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**RESULTS OF WEED CONTROL  
STUDIES IN VEGETABLE CROPS - 1994**

**Dr. Stanley F. Gorski**



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This publication also reports research involving pesticides. It does not contain recommendations for their use, nor does it imply that the uses discussed here have been registered. All uses of pesticides must be registered by appropriate State and Federal agencies before they can be recommended.

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# Results of Field Experiments in Vegetable Crops 1994

Dr. Stanley F. Gorski<sup>1</sup>

## GENERAL MATERIALS AND METHODS

### Abbreviations for herbicide application methods:

PPI            -Preplant incorporated  
Pre            -Preemergence to the weed and crop  
Del Pre       -Delayed preemergence, just prior to crop emergence  
Post           -Postemergence to the weed and crop

### Sprayer:

Treatments were applied with a CO<sub>2</sub> backpack type sprayer with a gpa of 25. Other volumes used are noted in individual studies.

### Weed Ratings:

Weed counts , for the control plots, were made by counting the number of weeds in a 1 square foot wire frame. Counts were made approximately 30 days after treatment. Comparing to the control, treated plots were visually rated for % weed control. All plots were cultivated and hoed regularly after weed counts were taken (except unweeded check).

### Injury rating:

Visual rating was done on a percent injury basis with 0 denoting no injury and 100 indicating plant death.

### Statistical Analysis:

Fishers LSD at the 5% level was performed on all experiments.  
Plot design was a Randomized Complete Block (RCB) with 3,4, or 5 reps.

### Spray Additives:

Some postemergence applications were with crop oil concentrate (C.O.C.) or a nonionic surfactant (X-77).

Appreciation is given to the following people for their assistance in conducting these research studies:

Mr. Mark Schmittgen - Farm Superintendent, Columbus  
Dr. Richard Hassell - Branch Manager, Celeryville  
Mr. Ken Scaife        - Branch Manager, Fremont

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<sup>1</sup>Mailing Address: The Ohio State University, Department of Horticulture, 2001 Fyffe Court, Columbus, Ohio 43210.

1994 Rainfall - Lane Avenue Farm - Columbus

DAY	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		0.15			
2			3.21		
3	0.03		0.05		
4				1.00	
5	0.01			0.09	
6	0.21				
7	2.44		0.01		
8			2.04		
9			1.62		
10					
11	0.27			0.06	
12	0.14			0.19	
13			6.19		
14	1.06	0.62	0.02	2.51	
15	0.73	2.18	0.39		
16				0.03	
17			0.07		
18			0.02		
19			0.05	2.87	
20				2.89	
21			0.86	0.59	
22			0.23		
23					
24			0.05		
25	0.13		0.56		
26	2.01			0.58	
27					
28				3.71	
29		1.58	1.80	0.56	
30					
31	0.07			0.66	
TOTAL	7.10	4.53	17.07	15.74	

1994 Rainfall - Vegetable Crops Branch - Fremont

DAY	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1					
2					
3					
4				0.60	
5	0.02		0.27		
6					
7	0.21		0.21		
8			0.20		
9					
10				0.01	
11	0.25			0.19	
12		0.13		0.01	
13		0.11		1.08	
14	0.05		0.20		
15					
16					
17			0.23		
18					
19					
20		0.14	0.02	0.39	
21			0.03	0.07	
22			0.24		
23		0.94			
24	0.02	1.08	0.30	0.01	
25	0.32	0.16	0.05		
26		1.18			
27			0.10		
28		0.19	0.05	0.11	
29		0.19			
30				0.06	
31	0.15				
TOTAL	1.02	4.12	1.90	2.53	

TABLE 1: Chemicals Used in these Studies

<u>TRADE NAME</u>	<u>COMMON NAME</u>
Accent	DPX-M6316 + Atrazine
Alanap	Naptalam
Amiben	Chloramben
Beacon	CGA-136872
Command	Clomazone
Curbit	Ethalfuralin
Dacthal	Desmedipham
Devrinol	Napropamide
Dual	Metolachlor
Fusilade 2000	Fluazifop
Goal	Oxyfluorfen
Gramoxone Extra	Paraquat
Kerb	Pronamide
Lentagran	Pyridate
MON-8422	Monsanto
MON-8435	Monsanto
MON-13211	Monsanto
Poast	Sethoxydim
Prefar	Bensulide
Pursuit	Imazethapyr
Pyramin	Pyrazon
Ro-Neet	Cycloate
Sencor	Metribuzin
Sonalan	Ethalfuralin
Stinger	Clopyralid
Treflan	Trifluralin
Trific	Trifluralin
Tillam	Pebulate

TABLE 2: Weeds Mentioned in Report

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>WSSA CODE</u>
Barnyard grass	<u>Echinochloa crusgali</u>	ECHOG
Black nightshade	<u>Solanum nigrum</u>	SOLNI
Canada thistle	<u>Cirsium arvense</u>	CIRAR
Common lambquarter	<u>Chenopodium album</u>	CHEAL
Common purslane	<u>Portulaca oleracea</u>	POROL
Common ragweed	<u>Ambrosia artemisiiflora</u>	AMBEL
Fall panicum	<u>Panicum dichoromiflorum</u>	PANDI
Hairy galinsoga	<u>Galinsoga ciliata</u>	GASCI
Johnsongrass	<u>Sorghum halepense</u>	SORHA
Knowweed	<u>Polygonum aviculare</u>	POLAV
Ladysthumb smartweed	<u>Polygonum persicaria</u>	POLPE
Large crabgrass	<u>Digitaria sanguinalis</u>	DIGSA
Livid amaranth	<u>Amaranthus lividis</u>	AMALI
Love grass	<u>Eragrostus pilosa</u>	AMACH
Shepardspurse	<u>Capsella bursa-pastoris</u>	CAPBP
Smooth pigweed	<u>Amaranthus retroflexus</u>	AMARE
Velvetleaf	<u>Abutilon theophraste</u>	ABUTH
Venice mallow	<u>Hibiscus trionum</u>	HIBTR
Witchgrass	<u>Panicum capillare</u>	PANCA
Yellow foxtail	<u>Setaria lutescens</u>	SETLU
Yellow nutsedge	<u>Pyperus esulentus</u>	CYPES

