & direction	2-3 mph, Northeast	
Dew present?	Yes	
Time of day	12:30-1:00 p.m.	
Soil moisture	Muddy	
Soil surface	Sod	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	8 ft.; 9.6 inches	
Nozzle size and type	8002 flat fan	
Boom height	18 inches	
Pressure (psi)	18	
Crop	Alfalfa	1-2 inches tall
Weeds	Orchardgrass	4-8 inches tall
	Sowthistle	2-6 inches dia.
	Spotted catsear	3 inches dia. to bloom

Exp. No. 84-63

Alfalfa Tolerance/2,4-DB and Sethoxydim
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Sethoxydim applied with oil concentrate to established alfalfa had no effect on appearance or fresh weight of the alfalfa. However, 2,4-DB applied with oil concentrate, with or without sethoxydim, caused leaf malformation, stunting, and reduced alfalfa fresh weight.

The higher rate of 2,4-DB caused a greater reduction in fresh weight than did the lower rate.

Exp. No. 84-63

Alfalfa Tolerance/2,4-DB and Sethoxydim
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % alfalfa injury								Fresh weight-July 23, 1984 (lbs/66 sq. ft.)			
		July 6, 1984				July 23, 1984							
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1. sethoxydim + O.C.	0.5	0	0	0	0	0	0	0	0	25.6	25.4	17.4 ^b	22.8
2. sethoxydim + 2,4-DB + O.C.	0.3 + 0.7	10	10	10	10	10	15	10	12	15.1	20.7	21.0	18.9
3. sethoxydim + 2,4-DB + O.C.	0.3 + 1.4	20	20	20	20	20	20	20	20	12.8	14.5	16.7	14.7
4. sethoxydim + 2,4-DB + O.C.	0.5 + 0.7	10	10	10	10	25	10	10	15	16.5	20.0	21.6	19.4
5. sethoxydim + 2,4-DB + O.C.	0.5 + 1.4	20	20	20	20	25	20	15	20	14.8	15.1	18.2	16.0
6. 2,4-DB	1.4	0	10	0	3	15	15	0	10	19.5	20.8	23.7	21.3
7. 2,4-DB + O.C.	1.4	20	20	20	20	20	25	20	22	13.5	13.4	17.6	14.8
8. Check	0	0	0	0	0	0	0	0	0	18.2	27.6	29.6	25.1

^asethoxydim = Poast 1.53 lb/gal
2,4-DB = Butoxone amine 1.75 lb/gal
O.C. = BASF oil concentrate @ 1 qt/A

LSD_{.05} = 5.3LSD_{.01} = 7.4

^bgopher damage

C.V. = 16%

Title: Alfalfa Tolerance/2,4-DB and SethoxydimLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon,
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: July 6, July 23, 1984Crop (cultivar): AlfalfaPlanting date: 1981 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 ftSoil series and type: Woodburn silt loam O.M. 3.5% pH 6.1

Fertilizer: _____

Other pesticides: None Irrigation: NoneExperimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	July 2, 1984	
Treatments applied:	A11	
Temperature (F)	Air: 73 Soil: 76	Air: Soil:
% Relative humidity	58	
% Cloud cover	10	
Wind speed & direction	5-6 mph, North	
Dew present?	No	
Time of day	11:00-11:30 a.m.	
Soil moisture	Moist	
Soil surface	Sod	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	7 ft; 9.3 inches	
Nozzle size and type	8002 flat fan	
Boom height	26 inches	
Pressure (psi)	20	
Crop	Alfalfa	6-8 inches
Weeds		

Exp. No. 84-62

Bentgrass Control in Birdsfoot Trefoil
McGuire Farm, Airlie, Polk County, Oregon
1984

Seven herbicides were evaluated in birdsfoot trefoil. Five of the compounds were grass control herbicides.

MCPA was the only herbicide that caused significant injury to the trefoil. No injury was seen from the five grass control herbicides.

Haloxfop-methyl and DPX Y6202 were the two most effective treatments on the bentgrass, while sethoxydim was the least effective.

Bentgrass Control in Birdsfoot Trefoil
McGuire Farm, Airlie, Polk County, Oregon
1984

Exp. No. 84-62

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control											
		Evaluated June 5, 1984						Evaluated July 13, 1984					
		Trefoil			Colonial bentgrass ^b			Trefoil			Colonial bentgrass		
		R1	R2	Avg	R1	R2	Avg	R1	R2	Avg	R1	R2	Avg
1. sethoxydim	0.25	0	0	0	70	80	75	0	0	0	20	50	35
2. sethoxydim	0.38	0	0	0	70	70	70	0	0	0	50	50	50
3. fluazifop-butyl	0.25	0	0	0	40	50	45	0	0	0	80	80	80
4. fluazifop-butyl	0.38	0	0	0	80	70	75	0	0	0	80	80	80
5. fluazifop-P-butyl	0.25	0	0	0	70	70	70	0	0	0	80	90	85
6. fluazifop-P-butyl	0.38	0	0	0	80	80	80	0	0	0	80	80	80
7. haloxyfop-methyl	0.25	0	0	0	70	60	65	0	0	0	90	90	90
8. haloxyfop-methyl	0.38	0	0	0	85	75	80	0	0	0	95	100	98
9. DPX Y6202	0.25	0	0	0	70	80	75	0	0	0	90	70	80
10. DPX Y6202	0.38	0	0	0	70	80	75	0	0	0	100	100	100
11. MCPA amine	0.25	40	60	50	0	0	0	80	90	85	0	0	0
12. dicamba	0.0625	10	20	15	0	0	0	0	0	0	0	0	0
13. MCPA + dicamba	0.25 + 0.0625	50	60	55	0	0	0	80	90	85	0	0	0
14. Check	0	0	0	0	0	0	0	0	0	0	0	0	0

^a sethoxydim = Poast 1.53 EC

fluazifop-butyl = Fusilade 4 EC

fluazifop-P-butyl = PP 005 1 EC

haloxyfop-methyl = Verdict 2 EC

DPX Y6202 = Assure 0.8 EC

MCPA amine = Rhomene 4 L

dicamba = Banvel 4 L

Oil concentrate added to treatments 1-10 @ 1 qt/A

^b colonial bentgrass = Agrostis tenuis

Title: Bentgrass Control in Birdsfoot TrefoilLocation (farm, town, county, year): McGuire Farm, Airlie, Polk County, Oregon, 1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: June 5, July 13, 1984Crop (cultivar): Birdsfoot trefoilPlanting date: Established Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 ftSoil series and type: Amity silty clay loam O.M. 8.7% pH 5.7

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	May 16, 1984	
Treatments applied:	All	
Temperature (F)	Air: 59 Soil: 57	Air: Soil:
% Relative humidity	80	
% Cloud cover	20	
Wind speed & direction	2-3 mph, Northwest	
Dew present?	Yes	
Time of day	9:00-10:00 a.m.	
Soil moisture	Slightly muddy	
Soil surface	Sod	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water: 25 gpa	
Length of boom & nozzle spacing	7 ft; 9.3 inches	
Nozzle size and type	8002 flat fan	
Boom height	2	
Pressure (psi)	20 psi	
Crop <u>Trefoil</u>	4-10 inches tall	
Weeds <u>Bentgrass</u>	4-6 inches tall	
<u>Sweet vernal</u>	Flowering	
<u>Buckhorn plantain</u>	3-6 inch, rosette	

Exp. No. 84-46

Broadleaf Control in Alfalfa and White Clover
Schmidt Farm, Corvallis, Benton County, Oregon
1984

White clover, alfalfa, and mayweed chamomile were seeded in a trial to evaluate AC 263499 and SD 95481. The other weeds formed a naturally occurring stand. Eight rows each of white clover and alfalfa were seeded across each plot.

AC 263499 caused excessive crop injury when applied preemergence, but weed control with the lowest rate was exceptional. Lower rates should be tested in preemergence applications.

The lowest rate of AC 263499 provided good control of all weeds except lambsquarters, and crop tolerance was adequate. The combination with dinoseb should be investigated further.

SD 95481 was effective on lambsquarters but not the other species. However, crop tolerance was good and the combination with dinoseb was very effective. AC 263499 and SD 95481 may also be complementary combination but is yet untried.

Broadleaf Control in Alfalfa and White Clover
Schmidt Farm, Corvallis, Benton County, Oregon
1984

Treatment ^a	lbs a.i./A	Visual evaluations - % injury or control																							
		White clover				Alfalfa				Mayweed chamomile ^b				Common lambsquarters				Hairy nightshade				Shepherdspurse			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>Preemergence</u>																									
1. AC 263499	0.07	70	80	70	73	70	80	70	73	95	95	95	95	100	100	100	100	100	100	100	100	100	100	100	100
2. AC 263499	0.15	85	90	85	87	85	90	85	87	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
3. AC 263499	0.2	90	95	95	93	90	95	95	93	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
<u>Postemergence</u>																									
4. AC 263499 + X-77	0.07	10	10	10	10	10	10	10	10	95	90	85	90	90	90	60	31	99	100	100	99	100	99	100	99
5. AC 263499 + X-77	0.15	20	20	20	20	40	20	20	27	90	100	99	96	90	90	99	93	100	100	100	100	100	100	100	100
6. AC 263499 + X-77	0.2	30	30	30	30	40	30	30	33	99	100	99	99	90	95	95	93	100	100	100	100	100	100	100	100
7. dinoseb amine	0.75	0	0	0	0	0	0	0	0	85	99	90	91	50	0	30	27	90	100	100	97	100	100	100	100
8. AC 263499 + dinoseb amine	0.15 + 0.75	10	10	30	17	10	10	30	17	100	95	95	97	90	85	90	88	100	100	100	100	95	100	100	98
9. SD 95481	1.0	10	0	10	7	10	0	10	7	40	70	70	60	90	90	95	92	0	0	0	0	0	0	0	0
10. SD 95481 + dinoseb amine	1.0 + 0.75	20	15	15	17	20	15	15	17	95	99	100	98	100	99	99	99	100	100	100	100	95	100	99	98
11. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^aAC 263499 = American Cyanamid 2 L
dinoseb amine = Premerge 3 EC
SD 95481 = Cinch 7 EC
X-77 applied @ 0.5% v/v

^bmayweed chamomile = Anthemis cotula
common lambsquarters = Chenopodium album
hairy nightshade = Solanum sarachoides
shepherdspurse = Capsella bursa-pastoris

Title: Broadleaf Control in Alfalfa and White Clover

Location (farm, town, county, year): Schmidt Farm, Corvallis, Benton County, Oregon
1984

Evaluation scale: 0 = no effect; 100 = complete kill

Evaluation date: June 21, 1984

Crop (cultivar): Alfalfa (DuPuits); white clover (Dutch)

Planting date: April 16, 1984 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 30 ft

Soil series and type: Woodburn silt loam O.M. 3.2% pH 5.5

Fertilizer: 500 lbs/A 16-20-0, preplant

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	April 17, 1984	May 29, 1984
Treatments applied:	1-3 (pre)	4-10 (3 leaf)
Temperature (F)	Air: 54 Soil: 53	Air: 72 Soil: _____
% Relative humidity	82	52
% Cloud cover	30	0
Wind speed & direction	3-5 mph, North	3-4 mph, Northeast
Dew present?	No	No
Time of day	11:00 a.m.	10:00-10:30 a.m.
Soil moisture	Dry on surface	Dry on surface
Soil surface	Granular	Granular
Method of application:	Broadcast	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water; 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing	7 ft; 9.3 inches	7 ft.; 9.3 inches
Nozzle size and type	8002 flat fan	8002 flat fan
Boom height	18 inches	20 inches
Pressure (psi)	20	20
Crop	Alfalfa & white clover Pre	2-3 trifoliate
Weeds	Mayweed	1-2 inches dia.
	Groundsel	2-3 inches dia.
	Lambsquarters	4-6 leaf
	Pigweed	2-4 leaf
	Hairy nightshade	2-6 leaf

Exp. No. 84-53

Italian Ryegrass Control in Alfalfa
Schmidt Farm, Corvallis, Benton County, Oregon
1984

Italian ryegrass seed was broadcast across all plots prior to seeding alfalfa in a trial designed to evaluate crop tolerance and efficacy. Common lambsquarters occurred as a natural infestation.

EPTC provided partial control of Italian ryegrass but no control of common lambsquarters. The sequential treatment of EPTC and AC 263499 was very effective on both weed species with no visible injury on the alfalfa. Preemergence applications of AC 263499 caused too much crop injury.

Sethoxydim and the highest rate of fluazifop-P-butyl provided excellent ryegrass control with essentially no crop injury. The addition of 2,4-DB to sethoxydim caused no visible antagonism.

