HORTICULTURAL REPORT

2008 WEED CONTROL RESEARCH ON FRUIT & VEGETABLE CROPS

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WEED CONTROL IN HORTICULTURAL CROPS – 2008
FORWARD

This report summarizes the results of weed control experiments on horticultural crops in Michigan in 2008. It is intended to inform industry and university research and extension colleagues of our current results.

We greatly appreciate the support for our weed control research and extension program from commodity groups, chemical companies, MSU Extension, and the Michigan Agricultural Experiment Station. The following companies and organizations provided financial support, chemicals, equipment, seeds, plants, research sites, or other support for our program:

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TABLE OF CONTENTS

PAGE

B. Fruit Crops

METHODS

Chemical Application

Herbicides were applied with a small plot sprayer using carbon dioxide as a source of pressure. Spray volumes are specified in each experiment. All herbicide rates are expressed as pounds of active ingredient per acre.

Visual Evaluations

In most instances, weed control ratings were made on individual weed species. General ratings for broad-leaved weeds and grasses were sometimes used in orchard studies or for late-season assessments.

Weed control and crop injury are rated on a 1 to 10 scale; 1 = no visible injury or reduction in growth; 10 = complete kill of plants. The ratings can be roughly translated into percentages as follows:

10 = 100% kill, all the plants are dead or none are visible.
9 = 90-100% kill or reduction in growth and stand.
8 = 80-90% kill or reduction in growth and stand.
7 = 70-80% kill or reduction in growth and stand.
This is a still commercially acceptable control.
6 = 60-70% kill or reduction in growth and stand.
5 = 50% kill or reduction in growth and stand.
4 = 30-40% kill or reduction in growth and stand.
3 = 20-30% reduction in growth and stand.
2 = 10-20% reduction in growth and stand.
1 = 0-10% reduction in growth, no obvious effect of herbicide.

Experimental Design and Statistical Analysis

Experiments were set up and analyzed in the program Agriculture Research Manager (ARM) version 7.3.6, from Gylling Data Management, Inc. (RR 4 405 Martin Boulevard, Brookings, SD 57006). Unless otherwise specified, the experiments were laid out as randomized complete blocks. The data were subjected to analysis of variance and the means were compared with the LSD test at the 5% level. Since data transformations were not used, the coefficient of variation for skewed ratings or weed densities may be misleading. In some instances, yields for weeded check plots may be low because of severe early weed competition. In these cases, it may be more desirable to compare new herbicides with standard treatments.

WEED LIST

Abbreviations for the common names of weeds correspond to those presented in the NCWSS proceedings volume 28 (1973), 143.

Abbr.	Common Name	Botanical Name
ANBG	annual bluegrass	*Poa annua* L.
ANFB	annual fleabane	*Erigeron annuus (L.) Pers.*
BABR	bald brome (upright brome)	*Bromus racemosus* L.
BFTF	birdsfoot trefoil	*Lotus corniculatus* L.
BHPL	buckhorn plantain	*Plantago lanceolata* L.
BLDO	broadleaf dock	*Rumex obtusifolius* L.
BLME	black medic	*Medicago lupulina* L.
BRFB	British fleabane	*Inula britannica* L.
BRPL	broadleaf plantain	*Plantago major* L.
BSPL	blackseed plantain	*Plantago rugelii* Dcne.
BYGR	barnyardgrass	*Echinochloa crus-galli* (L.) Beauv.
CATH	Canada thistle	*Cirsium arvense* (L.) Scop.
CAWE	carpetweed	*Mollugo verticillata* L.
CLGC	clammy groundcherry	*Physalis heterophylla* Nees.
COBU	cocklebur	*Xanthium strumarium* L.
COCW	common chickweed	*Stellaria media* (L.) Cyrillo
COGR	common groundsel	*Senecio vulgaris* L.
COLQ	common lambsquarters	*Chenopodium album* L.
COMW	common milkweed	*Asclepias syriaca* L.
COPU	common purslane	*Portulaca oleracea* L.
CORW	common ragweed	*Ambrosia artemisiifolia* L.
CUDO	curly dock	*Rumex crispus* L.
CWBS	catchweed bedstraw	*Galium aparine* L.
DAND	dandelion	*Taraxacum officinale* Weber
DOBG	downy bromegrass	*Bromus tectorum* L.
EBNS	eastern black nightshade	*Solanum ptycanthum* Dun.
FAPA	fall panicum	*Panicum dichotomiflorum* Michx.
FIBW	field bindweed	*Convolvulus arvensis* L.
FIPA	field pansy	*Viola rafinesquii* Greene
FIPC	field pennycress	*Thlaspi arvense* L.
FISB	field sandbur	*Cenchrus incertus* M.A.Curtis
GIRW	giant ragweed	*Ambrosia trifida* L.
GOGR	goosegrass	*Eleusine indica* (L.) Gaertn.
GORO	goldenrod	*Solidago nemoralis* Ait.
GIFT	giant foxtail	*Setaria faberi* Hermm.
GRFT	green foxtail	*Setaria viridis* (L.) Beauv.
GFPW	greenflower pepperweed	*Lepidium densiflorum* Schmd.
HANS	hairy nightshade	*Solanum sarrachoides* Sendtner
HOAL	hoary alyssum	*Berteroa incana* (L.) DC.
HONE	horsenettle	*Solanum carolinense* L.
HOWE	horseweed (marestail)	*Conyza canadensis* (L.) Scop.
IRFB	Irish fleabane	*Inula salicina*
JIWE	jimsonweed	*Datura stramonium* L.
LACG	large crabgrass	*Digitaria sanguinalis* (L.) Scop
LATH	ladysthumb	*Polygonum persicaria* L.
MATA	marestail (horseweed)	*Conyza canadensis* (L.) Scop.
MAYC	marsh yellowcress	*Rorippa islandica* (Oeder) Barbs

WEED LIST

Abbr.	Common Name	Botanical Name
MECW	mouseear chickweed	*Cerastium vulgatum* L.
MECR	mouseear cress	Arabidopsis thaliana(L.) Heynh
MONO	monolepis	*Monolepis nuttaliane* Greene
MWCH	mayweed chamomile	*Anthemis cotula* L.
NLLQ	narrowleaf lambsquarters	*Chenopodium desiccatum* A. Nels
OEDA	oxeye daisy	*Chrysanthemum leucanthemum* L.
ORGR	orchardgrass	*Dactylis glomerata* L.
PAWE	pineappleweed	*Matricaria matricariodes* (Less)C.L.Porter
PESW	Pennsylvania smartweed	*Polygonum pennsylvanicum* L.
POIV	poison ivy	*Rhus radicans* L.
PRKW	prostrate knotweed	*Polygonum aviculare* L.
PRLE	prickly lettuce	*Lactuca serriola* L.
PRSP	prostrate spurge	*Euphorbia maculata* L.
PRPW	prostrate pigweed	*Amaranthus blitoides* S. Wats.
PUDN	purple deadnettle	*Lamium purpureum* L.
PUSW	purslane speedwell	*Veronica serpyllifolia* L.
PUVI	puncturevine	*Tribulus terrestris* L.
QUGR	quackgrass	*Agropyron repens* (L.) Beauv.
RECL	red clover	*Trifolium pratense* L.
REFE	red fescue	*Festuca rubra* L.
RESO	red sorrel	*Rumex acetosella* L.
ROFB	rough fleabane	*Erigeron strigosus* Muhl. ex Willd.
RRPW	redroot pigweed	*Amaranthus retroflexus* L.
RSFI	redstem filaree	*Erodium cicutarium* (L.) L'Hér. ex Ait.
RUTH	Russian thistle	*Salsola iberica* L.
SHPU	shepherdspurse	*Capsella bursa-pastoris* (L.) Medic.
SPKW	spotted knapweed	*Centaurea biebersteinii* DC.
STGR	stinkgrass	*Eragrostis cilianensis* (All.) E. Mosher
SWSW	swamp smartweed	*Polygonum coccineum* Muhl. ex Willd.
TAFE	tall fescue	*Festuca arundinacea* Schreb.
TLSW	thymeleaf sandwort	*Arenaria serpyllifolia* L.
TUPW	tumble pigweed	*Amaranthus albus* L.
VELE	velvetleaf	*Abutilon theophrasti* Medic.
VICR	Virginia creeper	*Parthenocissus quinquefolia* (L.) Planch.
VIPW	Virginia pepperweed	*Lepidium virginicum* L.
VOAS	volunteer asparagus	*Asparagus officinalis* L.
WESA	western salsify	*Tragopogon dubius* Scop.
WHCA	white campion	*Silene alba* (Mill.) E.H.L. Krause
WHCL	white clover	*Trifolium repens* L.
WIBW	wild buckwheat	*Polygonum convolvulus* L.
WICA	wild carrot	*Daucus carota* L.
WICH	wild chamomile	*Matricaria chamomilla* L.
WIGR	witchgrass	*Panicum capillare* L.
WIMU	wild mustard	*Sinapis arvensis* L.
WIRA	wild radish	*Raphanus raphanistrum* L.
WLDGRP	wild grape	*Vitis* sp.
WLDRASP	wild raspberry	*Rubus* sp.
YEFC	yellow fieldcress (kiek)	*Rorippa sylvestris* L.
YEFT	yellow foxtail	*Setaria glauca* (L.) Beauv.
YEHW	yellow hawkweed	*Hieracium caespitosum Dumort.*
YENS	yellow nutsedge	*Cyperus esculentus* L.
YERO	yellow rocket	*Barbarea vulgaris* R. Br.

CHEMICAL LIST

COMMON NAME	TRADE NAME	FORMULATION	MANUFACTURER
2,4-D amine	Weedar 64	3.8 L	Nufarm Inc.
acifluorfen	Ultra Blazer	2 L	United Phosphorus
atrazine	Aatrex	4 L	Syngenta
atrazine	Aatrex	90 DF	Syngenta
BAS 800	Kixor	70 WG	BASF
bensulide	Prefar	4 EC	Gowan
bentazon	Basagran	4 L	Micro Flo
bromoxynil	Buctril	4 EC	Bayer CropScience
butafenacil	Inspire	0.8 L	Syngenta
carfentrazone	Aim	2.0 EC	FMC
chlorimuron-ethyl	Classic	25 WDG	DuPont
clethodim	Intensity One	0.97 EC	UAP
clethodim	Select	2 EC	Valent
clethodim	Select Max	0.97 EC	Valent
clomazone	Command	3 ME	FMC
clopyralid	Clopyr Ag	3 L	United Phosphorus
clopyralid	Stinger	3 EC	Dow Agrosciences
cloransulam-methyl	Firstrate	84 WDG	Dow Agrosciences
cycloate	Ro-Neet	6 EC	Helm Agro
DCPA	Dacthal	75 WP	Amvac Chemical
dicamba	Clarity	4 L	BASF
diclobenil	Casoron 170 CS	1.4 CS	Chemtura
diclobenil	Casoron G	4 G	Chemtura
diflufenzopyr 21.4% + dicamba 55%	Distinct	76.4 WG	BASF
dimethenamid-p	Outlook	6 EC	BASF
diquat	Reglone	2 EC	Syngenta
diuron	Karmex	80 DF	DuPont
EPTC	Eptam	7 EC	Gowan
ethalfluralin	Curbit	3 EC	UAP
ethalfluralin 1.6 lb ai + clomazone 0.5 lb ai	Strategy	2.1 EC	UAP
ethofumesate	Nortron SC	4 SC	Bayer CropScience
fluazifop-P	Fusilade DX	2 EC	Syngenta
flucarbazone	Everest	70 WDG	Arysta
flufenacet	Define	60 DF	Bayer CropScience
flufenacet 54.4% + metribuzin 13.6%	Axiom	68 DF	Bayer CropScience
flumetsulam	Python	80 WDG	Dow Agrosciences
flumioxazin	Chateau	51 WDG	Valent
flumioxazin	SureGuard	51 WG	Valent
flumioxazin	Valor	51 WG	Valent
fluroxypyr	Starane	1.5 L	Dow Agrosciences
fomesafen	Reflex	2 EC	Syngenta
fomesafen 10.2% + s-metolachlor 46.4%	Prefix	5.29 L	Syngenta
foramsulfuron	Option	35 WG	Bayer CropScience

CHEMICAL LIST

COMMON NAME	TRADE NAME	FORMULATION	MANUFACTURER
glufosinate	Rely 200	1.67 L	Bayer CropScience
glufosinate	Liberty	1.67 EC	Bayer CropScience
glyphosate	Roundup WeatherMax	5.5 L	Monsanto
glyphosate	Touchdown Total	4.17 L	Syngenta
glyphosate	Roundup Original	4 L	Monsanto
glyphosate	Roundup Ultra	4 L	Monsanto
glyphosate	Roundup Ultramax	5 L	Monsanto
halosulfuron	Permit	75 WG	Gowan
halosulfuron	Sandea	75 WG	Gowan
hexazinone	Velpar ULV	75 SG	DuPont
imazamox	Raptor	1 AS	BASF
imazapic	Plateau	70 WG	BASF
imazethapyr	Pursuit	2 EC	BASF
imazosulfuron	V 10142	75 WDG	Valent
isoxaben	Gallery	75 DF	Dow Agrosciences
KIH-485	KIH-485	60 WG	Kumiai Chemical Co.
linuron	Lorox	50 DF	DuPont
mesotrione	Callisto	4 SC	Syngenta
metribuzin	Sencor	75 DF	Bayer CropScience
napropamide	Devrinol	50 DF	United Phosphorus
naptalam	Alanap	2 EC	Uniroyal
norflurazon	Solicam	80 DF	Syngenta
oryzalin	Surflan	4 AS	United Phosphorus
oxyfluorfen	Goal XL	2 L	Dow Agrosciences
oxyfluorfen	Goaltender	4 SC	Dow Agrosciences
paraquat	Firestorm	3 L	Chemtura
paraquat	Gramoxone Max	3 L	Syngenta
paraquat	Gramoxone Inteon	2 L	Syngenta
pendimethalin	Prowl	3.3 EC	BASF
pendimethalin	Prowl H2O	3.8 ACS	BASF
penoxsulam	Grasp SC	2 SC	Dow Agrosciences
phenmedipham	Spin-Aid	1.3 L	Bayer CropScience
phenmedipham 0.6 lb ai+ desmedipham 0.6 lb ai + ethofumesate 0.6 lb ai	Progress	1.8 L	Bayer CropScience
prometryn	Caparol	4 L	Syngenta
pronamide	Kerb	50 WP	Dow Agrosciences
pyraflufen-ethyl	PCC 1195	0.2 EC	UAP
pyrazon	Pyramin	68 DF	Micro Flo
pyridate	Tough	3.75 EC	
quizalofop p-ethyl	Assure II	0.88 EC	DuPont
quizalofop p-ethyl	Targa	0.88 EC	Gowan
rimsulfuron	Matrix	25 DF	DuPont
sethoxydim	Poast	1.53 EC	BASF
sethoxydim	Poast Plus	1 EC	BASF
simazine	Princep	90 DF	Syngenta
s-metolachlor	Dual Magnum	7.62 EC	Syngenta

CHEMICAL LIST

COMMON NAME	TRADE NAME	FORMULATION	MANUFACTURER
s-metolachlor 2.68 lb ai + mesotrione 0.268 lb ai + atrazine 1.0 lb ai	Lumax	3.948 L	Syngenta
s-metolachlor 3.34 lb ai + mesotrione 0.33 lb ai	Camix	3.67 L	Syngenta
s-metolachlor II	Dual II Magnum	7.64 EC	Syngenta
sulfentrazone	Spartan	4 F	FMC
sulfosulfuron	Maverick	75 WG	Monsanto
tembotrione	Laudis	3.5 SC	Bayer CropScience
terbacil	Sinbar	80 WP	TKI
topramezone	Impact	2.8 L	Amvac
triclopyr	Garlon	3 SC	Dow Agrosciences
trifloxysulfuron	Envoke	75 WG	Syngenta
trifluralin	Treflan	4 EC	Dow Agrosciences
triallate	Far-Go	4 EC	Gowan
triflusulfuron	Upbeet	50 WDG	DuPont

ADJUVANTS

TRADE NAME	ABBREVIATION	DESCRIPTION	MANUFACTURER
Activator 90	NIS	nonionic surfactant	Loveland
ammonium nitrate		100% salt	
ammonium sulfate	AMS	spray grade fertilizer	
copper sulfate		100% salt	
Freeway		organosilicone surfactant	Loveland
Herbimax	COC	80% paraffin base petroleum oil 20% surfactant	Loveland
LI6193-11	COC		Loveland
MSO		Methylated Seed Oil	Loveland
28% Nitrogen	UAN	28% urea ammonia nitrate solution	
Silwet L-77		organosilicone surfactant	Loveland
Sylgard 309		organosilicone surfactant	DowCorning

ABBREVIATIONS USED IN THE REPORT

A =	Acre
ai =	Active Ingredient
Amt =	Amount
ACS =	Aqueous Capsule Suspension
AS =	Aqueous Solution
ASPA =	Asparagus
CEC =	Cation Exchange Capacity
CS =	Capsule Suspension
CV =	Coefficient of Variability
DF =	Dry Flowable
DS =	Designator
EC =	Emulsifiable Concentrate
F =	Flowable
FORM =	Formulation
FM =	Formulation
FT =	Distance in Feet
g / gr =	Gram
GAL =	Gallon
GPA =	Gallons per acre
GROW STG =	Growth Stage at time of application
HTRC =	Horticulture Teaching and Research Station
IN =	Inch
KG =	Kilogram
L =	Liquid
LPRE =	Late PRE
LO =	Low Odor
LSD =	Least Significant Difference
LB =	Pounds
ME =	Microencapsulated
MKTBL =	Marketable
MPH =	Mile(s) per hour
MSU =	Michigan State University
N =	No
N/A =	Not Applicable / Not Available
No. =	Number
OM =	Organic Matter
oz =	Ounce
P =	Probability
POH =	Post harvest
PO1 =	Postemergence 1
PO2 =	Postemergence 2
POT =	Post Transplant
PPI =	Preplant Incorporated
PRE =	Preemergence
PREC. =	Precipitation (inches)
PRT =	Pretransplant
PSI =	Pounds per square inch
PT PR =	Pint Product
QT =	Quart
QT PR =	Quart Product
RCBD =	Randomized Complete Block Design Design
RH =	Relative Humidity
REPS =	Replication
SNBE =	Snapbean
SP =	Soluble Powder
STBE =	Strawberry
SURF =	Surface
T =	Temperature
TRT =	Treatment
UNMKTBL =	Unmarketable
VOAS =	Volunteer Asparagus
WDG =	Water Dispersible Granule
WG =	Water Soluble Granule
WP =	Wettable Powder
WT =	Weight
" =	Inches
Y =	Yes

TEMPERATURE AND PRECIPITATION DATA

MSU Horticulture Teaching and Research Center

Recorded at
MSU Horticulture Teaching and Research Center (HTRC)
East Lansing, Michigan
2008

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	59.7	29.4	0.06	**1**	68.8	41.0		1	73.4	49.5	
2	47.1	20.6		**2**	72.2	54.9	0.19	2	81.2	44.8	
3	53.9	25.3	0.03	**3**	67.8	43.6	0.04	3	68.5	57.8	0.91
4	45.3	32.9	0.14	**4**	64.4	36.5		4	69.1	58.3	
5	62.5	28.7		**5**	72.8	38.7		5	84.9	63.2	
6	62.5	34.0		**6**	77.7	38.7		6	89.3	67.7	0.24
7	68.2	39.4		**7**	68.4	49.1	0.20	7	82.6	65.6	0.72
8	63.6	35.8		**8**	N/A	N/A		8	85.5	64.1	1.60
9	61.2	39.1	0.04	**9**	N/A	N/A		9	81.2	N/A	
10	46.3	34.9	0.67	**10**	65.9	36.6		10	75.8	58.0	0.21
11	71.9	40.7	0.44	**11**	55.3	47.1	0.48	11	84.9	57.0	
12	46.1	33.1	0.20	**12**	58.7	41.4		12	83.1	63.8	
13	42.0	30.5	0.03	**13**	68.1	38.1		13	82.7	66.7	0.15
14	50.7	28.5		**14**	60.0	44.0	0.12	14	79.5	61.5	0.10
15	56.7	26.6		**15**	60.4	34.2		15	80.6	60.8	
16	68.7	44.3		**16**	68.4	38.9		16	71.7	54.4	
17	72.9	48.4		**17**	67.9	43.6	0.02	17	68.3	47.1	
18	76.3	47.8		**18**	56.8	46.3		18	62.6	49.3	
19	74.1	47.5		**19**	59.2	36.2		19	73.4	44.6	0.01
20	72.7	47.2		**20**	N/A	N/A	N/A	20	80.2	47.7	
21	72.9	44.3		**21**	57.7	40.7	0.03	21	78.2	56.6	
22	73.7	49.9		**22**	61.4	41.3	0.01	22	78.7	50.8	
23	74.4	50.9	0.03	**23**	63.3	38.0		23	77.1	55.2	0.27
24	70.3	44.2		**24**	68.4	35.8		24	80.1	52.2	
25	79.8	50.1	0.07	**25**	74.5	38.5		25	78.0	53.5	0.08
26	73.1	43.8		**26**	81.3	60.4	0.06	26	88.7	63.7	
27	58.3	39.3		**27**	68.6	41.7		27	87.1	59.6	
28	53.1	36.1		**28**	65.9	28.4		28	83.1	62.4	0.01
29	48.6	29.5		**29**	72.7	35.9		29	74.5	59.0	0.13
30	56.5	24.2		**30**	80.4	54.3	0.01	30	76.1	55.3	
				31	73.8	59.0					