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## POSTEMERGENCE WEED CONTROL IN TRANSPLANTED CABBAGE

Due to poor weather conditions for spraying, the weeds grew too large for effective control with the herbicides tested. Therefore this study should be viewed for crop phytotoxicity only. Stinger produced no apparent injury symptoms. Lentagran produced minor speckling (5%) of the treated foliage. This was not considered to be a problem. Yields were acceptable for all herbicides and rates tested.

## PREEMERGENCE WEED CONTROL IN TRANSPLANTED CABBAGE

All herbicides tested provided acceptable weed control without crop injury or yield reductions.

## WEED CONTROL IN PICKLING CUCUMBERS

This study was established to evaluate a 'dead' organic mulch for weed control. The field was planted to wheat during the fall of 1993. In the spring of 1994 when the wheat was approximately 12" tall it was sprayed with Roundup to kill the wheat. Prior to seeding the wheat was rolled down which created a mulch approximately 1" thick covering approximately 90% of the soil. Experimental design contained 3 main treatment areas. The area called 'undisturbed' is an area where there was no soil disturbance except for the use of a no-till planter which was used to plant the pickle seed. The second area is called 'zone till'. In this block a roto-tiller approximately 8" wide was used to make a single pass down the middle of each treatment row. This produced a narrow (8" wide) seed bed. The third area is a conventional tilled area (identified as 'bare soil') that was used for comparison. This area was plowed and disked as a conventional pickle field would be prior to planting. Treatments were in beds 5' wide by 30' long. Herbicide treatments were included in the study. As the season progressed the wheat mulch broke down. By August approximately 50% of the soil surface was exposed. Weed control from the wheat mulch was very good. Common purslane was the prominent weed in the field with approximately 10 plants per square foot. Fall panicum had 5 plants/ft<sup>2</sup>, common lambsquarter and black nightshade had 3 plants/ft<sup>2</sup> each. Of the weeds present in both the 'undisturbed' and 'zone till' blocks approximately 95% of the weeds occurred in the disturbed soil. There were very few weeds in the undisturbed mulched area. The addition of a herbicide treatment to the mulched areas improved weed control in the 'zone till' treatments. Weed control in the 'zone till' areas was significantly better than that obtained in the conventional tilled areas.

There was a tendency for the conventionally tilled block to have higher yields than the undisturbed block or the zone tilled block. This is probably due to the fact that the soil was looser in the conventionally tilled block.

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#### PURSUIT LETTUCE PHYTOTOXICITY STUDY

There was no visible injury from the Pursuit applications to lettuce. Yields were acceptable. Any reductions in yield could be overcome by lengthening the growing season by a few days.

#### LETTUCE WEED CONTROL STUDY

Applications of Pursuit were made at seeding (Pr-0), one week after seeding (Po-1), or two weeks after seeding (Po-2). Lettuce was tolerant to Pursuit at all application times and rates. There was no evidence of injury.

#### MUSKMELON WEED CONTROL

All herbicides and rates tested provided acceptable weed control without crop injury or yield reductions. Both formulations of Prefar provided similar results.

#### GREEN ONION AND CHIVE POSTEMERGENCE STUDY

There was no visible crop injury from any of the postemergence treatments. Yields were acceptable. This crop was under a severe flooding stress for several days prior to herbicide application. The entire field was treated with Prowl 2 lbs ai/A preemergence.

#### GREEN ONION AND CHIVE PREEMERGENCE WEED CONTROL

This study was conducted to evaluate green onions and chives for crop injury and to obtain residue samples for laboratory analysis. Prowl, Dual, and Ramrod were not injurious to the green onions or chives when applied preemergence. Lorox was injurious to the onions at all rates tested. Toyko onions were more severely injured than Ishicura from the Lorox. Chives were stunted by Lorox but were able to outgrow this injury due to their long growing season.

#### SNAPBEAN TOLERANCE TO COMMAND

Snapbeans were tolerant to all tested rates of Command. No injury was observed and yields were good. Dual treated beans did not exhibit injury symptoms. However, yields were inexplicably lower than those obtained from the Command treatments. Pigweed control was poor to good depending on the rate of Command. Dual provided acceptable control of all weeds present.

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## SWEET CORN WEED CONTROL

Due to an extremely poor crop stand Challenger had to be replanted. This is unfortunate because it prohibits a direct comparison of crop injury of the 2 varieties. However, comparisons can be made keeping environmental conditions in mind. Merit was sensitive to Exceed at all rates and application methods tested. Exceed plus Beacon was extremely hard on Merit. Most plants died soon after application with the remaining being severely stunted. Challenger was not as severely effected as Merit. This may be due to the differences in variety or the climatic conditions.

## TOMATO POSTEMERGENCE WEED CONTROL STUDY

Weed ratings are for the postemergence applications only. The control treatment was Treflan 1 lb ai/A plus Sencor 0.38 lb ai/A PPI. Postemergence applications of Sencor provided excellent weed control. All combinations with Sencor provided 100% control. No crop injury was observed from any of the treatments containing Sencor. It should be noted that air temperatures were low (65 F at application, maximum of 72 F) on the day of application. Grass pressure was too low to provide reliable data. ASC-67040 provided sporadic weed control. The reason for the variation in control with changing rates is not understood. No crop injury was observed from any treatment. Yields were acceptable for all treatments. The tomato variety used is a short season variety and therefore exhibits early season injury through yield reductions.