Italian Ryegrass Control in Alfalfa
Schmidt Farm, Corvallis, Benton County, Oregon
1984

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control															
		Evaluated June 6, 1984								Evaluated July 13, 1984							
		Alfalfa				Alfalfa				Italian ryegrass				Common lambsquarters			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>Preplant incorporated</u>																	
1. EPTC	3.0	0	0	0	0	0	0	0	0	90	80	80	83	0	0	0	0
<u>Preplant incorporated/postemergence</u>																	
2. EPTC/AC 263499 + X-77	3.0/0.15	0	0	0	0	0	0	0	0	99	100	90	96	95	100	100	98
<u>Preemergence</u>																	
3. AC 263499	0.07	50	50	60	53	50	0	50	33	80	70	80	77	95	100	100	98
4. AC 263499	0.15	60	70	90	73	90	90	90	90	90	90	99	93	100	100	100	100
5. AC 263499	0.2	80	80	80	80	99	95	95	96	99	99	99	99	100	100	100	100
<u>Postemergence</u>																	
6. sethoxydim + O.C.	0.2	0	0	0	0	0	0	0	0	100	100	99	99	0	0	0	0
7. sethoxydim + 2,4-DB + O.C.	0.2 + 0.7	5	0	5	3	0	0	0	0	100	95	95	97	100	100	100	100
8. sethoxydim + 2,4-DB + O.C.	0.2 + 1.4	10	10	10	10	0	0	0	0	100	99	95	98	99	100	100	99
9. fluazifop-P-butyl + O.C.	0.063	0	0	10	3	0	0	0	0	70	70	70	70	0	0	0	0
10. fluazifop-P-butyl + O.C.	0.125	5	0	0	2	0	0	0	0	95	90	85	90	0	0	0	0
11. fluazifop-P-butyl + O.C.	0.25	10	0	5	5	0	0	0	0	100	99	90	96	0	0	0	0
12. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^aEPTC = Eptam 7 EC
AC 263499 = American Cyanamid 2 L
sethoxydim = Poast 1.53 EC
2,4-DB = Butoxone 1.75 L
fluazifop-P-butyl = PP 005 1 EC
X-77 added @ 0.5% v/v
O.C. = oil concentrate @ 1 qt/A

^bItalian ryegrass = *Lolium multiflorum*

Title: Italian Ryegrass Control in Alfalfa

Location (farm, town, county, year): Schmidt Farm, Corvallis, Benton County, Oregon
1984

Evaluation scale: 0 = no effect; 100 = complete kill

Evaluation date: June 6, July 13, 1984

Crop (cultivar): Alfalfa (DuPuits)

Planting date: April 16, 1984 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 30 ft

Soil series and type: Woodburn silt loam O.M. 3.2% pH 5.5

Fertilizer: 500 lbs/A 16-20-0 Preplant

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: Tractor-mounted rototiller, 3 inches deep

Date:	<u>April 16, 1984</u>	<u>April 17, 1984</u>
Treatments applied:	<u>1 & 2 (PPI)</u>	<u>3-5 (pre)</u>
Temperature (F)	<u>Air: 59 Soil: 61</u>	<u>Air: 54 Soil: 53</u>
% Relative humidity	<u>73</u>	<u>82</u>
% Cloud cover	<u>95</u>	<u>30</u>
Wind speed & direction	<u>2-4 mph, Southwest</u>	<u>3-5 mph, North</u>
Dew present?	<u>Yes</u>	<u>No</u>
Time of day	<u>2:00-2:30 p.m.</u>	<u>11:00 a.m.</u>
Soil moisture	<u>Moist</u>	<u>Dry on surface</u>
Soil surface	<u>Small clods</u>	<u>Granular</u>
Method of application:	<u>Broadcast</u>	<u>Broadcast</u>
Type of sprayer	<u>Unicycle</u>	<u>Unicycle</u>
Ground speed	<u>3 mph</u>	<u>3 mph</u>
Type of carrier & volume	<u>Water; 25 gpa</u>	<u>Water; 25 gpa</u>
Length of boom & nozzle spacing	<u>7 ft.; 9.3 inches</u>	<u>7 ft.; 9.3 inches</u>
Nozzle size and type	<u>8002 flat fan</u>	<u>8002 flat fan</u>
Boom height	<u>18 inches</u>	<u>18 inches</u>
Pressure (psi)	<u>20</u>	<u>20</u>
Crop	<u>Alfalfa</u>	<u>Pre</u>
Weeds	<u>Ryegrass</u>	<u>Pre</u>

Title: Italian Ryegrass Control in AlfalfaLocation (farm, town, county, year): Schmidt Farm, Corvallis, Benton County, Oregon1984

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: _____

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____

May 29, 1984

Treatments applied: _____

2, 6-11

Temperature (F) _____

Air: 80

Soil: 87

Air: _____

Soil: _____

% Relative humidity _____

52

% Cloud cover _____

0

Wind speed & direction _____

3-6 mph, North

Dew present? _____

No

Time of day _____

12:30 p.m.

Soil moisture _____

Dry on surface

Soil surface _____

Granular

Method of application: _____

Broadcast

Type of sprayer _____

Unicycle

Ground speed _____

3 mph

Type of carrier & volume _____

Water, 9 gpa

Length of boom & nozzle spacing _____

7 ft.; 18.6 inches

Nozzle size and type _____

800Q67 flat fan

Boom height _____

20 inches

Pressure (psi) _____

20

Crop _____

Alfalfa

3-5 trifoliate

Weeds _____

Ryegrass

3 leaf to 1-2 tillers

Exp. No. 84-35

Weed Control in Red Clover
Smith Farm, Corvallis, Benton County, Oregon
1983-84

A trial was established in a red clover field to compare the effects of paraquat + oxyfluorfen (Ortho Paraquat CL + Goal) with those of paraquat + diuron (Ortho Paraquat + Karmex). A severe field mouse infestation and a cold winter combined to eliminate the clover stand so the trial had to be abandoned.

Exp. No. 84-2

Herbicide Timing on Grasses
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Nine herbicides were compared on five grasses that had been seeded on two dates to compare efficacy at different growth stages. The grasses were seeded with Planet Jr. seeders mounted on an International Cub tractor. Two rows of each species were planted across the plots on both seeding dates.

Control was usually better on the smaller plants, with fenoxaprop-ethyl on Italian ryegrass and CGA 82725 on wheat being the most dramatic examples. However, downy brome was more easily controlled at the later growth stage by all herbicides except diclofop-methyl. The downy brome was probably not completely emerged in the later seeding when the treatments were applied, and this may have affected the performance of these treatments.

Herbicide Timing on Grasses
Hyslop Farm, Corvallis, Benton County, Oregon
1983-84

Exp. No. 84-2

		Evaluated December 5, 1983																			
		Early planting																			
Treatment ^a	Rate lbs a.i./A	Annual bluegrass ^b				Downy brome				Tall fescue				Italian ryegrass				Wheat			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1. CGA 82725	0.2	70	60	50	60	0	0	0	0	80	70	70	73	90	80	85	85	30	30	20	27
2. DPX Y6202	0.2	90	60	50	67	100	100	100	100	95	70	80	82	100	99	99	99	95	90	90	92
3. SC 1084	0.2	0	0	0	0	90	80	90	87	50	60	50	53	70	60	60	63	80	50	60	63
4. fenoxaprop-ethyl	0.2	0	0	0	0	0	0	0	0	10	20	30	20	50	60	60	57	20	30	30	27
5. fenthiaprop-ethyl	0.2	0	0	0	0	95	100	99	98	60	60	70	63	85	85	85	85	90	85	85	87
6. haloxyfop-methyl	0.2	90	90	85	88	100	100	100	100	99	80	85	88	100	100	100	100	95	85	90	90
7. fluazifop-butyl	0.2	50	50	10	37	90	85	90	88	50	70	50	57	75	60	75	70	80	60	75	72
8. diclofop-methyl	1.0	20	0	40	20	10	0	10	7	90	80	85	85	100	99	100	99	0	0	0	0
9. sethoxydim	0.2	0	0	0	0	75	75	70	73	75	65	75	72	90	90	90	90	75	70	70	72
10. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Late planting																			
1.		90	90	95	92	40	20	40	33	100	90	99	96	100	100	100	100	95	80	85	87
2.		95	95	70	87	100	100	100	100	99	100	90	96	100	100	100	100	100	100	100	100
3.		0	0	0	0	65	90	90	82	80	90	85	85	100	99	100	99	95	90	95	93
4.		0	0	0	0	0	0	0	0	30	0	20	17	85	90	75	83	10	0	10	7
5.		0	0	0	0	100	80	70	83	90	85	70	82	100	90	95	95	99	100	100	99
6.		95	100	100	98	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	99
7.		30	0	0	10	100	95	95	97	100	85	80	88	100	100	100	100	95	95	100	97
8.		60	50	70	60	50	30	20	33	100	100	100	100	100	100	100	100	10	10	10	10
9.		0	0	0	0	90	95	100	95	100	100	100	100	100	100	100	100	85	90	95	90
10.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(Continued on next page)

		Evaluated April 11, 1984																			
		Early planting																			
Treatment ^a	Rate lbs a.i./A	Annual bluegrass ^b				Downy brome				Tall fescue				Italian ryegrass				Wheat			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1. CGA 82725	0.2	60	40	50	50	0	0	0	0	95	90	85	90	100	100	100	100	10	0	0	3
2. DPX Y6202	0.2	90	95	80	88	100	100	100	100	100	99	95	98	100	99	100	99	100	100	100	100
3. SC 1084	0.2	0	20	0	7	60	90	100	83	20	30	50	33	60	80	70	70	85	80	95	87
4. fenoxaprop-ethyl	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. fenthiaprop-ethyl	0.2	0	0	0	0	100	99	100	99	95	85	70	83	95	95	99	96	100	100	100	100
6. haloxyfop-methyl	0.2	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	99	100	100	100	100
7. fluazifop-butyl	0.2	50	50	0	33	99	95	95	96	70	60	50	60	90	100	80	90	100	100	100	100
8. diclofop-methyl	1.0	60	10	20	30	0	0	10	3	100	100	100	100	100	100	100	100	0	0	0	0
9. sethoxydim	0.2	0	0	0	0	80	95	85	87	95	90	100	95	100	99	100	99	50	50	50	50
10. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Late planting																			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
1.	99	90	99	96	0	0	40	13	100	100	100	100	100	100	100	100	95	90	95	93
2.	90	99	90	93	100	100	95	98	100	100	99	99	100	99	99	99	100	100	100	100
3.	50	60	60	57	60	60	80	67	80	90	99	90	100	95	95	97	80	75	95	83
4.	0	0	0	0	0	0	0	0	30	20	20	23	95	95	85	92	0	0	0	0
5.	0	60	0	20	95	85	80	87	100	99	100	99	100	99	99	99	95	99	100	98
6.	100	100	100	100	100	95	100	98	100	99	100	99	100	99	100	99	100	100	100	100
7.	80	80	90	83	70	85	75	77	99	99	95	98	99	100	99	99	99	80	100	93
8.	70	90	60	73	50	60	50	53	100	100	100	100	100	100	100	100	0	0	0	0
9.	0	0	0	0	80	70	60	70	99	100	95	98	100	100	99	99	75	70	85	77
10.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^aCGA 82725 = 2 EC (Ciba Geigy)
 DPX Y6202 = Assure 0.89 EC
 SC 1084 = 4 EC (Stauffer)
 fenoxaprop-ethyl = Whip 1 EC
 fenthiaprop-ethyl = HOE 35609 2 EC
 haloxyfop-methyl = Verdict 2 EC
 fluazifop-butyl = Fusilade 4 EC
 diclofop-methyl = Hoelon 3 EC
 sethoxydim = Poast 1.53 EC

Oil concentrate added to all treatments at 1 qt/A

^bAnnual bluegrass = *Poa annua*
 downy brome = *Bromus tectorum*
 tall fescue = *Festuca arundinacea*
 Italian ryegrass = *Lolium multiflorum*
 wheat = 'Stephens'

Title: Herbicide Timing on GrassesLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon,
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: December 5, 1983; April 11, 1984

Crop (cultivar): _____

Planting date: September 9, October 13 Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 25 ft; 17 inchesSoil series and type: Woodburn silt loam O.M. 3.2% pH 5.5Fertilizer: 400 lbs/A 16-20-0 silt loamOther pesticides: bromoxynil + MCPA, Dec. Irrigation: _____Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	October 31, 1983	
Treatments applied:	All	
Temperature (F)	Air: 59	Soil: 58
% Relative humidity	85	
% Cloud cover	100	
Wind speed & direction	Calm	
Dew present?	Yes	
Time of day	2:00-3:00 p.m.	
Soil moisture	Slightly muddy	
Soil surface	Small clods	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	6 ft; 18 inches	
Nozzle size and type	8002 flat fan	
Boom height	24 inches	
Pressure (psi)	20	
Crop	Early	Late
Weeds Annual bluegrass	3-4 leaf	1 leaf
Downy brome	1-2 tillers	1 leaf
Tall fescue	3-4 leaf	1 leaf
Italian ryegrass	2-3 tillers	1 leaf
Winter wheat	3-4 tillers	1-2 leaf

Exp. No. 84-50

Hop Sucker Control
East Farm, Corvallis, Linn County, Oregon
1984

Endothall was applied alone or in combination with Herbimax on urea-sulfuric on June 1, 1984 for evaluation as a hop sucker control agent. Sequential treatments of endothall and endothall followed by paraquat or dinoseb were made on June 1 and July 2.

The addition of urea-sulfuric to endothall caused too much injury on the hops. None of the endothall treatments caused visible injury to the crop.

Sequential applications of endothall seemed more effective in controlling hop suckers than was endothall followed by paraquat or dinoseb.

