

51
Horticulture Department Series No. 634

March 1993

Z999

W190

V180

P550

23008

O. A. R. D. C.

SEP 8 1993

LIBRARY

RESULTS OF WEED CONTROL
STUDIES IN VEGETABLE CROPS AND POPCORN -1992

Dr. Stanley F. Gorski



OARDC

52

Department of Horticulture
The Ohio State University
Ohio Agricultural Research and Development Center
Columbus, OH

639
OH3

TABLE OF CONTENTS

	pg
Introduction	1
Rain data	2
Chemicals used in experiments.	4
Weeds mentioned in reports	5
Study summaries.	6
Cabbage postemergence weed control	8
Command safety on peppers.	10
Command safety on snapbeans.	12
Command safety on summer squash.	14
Postemergence weed control in onions	16
Preemergence weed control in popcorn - Columbus.	18
Preemergence weed control in popcorn - Fremont	20
Postemergence weed control in popcorn - Columbus	22
Postemergence weed control in popcorn - Fremont.	24
Tomato preemergence weed control	26
Tomato planting depth study.	28
Tomato plug size study	30
Acknowledgements	32

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.

All publications of the Ohio Agricultural Research and Development Center are available to all on a nondiscriminatory basis without regard to race, color, creed, religion, sexual orientation, national origin, sex, age, handicap, or Vietnam-era veteran status.

Results of Field Experiments in Vegetable Crops 1992

Dr. Stanley F. Gorski¹

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 CO₂ 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. Rich Pearson - Farm Superintendent, Columbus
Mr. Richard Hassell - Branch Manager, Celeryville
Mr. Ken Scaife - Branch Manager, Fremont

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

1992 Rainfall - Lane Avenue Farm - Columbus

DAY	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		1.25	0.05		
2		0.02			
3					0.08
4	0.23	0.04			
5	0.05	0.33			
6			0.21		
7					
8		0.49	0.02		0.23
9					0.02
10			0.01	1.0	0.12
11	0.21			0.08	0.06
12					
13			4.85	0.01	
14	0.12		0.03		
15	0.01		0.60		
16			0.22		
17		0.90	2.25	0.30	
18	0.05				
19	0.18	0.40		0.05	
20			0.32		
21					0.22
22			0.03		1.26
23			0.13		0.10
24		0.40			
25		0.03			
26	1.25				
27	0.01			0.11	
28				1.5	0.05
29					
30			0.60		
31			0.15	0.10	
TOTAL	2.11	3.86	9.47	3.15	2.14

1992 Rainfall - Vegetable Crops Branch - Fremont

DAY	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1					
2	0.06				0.38
3				0.07	
4	0.11	0.07			
5		1.63			1.81
6		0.02			0.42
7		0.10		0.05	0.03
8	0.23		0.01		
9			0.28		1.24
10				0.84	
11			0.09		
12			0.53	0.26	
13			0.65		
14	0.05		0.98	0.03	
15			0.05	0.24	
16			0.83		
17	0.72	1.82	0.29		0.01
18		0.04	0.22	0.47	0.81
19		0.07			
20			0.28		0.43
21					0.79
22			0.01		
23	1.16	0.39	0.51		
24		0.15		0.32	
25	0.01		0.02		
26			0.15	0.10	0.05
27				0.42	
28			0.01	0.01	
29	0.69		0.13		
30	0.06		0.72	0.02	
31			0.02		
TOTAL	3.09	4.29	5.78	2.83	5.97

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>	ECHCG
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>Eragristus 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

This page intentionally blank.

CABBAGE POSTEMERGENCE WEED CONTROL

The entire field was treated with Treflan at 1 lb. a.i./A preplant incorporated. Treatments did not provide acceptable control of common purslane. Pigweed was controlled by both the early and late postemergence application. Cabbage yields were reduced for those treatments receiving only the late postemergence application. I believe that this reduction in yield was due to the early season weed competition and not the herbicide treatment. There was no visible injury to the cabbage from any of the herbicide treatments.

COMMAND SAFETY ON PEPPERS, SNAPBEANS, AND SUMMER SQUASH

Weed control was excellent for all weed species in the study except for smooth pigweed. Pigweed control was not considered acceptable at the low rate of Command. The 0.5 lb a.i./A rate of Command provided acceptable weed control.

Peppers, Snapbeans, and Summer Squash exhibited complete safety to preplant treatments of Command. Plants did not exhibit any visible phytotoxicity and yields were similar to the standard herbicide treatment.

POSTEMERGENCE WEED CONTROL IN ONIONS

The early dry bulb onion study was lost due to insect attack. This later study was then conducted using green onions. Weed control was excellent due to the extremely small size of the weeds present at the time of treatment. Onions exhibited a small degree of foliar injury from many of the herbicide treatments. However, this injury was not severe enough to cause yield reductions.

POPCORN - COLUMBUS

Preemergence weed control was excellent. All herbicide treatments provided 98 to 99% control of the weed species present without causing crop injury or yield reductions.