## TOMATO PREEMERGENCE WEED CONTROL STUDY

Cobra injured the tomatoes at all rates tested. Injury appeared as stunting and twisting of the plant foliage (similar to that observed from 2,4-D). Tomato plants outgrew this early season injury after several weeks. Yields were lower for these treatments but not always statistically. This injury was not observed with the 1993 field trials. It is unclear why injury occurred during 1994 and not 1993.

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Ohio State Univ. Dept. Horticulture  
Conducted by Dr. Stanley F. Gorski

TITLE: Postemergence weed Control in Transplanted Cabbag-

LOCATION: Fremont  
PERSONNEL: K. Scaife

PLOT INFORMATION:  
SOIL TYPE: Silty Loam  
CULTIVAR: Titanic 90

DATE PLANTED: May 10  
RATING DATE: Jun 29  
HARVEST DATE: Aug 15  
PLOT SIZE: 5' x 30'  
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE:	May 10	Jun 21
TIME OF DAY:	11 am	1:30 pm
TYPE:	PPI	Post
SOIL SURFACE:	Dry	Dry
SOIL TEMP:	60 F	73 F
RELATIVE HUMIDITY:	55 %	60 %
WEATHER:		
WIND, mph:	Calm	5
SKY COVER:	Clear	P.cloudy
AIR TEMP:	68 F	87 F
GROWTH STAGE:		
CROP:	Pre	1" heads
WEED:	Pre	CHEAL 4-6"

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack  
GPA: 24.8  
PSI: 30  
TIPS: 8002  
HEIGHT: 18"  
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT: roto-tiller cutting 1" deep

Ohio State Univ. Dept. Horticulture  
 Postemergence Weed Control in Transplant Cabbage  
 Conducted at Fremont by Dr. Stanley F. Gorski  
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	Yield (lb)
Control					190.65
Lentagran	45	WP	0.9	Post	190.63
Stinger	3	EC	0.125	Post	196.30
Stinger	3	EC	0.188	Post	182.20
Stinger	3	EC	0.25	Post	191.02
LSD (.05)	=				19.73
Standard Dev.	=				12.806
CV	=				6.73



Ohio State Univ. Dept. Horticulture  
Conducted by Dr. Stanley F. Gorski

TITLE: Preemergence Weed Control in Transplanted Cabbage

LOCATION: Fremont  
PERSONNEL: K. Scaife

PLOT INFORMATION:  
SOIL TYPE: Silty Loam  
CULTIVAR: Titanic 90

DATE PLANTED: May 10  
RATING DATE: Jun 09  
HARVEST DATE: Aug 15  
PLOT SIZE: 5' x 30'  
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE: May 10  
TIME OF DAY: 11 am  
TYPE: Pre  
SOIL SURFACE: Dry  
SOIL TEMP: 60 F  
RELATIVE HUMIDITY: 55 %  
WEATHER:  
WIND, mph: Calm  
SKY COVER: Clear  
AIR TEMP: 68 F  
GROWTH STAGE:  
CROP: Pre  
WEED: Pre

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack  
GPA: 24.8  
PSI: 30  
TIPS: 8002  
HEIGHT: 18"  
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT: Roto-tiller cutting 1" deep

Ohio State Univ. Dept. Horticulture  
 Preemergence Weed Control in Transplanted Cabbage  
 Conducted at Fremont by Dr. Stanley F. Gorski  
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW ... STGE	% con CHEAL	trol.... AMARE	% injury	Yield (lb)
Weedy					0.0	0.0	0.0	167.70
Weeded					99.0	99.0	0.0	190.65
Dual	8	E		2 Pre	93.3	98.8	0.0	184.43
Dual	8	E		4 Pre	95.3	99.0	0.0	201.02
Devrinol	50	DF		2 PPI	94.8	99.0	0.0	194.32
Treflan	4	E		1 PPI	98.0	99.0	0.0	189.63
Goal	1.6	EC		0.5 Pre	97.8	99.0	0.0	206.83
Command	4	EC		0.25 PPI	98.3	98.0	0.0	199.20
Devrinol	50	DF		1.5 PPI	95.5	99.0	0.0	202.63
Command	4	EC		0.25 PPI				
LSD (.05)	=				3.4	1.0	0	25.47
Standard Dev.	=				2.3134	.66644	0	17.454
CV	=				2.70	0.76	0	9.05

Ohio State Univ. Dept. Horticulture  
Weed Control in Pickling Cucumbers.  
Conducted by Dr. Stanley F. Gorski

TITLE: Weed Control in Pickling Cucumbers.