TEMPERATURE AND PRECIPITATION DATA

MSU Horticulture Teaching and Research Center

Recorded at
MSU Horticulture Teaching and Research Center (HTRC)
East Lansing, Michigan
2008

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	80.7	44.1		**1**	86.3	59.1		**1**	87.6	53.0	
2	81.4	59.4	2.51	**2**	81.4	60.8		**2**	91.8	52.5	
3	71.3	57.7	0.04	**3**	84.3	55.3		**3**	88.6	59.8	0.72
4	75.8	46.9		**4**	84.9	63.3	0.04	**4**	70.1	59.0	0.10
5	80.2	49.8		**5**	86.1	70.3		**5**	70.2	55.3	0.16
6	82.6	50.0		**6**	82.7	62.3	0.02	**6**	75.7	53.5	
7	83.8	64.1	0.31	**7**	79.8	57.8	0.01	**7**	73.1	52.0	0.20
8	81.7	71.6	0.03	**8**	78.7	57.1		**8**	74.0	52.0	0.73
9	76.9	57.9		**9**	80.9	52.6	0.04	**9**	67.0	46.0	0.09
10	83.5	54.2		**10**	69.9	50.6	0.01	**10**	70.7	40.6	
11	82.5	63.4		**11**	77.6	54.0		**11**	75.1	48.0	
12	81.9	68.7	0.01	**12**	82.1	50.7		**12**	75.0	64.4	0.13
13	76.4	62.0		**13**	81.2	57.1	0.02	**13**	74.2	67.3	2.35
14	78.1	55.7		**14**	79.0	54.9	0.01	**14**	73.1	58.2	2.81
15	85.9	50.2		**15**	78.2	47.8		**15**	60.7	53.2	0.02
16	89.3	67.8	0.23	**16**	82.3	49.9		**16**	69.4	43.7	
17	88.7	64.9	0.01	**17**	85.7	61.4		**17**	79.0	50.6	
18	85.9	64.8		**18**	87.5	65.1		**18**	69.3	47.2	
19	77.1	66.5	0.58	**19**	76.4	58.0		**19**	76.2	45.5	
20	84.2	69.1	0.01	**20**	81.7	47.8		**20**	81.3	50.0	
21	81.9	66.6	0.02	**21**	86.2	49.0		**21**	70.9	52.5	
22	78.5	63.0	0.02	**22**	85.6	70.1	0.04	**22**	77.7	49.0	
23	80.2	59.2		**23**	89.9	67.9	0.46	**23**	79.2	48.9	
24	80.8	53.6		**24**	77.8	60.5		**24**	83.0	52.3	
25	80.3	54.8		**25**	73.3	50.5		**25**	82.3	52.4	
26	82.5	57.9		**26**	77.5	44.8		**26**	77.6	48.3	
27	82.5	57.2		**27**	83.7	50.0		**27**	75.8	45.5	
28	84.8	57.8		**28**	78.1	59.7		**28**	69.8	49.0	
29	86.9	60.5		**29**	83.1	59.7		**29**	66.2	54.0	0.73
30	86.1	63.9	0.02	**30**	86.8	51.0		**30**	62.0	50.2	0.10
31	85.0	63.9		**31**	88.2	51.6					

TEMPERATURE AND PRECIPITATION DATA

MSU Muck Soils Research Station

Recorded at
MSU Muck Soils Research Station (Muck Farm)
Laingsburg, Michigan
2008

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	60.2	30.2	0.08	**1**	68.3	41.4		**1**	74.6	42.7	
2	46.4	21.4		**2**	74.1	53.3	0.13	**2**	82.4	41.2	0.01
3	53.7	24.8	0.01	**3**	69.3	43.7	0.05	**3**	68.0	56.8	0.28
4	45.9	30.2	0.20	**4**	65.6	31.0		**4**	68.8	56.6	
5	N/A	N/A	N/A	**5**	75.0	34.9		**5**	86.0	63.6	0.02
6	N/A	N/A	N/A	**6**	78.5	33.4		**6**	91.9	68.4	0.12
7	N/A	N/A	N/A	**7**	69.7	48.5	0.20	**7**	85.2	65.5	0.99
8	N/A	N/A	N/A	**8**	58.2	33.1		**8**	86.3	64.8	0.64
9	45.3	41.2		**9**	64.1	31.4		**9**	80.9	66.3	
10	47.4	33.1	0.62	**10**	68.1	32.3		**10**	75.1	55.7	0.18
11	71.9	40.3	0.59	**11**	54.4	47.5	0.40	**11**	85.1	52.7	
12	46.3	33.3	0.30	**12**	60.6	39.6		**12**	82.2	62.3	
13	41.2	29.6	0.04	**13**	69.8	33.3		**13**	85.0	66.8	0.27
14	51.3	28.4		**14**	59.7	38.2	0.16	**14**	80.8	59.5	0.11
15	57.4	27.3		**15**	61.7	30.0		**15**	81.5	53.7	0.01
16	68.6	43.7		**16**	68.8	33.9		**16**	72.0	53.6	
17	74.1	49.3		**17**	68.0	39.9		**17**	67.1	43.0	
18	76.5	45.0		**18**	57.0	41.2		**18**	62.2	47.9	
19	75.0	44.6		**19**	61.0	29.2		**19**	73.7	39.6	
20	73.4	41.9		**20**	65.3	40.6		**20**	81.2	42.4	
21	72.9	40.2		**21**	59.3	39.9	0.04	**21**	77.4	52.6	
22	74.1	54.1		**22**	63.5	41.0		**22**	78.5	45.8	0.01
23	45.4	45.4	0.04	**23**	62.5	31.1		**23**	76.1	53.9	0.47
24	47.5	47.5		**24**	68.8	30.8		**24**	80.0	46.4	
25	79.9	50.2	0.10	**25**	76.3	32.5		**25**	77.3	50.1	0.02
26	73.5	44.6		**26**	81.2	61.6	0.08	**26**	89.1	57.8	
27	58.3	37.0		**27**	68.3	39.8		**27**	88.1	55.7	
28	51.9	32.4		**28**	67.5	25.3		**28**	82.0	59.8	0.35
29	49.0	28.8		**29**	74.0	32.9		**29**	74.5	58.3	0.10
30	57.1	20.7		**30**	80.2	53.4	0.02	**30**	77.4	48.9	0.01
				31	74.6	55.8					

TEMPERATURE AND PRECIPITATION DATA

MSU Muck Soils Research Station

Recorded at
MSU Muck Soils Research Station (Muck Farm)
Laingsburg, Michigan
2008

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	80.4	38.3		**1**	84.6	54.6		**1**	86.2	47.8	
2	80.8	53.8	2.39	**2**	81.4	55.1		**2**	91.7	46.0	
3	70.5	48.7	0.03	**3**	84.0	49.5		**3**	86.4	57.0	0.02
4	75.1	41.6		**4**	84.4	59.2		**4**	67.5	57.7	0.13
5	80.2	44.7		**5**	85.1	66.9		**5**	69.7	53.2	0.15
6	82.3	44.7		**6**	81.8	55.7	0.06	**6**	75.1	44.3	
7	83.3	60.2	0.62	**7**	78.4	51.8	0.06	**7**	72.4	47.1	0.18
8	81.4	70.3		**8**	77.9	47.7		**8**	70.5	45.8	0.65
9	76.0	54.8		**9**	77.5	47.3	0.23	**9**	67.9	40.8	0.05
10	82.3	49.0		**10**	68.1	41.3	0.01	**10**	70.2	33.3	
11	82.1	62.9		**11**	78.5	43.8		**11**	75.6	38.9	
12	81.5	65.7	0.01	**12**	81.2	45.8		**12**	74.3	61.6	0.26
13	75.0	61.1		**13**	80.4	53.5	0.10	**13**	73.3	65.3	2.22
14	77.4	51.1		**14**	78.2	49.4		**14**	72.8	58.0	2.50
15	86.3	45.0	0.01	**15**	78.5	41.3		**15**	59.2	48.8	0.05
16	89.9	63.5		**16**	80.3	43.7		**16**	67.7	38.5	
17	87.5	63.0		**17**	83.2	62.0		**17**	76.9	46.3	
18	84.9	68.2		**18**	85.4	60.7		**18**	69.5	40.1	0.03
19	78.0	62.7	0.55	**19**	75.5	47.6		**19**	73.6	39.6	
20	82.6	66.7	0.01	**20**	79.5	39.2		**20**	79.4	44.8	
21	81.9	63.4	0.01	**21**	85.0	41.2		**21**	69.0	48.2	
22	77.9	58.0	0.05	**22**	83.5	69.8		**22**	76.9	44.8	
23	80.3	55.9		**23**	87.9	67.0	1.08	**23**	78.9	41.6	
24	80.7	47.7		**24**	76.3	58.7	0.01	**24**	81.5	53.1	
25	80.0	49.8		**25**	71.2	44.1		**25**	81.7	45.8	
26	81.9	53.7		**26**	75.2	35.5		**26**	76.7	41.5	
27	81.6	51.8		**27**	81.8	40.9		**27**	76.7	38.2	
28	85.4	53.7		**28**	74.8	54.7		**28**	67.8	43.1	
29	86.5	55.4		**29**	80.6	54.4	0.01	**29**	65.8	44.1	0.77
30	84.5	61.1	0.01	**30**	86.6	45.4		**30**	61.5	47.7	0.01
31	85.5	56.3		**31**	87.1	46.4					

TEMPERATURE AND PRECIPITATION DATA

MSU Clarksville Horticulture Research Station

Recorded at
MSU Clarksville Horticulture Research Station (Clarksville)
Clarksville, Michigan
2008

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	58.5	27.2	0.05	**1**	68.6	39.4		**1**	73.1	47.4	
2	47.1	21.3		**2**	70.5	49.4	0.37	**2**	80.5	49.4	
3	54.6	27.7	0.04	**3**	62.3	42.1	0.06	**3**	71.4	54.6	0.21
4	50.0	35.0	0.18	**4**	62.2	34.6		**4**	66.8	54.8	
5	61.0	32.1		**5**	70.2	44.2		**5**	81.3	62.6	0.27
6	62.6	34.9		**6**	76.4	41.3		**6**	88.7	71.2	0.09
7	63.4	36.3		**7**	65.3	47.4	0.29	**7**	83.8	63.7	1.66
8	53.6	34.6	0.24	**8**	57.1	35.5		**8**	83.3	64.1	1.00
9	56.0	35.8	0.29	**9**	62.2	35.5		**9**	75.9	62.5	0.11
10	42.0	33.8	0.91	**10**	66.7	36.8		**10**	73.1	60.8	0.05
11	69.8	38.1	0.62	**11**	54.4	47.4	0.14	**11**	83.1	59.0	
12	41.7	33.0	0.24	**12**	63.0	40.5		**12**	84.1	63.4	
13	44.7	30.9	0.02	**13**	86.2	41.1		**13**	81.5	64.9	0.01
14	52.8	27.9		**14**	60.4	40.9	0.26	**14**	80.5	57.4	0.01
15	56.3	28.0		**15**	60.8	36.1		**15**	80.0	56.7	
16	69.5	42.5		**16**	67.1	35.4		**16**	69.0	52.7	
17	73.0	49.1		**17**	66.8	48.2	0.02	**17**	65.5	48.7	
18	75.4	49.9		**18**	55.2	41.4		**18**	65.6	51.9	
19	73.8	50.3		**19**	57.3	33.9		**19**	73.6	46.9	
20	74.2	43.6		**20**	63.0	40.0		**20**	79.6	49.1	
21	72.8	47.0		**21**	56.8	39.2		**21**	75.8	55.1	
22	73.0	50.0		**22**	63.1	40.8		**22**	74.6	51.7	0.15
23	74.2	53.8	0.10	**23**	63.6	38.8		**23**	75.3	53.4	
24	71.0	44.3		**24**	71.0	40.0		**24**	79.3	51.0	
25	79.3	48.3	0.09	**25**	74.2	42.7		**25**	76.3	56.8	0.13
26	66.1	39.8	0.01	**26**	78.4	60.9	0.15	**26**	84.6	62.3	0.01
27	51.5	36.9		**27**	65.3	43.1		**27**	85.2	62.4	0.66
28	52.3	32.0		**28**	66.2	31.2		**28**	78.3	57.8	0.15
29	47.1	26.4		**29**	70.7	36.9		**29**	72.1	56.1	0.22
30	55.2	23.5		**30**	77.5	52.7	0.29	**30**	75.7	53.7	
				31	72.3	53.9					

TEMPERATURE AND PRECIPITATION DATA

MSU Clarksville Horticulture Research Station

Recorded at
MSU Clarksville Horticulture Research Station (Clarksville)
Clarksville, Michigan
2008

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	77.2	49.1		**1**	83.7	58.4		**1**	87.5	56.1	
2	79.1	60.2	2.31	**2**	80.1	58.5		**2**	91.3	52.2	
3	73.0	54.5		**3**	83.1	56.0		**3**	81.4	63.8	
4	74.9	48.5		**4**	83.2	61.5	0.36	**4**	63.9	53.0	1.40
5	78.9	50.3		**5**	84.3	65.8		**5**	69.1	55.0	1.05
6	81.6	54.9		**6**	78.8	59.7	0.10	**6**	73.5	48.6	
7	80.2	66.1	1.09	**7**	76.6	55.6	0.01	**7**	71.0	53.4	0.25
8	79.3	69.6	0.02	**8**	76.4	53.2		**8**	69.1	49.1	0.44
9	73.2	59.7		**9**	76.6	53.2	0.02	**9**	66.8	47.9	
10	81.2	56.5		**10**	69.4	47.7		**10**	70.4	40.8	
11	81.2	60.9		**11**	78.3	52.3		**11**	76.1	45.3	
12	78.6	66.5	0.30	**12**	78.4	50.6		**12**	70.1	65.0	0.25
13	72.3	58.3		**13**	77.5	53.7		**13**	72.3	65.5	1.94
14	74.4	55.5		**14**	77.8	53.4	0.06	**14**	71.7	56.0	1.73
15	84.6	53.3		**15**	78.0	49.5		**15**	61.8	48.9	0.03
16	86.9	64.3	0.03	**16**	80.0	49.4		**16**	68.0	41.2	
17	85.7	61.8		**17**	82.4	58.3		**17**	76.5	51.7	
18	81.6	68.9		**18**	84.3	63.2		**18**	70.4	47.4	
19	73.8	65.3	0.08	**19**	77.1	55.4		**19**	74.0	45.2	
20	81.7	64.8	0.01	**20**	80.6	47.4		**20**	79.6	51.4	
21	81.4	63.6	0.03	**21**	84.6	49.1		**21**	73.2	54.3	
22	77.2	57.1	0.42	**22**	81.1	67.5	0.15	**22**	76.5	47.9	
23	81.0	58.0		**23**	87.1	67.3		**23**	80.1	47.3	
24	79.3	52.3		**24**	75.4	57.5	0.01	**24**	81.7	54.3	
25	76.6	56.6		**25**	73.7	49.5		**25**	82.7	55.9	
26	78.9	59.5		**26**	76.8	44.8		**26**	78.2	49.8	
27	81.1	57.7		**27**	82.9	48.8		**27**	76.6	46.8	
28	86.2	58.9		**28**	79.4	57.6		**28**	67.7	51.5	
29	85.2	58.5		**29**	81.1	58.5	0.40	**29**	64.8	48.6	0.27
30	82.4	65.5	0.73	**30**	84.1	51.4		**30**	59.3	48.9	0.06
31	82.3	61.5		**31**	88.1	55.2					

TEMPERATURE AND PRECIPITATION DATA

MSU Trevor Nichols Research Complex

Recorded at
MSU Trevor Nichols Research Complex (Fennville)
Fennville, Michigan
2008

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	59.1	27.1	0.05	**1**	71.6	45.4		**1**	68.3	46.8	
2	47.5	22.3		**2**	70.9	59.5	0.43	**2**	79.7	49.4	
3	55.0	27.8	0.01	**3**	59.8	41.6	0.14	**3**	68.8	59.7	0.28
4	49.8	32.7	0.13	**4**	60.5	32.2		**4**	73.0	57.2	0.07
5	60.2	34.0		**5**	68.3	42.9		**5**	85.3	63.3	0.05
6	66.7	33.0		**6**	78.3	43.4		**6**	87.6	71.9	
7	55.8	33.0		**7**	67.6	48.6	0.63	**7**	85.2	64.8	3.04
8	57.2	33.0	0.17	**8**	60.0	37.1		**8**	83.3	65.2	3.19
9	55.4	35.2	0.53	**9**	63.1	36.6		**9**	72.9	61.2	0.27
10	44.8	34.5	0.84	**10**	64.9	37.4		**10**	73.8	58.4	0.02
11	70.0	40.1	0.11	**11**	56.9	43.2	0.49	**11**	86.3	57.2	
12	41.1	35.8	0.39	**12**	49.8	36.7		**12**	87.9	66.5	
13	42.6	33.3	0.02	**13**	73.2	36.6		**13**	80.1	63.7	0.03
14	49.9	29.3		**14**	58.3	41.9	0.44	**14**	80.2	55.1	0.05
15	55.0	24.7		**15**	62.3	34.3		**15**	76.1	54.6	
16	71.6	43.7		**16**	65.9	36.8		**16**	65.4	52.3	
17	67.4	52.2		**17**	63.8	49.8		**17**	66.0	51.9	
18	76.3	50.5		**18**	52.9	41.8		**18**	65.5	49.7	
19	66.4	40.2		**19**	55.2	32.3		**19**	70.9	48.1	
20	61.0	37.5		**20**	58.6	40.2		**20**	75.9	51.1	
21	70.7	45.5		**21**	54.0	41.1		**21**	72.3	55.9	0.06
22	73.8	51.4		**22**	55.7	39.5		**22**	74.3	53.8	0.22
23	76.9	52.0		**23**	65.4	42.3		**23**	68.3	49.8	
24	73.8	53.7	0.08	**24**	69.2	37.5		**24**	75.5	49.8	
25	81.8	53.5	0.12	**25**	77.1	41.9		**25**	78.5	58.0	0.29
26	62.3	39.5	0.10	**26**	76.2	53.4	0.39	**26**	78.9	61.3	
27	48.1	36.9		**27**	58.2	44.6		**27**	83.8	63.0	0.86
28	54.0	29.0	0.01	**28**	64.1	33.3		**28**	77.4	58.7	0.08
29	43.2	29.5		**29**	66.1	35.6		**29**	70.7	57.3	0.60
30	60.8	23.9		**30**	73.8	53.5	0.29	**30**	71.9	51.0	
				31	69.5	49.7					

TEMPERATURE AND PRECIPITATION DATA

MSU Trevor Nichols Research Complex

Recorded at
MSU Trevor Nichols Research Complex(Fennville)
Fennville, Michigan
2008