Postemergence herbicide treatments caused crop injury that varied in degree with the individual treatments. Beacon and Accent caused significant crop injury and yield reductions. Injury was observed with other treatments which did not affect yield.

Weedar 64: brittle stalks

Weedone LV4: brittle stalks

Beacon: stunting and chlorosis

Banvel: some chlorosis, savoyed leaves, and brittle stalks

Marksman: narrow leaves, minor chlorosis and savoyed leaves

Accent: similar to marksman with some stunting

POPCORN - FREMONT

Preemergence weed control was similar to that obtained in Columbus. There were a few more weed species present in Fremont. Crop injury was not observed and yields were not affected by the herbicide treatments.

Crop response varied from Columbus in regards to postemergence crop injury. Beacon again caused yield reductions. Banvel and Marksman caused lower yields which may be significant. Accent and all other treatments had acceptable crop safety.

TOMATO PREEMERGENCE WEED CONTROL

Weed control was excellent for all treatments. Tomato yields varied between treatments but showed no significant differences. Some of this yield variation was due to the extremely wet growing season that we experienced during 1992. I do not believe that any of these treatments were injurious to the tomatoes.

TOMATO PLANTING DEPTH STUDY

The entire field was treated with Treflan at 1 lb a.i./A and Sencor at 0.25 lb a.i./A prior to planting and incorporated. Yields were not affected by the depth of planting except for the 4 inch depth for the 406 cell size. Since this response was not observed with the 288 cell size I am not sure if it is a real and repeatable response.

TOMATO PLUG SIZE STUDY

Plants were planted 2 inches deep in this study. A single Sencor treatment was planted at the 4 inch depth. There was no apparent crop injury from any of the herbicide treatments. Yields were acceptable with the exception of a single treatment. The Treflan plus Sencor treatment using the 288 plug size did have significantly lower yields. This yield reduction was not observed with the 406 cell size. Treflan is known to cause yield reductions when the tomatoes are under a stress. The excessive amount of rain and cool temperatures stressed the tomato plants a some times.

Ohio State Univ. Dept. Horticulture
Cabbage Postemergence Weed Control
Conducted at Columbus by Dr. Stanley F. Gorski
with cooperater R. Pearson

TITLE: CABBAGE POSTEMERGENCE WEED CONTROL

LOCATION: COLUMBUS

PERSONNEL: S.F. GORSKI, R. PEARSON

PLOT INFORMATION:

SOIL TYPE: BROOKSTON SILTY CLAY LOAM

CULTIVAR: MARKET PRIZE

DATE PLANTED: TRANSPLANTED JUNE 11, 1992

RATING DATE: JULY 19 (EP), AUGUST 2 (LP)

HARVEST DATE: SEPTEMBER 7

PLOT SIZE: 5 FT. x 25 FT.

PLOT DESIGN: RCB w/ 3 REPS

HERBICIDE APPLICATION DATA:

DATE:	6/11	7/7	7/19
TIME OF DAY:	10:00 AM	9:00 AM	1:00 PM
TYPE:	PPI	POST EP	POST LP
SOIL SURFACE:	DRY	DRY	WET
SOIL TEMP:	65 F	66 F	76 F
RELATIVE HUMIDITY:	70 %	45 %	70 %
WEATHER:			
WIND, mph:	2-3	CALM	CALM
SKY COVER:	CLEAR	P.CLOUDY	P.CLOUDY
AIR TEMP:	74 F	71 F	78 F
GROWTH STAGE:			
CROP:	PRE	8-10LEAF	10-12 L.
WEED:	PRE	POROL - 2-4 LEAF	POROL - 4-6 LEAF
		AMARE - 2-4 LEAF	AMARE - 4-6 LEAF
		PANDI - 1-2 "	PANDI - 2-4 "

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 BACKPACK

GPA: 25

PSI: 30

TIPS: 8002

HEIGHT: 18"

NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT: FIELD CULTIVATOR 1 - 2"

Ohio State Univ. Dept. Horticulture
 Cabbage Postemergence Weed Control
 Conducted at Columbus by Dr. Stanley F. Gorski
 with cooperater R. Pearson
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	POROL	%CONTROL AMARE	PANDI	CABBAGE lbs
CONTROL					0.0	0.0	0.0	113.7
LENTAGRAN	42	WP	0.45	EP	26.7	99.0	0.0	145.0
LENTAGRAN	42	WP	0.9	EP	48.3	99.0	0.0	147.3
LENTAGRAN	42	WP	0.45	LP	13.3	91.3	0.0	120.0
LENTAGRAN	42	WP	0.9	LP	28.3	91.7	0.0	118.3
LENTAGRAN	42	WP	0.45	EP	25.0	99.0	0.0	152.7
LENTAGRAN	42	WP	0.45	LP				
LENTAGRAN	42	WP	0.9	EP	48.3	99.0	0.0	155.7
LENTAGRAN	42	WP	0.9	LP				
LSD (.05)	=				7.6	4.9	0	12.0
Standard Dev.	=				4.2724	2.7328	0	6.7371
CV	=				15.74	3.30	0	4.95