LOCATION: Fremont  
PERSONNEL: K. Scaife

PLOT INFORMATION:

SOIL TYPE: Sandy Loam  
CULTIVAR: Calypso

DATE PLANTED: Jun 15,94  
RATING DATE: Jul 06,94  
HARVEST DATE: Multiple  
PLOT SIZE: 5' x 30'  
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE: Jun 16  
TIME OF DAY: 11 am  
TYPE: Pre  
SOIL SURFACE: Dry  
SOIL TEMP: 73 F  
RELATIVE HUMIDITY: 85 %  
WEATHER:  
    WIND, mph: Calm  
    SKY COVER: Overcast  
    AIR TEMP: 86 F  
GROWTH STAGE:  
    CROP: Pre  
    WEED: Pre

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack  
GPA: 24.8  
PSI: 30  
TIPS: 8002  
HEIGHT: 18"  
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT:

Ohio State Univ. Dept. Horticulture  
 Weed Control in Pickling Cucumbers.  
 Conducted by Dr. Stanley F. Gorski  
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	% control.				Crop Standing
					POROL	PANDI	CHEAL	SOLNI	
Undisturbed					90.8	99.0	99.0	99.0	0.0
" Curbit	3	EC	1.5	Pre	99.0	99.0	99.0	99.0	0.0
" Alanap	2	L	2	Pre	96.3	99.0	99.0	98.0	0.0
" Alanap	2	L	4	pre	89.8	99.0	99.0	99.0	0.0
Zone Till					80.0	95.8	99.0	98.0	0.0
" + Hand weed					99.0	99.0	99.0	99.0	0.0
" Curbit	3	EC	1.5	Pre	99.0	99.0	96.8	99.0	0.0
" Alanap	2	L	2	Pre	77.5	94.5	85.8	72.0	0.0
" Alanap	2	L	4	Pre	82.5	83.3	95.8	64.5	0.0
Bare Soil +HW					99.0	99.0	99.0	99.0	0.0
" Curbit	3	EC	1.5	Pre	98.8	99.0	99.0	59.8	0.0
" Alanap	2	L	2	Pre	16.3	27.5	37.3	5.0	0.0
" Alanap	2	L	4	Pre	15.0	21.3	22.5	2.5	0.0
LSD (.05)	=				10.7	14.1	20.9	28.3	0
Standard Dev.=					7.3774	9.7798	14.501	19.612	0
CV	=				9.20	11.41	16.68	25.66	0

Ohio State Univ. Dept. Horticulture  
Weed Control in Pickling Cucumbers.  
Conducted by Dr. Stanley F. Gorski  
All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	Total		Yield		(lb)			
					1-A	1-B	2-A	2-B	3-A	3-B	4+Y	Total
Undisturbed					0.95	4.25	10.77	5.20	8.97	3.70	0.55	49.88
" Curbit	3	EC	1.5	Pre	1.20	5.53	16.30	7.38	11.00	4.82	1.15	62.18
" Alanap	2	L	2	Pre	1.15	5.03	16.42	7.40	14.35	6.78	3.30	72.42
" Alanap	2	L	4	pre	1.40	4.72	14.07	6.78	10.18	3.63	1.95	55.77
Zone Till					1.25	5.43	17.42	7.53	11.25	5.57	2.90	65.15
" + Hand weed					1.13	5.00	13.70	6.50	9.73	4.30	1.52	55.13
" Curbit	3	EC	1.5	Pre	1.08	4.35	14.15	7.80	11.13	5.20	1.88	60.10
" Alanap	2	L	2	Pre	1.55	7.57	20.15	8.55	12.45	4.55	2.10	72.35
" Alanap	2	L	4	Pre	1.80	6.50	16.67	8.45	10.75	4.77	2.85	65.28
Bare Soil +HW					2.57	8.60	20.97	11.60	14.13	4.30	1.65	81.85
" Curbit	3	EC	1.5	Pre	1.98	6.43	20.33	9.15	14.95	5.20	2.58	76.22
" Alanap	2	L	2	Pre	2.40	9.30	23.27	9.88	14.05	5.30	3.08	80.68
" Alanap	2	L	4	Pre	2.03	7.40	19.77	8.77	14.18	4.78	2.15	73.90
LSD (.05) =					0.75	1.85	4.69	2.30	5.23	3.28	2.18	13.01
Standard Dev.=					.52113	1.2788	3.2499	1.5915	3.6217	2.2722	1.5124	9.0117
CV =					33.09	20.76	18.86	19.71	29.97	46.96	71.11	13.45

Ohio State Univ. Dept. Horticulture

TITLE: Pursuit Lettuce Phototoxicity Study.

LOCATION: Celeryville

PERSONNEL:

PLOT INFORMATION:

SOIL TYPE: Carlisle Muck  
CULTIVAR: Boston

DATE PLANTED: Jun 06  
RATING DATE: Jul 13  
HARVEST DATE: Aug 06  
PLOT SIZE: 5' x 30'  
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE:	Jun 21	Jul 06
TIME OF DAY:	11 am	Noon
TYPE:	Pre	Post
SOIL SURFACE:	Wet	Wet
SOIL TEMP:	74 F	78 F
RELATIVE HUMIDITY:	81 %	50 %
WEATHER:		
WIND, mph:	4-5	Calm
SKY COVER:	Hazy	P.cloudy
AIR TEMP:	82 F	92 F
GROWTH STAGE:		
CROP:	Pre	2 leaf
WEED:	Pre	POROL 0-3"

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack  
GPA: 24.8  
PSI: 30  
TIPS: 8002  
HEIGHT: 18"  
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT:

Ohio State Univ. Dept. Horticulture  
Pursuit Lettuce Phototoxicity Study.  
Conducted at Celeryville by Dr. Stanley F. Gorski  
All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	Average Head Weight
Control					0.787
Pursuit	2	E	0.016	Post	0.977
X 77	100	L	0.25	Post	
Pursuit	2	E	0.024	Post	1.003
X 77	100	L	0.25	Post	
Pursuit	2	E	0.032	Post	0.873
X 77	100	L	0.25	Post	
Pursuit	2	E	0.04	Post	0.887
X 77	100	L	0.25	Post	
Pursuit	2	E	0.048	Post	0.910
X 77	100	L	0.25	Post	
Pursuit	2	E	0.056	Post	0.770
X 77	100	L	0.25	Post	
Pursuit	2	E	0.064	Post	0.837
X 77	100	L	0.25	Post	
LSD (.05)	=				0.215
Standard Dev.	=				.1229
CV	=				13.96

Ohio State Univ. Dept. Horticulture

TITLE: Lettuce Weed Control Study.