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	77.3	49.1		**1**	83.0	60.8		**1**	88.9	56.8	
2	81.9	58.3	1.27	**2**	78.3	60.6		**2**	90.5	54.2	
3	72.6	56.0	0.01	**3**	83.7	55.6		**3**	78.9	65.2	0.03
4	77.5	51.6		**4**	84.8	64.0	0.29	**4**	65.7	55.1	2.49
5	78.4	49.5		**5**	80.6	65.6	0.04	**5**	70.3	53.5	0.71
6	82.5	53.4		**6**	80.4	62.8	0.53	**6**	71.5	47.0	
7	82.1	68.2	0.19	**7**	78.0	59.9		**7**	70.5	56.2	0.06
8	78.0	67.5	0.27	**8**	74.6	56.2		**8**	71.1	51.9	0.59
9	73.8	58.2		**9**	75.9	53.5		**9**	67.4	45.9	
10	80.0	56.5	0.03	**10**	70.0	49.8		**10**	71.8	41.9	
11	84.4	62.7	0.03	**11**	75.1	52.6		**11**	77.8	49.8	0.02
12	76.5	65.0	0.71	**12**	76.8	49.1		**12**	70.5	64.9	0.10
13	73.3	64.1		**13**	76.0	54.8		**13**	73.8	67.0	3.70
14	79.2	57.3		**14**	80.2	56.3		**14**	73.0	58.6	1.93
15	86.7	56.4		**15**	76.2	49.2		**15**	66.4	50.9	0.10
16	85.4	65.3	0.23	**16**	76.5	49.5		**16**	66.1	44.3	
17	86.2	64.1		**17**	80.1	64.8		**17**	70.7	52.2	
18	81.2	68.6		**18**	80.8	66.8		**18**	73.1	49.0	
19	73.1	65.8	0.52	**19**	79.1	63.1		**19**	76.3	50.5	
20	76.9	66.4		**20**	82.5	54.8		**20**	76.4	51.6	
21	78.6	62.6		**21**	84.5	55.6		**21**	78.0	54.3	
22	75.2	56.9		**22**	84.5	67.6	0.02	**22**	76.5	54.2	
23	77.5	57.7		**23**	85.5	66.3		**23**	81.3	50.1	
24				**24**	76.9	58.6		**24**	80.2	56.7	
25	77.9	56.8		**25**	75.9	51.4		**25**	80.8	57.5	
26	78.7	58.7		**26**	78.9	43.5		**26**	79.1	51.5	
27	78.7	58.5		**27**	85.6	47.2		**27**	77.8	47.0	
28	84.9	60.2		**28**	80.1	58.0		**28**	67.7	53.2	
29	87.4	56.2		**29**	79.7	58.0	0.18	**29**	69.8	55.1	0.15
30	83.0	70.2		**30**	80.0	53.9		**30**	60.4	50.0	0.84
31	83.9	62.2		**31**	88.9	53.5					

TEMPERATURE AND PRECIPITATION DATA

Fremont and Grant

Recorded at
City of Fremont
Fremont, Michigan
2008

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	56.4	24.3	0.10	**1**	67.7	40.4		**1**	74.6	45.1	
2	45.4	19.5		**2**	68.9	48.0	0.48	**2**	80.3	45.0	
3	53.4	26.5		**3**	58.7	40.8	0.03	**3**	67.6	55.5	0.15
4	55.2	36.0	0.10	**4**	58.5	32.0		**4**	66.3	55.5	
5	60.6	30.3		**5**	70.6	41.6		**5**	77.6	62.4	0.81
6	65.0	35.9		**6**	74.6	40.3		**6**	83.8	71.8	0.04
7	57.2	35.5		**7**	65.6	45.0	0.16	**7**	83.0	60.5	0.32
8	49.0	30.6	0.24	**8**	63.7	34.8		**8**	80.8	65.0	2.04
9	53.1	35.4	0.22	**9**	65.2	36.1		**9**	70.6	63.0	0.40
10	44.9	33.6	0.86	**10**	66.5	37.3		**10**	73.3	58.1	0.03
11	57.6	39.3	0.40	**11**	56.5	46.4	0.01	**11**	82.7	53.5	
12	42.8	33.8	0.31	**12**	65.4	39.6		**12**	82.6	61.6	
13	49.0	30.0	0.01	**13**	70.3	40.1		**13**	80.0	60.0	0.25
14	54.4	28.8		**14**	63.8	40.3	0.20	**14**	78.2	52.9	0.01
15	53.5	23.6		**15**	65.2	33.5		**15**	77.0	53.4	
16	70.6	45.0		**16**	66.1	37.3		**16**	65.7	51.8	
17	68.7	51.2		**17**	66.1	51.6		**17**	69.3	47.5	
18	74.1	51.2		**18**	55.3	39.9		**18**	65.6	51.6	
19	75.5	48.7		**19**	58.7	30.8		**19**	74.7	47.2	
20	77.0	40.7		**20**	65.4	34.3		**20**	78.8	48.4	
21	72.4	50.9		**21**	59.9	38.5		**21**	78.9	55.9	
22	71.6	51.6		**22**	61.2	39.1	0.01	**22**	73.2	49.3	
23	79.6	50.4		**23**	66.1	39.0		**23**	75.4	49.6	
24	72.0	46.7	0.05	**24**	73.2	39.6		**24**	77.8	47.6	
25	78.5	50.0	0.90	**25**	74.7	40.4		**25**	75.3	54.0	0.05
26	60.8	39.1	0.21	**26**	79.7	54.1		**26**	85.6	62.6	
27	47.6	34.1		**27**	64.3	41.0		**27**	83.6	62.0	0.05
28	52.7	27.8		**28**	66.9	30.0		**28**	77.0	58.4	0.10
29	48.1	27.3		**29**	69.2	32.7		**29**	71.3	57.0	
30	55.0	22.4		**30**	74.0	51.5	0.85	**30**	76.9	52.4	
				31	73.0	53.1	0.01				

TEMPERATURE AND PRECIPITATION DATA

Fremont and Grant

Recorded at
City of Fremont
Fremont, Michigan
2008

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	79.7	44.6		**1**	85.7	57.1		**1**	88.5	56.3	
2	75.8	57.1	1.46	**2**	85.1	59.1		**2**	90.8	55.4	
3	75.6	53.5		**3**	84.9	55.3	0.02	**3**	74.1	60.6	0.10
4	77.6	50.0		**4**	84.1	60.9	0.36	**4**	61.8	51.8	1.24
5	78.8	48.5		**5**	86.9	65.7	0.02	**5**	72.0	51.7	1.18
6	80.2	51.4		**6**	79.9	59.7	0.31	**6**	71.0	46.3	
7	77.3	66.6	0.19	**7**	77.9	55.9	0.01	**7**	70.5	54.1	
8	77.2	67.3	0.06	**8**	78.5	53.7		**8**	65.4	51.0	0.17
9	74.1	60.8		**9**	76.6	53.4		**9**	67.5	45.1	
10	80.2	54.0		**10**	72.6	48.8		**10**	69.7	39.6	
11	79.4	62.9		**11**	79.6	51.2		**11**	74.8	49.1	
12	76.6	65.0	0.66	**12**	79.9	48.1		**12**	74.2	67.0	
13	71.2	61.6		**13**	79.4	53.6		**13**	73.5	66.3	1.08
14	75.9	53.7		**14**	78.4	52.5		**14**	73.3	55.9	0.79
15	83.8	52.1		**15**	78.5	49.2		**15**	61.8	46.8	0.01
16	86.1	63.2	0.14	**16**	81.2	47.2		**16**	65.8	38.9	
17	84.4	62.3		**17**	80.9	60.1		**17**	79.7	50.9	
18	80.9	66.9		**18**	84.9	62.5		**18**	70.4	45.2	
19	79.9	63.0		**19**	77.6	58.5		**19**	73.2	47.0	
20	80.9	64.5	0.01	**20**	81.9	49.6		**20**	78.3	51.5	
21	82.4	61.7		**21**	85.9	54.5		**21**	66.5	55.8	
22	78.1	55.5		**22**	83.2	68.4		**22**	75.5	48.7	
23	83.6	56.7		**23**	82.5	63.4	0.35	**23**	78.2	49.4	
24	82.1	51.5		**24**	75.9	56.4		**24**	76.6	54.0	
25	75.1	57.3		**25**	75.7	46.9		**25**	79.7	55.8	
26	79.7	61.8		**26**	77.7	46.7		**26**	77.7	51.7	
27	83.4	58.2		**27**	83.1	51.2		**27**	80.2	47.2	
28	87.3	57.2		**28**	78.9	58.0		**28**	66.3	54.6	
29	85.2	55.3		**29**	82.1	57.5	0.12	**29**	64.5	53.6	0.04
30	84.9	66.6		**30**	80.6	50.9		**30**	61.8	48.7	0.16
31	85.7	59.6		**31**	88.6	54.2					

TEMPERATURE AND PRECIPITATION DATA

Hart

Recorded at
Asparagus Research Farm
Hart, Michigan
2008

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	57.6	25.1	0.72	**1**	69.1	36.1		**1**	68.3	41.5	
2	44.0	21.5		**2**	68.9	49.0	0.22	**2**	78.3	49.2	
3	52.6	29.3		**3**	59.1	37.2	0.05	**3**	66.8	56.7	0.21
4	52.5	35.9		**4**	58.5	30.7		**4**	71.6	56.9	
5	60.6	37.0		**5**	64.6	41.6		**5**	77.0	61.4	1.09
6	65.5	38.0		**6**	74.7	39.1		**6**	82.1	64.8	0.27
7	56.1	40.4		**7**	67.1	42.9		**7**	81.4	58.2	0.16
8	50.2	32.5	0.46	**8**	63.5	33.0		**8**	71.2	60.5	2.29
9	50.0	34.6	0.27	**9**	59.5	40.5		**9**	70.3	60.4	0.18
10	43.1	31.7	0.66	**10**	63.4	34.4		**10**	73.8	56.0	0.04
11	58.5	39.1	0.02	**11**	60.9	42.5		**11**	80.4	53.5	
12	41.9	33.5	0.19	**12**	52.5	36.1		**12**	81.9	63.0	0.04
13	45.7	29.2		**13**	73.4	37.3		**13**	74.9	61.6	0.76
14	48.0	23.8		**14**	61.4	41.6	0.20	**14**	78.0	56.4	
15	52.8	23.3		**15**	65.6	32.3		**15**	78.0	56.4	
16	70.7	45.4		**16**	66.4	34.6		**16**	63.6	49.5	
17	65.7	47.5		**17**	64.3	47.6	0.01	**17**	69.0	48.7	
18	74.1	47.1		**18**	53.6	35.0		**18**	64.7	50.5	
19	66.7	42.1		**19**	57.5	31.0		**19**	75.6	45.9	
20	73.8	39.0		**20**	61.6	35.0		**20**	78.8	49.7	
21	72.1	50.1		**21**	57.1	37.7	0.01	**21**	77.6	56.6	0.01
22	71.8	49.2		**22**	58.6	40.5		**22**	71.0	51.4	0.06
23	76.1	43.9		**23**	65.0	37.3		**23**	68.4	47.4	
24	74.5	45.1	0.05	**24**	67.0	41.5		**24**	77.0	46.4	
25	75.8	50.7	1.45	**25**	74.1	41.6		**25**	77.9	59.1	
26	60.6	37.8	0.09	**26**	79.2	44.0		**26**	81.5	63.0	
27	45.9	34.3		**27**	59.7	39.9		**27**	82.4	64.4	0.11
28	52.0	28.9		**28**	55.6	26.4		**28**	76.4	57.0	0.21
29	42.9	24.5		**29**	67.7	29.5		**29**	68.4	55.5	0.01
30	53.3	22.3		**30**	71.5	50.7	0.43	**30**	75.1	52.8	
				31	68.4	53.8	0.02				

TEMPERATURE AND PRECIPITATION DATA

Hart

Recorded at
Asparagus Research Farm
Hart, Michigan
2008

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	80.0	47.2		**1**	83.0	57.7		**1**	87.2	61.5	
2	71.1	58.2	1.59	**2**	76.9	57.2		**2**	89.9	60.2	
3	71.3	52.9		**3**	84.1	52.6	0.03	**3**	75.1	59.5	0.04
4	73.1	51.1		**4**	83.0	61.4	0.62	**4**	59.9	52.5	1.57
5	76.7	48.8		**5**	80.3	67.3		**5**	68.1	50.1	0.26
6	80.5	54.1		**6**	78.8	59.2	0.14	**6**	67.5	51.5	0.03
7	79.2	65.2	0.78	**7**	75.3	56.5	0.28	**7**	70.6	52.3	
8	79.3	66.4	0.12	**8**	73.2	55.6		**8**	65.2	53.2	0.12
9	73.3	59.2		**9**	74.0	52.1		**9**	64.3	44.4	
10	80.6	56.7	0.01	**10**	71.3	49.4		**10**	69.4	40.4	0.01
11	80.1	61.4		**11**	73.8	47.9		**11**	74.3	51.2	0.02
12	75.7	63.8	0.14	**12**	75.5	45.2		**12**	72.9	63.3	
13	71.5	63.4		**13**	78.7	56.4		**13**	72.1	63.5	0.45
14	76.9	52.3		**14**	78.5	50.8	0.01	**14**	71.9	56.1	0.59
15	84.4	58.4		**15**	75.6	47.0		**15**	60.0	44.1	0.01
16	88.2	63.5	0.13	**16**	78.8	47.0		**16**	66.3	41.9	
17	84.5	62.9	0.06	**17**	82.9	63.5		**17**	78.0	49.3	
18	80.2	67.2		**18**	84.3	67.0		**18**	71.3	46.7	
19	79.2	64.5		**19**	79.3	57.8		**19**	73.4	50.5	
20	79.0	62.7	0.01	**20**	80.8	51.1		**20**	75.3	57.9	
21	79.6	60.8		**21**	84.8	55.0		**21**	68.8	54.4	
22	75.7	55.8		**22**	85.1	70.1		**22**	76.8	51.6	
23	80.7	53.9		**23**	80.7	59.7	0.09	**23**	78.6	54.3	
24	78.2	50.0		**24**	71.7	52.0		**24**	75.7	56.2	
25	74.5	61.0		**25**	75.6	44.8		**25**	81.0	50.6	
26	78.1	66.9		**26**	78.3	47.4		**26**	80.0	52.5	
27	81.9	65.4		**27**	84.1	50.6		**27**	79.4	49.5	
28	83.1	57.7		**28**	80.3	56.5	0.32	**28**	64.6	50.5	
29	86.1	53.8		**29**	76.8	59.7	0.41	**29**	62.4	53.2	0.10
30	84.3	67.1		**30**	79.7	54.4		**30**	61.0	48.3	0.22
31	83.8	59.8		**31**	86.3	59.1					

TEMPERATURE AND PRECIPITATION DATA

Hudsonville

Recorded at
Michigan Celery Cooperative
Hudsonville, Michigan
2008

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	58.6	27.7	0.05	**1**	69.8	43.8		**1**	69.6	46.4	
2	49.5	23.3		**2**	72.2	57.0	0.83	**2**	79.3	49.7	
3	54.2	28.9	0.03	**3**	62.5	42.2	0.09	**3**	70.5	58.0	0.27
4	52.6	34.0	0.21	**4**	59.5	35.4		**4**	68.6	56.4	
5	60.4	34.7		**5**	67.5	46.8		**5**	83.9	63.1	0.42
6	65.5	33.8		**6**	77.2	42.6		**6**	88.5	73.8	0.08
7	58.3	36.3		**7**	66.5	48.3	0.30	**7**	85.3	64.3	2.75
8	55.4	35.3	0.17	**8**	59.8	37.8		**8**	83.4	65.3	1.29
9	57.2	36.9	0.38	**9**	64.1	39.3		**9**	74.3	63.0	0.31
10	43.2	36.4	0.95	**10**	67.2	38.1		**10**	73.6	60.4	0.02
11	70.2	40.9	0.16	**11**	56.0	48.4	0.31	**11**	84.2	59.4	
12	41.8	35.6	0.41	**12**	57.6	39.9		**12**	85.6	65.6	
13	47.0	32.7	0.03	**13**	71.1	39.8		**13**	79.6	63.9	0.18
14	52.2	28.9		**14**	60.7	42.7	0.38	**14**	79.2	54.5	0.12
15	55.5	28.0		**15**	62.2	35.8		**15**	77.1	58.0	
16	71.4	44.4		**16**	65.5	38.4		**16**	65.4	51.9	
17	70.2	50.8	0.01	**17**	65.3	52.0		**17**	67.2	48.7	
18	76.4	50.9		**18**	56.7	42.4		**18**	66.6	50.2	
19	74.5	43.4	0.01	**19**	54.9	34.8		**19**	71.4	47.6	
20	73.7	39.7		**20**	64.5	N/A		**20**	76.7	50.6	
21	73.1	51.9		**21**	55.6	40.6	0.01	**21**	73.9	58.0	0.03
22	73.7	55.6		**22**	61.7	39.2		**22**	74.8	50.5	0.01
23	77.5	51.9	0.14	**23**	66.1	41.4		**23**	74.2	51.0	
24	73.3	48.1	0.04	**24**	71.4	39.3		**24**	76.7	48.5	
25	80.8	52.7	0.34	**25**	76.3	43.2		**25**	74.8	56.7	0.07
26	63.7	40.1	0.18	**26**	77.8	59.8	0.28	**26**	81.2	63.1	
27	49.7	37.4		**27**	63.5	45.9		**27**	84.4	63.7	0.46
28	53.0	30.1		**28**	66.2	36.7		**28**	76.9	59.9	0.09
29	45.6	30.3		**29**	68.4	36.1		**29**	70.9	58.1	0.30
30	57.4	25.8		**30**	73.7	54.0	0.34	**30**	74.8	52.7	
				31	71.0	53.8	0.10				

TEMPERATURE AND PRECIPITATION DATA

Hudsonville

Recorded at
Michigan Celery Cooperative
Hudsonville, Michigan
2008

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	77.2	48.2		**1**	83.1	59.5		**1**	87.9	55.3	
2	81.5	61.4	1.59	**2**	82.2	58.5		**2**	92.6	54.5	
3	72.8	55.1	0.01	**3**	81.8	55.2	0.02	**3**	79.9	64.9	0.02
4	77.5	52.5		**4**	83.5	64.9	0.17	**4**	67.5	54.3	2.44
5	78.6	50.3		**5**	83.1	65.9		**5**	72.0	53.2	1.04
6	82.8	52.5		**6**	80.0	59.8	0.13	**6**	73.0	46.9	
7	80.4	67.3	0.72	**7**	78.2	56.4	0.04	**7**	71.7	57.3	0.22
8	78.3	68.6	0.57	**8**	76.1	52.6		**8**	71.2	51.5	0.45
9	72.4	60.6		**9**	77.3	54.2		**9**	68.5	46.3	
10	80.6	58.0		**10**	74.1	46.5		**10**	70.3	42.3	
11	82.4	62.3		**11**	78.3	49.3		**11**	77.2	51.8	
12	77.9	64.9	0.37	**12**	76.8	49.4		**12**	71.5	67.2	0.21
13	73.0	60.6		**13**	75.4	53.9		**13**	74.1	67.2	1.69
14	75.7	54.9		**14**	81.1	53.8		**14**	74.0	57.0	2.82
15	85.7	54.0		**15**	78.1	49.4		**15**	66.0	48.9	0.01
16	86.8	65.6	0.29	**16**	79.8	49.1		**16**	67.8	42.6	
17	85.3	64.3	0.01	**17**	80.7	57.4		**17**	74.5	54.5	
18	81.0	68.2		**18**	83.4	65.0		**18**	70.6	48.4	
19	74.8	65.3	0.16	**19**	77.3	63.1		**19**	75.8	51.2	
20	79.3	64.8		**20**	80.4	54.2		**20**	78.9	54.5	
21	82.7	63.0		**21**	85.6	53.7		**21**	75.1	54.8	
22	75.1	55.6	0.11	**22**	83.5	70.6	0.05	**22**	76.6	53.1	
23	83.3	56.1		**23**	85.4	64.9	0.05	**23**	80.0	50.9	0.03
24	78.6	50.7		**24**	77.8	56.8		**24**	82.0	58.5	
25	77.5	58.0		**25**	75.3	51.1		**25**	81.9	57.3	
26	78.6	58.7		**26**	77.5	46.6		**26**	78.7	51.5	
27	79.9	57.0		**27**	83.8	52.7		**27**	79.1	46.3	
28	85.3	59.1		**28**	80.0	57.6		**28**	67.2	52.4	
29	85.1	56.3		**29**	83.6	55.9		**29**	65.3	55.3	0.18
30	81.5	67.9	0.46	**30**	83.0	53.0		**30**	60.9	48.6	0.13
31	82.3	61.0		**31**	88.7	54.2					