Hop Sucker Control
East Farm, Corvallis, Linn County, Oregon
1984

Exp. No. 84-50

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control																							
		Evaluated June 7, 1984								Evaluated July 6, 1984								Evaluated July 26, 1984							
		Hops				Suckers				Hops				Suckers				Hops				Suckers			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
<u>June 1, 1984</u>																									
1. endothall	0.52	0	0	0	0	40	70	60	57	0	0	0	0	30	20	0	17	0	0	0	0	0	0	0	0
2. endothall	1.04	0	0	0	0	80	90	90	87	0	0	0	0	0	10	10	7	0	0	0	0	0	0	0	0
3. endothall	2.08	0	0	0	0	70	80	80	77	0	0	0	0	0	20	0	7	0	0	0	0	0	0	0	0
4. endothall + Herbimax	1.04 + 1% v/v	0	0	0	0	80	80	90	83	0	0	0	0	0	40	10	17	0	0	0	0	0	0	0	0
5. endothall + urea-sulfuric	1.04 + 50 gal	25	15	25	22	85	90	90	88	20	0	50	23	0	0	0	0	0	0	40	13	0	0	0	0
<u>June 1/July 2, 1984</u>																									
6. endothall	0.52/0.52	0	0	0	0	60	60	50	57	0	0	0	0	70	60	80	70	0	0	0	0	0	0	0	0
7. endothall	1.04/1.04	0	0	0	0	70	85	90	82	0	0	0	0	70	80	80	77	0	0	0	0	0	0	0	0
8. endothall/paraquat + X-77	1.04/0.5 + 0.5% v/v	0	0	0	0	70	90	75	78	0	0	0	0	50	50	60	57	0	0	0	0	0	0	0	0
9. endothall/dinoseb + diesel	1.04/0.625 + 5% v/v	0	0	0	0	85	90	80	85	0	0	0	0	60	50	70	60	0	0	0	0	0	0	0	0
<u>July 2, 1984</u>																									
10. dinoseb + diesel	0.625 + 5% v/v	0	0	0	0	0	0	0	0	0	0	0	0	60	40	80	60	0	0	0	0	0	0	0	0
11. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^aendothall = Des-I-Cate 0.52 lb/gal
Herbimax = oil concentrate
urea-sulfuric = N-phuric
paraquat = Paraquat CL
dinoseb = Dinitro 5 lb/gal

Title: Hop Sucker ControlLocation (farm, town, county, year): East Farm, Corvallis, Linn County, Oregon, 1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: June 7, July 6, July 26, 1984Crop (cultivar): Hops (Cascade)

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 22.5 ft by 6 ft (3 hills)Soil series and type: Chehalis sandy loam O.M. 2.0% pH 5.2

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	June 1, 1984	July 2, 1984
Treatments applied: _____	1-9	5-10
Temperature (F) _____	Air: 64 Soil: 63	Air: 79 Soil: 98
% Relative humidity _____	85	47
% Cloud cover _____	0	10
Wind speed & direction _____	5-6 mph, North	5-6 mph, North
Dew present? _____	No	No
Time of day _____	9:30-10:30 a.m.	1:00-1:30 p.m.
Soil moisture _____	Dry on surface	Dry
Soil surface _____	Large clods	Large clods
Method of application: _____	Directed	Directed
Type of sprayer _____	CO ₂ backpack	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 57 gpa	Water, 57 gpa
Length of boom & nozzle spacing _____	3 ft; 18 inches	3 ft; 18 inches
Nozzle size and type _____	8006 flat fan	8006 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	50	50
Crop <u>Hops</u>	3-6 feet tall	8-17 feet tall,
Weeds _____	Suckers pruned	Suckers 1-3 feet
_____	_____	_____
_____	_____	_____

Effect of Surfactants on Glyphosate Activity
Hyslop Farm, Corvallis, Benton County, Oregon
1984

This trial was seeded to wild oats on two dates to investigate the effects of rainfall or irrigation on the effectiveness of AC 222293. Natural rainfall occurred on May 22, starting at about 6:00 a.m. so the trial had to be restarted at another location. The remaining untreated plots in this trial were used to compare adjuvants in glyphosate treatments.

Difenzoquat appeared to be much more affected by the untimely rain than did the AC 222293. AC 222293 was more effective on the smaller wild oats than it was on the larger ones.

Among the glyphosate comparisons, the combination with Frigate may have been slightly superior to Herbimax, while both of these seemed better than X-77 on wild oats. The differences among treatments were small and only the lowest rate of glyphosate failed to completely control the wild oats. Greater differences might be found on a more difficult to control species.

Effect of Surfactants on Glyphosate Activity
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Treatment ^a	Rate lbs a. i./A	Visual evaluations - % control														
		Wild oats ^b										Mayweed chamomile				
		Late-planted					Early-planted									
		R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg	R1	R2	R3	R4	Avg
1. AC 222293	0.38	95	90	90	90	91	80	80	80	80	80	0	0	0	0	0
2. AC 222293	0.62	95	95	95	90	94	85	90	90	85	88	0	0	0	0	0
3. difenzoquat	0.75	70	50	70	70	65	75	60	70	85	72	0	0	0	0	0
4. AC 222293	0.38	95	95	90	95	94	80	80	80	80	80	0	0	0	0	0
5. AC 222293	0.62	95	95	95	95	95	85	85	90	80	85	0	0	0	0	0
6. difenzoquat	0.75	20	20	0	10	12	20	20	0	10	12	0	0	0	0	0
7. glyphosate	0.19	95	85	90	90	90	95	95	99	95	96	70	95	100	100	91
8. glyphosate	0.38	100	100	100	100	100	100	100	100	100	100	90	90	90	80	88
9. glyphosate	0.75	100	100	100	100	100	100	100	100	100	100	95	100	100	95	98
10. glyphosate + Frigate	0.19 + 0.5%	100	100	100	100	100	100	100	100	100	100	80	80	100	100	90
11. glyphosate + Frigate	0.38 + 0.5%	100	100	100	100	100	100	100	100	100	100	90	95	100	100	96
12. glyphosate + Frigate	0.75 + 0.5%	100	100	100	100	100	100	100	100	100	100	90	100	100	100	98
13. glyphosate + X-77	0.19 + 0.5%	99	95	95	95	96	99	99	99	100	99	70	90	70	100	82
14. glyphosate + X-77	0.38 + 0.5%	100	100	100	100	100	100	100	100	100	100	99	90	100	90	95
15. glyphosate + X-77	0.75 + 0.5%	100	100	100	100	100	100	100	100	100	100	99	99	100	90	97
16. glyphosate + Herbimax	0.19 + 0.5%	100	95	95	100	98	100	100	99	100	99	75	99	90	95	90
17. glyphosate + Herbimax	0.38 + 0.5%	100	100	100	100	100	100	100	100	100	100	90	90	100	95	94
18. glyphosate + Herbimax	0.75 + 0.5%	100	100	100	100	100	100	100	100	100	100	99	90	100	95	96
19. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

^aAC 222293 = Assert 2.5 L
difenzoquat = Avenge 2 L
glyphosate = Roundup 3 L
Frigate = surfactant
X-77 = surfactant
Herbimax = oil concentrate

^bwild oats = Avena fatua
mayweed chamomile = Anthemis cotula

Title: Effect of Surfactants on Glyphosate ActivityLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: June 19, 1984

Crop (cultivar): _____

Planting date: May 2, May 11, 1984

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 20 ftSoil series and type: Woodburn silt loamO.M. 2.5% pH 6.0Fertilizer: 300 lbs/A 16-20-0 preplant

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	May 21, 1984	May 22, 1984
Treatments applied: _____	1-3	4-6
Temperature (F) _____	Air: 72 Soil: 75	Air: 50 Soil: 50
% Relative humidity _____	52	95
% Cloud cover _____	40	100
Wind speed & direction _____	3-4 mph, Southwest	Calm
Dew present? _____	No	Yes
Time of day _____	3:30 p.m.	4:00 a.m.
Soil moisture _____	Dry on surface	Moist
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	7 ft; 9.3 inches	7 ft; 9.3 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	23 inches	23 inches
Pressure (psi) _____	20	20
Crop _____		
Weeds <u>Wild oats</u>	1-2 leaf	1-2 leaf
	2-3 tillers	2-3 tillers

Title: Effect of Surfactants on Glyphosate Activity (continued)

Location (farm, town, county, year): _____

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: _____

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____

June 11, 1984

Treatments applied: _____

7-18

Temperature (F) _____

Air: _____

65

Soil: _____

63

Air: _____

Soil: _____

% Relative humidity _____

70

% Cloud cover _____

20

Wind speed & direction _____

Calm

Dew present? _____

Yes

Time of day _____

9:00 a.m.

Soil moisture _____

Very moist

Soil surface _____

Small clods

Method of application: _____

Broadcast

Type of sprayer _____

Unicycle

Ground speed _____

3 mph

Type of carrier & volume _____

Water, 25 gpa

Length of boom & nozzle spacing _____

7 ft; 9.3 inches

Nozzle size and type _____

8002 flat fan

Boom height _____

26 inches

Pressure (psi) _____

20

Crop _____

Weeds Wild oats

1-4 tillers, 8-12 inches

3-6 tillers, 18 inches

Exp. No. 84-3

Canada Thistle Control with Fall-Applied Herbicides
East Farm, Corvallis, Linn County, Oregon
1983-84

Triclopyr, picloram, and 2,4-D were compared for Canada thistle and bristly hawksbeard control. The herbicides were applied in the fall and were evaluated in early spring.

All three herbicides eliminated the bristly hawksbeard, but only picloram controlled the Canada thistle.

Exp. No. 84-3

Canada Thistle Control with Fall-Applied Herbicides
 East Farm, Corvallis, Linn County, Oregon
 1983-84

Treatment ^a	Rate lbs a.e./A	Visual evaluations - % control							
		Canada thistle				Bristly hawksbeard			
		R1	R2	R3	Avg	R1	R2	R3	Avg
1. triclopyr	2.0	0	0	0	0	100	100	100	100
2. picloram	1.0	100	100	100	100	100	100	100	100
3. 2,4-D	3.0	50	0	0	17	100	100	100	100
4. Check	0	0	0	0	0	0	0	0	0

^a triclopyr = Garlon 3A 3 lb/gal
 picloram = Tordon 22K 2 lb/gal
 2,4-D = Rhodia 2,4-D amine 4 lb/gal

^b Canada thistle = Cirsium arvense
 Bristly hawksbeard = Crepis setosa

Canada thistle = 1/sq ft
 hawksbeard = 2/sq ft

Title: Canada Thistle Control with Fall-Applied HerbicidesLocation (farm, town, county, year): East Farm, Corvallis, Linn County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: March 29, 1984Crop (cultivar): None

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 30 ftSoil series and type: Chehalis sandy loam O.M. 2.0% pH 5.2

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: September 16, 1983Treatments applied: A11Temperature (F) _____ Air: 67 Soil: 66 Air: _____ Soil: _____% Relative humidity 80% Cloud cover 90Wind speed & direction 2-4 mph, WestDew present? NoTime of day 12:30 p.m.Soil moisture Dry on surfaceSoil surface SodMethod of application: BroadcastType of sprayer UnicycleGround speed 3 mphType of carrier & volume Water, 25 gpaLength of boom & nozzle spacing 8 ft.; 9.6 inchesNozzle size and type 8002 flat fanBoom height 18 inchesPressure (psi) 18

Crop _____

Weeds Field bindweed 6-10 inch runnersCanada thistle 4-16 inchesBristly hawksbeard Cotyledon - 2 leaf

Weed Control in Meadowfoam
Wirth Farm, Lebanon, Linn County, Oregon
1983-84

Propachlor and five grass control herbicides were applied to meadowfoam in a Linn County field to evaluate crop tolerance and Italian ryegrass control. Fluazifop-P-butyl was applied later than the other grass herbicides because it was not available for testing on the earlier date.

Propachlor caused considerable stunting of the crop in the fall, but by spring no injury was visible. Sethoxydim caused some stunting and leaf cupping on the meadowfoam soon after treatment, but by late April the symptoms were gone.

The rates of the grass herbicides were higher than necessary for ryegrass control, but were chosen to test crop tolerance. Had fluazifop-P-butyl been applied at the earlier date, the lower rate would probably have eliminated the ryegrass, as did the other grass herbicides.

All treatments increased meadowfoam seed yield dramatically because of the intense ryegrass competition in the untreated plots.