LOCATION: Celeryville

PERSONNEL:

PLOT INFORMATION:

SOIL TYPE: Carlisle Muck  
CULTIVAR: Boston

DATE PLANTED: Jun 21,94  
RATING DATE: Multiple - 7 days after herbicide application  
HARVEST DATE: Aug 12,94  
PLOT SIZE: 5' x 30'  
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE:	Jun 21	Jun 29	Jul 06
TIME OF DAY:	11 am	11 am	11 am
TYPE:	Pre	Post	Post
SOIL SURFACE:	Wet	Wet	Wet
SOIL TEMP:	74 F	67 F	75 F
RELATIVE HUMIDITY:	81 %	74 %	52 %
WEATHER:			
WIND, mph:	4-5	5	Calm
SKY COVER:	Hazy	P.cloudy	P.cloudy
AIR TEMP:	82 F	74 F	90 F
GROWTH STAGE:			
CROP:	Pre	Coty.	2 leaf
WEED:	Pre	Coty.	POROL 0-3"

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack  
GPA: 24.8  
PSI: 30  
TIPS: 8002  
HEIGHT: 18"  
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT:



Ohio State Univ. Dept. Horticulture  
 Lettuce Weed Control Study.  
 Conducted at Celeryville by Dr. Stanley F. Gorski  
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	Average Head Wt. (lb)
Hand Weeded					1.015
Pursuit	2	E	0.024	Pr-0	0.878
Pursuit	2	E	0.032	Pr-0	1.112
Pursuit	2	E	0.04	Pr-0	0.957
Pursuit	2	E	0.048	Pr-0	0.905
Pursuit	2	E	0.024	Po-1	0.908
Pursuit	2	E	0.032	Po-1	0.860
Pursuit	2	E	0.04	Po-1	0.800
Pursuit	2	E	0.048	Po-1	0.715
Pursuit	2	E	0.024	Po-2	0.845
Pursuit	2	E	0.032	Po-2	0.865
Pursuit	2	E	0.04	Po-2	0.897
Pursuit	2	E	0.048	Po-2	0.805
LSD (.05)	=				0.155
Standard Dev.	=				.10718
CV	=				12.05

Ohio State Univ. Dept. Horticulture  
Muskmelon Weed Control.  
Conducted at Fremont by Dr. Stanley F. Gorski

TITLE: Muskmelon Weed Control Study.  
LOCATION: Fremont  
PERSONNEL: K. Scaife  
PLOT INFORMATION:  
SOIL TYPE: Silty Loam  
CULTIVAR: Cordel  
DATE PLANTED: Jun 09,94  
RATING DATE: Jul 06,94  
HARVEST DATE: Multiple  
PLOT SIZE: 5' x 30'  
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE: Jun 06  
TIME OF DAY: 11 am  
TYPE: PPI  
SOIL SURFACE: Dry  
SOIL TEMP: 60 F  
RELATIVE HUMIDITY: 35 %  
WEATHER:  
WIND, mph: Calm  
SKY COVER: P.cloudy  
AIR TEMP: 65 F  
GROWTH STAGE:  
CROP: Pre  
WEED: Pre

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack  
GPA: 24.8  
PSI: 30  
TIPS: 8002  
HEIGHT: 18"  
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT: Roto-tiller cutting 1" deep.

Ohio State Univ. Dept. Horticulture  
Muskmelon Weed Control.  
Conducted at Fremont by Dr. Stanley F. Gorski  
All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	CONTROL				CROP INJURY	Yield			
					POROL	CHEAL	AMARE	PANDI		Market #	Wgt(lb)	Total #	Wgt(lb)
Weedy					0.0	0.0	0.0	0.0	0.0	25.8	108.02	33.5	127.25
Hand Weeded					100.0	100.0	100.0	100.0	0.0	24.8	107.15	33.5	133.63
Prefar Command	4	E	4	PPI	90.0	93.5	93.5	87.5	0.0	29.0	124.50	35.8	140.35
Prefar Command	4	E	0.25	PPI									
Prefar Command	4	E	6	PPI	85.0	93.5	83.5	91.3	0.0	25.5	109.58	33.3	133.33
Prefar Alanap-L	4	E	4	PPI	86.3	94.5	94.5	89.5	0.0	24.5	110.50	33.5	135.68
Prefar Alanap-L	2	E	2	PPI									
Prefar Alanap-L	6	E	4	PPI	78.8	93.8	93.8	88.8	0.0	30.3	121.90	37.5	143.72
Prefar Alanap-L	2	E	2	PPI									
Command Alanap-L	4	E	0.25	PPI	92.3	93.5	93.5	93.5	0.0	30.3	120.25	39.5	148.15
Command Alanap-L	2	E	2	PPI									
Command Curbit	4	E	0.25	PPI	96.8	98.8	98.8	98.8	0.0	25.0	112.20	33.3	136.32
Command Curbit	3	E	1.5	PPI									
LSD (.05)	=				8.6	4.0	9.2	7.9	0	5.4	25.49	6.2	22.70
Standard Dev.	=				5.8319	2.6981	6.2882	5.3425	0	3.6465	17.331	4.2054	15.431
CV	=				7.42	3.23	7.65	6.58	0	13.57	15.17	12.03	11.24

Ohio State Univ. Dept. Horticulture  
Green Onion and Chive Postemergence Study.  
Conducted at Celeryville by Dr. Stanley F. Gorski

TITLE: Green Onion and Chive Postemergence Weed Control

LOCATION: Celeryville

PERSONNEL:

PLOT INFORMATION:

SOIL TYPE: Carlisle Muck  
CULTIVAR: Toyko, Ishicura, Chive

DATE PLANTED: May 24,94  
RATING DATE: Jun 24,94  
HARVEST DATE: Aug 08,94  
PLOT SIZE: 5' x 25'  
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE: Jun 07  
TIME OF DAY: Noon  
TYPE: Post  
SOIL SURFACE: Wet  
SOIL TEMP: 75 F  
RELATIVE HUMIDITY: 52 %  
WEATHER:  
WIND, mph: Calm  
SKY COVER: P.cloudy  
AIR TEMP: 90 F

GROWTH STAGE:  
CROP: 2-3 leaf

WEED: POROL  
0-3"

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack  
GPA: 24.8  
PSI: 30  
TIPS: 8002  
HEIGHT: 18"  
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT:

Ohio State Univ. Dept. Horticulture  
 Green Onion and Chive Postemergence Study.  
 Conducted at Celeryville by Dr. Stanley F. Gorski  
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	Yield lb Toyko	Yield lb Ishicura	Yield lb Chive
Control					6.53	11.47	5.17
Goal	1.6	EC	0.025	Post	7.53	13.83	8.60
Goal	1.6	EC	0.05	Post	6.17	13.67	6.13
Goal	1.6	EC	0.025	Post	8.07	17.33	7.20
Poast	1.53	EC	0.2	Post			
Goal	1.6	EC	0.025	Post	9.03	17.97	7.63
Fusilade	2	EC	0.2	Post			
Basagran	4	E	0.25	Post	13.53	16.43	7.47
Basagran	4	E	0.5	Post	9.00	15.27	7.43
LSD (.05)	=				7.57	9.94	3.63
Standard Dev.	=				4.2537	5.5885	2.0416
CV	=				49.74	36.92	28.79

Ohio State Univ. Dept. Horticulture  
Conducted by Dr. Stanley F. Gorski

TITLE: Green Onion and Chive Preemergence Study.

LOCATION: Celeryville

PERSONNEL:

PLOT INFORMATION:

SOIL TYPE: Carlisle Muck  
CULTIVAR: Toyko, Ishicura, Chive

DATE PLANTED: May 24,94  
RATING DATE: Jun 24,94  
HARVEST DATE: Aug 08,94  
PLOT SIZE: 5' x 25'  
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE: Jun 02  
TIME OF DAY: 11 am  
TYPE: Pre  
SOIL SURFACE: Dry  
SOIL TEMP: 62 F  
RELATIVE HUMIDITY: 57 %  
WEATHER:  
WIND, mph: 5-6  
SKY COVER: Cloudy  
AIR TEMP: 59 F  
GROWTH STAGE:  
CROP: Early  
loop  
WEED: POROL  
few in  
coty.

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack  
GPA: 24.8  
PSI: 30  
TIPS: 8002  
HEIGHT: 18"  
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT:

Ohio State Univ. Dept. Horticulture  
 Green Onion and Chive Preemergence Weed Control.  
 Conducted at Celeryville by Dr. Stanley F. Gorski  
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	Yield lb Toyko	Yield lb Ishicura	Yield lb Chive
Weedy					7.65	16.85	6.00
Weeded					12.00	23.00	9.17
Prowl	3.3	EC	1	Pre	11.35	21.75	7.88
Prowl	3.3	EC	2	Pre	14.18	22.28	7.30
Prowl	3.3	EC	4	Pre	11.90	17.90	7.70
Dual	8	E	2	Pre	15.97	25.95	7.93
Dual	8	E	4	Pre	14.13	21.15	7.50
Lorox	50	DF	0.5	Pre	8.65	18.00	5.97
Lorox	50	DF	1	Pre	5.43	13.40	7.22
Lorox	50	DF	1.5	Pre	3.03	10.30	6.30
Ramrod	4	F	4	Pre	15.95	23.93	11.85
LSD (.05)	=				6.44	8.64	2.26
Standard Dev.=					4.4632	5.9832	1.5648
CV	=				40.84	30.68	20.29

Ohio State Univ. Dept. Horticulture

TITLE: Snapbean Tolerance to Command.

LOCATION: Columbus

PERSONNEL:

PLOT INFORMATION:

SOIL TYPE: Brookston Silty Clay Loam  
CULTIVAR: Bush Blue Lake

DATE PLANTED: Jun 07,94  
RATING DATE: Jul 07,94  
HARVEST DATE: Aug 04,94  
PLOT SIZE: 5' x 25'  
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE: Jun07,94  
TIME OF DAY: 10 am  
TYPE: PPI&Pre  
SOIL SURFACE: dry  
SOIL TEMP: 68 F  
RELATIVE HUMIDITY: 65 %  
WEATHER:

WIND, mph: calm  
SKY COVER: sunny  
AIR TEMP: 74 F

GROWTH STAGE:

CROP: Pre

WEED: Pre

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack  
GPA: 24.8  
PSI: 30  
TIPS: 8002  
HEIGHT: 18"  
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT: Rototiler Cutting 1"



Ohio State Univ. Dept. Horticulture  
 SNAPBEAN TOLERANCE TO COMMAND  
 Conducted at COLUMBUS by Dr. Stanley F. Gorski  
 All rates are specified as lb/A