TEMPERATURE AND PRECIPITATION DATA

Imlay City

Recorded at
Lapeer USDA/NRCS Office
Lapeer, Michigan
2007

	APRIL				MAY				JUNE		
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	69.4	44.0	0.35	**1**	50.5	47.0	0.42	**1**	83.8	63.4	
2	53.5	35.8		**2**	64.0	44.9		**2**	89.0	59.5	
3	58.4	31.9	0.31	**3**	65.0	38.8		**3**	72.4	61.8	0.32
4	56.3	22.0	0.03	**4**	69.8	36.1		**4**	76.4	58.9	0.40
5	26.8	18.7	0.03	**5**	67.9	42.4		**5**	58.9	45.5	0.13
6	30.2	19.9	0.01	**6**	63.9	42.0		**6**	70.0	37.3	0.01
7	28.0	18.0	0.01	**7**	74.9	35.5		**7**	90.2	57.2	
8	31.4	22.6	0.01	**8**	85.6	52.1		**8**	85.1	54.8	0.06
9	40.0	19.7		**9**	67.2	57.6	1.01	**9**	78.0	45.6	
10	47.7	25.4		**10**	78.6	47.7		**10**	82.3	48.2	
11	39.9	27.4	0.35	**11**	80.0	50.6		**11**	82.2	52.3	
12	45.0	33.7	0.17	**12**	60.4	37.2		**12**	86.4	49.4	
13	49.0	28.7		**13**	67.4	29.8		**13**	91.6	53.5	
14	45.9	22.4		**14**	76.0	44.1	0.23	**14**	87.9	56.2	
15	51.9	27.7		**15**	84.4	52.5	1.02	**15**	82.9	56.8	
16	58.2	32.4		**16**	53.8	43.7	0.08	**16**	88.4	53.9	
17	60.5	33.0		**17**	61.5	36.2	0.03	**17**	87.7	64.8	
18	47.2	40.0	0.10	**18**	69.4	31.9		**18**	91.1	63.4	
19	63.2	36.7		**19**	74.6	39.5		**19**	79.9	60.5	1.02
20	72.7	31.9		**20**	60.1	36.4		**20**	78.2	50.5	
21	76.2	34.4		**21**	65.1	32.1		**21**	78.6	55.3	
22	82.1	45.1		**22**	84.7	46.3		**22**	74.7	47.8	
23	75.8	49.4		**23**	88.2	54.4		**23**	79.3	45.9	
24	66.4	39.7		**24**	89.2	56.1		**24**	84.1	49.4	
25	52.4	40.1	0.18	**25**	73.8	56.5	0.03	**25**	88.7	57.5	
26	52.8	-55.2	0.58	**26**	65.1	50.4	0.33	**26**	91.1	63.4	
27	55.2	44.6	0.01	**27**	74.6	48.9	0.14	**27**	85.4	68.5	0.12
28	69.2	43.4	0.03	**28**	76.9	41.7		**28**	76.0	54.5	
29	75.5	41.2		**29**	83.9	48.6		**29**	78.1	44.2	
30	70.1	48.2	0.01	**30**	89.5	56.2	0.10	**30**	78.7	46.5	
				31	88.3	62.0					

TEMPERATURE AND PRECIPITATION DATA

Imlay City

Recorded at
Lapeer USDA/NRCS Office
Lapeer, Michigan
2007

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	71.3	45.9		**1**	97.0	61.2		**1**	81.6	49.1	
2	76.8	40.0		**2**	93.7	62.9		**2**	80.9	51.2	
3	79.9	56.2		**3**	91.7	62.2		**3**	85.9	59.9	
4	78.9	61.5	0.22	**4**	85.9	55.0		**4**	83.3	54.2	
5	85.0	60.5	0.03	**5**	67.4	50.4	0.03	**5**	89.9	58.2	
6	83.5	55.0		**6**	84.4	66.5		**6**	85.9	59.3	
7	86.3	53.1		**7**	86.2	66.2	0.88	**7**	80.3	70.6	0.10
8	92.9	66.3		**8**	90.0	66.7		**8**	79.3	55.3	
9	92.1	69.8		**9**	75.7	63.8	1.00	**9**	76.9	59.4	
10	92.4	63.8	0.31	**10**	85.1	61.6		**10**	71.7	54.5	0.15
11	75.3	55.0	0.07	**11**	85.7	55.2		**11**	68.2	50.9	0.52
12	77.0	52.4		**12**	87.7	63.6	0.92	**12**	64.1	44.5	
13	76.4	49.7		**13**	82.1	50.6		**13**	73.0	39.0	
14	76.2	49.9	0.16	**14**	83.6	52.7		**14**	67.0	47.4	0.01
15	77.9	48.0		**15**	75.9	62.8		**15**	60.3	37.0	
16	80.5	50.6		**16**	82.5	58.6		**16**	67.0	32.9	
17	80.2	61.5	0.02	**17**	77.9	51.6		**17**	72.9	37.8	
18	86.6	60.2	0.01	**18**	72.7	41.7	0.01	**18**	83.6	49.9	
19	81.5	57.7	0.02	**19**	58.9	53.6	0.49	**19**	86.6	50.1	
20	76.2	51.6		**20**	62.8	56.6	0.93	**20**	78.7	49.1	
21	79.5	41.8		**21**	72.2	59.1		**21**	87.9	48.1	
22	82.7	43.4		**22**	89.2	62.8	0.39	**22**	74.8	45.0	0.01
23	83.6	48.0		**23**	87.7	62.9	0.04	**23**	77.7	37.8	
24	87.8	56.3		**24**	86.8	67.3	0.99	**24**	89.8	41.7	
25	80.6	60.5		**25**	78.0	62.6	0.05	**25**	84.6	65.2	0.34
26	80.9	53.6		**26**	79.3	51.7		**26**	70.8	58.3	0.01
27	87.2	62.4	0.16	**27**	80.2	50.8		**27**	72.3	50.4	
28	84.8	56.6		**28**	86.9	54.2		**28**	70.5	43.1	
29	87.0	53.4		**29**	90.9	62.4	0.42	**29**	73.5	37.6	
30	91.4	50.9		**30**	74.1	49.8		**30**	78.0	50.5	
31	97.0	58.5		**31**	79.8	46.3					

TEMPERATURE AND PRECIPITATION DATA

Momence

Recorded at
Stelle, Illinois Climate Network Station
Stelle, Illinois
2008

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	55.9	28.5		**1**	74.4	44.8		**1**	82.6	55.5	
2	48.0	25.4	0.02	**2**	70.2	49.0	1.09	**2**	85.5	57.6	
3	55.0	28.4		**3**	52.1	39.8	0.01	**3**	76.2	64.2	0.39
4	51.4	31.1	0.01	**4**	65.7	34.9	0.01	**4**	82.6	64.9	0.25
5	60.7	29.0		**5**	73.6	38.6		**5**	84.8	69.3	0.03
6	64.3	31.8		**6**	81.7	43.8		**6**	82.3	68.1	0.02
7	56.8	39.5	0.01	**7**	67.0	50.2	0.03	**7**	83.4	67.5	0.06
8	62.7	39.5	0.25	**8**	54.4	45.2	0.01	**8**	88.6	70.0	0.01
9	45.1	35.5	0.01	**9**	58.8	38.9		**9**	74.2	64.2	0.01
10	57.7	38.0	0.28	**10**	65.3	33.2		**10**	81.1	55.9	0.01
11	61.2	39.5	0.10	**11**	54.5	43.5	1.33	**11**	80.8	59.4	
12	39.7	32.5	0.02	**12**	60.8	37.5	0.02	**12**	88.7	64.5	
13	41.6	26.6	0.10	**13**	69.4	41.6	0.07	**13**	80.3	62.5	
14	49.5	27.2	0.01	**14**	60.5	44.6	0.01	**14**	83.8	54.4	
15	57.1	25.3	0.01	**15**	54.7	39.7	0.01	**15**	85.8	57.3	
16	68.2	38.9		**16**	70.7	38.3		**16**	74.4	54.5	
17	73.4	46.0		**17**	75.0	50.0		**17**	75.3	49.4	
18	73.3	48.8		**18**	61.1	40.2		**18**	78.1	51.4	
19	60.2	47.6	0.08	**19**	62.3	37.3		**19**	78.9	48.5	
20	71.3	47.2		**20**	62.0	41.7		**20**	84.3	51.7	
21	73.5	42.5		**21**	65.4	38.7		**21**	82.0	56.9	
22	75.1	44.8		**22**	62.7	42.0		**22**	81.4	52.3	
23	76.2	50.7		**23**	54.7	44.4	0.47	**23**	75.6	52.6	
24	74.1	55.9		**24**	68.8	43.3	0.01	**24**	80.5	49.2	
25	80.0	43.5	0.24	**25**	73.7	45.2		**25**	79.5	62.9	0.90
26	58.2	37.7	0.03	**26**	78.6	59.9	0.09	**26**	80.3	66.3	0.01
27	51.8	33.0		**27**	66.1	42.5	0.07	**27**	80.3	60.9	0.13
28	44.8	33.1	0.01	**28**	66.7	40.8	0.02	**28**	79.7	54.9	0.04
29	46.7	30.3	0.03	**29**	71.6	40.0		**29**	72.6	58.1	
30	64.6	30.1	0.01	**30**	77.4	55.3	0.47	**30**	77.2	51.9	
				31	78.3	61.5	0.03				

TEMPERATURE AND PRECIPITATION DATA

Momence

Recorded at
Stelle, Illinois Climate Network Station
Stelle, Illinois
2008

	JULY				AUGUST				SEPTEMBER		
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	80.6	49.9		**1**	83.5	66.3		**1**	87.0	55.3	
2	85.3	54.7		**2**	78.6	59.2		**2**	90.2	58.5	0.09
3	71.7	52.9		**3**	79.0	52.3		**3**	78.7	63.4	
4	75.3	51.7		**4**	85.1	64.3	0.18	**4**	65.2	60.1	2.67
5	78.6	48.5		**5**	81.0	67.0	0.76	**5**	65.2	49.5	
6	84.0	52.3	0.01	**6**	79.4	62.1		**6**	72.3	48.6	0.05
7	83.5	68.2	0.41	**7**	75.6	56.0		**7**	71.1	52.5	0.11
8	81.4	66.5	0.08	**8**	75.3	54.0		**8**	66.1	50.6	0.49
9	78.9	62.4		**9**	75.2	55.5	0.07	**9**	66.8	45.0	
10	83.0	59.3	0.04	**10**	71.6	50.4		**10**	71.0	45.6	
11	85.7	59.9	0.05	**11**	76.3	49.2		**11**	72.8	49.1	0.12
12	81.0	59.8	1.13	**12**	75.8	51.4	0.46	**12**	70.8	64.6	0.81
13	75.2	57.4	0.05	**13**	77.8	53.7		**13**	80.3	67.0	2.14
14	80.6	56.0	0.12	**14**	76.8	54.0		**14**	68.7	55.2	3.36
15	85.0	58.8		**15**	77.4	52.1		**15**	63.4	53.5	0.09
16	85.5	62.5		**16**	77.5	49.4		**16**	70.7	45.7	
17	85.6	65.0		**17**	79.0	49.3		**17**	80.4	46.7	
18	85.3	61.8		**18**	80.4	55.3		**18**	76.0	53.0	
19	81.8	67.4	0.21	**19**	82.0	53.5		**19**	79.0	48.8	
20	83.4	62.9	0.19	**20**	81.7	60.2		**20**	79.3	51.4	
21	80.7	63.6	0.24	**21**	75.8	59.9	0.12	**21**	79.3	54.3	
22	76.5	56.9		**22**	80.6	67.0	0.06	**22**	81.2	56.2	
23	78.6	54.7		**23**	87.3	63.9		**23**	81.7	53.5	
24	77.9	54.3		**24**	77.4	54.4		**24**	82.3	51.9	
25	78.1	61.1		**25**	75.3	51.2		**25**	83.3	53.0	
26	80.6	57.7		**26**	76.9	51.2		**26**	77.4	51.7	
27	80.0	54.5		**27**	83.2	54.1		**27**	77.5	47.7	
28	83.3	64.0		**28**	75.7	56.0	0.16	**28**	74.4	53.0	
29	84.3	61.1	0.31	**29**	81.6	55.2		**29**	65.8	49.5	0.12
30	81.4	65.7		**30**	86.1	51.2		**30**	59.4	43.3	
31	82.2	65.8		**31**	85.8	51.7					

TEMPERATURE AND PRECIPITATION DATA

Benton Harbor

Recorded at
MSU Southwest MI Research and Extension Center(SWREC)
Benton Harbor, Michigan
2008

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	58.6	28.7	0.08	**1**	74.2	47.4		**1**	69.3	46.2	
2	49.7	23.6		**2**	70.9	57.6	0.66	**2**	84.0	51.0	
3	57.4	32.9	0.01	**3**	62.2	42.4	0.08	**3**	74.0	61.3	0.18
4	47.7	34.8	0.09	**4**	62.5	35.0		**4**	80.9	63.0	0.02
5	60.9	34.3		**5**	72.6	45.9		**5**	88.0	65.4	
6	65.2	41.1		**6**	79.9	48.7		**6**	88.7	71.2	0.52
7	60.8	36.2		**7**	66.7	51.1	0.55	**7**	81.8	70.5	
8	62.9	35.8	0.12	**8**	59.7	41.9		**8**	86.2	66.6	0.67
9	63.0	34.7	0.50	**9**	61.3	39.4		**9**	79.4	62.5	0.09
10	N/A	N/A	N/A	**10**	63.0	39.6		**10**	77.0	61.2	0.06
11	70.0	42.4	0.03	**11**	57.6	42.1	0.63	**11**	85.1	61.0	
12	43.0	35.5	0.36	**12**	50.0	38.3		**12**	87.9	68.5	
13	41.0	32.2	0.02	**13**	71.6	37.5		**13**	82.6	63.7	0.05
14	46.1	29.6		**14**	59.1	38.0	0.06	**14**	82.3	55.5	0.01
15	58.2	27.8		**15**	62.0	36.3		**15**	82.4	57.9	0.06
16	71.5	44.6		**16**	N/A	N/A		**16**	65.8	53.5	
17	73.8	51.0		**17**	67.0	49.7	0.10	**17**	70.3	48.5	
18	75.2	55.6		**18**	52.8	44.0	0.02	**18**	65.6	50.5	
19	67.4	43.1	0.13	**19**	57.4	34.1		**19**	76.3	46.9	
20	58.4	40.2		**20**	59.1	43.2		**20**	80.9	52.7	
21	73.3	47.7		**21**	58.3	42.8		**21**	77.3	57.2	0.07
22	74.6	54.4		**22**	52.7	40.7		**22**	77.3	52.8	0.03
23	77.1	53.1		**23**	61.2	42.3		**23**	68.1	50.3	
24	72.7	56.4	0.05	**24**	68.5	41.8		**24**	78.8	47.0	
25	82.0	55.5	0.22	**25**	76.9	43.5		**25**	76.6	63.0	0.02
26	64.1	40.1	0.07	**26**	79.3	59.1	0.18	**26**	N/A	N/A	0.01
27	50.6	39.7		**27**	69.2	42.1		**27**	85.6	68.3	
28	53.4	30.4	0.09	**28**	62.5	37.3		**28**	82.2	61.8	0.03
29	41.9	29.5		**29**	68.3	36.1		**29**	73.2	57.1	0.51
30	58.0	26.0		**30**	77.5	57.1		**30**	71.3	50.9	
				31	75.8	52.8					

TEMPERATURE AND PRECIPITATION DATA

Benton Harbor

Recorded at
MSU Southwest MI Research and Extension Center(SWREC)
Benton Harbor, Michigan
2008

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	81.0	48.1		**1**	84.7	63.6		**1**	88.6	61.9	
2	86.6	60.1	0.37	**2**	76.4	61.0		**2**	92.6	61.1	
3	71.6	57.1	0.38	**3**	85.8	56.7		**3**	76.0	66.0	
4	77.6	54.2		**4**	80.9	65.2	0.54	**4**	66.9	59.4	1.43
5	78.7	51.9		**5**	81.0	66.8		**5**	68.9	52.4	0.79
6	85.7	57.2		**6**	81.6	63.6	0.01	**6**	71.7	47.5	
7	84.9	69.1	0.03	**7**	75.3	66.2		**7**	70.1	56.3	0.29
8	81.0	68.1	0.62	**8**	74.1	57.9		**8**	70.9	53.7	0.88
9	75.6	60.8	0.01	**9**	75.1	55.7	0.45	**9**	65.0	48.8	0.05
10	83.6	59.6	0.02	**10**	69.3	50.6		**10**	71.0	44.5	
11	87.5	63.0	0.01	**11**	72.4	53.3		**11**	77.9	52.5	
12	79.7	66.4	0.75	**12**	76.0	49.3		**12**	70.9	68.0	0.31
13	76.1	63.0		**13**	73.9	56.0		**13**	74.9	67.0	3.18
14	77.9	61.4		**14**	77.5	59.1		**14**	73.4	59.9	2.63
15	90.3	60.0		**15**	75.3	55.3		**15**	62.8	55.5	0.67
16	89.1	67.4	0.03	**16**	78.1	52.7		**16**	67.4	50.9	
17	88.4	66.4		**17**	82.0	59.7		**17**	71.8	51.9	
18	87.3	68.8		**18**	83.4	62.7		**18**	73.1	53.1	
19	79.1	66.5	1.28	**19**	81.7	59.3		**19**	76.9	52.6	
20	78.3	67.5	0.02	**20**	83.3	59.4		**20**	79.4	53.4	
21	77.4	62.6		**21**	86.7	59.1		**21**	80.4	55.6	
22	72.1	59.5		**22**	80.8	68.3	0.31	**22**	78.1	57.9	
23	73.6	57.2		**23**	87.3	70.0		**23**	81.0	54.4	
24	78.7	54.3		**24**	74.2	59.3		**24**	82.2	58.3	
25	81.8	56.8		**25**	75.8	53.7		**25**	82.7	60.0	
26	77.9	59.1	0.11	**26**	79.9	50.2		**26**	80.2	55.7	
27	81.8	57.3		**27**	81.7	53.6		**27**	76.3	48.6	
28	83.3	64.3		**28**	79.2	59.7		**28**	70.4	52.4	
29	87.9	58.9		**29**	79.1	59.3	0.11	**29**	67.7	50.9	0.88
30	85.2	69.8		**30**	82.6	53.8	0.01	**30**	60.6	50.9	0.43
31	84.5	67.0		**31**	90.3	55.9					

Weed Control in Asparagus – Hart 2008

Project Code: WC 120-08-01 **Location: Hart, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Asparagus **Variety: Millenium**
Planting Method: Transplant **Planting Date: 4/30/04**
Spacing: 12 inch **Row Spacing: 4.5 FT**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 4.5 ft wide x 50 ft long

Soil Type: Spinks Loamy Fine Sand **OM: 1.4%** **pH: 6.7**
Sand: 84% **Silt: 12%** **Clay: 4%** **CEC: 6.1**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/24/08	10:15 am	61/50	°F	Dry	6 SE	27	90% Cloudy	N
POH	6/20/08	10:00 am	66/76	°F	Dry	1 SW	56	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/20	ASPA = asparagus	1-6″		
6/20	FISB = field sandbur	0.5-1″		many
6/20	FIBW = field bindweed	2-10″		many/spotty
6/20	HOWE = horseweed (marestail)	3-6″		many
6/20	RUTH = Russian thistle	2-4″		spotty

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.