Ohio State Univ. Dept. Horticulture
Pepper Tolerance to Command
Conducted at Columbus by Dr. Stanley F. Gorski
with cooperater R. Pearson

TITLE: PEPPER TOLERANCE TO COMMAND
LOCATION: COLUMBUS
PERSONNEL: S.F. GORSKI, R. PEARSON
PLOT INFORMATION:
SOIL TYPE: BROOKSTON SILTY CLAY LOAM
CULTIVAR: NORTH STAR
DATE PLANTED: TRANSPLANTED JUNE 11, 1992
RATING DATE: July 15 , 1992
HARVEST DATE: August 14 - September 15 , 1992
PLOT SIZE: 5 FT. x 25 FT.
PLOT DESIGN: RCB w/ 3 REPS

HERBICIDE APPLICATION DATA:
DATE: 6/11
TIME OF DAY: 10:00 AM
TYPE: PPI
SOIL SURFACE: DRY
SOIL TEMP: 65 F
RELATIVE HUMIDITY: 70%
WEATHER:
WIND, mph: 2-3
SKY COVER: CLEAR
AIR TEMP: 74 F
GROWTH STAGE:
CROP: PRE
WEED: PRE

HERBICIDE APPLICATION EQUIPMENT:
SPRAYER: CO2 BACKPACK
GPA: 25
PSI: 30
TIPS: 8002
HEIGHT: 18"
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT: FIELD CULTIVATOR 1 - 2"

Ohio State Univ. Dept. Horticulture
 Pepper Tolerance to Command
 Conducted at Columbus by Dr. Stanley F. Gorski
 with cooperater R. Pearson
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	YIELD NUMBER	WEIGHT lbs
TREFLAN	4	L	1.0	PPI	185.3	62.07
COMMAND	4	E	0.5	PPI	177.3	58.53
COMMAND	4	E	0.75	PPI	170.7	57.67
LSD (.05)	=				96.5	16.11
Standard Dev.=					42.584	7.1062
CV	=				23.95	11.96

Ohio State Univ. Dept. Horticulture
Snapbean Tolerance to Command
Conducted at Columbus, OH by Dr. Stanley F. Gorski
Project snapcom with cooperators R. Pearson

TITLE: Snapbean Tolerance to Command
LOCATION: Columbus
PERSONNEL: S. F. Gorski
PLOT INFORMATION:
SOIL TYPE: Brookston Silty Clay Loam
CULTIVAR: Blue Lake
DATE PLANTED: June 11 , 1992
RATING DATE: July 15 , 1992
HARVEST DATE: August 24 , 1992
PLOT SIZE: 5 FT. x 25 FT.
PLOT DESIGN: RCB w/ 3 REPS

HERBICIDE APPLICATION DATA:

DATE: July 6
TIME OF DAY: 10 am
TYPE: PPI
SOIL SURFACE: DRY
SOIL TEMP: 65 F
RELATIVE HUMIDITY: 70 %
WEATHER:
WIND, mph: 2-3
SKY COVER: CLEAR
AIR TEMP: 74 F
GROWTH STAGE:
CROP: PRE
WEED: PRE

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 BACKPACK
GPA: 25
PSI: 30
TIPS: 8002
HEIGHT: 18
NOZZLE SPACING: 18

INCORPORATION EQUIPMENT: FIELD CULTIVATOR 1-2"

Ohio State Univ. Dept. Horticulture
 Snapbean Tolerance to Command
 Conducted at Columbus, OH by Dr. Stanley F. Gorski
 Project snapcom with cooperator R. Pearson
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	AMARE	CHEAL	PANDI	ECHOG	% CROP INJURY	BEANS (lbs)
TREFLAN	4	L	0.75	PPI	92.7	99.0	99.0	99.0	0.0	22.13
COMMAND	4	E	0.25	PPI	73.3	96.3	99.0	97.0	0.0	25.50
COMMAND	4	E	0.5	PPI	89.7	99.0	99.0	99.0	0.0	22.53
LSD (.05)	=				22.2	3.0	0	2.6	0	7.69
Standard Dev.=					9.7781	1.3331	0	1.1547	0	3.3923
CV	=				11.47	1.36	0	1.17	0	14.50

Ohio State Univ. Dept. Horticulture
Squash Tolerance to Command
Conducted at Columbus by Dr. Stanley F. Gorski
with cooperators R. Pearson

TITLE: SQUASH TOLERANCE TO COMMAND
LOCATION: COLUMBUS
PERSONNEL: S.F. GORSKI, R. PEARSON
PLOT INFORMATION:
SOIL TYPE: BROOKSTON SILTY CLAY LOAM
CULTIVAR: ZUCCHINI DARK
DATE PLANTED: JUNE 11, 1992
RATING DATE: July 15, 1992
HARVEST DATE: MULTIPLE 8/5 TO 8/20
PLOT SIZE: 5 FT. x 25 FT.
PLOT DESIGN: RCB w/ 3 REPS