TREATMENT NAME	A1 #/gal	FD	RATE	GROW STGE	POROL	CHEAL	AMARE	PANDI	CROP INJURY	YIELD LB
WEEDY					0.0	0.0	0.0	0.0	0.0	15.188
WEEDED					100.0	100.0	100.0	100.0	0.0	14.125
COMMAND	4	EC	0.25	PPI	95.5	91.5	22.5	41.3	0.0	16.563
COMMAND	4	EC	0.38	PPI	96.5	98.5	51.3	80.0	0.0	17.087
COMMAND	4	EC	0.50	PPI	98.5	99.0	53.8	92.5	0.0	16.563
DUAL	8	EC	2	PRE	96.5	92.5	98.0	96.8	0.0	11.813
LSD (.05)	=				1.4	5.7	21.5	8.0	0	4.511
Standard Dev.	=				.9547	3.802	14.247	5.2914	0	2.9936
CV	=				1.18	4.74	26.26	7.73	0	19.67

Ohio State Univ. Dept. Horticulture  
Sweet Corn Weed Control.  
Conducted at Columbus by Dr. Stanley F. Gorski

TITLE: Sweet Corn Weed Control.

LOCATION: OSU Columbus

PERSONNEL:

PLOT INFORMATION:

SOIL TYPE: Brookston Silty Clay Loam

CULTIVAR: Merit, Challenger

DATE PLANTED: May 16,94 ; Challenger replanted Jun 13,94

RATING DATE: Jun 28,94, Jul 07,94

HARVEST DATE: Merit Aug 04,94

PLOT SIZE: 5' x 25'

PLOT DESIGN: RCB with 4 reps

HERBICIDE APPLICATION DATA:

DATE:	Jun 15	JUN 28
TIME OF DAY:	11 am	2:30 pm
TYPE:	Post	Post
SOIL SURFACE:	Wet	Wet
SOIL TEMP:	71 F	63 F
RELATIVE HUMIDITY:	85 %	65 %
WEATHER:		
WIND, mph:	Calm	2-3
SKY COVER:	Sunny	Cloudy
AIR TEMP:	86 F	82 F
GROWTH STAGE:		
CROP:	Merit	Challeng
	4-6"	er 4-6"
WEED:	CHEAL-	CHEAL,
	1-2"	POROL,
		AMARE,
		PANDI,
		ABUTH-
		1-2"

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack

GPA: 24.8

PSI: 30

TIPS: 8002

HEIGHT: 18"

NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT:None

Ohio State Univ. Dept. Horticulture  
Sweet Corn Weed Control.  
Conducted at Columbus by Dr. Stanley F. Gorski  
All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	% cont.					% crop injury		Yield			
					ABUTH	POROL	AMARE	CHEAL	PANDI	Merit Wt. (lb)	Challen. # ears	Merit Wt. (lb)	Challenger # ears		
Weedy 1					0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.97	9.3	7.88	13.5
Weeded 2					99.0	99.0	99.0	99.0	99.0	0.0	0.0	3.53	8.3	6.67	12.8
Exceed 3 COC	57 100	WG L	0.036 1	Post Post	99.0	85.0	96.8	96.8	0.0	40.0	1.3	1.98	4.5	9.10	14.5
Exceed 4 COC	57 100	WG L	0.036 1	Post Post	98.8	76.3	96.0	97.5	0.0	28.8	0.0	2.50	6.3	9.48	15.5
Exceed 5 COC Beacon	57 100 75	WG L WG	0.018 1 0.018	Post Post Post	99.0	90.0	96.8	96.8	51.3	83.3	0.0	0.00	0.0	11.45	18.3
Exceed 6 COC Beacon	57 100 75	WG L WG	0.018 1 0.018	Post Post Post	99.0	93.3	96.5	96.0	35.0	90.0	0.0	0.00	0.0	9.85	15.8
Laddok 7 COC	3.32 100	E L	1 1	Post Post	99.0	98.0	96.8	92.0	0.0	0.0	0.0	4.65	8.3	9.10	14.0
LSD (.05) =					0.3	7.7	4.7	9.0	30.5	18.6	1.4	4.38	7.0	6.56	9.1
Standard Dev. =					.18865	5.1805	3.1748	6.0667	20.56	12.487	.94491	2.9449	4.7367	4.4159	6.1424
CV =					0.22	6.70	3.82	7.37	77.69	36.12	529.15	124.00	90.84	48.66	41.24

trt # 3, 5 and 7 were applied post broadcast  
trt # 4, and 6 were applied post directed

Ohio State Univ. Dept. Horticulture

TITLE: Tomato Postemergence Study.

LOCATION: Fremont  
PERSONNEL: K. Scaife

PLOT INFORMATION:  
SOIL TYPE: Sandy Loam  
CULTIVAR: 7135  
  
DATE PLANTED: May 12,94  
RATING DATE: Jun 21,94  
HARVEST DATE: Aug 10,94  
PLOT SIZE: 5' x 30'  
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE:	May 10	Jun 09
TIME OF DAY:	2 pm	2 pm
TYPE:	Pre	Post
SOIL SURFACE:	Dry	Dry
SOIL TEMP:	60 F	65 F
RELATIVE HUMIDITY:	50 %	40 %
WEATHER:		
WIND, mph:	Calm	2-3
SKY COVER:	Clear	Sunny
AIR TEMP:	67 F	68 F
GROWTH STAGE:		
CROP:	Pre	12-14"
WEED:	Pre	POROL coty-1" CHEAL 1-2" AMARE 1-2"

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack  
GPA: 24.8  
PSI: 30  
TIPS: 8002  
HEIGHT: 18"  
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT: Roto-tiller cutting 1" deep.