Weed Control in Asparagus – Hart 2008

Dept. of Horticulture, MSU

Trial ID: WC 120-08-01 Study Director: Dr. Bernard Zandstra
Location: Hart Investigator: Rodney Tocco

Trt No	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code								FIBW	HOWE	RUTH		FISB
Pest Name							Asparag				Asparag	
Rating Date							6-3-08	6-3-08	6-3-08	6-3-08	6-20-08	6-20-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE,POH	1.0	7.0	10.0	7.7	2.0	8.7
	Mesotrione	4	SC	0.094	lb ai/a	PRE,POH						
	NIS	100	SL	0.25	% v/v	PRE,POH						
2	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE,POH	1.0	7.3	9.7	8.3	1.7	8.7
	Mesotrione	4	SC	0.188	lb ai/a	PRE,POH						
	NIS	100	SL	0.25	% v/v	PRE,POH						
3	Diuron	80	DF	2	lb ai/a	PRE,POH	1.0	4.7	3.3	7.0	1.3	9.0
4	Flumioxazin	51	WDG	0.383	lb ai/a	PRE,POH	1.0	8.0	4.7	10.0	1.3	10.0
5	Terbacil	80	WP	1	lb ai/a	PRE,POH	1.0	3.7	10.0	10.0	1.0	7.3
6	Sulfentrazone	4	F	0.375	lb ai/a	PRE,POH	1.0	6.7	9.7	9.7	1.7	6.0
7	Halosulfuron	75	WG	0.047	lb ai/a	PRE,POH	1.0	8.7	9.0	9.3	1.3	9.3
8	BAS 800	70	WG	0.045	lb ai/a	PRE,POH	1.0	6.3	10.0	7.0	1.7	6.4
9	Pendimethalin	3.8	CS	1.9	lb ai/a	PRE,POH	1.0	6.0	6.3	6.3	1.3	10.0
10	Untreated						1.0	6.0	5.0	5.0	1.3	9.3
LSD (P=.05)							0.00	5.67	4.73	5.17	1.10	3.95
Standard Deviation							0.00	3.31	2.76	3.01	0.64	2.29
CV							0.0	51.39	35.5	37.49	43.91	27.07

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code							FIBW	HOWE	RUTH		FISB	FIBW
Pest Name										Asparag		
Rating Date							6-20-08	6-20-08	6-20-08	7-18-08	7-18-08	7-18-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE,POH	6.3	9.3	7.0	1.3	5.0	7.7
	Mesotrione	4	SC	0.094	lb ai/a	PRE,POH						
	NIS	100	SL	0.25	% v/v	PRE,POH						
2	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE,POH	6.7	9.3	7.3	2.3	8.3	7.3
	Mesotrione	4	SC	0.188	lb ai/a	PRE,POH						
	NIS	100	SL	0.25	% v/v	PRE,POH						
3	Diuron	80	DF	2	lb ai/a	PRE,POH	4.0	7.7	7.7	1.0	8.3	5.0
4	Flumioxazin	51	WDG	0.383	lb ai/a	PRE,POH	7.0	4.7	10.0	1.7	10.0	10.0
5	Terbacil	80	WP	1	lb ai/a	PRE,POH	2.0	10.0	10.0	1.0	10.0	3.7
6	Sulfentrazone	4	F	0.375	lb ai/a	PRE,POH	6.0	7.7	10.0	2.0	7.0	9.3
7	Halosulfuron	75	WG	0.047	lb ai/a	PRE,POH	8.3	9.3	10.0	1.3	5.3	7.0
8	BAS 800	70	WG	0.045	lb ai/a	PRE,POH	6.3	9.7	7.0	1.0	3.9	10.0
9	Pendimethalin	3.8	CS	1.9	lb ai/a	PRE,POH	5.0	4.3	5.0	1.0	10.0	8.0
10	Untreated						5.0	5.3	4.0	1.3	8.0	4.3
LSD (P=.05)							5.21	4.11	5.45	0.80	4.37	4.46
Standard Deviation							3.04	2.40	3.18	0.47	2.54	2.60
CV							53.62	31.01	40.71	33.39	33.4	35.91

Weed Control in Asparagus – Hart 2008

Dept. of Horticulture, MSU

Pest Code							HOWE		FISB	LACG	FIBW	HOWE	
Pest Name								Asparag					Asparag
Rating Date							7-18-08	8-26-08	8-26-08	8-26-08	8-26-08	8-26-08	
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING	TOTAL
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10	KG/PLOT
Trt No	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage							
1	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE,POH	10.0	2.0	3.0	10.0	7.0	10.0	3.54
	Mesotrione	4	SC	0.094	lb ai/a	PRE,POH							
	NIS	100	SL	0.25	% v/v	PRE,POH							
2	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE,POH	10.0	2.3	6.3	9.0	6.3	10.0	3.77
	Mesotrione	4	SC	0.188	lb ai/a	PRE,POH							
	NIS	100	SL	0.25	% v/v	PRE,POH							
3	Diuron	80	DF	2	lb ai/a	PRE,POH	8.7	2.0	8.0	6.7	5.0	8.7	3.99
4	Flumioxazin	51	WDG	0.383	lb ai/a	PRE,POH	6.0	2.3	9.0	10.0	8.3	6.3	4.76
5	Terbacil	80	WP	1	lb ai/a	PRE,POH	10.0	1.0	9.7	9.0	4.0	10.0	4.72
6	Sulfentrazone	4	F	0.375	lb ai/a	PRE,POH	10.0	2.3	7.0	8.3	8.0	10.0	4.49
7	Halosulfuron	75	WG	0.047	lb ai/a	PRE,POH	9.3	1.7	4.7	5.7	8.7	10.0	4.41
8	BAS 800	70	WG	0.045	lb ai/a	PRE,POH	10.0	3.3	5.9	0.7	7.0	10.0	4.42
9	Pendimethalin	3.8	CS	1.9	lb ai/a	PRE,POH	6.0	1.0	9.7	9.7	7.3	6.3	5.96
10	Untreated						6.3	1.3	5.3	5.0	8.3	7.0	4.19
LSD (P=.05)							3.96	1.25	2.98	4.24	4.57	3.43	1.764
Standard Deviation							2.31	0.73	1.73	2.46	2.67	2.00	1.028
CV							26.74	37.64	25.21	33.23	38.09	22.63	23.24

Weed Control in Asparagus – Sandhill HTRC 2008

Project Code: WC 120-08-02 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann, Eric Ott
Crop: Asparagus **Variety: Jersey Giant**
Planting Method: Crowns **Planting Date: 4/20/99**
Spacing: 12 inch **Row Spacing: 6 FT**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.33 ft wide x 50 ft long

Soil Type: Riddles Sandy Loam **OM: 1.0%** **pH: 8.1**
Sand: 83% **Silt: 6%** **Clay: 8%** **CEC: 13.7**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/17/08	11:00 am	68/53	°F	Dry	6 S	53	50% Cloudy	N
PO1	6/6/08	9:30 am	80/71	°F	Damp	5 SW	75	10% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/6	QUGR = quackgrass	4-6″		many
6/6	SPKW = spotted knapweed	3-6″		many
6/6	WICA = wild carrot	1-4″		many

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.

Weed Control in Asparagus – Sandhill HTRC 2008

Dept. of Horticulture, MSU

Trial ID: WC 120-08-02 Study Director: Dr. Bernard Zandstra
Location: HTRC Sandhill Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code								QUGR	SPKW		QUGR	SPKW
Description							Asparagus			Asparagus		
Rating Date							5-28-08	5-28-08	5-28-08	6-6-08	6-6-08	6-6-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Diuron	80	DF	1.2	lb ai/a	PRE	1.7	7.7	7.0	1.0	5.7	4.7
2	Metribuzin	75	DF	0.5	lb ai/a	PRE	2.3	7.0	7.0	1.0	6.0	5.7
3	Diuron	80	DF	1.2	lb ai/a	PRE	1.3	4.0	7.7	1.0	3.7	6.3
	Metribuzin	75	DF	0.5	lb ai/a	PRE						
4	Terbacil	80	WP	1.2	lb ai/a	PRE	1.7	10.0	9.3	1.0	9.7	8.3
5	Flumioxazin	51	WDG	0.192	lb ai/a	PRE	2.3	7.0	7.3	1.0	6.3	4.0
6	Sulfentrazone	4	F	0.375	lb ai/a	PRE	1.3	8.7	7.7	1.0	9.0	4.3
7	Halosulfuron	75	WG	0.047	lb ai/a	PRE	1.7	7.0	9.3	1.0	6.3	7.0
8	Mesotrione	4	SC	0.094	lb ai/a	PRE	1.7	8.0	8.3	1.0	7.0	6.3
9	Diuron	80	DF	1.2	lb ai/a	PRE	1.0	7.0	5.3	1.0	5.0	3.3
	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE						
10	Clomazone	3	ME	1	lb ai/a	PRE	2.0	10.0	9.0	1.0	9.3	8.3
11	Diuron	80	DF	1.2	lb ai/a	PRE	2.0	7.3	6.7	1.0	5.0	4.0
	Mesotrione	4	SC	0.094	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	AMS	100	DF	2	% ai/v	PO1						
12	Diuron	80	DF	1.2	lb ai/a	PRE	1.0	9.0	6.7	1.0	7.3	1.3
	Carfentrazone	1.9	EW	.03	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	AMS	100	DF	2	% ai/v	PO1						
LSD (P=.05)							1.31	4.31	2.80	0.00	3.77	3.31
Standard Deviation							0.77	2.54	1.65	0.00	2.23	1.96
CV							46.42	32.95	21.69	0.0	33.24	36.89

Weed Control in Asparagus – Sandhill HTRC 2008

Dept. of Horticulture, MSU

Description							WICA	Asparagus	Asparagus	Asparagus	Asparagus
Rating Date							6-6-08				
Rating Data Type							RATING	GOOD SPR	GOOD SPR	BAD SPR	BAD SPR
Rating Unit							1-10	TOTAL #	KG/PLOT	TOTAL #	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Diuron	80	DF	1.2	lb ai/a	PRE	5.0	195.0	3.18	7.3	0.15
2	Metribuzin	75	DF	0.5	lb ai/a	PRE	8.3	263.3	4.23	10.7	0.19
3	Diuron	80	DF	1.2	lb ai/a	PRE	6.3	253.0	4.27	9.0	0.15
	Metribuzin	75	DF	0.5	lb ai/a	PRE					
4	Terbacil	80	WP	1.2	lb ai/a	PRE	10.0	261.0	4.18	15.3	0.29
5	Flumioxazin	51	WDG	0.192	lb ai/a	PRE	4.7	200.3	3.19	11.7	0.22
6	Sulfentrazone	4	F	0.375	lb ai/a	PRE	7.0	256.7	4.17	11.7	0.21
7	Halosulfuron	75	WG	0.047	lb ai/a	PRE	7.0	238.7	3.94	10.3	0.19
8	Mesotrione	4	SC	0.094	lb ai/a	PRE	9.0	239.7	3.96	9.0	0.13
9	Diuron	80	DF	1.2	lb ai/a	PRE	5.3	219.3	3.57	5.3	0.08
	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE					
10	Clomazone	3	ME	1	lb ai/a	PRE	1.0	254.0	4.23	10.7	0.18
11	Diuron	80	DF	1.2	lb ai/a	PRE	6.3	189.7	3.11	20.3	0.30
	Mesotrione	4	SC	0.094	lb ai/a	PO1					
	COC	100	SL	1	% v/v	PO1					
	AMS	100	DF	2	% ai/v	PO1					
12	Diuron	80	DF	1.2	lb ai/a	PRE	4.7	211.3	3.41	27.3	0.33
	Carfentrazone	1.9	EW	.03	lb ai/a	PO1					
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1					
	COC	100	SL	1	% v/v	PO1					
	AMS	100	DF	2	% ai/v	PO1					
LSD (P=.05)							5.31	67.37	1.155	7.80	0.150
Standard Deviation							3.14	39.78	0.682	4.60	0.089
CV							50.41	17.16	18.01	37.17	43.96

Weed Control in Transplanted Asparagus – Hart 2007

Project Code: WC 120-07-04 **Location: Hart, MI Res. Station**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Asparagus **Variety: Millennium**
Planting Method: Transplant **Planting Date: 6/21/07**
Spacing: 12 inch **Row Spacing: 4.5 FT**
Tillage Type: Conventional **Study Design: RCB** **Replications: 4**
Plot Size: 4.5 ft wide x 50 ft long

Soil Type: Spinks Loamy Fine Sand **OM: 3.3%** **pH: 5.5**
Sand: 77% **Silt: 19%** **Clay: 4%** **CEC: 11**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
POT	6/21/07	1:30 pm	75/88	°F	Dry	8 S	33	10% cloudy	N

Crop and Weed Information at Application

Date	Crop or Weed	Height or Diameter	Growth Stage	Density
7/12/07	Asparagus			
7/12/07	COLQ = common lambsquarters			
7/12/07	RRPW = redroot pigweed			
8/17/07	Asparagus			
8/17/07	STGR = stinkgrass			
8/17/07	RSFI = redstem filaree			

Notes and Comments

1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. 10/23/07 All fern from each plot was harvested and weighed.
4. 10/14/08 – All ferns from each plot were harvested and weighed.

Weed Control in Transplanted Asparagus – Hart 2007

Dept. of Horticulture, MSU

Trial ID: WC 120-07-04 Study Director: Dr. Bernard Zandstra
Location: Hart Invesitgator: Rodney Tocco, Chad Herrmann

Trt No	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Asparagus 7/12/08 RATING 1-10	COLQ 7/12/08 RATING 1-10	RRPW 7/12/08 RATING 1-10	Asparagus 8/17 /07 RATING 1-10	STGR 8/17 /07 RATING 1-10	RSFI 8/17 /07 RATING 1-10
1	Diuron	80	WP	1	lb ai/a	PRE	1.3	9.5	7.3	1.8	9.0	7.8
2	Linuron	50	DF	1	lb ai/a	PRE	1.3	10.0	8.5	1.5	8.8	7.3
3	s-Metolachlor	7.62	EC	1.26	lb ai/a	PRE	1.0	7.3	7.5	1.3	9.3	9.3
4	Flumioxazin	51	WDG	0.128	lb ai/a	PRE	2.5	9.0	8.5	2.8	9.0	9.5
5	Halosulfuron	75	WG	0.047	lb ai/a	PRE	1.3	10.0	8.8	1.5	7.0	7.8
6	Mesotrione	4	SC	0.094	lb ai/a	PRE	3.0	10.0	9.0	6.8	7.5	7.5
7	Norflurazon	80	DF	3	lb ai/a	PRE	1.3	9.8	8.0	1.5	9.3	7.3
8	Sulfentrazone	4	F	0.25	lb ai/a	PRE	3.0	9.5	9.3	3.0	7.8	8.3
9	Napropamide	50	DF	2	lb ai/a	PRE	1.0	8.3	6.8	1.5	10.0	10.0
10	Untreated						1.0	1.0	1.0	1.5	9.0	10.0
LSD (P=.05)							0.62	1.41	1.67	1.14	2.77	4.00
Standard Deviation							0.43	0.97	1.15	0.78	1.91	2.76
CV							25.82	11.51	15.48	34.09	22.06	32.64

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Asparagus 10/23 /07 HARVEST #/PLOT	Asparagus 10/23 /07 HARVEST KG/PLOT	Asparagus 5/27 /08 RATING 1-10	Asparagus 10/14 /08 Harvest #	Asparagus 10/14/08 Harvest KG/PLOT
1	Diuron	80	WP	1	lb ai/a	PRE	24.3	0.35	2.0	22.8	1.57
2	Linuron	50	DF	1	lb ai/a	PRE	24.0	0.24	1.5	22.0	1.28
3	s-Metolachlor	7.62	EC	1.26	lb ai/a	PRE	23.8	0.39	2.0	21.0	1.58
4	Flumioxazin	51	WDG	0.128	lb ai/a	PRE	24.3	0.31	2.3	20.3	1.33
5	Halosulfuron	75	WG	0.047	lb ai/a	PRE	25.3	0.40	1.0	23.8	1.78
6	Mesotrione	4	SC	0.094	lb ai/a	PRE	17.3	0.06	6.8	15.3	0.40
7	Norflurazon	80	DF	3	lb ai/a	PRE	24.3	0.41	1.5	22.8	2.13
8	Sulfentrazone	4	F	0.25	lb ai/a	PRE	22.3	0.26	2.5	20.5	1.16
9	Napropamide	50	DF	2	lb ai/a	PRE	23.8	0.41	1.5	23.3	1.57
10	Untreated						23.0	0.25	1.5	22.5	1.32
LSD (P=.05)							3.77	0.162	1.22	3.00	0.490
Standard Deviation							2.60	0.111	0.84	2.07	0.338
CV							11.2	36.35	37.48	9.66	23.91

Weed Control in Transplanted Asparagus – Hart 2008

Project Code: WC 120-08-03 **Location: Hart, MI Res. Station**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Asparagus **Variety: Millennium**
Planting Method: Transplant **Planting Date: 6/20/08**
Spacing: 12 inch **Row Spacing: 4.5 ft**
Tillage Type: Conventional **Study Design: RCB** **Replications: 4**
Plot Size: 4.5 ft wide x 40 ft long

Soil Type: Spinks Loamy fine sand **OM: 3.3%** **pH: 5.5**
Sand: 77% **Silt: 19%** **Clay: 4%** **CEC: 11**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	6/20/08	12:30 pm	80/72	°F	Good	2 E	56	20% Cloudy	N
PO1	7/18/08	10:00 am	75/70	°F	Dry	5 SW	80	100% Cloudy	N
PO2	7/30/08	3:40 pm	86/93	°F	Dry	8 W	56	5% Cloudy	N
PO3	8/26/08	2:00 pm	75/72	°F	Dry	5 NE	33	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/20	ASPA = asparagus	10-12″		
7/18	ASPA = asparagus	6-8″		stand good
7/18	LACG = Large crabgrass	1-2″		few
7/18	COPU = common purslane	0.5-1″		few
7/18	RRPW = redroot pigweed	0.5-2″		many
7/30	ASPA = asparagus	12-16″		
7/30	RRPW = redroot pigweed	2-6″		many
7/30	LACG = large crabgrass	2-5″		some
7/30	HANS = hairy nightshade	3-4″		few

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. 10/14/08 – All ferns from each plot were harvested and weighed.

Weed Control in Transplanted Asparagus – Hart 2008

Dept. of Horticulture, MSU

Trial ID: WC 120-08-03 Study Director: Dr. Bernard Zandstra
Location: HART Investigator: Rodney Tocco

Description							ASPARAGUS	LACG	COPU	RRPW	ASPARAGUS	LACG
Rating Date							7-18-08	7-18-08	7-18-08	7-18-08	7-30-08	7-30-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	Diuron	80	DF	1	lb ai/a	PRE	1.8	7.3	6.5	6.3	2.8	5.0
2	Linuron	50	DF	1	lb ai/a	PRE	2.5	9.5	8.5	6.5	2.8	5.8
	Halosulfuron	75	WG	0.0155	lb ai/a	PO1						
	Linuron	50	DF	0.156	lb ai/a	PO2						
	Halosulfuron	75	WG	0.023	lb ai/a	PO3						
3	s-Metolachlor	7.62	EC	1.26	lb ai/a	PRE	2.5	9.5	9.3	9.0	5.3	10.0
4	Flumioxazin	51	WDG	0.128	lb ai/a	PRE	8.3	10.0	10.0	10.0	7.5	9.3
5	Halosulfuron	75	WG	0.047	lb ai/a	PRE	1.0	8.0	9.8	9.3	1.3	7.8
	Halosulfuron	75	WG	0.023	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
6	Mesotrione	4	SC	0.094	lb ai/a	PRE	5.0	9.3	7.5	8.5	5.4	8.0
7	Norflurazon	80	DF	3	lb ai/a	PRE	1.5	10.0	9.8	6.5	4.0	10.0
	Linuron	50	DF	0.156	lb ai/a	PO1						
	Linuron	50	DF	0.156	lb ai/a	PO2						
	Linuron	50	DF	0.188	lb ai/a	PO3						
8	Sulfentrazone	4	F	0.25	lb ai/a	PRE	5.8	10.0	10.0	9.8	7.0	8.0
	Pendimethalin	3.8	CS	1.6	lb ai/a	PO1						
9	Napropamide	50	DF	2	lb ai/a	PRE	3.0	9.3	8.5	7.5	3.5	8.0
	Metribuzin	75	DF	0.123	lb ai/a	PO1						
	Metribuzin	75	DF	0.123	lb ai/a	PO2						
	Metribuzin	75	DF	0.15	lb ai/a	PO3						
10	Untreated						1.3	7.3	5.0	4.8	1.0	1.0
LSD (P=.05)							1.94	2.93	2.57	2.47	1.58	2.77
Standard Deviation							1.34	2.02	1.77	1.70	1.08	1.91
CV							41.15	22.47	20.93	21.85	26.85	26.26

Weed Control in Transplanted Asparagus – Hart 2008

Dept. of Horticulture, MSU

Description							STGR	COLQ	COPU	RRPW	HANS	ASPARAGUS
Rating Date							7-30-08	7-30-08	7-30-08	7-30-08	7-30-08	8-26-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	Diuron	80	DF	1	lb ai/a	PRE	8.3	10.0	7.5	4.3	8.8	1.0
2	Linuron	50	DF	1	lb ai/a	PRE	7.0	9.3	4.5	7.8	7.3	1.8
	Halosulfuron	75	WG	0.0155	lb ai/a	PO1						
	Linuron	50	DF	0.156	lb ai/a	PO2						
	Halosulfuron	75	WG	0.023	lb ai/a	PO3						
3	s-Metolachlor	7.62	EC	1.26	lb ai/a	PRE	10.0	9.3	7.3	5.8	9.5	1.8
4	Flumioxazin	51	WDG	0.128	lb ai/a	PRE	10.0	10.0	9.5	9.5	9.3	4.0
5	Halosulfuron	75	WG	0.047	lb ai/a	PRE	9.8	9.8	6.8	10.0	9.0	1.3
	Halosulfuron	75	WG	0.023	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
6	Mesotrione	4	SC	0.094	lb ai/a	PRE	10.0	10.0	7.3	6.0	9.5	3.0
7	Norflurazon	80	DF	3	lb ai/a	PRE	10.0	9.8	9.8	4.8	10.0	2.5
	Linuron	50	DF	0.156	lb ai/a	PO1						
	Linuron	50	DF	0.156	lb ai/a	PO2						
	Linuron	50	DF	0.188	lb ai/a	PO3						
8	Sulfentrazone	4	F	0.25	lb ai/a	PRE	10.0	10.0	9.3	9.0	10.0	4.5
	Pendimethalin	3.8	CS	1.6	lb ai/a	PO1						
9	Napropamide	50	DF	2	lb ai/a	PRE	9.3	10.0	7.8	5.8	9.3	2.0
	Metribuzin	75	DF	0.123	lb ai/a	PO1						
	Metribuzin	75	DF	0.123	lb ai/a	PO2						
	Metribuzin	75	DF	0.15	lb ai/a	PO3						
10	Untreated						1.0	1.0	1.0	1.0	1.0	1.5
LSD (P=.05)							2.51	0.74	1.45	2.44	1.79	1.38
Standard Deviation							1.73	0.51	1.00	1.68	1.23	0.95
CV							20.29	5.72	14.18	26.33	14.74	40.87