HERBICIDE APPLICATION DATA:

DATE: 6/11
TIME OF DAY: 10:00 AM
TYPE: PPI
SOIL SURFACE: DRY
SOIL TEMP: 65 F
RELATIVE HUMIDITY: 70 %
WEATHER:
WIND, mph: 2-3
SKY COVER: CLEAR
AIR TEMP: 74 F
GROWTH STAGE:
CROP: PRE
WEED: PRE

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 BACKPACK
GPA: 25
PSI: 30
TIPS: 8002
HEIGHT: 18"
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT: FIELD CULTIVATOR 1 - 2"

Ohio State Univ. Dept. Horticulture
 Squash Tolerance to Command
 Conducted at Columbus, OH by Dr. Stanley F. Gorski
 Project SQSHCOM with cooperators R. Pearson
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	NUMBER	WEIGHT (lbs)
PREFAR	4	EC	4.0	PPI	95.0	128.93
COMMAND	4	E	0.75	PPI	79.3	105.10
COMMAND	4	E	1.0	PPI	91.3	115.87
LSD (.05)	=				8.3	31.99
Standard Dev.=					3.6667	14.111
CV	=				4.14	12.10

Ohio State Univ. Dept. Horticulture
Onion Weed Control
Conducted at Celeryville by Dr. Stanley F. Gorski
with cooperator R. Hassell

TITLE: ONION WEED CONTROL
LOCATION: CELERYVILLE
PERSONNEL: S.F.GORSKI , R.HASSELL
PLOT INFORMATION:
SOIL TYPE: CARLISLE MUCK
CULTIVAR:
DATE PLANTED: JUNE 23, 1992
RATING DATE: AUGUST 3, 1992
HARVEST DATE: AUGUST 26, 1992
PLOT SIZE: 5 FT. x 25 FT.
PLOT DESIGN: RCB w/ 4 REPS

HERBICIDE APPLICATION DATA:

DATE: JULY 22
TIME OF DAY: 11:00 AM
TYPE: POST
SOIL SURFACE: WET
SOIL TEMP: 66 F
RELATIVE HUMIDITY: 78 %
WEATHER:
WIND, mph: CALM
SKY COVER: P CLOUDY
AIR TEMP: 74 F
GROWTH STAGE:
CROP: 2 LEAF
WEED: POROL COTY
POPLE COTY-1"

HERBICIDE APPLICATION EQUIPMENT:

SPRAYER: CO2 BACKPACK
GPA: 25
PSI: 30
TIPS: 8002
HEIGHT: 18
NOZZLE SPACING: 18

INCORPORATION EQUIPMENT: NONE

Ohio State Univ. Dept. Horticulture
 Onion Weed Control
 Conducted at Celeryville by Dr. Stanley F. Gorski
 with cooperater R. Hassell

TREATMENT NAME	AI #/gal	FD	RATE RATE	UNIT	GROW STGE	%CONTROL POROL	..... POLPE	% CROP INJURY	ONION (lbs)
CONTROL						0.0	0.0	0.0	25.20
GOAL	1.6	E	0.03	lb/A	POST	93.3	90.0	0.0	24.57
GOAL	1.6	E	0.06	lb/A	POST	97.7	96.3	0.3	20.07
GOAL	1.6	E	0.12	lb/A	POST	99.0	99.0	2.3	24.40
GOAL	75	DF	0.06	lb/A	POST	95.0	90.0	0.3	22.57
GOAL	75	DF	0.12	lb/A	POST	96.3	93.3	1.7	23.20
GOAL	75	DF	0.06	lb/A	POST	97.7	93.3	5.0	28.27
AG-98		L	0.25	% v/v	POST				
GOAL	75	DF	0.12	lb/A	POST	99.0	97.7	5.0	28.67
AG-98		L	0.25	% v/v	POST				
GOAL	75	DF	0.06	lb/A	POST	99.0	97.7	3.3	23.77
CROP OIL CONC		L	1.0	% v/v	POST				
GOAL	75	DF	0.12	lb/A	POST	99.0	99.0	7.3	29.67
CROP OIL CONC		L	1.0	% v/v	POST				
FUSILADE	1	EC	0.188	lb/A	POST	0.0	0.0	0.0	28.23
FUSILADE	1	EC	0.188	lb/A	POST	99.0	99.0	2.7	26.83
LENTAGRAN	42	WP	0.90	lb/A	POST				
FUSILADE (E)	1	EC	0.188	lb/A	POST	99.0	99.0	4.0	26.87
LENTAGRAN (E)	42	WP	0.90	lb/A	POST				
FUSILADE (L)	1	EC	0.188	lb/A	POST				
LENTAGRAN (L)	42	WP	0.90	lb/A	POST				
LSD (.05)	=					2.2	2.6	1.7	10.29
Standard Dev. =						1.3335	1.5448	1.0294	6.1079
CV	=					1.61	1.90	41.82	23.89