Weed Control in Meadowfoam
Wirth Farm, Lebanon, Linn County, Oregon
1983-84

		Visual evaluations - % injury or control																							
		Evaluated November 9, 1983												Evaluated April 27, 1984											
		Meadowfoam						Italian ryegrass ^b						Meadowfoam						Italian ryegrass					
Treatment ^a	lbs ai/A	R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg
October 20, 1983																									
1. propachlor	3.0	20	30	30	30	30	28	80	80	80	80	50	74	0	0	0	0	0	0	85	80	90	80	85	84
2. propachlor	4.5	20	30	30	40	30	30	80	80	80	85	80	81	0	0	0	0	0	0	85	80	85	75	75	82
October 20, 1983/ February 3, 1984																									
3. propachlor/sethoxydim	3.0/0.5	20	30	40	20	20	26	80	80	80	80	60	76	0	0	0	0	0	0	100	100	100	100	100	100
4. propachlor/sethoxydim	3.0/1.0	20	30	30	50	60	38	80	80	80	80	90	82	0	0	0	0	0	0	100	100	100	100	100	100
5. propachlor/haloxyfop-methyl	3.0/0.25	20	30	30	30	40	30	80	80	80	80	80	80	0	0	0	0	0	0	100	100	100	100	100	100
6. propachlor/haloxyfop-methyl	3.0/0.5	20	30	20	70	50	38	80	80	80	80	80	80	0	0	0	0	0	0	100	100	100	100	100	100
7. propachlor/DPX Y6202	3.0/0.25	20	30	30	30	50	32	80	80	80	70	70	76	0	0	0	0	0	0	100	100	100	100	100	100
8. propachlor/DPX Y6202	3.0/0.5	20	30	20	30	50	30	80	80	80	70	70	76	0	0	0	0	0	0	100	100	100	100	100	100
9. propachlor/diclofop-methyl	3.0/1.0	20	30	30	50	60	38	80	80	80	90	80	82	0	0	0	0	0	0	100	100	100	100	100	100
10. propachlor/diclofop-methyl	3.0/2.0	20	30	50	60	20	36	80	80	80	80	70	78	0	0	0	0	0	0	100	100	100	100	100	100
October 20, 1983/ March 27, 1984																									
11. propachlor/fluazifop-P-butyl	3.0/0.25	20	30	30	50	50	36	80	80	80	80	80	80	0	0	0	0	0	0	95	100	100	95	100	98
12. propachlor/fluazifop-P-butyl	3.0/0.5	20	30	30	40	60	36	80	80	80	80	70	78	0	0	0	0	0	0	100	100	100	100	100	100
13. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

^a propachlor = Ramrod 4 F
sethoxydim = Poast 1.53 EC
haloxyfop-methyl = Verdict 2 EC
DPX Y6202 = Assure 0.89 EC
diclofop-methyl = Hoelon 3 EC
fluazifop-P-butyl = PP 005 EC

Oil concentrate added to post treatments @ 1 qt/A

^b Italian ryegrass = Lolium multiflorum

(Continued on next page)

Exp. No. 84-6
(continued)

Treatment	Seed yield (g/plot)					Avg	lbs/A
	R1	R2	R3	R4	R5		
1	643	732	599	631	738 ^c	669	716 b
2	654	623	835	716	793	724	775 ab
3	732	770	805	696 ^c	826	766	820 ab
4	794	866	785	940	1044	886	948 a
5	613	783	755	770	742	733	784 ab
6	860	715	752	1129	869	865	926 a
7	930	792	720	686	901	806	862 ab
8	890	710	702	694	861	771	825 ab
9	763	905	485	676	1031	772	826 ab
10	741	689	892	750	874	789	844 ab
11	913	596	805	819	880	803	859 ab
12	616	761	745	819	629	714	764 ab
13	596	191	552	238	406	397	425 c

^cCalculated missing plotsLSD_{.05} = 148 158LSD_{.01} = 198 212

C.V. = 16%

Title: Weed Control in MeadowfoamLocation (farm, town, county, year): Wirth Farm, Lebanon, Linn County, Oregon,
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: November 9, 1983; April 27, 1984Crop (cultivar): MeadowfoamPlanting date: October 11, 1983Harvest date: July 9, 1984

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 30 ftSoil series and type: Dayton silt loamO.M. 2.6% pH 5.8

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: Randomized complete block

LSO: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	October 20, 1983	February 3, 1984
Treatments applied:	1-12 (pre)	3-10
Temperature (F)	Air: 61 Soil: 65	Air: 54 Soil: 52
% Relative humidity	58	80
% Cloud cover	90	30
Wind speed & direction	3-5 mph, Northeast	2-4 mph, Northeast
Dew present?	No	No
Time of day	1:00-2:00 p.m.	2:30-3:00 p.m.
Soil moisture	Moist	Slightly muddy
Soil surface	Small clods	Fine
Method of application:	Broadcast	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water, 25 gpa	Water, 21 gpa
Length of boom & nozzle spacing	8 ft; 9.6 inches	7 ft; 16.8 inches
Nozzle size and type	8002 flat fan	8003 flat fan
Boom height	18 inches	14 inches
Pressure (psi)	18	20
Crop <u>Meadowfoam</u>	Pre	2-5 inches dia.
Weeds <u>Ryegrass</u>	Pre	Very few; 2-4 tillers

Title: Weed Control in Meadowfoam

Location (farm, town, county, year): _____

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____ Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____ O.M. _____ pH _____

Fertilizer: _____

Other pesticides: _____ Irrigation: _____

Experimental design: _____

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	March 27, 1984	
Treatments applied:	11 and 12	
Temperature (F)	Air: 64 Soil: 72	Air: Soil:
% Relative humidity	59	
% Cloud cover	5	
Wind speed & direction	2-3 mph, Southwest	
Dew present?	No	
Time of day	3:30 p.m.	
Soil moisture	Very moist	
Soil surface	Smooth	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	7 ft; 9.3 inches	
Nozzle size and type	8002 flat fan	
Boom height	20 inches	
Pressure (psi)	20	
Crop	Meadowfoam	8-12 inches dia.
Weeds	Ryegrass	8-12 inches tall
	Toadrush	3-5 leaf
	Mayweed	2 inches dia.
	Bristly hawksbeard	3-4 inches dia.

Exp. No. 84-5

Meadowfoam Tolerance of Propachlor
Ringsdorf Farm, Eugene, Lane County, Oregon
1983

A trial was established in a meadowfoam field in Lane County to evaluate the tolerance of meadowfoam to propachlor and several grass herbicides. Propachlor caused moderate stunting of the meadowfoam when evaluated a month after application.

Severe frost heaving in mid-winter made the stand too erratic so the grass herbicides were not applied and the trial was discontinued.

Exp. No. 84-5

Meadowfoam Tolerance of Propachlor
Ringsdorf Farm, Eugene, Lane County, Oregon
1983

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury					
		Evaluated November 9, 1983					
		Meadowfoam					Avg
		R1	R2	R3	R4	R5	
1. propachlor	3.0	20	20	20	20	10	18
2. propachlor	4.5	20	10	30	20	30	22
3. propachlor	3.0	20	20	20	30	0	16
4. propachlor	3.0	30	10	20	20	20	20
5. propachlor	3.0	20	10	30	30	30	26
6. propachlor	3.0	30	30	20	10	20	22
7. propachlor	3.0	30	20	30	30	0	22
8. propachlor	3.0	10	20	30	20	20	20
9. propachlor	3.0	10	10	0	20	10	10
10. propachlor	3.0	20	20	30	10	20	20
11. propachlor	3.0	20	30	20	10	15	19
12. propachlor	3.0	20	10	0	20	30	16
13. Check	0	0	0	0	0	0	0

^apropachlor = Ramrod 4 F1

Title: Meadowfoam Tolerance of PropachlorLocation (farm, town, county, year): Ringsdorf Farm, Eugene, Lane County, Oregon
1983Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: November 9, 1983Crop (cultivar): MeadowfoamPlanting date: October 10, 1983

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 30 ftSoil series and type: Dayton silty clay loam

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____

October 13, 1983

Treatments applied: _____

All (Pre)

Temperature (F) _____

Air: 54Soil: 59

Air: _____

Soil: _____

% Relative humidity _____

82

% Cloud cover _____

100

Wind speed & direction _____

2-5 mph, Southwest

Dew present? _____

No

Time of day _____

9:00-10:00 a.m.

Soil moisture _____

Dry

Soil surface _____

Small clods

Method of application: _____

Broadcast

Type of sprayer _____

Unicycle

Ground speed _____

3 mph

Type of carrier & volume _____

Water, 25 gpa

Length of boom & nozzle spacing _____

8 ft; 9.6 inches

Nozzle size and type _____

8002 flat fan

Boom height _____

18 inches

Pressure (psi) _____

18

Crop _____

MeadowfoamPre

Weeds _____

Weed Control in Meadowfoam
Ioka Farm, Sublimity, Marion County, Oregon
1983-84

A trial was conducted in a field in the Silverton hills to evaluate the tolerance of meadowfoam to propachlor and five grass control herbicides. Fluazifop-P-butyl was applied later than the other grass herbicides because it was not available for testing on the earlier date.

The propachlor treatments caused some stunting of the meadowfoam, but produced no visible control of the volunteer wheat. All grass herbicides except diclofop-methyl controlled the volunteer wheat. Fluazifop-P-butyl would probably have been more effective at the earlier growth stage of the wheat. The rates of the grass herbicides were higher than would normally be used for wheat control.

No spring evaluation of crop injury was made because of the erratic application of fertilizer, and wheel-track damage in the trial.

Weed Control in Meadowfoam
Ioka Farm, Sublimity, Marion County, Oregon
1983-84

Treatment ^a	Rate lbs ai/A	Visual evaluations - % injury or control											
		Evaluated November 10, 1983						Evaluated April 27, 1984					
		Meadowfoam						Wheat					
		R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg
<u>October 5, 1983</u>													
1. propachlor	3.0	10	10	10	10	10	10	0	0	0	0	0	0
2. propachlor	4.5	20	20	20	30	20	22	0	0	0	0	0	0
<u>October 5, 1983/February 1, 1984</u>													
3. propachlor/sethoxydim	3.0/0.5	10	10	10	10	10	10	100	99	100	100	85	97
4. propachlor/sethoxydim	3.0/1.0	10	10	10	10	10	10	100	100	100	100	100	100
5. propachlor/haloxyfop-methyl	3.0/0.25	10	10	10	10	10	10	100	100	100	100	100	100
6. propachlor/haloxyfop-methyl	3.0/0.5	10	10	10	10	10	10	100	100	100	100	100	100
7. propachlor/DPX Y6202	3.0/0.25	10	10	10	10	10	10	100	100	100	100	100	100
8. propachlor/DPX Y6202	3.0/0.5	10	10	10	10	10	10	100	100	100	100	100	100
9. propachlor/diclofop-methyl	3.0/1.0	10	10	10	10	10	10	0	0	0	0	0	0
10. propachlor/diclofop-methyl	3.0/2.0	10	10	10	10	10	10	50	75	50	70	70	63
<u>October 5, 1983/March 27, 1984</u>													
11. propachlor/fluazifop-P-butyl	3.0/0.25	10	10	10	10	10	10	95	95	99	95	95	96
12. propachlor/fluazifop-P-butyl	3.0/0.5	10	10	10	10	10	10	95	99	100	95	90	96
13. Check	0	0	0	0	0	0	0	0	0	0	0	0	0

^a propachlor = Ramrod 4 F
sethoxydim = Poast 1.53 EC
haloxyfop-methyl = Verdict 2 EC

DPX Y6202 = Assure 0.89 EC
diclofop-methyl = Hoelon 3 EC
fluazifop-P-butyl = PP005 1 EC
oil concentrate added to all post treatments @ 1 qt/A

Title: Weed Control in MeadowfoamLocation (farm, town, county, year): Ioka Farm, Sublimity, Marion County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: November 10, 1983, April 27, 1984Crop (cultivar): MeadowfoamPlanting date: October 3, 1982

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 by 30 ftSoil series and type: Nekia silty clay loam

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: Randomized complete block

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: Considerable wheat straw on surface, Oct. 5, 1983. Feb. 1, 1984, some plants injured by frost

Date:	October 5, 1983	February 1, 1984
Treatments applied:	1-12 (Pre)	3, 4, 7-12 (E.P.)
Temperature (F)	Air: 47 Soil: 45	Air: 43 Soil: 43
% Relative humidity	88	85
% Cloud cover	40	100
Wind speed & direction	Calm	3-4 mph, North
Dew present?	Yes	No
Time of day	6:45-8:00 a.m.	10:00 a.m.
Soil moisture	Moist	Moist
Soil surface	Small clods, straw	Small clods, straw
Method of application:	Broadcast	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water, 25 gpa	Water, 21 gpa
Length of boom & nozzle spacing	8 ft; 9.6 inches	7 ft; 16.8 inches
Nozzle size and type	8002 flat fan	8003 flat fan
Boom height	18 inches	14 inches
Pressure (psi)	18	20
Crop <u>Meadowfoam</u>	Pre	2-4 inches dia.
Weeds <u>Volunteer wheat</u>	Pre	3-4 tillers

Title: Weed Control in Meadowfoam

Location (farm, town, county, year): _____

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: _____

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____

March 27, 1984

Treatments applied: _____

5 and 6

Temperature (F) _____

Air: 56

Soil: 65

Air: _____

Soil: _____

% Relative humidity _____

55

% Cloud cover _____

10

Wind speed & direction _____

3-4 mph, Southwest

Dew present? _____

Yes

Time of day _____

2:00 p.m.

Soil moisture _____

Very moist

Soil surface _____

Smooth

Method of application: _____

Broadcast

Type of sprayer _____

Unicycle

Ground speed _____

3 mph

Type of carrier & volume _____

Water, 25 gpa

Length of boom & nozzle spacing _____

7 ft; 9.3 inches

Nozzle size and type _____

8002 flat fan

Boom height _____

20 inches

Pressure (psi) _____

20

Crop Meadowfoam

4-6 inches dia.