Weed Control in Transplanted Asparagus – Hart 2008

Dept. of Horticulture, MSU

Description						LACG	HANS	RRPW	STGR	TUPW	ASPARAGUS
Rating Date						8-26-08	8-26-08	8-26-08	8-26-08	8-26-08	9-11-08
Rating Data Type						RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Diuron	80	DF	1	lb ai/a	PRE	3.8	5.0	4.0	5.8	5.8	2.8
2	Linuron	50	DF	1	lb ai/a	PRE	4.3	4.8	7.5	5.5	10.0	2.8
	Halosulfuron	75	WG	0.0155	lb ai/a	PO1						
	Linuron	50	DF	0.156	lb ai/a	PO2						
	Halosulfuron	75	WG	0.023	lb ai/a	PO3						
3	s-Metolachlor	7.62	EC	1.26	lb ai/a	PRE	8.8	6.8	5.3	9.3	6.8	3.3
4	Flumioxazin	51	WDG	0.128	lb ai/a	PRE	7.8	6.5	8.5	9.5	10.0	7.0
5	Halosulfuron	75	WG	0.047	lb ai/a	PRE	6.3	7.3	9.8	9.0	10.0	2.0
	Halosulfuron	75	WG	0.023	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
6	Mesotrione	4	SC	0.094	lb ai/a	PRE	5.0	8.3	5.0	8.0	10.0	4.8
7	Norflurazon	80	DF	3	lb ai/a	PRE	8.8	9.5	4.8	10.0	10.0	4.8
	Linuron	50	DF	0.156	lb ai/a	PO1						
	Linuron	50	DF	0.156	lb ai/a	PO2						
	Linuron	50	DF	0.188	lb ai/a	PO3						
8	Sulfentrazone	4	F	0.25	lb ai/a	PRE	4.5	9.5	6.5	8.0	10.0	7.0
	Pendimethalin	3.8	CS	1.6	lb ai/a	PO1						
9	Napropamide	50	DF	2	lb ai/a	PRE	8.5	6.8	6.3	10.0	10.0	3.5
	Metribuzin	75	DF	0.123	lb ai/a	PO1						
	Metribuzin	75	DF	0.123	lb ai/a	PO2						
	Metribuzin	75	DF	0.15	lb ai/a	PO3						
10	Untreated						3.8	7.8	1.8	5.3	10.0	1.5
LSD (P=.05)							4.11	4.29	3.31	3.52	2.83	2.16
Standard Deviation							2.83	2.96	2.28	2.43	1.95	1.49
CV							46.22	41.11	38.55	30.24	21.07	38.0

Weed Control in Transplanted Asparagus – Hart 2008

Dept. of Horticulture, MSU

Description							STGR	LACG	RRPW	ASPARAGUS	ASPARAGUS
Rating Date							9-11-08	9-11-08	9-11-08	10-14-08	10-14-08
Rating Data Type							RATING	RATING	RATING	Harvest	Harvest
Rating Unit							1-10	1-10	1-10	# Ferns	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Diuron	80	DF	1	lb ai/a	PRE	6.0	5.0	5.0	20.8	0.05
2	Linuron	50	DF	1	lb ai/a	PRE	5.8	5.5	9.0	22.0	0.05
	Halosulfuron	75	WG	0.0155	lb ai/a	PO1					
	Linuron	50	DF	0.156	lb ai/a	PO2					
	Halosulfuron	75	WG	0.023	lb ai/a	PO3					
3	s-Metolachlor	7.62	EC	1.26	lb ai/a	PRE	9.3	9.8	6.8	21.5	0.07
4	Flumioxazin	51	WDG	0.128	lb ai/a	PRE	9.3	8.8	9.3	11.0	0.02
5	Halosulfuron	75	WG	0.047	lb ai/a	PRE	9.0	7.8	9.5	24.5	0.10
	Halosulfuron	75	WG	0.023	lb ai/a	PO1					
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1					
6	Mesotrione	4	SC	0.094	lb ai/a	PRE	9.0	6.5	5.3	16.3	0.04
7	Norflurazon	80	DF	3	lb ai/a	PRE	10.0	9.3	5.8	19.0	0.04
	Linuron	50	DF	0.156	lb ai/a	PO1					
	Linuron	50	DF	0.156	lb ai/a	PO2					
	Linuron	50	DF	0.188	lb ai/a	PO3					
8	Sulfentrazone	4	F	0.25	lb ai/a	PRE	9.8	6.3	8.0	12.3	0.03
	Pendimethalin	3.8	CS	1.6	lb ai/a	PO1					
9	Napropamide	50	DF	2	lb ai/a	PRE	9.8	8.5	7.8	22.0	0.05
	Metribuzin	75	DF	0.123	lb ai/a	PO1					
	Metribuzin	75	DF	0.123	lb ai/a	PO2					
	Metribuzin	75	DF	0.15	lb ai/a	PO3					
10	Untreated						3.8	3.3	1.8	22.3	0.07
LSD (P=.05)							3.44	3.44	2.78	5.22	0.039
Standard Deviation							2.37	2.37	1.91	3.60	0.027
CV							29.11	33.59	28.15	18.78	53.61

Weed Control in Snap Bean – HTRC 2008

Project Code: WC 125-08-01 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Snap Bean **Variety: Hercules**
Planting Method: Seeded **Planting Date: 5/2/08**
Spacing: 3 inch **Row Spacing: 14 inch; 3 rows/plot**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Capac Loam **OM: 82.2%** **pH: 6.7**
Sand: 64% **Silt: 28%** **Clay: 8%** **CEC: 8.7**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/8/08	2:00 pm	61/62	°F	Dry	6 E	60	95% cloudy	N
PO1	6/6/08	10:15 am	90/73	°F	Dry	5-7 W	53	5% cloudy	N

Crop and Weed Information at Application

Date	Crop or Weed	Height or Diameter	Growth Stage	Density
5/8	SNBE = snap bean			
6/6	SNBE = snap bean			good
6/6	QUGR = quackgrass		2-4 Leaf	few
6/6	COLQ = common lambsquarters	1-2″	4-6 Leaf	many
6/6	LACG = large crabgrass	0-2″	1-3 Leaf	few
6/6	LATH = ladysthumb	1-2″	2-4 Leaf	few

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Planted 3 rows of snap bean per plot 14 inches apart.
4. Harvested all plants in plot.

Weed Control in Snap Bean – HTRC 2008

Dept. of Horticulture, MSU

Trial ID: WC 125-08-01 Study Director: Dr. Bernard Zandstra
Location: HTRC Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code								BYGR	GRFT	COLQ	LATH	
Crop Code							SNAPBEAN					SNAPBEAN
Rating Date							6-6-08	6-6-08	6-6-08	6-6-08	6-6-08	6-13-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.3	9.0	9.0	5.0	8.0	1.3
2	Prefix	5.29	L	1.0	qt/a	PRE	1.7	9.3	9.0	9.0	10.0	1.3
3	Fomesafen	2	EC	0.25	lb ai/a	PRE	1.7	9.7	8.3	8.7	10.0	1.7
	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE						
4	s-Metolachlor	7.62	EC	0.95	lb ai/a	PRE	2.0	9.3	8.7	10.0	10.0	2.3
	Halosulfuron	75	WG	0.035	lb ai/a	PRE						
5	Pendimethalin	3.8	CS	1	lb ai/a	PRE	1.3	2.3	4.7	7.0	7.7	1.3
6	Clomazone	3	ME	0.25	lb ai/a	PRE	2.0	7.3	6.0	7.7	9.3	1.3
7	Imazethapyr	2	EC	0.031	lb ai/a	PRE	1.3	6.7	7.7	10.0	10.0	1.7
8	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.3	9.7	7.3	6.3	10.0	1.7
	Halosulfuron	75	WG	0.023	lb ai/a	PO1						
9	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	10.0	9.0	4.0	9.3	1.3
	Fomesafen	2	EC	0.25	lb ai/a	PO1						
10	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.3	9.3	7.0	3.7	9.3	1.3
	Imazamox	1	AS	0.032	lb ai/a	PO1						
11	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.3	10.0	7.3	4.7	9.3	2.7
	Imazamox	1	AS	0.032	lb ai/a	PO1						
	Bentazon	4	L	0.25	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
12	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	10.0	8.3	6.7	9.3	2.7
	Acifluorfen	2	SC	0.38	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
13	Untreated					PRE	1.0	10.0	1.0	1.0	1.0	1.3
	Fomesafen	2	EC	0.25	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
LSD (P=.05)							0.97	1.56	2.75	3.22	1.95	0.95
Standard Deviation							0.57	0.93	1.63	1.91	1.16	0.56
CV							40.68	10.71	22.75	29.67	13.27	33.23

Weed Control in Snap Bean – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	GRFT	COLQ	LATH	SNAPBEAN	SNAPBEAN
Pest Code							GRFT	COLQ	LATH		
Crop Code										SNAPBEAN	SNAPBEAN
Rating Date							6-13-08	6-13-08	6-13-08	7-17-08	7-17-08
Rating Data Type							RATING	RATING	RATING	PLANT Wt	POD Wt
Rating Unit							1-10	1-10	1-10	KG/PLOT	KG/PLOT
1	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	9.3	4.0	6.3	9.70	10.07
2	Prefix	5.29	L	1.0	qt/a	PRE	9.7	8.3	10.0	12.66	12.86
3	Fomesafen	2	EC	0.25	lb ai/a	PRE	9.7	8.3	9.7	14.36	14.66
	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE					
4	s-Metolachlor	7.62	EC	0.95	lb ai/a	PRE	9.3	10.0	10.0	11.81	11.69
	Halosulfuron	75	WG	0.035	lb ai/a	PRE					
5	Pendimethalin	3.8	CS	1	lb ai/a	PRE	4.0	5.0	5.3	10.65	12.47
6	Clomazone	3	ME	0.25	lb ai/a	PRE	8.3	6.7	7.3	9.01	10.59
7	Imazethapyr	2	EC	0.031	lb ai/a	PRE	7.0	9.7	10.0	11.24	14.97
8	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	9.7	5.0	10.0	12.17	13.08
	Halosulfuron	75	WG	0.023	lb ai/a	PO1					
9	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	10.0	5.3	10.0	12.88	13.25
	Fomesafen	2	EC	0.25	lb ai/a	PO1					
10	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	9.0	3.3	10.0	11.77	14.32
	Imazamox	1	AS	0.032	lb ai/a	PO1					
11	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	10.0	10.0	10.0	13.99	13.35
	Imazamox	1	AS	0.032	lb ai/a	PO1					
	Bentazon	4	L	0.25	lb ai/a	PO1					
	COC	100	SL	1	% v/v	PO1					
	UAN	28	SL	2	% v/v	PO1					
12	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	10.0	10.0	10.0	12.49	12.81
	Acifluorfen	2	SC	0.38	lb ai/a	PO1					
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1					
13	Untreated					PRE	9.7	9.7	10.0	11.91	11.72
	Fomesafen	2	EC	0.25	lb ai/a	PO1					
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1					
	COC	100	SL	1	% v/v	PO1					
LSD (P=.05)							1.63	3.22	2.45	4.452	4.122
Standard Deviation							0.97	1.91	1.45	2.641	2.446
CV							10.87	26.07	15.93	22.21	19.17

Weed Control in Beet, Chard, Spinach – HTRC 2008

Project Code: WC 109-08-01 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Red Beet, Chard, Spinach, Sugar Beet **Variety: Ruby Queen, Fordhook Giant, Unipack 151, Crystal**
Planting Method: seed **Planting Date: 5/5/08**
Spacing: 3 inch in row **Row Spacing: 14 inch**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 35 ft long

Soil Type: Marlette Fine Sandy Loam **OM: 2.1%** **pH: 7.4**
Sand: 47% **Silt: 35%** **Clay: 18%** **CEC: 9.0**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/23/08		50/49	°F	Dry	3 SE	50	0% Cloudy	N
PO1	5/29/08	11:00 am	71/65	°F	Good	1-2 W	61	5% Cloudy	N

Crop and Weed Information at Application

	Height or Diameter	Growth Stage	Density

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. 1 row red beets, 1 row sugar beets, 2 rows spinach, 1 row Swiss chard

Weed Control in Beet, Chard, Spinach – HTRC 2008

Trial ID: WC 109-08-01 Study Director: Dr. Bernard Zandstra
Location: HTRC Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	RED BEET 28/May/08 RATING 1-10	CHARD 28/May/08 RATING 1-10	SPIN 28/May/08 RATING 1-10	SUG BEET 28/May/08 RATING 1-10	GRFT 28/May/08 RATING 1-10
1	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	1.7	1.3	2.0	2.0	9.0
2	Dimethenamid-p	6	EC	0.6	LB A/A	PRE	2.0	2.7	3.3	2.7	9.7
3	Ethofumesate	4	SC	2	LB A/A	PRE	1.7	1.7	3.7	2.7	5.0
4	Cycloate	6	EC	3	LB A/A	PRE	2.3	1.0	1.7	1.7	2.3
5	Pyrazon	68	DF	3	LB A/A	PRE	2.0	1.0	2.3	2.0	5.0
6	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	3.0	1.7	1.3	3.0	9.0
	Betamix	1.3	EC	2.25	qt/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
7	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	1.7	2.0	1.3	2.0	7.3
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
8	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	1.3	1.7	2.3	2.0	7.0
	Phenmediphan	1.3	L	1	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
9	s-Metolachlor	7.62	EC	0.9	LB A/A	PRE	2.0	1.3	2.0	2.3	9.0
	Pyrazon	68	DF	3	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
10	Untreated					PRE	2.0	2.3	2.0	2.3	1.0
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
11	Propachlor	4	F	2	LB A/A	PRE	5.3	2.3	2.7	6.0	10.0
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
12	Ethofumesate	4	SC	1	LB A/A	PRE	4.7	3.0	4.0	3.7	7.3
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Betamix	1.3	EC	2.25	qt/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
13	Carfentrazone	1.9	EW	0.25	LB A/A	PRE	10.0	10.0	43.3	10.0	10.0
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
14	Fomesafen	2	EC	0.25	LB A/A	PRE	10.0	10.0	10.0	10.0	10.0
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
15	s-Metolachlor	7.62	EC	1	LB A/A	PRE	4.0	4.3	3.0	3.7	9.7
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Triflusulfuron	50	WDG	0.156	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	Clopyralid	3	EC	0.095	LB A/A	PO1					
	COC	100	SL	1	% V/V	PO1					
LSD (P=.05)							2.85	1.58	24.73	2.68	3.48
Standard Deviation							1.71	0.95	14.79	1.60	2.08
CV							47.66	30.69	260.95	42.87	28.03

Weed Control in Beet, Chard, Spinach – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	COLQ 28/May/08 RATING 1-10	RED BEET 2/Jun/08 RATING 1-10	CHARD 2/Jun/08 RATING 1-10	SPIN 2/Jun/08 RATING 1-10	SUG BEET 2/Jun/08 RATING 1-10
1	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	1.7	1.3	2.0	1.7	2.0
2	Dimethenamid-p	6	EC	0.6	LB A/A	PRE	2.0	1.7	2.7	2.7	2.0
3	Ethofumesate	4	SC	2	LB A/A	PRE	4.3	1.3	1.7	3.3	2.3
4	Cycloate	6	EC	3	LB A/A	PRE	2.3	1.7	1.3	1.0	1.3
5	Pyrazon	68	DF	3	LB A/A	PRE	3.7	2.0	1.0	2.0	1.7
6	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	3.3	2.3	1.0	3.3	2.7
	Betamix	1.3	EC	2.25	qt/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
7	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	2.0	1.3	2.0	2.0	2.3
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
8	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	3.0	3.0	2.0	3.7	3.3
	Phenmediphan	1.3	L	1	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
9	s-Metolachlor	7.62	EC	0.9	LB A/A	PRE	3.7	3.7	2.3	4.7	5.0
	Pyrazon	68	DF	3	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
10	Untreated					PRE	1.0	1.7	2.3	3.0	2.7
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
11	Propachlor	4	F	2	LB A/A	PRE	6.0	2.0	2.3	3.3	5.3
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
12	Ethofumesate	4	SC	1	LB A/A	PRE	7.3	4.7	3.0	7.7	4.7
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Betamix	1.3	EC	2.25	qt/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
13	Carfentrazone	1.9	EW	0.25	LB A/A	PRE	10.0	8.0	9.3	10.0	9.7
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
14	Fomesafen	2	EC	0.25	LB A/A	PRE	8.3	9.3	10.0	9.7	10.0
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
15	s-Metolachlor	7.62	EC	1	LB A/A	PRE	5.3	3.3	4.3	4.3	3.7
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Triflusulfuron	50	WDG	0.156	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	Clopyralid	3	EC	0.095	LB A/A	PO1					
	COC	100	SL	1	% V/V	PO1					
LSD (P=.05)							2.39	2.71	1.64	2.43	2.60
Standard Deviation							1.43	1.62	0.98	1.45	1.56
CV							33.46	51.32	31.13	34.98	39.79

Weed Control in Beet, Chard, Spinach – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	GRFT 2/Jun/08 RATING 1-10	COLQ 2/Jun/08 RATING 1-10	RED BEET 13/Jun/08 RATING 1-10	CHARD 13/Jun/08 RATING 1-10	SPIN 13/Jun/08 RATING 1-10
1	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	8.3	2.3	1.7	2.3	6.3
2	Dimethenamid-p	6	EC	0.6	LB A/A	PRE	8.3	3.3	2.3	2.3	8.0
3	Ethofumesate	4	SC	2	LB A/A	PRE	6.0	5.3	1.7	1.0	7.3
4	Cycloate	6	EC	3	LB A/A	PRE	2.3	4.0	3.0	1.3	5.3
5	Pyrazon	68	DF	3	LB A/A	PRE	5.0	5.0	2.0	1.0	6.3
6	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	9.3	6.3	2.3	1.3	5.7
	Betamix	1.3	EC	2.25	qt/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
7	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	8.7	3.0	2.0	2.0	6.3
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
8	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	9.0	6.0	3.0	2.0	5.7
	Phenmediphan	1.3	L	1	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
9	s-Metolachlor	7.62	EC	0.9	LB A/A	PRE	9.7	3.7	4.3	2.7	5.3
	Pyrazon	68	DF	3	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
10	Untreated					PRE	3.3	2.3	2.7	2.3	7.3
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
11	Propachlor	4	F	2	LB A/A	PRE	10.0	6.7	1.0	1.0	5.7
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
12	Ethofumesate	4	SC	1	LB A/A	PRE	9.3	9.0	2.0	1.7	9.0
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Betamix	1.3	EC	2.25	qt/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
13	Carfentrazone	1.9	EW	0.25	LB A/A	PRE	9.3	9.3	7.3	8.7	10.0
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
14	Fomesafen	2	EC	0.25	LB A/A	PRE	9.3	8.7	8.7	10.0	10.0
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
15	s-Metolachlor	7.62	EC	1	LB A/A	PRE	9.7	6.3	1.3	2.3	9.7
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Triflusulfuron	50	WDG	0.156	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	Clopyralid	3	EC	0.095	LB A/A	PO1					
	COC	100	SL	1	% V/V	PO1					
LSD (P=.05)							3.41	2.01	2.47	1.93	2.96
Standard Deviation							2.04	1.20	1.48	1.16	1.77
CV							26.02	22.18	48.9	41.31	24.62