Ohio State Univ. Dept. Horticulture
Preemergence Weed Control in Popcorn
Conducted at Columbus by Dr. Stanley F. Gorski
with cooperater R. Pearson

TITLE: PREEMERGENCE WEED CONTROL IN POPCORN - COLUMBUS
LOCATION: COLUMBUS
PERSONNEL: S.F. GORSKI, R. PEARSON

PLOT INFORMATION:
SOIL TYPE: BROOKSTONE SILTY CLAY LOAM
CULTIVAR: ME 453
DATE PLANTED: MAY 8, 1992
RATING DATE: JUNE 20, 1992
HARVEST DATE: OCTOBER 20, 1992
PLOT SIZE: 5 FT. x 30 FT.
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:
DATE: 5/11
TIME OF DAY: 10:00 am
TYPE: PRE
SOIL SURFACE: MODERATE
SOIL TEMP: 65 F
RELATIVE HUMIDITY: 50 %
WEATHER:
WIND, mph: CALM
SKY COVER: CLEAR
AIR TEMP: 74 F
GROWTH STAGE:
CROP: PRE
WEED: PRE

HERBICIDE APPLICATION EQUIPMENT:
SPRAYER: CO2 BACKPACK
GPA: 25
PSI: 30
TIPS: 8002
HEIGHT: 18"
NOZZLE SPACING: 18"

INCORPORATION EQUIPMENT: NONE

Ohio State Univ. Dept. Horticulture
 Preemergence Weed Control in Popcorn
 Conducted at Columbus by Dr. Stanley F. Gorski
 with cooperater R. Pearson
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	.YIELD.. # EARS	WT EARS	WT GRAIN	CHEAL	AMARE	ECHCG	% CROP INJURY
CONTROL					43.8	11.20	8.48	0.0	0.0	0.0	0.0
ATRAZINE	90	DG	3.0	PRE	54.8	12.90	9.70	99.0	99.0	98.0	0.0
BLADEX	4	L	3.0	PRE	47.8	11.90	8.75	99.0	99.0	98.8	0.0
LASSO	4	EC	2.5	PRE	47.3	11.80	8.85	99.0	99.0	99.0	0.0
DUAL	8	E	2.5	PRE	51.0	12.65	9.48	99.0	99.0	99.0	0.0
EXTRAZINE II	90	DF	3.25	PRE	48.3	12.23	9.20	99.0	99.0	98.0	0.0
LARIAT	4	E	3.0	PRE	47.0	12.10	9.05	99.0	99.0	99.0	0.0
BICEP	6	L	3.0	PRE	49.5	12.30	9.20	99.0	99.0	99.0	0.0
SURPASS	6.4	EC	2.5	PRE	47.3	11.63	8.73	99.0	99.0	99.0	0.0
LSD (.05)	=				10.0	2.08	1.55	0	0	1.4	0
Standard Dev.=					6.8537	1.4252	1.0623	0	0	.96704	0
CV	=				14.13	11.80	11.74	0	0	1.10	0

Ohio State Univ. Dept. Horticulture
Preemergence Weed Control in Popcorn
Conducted at Fremont by Dr. Stanley F. Gorski
with cooperater K. Scaife

TITLE: PREEMERGENCE WEED CONTROL IN POPCORN - FREMONT

LOCATION: FREMONT

PERSONNEL: S.F. GORSKI, K. SCAIFE

PLOT INFORMATION:

SOIL TYPE: SILTY LOAM
CULTIVAR: P612 EAST, A3045 WEST

DATE PLANTED: MAY 14, 1992
RATING DATE: JUNE 25, 1992
HARVEST DATE: OCTOBER 12-14, 1992
PLOT SIZE: 5 FT. x 30 FT.
PLOT DESIGN: RCB w/ 4 REPS

HERBICIDE APPLICATION DATA:

DATE: 5/15
TIME OF DAY: NOON
TYPE: PRE
SOIL SURFACE: DRY
SOIL TEMP: 66 F
RELATIVE HUMIDITY: 55 %
WEATHER:
WIND, mph: 2-3
SKY COVER: P CLOUDY
AIR TEMP: 72 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:NONE

Ohio State Univ. Dept. Horticulture
 Preemergence Weed Control in Popcorn
 Conducted at Freemont by Dr. Stanley F. Gorski
 with cooperater K. Scaife
 All rates are specified as lb/A