Weeds Wheat

6-12 inches tall

Exp. No. 84-28

Herbicide Screening in Meadowfoam
Schmidt Farm, Corvallis, Benton County, Oregon
1983-84

A large screening trial was conducted to identify herbicides that might be selective in meadowfoam. Freezing weather and non-uniform snow cover in late December caused severe injury to portions of the trial, and accurate assessment of crop injury could not be made. However, several herbicides appeared to be safe enough to warrant further research.

Benefin as a preplant-surface application was the least injurious dinitro aniline. The acetanilides (metolachlor, propachlor, and diethatyl-ethyl) seemed about comparable in crop safety with some initial stunting but no permanent injury. The grass herbicides (fluazifop-butyl, sethoxydim, haloxyfop-methyl, DPX-Y6202, fenoxa-prop-ethyl, fenthiaprop-ethyl, SC 1084, and diclofop-methyl) caused no visible symptoms and are probably all quite safe. Dicamba and picloram caused some leaf malformation but many plants survived through the spring and flowered normally.

Herbicides that caused severe injury to the meadowfoam were pendimethalin, oryzalin, SD 95481, fluoroachloridone, chloramben, napropamide, oxyfluorfen, chlorsulfuron, DPX B5882, desmedipham, phenmedipham, endothall, norflurazon, oxadiazon, terbacil, triclopyr, and benazolin.

Exp. No. 84-28

Herbicide Screening in Meadowfoam
Schmidt Farm, Corvallis, Benton County, Oregon
1983-84

<u>Treatment^a</u>	<u>Rate</u> (lbs a.i./A)
<u>Preplant incorporated</u>	
1. cycloate	3.0
2. vernolate	3.0
<u>Preplant surface</u>	
3. propham	4.0
4. benefin	1.5
5. ethalfluralin	1.0
6. pendimethalin	1.0
7. oryzalin	1.0
<u>Preemergence</u>	
8. propham	4.0
9. benefin	1.5
10. ethalfluralin	1.0
11. pendimethalin	1.0
12. oryzalin	1.0
13. propachlor	4.0
14. SD 95481	1.0
15. fluorchloridone	0.38
16. diethatyl-ethyl	2.0
17. metolachlor	2.0
18. chloramben	2.0
19. ethofumesate	0.33
20. napropamide	2.0
21. oxyfluorfen	0.25
<u>Early postemergence</u>	
22. dalapon + X-77	10.0
23. fluazifop-butyl	1.0
24. sethoxydim	1.0
25. haloxyfop-methyl	0.5
26. DPX-Y6202	0.5
27. fenoxaprop-ethyl	1.0
28. fenthiaprop-ethyl	1.0
29. SC 1084	1.0
30. diclofop-methyl	1.0

(Continued on next page)

Exp. No. 84-28
(continued)

Treatment ^a	Rate (lbs a.i./A)
31. chlorsulfuron + X-77	0.016
32. DPX B5882 + X-77	0.016
33. desmedipham	1.0
34. phenmedipham	1.0
35. dicamba	0.125
36. picloram	0.125
37. endothall	1.0
38. Check	--
39. norflurazon	1.0
40. oxadiazon	1.0
41. terbacil	0.5
42. triclopyr	1.0
43. benazolin	0.5
44. Check	--

^a cycloate = Roneet 6 EC
 vernolate = Surpass 6.7 EC
 propham = ChemHoe 4 FL
 benefin = Balan 1.5 EC
 ethalfluralin = Sonalan 3 EC
 pendimethalin = Prowl 4 EC
 oryzalin = Surflan 4 FL
 propachlor = Ramrod 4 FL
 SD 95481 = Cinch 7 EC
 fluorochloridone = Racer 2 EC
 diethatyl-ethyl = Antor 4 EC
 metolachlor = Dual 8 EC
 chloramben = Amiben 75 SP
 ethofumesate = Nortron 1.5 EC
 napropamide = Devrinol 50 WP
 oxyfluorfen = Goal 2 EC
 dalapon = Dowpon M 74 SP
 fluazifop-butyl = Fusilade 4 EC
 sethoxydim = Poast 1.53 EC
 haloxyfop-methyl = Verdict 2 EC
 DPX Y6202 = Assure 0.89 EC
 fenoxaprop-ethyl = Whip 1 EC
 fenthiaprop-ethyl = HOE 00583
 SC 1084 = Stauffer 4 EC
 diclofop-methyl = Hoelon 3 EC
 chlorsulfuron = Glean 75 DF
 DPX B5882 = DuPont 75 DF
 desmedipham = Betanex 1.3 EC
 phenmedipham = Betanol 1.3 EC
 dicamba = Banvel 4 L

picloram = Tordon 22K 2 L
 endothall = Herbicide 273 3 L
 norflurazon = Solicam 80 WP
 oxadiazon = Ronstar 2 EC
 terbacil = Sinbar 80 WP
 triclopyr = Garlon 3 A
 benazolin = 4 FL
 oil concentrate added to
 treatments 23-30 at
 1 qt/A
 X-77 added to treatments
 22, 31, and 32 at 0.25%
 v/v

Title: Herbicide Screening in MeadowfoamLocation (farm, town, county, year): Schmidt Farm, Corvallis, Benton County, Oregon
1983-84Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: November 8, 1983, January 27, 1984, April 20, 1984Crop (cultivar): Meadowfoam (Mermaid)Planting date: October 12, 1983

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: 8 ft by 20 ftSoil series and type: Woodburn silt loam O.M. 2.7 pH 5.2

Fertilizer: _____

Other pesticides: NoneIrrigation: NoneExperimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	<u>October 11, 1983</u>	<u>October 18, 1983</u>
Treatments applied:	<u>1-7 (PPI and PPS)</u>	<u>8-21 (Pre)</u>
Temperature (F)	Air: <u>63</u> Soil: <u>60</u>	Air: _____ Soil: <u>52</u>
% Relative humidity	<u>60</u>	_____
% Cloud cover	<u>0</u>	_____
Wind speed & direction	<u>7 mph, North</u>	<u>5 mph Northeast</u>
Dew present?	<u>No</u>	<u>No</u>
Time of day	<u>10:30-11:30 a.m.</u>	<u>10:30-11:30 a.m.</u>
Soil moisture	<u>Dry</u>	<u>Dry</u>
Soil surface	<u>Granular</u>	<u>Granular</u>
Method of application:	<u>Broadcast</u>	<u>Broadcast</u>
Type of sprayer	<u>Unicycle</u>	<u>Unicycle</u>
Ground speed	<u>3 mph</u>	<u>3 mph</u>
Type of carrier & volume	<u>Water, 25 gpa</u>	<u>Water, 25 gpa</u>
Length of boom & nozzle spacing	<u>8 ft; 9.6 inches</u>	<u>8 ft; 9.6 inches</u>
Nozzle size and type	<u>8002 flat fan</u>	<u>8002 flat fan</u>
Boom height	<u>18 inches</u>	<u>20 inches</u>
Pressure (psi)	<u>20</u>	<u>20</u>
Crop <u>Meadowfoam</u>	<u>Pre</u>	<u>Pre</u>
Weeds	_____	_____
	_____	_____
	_____	_____

Title: Herbicide Screening in MeadowfoamLocation (farm, town, county, year): Schmidt Farm

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: _____

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date:	November 15, 1983	
Treatments applied:	21-43	
Temperature (F)	Air: 53 Soil: 46	Air: Soil:
% Relative humidity	75	
% Cloud cover	95	
Wind speed & direction	2 mph, North	
Dew present?	Yes	
Time of day	11:00 a.m.	
Soil moisture	Slightly muddy	
Soil surface	Granular	
Method of application:	Broadcast	
Type of sprayer	Unicycle	
Ground speed	3 mph	
Type of carrier & volume	Water, 25 gpa	
Length of boom & nozzle spacing	8 ft; 9.6 inches	
Nozzle size and type	8002 flat fan	
Boom height	20 inches	
Pressure (psi)	25	
Crop	Meadowfoam	
Weeds		

Herbicide Screening in July-Planted Pyrethrum
East Farm, Corvallis, Linn County, Oregon
1984

Trials were conducted in transplanted pyrethrum to investigate tolerance of this experimental crop to several preplant and post-plant herbicides. Size and type of transplants were variable and some had developed root-rot under greenhouse culture. These factors made visual evaluation impractical. Instead, each of the 10 plants per plot were categorized as dead, normal, chlorotic, or necrotic. Replication number three contained a larger proportion of plants with root-rot which greatly reduced the number of plants that survived. Half of the plants in the check plot in replication three died within a month after transplanting.

In spite of the variability in plants, many valuable observations were made. All of the preplant treatments except SD 95481 and napropamide exhibited promise for selective use in pyrethrum. Although norflurazon caused chlorosis in one replication, dormant, established pyrethrum might be more tolerant. The prospect of broad spectrum, residual control with this herbicide is very good.

DCPA, MCPB, and bromoxynil appeared to be the most promising post-plant treatments. Although bromoxynil caused some necrosis of leaf margins, this herbicide warrants extensive research in pyrethrum because it kills many species closely related to pyrethrum, such as groundsel and mayweed chamomile.

Because this soil was a sandy loam, more crop tolerance could be expected on heavier soils under similar conditions. Conversely, less tolerance for compounds such as oxyfluorfen and oxadiazon could be expected under heavy precipitation or if the soil surface were not allowed to dry.

Herbicide Screening in July-Planted Pyrethrum
East Farm, Corvallis, Linn County Oregon
1984

Treatment ^a	Rate lbs a.i./A	Quality of plants Evaluated August 3, 1984															
		Normal				Dead				Chlorotic				Necrotic			
		R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
		(Number of plants/plot)															
		<u>Preplant surface, July 3, 1984</u>															
1. fluorochloridone	0.5	10	9	5	8.0	0	1	3	1.3	0	0	0	0	0	0	2	0.7
2. SD 95481	1.0	8	9	0	5.7	1	0	5	2.0	1	0	0	0.3	0	1	5	2.0
3. acetochlor	0.5	10	8	8	8.7	0	2	2	1.3	0	0	0	0	0	0	0	0
4. alachlor	2.0	10	10	1	7.0	0	0	2	0.7	0	0	0	0	0	0	7	2.3
5. propachlor	4.0	10	10	6	8.7	0	0	4	1.3	0	0	0	0	0	0	0	0
6. metolachlor	2.0	10	9	7	8.7	0	0	2	0.7	0	0	1	0.3	0	1	0	0.3
7. diethatyl-ethyl	4.0	9	10	6	8.3	0	0	4	1.3	0	0	0	0	1	0	1	0.3
8. asulam	3.0	10	10	7	9.0	0	0	2	0.7	0	0	0	0	0	0	0	0
9. chloramben	1.0	10	10	7	9.0	0	0	3	1.0	0	0	0	0	0	0	0	0
10. dinoseb amine	6.0	10	10	0	6.7	0	0	0	0	0	0	10	3.3	0	0	0	0
11. napropamide	4.0	7	9	6	7.3	0	0	2	0.7	2	0	0	0.7	1	1	2	1.3
12. norflurazon	2.0	10	10	0	6.7	0	0	0	0	0	0	10	3.3	0	0	0	0
13. oxadiazon	0.5	10	10	9	9.7	0	0	1	0.3	0	0	0	0	0	0	0	0
14. oxyfluorfen	0.25	10	8	6	8.0	0	1	1	0.7	0	0	0	0	0	1	3	1.3
<u>Post-plant, July 9, 1984</u>																	
15. cyanazine	1.0	0	0	0	0	10	1	9	6.7	0	9	0	3.0	0	0	1	0.3
16. DCPA	10.0	10	10	0	6.7	0	0	2	0.7	0	0	1	0.3	0	0	7	2.3
17. dichlobenil	0.5	0	10	0	3.3	6	0	5	3.2	0	0	0	0	4	0	5	3.0
18. siduron	5.0	3	9	6	6.0	0	1	4	1.7	0	0	0	0	7	0	0	2.3
19. simazine	0.4	0	10	5	5.0	3	0	2	1.7	0	0	3	1.0	7	0	0	2.3
20. terbutryn	1.0	7	10	5	7.3	1	0	5	2.0	0	0	0	0	2	0	0	0.7
<u>Postemergence, July 25, 1984</u>																	
21. bromoxynil	0.25	0	8	2	3.0	3	1	4	2.7	0	0	0	0	7	1	4	4.0
22. bromoxynil	0.5	0	0	0	0	3	0	6	3.0	7	0	0	2.3	0	10	4	4.7
23. bentazon + O.C.	1.0	0	0	0	0	3	1	5	3.0	0	9	0	3.0	7	0	5	4.0
24. MSMA	4.0	5	0	0	1.7	0	1	5	3.0	0	0	0	0	5	9	5	6.3
25. MCPB	0.25	10	9	7	8.7	0	1	3	1.3	0	0	0	0	0	0	0	0
26. Check	0	10	10	0	6.7	0	0	5	1.7	0	0	0	0	0	0	5	1.3

(Continued on next page)