Ohio State Univ. Dept. Horticulture  
TOMATO POSTEMERGENCE WEED CONTROL STUDY  
Conducted at FREMONT by Dr. Stanley F. Gorski  
All rates are specified as lb/A

TREATMENT NAME	AI		GROW ..% weed STGE	control .....			---Yield (lb)---	
	#/gal	FD RATE		CHEAL	POROL	AMARE	Red	Total
CONTROL				0.0	0.0	0.0	117.8	130.5
TREFLAN	4	EC 1	PPI	99.0	99.0	99.0	122.0	138.5
SENCOR	75	DF 0.38	PPI					
SENCOR	75	DF 0.38	POST					
TREFLAN	4	EC 1	PPI	99.0	99.0	99.0	141.8	164.8
SENCOR	75	DF 0.38	PPI					
POAST	1.5	EC 0.2	POST					
SENCOR	75	DF 0.38	POST					
TREFLAN	4	EC 1	PPI	99.0	99.0	99.0	126.8	147.3
SENCOR	75	DF 0.38	PPI					
POAST	1.5	EC 0.2	POST					
SENCOR	75	DF 0.38	POST					
COC		P 1	POST					
TREFLAN	4	EC 1	PPI	99.0	99.0	99.0	132.3	149.0
SENCOR	75	DF 0.38	PPI					
SENCOR	75	DF 0.38	POST					
POAST PLUS	1.5	EC 0.2	POST					
TREFLAN	4	EC 1	PPI	0.0	0.0	0.0	136.8	160.0
SENCOR	75	DF 0.38	PPI					
SELECT	0.94	EC 0.094	POST					
COC		P 1	POST					
TREFLAN	4	EC 1	PPI	0.0	0.0	0.0	132.8	157.3
SENCOR	75	DF 0.38	PPI					
SELECT	0.94	EC 0.125	POST					
COC		P 1	POST					
TREFLAN	4	EC 1	PPI	99.0	99.0	98.0	128.8	155.8
SENCOR	75	DF 0.38	PPI					
SENCOR	75	DF 0.38	POST					
FUSILADE DX	2	EC 0.2	POST					
COC		P 1	POST					
TREFLAN	4	EC 1	PPI	0.0	0.0	0.0	127.8	141.8
SENCOR	75	DF 0.38	PPI					
FUSILADE DX	2	EC 0.2	POST					
COC		P 1	POST					

Ohio State Univ. Dept. Horticulture  
 TOMATO POSTEMERGENCE WEED CONTROL STUDY  
 Conducted at FREMONT by Dr. Stanley F. Gorski  
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW ..% STGE	weed control .....			Yield (lb)----	
					CHEAL	POROL	AMARE	Red	Total
ASC-67040	25	DF	0.022	POST	86.0	93.0	87.0	138.8	154.0
X-77		P	0.25	POST					
ASC-67040	25	DF	0.044	POST	48.8	62.0	51.0	138.0	154.0
X-77		P	0.25	POST					
ASC-67040	25	DF	0.088	POST	38.8	69.5	72.0	136.5	153.8
X-77		P	0.25	POST					
ASC-67040	25	DF	0.044	POST	99.0	99.0	99.0	128.8	147.8
SENCOR	75	DF	0.038	POST					
X-77		P	0.25	POST					
SENCOR	75	DF	0.38	POST	99.0	99.0	99.0	137.5	170.5
X-77		P	0.25	POST					
LSD (.05)	=				17.0	20.6	18.3	22.3	28.0
Standard Dev. =					11.885	14.407	12.821	15.583	19.576
CV	=				19.20	21.98	19.90	11.82	12.90

TITLE: Tomato Preemergence Study.

LOCATION: Fremont  
PERSONNEL: K. Scaife

PLOT INFORMATION:

SOIL TYPE: Sandy Loam  
CULTIVAR: 7135  
  
DATE PLANTED: May 12,94  
RATING DATE: Jun 09,94  
HARVEST DATE: Aug 10,94  
PLOT SIZE: 5' x 30'  
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE: May 10  
TIME OF DAY: 2 pm  
TYPE: Pre  
SOIL SURFACE: Dry  
SOIL TEMP: 60 F  
RELATIVE HUMIDITY: 50 %  
WEATHER:  
    WIND, mph: Calm  
    SKY COVER: Clear  
    AIR TEMP: 67 F  
GROWTH STAGE:  
    CROP: Pre  
  
    WEED: Pre

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 Backpack  
GPA: 24.8  
PSI: 30  
TIPS: 8002  
HEIGHT: 18"  
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT: Roto-tiller cutting 1" deep.

Ohio State Univ. Dept. Horticulture  
 Tomato Preemergence Study  
 Conducted at Fremont by Dr. Stanley F. Gorski  
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	CHEAL	AMARE	POROL	DIGSA	% control. injury	% crop	Yield (lb) Red	Total
Weedy					0.0	0.0	0.0	0.0	0.0	0.0	117.8	130.5
Weeded					99.0	99.0	99.0	99.0	0.0	0.0	115.3	126.0
Treflan Sencor	4 75	ec df	1 0.375	ppi ppi	99.0	99.0	99.0	99.0	2.5	153.5	175.5	
Cobra	2	ec	0.25	pre	97.0	99.0	99.0	99.0	15.0	135.3	157.5	
Cobra	2	ec	0.38	pre	99.0	99.0	99.0	99.0	37.5	125.8	160.3	
Cobra	2	ec	0.5	pre	99.0	99.0	99.0	99.0	40.0	131.8	170.0	
Turbo	8	ec	2.5	ppi	99.0	99.0	99.0	99.0	7.5	139.3	158.8	
LSD (.05) =					1.3	0.0	0.0	0.0	15.4	24.3	24.5	
Standard Dev.=					.8728	1.9287	1.9287	1.9287	10.35	16.341	16.503	
CV =					1.03	0.02	0.02	0.02	70.69	12.45	10.71	



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Zeneca

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