TREATMENT NAME	AI		GROW STGE	%CONTROL					% CROP	INJURY		...YIELD	
	#/gal	FD RATE		PANDI	ABUTH	POROL	AMARE	CHEAL		A 3045	P 612	A 3045	P 612
CONTROL				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.43	10.15
ATRAZINE	90	DG 3.0	PRE	99.0	99.0	99.0	99.0	99.0	0.0	0.0	0.0	9.60	11.55
BLADEX	4	L 3.0	PRE	99.0	99.0	99.0	99.0	99.0	0.0	0.0	0.0	10.93	10.70
LASSO	4	EC 2.5	PRE	99.0	98.0	99.0	99.0	99.0	0.0	0.0	0.0	9.32	11.55
DUAL	8	E 2.5	PRE	99.0	97.0	98.0	99.0	99.0	0.0	0.0	0.0	10.35	11.98
EXTRAZINE II	90	DF 3.25	PRE	99.0	99.0	99.0	99.0	99.0	0.0	0.0	0.0	9.60	11.80
LARIAT	4	E 3.0	PRE	99.0	99.0	99.0	99.0	99.0	0.0	0.0	0.0	10.10	11.77
BICEP	6	L 3.0	PRE	99.0	99.0	99.0	99.0	99.0	0.0	0.0	0.0	9.43	11.40
SURPASS	6.4	EC 2.5	PRE	98.0	99.0	99.0	99.0	99.0	0.0	0.0	0.0	11.05	9.88
LSD (.05)	=			1.0	1.4	1.0	0	0	0	0	0	1.85	2.48
Standard Dev.=				.66644	.9813	.66644	0	0	0	0	0	1.2648	1.6972
CV	=			0.76	1.12	0.76	0	0	0	0	0	12.82	15.16

Ohio State Univ. Dept. Horticulture
Postemergence Weed Control in Popcorn
Conducted at Columbus by Dr. Stanley F. Gorski
with cooperators R. Pearson

TITLE: POSTEMERGENCE WEED CONTROL IN POPCORN - COLUMBUS
LOCATION: COLUMBUS
PERSONNEL: S.F. GORSKI, R. PEARSON

PLOT INFORMATION:
SOIL TYPE: BROOKSTONE SILTY CLAY LOAM
CULTIVAR: ME 453
DATE PLANTED: MAY 8, 1992
RATING DATE: JUNE 22, 1992
HARVEST DATE: OCTOBER 20, 1992
PLOT SIZE: 5 FT x 30 FT
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:
DATE: 5/11 6/11
TIME OF DAY: 11:00 am 1:00 pm
TYPE: PRE POST
SOIL SURFACE: MODERATE DRY
SOIL TEMP: 65 F 72 F
RELATIVE HUMIDITY: 50% 55%
WEATHER:
WIND, mph: CALM 3-5
SKY COVER: CLEAR CLEAR
AIR TEMP: 74 F 81 F
GROWTH STAGE:
CROP: PRE 10" or
5 leaves
WEED: PRE CHEAL
0-2"

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
 Postemergence Weed Control in Popcorn
 Conducted at Columbus by Dr. Stanley F. Gorski
 with cooperator R. Pearson

TREATMENT NAME	AI		RATE UNIT	GROW STGE	%CONTROL .....		.YIELD..		% CROP INJURY
	#/gal	FD			CHEAL	NUMBER OF EARS	WEIGHT (lbs)	GRAIN (lbs)	
BASAGRAN	4	EC	1.0 lb/A	POST	78.5	54.3	12.57	9.45	0.0
WEEDAR 64	3.8	EC	0.475 lb/A	POST	87.5	56.5	13.13	9.85	8.8
WEEDONE LV4	3.8	EC	0.23 lb/A	POST	85.0	59.0	13.63	10.25	0.0
LADDOCK	1.66	F	0.53 lb/A	POST	99.0	58.5	13.40	10.07	0.0
DASH		L	1.0 % v/v	POST					
LADDDOCK	1.66	F	0.53 lb/A	POST	99.0	52.3	12.68	9.52	0.0
28% N		L	1.0 % v/v	POST					
BEACON	75	WG	0.76 lb/A	POST	66.3	43.0	8.77	6.60	36.3
BANVEL	4	EC	0.5 lb/A	POST	88.8	63.3	13.57	10.17	10.0
MARKSMAN	3.2	EC	1.4 lb/A	POST	92.3	58.3	12.98	9.75	20.0
ACCENT	75	WP	0.056 lb/A	POST	15.0	45.3	10.30	7.75	12.5
BLADEX	4	L	2.0 lb/A	POST	97.0	59.0	13.40	10.05	0.0
BUCTRIL	2	EC	0.375 lb/A	POST	98.0	54.8	12.25	9.20	0.0
ATRIZINE	90	WP	2.0 lb/A	POST	99.0	56.8	13.35	10.03	0.0
CROP OIL CONC		L	1.0 % v/v	POST					
LSD (.05) =					13.8	10.1	2.06	1.53	10.2
Standard Dev. =					9.5803	6.9776	1.4235	1.061	7.0487
CV =					11.44	12.67	11.39	11.30	96.67

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

TITLE: Postemergence Weed Control in Popkorn
LOCATION: Freemont
PERSONNEL:

PLOT INFORMATION:
SOIL TYPE:
CULTIVAR: P 612 East, A 3045 West
DATE PLANTED: May 14, 1992
RATING DATE: July 1, 1992
HARVEST DATE: October 12, 1992
PLOT SIZE: 5 FT x 30 FT
PLOT DESIGN: RCB w/4 reps

HERBICIDE APPLICATION DATA:

DATE:	5/15	6/19
TIME OF DAY:	NOON	11 am
TYPE:	PRE	POST
SOIL SURFACE:	DRY	WET
SOIL TEMP:	66 F	57 F
RELATIVE HUMIDITY:	55 %	65 %
WEATHER:		
WIND, mph:	2-3	3-5
SKY COVER:	P.CLOUDY	CLOUDY
AIR TEMP:	72 F	73 F
GROWTH STAGE:		
CROP:	PRE	8-10" or 5 LEAF
WEED:	PRE	CHEAL 0-4" ABUTH 2-6" POROL 0-4"

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
 Postemergence Weed Control in Popcorn
 Conducted at Freemont by Dr. Stanley F. Gorski
 with cooperater K. Scaife

TREATMENT NAME	AI #/gal	FD	RATE RATE	UNIT	GROW STGE	% WEED CONTROL	..% CROP A 3045	INJURY.. P 612	...YIELD	A 3045	P 612
BASAGRAN	4	EC	1.0	lb/A	POST	95.0	6.8	11.3	10.60	9.05	
WEEDAR 64	3.8	EC	0.475	lb/A	POST	94.8	0.0	0.0	8.82	11.38	
WEEDONE LV4	3.8	EC	0.23	lb/A	POST	93.8	0.0	0.0	9.97	10.30	
LADDOCK	1.66	F	0.53	lb/A	POST	89.8	3.8	5.0	8.65	12.30	
DASH		L	1.0	% v/v	POST						
LADDOCK 28% N	1.66	F	0.53	lb/A	POST	90.8	1.3	1.3	8.30	10.10	
		L	1.0	% v/v	POST						
BEACON	75	WG	0.76	lb/A	POST	51.3	23.8	25.0	4.47	5.23	
BANVEL (E)	4	EC	0.25	lb/A	POST	93.8	0.0	0.0	8.50	8.20	
MARKSMAN	3.2	EC	1.4	lb/A	POST	90.0	1.3	1.3	9.07	8.73	
ACCENT	75	WP	0.056	lb/A	POST	26.3	8.8	6.3	10.33	9.52	
BLADEX	4	L	2.0	lb/A	POST	71.3	30.0	26.3	10.75	10.30	
BUCTRIL	2	EC	0.375	lb/A	POST	83.8	2.8	2.8	10.42	10.07	
ATRIZINE	90	WP	2.0	lb/A	POST	82.5	3.0	4.3	10.57	10.70	
CROP OIL CON		L	1.0	% v/v	POST						
NO											
LSD (.05)	=					17.4	4.1	3.8	2.16	2.33	
Standard Dev.=						12.08	2.8445	2.6363	1.4965	1.6113	
CV	=					15.06	42.01	38.00	16.32	16.69	

Ohio State Univ. Dept. Horticulture
Tomato Preemergence Weed Control
Conducted at Fremont by Dr. Stanley F. Gorski
with cooperater K. Scaife

TITLE: TOMATO PREEMERGENCE WEED CONTROL

LOCATION: FREEMONT
PERSONNEL: S.F. GORSKI, K. SCAIFE

PLOT INFORMATION:
SOIL TYPE: SILTY LOAM
CULTIVAR: OH 7983 288 CELL SIZE

DATE PLANTED: MAY 12, 1992
RATING DATE: JUNE 25, 1992
HARVEST DATE: SEPTEMBER 10, 1992
PLOT SIZE: 5 FT. x 30 FT.
PLOT DESIGN: RCB w/3 reps

HERBICIDE APPLICATION DATA:

DATE: 5/12
TIME OF DAY: 2:00 PM
TYPE: PPI
SOIL SURFACE: DRY
SOIL TEMP: 74 F
RELATIVE HUMIDITY: 55 %
WEATHER:
WIND, mph: 2-3
SKY COVER: CLEAR
AIR TEMP: 80 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: ROTOTILLER - 2" DEEP

Ohio State Univ. Dept. Horticulture
 Tomato Preemergence Weed Control
 Conducted at Fremont by Dr. Stanley F. Gorski
 with cooperator K. Scaife
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	%CONTROL			YIELD	
					PANDI	POROL	CHEAL	RED	TOTAL
WEEDY					0.0	0.0	0.0	81.83	112.67
WEEDED					99.0	99.0	99.0	74.17	100.50
DUAL	8	EC	2.0	PPI	99.0	99.0	94.7	104.67	128.83
DUAL	8	EC	4.0	PPI	99.0	99.0	99.0	83.33	110.83
DUAL	8	EC	2.0	PPI	99.0	99.0	99.0	102.33	123.00
SENCOR	75	DF	0.375	PPI					
SONALAN	3	EC	2.0	PPI	99.0	99.0	97.7	75.33	95.83
TRIFIC	60	DF	1.0	PPI	99.0	99.0	99.0	77.00	98.17
SENCOR	75	DF	0.375	PPI					
TREFLAN	4	EC	1.0	PPI	99.0	99.0	99.0	101.33	125.33
SENCOR	75	DF	0.375	PPI					
LSD (.05)	=				0	0	3.0	47.32	47.77
Standard Dev.	=				0	0	1.6956	27.02	27.275
CV	=				0	0	1.97	30.88	24.38