Trt. ^a	Quality of plants Evaluated August 22, 1984															
	Normal				Dead				Chlorotic				Necrotic			
	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg	R1	R2	R3	Avg
	(Number of plants/plot)															
1.	10	9	5	8.0	0	1	2	1.0	0	0	0	0	0	0	3	1.0
2.	1	8	5	4.7	1	0	4	1.7	8	0	0	2.7	0	2	1	1.0
3.	10	8	8	8.7	0	2	2	1.3	0	0	0	0	0	0	0	0
4.	9	10	7	8.7	1	0	2	1.0	0	0	0	0	0	0	1	0.3
5.	10	9	6	8.3	0	0	4	1.3	0	0	0	0	0	1	0	0.3
6.	10	10	7	9.0	0	0	3	1.0	0	0	0	0	0	0	0	0
7.	9	10	6	8.3	1	0	4	1.7	0	0	0	0	0	0	0	0
8.	10	10	8	9.3	0	0	2	0.7	0	0	0	0	0	0	0	0
9.	10	10	7	9.0	0	0	2	0.7	0	0	0	0	0	0	1	0.3
10.	10	10	10	10.0	0	0	0	0	0	0	0	0	0	0	0	0
11.	6	9	6	7.0	0	1	2	1.0	1	0	0	0.3	3	0	2	1.7
12.	5	10	4	6.3	0	0	0	0	5	0	6	3.7	0	0	0	0
13.	10	10	9	9.7	0	0	1	0.3	0	0	0	0	0	0	0	0
14.	10	7	7	8.0	0	1	1	0.7	0	0	2	0.7	0	2	0	0.7
15.	0	0	0	0	10	1	9	6.7	0	9	0	3.0	0	0	1	0.3
16.	10	10	5	8.3	0	0	2	0.7	0	0	0	0	0	0	3	1.8
17.	4	10	4	6.0	3	0	5	2.7	0	0	1	0.3	3	0	0	1.0
18.	6	8	6	6.7	1	1	4	2.0	0	0	0	0	3	1	0	1.3
19.	7	10	8	8.3	3	0	2	1.7	0	0	0	0	0	0	0	0
20.	9	10	5	8.0	1	0	5	2.0	0	0	0	0	0	0	0	0
21.	7	9	6	7.3	3	1	4	2.7	0	0	0	0	0	0	0	0
22.	7	10	4	7.0	3	0	6	3.0	0	0	0	0	0	0	0	0
23.	0	0	1	0.3	5	1	5	3.7	0	8	0	2.7	5	1	4	3.3
24.	0	0	3	0.3	0	1	7	2.7	0	0	0	0	10	9	0	6.3
25.	10	9	7	8.7	0	1	3	1.3	0	0	0	0	0	0	0	0
26.	10	10	4	8.0	0	0	5	1.7	0	0	0	0	0	0	1	0.3

^afluorochloridone = Racer 2 EC
SD 95481 = Cinch 7 EC
acetochlor = Harness 5 EC
alachlor = Lasso 4 EC
propachlor = Ramrod 4 FL
metolachlor = Dual 8 EC
diethatyl-ethyl = Antor 4 EC
asulam = Asulox 3.34 L
chloramben = Amiben 75 SP

dinoseb amine = Premerge 3 EC
napropamide = Devrinol 50 WP
norflurazon = Solicam 80 WP
oxadiazon = Ronstar 2 EC
oxyfluorfen = Goal 1.6 EC
cyanazine = Bladex 80 WP
DCPA = Dacthal 75 WP
dichlobenil = Casoron 50 WP
siduron = Tupersan 50 WP

simazine = Princep 80 WP
terbutryn = Igran 80 WP
bromoxynil = Buctril 2 EC
bentazon = Basagran 4 L
MSMA = Bueno 6 6 L
MCPB = Cantrol 2 L
O.C. = oil concentrate @ 1% v/v

Title: Herbicide Screening in July-Planted PyrethrumLocation (farm, town, county, year): East Farm, Corvallis, Linn County, Oregon, 1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: August 3, August 22, 1984Crop (cultivar): PyrethrumPlanting date: July 5, 1984

Harvest date: _____

Seeding rate; planting depth: TransplantedPlot size; row spacing: 7 by 12.5 feet, 10 plants/plot, 2 ft by 2 ft spacingSoil series and type: Chehalis sandy loam

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

SprinklerExperimental design: Randomized complete block

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____	July 3, 1984	July 9, 1984
Treatments applied: _____	1-14	15-20
Temperature (F) _____	Air: 73 Soil: 72	Air: 59 Soil: 65
% Relative humidity _____	66	68
% Cloud cover _____	0	0
Wind speed & direction _____	3-5 mph, North	Calm
Dew present? _____	No	No
Time of day _____	9:15-10:00 a.m.	8:30-9:00 a.m.
Soil moisture _____	Dry	Dry on surface
Soil surface _____	Granular	Granular
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	7 ft; 9.3 inches	7 ft; 9.3 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	20 inches	20 inches
Pressure (psi) _____	20	20
Crop <u>Pyrethrum</u>	Preplant	3-5 inches tall
Weeds _____		

Title: Herbicide Screening in July-Planted PyrethrumLocation (farm, town, county, year): East Farm

Evaluation scale: _____

Evaluation date: _____

Crop (cultivar): _____

Planting date: _____

Harvest date: _____

Seeding rate; planting depth: _____

Plot size; row spacing: _____

Soil series and type: _____

O.M. _____

pH _____

Fertilizer: _____

Other pesticides: _____

Irrigation: _____

Experimental design: _____

LSD: 0.05 _____

0.01 _____

C.V. _____

Method and depth of inc.: _____

Notes: _____

Date: _____

July 25, 1984

Treatments applied: _____

21-25

Temperature (F) _____

Air: 78

Soil: 80

Air: _____

Soil: _____

% Relative humidity _____

75

% Cloud cover _____

100

Wind speed & direction _____

2-3 mph, North

Dew present? _____

No

Time of day _____

12:00-12:30 p.m.

Soil moisture _____

Muddy

Soil surface _____

Fine

Method of application: _____

Broadcast

Type of sprayer _____

Unicycle

Ground speed _____

3 mph

Type of carrier & volume _____

Water, 25 gpa

Length of boom & nozzle spacing _____

7 ft; 9.3 inches

Nozzle size and type _____

8002 flat fan

Boom height _____

20 inches

Pressure (psi) _____

20

Crop Pyrethrum

3-8 inches tall

Weeds _____

Stale Seedbed Technique for Weed Control in Pyrethrum
East Farm, Corvallis, Linn County, Oregon
1984

A trial was conducted on a sandy loam soil to examine the feasibility of using a stale seedbed technique for establishing pyrethrum. The pyrethrum was transplanted 4 weeks after the trifluralin application. Earlier transplanting had been planned, but field preparation delayed the timing.

Glyphosate was more effective than trifluralin on shepherdspurse and hairy nightshade when evaluated 3 weeks after the pyrethrum was transplanted. However, the trial area also had a light scattering of Italian ryegrass (Lolium multiflorum) which the trifluralin controlled into the fall, while those plots that received only glyphosate were infested.

Although this technique would not be totally adequate for stand establishment in all situations, it should be of considerable benefit. The check plots, which were hand-weeded in late August, contained pyrethrum plants that were still much smaller than those in the treated plots in late fall. The trial was oversprayed with bromoxynil at 0.5 lb/A and sethoxydim at 0.5 lb/A on October 23, 1984. This treatment controlled most of the weeds that remained in the trial. Common chickweed (Stellaria media) was unaffected by this treatment.

Stale Seedbed Technique for Weed Control in Pyrethrum
East Farm, Corvallis, Linn County, Oregon
1984

Treatment ^a	Rate lbs a.i./A	Visual evaluations - % injury or control																											
		Pyrethrum							Shepherdspurse ^b							Lambsquarters							Hairy nightshade						
		R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg				
<u>May 30, 1984 (preplant incorporated)</u>																													
1. trifluralin	1.0	0	0	0	0	0	0	30	80	70	70	80	66	100	100	100	99	100	99	90	90	90	100	100	94				
<u>May 30/July 2, 1984 (preplant incorporated/preplant)</u>																													
2. trifluralin/glyphosate	1.0/1.0	0	0	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100				
<u>July 2, 1984 (preplant)</u>																													
3. glyphosate	1.0	0	0	0	0	0	0	100	99	100	100	100	99	100	100	100	100	100	100	100	100	100	100	100	100				
4. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

^atrifluralin = Treflan 4 EC
glyphosate = Roundup 3 L

^bshepherdspurse = Capsella bursa-pastoris
common lambsquarters = Chenopodium album
hairy nightshade = Solanum sarrochoides

Title: Stale Seedbed Technique for Weed Control in PyrethrumLocation (farm, town, county, year): East Farm, Corvallis, Linn County, Oregon, 1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: July 23, 1984Crop (cultivar): PyrethrumPlanting date: July 5, 1984 Harvest date: _____Seeding rate; planting depth: Transplanted, 32 plants/plotPlot size; row spacing: 8 ft by 25 ft; 2 ft by 3 ft spacingsSoil series and type: Chehalis sandy loam O.M. _____ pH _____

Fertilizer: _____

Other pesticides: _____ Irrigation: SprinklerExperimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: Tractor-mounted rototiller; 3 inches deep

Notes: _____

Date:	May 30, 1984	July 2, 1984
Treatments applied:	1 and 2 (PPI)	2 and 3 (preplant)
Temperature (F)	Air: 54 Soil: 60	Air: 79 Soil: 98
% Relative humidity	73	47
% Cloud cover	100	5
Wind speed & direction	4 mph, North	5-6 mph, North
Dew present?	No	No
Time of day	9:00 a.m.	2:00-2:30 p.m.
Soil moisture	Dry on surface	Dry
Soil surface	Granular	Granular
Method of application:	Broadcast, inc.	Broadcast
Type of sprayer	Unicycle	Unicycle
Ground speed	3 mph	3 mph
Type of carrier & volume	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing	7 ft; 9.3 inches	7 ft; 9.3 inches
Nozzle size and type	8002 flat fan	8002 flat fan
Boom height	18 inches	18 inches
Pressure (psi)	20	20
Crop	Pyrethrum	Preplant
Weeds	Hairy nightshade	Pre
	Italian ryegrass	Pre
	Shepherdspurse	Pre
		4-6 inches diameter
		Headed
		4-6 inches diameter

Exp. No. 84-56

Stale Seedbed Technique for Weed Control in Pyrethrum
Hyslop Farm, Corvallis, Benton County, Oregon
1984

A trial was conducted on a silt loam to evaluate the usefulness of a stale seedbed technique on pyrethrum establishment. Pyrethrum transplants were set out 3 weeks after the trifluralin had been applied and 2 days after the glyphosate had been applied. Had the glyphosate application been delayed 1 or 2 days, better control of common groundsel would have occurred because it was just emerging when treated. The overtreatment with glyphosate of the trifluralin-treated plots did not improve wild oat control because trifluralin controlled all of the early emerging wild oats.

None of the treatments caused visible injury to the pyrethrum. When stand counts were made in late August, all treatments averaged more plants per plot than did the control. By late November, the pyrethrum plants in the checks were still considerably smaller than those in the treated plots because of the weed competition suffered through the summer. The surviving wild oats in all plots were eliminated with an application of sethoxydim at 0.5 lb/A in August. The trial was oversprayed with bromoxynil at 0.38 lg/A on September 25 to control the groundsel.

The bromoxynil provided complete control of a dense stand of groundsel that was 4 inches to 6 inches tall. Injury to the pyrethrum from the bromoxynil consisted of minor necrosis of the leaf margins. No injury from the sethoxydim was observed.