Weed Control in Beet, Chard, Spinach – HTRC 2008

Pest Code							SUG BEET	GRFT	COLQ	RED BEET	RED BEET
Description										Roots	Roots
Rating Date							13/Jun/08	13/Jun/08	13/Jun/08	21/Jul/08	21/Jul/08
Rating Data Type							RATING	RATING	RATING	NUMBER	Weight
Rating Unit							1-10	1-10	1-10	#	KG/PLOT
Trt No.	Treatment Name	1-10 Conc	1-10 Type	# Rate	KG/PLOT Unit	Growth Stage					
1	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	3.0	9.0	3.0	5.7	0.20
2	Dimethenamid-p	6	EC	0.6	LB A/A	PRE	2.3	8.7	4.0	7.7	0.45
3	Ethofumesate	4	SC	2	LB A/A	PRE	1.7	5.0	5.3	23.3	1.56
4	Cycloate	6	EC	3	LB A/A	PRE	2.3	2.7	3.3	8.3	0.56
5	Pyrazon	68	DF	3	LB A/A	PRE	2.3	5.0	3.7	11.3	0.93
6	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	3.0	9.0	8.7	21.3	1.43
	Betamix	1.3	EC	2.25	qt/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
7	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	3.3	10.0	4.0	22.7	1.21
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
8	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	3.7	9.3	8.7	12.7	0.59
	Phenmediphan	1.3	L	1	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
9	s-Metolachlor	7.62	EC	0.9	LB A/A	PRE	4.3	9.7	3.7	6.7	0.21
	Pyrazon	68	DF	3	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
10	Untreated					PRE	3.3	8.7	3.0	15.7	1.09
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
11	Propachlor	4	F	2	LB A/A	PRE	2.0	9.0	5.7	60.7	5.01
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
12	Ethofumesate	4	SC	1	LB A/A	PRE	1.7	9.0	9.7	62.3	4.38
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Betamix	1.3	EC	2.25	qt/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
13	Carfentrazone	1.9	EW	0.25	LB A/A	PRE	9.0	10.0	10.0	24.0	2.05
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
14	Fomesafen	2	EC	0.25	LB A/A	PRE	10.0	10.0	8.7	6.7	0.81
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
15	s-Metolachlor	7.62	EC	1	LB A/A	PRE	2.7	10.0	8.3	48.7	3.57
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
	Triflusulfuron	50	WDG	0.156	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	Clopyralid	3	EC	0.095	LB A/A	PO1					
	COC	100	SL	1	% V/V	PO1					
LSD (P=.05)							2.22	2.13	3.05	25.33	2.311
Standard Deviation							1.32	1.27	1.82	15.15	1.382
CV							36.36	15.27	30.49	67.29	86.15

Weed Control in Beet, Chard, Spinach – HTRC 2008

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	RED BEET Tops 21/Jul/08 Weight KG/PLOT	CHARD 21/Jul/08 Weight KG/PLOT	SUG BEET 17/Oct/08 NUMBER #	SUG BEET 17/Oct/08 Weight KG/PLOT
1	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	0.65	6.44	45.7	17.32
2	Dimethenamid-p	6	EC	0.6	LB A/A	PRE	1.18	4.99	34.0	11.32
3	Ethofumesate	4	SC	2	LB A/A	PRE	1.39	9.89	41.7	25.05
4	Cycloate	6	EC	3	LB A/A	PRE	0.55	5.59	36.3	13.50
5	Pyrazon	68	DF	3	LB A/A	PRE	1.12	10.13	48.0	20.45
6	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	1.79	16.65	49.0	38.00
	Betamix	1.3	EC	2.25	qt/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
7	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	1.95	8.00	43.7	15.33
	Ethofumesate	4	SC	0.5	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
8	s-Metolachlor	7.62	EC	0.95	LB A/A	PRE	1.37	14.87	45.0	28.18
	Phenmediphan	1.3	L	1	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
9	s-Metolachlor	7.62	EC	0.9	LB A/A	PRE	0.52	8.09	43.3	29.56
	Pyrazon	68	DF	3	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
10	Untreated					PRE	1.41	9.26	44.3	20.34
	Ethofumesate	4	SC	0.5	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
11	Propachlor	4	F	2	LB A/A	PRE	3.81	17.67	46.0	35.31
	Ethofumesate	4	SC	0.5	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
12	Ethofumesate	4	SC	1	LB A/A	PRE	4.51	24.55	59.7	59.06
	Ethofumesate	4	SC	0.5	LB A/A	PO1				
	Betamix	1.3	EC	2.25	qt/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
13	Carfentrazone	1.9	EW	0.25	LB A/A	PRE	1.91	2.95	6.7	10.34
	Ethofumesate	4	SC	0.5	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
14	Fomesafen	2	EC	0.25	LB A/A	PRE	0.64	0.27	6.0	11.74
	Ethofumesate	4	SC	0.5	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-Metolachlor	7.62	EC	1	LB A/A	PRE	3.65	14.63	51.3	53.36
	Ethofumesate	4	SC	0.5	LB A/A	PO1				
	Triflusulfuron	50	WDG	0.156	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	Clopyralid	3	EC	0.095	LB A/A	PO1				
	COC	100	SL	1	% V/V	PO1				
LSD (P=.05)							1.895	8.241	20.96	21.745
Standard Deviation							1.133	4.928	12.54	13.004
CV							64.3	48.0	31.31	50.16

Weed Control in Broccoli and Cabbage – HTRC 2008

Project Code: WC 114-08-01 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Broccoli, Cabbage **Variety: Packman, Artost**
Planting Method: Transplant **Planting Date: 5/6/08**
Spacing: 24 inch in row **Row Spacing: 36 inch**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Capac Loam **OM: 1.4%** **pH: 6.5**
Sand: 64% **Silt: 18%** **Clay: 18%** **CEC: 8.0**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	5/6/08	9:10 am	63/53	°F	Dry	2 SE	55	0% Cloudy	N
POT	5/6/08	11:30 am	70/58	°F	Dry	1 SE	69	15% Cloudy	N
PO1	6/6/08	9:40 am	85/71	°F	Damp	5 SW	68	10% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/6	GRFT = green foxtail			
6/6	COLQ = common lambsquarters			
6/6	CORW = common ragweed			
6/6	LATH = ladysthumb			

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.

Weed Control in Broccoli and Cabbage – HTRC 2008

Trial ID: WC 114-08-01 Study Director: Dr. Bernard Zandstra
Location: HTRC Investigator: Rodney Tocco

Pest Code									GRFT	COLQ	CORW	LATH
Description							Broccoli	Cabbage				
Rating Date							6/Jun/08	6/Jun/08	6/Jun/08	6/Jun/08	6/Jun/08	6/Jun/08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	2.0	2.0	10.0	10.0	9.7	10.0
	Oxyfluorfen	4	SC	0.5	LB A/A	PRT						
2	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	2.0	1.7	9.7	7.0	8.7	9.7
	Sulfentrazone	4	F	0.188	LB A/A	PRT						
3	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	2.7	2.3	10.0	10.0	9.0	10.0
	Clomazone	3	ME	0.5	LB A/A	PRT						
4	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	5.3	5.3	10.0	10.0	9.3	10.0
	Clomazone	3	ME	0.5	LB A/A	POT						
5	Dimethenamid-p	6	EC	.75	LB A/A	POT	1.7	1.3	10.0	9.0	8.7	10.0
6	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	1.7	2.3	10.0	8.7	5.7	8.0
	Oxyfluorfen	4	SC	0.063	LB A/A	PO1						
7	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	1.7	1.7	10.0	9.0	6.3	9.7
	Clopyralid	3	EC	0.188	LB A/A	PO1						
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1						
8	Pendimethalin	3.8	CS	1.5	LB A/A	PRT	2.0	2.7	9.7	9.8	5.7	8.7
9	Pendimethalin	3.8	CS	1.5	LB A/A	POT	1.7	1.3	9.3	10.0	3.7	9.3
10	Untreated						1.0	1.3	1.7	1.0	1.0	1.0
LSD (P=.05)							2.41	2.88	0.94	3.18	2.81	1.48
Standard Deviation							1.41	1.68	0.55	1.85	1.64	0.86
CV							64.85	76.21	6.06	21.86	24.2	9.99

Weed Control in Broccoli and Cabbage – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Broccoli 6/Jun/08 NUMBER PLANT #	Cabbage 6/Jun/08 NUMBER PLANT #	Broccoli 13/Jun/08 RATING 1-10	Cabbage 13/Jun/08 RATING 1-10	GRFT 13/Jun/08 RATING 1-10	CORW 13/Jun/08 RATING 1-10
1	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	14.3	16.3	1.7	1.7	9.7	9.0
	Oxyfluorfen	4	SC	0.5	LB A/A	PRT						
2	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	16.0	16.7	1.0	1.0	10.0	5.3
	Sulfentrazone	4	F	0.188	LB A/A	PRT						
3	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	16.3	15.3	2.3	1.7	9.7	9.3
	Clomazone	3	ME	0.5	LB A/A	PRT						
4	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	15.7	15.3	3.0	2.3	10.0	9.3
	Clomazone	3	ME	0.5	LB A/A	POT						
5	Dimethenamid-p	6	EC	.75	LB A/A	POT	15.7	15.7	1.3	1.7	10.0	8.0
6	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	16.3	14.7	1.0	2.7	10.0	8.3
	Oxyfluorfen	4	SC	0.063	LB A/A	PO1						
7	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	16.0	15.7	1.7	1.3	10.0	10.0
	Clopyralid	3	EC	0.188	LB A/A	PO1						
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1						
8	Pendimethalin	3.8	CS	1.5	LB A/A	PRT	14.3	16.0	1.7	2.0	7.3	2.3
9	Pendimethalin	3.8	CS	1.5	LB A/A	POT	15.7	15.3	1.0	1.0	9.3	2.0
10	Untreated						17.7	17.3	1.0	1.0	1.0	1.0
LSD (P=.05)							3.05	3.81	1.23	2.07	2.19	1.72
Standard Deviation							1.78	2.22	0.72	1.20	1.28	1.00
CV							11.26	14.02	45.8	73.77	14.71	15.49

Weed Control in Broccoli and Cabbage – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Broccoli 24/Jun/08 NUMBER Heads #	Broccoli 24/Jun/08 Weight KG/PLOT	Broccoli 1/Jul/08 NUMBER Heads #	Broccoli 1/Jul/08 Weight KG/PLOT	Broccoli 7/Jul/08 NUMBER Heads #	Broccoli 7/Jul/08 Weight KG/PLOT
1	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	7.0	1.08	2.7	0.88	7.0	0.88
	Oxyfluorfen	4	SC	0.5	LB A/A	PRT						
2	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	8.0	1.34	4.3	1.27	6.3	0.99
	Sulfentrazone	4	F	0.188	LB A/A	PRT						
3	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	7.7	1.59	1.7	0.56	8.3	1.19
	Clomazone	3	ME	0.5	LB A/A	PRT						
4	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	5.0	0.66	4.7	1.68	5.0	1.10
	Clomazone	3	ME	0.5	LB A/A	POT						
5	Dimethenamid-p	6	EC	.75	LB A/A	POT	10.3	1.81	4.7	1.50	4.0	0.39
6	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	8.0	1.68	3.7	1.57	7.7	1.63
	Oxyfluorfen	4	SC	0.063	LB A/A	PO1						
7	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	8.3	1.38	2.7	0.73	5.0	1.11
	Clopyralid	3	EC	0.188	LB A/A	PO1						
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1						
8	Pendimethalin	3.8	CS	1.5	LB A/A	PRT	8.7	1.67	2.3	0.73	9.0	1.14
9	Pendimethalin	3.8	CS	1.5	LB A/A	POT	9.3	1.45	4.7	1.29	4.0	0.31
10	Untreated						12.0	2.18	2.7	0.88	4.7	0.37
LSD (P=.05)							6.08	1.332	3.59	1.350	4.67	0.853
Standard Deviation							3.54	0.777	2.09	0.787	2.72	0.497
CV							42.02	52.34	61.56	71.01	44.61	54.61

Weed Control in Broccoli and Cabbage – HTRC 2008

Dept. of Horticulture, MSU

Description							Broccoli	Broccoli	Broccoli	Broccoli
Rating Date							14/Jul/08	14/Jul/08		
Rating Data Type							NUMBER	Weight	TOTAL	TOTAL Wt.
Rating Unit							Heads #	KG/PLOT	# Heads	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	10.7	1.03	27.3	3.88
	Oxyfluorfen	4	SC	0.5	LB A/A	PRT				
2	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	7.0	0.51	25.7	4.12
	Sulfentrazone	4	F	0.188	LB A/A	PRT				
3	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	10.3	1.05	28.0	4.38
	Clomazone	3	ME	0.5	LB A/A	PRT				
4	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	10.3	1.25	25.0	4.69
	Clomazone	3	ME	0.5	LB A/A	POT				
5	Dimethenamid-p	6	EC	.75	LB A/A	POT	9.3	0.78	28.3	4.48
6	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	12.7	1.17	32.0	6.04
	Oxyfluorfen	4	SC	0.063	LB A/A	PO1				
7	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	6.7	0.57	22.7	3.78
	Clopyralid	3	EC	0.188	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
8	Pendimethalin	3.8	CS	1.5	LB A/A	PRT	18.3	1.36	38.3	4.91
9	Pendimethalin	3.8	CS	1.5	LB A/A	POT	7.3	0.44	25.3	3.48
10	Untreated						9.0	0.59	28.3	4.01
LSD (P=.05)							11.83	0.854	18.00	2.072
Standard Deviation							6.90	0.498	10.50	1.208
CV							67.83	56.92	37.35	27.59

Weed Control in Broccoli and Cabbage – HTRC 2008

Dept. of Horticulture, MSU

Description							Cabbage	Cabbage	Cabbage	Cabbage
Rating Date							7/Jul/08	7/Jul/o8	14/Jul/08	14/Jul/08
Rating Data Type							NUMBER	Weight	NUMBER	Weight
Rating Unit							#	KG/PLOT	#	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	4.0	6.59	5.7	9.21
	Oxyfluorfen	4	SC	0.5	LB A/A	PRT				
2	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	3.7	6.97	6.3	12.03
	Sulfentrazone	4	F	0.188	LB A/A	PRT				
3	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	3.7	6.17	6.3	11.03
	Clomazone	3	ME	0.5	LB A/A	PRT				
4	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	2.3	3.84	5.7	10.29
	Clomazone	3	ME	0.5	LB A/A	POT				
5	Dimethenamid-p	6	EC	.75	LB A/A	POT	2.7	4.63	7.3	12.27
6	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	5.7	10.71	4.0	7.51
	Oxyfluorfen	4	SC	0.063	LB A/A	PO1				
7	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	3.7	6.71	5.7	9.87
	Clopyralid	3	EC	0.188	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
8	Pendimethalin	3.8	CS	1.5	LB A/A	PRT	2.0	3.15	3.7	5.25
9	Pendimethalin	3.8	CS	1.5	LB A/A	POT	3.7	5.89	5.0	8.49
10	Untreated						2.0	2.75	4.7	7.41
LSD (P=.05)							4.29	8.048	3.35	5.123
Standard Deviation							2.50	4.691	1.95	2.986
CV							75.1	81.72	35.9	31.99

Weed Control in Broccoli and Cabbage – HTRC 2008

Dept. of Horticulture, MSU

Description							Cabbage	Cabbage	Cabbage	Cabbage
Rating Date							18/Jul/08	18/Jul/08		
Rating Data Type							NUMBER	Weight	TOTAL	TOTAL Wt.
Rating Unit							#	KG/PLOT	#	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	5.0	5.05	14.7	20.84
	Oxyfluorfen	4	SC	0.5	LB A/A	PRT				
2	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	5.7	6.56	15.7	25.56
	Sulfentrazone	4	F	0.188	LB A/A	PRT				
3	s-Metolachlor	7.62	EC	1.3	LB A/A	PRT	4.3	4.40	14.3	21.60
	Clomazone	3	ME	0.5	LB A/A	PRT				
4	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	6.7	7.59	14.7	21.72
	Clomazone	3	ME	0.5	LB A/A	POT				
5	Dimethenamid-p	6	EC	.75	LB A/A	POT	5.0	6.33	15.0	23.23
6	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	4.0	5.33	13.7	23.54
	Oxyfluorfen	4	SC	0.063	LB A/A	PO1				
7	s-Metolachlor	7.62	EC	1.3	LB A/A	POT	5.3	7.34	14.7	23.93
	Clopyralid	3	EC	0.188	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
8	Pendimethalin	3.8	CS	1.5	LB A/A	PRT	8.0	8.50	13.7	16.91
9	Pendimethalin	3.8	CS	1.5	LB A/A	POT	5.3	5.07	14.0	19.45
10	Untreated						8.0	9.91	14.7	20.07
LSD (P=.05)							3.67	3.997	4.45	9.640
Standard Deviation							2.14	2.330	2.59	5.620
CV							37.33	35.26	17.89	25.92

Pre and Postemergence Weed Control in Carrot – Muck Farm 2008

Project Code: WC 107-08-01 **Location: Laingsburg, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Carrot **Variety: Sugar Snax**
Planting Method: seeded **Planting Date: 5/20/08**
Spacing: 1 inch in row **Row Spacing: 16 inch; 3 row bed**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 16.7 ft long

Soil Type: Houghton Muck **OM: 80%** **pH: 7.1**
Sand: 8% **Silt: 13%** **Clay: 2%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/21/08	9:20 am	43/53	°F	Moist	3 NW	69	100%Cloudy	N
PO1	6/18/08	1:30 pm	64/62	°F	Good	2 NW	74	100%Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/18	CARROT	3-4″		
6/18	YENS = yellow nutsedge	1-2″& 4-6″	6 LF, 80%	
6/18	LATH = ladysthumb	4-6″		
6/18	RRPW = redroot pigweed	2-3″		
6/18	COPU = common purslane	1-2″		

Notes and Comments
1. Treatment 4-15 treated with Lorox 1 lb ai PRE.
2. Spray Poast or Select as needed for grass control.
3. Harvest: 10 ft of 3 rows.