Ohio State Univ. Dept. Horticulture
Tomato Planting Depth Study
Conducted at Fremont by Dr. Stanley F. Gorski
with cooperater K. Scaife

TITLE: TOMATO PLANTING DEPTH STUDY
LOCATION: FREMONT
PERSONNEL: S.F. GORSKI, K. SCAIFE
PLOT INFORMATION:
SOIL TYPE: SILTY LOAM
CULTIVAR: 8245
DATE PLANTED: MAY 12, 1992
RATING DATE: JUNE 2, JUNE 25
HARVEST DATE: SEPTEMBER 28
PLOT SIZE: 5 FT. x 30 FT.
PLOT DESIGN: RCB w/3 REPS

HERBICIDE APPLICATION DATA:

DATE: 5/12
TIME OF DAY: 1:00 pm
TYPE: PPI
SOIL SURFACE: DRY
SOIL TEMP: 72 F
RELATIVE HUMIDITY: 55 %
WEATHER:
WIND, mph: 2-3
SKY COVER: CLEAR
AIR TEMP: 82 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: ROTOTILLER - 2"

Ohio State Univ. Dept. Horticulture
 Tomato Planting Depth Study
 Conducted at FREMONT by Dr. Stanley F. Gorski
 with cooperator K. Scaife

TREATMENT NAME	AI #/gal	FD RATE	GROW STGE	.....406 RED	YIELD... TOTAL	-----288 RED	YIELD--- TOTAL
0.5 in.				124.83	154.67	93.33	124.00
1 in.				99.83	127.67	107.00	136.17
2 in.				82.50	114.67	126.33	161.83
4 in.				149.50	189.50	104.50	140.50
LSD (.05)	=			47.77	51.58	72.34	84.43
Standard Dev.	=			23.91	25.817	36.208	42.258
CV	=			20.94	17.61	33.59	30.05

Ohio State Univ. Dept. Horticulture
Tomato Plug Size Study
Conducted at Freemont by Dr. Stanley F. Gorski
with cooperater K. Scaife

TITLE: TOMATO PLUG SIZE STUDY
LOCATION: FREEMONT
PERSONNEL: S.F. GORSKI, K. SCAIFE
PLOT INFORMATION:
SOIL TYPE: SILTY LOAM
CULTIVAR: 8245
DATE PLANTED: MAY 12, 1992
RATING DATE: JUNE 2, JUNE 25
HARVEST DATE: SEPTEMBER 28
PLOT SIZE: 5 FT. x 30 FT.
PLOT DESIGN: RCB w/3 reps

HERBICIDE APPLICATION DATA:
DATE: 5/12
TIME OF DAY: 1:00 pm
TYPE: PPI
SOIL SURFACE: DRY
SOIL TEMP: 72 F
RELATIVE HUMIDITY: 55 %
WEATHER:
WIND, mph: 2-3
SKY COVER: CLEAR
AIR TEMP: 82
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: ROTOTILLER - 2"

Ohio State Univ. Dept. Horticulture
 Tomato Plug Size Study
 Conducted at FREEMONT by Dr. Stanley F. Gorski
 with cooperator K. Scaife
 All rates are specified as lb/A

TREATMENT NAME	AI #/gal	FD	RATE	GROW STGE	.....406 RED	YIELD... TOTAL	-----288 RED	YIELD--- TOTAL
WEEDED					139.00	178.50	118.50	156.33
TREFLAN SENCOR	4 75	L DF	1.0 0.375	PPI PPI	132.33	173.67	115.67	149.83
DEVRINOL SENCOR	50 75	WP DF	2.0 0.375	PPI PPI	121.00	152.00	132.33	170.33
TILLAM SENCOR	6 75	EC DF	5.0 0.375	PPI PPI	144.00	176.50	140.67	174.50
DUAL SENCOR	8 75	EC DF	2.0 0.375	PPI PPI	130.50	163.17	173.33	207.50
SENCOR	75	DF	0.375	PPI	137.00	173.17	147.83	181.50
SENCOR	75	DF	0.5	PPI	156.67	193.67	188.50	231.67
SENCOR-(deep)	75	DF	0.375	PPI	111.00	140.67	167.00	203.33
LSD (.05)	=				61.94	71.12	63.82	72.75
Standard Dev.=					35.368	40.606	36.437	41.539
CV	=				26.41	24.04	24.62	22.53

Appreciation is given to the following industries and individuals for their support. Without their support much of this work would not have been possible.

Agrolinz

BASF

FMC

ICI

IR-4

Mid America Food Processors

Milan

Muck Crop Growers Association

Ohio Vegetable and Potato Growers Association

Rohm & Haas Co.

Terra International

Dick Zeller

This page intentionally blank.

This page intentionally blank.

T · H · E
OHIO
STATE
UNIVERSITY

QARIC