Stale Seedbed Technique for Weed Control in Pyrethrum
Hyslop Farm, Corvallis, Benton County, Oregon
1984

Treatment ^a	Rate lbs ai/A	Visual evaluations - % injury or control																	
		Pyrethrum						Common groundsel						Wild oats					
		R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg	R1	R2	R3	R4	R5	Avg
April 16, 1984 (preplant incorporated)																			
1. trifluralin	1.0	0	0	0	0	0	0	0	0	0	0	0	0	90	90	90	90	90	90
April 16, 1984 (preplant incorporated)/ May 7, 1984 (preplant)																			
2. trifluralin/glyphosate	1.0/1.0	0	0	0	0	0	0	50	70	70	70	80	68	90	90	80	90	95	89
May 7, 1984 (preplant)																			
3. glyphosate	1.0	0	0	0	0	0	0	90	50	70	80	70	72	80	70	80	70	70	74
4. Check	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Live plants/plot Aug. 28, 1984

	R1	R2	R3	R4	R5	Avg
1.	32	32	32	32	32	32.0
2.	30	32	32	32	32	31.6
3.	30	32	30	32	31	31.0
4.	26	31	31	32	31	30.0

Title: Stale Seedbed Technique for Weed Control in PyrethrumLocation (farm, town, county, year): Hyslop Farm, Corvallis, Benton County, Oregon,
1984Evaluation scale: 0 = no effect, 100 = complete killEvaluation date: June 5, 1984Crop (cultivar): PyrethrumPlanting date: May 9, 1984

Harvest date: _____

Seeding rate; planting depth: 32 transplants/plotPlot size; row spacing: 8 by 25 ft; 2 ft by 3 ft spacingSoil series and type: Woodburn silt loam O.M. 3.2% pH 5.5

Fertilizer: _____

Other pesticides: _____ Irrigation: SprinklerExperimental design: Randomized complete block

LSD: 0.05 _____ 0.01 _____ C.V. _____

Method and depth of inc.: Tractor-mounted rototiller; 3 inches deep

Notes: _____

Date: _____	April 16, 1984	May 7, 1984
Treatments applied: _____	1 and 2 (inc)	2 and 3
Temperature (F) _____	Air: 57 Soil: 62	Air: 65 Soil: 63
% Relative humidity _____	72	62
% Cloud cover _____	100	5
Wind speed & direction _____	2-4 mph, Southwest	1-2 mph, South
Dew present? _____	Yes	No
Time of day _____	1:00 p.m.	11:00 a.m.
Soil moisture _____	Moist	Dry on surface
Soil surface _____	Small clods	Small clods
Method of application: _____	Broadcast	Broadcast
Type of sprayer _____	Unicycle	Unicycle
Ground speed _____	3 mph	3 mph
Type of carrier & volume _____	Water, 25 gpa	Water, 25 gpa
Length of boom & nozzle spacing _____	7 ft.; 9.3 inches	7 ft.; 9.3 inches
Nozzle size and type _____	8002 flat fan	8002 flat fan
Boom height _____	18 inches	18 inches
Pressure (psi) _____	20	20
Crop <u>Pyrethrum</u>	Preplant	Preplant
Weeds <u>Wild oats</u>	Pre	1-2 leaf
<u>Common groundsel</u>	Pre	Emerging
_____	_____	_____

CHEMISTRY AND SOURCE OF HERBICIDES

Herbicides	Chemistry	Source
AC 222293	methyl 2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)- <i>P</i> -toluate mixture with methyl 6-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)- <i>m</i> -toluate	American Cyanamid
AC 263499		American Cyanamid
acetochlor	2-chloro-N(ethoxymethyl)-6'-ethyl-o-aceto toluidide	Monsanto
alachlor	2'-chloro-2',6'-diethyl- <i>N</i> -(methoxymethyl)acetanilide	Monsanto
asulam	methyl sulfanilylcarbamate	Rhone-Poulenc
barban	4-chloro-2-butynyl- <i>m</i> -chlorocarbanilate	Velsicol
benazolin	4-chloro-2-oxobenzothiazolin-3-ylacetic acid	BFC
benefin	N-butyl-N-ethyl- α,α,α ,-trifluoro-2,6-dinitro- <i>p</i> -toluidine	Elanco
bentazon	3-isopropyl-1 <i>H</i> -2,1,3-benzothiadiazin-(4) <i>3H</i> -one,2,2-dioxide	BASF
bromoxynil	3,5-dibromo-4-hydroxybenzonitrile	Rhone-Poulenc
chloramben	3-amino-2,5-dichlorobenzoic acid	Union Carbide
chlorsulfuron	2-chloro-N-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl]benzenesulfonamide	DuPont
cyanazine	2-[[4-chloro-6(ethylamino)- <i>s</i> -triazin-2-yl]amino]-2-methylpropionitrile	Ciba Geigy
cycloate	S-ethyl N-ethylthiocyclohexanecarbamate	Stauffer
dalapon	2,2-dichloropropionic acid	Dow
DCPA	dimethyl tetrachloroterephthalate	SDS Biotech
desmedipham	ethyl- <i>m</i> -hydroxycarbanilate carbanilate (ester)	Nor-Am
dicamba	3,6-dichloro- <i>o</i> -anisic acid	Velsicol
dichlobenil	2,5-dichlorobenzonitrile	Uniroyal

Herbicides	Chemistry	Source
diclofop-methyl	methyl 2-[4-(2,4-dichlorophenoxy)phenoxy]propanoate	American Hoechst
diethatyl ethyl	<i>N</i> -chloroacetyl- <i>N</i> -(2,6-diethylphenyl)glycine ethyl ester	Nor-Am
difenzoquat	1,2-dimethyl-3,5-diphenyl-1 <i>H</i> -pyrazolium	American Cyanamid
dinoseb	2- <i>sec</i> -butyl-4,6-dinitrophenol	Platte Chemical, Vertec
diuron	3(3,4-dichlorophenyl)-1,1-dimethylurea	DuPont, Griffin
DPX B5882		DuPont
DPX M6316		DuPont
DPX Y6202		DuPont
endothall	7-oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	Pennwalt
eptam	<i>S</i> -ethyl dipropylthiocarbamate	Stauffer
ethalfluralin	<i>N</i> -ethyl- <i>N</i> -(2-methyl-2-propenyl)-2,6-dinitro-4-trifluoromethyl)benzenamine	Elanco
ethofumesate	2-ethoxy-2,3-dihydro-3,3-dimethyl-5-benzofuranyl methanesulfonate	Nor-Am
fenoxaprop-ethyl	ethyl 2-[4-(6-chloro-3a,4,5,6,7,7a-hexahydrobenzoxazol-2-yloxy)propionate	American Hoechst
fenthiaprop-ethyl	ethyl 2-[4(6-chloro-3a,4,5,6,7,7a-hexahydrobenzothiazol-2-yloxy)propionate	American Hoechst
fluazifop-butyl	butyl 2-[4-(5-trifluormethyl-2-pyridyloxy)phenoxy]propionate	ICI Americas
fluazifop-P-butyl	butyl (R)-2[4-[[5-(trifluoromethyl)-2-pyridinyl]oxy]phenoxy]propanoate	ICI Americas
fluorochloridone	1-(<i>m</i> -trifluoromethylphenyl)-3-chloro-4-chloromethyl-2-pyrrolidone	Stauffer
fluroxypyr	4-amino-3,5-dichloro-6-fluoro-2-pyridyloxyacetic acid	Dow

Herbicides	Chemistry	Source
glyphosate	<i>N</i> -(phosphonomethyl)glycine	Monsanto
haloxyfop-methyl	methyl 2-[4-(4-chloro-5-trifluormethyl-2-pyridyloxy)phenoxy]propanoate	Dow
hexazinone	3-cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5-triazine-2,4(1H,3H)-dione	DuPont
MCPA	[(4-chloro- <i>o</i> -tolyl)oxy]acetic acid	Union Carbide, Rhone-Poulenc, PBI Gordon
MCPA + MCPP + dicamba		Union Carbide, Rhone-Poulenc, PBI Gordon
MCPB	4-[(4-chloro- <i>o</i> -tolyl)oxy]butyric acid	Rhone-Poulenc
metolachlor	2-chloro- <i>N</i> -(2-ethyl-6-methylphenyl)- <i>N</i> -(2-methoxy-1-methylethyl)acetamide	Ciba-Geigy
metribuzin	4-amino-6- <i>tert</i> -butyl-3-(methylthio)- <i>as</i> -triazine-5(4H)one	DuPont, Mobay
metsulfuron-methyl	2-[[[(4-methoxy-6-methyl-1,3,5-triazine-2-yl)amino]carbonyl]amino]sulfonyl]benzoic acid	DuPont
MSMA	monosodium methanearsonate	SDS Biotech
napropamide	2-(α -naphthoxy)- <i>N,N</i> -diethylpropionamide	Stauffer
norflurazon	4-chloro-5-(methylamino)-2-(α,α,α -trifluoro- <i>m</i> -tolyl)-3(2H)pyridazinone	Zoecon
oryzalin	3,5-dinitro- <i>N,N</i> -dipropylsulfanilamide	Elanco
oxadiazon	2- <i>tert</i> -butyl-4-(2,4-dichloro-5-isopropoxy-phenyl) Δ^2 -1,3,4-oxadiazolin-5-one	Rhone-Poulenc
oxyfluorfen	2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene	Rohm & Haas
paraquat	1,1'-dimethyl-4,4'-bipyridinium ion	Chevron
pendimethalin	<i>N</i> -(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine	American Cyanamid

Herbicides	Chemistry	Source
phenmedipham	methyl <i>m</i> -hydroxycarbanilate- <i>m</i> -methylcarbanilate	Nor-Am
picloram	4-amino-3,5,6-trichloropicolinic acid	Dow
prodiamine		Velsicol
propachlor	2-chloro- <i>N</i> -isopropylacetanilide	Monsanto
propham	isopropyl carbanilate	PPG
RH 0265		Rohm & Haas
RH 3385		Rohm & Haas
SC 1084		Stauffer
SD 95481	7-oxabicyclo(2.2.1)heptane,1-methyl-4-(1-methylethyl)-2-(2-methylphenylmethoxy)-,exo-	Shell
sethoxydim	2-[1-(ethoxyimino)butyl]-5-(2-ethylthio)propyl)-3-hydroxy-2-cyclohexen-1-one	BASF
siduron	1-(2-methyl cyclohexyl)-3-phenylurea	DuPont
simazine	2-chloro-4,6-bis(ethylamino)-s-triazine	Ciba Geigy
terbacil	3- <i>tert</i> -butyl-5-chloro-6-methyluracil	DuPont
terbutryn	2-(<i>tert</i> -butylamino)-4-(ethylamino)-6-methylthio)-s-triazine	Ciba-Geigy
triclopyr	[(3,5,6-trichloro-2-pyridinyl)oxy]acetic acid	Dow
triallate	<i>S</i> -(2,2,3-trichloroallyl)diisopropylthiocarbamate	Monsanto
trifluralin	α,α,α -trifluoro-2,6-dinitro- <i>N,N</i> -dipropyl- <i>p</i> -toluidine	Eli Lilly
2,4-D	(2,4-dichlorophenoxy)acetic acid	Union Carbide, Rhone-Poulenc
2,4-DB	4-(2,4-dichlorophenoxy)butyric acid	Rhone-Poulenc
2,4-D + MCPP + dicamba		PBI Gordon

Daily maximum-minimum air temperatures, crop year 1983-84. Recorded at the Hyslop Agronomy Farm

Date	September	October	November	December	January	February	March	April	May	June	July	August
1	73-54	73-34	57-48	39-33	50-33	50-29	54-42	62-36	55-44	65-42	72-49	83-57
2	73-49	72-38	60-52	42-35	41-33	51-29	56-40	56-40	60-46	68-45	81-54	76-56
3	74-49	65-46	61-54	50-38	51-39	52-30	55-36	59-41	59-44	67-39	78-55	79-50
4	76-56	73-49	62-45	44-31	60-47	52-28	51-35	55-42	60-38	64-49	83-57	77-44
5	73-49	67-37	59-38	45-34	63-47	60-29	62-37	54-44	55-40	61-49	86-53	81-49
6	72-45	69-39	53-42	48-36	54-48	55-31	61-32	55-32	55-32	57-47	77-47	76-44
7	79-48	65-38	55-41	43-39	51-43	62-35	66-36	57-40	60-35	58-47	73-48	80-47
8	70-45	68-39	54-32	48-39	53-36	49-39	63-39	55-41	75-44	60-42	78-49	88-54
9	67-45	66-41	46-34	51-41	49-38	61-42	69-43	53-39	65-41	61-48	80-44	94-54
10	70-48	62-49	59-45	52-41	45-40	47-37	66-47	50-41	59-44	60-41	78-49	92-51
11	70-54	67-42	58-46	52-39	48-40	48-39	62-37	54-40	60-46	65-42	81-45	85-48
12	74-50	70-41	57-44	46-33	50-40	52-42	50-40	53-45	65-48	69-48	71-51	77-52
13	79-48	71-41	54-42	48-43	43-33	55-46	56-42	54-35	64-50	72-45	73-50	73-42
14	80-52	58-42	50-43	52-46	47-31	50-35	58-44	59-38	66-38	73-47	79-52	78-44
15	73-48	63-40	55-44	48-38	43-28	47-37	57-46	76-48	57-38	78-46	85-56	81-45
16	79-50	61-30	58-48	47-35	40-21	53-38	58-45	56-45	58-34	72-40	92-58	86-51
17	73-45	58-32	54-45	39-31	39-21	49-30	54-40	57-33	65-40	66-44	95-55	82-52
18	68-49	62-36	50-43	40-32	40-23	52-31	55-43	58-43	70-42	72-44	90-47	81-47
19	64-44	57-37	52-43	38-33	36-23	55-41	53-44	60-40	72-50	74-44	84-45	79-49
20	69-43	60-43	53-38	42-28	40-23	53-43	62-48	57-41	62-43	75-53	80-52	79-47
21	77-52	63-40	45-38	30-16	34-24	53-39	61-43	60-40	60-38	59-51	78-47	85-44
22	82-53	60-49	49-39	23-15	49-32	50-32	57-42	56-37	63-40	62-43	77-54	84-46
23	82-53	60-46	44-40	21-11	52-43	45-35	61-46	63-36	55-42	75-47	89-52	77-52
24	72-46	60-34	57-43	25-11	52-42	47-39	58-37	57-37	62-38	85-47	82-55	75-48
25	75-48	62-34	50-38	27-15	58-49	47-35	56-42	52-34	60-46	82-52	93-57	79-49
26	79-49	65-37	48-38	33-24	52-36	52-33	50-43	52-33	60-50	85-51	69-47	86-51
27	67-45	70-39	50-41	38-26	48-34	50-35	57-33	61-33	68-45	70-56	81-48	93-47
28	64-39	55-44	53-44	35-26	55-35	58-37	59-44	64-33	73-50	82-55	78-52	78-54
29	67-37	50-45	53-34	33-29	53-36	57-38	55-35	56-40	84-49	77-51	78-50	77-49
30	70-40	52-46	45-34	36-31	56-40		55-31	55-41	84-51	77-44	82-53	84-48
31		62-45		46-34	57-29		58-37		62-37		80-53	75-57
Avg	73-48	63-40	53-42	41-31	49-35	52-36	58-40	57-39	64-43	70-47	81-51	81-49

Daily maximum-minimum soil temperatures at the 4-inch depth, crop year 1983-84.
Recorded at the Hyslop Agronomy Farm, Corvallis, Oregon

Date	September	October	November	December	January	February	March	April	May	June	July	August
1	68-63	67-54	54-51	42-41	34-34	44-40	47-46	58-47	55-50	70-55	72-58	84-70
2	68-61	67-55	54-53	43-40	34-34	44-37	51-47	56-47	57-52	69-56	77-59	79-71
3	70-60	61-57	55-52	44-42	35-34	43-39	51-44	59-47	60-50	67-57	79-62	81-69
4	70-60	68-56	56-53	44-41	43-34	43-39	50-42	53-47	62-52	65-55	81-65	79-67
5	68-60	64-55	54-49	41-40	48-43	44-37	52-41	54-47	57-49	61-57	84-67	82-66
6	68-58	65-53	50-48	43-41	48-46	43-37	53-43	56-47	59-48	60-56	82-66	77-66
7	72-57	65-54	52-47	44-43	48-47	49-43	55-44	56-44	63-47	58-55	79-64	81-65
8	72-61	63-54	51-45	44-43	47-44	46-43	54-47	51-48	67-49	60-54	80-65	82-66
9	65-59	61-53	47-43	46-44	45-44	50-44	57-47	53-47	65-55	62-53	81-64	86-70
10	68-57	59-55	52-47	45-43	44-43	47-45	57-49	47-45	62-53	65-57	82-64	87-71
11	64-59	63-54	51-49	46-45	44-44	46-44	57-48	54-45	61-54	65-56	82-65	88-72
12	70-61	64-53	52-48	45-43	45-44	45-42	49-47	50-44	62-56	71-58	75-65	82-71
13	71-59	63-54	50-49	43-40	44-39	48-45	51-47	54-47	66-57	69-60	80-64	76-66
14	75-61	57-54	49-47	46-43	41-38	48-44	52-48	57-45	64-56	71-58	83-66	81-65
15	73-62	60-53	48-46	48-45	38-37	45-42	53-48	66-47	61-54	73-60	84-68	84-68
16	73-61	61-50	49-47	47-44	37-36	47-43	51-49	56-51	61-52	73-60	86-69	84-68
17	72-60	56-48	50-49	44-40	36-35	46-41	49-47	57-48	66-48	71-58	87-71	83-70
18	70-59	58-51	49-48	40-38	35-35	45-41	51-45	59-46	69-57	73-57	87-71	82-70
19	67-57	57-48	49-48	40-39	35-35	48-42	50-47	61-50	68-56	76-59	84-69	83-69
20	67-56	54-50	48-47	40-38	35-35	47-45	54-49	57-48	62-56	77-60	83-67	80-68
21	68-55	58-52	47-45	38-36	35-35	47-45	54-50	60-49	64-55	65-60	84-68	82-67
22	71-57	56-53	47-44	37-35	39-35	47-42	52-46	56-50	65-53	62-57	80-67	82-67
23	73-61	58-53	46-44	36-35	45-39	43-41	57-46	61-48	56-54	71-55	84-67	79-68
24	67-61	56-49	48-45	35-33	44-42	44-43	56-48	61-50	65-51	74-60	80-69	77-68
25	71-61	53-47	49-46	33-32	47-44	44-42	56-45	57-48	63-55	76-60	88-70	80-67
26	72-59	54-46	46-44	33-33	46-44	46-41	50-48	57-47	59-55	80-63	72-64	81-67
27	67-61	56-47	46-43	34-33	45-43	47-40	55-46	62-45	65-55	67-64	80-62	83-69
28	66-56	53-50	48-46	34-33	46-42	50-43	59-41	65-48	69-54	74-64	79-65	77-69
29	66-55	51-49	50-45	35-31	45-41	51-47	52-48	53-49	72-56	75-64	81-65	80-68
30	64-52	52-51	45-42	34-32	46-42		58-45	56-48	76-60	69-60	81-65	81-67
31		55-52		35-34	46-41		56-43		68-57		86-68	76-67

Daily evaporation in inches, crop year 1983-84
Hyslop Agronomy Farm, Corvallis, Oregon

Date	September	October	November	December	January	February	March	April	May	June	July	August
1	.10	.17	M	M	M	M	M	.10	.05	.21	.21	.24
2	.12	.12	M	M	M	M	M	.05	.05	.20	.28	.18
3	.19	.03	M	M	M	M	M	.12	.10	.13	.25	.23
4	.16	.11	M	M	M	M	M	.06	.15	.12	.29	.21
5	.16	.12	M	M	M	M	M	.03	.04	.05	.30	.25
6	.22	.12	M	M	M	M	M	.06	.11	.05	.27	.20
7	.20	.15	M	M	M	M	M	.12	.16	.00	.29	.23
8	.20	.11	M	M	M	M	M	.02	.13	.10	.27	.33
9	.07	.07	M	M	M	M	M	.06	.12	.10	.23	.27
10	.13	.02	M	M	M	M	M	.01	.09	.10	.28	.31
11	.08	.08	M	M	M	M	M	.10	.04	.11	.26	.27
12	.16	.12	M	M	M	M	M	.06	.09	.19	.16	.22
13	.20	.09	M	M	M	M	M	.09	.16	.19	.27	.18
14	.15	.01	M	M	M	M	M	.08	.11	.18	.28	.26
15	.22	.07	M	M	M	M	M	.15	.08	.25	.29	.24
16	.17	.10	M	M	M	M	M	.04	.10	.24	.31	.24
17	.16	.03	M	M	M	M	M	.09	.17	.21	.39	.25
18	.16	.04	M	M	M	M	M	.13	.18	.24	.37	.24
19	.15	.04	M	M	M	M	M	.15	.12	.25	.29	.25
20	.27	.01	M	M	M	M	M	.07	.04	.23	.31	.30
21	.35	.05	M	M	M	M	M	.10	.13	.04	.27	.28
22	.24	.01	M	M	M	M	M	.06	.13	.10	.34	.26
23	.16	.02	M	M	M	M	M	.13	.03	.20	.39	.20
24	.08	.08	M	M	M	M	M	.18	.16	.26	.17	.17
25	.13	.03	M	M	M	M	M	.07	.10	.25	.30	.18
26	.13	.03	M	M	M	M	M	.06	.02	.27	.09	.31
27	.09	.05	M	M	M	M	M	.16	.14	.02	.25	.29
28	.13	.02	M	M	M	M	M	.19	.23	.21	.23	.23
29	.19	.00	M	M	M	M	M	.06	.23	.20	.24	.27
30	.22	.04	M	M	M		M	.04	.27	.17	.26	.23
31		.00		M	M		M		.18		.29	.19
Total	5.00	1.94						2.64	3.71	4.87	8.43	7.51

Radiation data (Langleys) for 1983-84. Hyslop Agronomy Farm, Corvallis, Oregon

Date	September	October	November	December	January	February	March	April	May	June	July	August
1	231	411	102	18	54	156	87	324	204	708	756	600
2	345	351	102	79	58	201	240	306	240	654	774	360
3	513	183	66	75	54	183	237	453	336	309	768	552
4	513	384	33	84	60	177	345	195	396	348	756	537
5	378	246	138	117	132	216	372	189	288	244	747	660
6	561	372	30	120	54	168	378	276	522	234	633	480
7	516	384	150	30	30	192	333	372	624	156	801	636
8	492	372	165	12	60	85	231	126	612	342	768	621
9	372	264	102	63	72	147	324	342	366	435	738	600
10	460	102	129	64	36	115	330	135	405	498	741	600
11	234	234	36	60	24	174	375	393	336	486	687	603
12	462	312	120	57	78	63	123	222	360	750	459	558
13	483	282	69	46	24	49	243	336	468	621	744	414
14	460	147	72	30	176	144	183	390	324	658	747	624
15	486	264	36	24	175	120	261	546	456	714	738	591
16	348	342	39	116	177	134	174	147	492	714	744	582
17	426	249	57	33	144	198	96	360	639	654	720	585
18	480	165	81	113	156	225	264	384	589	762	687	516
19	450	258	90	35	117	260	121	438	M	750	660	612
20	477	141	72	73	135	63	162	480	162	676	723	636
21	480	219	90	49	78	84	123	402	410	282	696	633
22	444	99	90	99	87	162	252	222	540	333	744	564
23	426	90	45	60	114	146	238	465	120	753	717	456
24	186	318	33	135	108	62	315	468	624	738	501	384
25	393	219	87	49	54	102	339	456	444	768	615	537
26	426	237	96	70	90	180	108	408	192	774	228	585
27	240	243	114	90	96	183	276	609	528	270	666	546
28	294	120	69	102	168	270	402	651	774	633	666	423
29	420	51	126	78	105	207	195	198	756	534	696	585
30	420	45	117	44	183		441	282	720	624	705	465
31		96		63	228		336		546		672	417
Avg	414	232	85	67	101	154	259		438	547	687	547

Daily precipitation record, crop year 1983-84. Recorded at the Hyslop Agronomy Farm, Corvallis, Oregon

Date	September	October	November	December	January	February	March	April	May	June	July	August
1	.28		.23	.30	.02		.12	T	.74			
2	.06		.07	.01	.08		.19	.11	.30			
3	T	.01	.41	.05	.52		.01	.01	.40			
4		.01	.45	.05	.01			T	.01	1.00		
5		T	T	.58				.05	.12	.02		
6			.35	.72		.03		.08	.08	.77		T
7			.21	.14	T			.01		.52		
8			.03	.75	.01	.04		.84	.08	.05		
9	.08		.39	.16	T	.11		.02	.02	.03		
10	.02	T	.05	.38	.38	.76	.09	.51	.01	.16		
11	.04		.50	.43	.69	.29	T	.32	.22	T		
12			.19	.01		.33	.24	.48	.01			
13			.88	.45		2.22	.42	.11				
14		.06	.56	.55		.16	.23	T	T			
15		T	.15	.32		.12	.25		.06			
16			.55			.59	.05	.03	.23			
17		.03	.72	T			.52	T				
18		T	1.12			.10	.21	.10				
19	.02		.40	T	.01	T	.21	T	.01			
20		.01	.70	.04		.26	.01	.06	.16	.19		
21			.02	.01	.26	.45	.62	.05		.94		
22		.39	.01		.47	.03	.05	.02	.06	.05		
23		.01	.36	T	.04	.05	.03	T	.67			
24	T		.83	.01	.22	.79		T	.02			
25			.26	.04	.52	.54	.04	T	T		.20	
26			.22	.22	.01	T	.35	.06	.47			
27	.03		.01	.19			.02	T	T	.23		
28			.03			.05	.09			T		
29			.03	.38	.02		.07	.12		.38		
30		.29	.20	1.10				.43		T		
31		.24		.46								
Total	0.53	1.05	9.93	7.35	3.26	6.92	3.82	3.41	3.67	4.34	0.20	T

Daily humidity percent for 1983-84.
Hyslop Agronomy Farm, Corvallis, Oregon

Date	September	October	November	December	January	February	March	April	May	June	July	August
1	61	23	99	80	99	63	63	36	80	34	30	43
2	51	24	64	80	99	60	56	50	70	32	39	50
3	46	49	93	90	99	64	54	31	62	41	37	47
4	46	M	86	91	99	64	61	61	47	44	32	43
5	44	45	66	99	85	47	37	64	59	84	31	45
6	32	34	88	83	99	64	39	41	M	65	42	47
7	42	38	64	85	99	53	36	38	M	90	31	34
8	33	26	62	95	82	99	45	74	27	50	29	31
9	48	44	99	83	92	69	47	53	41	56	28	36
10	22	63	62	95	99	85	48	72	47	49	34	33
11	65	61	88	76	99	79	40	44	50	45	28	40
12	42	41	63	99	96	88	81	50	56	36	50	51
13	40	29	69	99	90	92	60	51	66	47	44	45
14	41	74	86	87	44	65	63	58	55	53	35	38
15	39	49	69	62	35	70	61	41	62	48	41	37
16	24	21	50	58	48	80	46	64	63	42	M	35
17	42	54	88	83	53	67	63	46	43	47	19	43
18	31	72	85	86	48	62	53	40	M	39	26	47
19	46	71	75	76	55	62	95	33	52	29	37	37
20	24	72	80	54	69	99	94	43	64	M	25	32
21	16	72	100	55	75	88	64	50	42	74	41	29
22	16	97	72	41	99	52	55	82	36	54	40	23
23	27	78	99	70	75	71	49	44	70	40	31	49
24	47	46	100	72	98	84	39	41	38	34	49	45
25	40	48	75	99	95	75	40	46	42	35	36	41
26	30	50	80	76	77	55	99	44	76	34	63	31
27	53	48	100	74	93	62	52	44	M	88	39	34
28	30	86	M	99	71	52	33	18	36	44	45	48
29	21	100	71	99	80	51	46	37	33	38	42	35
30	170	100	66	83	61		48	51	33	42	46	43
31		99		99	58		35		35		37	58