Pre and Postemergence Weed Control in Carrot – Muck Farm 2008

Dept. of Horticulture, MSU

Trial ID: WC 107-08-01 Study Director: Dr. Bernard Zandstra
Location: Muck Farm, Laingsburg Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CARROT	LACG	COLQ	LATH	CARROT	YENS
	Rating Date						6-12-08	6-12-08	6-12-08	6-12-08	6-18-08	6-18-08
	Rating Data Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
1	Pendimethalin	3.8	CS	1.9	lb ai/a	PRE	1.3	10.0	10.0	6.7	1.0	1.0
	Linuron	50	DF	1	lb ai/a	PO1, PO2						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
2	s-Metolachlor	7.62	EC	1.9	lb ai/a	PRE	2.0	10.0	10.0	3.3	2.0	8.0
	Linuron	50	DF	1	lb ai/a	PO1, PO2						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
3	Linuron	50	DF	1	lb ai/a	PRE	1.3	9.7	10.0	1.7	1.3	1.0
	Linuron	50	DF	1	lb ai/a	PO1, PO2						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
4	Linuron	50	DF	1	lb ai/a	PO1, PO2	2.0	10.0	10.0	2.7	1.0	1.0
	NIS	100	SL	0.25	% v/v	PO1, PO2						
5	Linuron	50	DF	1	lb ai/a	PO1	2.0	9.3	10.0	1.7	1.3	1.0
	Metribuzin	75	DF	0.25	lb ai/a	PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
6	Prometryn	4	L	1	lb ai/a	PO1, PO2	2.0	10.0	10.0	1.3	1.0	1.0
	NIS	100	SL	0.25	% v/v	PO1, PO2						
7	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2	1.3	10.0	10.0	3.0	1.0	1.0
	NIS	100	SL	0.25	% v/v	PO1, PO2						
8	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, PO2	1.3	10.0	10.0	4.3	1.0	1.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
9	Oxyfluorfen	4	SC	0.125	lb ai/a	PO1, PO2	2.0	10.0	10.0	2.7	1.0	1.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
10	Oxyfluorfen	2	L	0.063	lb ai/a	PO1, PO2	2.0	10.0	10.0	3.0	1.3	1.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
11	Tembotrione	3.5	SC	0.12	lb ai/a	PO1, PO2	1.7	9.3	10.0	2.7	1.3	1.0
	COC	100	SL	1	% v/v	PO1, PO2						
12	Topramezone	2.8	L	0.011	lb ai/a	PO1, PO2	1.7	9.7	10.0	2.7	1.0	1.0
	COC	100	SL	1	% v/v	PO1, PO2						
13	Linuron	50	DF	1	lb ai/a	PO1, PO2	1.3	9.7	10.0	3.0	1.0	1.0
	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
14	Linuron	50	DF	1	lb ai/a	PO1, PO2	1.0	9.0	9.7	3.3	1.0	1.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
15	Handweeded						1.3	9.0	10.0	2.7	1.0	1.0
LSD (P=.05)							1.22	0.72	0.25	2.02	0.68	0.43
Standard Deviation							0.73	0.43	0.15	1.21	0.41	0.26
CV							45.15	4.42	1.49	40.58	35.16	17.6

Pre and Postemergence Weed Control in Carrot – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	COPU	LATH	RRPW	CARROT	LACG	COPU
Pest Code							COPU	LATH	RRPW		LACG	COPU
Crop Code										CARROT		
Rating Date							6-18-08	6-18-08	6-18-08	7-1-08	7-1-08	7-1-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Pendimethalin	3.8	CS	1.9	lb ai/a	PRE	7.7	6.7	1.7	1.7	10.0	10.0
	Linuron	50	DF	1	lb ai/a	PO1, PO2						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
2	s-Metolachlor	7.62	EC	1.9	lb ai/a	PRE	8.3	1.3	9.7	2.3	10.0	10.0
	Linuron	50	DF	1	lb ai/a	PO1, PO2						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
3	Linuron	50	DF	1	lb ai/a	PRE	1.3	1.0	4.0	1.3	10.0	10.0
	Linuron	50	DF	1	lb ai/a	PO1, PO2						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
4	Linuron	50	DF	1	lb ai/a	PO1, PO2	1.7	2.3	3.7	1.3	9.7	10.0
	NIS	100	SL	0.25	% v/v	PO1, PO2						
5	Linuron	50	DF	1	lb ai/a	PO1	1.3	1.3	4.0	2.0	9.0	10.0
	Metribuzin	75	DF	0.25	lb ai/a	PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
6	Prometryn	4	L	1	lb ai/a	PO1, PO2	1.3	2.0	3.0	3.0	10.0	10.0
	NIS	100	SL	0.25	% v/v	PO1, PO2						
7	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2	2.0	3.0	3.7	1.0	5.0	10.0
	NIS	100	SL	0.25	% v/v	PO1, PO2						
8	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, PO2	1.3	2.0	4.7	2.7	10.0	10.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
9	Oxyfluorfen	4	SC	0.125	lb ai/a	PO1, PO2	3.7	2.0	3.3	3.0	10.0	10.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
10	Oxyfluorfen	2	L	0.063	lb ai/a	PO1, PO2	2.0	1.7	4.0	2.7	10.0	10.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
11	Tembotrione	3.5	SC	0.12	lb ai/a	PO1, PO2	2.0	1.3	3.0	7.7	9.0	1.3
	COC	100	SL	1	% v/v	PO1, PO2						
12	Topramezone	2.8	L	0.011	lb ai/a	PO1, PO2	2.0	1.7	3.7	8.0	10.0	10.0
	COC	100	SL	1	% v/v	PO1, PO2						
13	Linuron	50	DF	1	lb ai/a	PO1, PO2	1.7	2.3	2.3	1.3	10.0	10.0
	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
14	Linuron	50	DF	1	lb ai/a	PO1, PO2	1.7	1.7	2.3	1.7	10.0	10.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
15	Handweeded						1.0	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							2.01	1.17	2.32	0.81	1.10	0.25
Standard Deviation							1.20	0.70	1.39	0.49	0.66	0.15
CV							46.28	33.47	38.53	17.94	7.37	1.69

Pre and Postemergence Weed Control in Carrot – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LATH	RRPW	YENS	CARROT
Pest Code							LATH	RRPW	YENS	
Crop Code										CARROT
Rating Date							7-1-08	7-1-08	7-1-08	8-28-08
Rating Data Type							RATING	RATING	RATING	Harvest
Rating Unit							1-10	1-10	1-10	KG/PLOT
1	Pendimethalin	3.8	CS	1.9	lb ai/a	PRE	10.0	10.0	10.0	19.25
	Linuron	50	DF	1	lb ai/a	PO1, PO2				
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
2	s-Metolachlor	7.62	EC	1.9	lb ai/a	PRE	9.7	10.0	9.7	15.99
	Linuron	50	DF	1	lb ai/a	PO1, PO2				
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
3	Linuron	50	DF	1	lb ai/a	PRE	10.0	10.0	10.0	17.37
	Linuron	50	DF	1	lb ai/a	PO1, PO2				
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
4	Linuron	50	DF	1	lb ai/a	PO1, PO2	10.0	10.0	9.7	15.59
	NIS	100	SL	0.25	% v/v	PO1, PO2				
5	Linuron	50	DF	1	lb ai/a	PO1	9.7	10.0	9.7	15.59
	Metribuzin	75	DF	0.25	lb ai/a	PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
6	Prometryn	4	L	1	lb ai/a	PO1, PO2	7.7	10.0	6.3	13.25
	NIS	100	SL	0.25	% v/v	PO1, PO2				
7	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2	3.7	8.0	5.0	12.07
	NIS	100	SL	0.25	% v/v	PO1, PO2				
8	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, PO2	6.7	10.0	3.7	11.94
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
9	Oxyfluorfen	4	SC	0.125	lb ai/a	PO1, PO2	6.3	10.0	4.3	11.35
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
10	Oxyfluorfen	2	L	0.063	lb ai/a	PO1, PO2	5.7	10.0	3.3	8.81
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
11	Tembotrione	3.5	SC	0.12	lb ai/a	PO1, PO2	9.3	10.0	6.3	3.68
	COC	100	SL	1	% v/v	PO1, PO2				
12	Topramezone	2.8	L	0.011	lb ai/a	PO1, PO2	7.3	10.0	4.3	0.89
	COC	100	SL	1	% v/v	PO1, PO2				
13	Linuron	50	DF	1	lb ai/a	PO1, PO2	10.0	10.0	10.0	16.18
	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2				
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
14	Linuron	50	DF	1	lb ai/a	PO1, PO2	9.7	10.0	9.3	18.21
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
15	Handweeded						1.0	1.0	1.0	9.41
LSD (P=.05)							1.35	1.01	1.21	3.322
Standard Deviation							0.81	0.60	0.72	1.986
CV							10.41	6.44	10.56	15.72

Postemergence Weed Control in Carrot – Fremont 2008

Project Code: WC 107-08-02 **Location: Vogel Farm**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Carrot **Variety: Sugar Snax**
Planting Method: seeded **Planting Date: 6/04/08**
Spacing: 0.3 inch in row **Row Spacing: 18 inch**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Pipestone Sand **OM: 2.0%** **pH: 7.2**
Sand: 94% **Silt: 5%** **Clay: 1%** **CEC: 6.0**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/27/08	1:30 pm	83/82	°F	Dry	5-6 SW	56	40% Cloudy	N
PO2	7/18/08	2:00 pm	75/72	°F	Dry	6 SW	82	100% Cloud	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/27	CARROT	1-2″	2 LF	
6/27	COPU = common purslane	3-5″		many
6/27	COLQ = common lambsquarter	1-4″		many
6/27	RRPW = redroot pigweed	1-4″		many
6/27	HANS = hairy nightshade	2-4″		many
7/18	CARROT	4-5″	4-5 LF	
7/18	RRPW = redroot pigweed	3-5″		many
7/18	SPSP = spotted spurge	4-6″		moderate
7/18	CAWE = carpetweed	6-10″		moderate

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. 3 double rows/plot spaced 18″ between double rows.
4. October 9th 2008: Harvested 5 ft of three rows from each plot.

Postemergence Weed Control in Carrot – Fremont 2008

Dept. of Horticulture, MSU

Trial ID: WC 107-08-02 Study Director: Dr. Bernard Zandstra
Location: Fremont Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CARROT 7-18-08 RATING 1-10	CAWE 7-18-08 RATING 1-10	RRPW 7-18-08 RATING 1-10	SPSP 7-18-08 RATING 1-10	CARROT 7-30-08 RATING 1-10	COLQ 7-30-08 RATING 1-10
1	Linuron	50	DF	1	lb ai/a	PO1, PO2	2.0	10.0	10.0	10.0	1.3	10.0
	NIS	100	SL	0.25	% v/v	PO1, PO2						
2	Linuron	50	DF	1	lb ai/a	PO1	1.7	10.0	10.0	10.0	2.0	10.0
	Metribuzin	75	DF	0.25	lb ai/a	PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
3	Prometryn	4	L	1	lb ai/a	PO1, PO2	2.0	10.0	10.0	10.0	2.0	10.0
	NIS	100	SL	0.25	% v/v	PO1, PO2						
4	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2	1.3	1.7	4.0	2.0	2.3	10.0
	NIS	100	SL	0.25	% v/v	PO1, PO2						
5	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, PO2	1.0	10.0	10.0	4.7	2.3	9.3
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
6	Oxyfluorfen	4	SC	0.125	lb ai/a	PO1, PO2	1.3	10.0	10.0	9.0	3.0	10.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
7	Oxyfluorfen	2	L	0.063	lb ai/a	PO1, PO2	2.0	10.0	10.0	6.7	2.0	10.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
8	Untreated					PO1	2.0	8.7	7.3	7.7	2.0	10.0
	Linuron	50	DF	1	lb ai/a	PO2						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO2						
9	Linuron	50	DF	1	lb ai/a	PO1, PO2	2.0	10.0	10.0	10.0	1.7	10.0
	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
LSD (P=.05)							1.44	1.45	3.33	3.81	1.17	0.67
Standard Deviation							0.83	0.84	1.92	2.20	0.67	0.38
CV							48.75	9.4	21.3	28.27	32.48	3.88

Postemergence Weed Control in Carrot – Fremont 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	PESW	RRPW	SPSP	CARROT
Pest Code							PESW	RRPW	SPSP	
Crop Code										CARROT
Rating Date							7-30-08	7-30-08	7-30-08	10-9-08
Rating Data Type							RATING	RATING	RATING	Harvest
Rating Unit							1-10	1-10	1-10	KG/PLOT
1	Linuron	50	DF	1	lb ai/a	PO1, PO2	10.0	10.0	10.0	20.00
	NIS	100	SL	0.25	% v/v	PO1, PO2				
2	Linuron	50	DF	1	lb ai/a	PO1	10.0	10.0	10.0	18.44
	Metribuzin	75	DF	0.25	lb ai/a	PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
3	Prometryn	4	L	1	lb ai/a	PO1, PO2	10.0	10.0	10.0	18.99
	NIS	100	SL	0.25	% v/v	PO1, PO2				
4	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2	7.3	5.7	8.0	18.02
	NIS	100	SL	0.25	% v/v	PO1, PO2				
5	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, PO2	10.0	10.0	7.7	18.28
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
6	Oxyfluorfen	4	SC	0.125	lb ai/a	PO1, PO2	10.0	10.0	10.0	17.19
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
7	Oxyfluorfen	2	L	0.063	lb ai/a	PO1, PO2	9.3	10.0	8.3	19.86
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
8	Untreated					PO1	10.0	8.7	10.0	17.60
	Linuron	50	DF	1	lb ai/a	PO2				
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO2				
9	Linuron	50	DF	1	lb ai/a	PO1, PO2	10.0	9.7	10.0	20.02
	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2				
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2				
	NIS	100	SL	0.25	% v/v	PO1, PO2				
LSD (P=.05)							1.90	1.40	1.89	2.445
Standard Deviation							1.10	0.81	1.09	1.413
CV							11.39	8.66	11.71	7.55

Weed Control in Celery – Muck Farm 2008

Project Code: WC 113-08-01 **Location: Laingsburg, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Celery **Variety: Duchess**
Planting Method: Transplant **Planting Date: 5/30/08**
Spacing: 6 inch **Row Spacing: 36 inch**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 16.7 ft long

Soil Type: Houghton Muck **OM: 80%** **pH: 7.1**
Sand: 8% **Silt: 13%** **Clay: 2%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
POT DR	6/2/08	3:00 pm	80/73	°F	Damp	6 SW	32	50% Cloudy	N
POT	6/2/08	4:00 pm	80/73	°F	Damp	6 SW	32	50% Cloudy	N
PO1	7/1/08	2:00 pm	80/68	°F	Dry	5 SW	30	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
7/1	CELERY	6-8″		good stand
7/1	LACG = large crabgrass	2-6″		moderate
7/1	COLQ = common lambsquarters	2-12″		many
7/1	COPU = common purslane	2-6″		many
7/1	RRPW = redroot pigweed	2-5″		many

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Harvest: All plants from each plot; approximately 60-70 plants/plot.

Weed Control in Celery – Muck Farm 2008

Dept. of Horticulture, MSU

Trial ID: WC 113-08-01 Study Director: Dr. Bernard Zandstra
Location: Muck Farm Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CELERY	YENS	COLQ	COPU	LATH	RRPW
Pest Code								YENS	COLQ	COPU	LATH	RRPW
Crop Name							CELERY					
Rating Date							6-18-08	6-18-08	6-18-08	6-18-08	6-18-08	6-18-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Flumioxazin	51	WDG	0.096	lb ai/a	POT DR	2.3	1.7	10.0	10.0	10.0	9.7
	Prometryn	4	L	2	lb ai/a	PO1						
2	Flumioxazin	51	WDG	0.192	lb ai/a	POT DR	3.0	2.0	10.0	10.0	10.0	10.0
	Prometryn	4	L	2	lb ai/a	PO1						
3	Flumioxazin	51	WDG	0.096	lb ai/a	POT	3.0	2.3	10.0	10.0	10.0	9.7
	Prometryn	4	L	2	lb ai/a	PO1						
4	Flumioxazin	51	WDG	0.192	lb ai/a	POT	3.7	2.0	10.0	10.0	10.0	10.0
	Prometryn	4	L	2	lb ai/a	PO1						
5	Oxyfluorfen	4	SC	0.5	lb ai/a	POT DR	2.7	1.7	9.7	9.7	10.0	9.7
6	Prometryn	4	L	2	lb ai/a	POT	1.0	1.3	9.7	9.0	10.0	9.0
	Linuron	50	DF	1	lb ai/a	PO1						
7	Prometryn	4	L	2	lb ai/a	POT	2.3	3.0	9.3	9.7	10.0	10.0
	s-Metolachlor	7.62	EC	1.9	lb ai/a	POT						
	Linuron	50	DF	1	lb ai/a	PO1						
8	Prometryn	4	L	2	lb ai/a	POT	1.7	1.0	9.3	7.7	9.0	8.3
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
9	Flumioxazin	51	WDG	0.096	lb ai/a	POT	5.3	2.3	10.0	10.0	10.0	10.0
	s-Metolachlor	7.62	EC	1.9	lb ai/a	POT						
	Linuron	50	DF	1	lb ai/a	PO1						
10	Flumioxazin	51	WDG	0.096	lb ai/a	POT	2.0	1.3	9.7	9.7	10.0	9.3
	Pendimethalin	3.8	CS	1.9	lb ai/a	POT						
11	Sulfentrazone	4	F	0.188	lb ai/a	POT	5.0	5.7	10.0	9.7	10.0	10.0
	s-Metolachlor	7.62	EC	1.9	lb ai/a	POT						
	Prometryn	4	L	2	lb ai/a	PO1						
12	Prometryn	4	L	2	lb ai/a	POT	1.0	1.0	9.3	9.3	9.3	8.7
	Prometryn	4	L	2	lb ai/a	PO1						
13	Pendimethalin	3.8	CS	1.9	lb ai/a	POT	1.0	1.0	9.0	8.0	9.3	7.7
	Prometryn	4	L	1	lb ai/a	POT						
	Prometryn	4	L	1	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
	NIS	100	SL	0.25	lb ai/a	PO1						
14	Untreated						1.0	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.36	1.01	0.81	0.91	0.57	1.25
Standard Deviation							0.81	0.60	0.48	0.54	0.34	0.74
CV							32.34	30.69	5.3	6.15	3.7	8.47

Weed Control in Celery – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code								LACG	COLQ	COPU	RRPW	
Crop Name							CELERY					CELERY
Rating Date							7-1-08	7-1-08	7-1-08	7-1-08	7-1-08	8-8-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	Harvest
Rating Unit							1-10	1-10	1-10	1-10	1-10	KG/PLOT
1	Flumioxazin	51	WDG	0.096	lb ai/a	POT DR	1.3	9.3	9.0	8.3	8.3	66.38
	Prometryn	4	L	2	lb ai/a	PO1						
2	Flumioxazin	51	WDG	0.192	lb ai/a	POT DR	1.3	9.3	10.0	9.0	9.3	64.58
	Prometryn	4	L	2	lb ai/a	PO1						
3	Flumioxazin	51	WDG	0.096	lb ai/a	POT	1.3	7.7	8.3	7.3	7.7	63.46
	Prometryn	4	L	2	lb ai/a	PO1						
4	Flumioxazin	51	WDG	0.192	lb ai/a	POT	2.0	8.7	8.7	8.3	8.7	60.21
	Prometryn	4	L	2	lb ai/a	PO1						
5	Oxyfluorfen	4	SC	0.5	lb ai/a	POT DR	1.3	9.0	8.7	8.3	7.7	70.49
6	Prometryn	4	L	2	lb ai/a	POT	1.7	9.0	9.0	6.7	7.0	61.12
	Linuron	50	DF	1	lb ai/a	PO1						
7	Prometryn	4	L	2	lb ai/a	POT	1.0	9.7	8.7	8.7	9.3	64.33
	s-Metolachlor	7.62	EC	1.9	lb ai/a	POT						
	Linuron	50	DF	1	lb ai/a	PO1						
8	Prometryn	4	L	2	lb ai/a	POT	1.0	8.0	8.3	5.7	6.3	64.80
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
9	Flumioxazin	51	WDG	0.096	lb ai/a	POT	2.3	9.3	9.3	9.3	9.3	55.52
	s-Metolachlor	7.62	EC	1.9	lb ai/a	POT						
	Linuron	50	DF	1	lb ai/a	PO1						
10	Flumioxazin	51	WDG	0.096	lb ai/a	POT	1.0	7.7	9.7	7.7	7.3	66.91
	Pendimethalin	3.8	CS	1.9	lb ai/a	POT						
11	Sulfentrazone	4	F	0.188	lb ai/a	POT	2.3	9.3	9.7	9.0	9.3	56.16
	s-Metolachlor	7.62	EC	1.9	lb ai/a	POT						
	Prometryn	4	L	2	lb ai/a	PO1						
12	Prometryn	4	L	2	lb ai/a	POT	1.3	6.7	9.0	6.7	6.3	72.05
	Prometryn	4	L	2	lb ai/a	PO1						
13	Pendimethalin	3.8	CS	1.9	lb ai/a	POT	2.0	7.7	7.3	7.0	6.3	69.10
	Prometryn	4	L	1	lb ai/a	POT						
	Prometryn	4	L	1	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
	NIS	100	SL	0.25	lb ai/a	PO1						
14	Untreated						1.0	1.0	1.0	1.0	1.0	64.64
LSD (P=.05)							0.91	1.60	1.79	0.91	1.21	10.222
Standard Deviation							0.54	0.95	1.07	0.54	0.72	6.089
CV							36.09	11.84	12.82	7.38	9.73	9.47

Weed Control in Celery – Hudsonville 2008

Project Code: WC 113-08-02 **Location: Schreur Farm**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Celery **Variety: Duchess**
Planting Method: Transplant **Planting Date: 5-12-08**
Spacing: 7.5 inch **Row Spacing: 20 inch**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 3.3 ft wide x 40 ft long

Soil Type: Carlisle Muck **OM: 68%** **pH: 6.2**
Sand: 9% **Silt: 21%** **Clay: 2%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
POT	5/11/08	1:30 pm	50/53	°F	Damp	6 SW	83	10% Cloudy	N
PO1	6/12/08	11:15 am	77/73	°F	Moist	5 SW	81	50% Cloudy	N

Crop and Weed Information at Application

	Height or Diameter	Growth Stage	Density

Notes and Comments
1. Sprays applied with 2 nozzle shielded boom FF11002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Plots were 2 rows wide.
4. Yeild: All plants from 10 ft of 2 rows; approximately 30-40 plants/plot.

Weed Control in Celery – Hudsonville 2008

Dept. of Horticulture, MSU

Trial ID: WC 113-08-02 Study Director: Dr. Bernard Zandstra
Location: Hudsonville Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CELERY 6-13-08 RATING 1-10	YENS 6-13-08 RATING 1-10	LATH 6-13-08 RATING 1-10	HOWE 6-13-08 RATING 1-10	RRPW 6-13-08 RATING 1-10	CELERY 7-30-08 HARVEST KG/PLOT
1	Flumioxazin	51	WDG	0.096	lb ai/a	POT	2.0	2.0	10.0	7.0	10.0	45.88
	Prometryn	4	L	2	lb ai/a	PO1						
2	Flumioxazin	51	WDG	0.192	lb ai/a	POT	3.3	2.3	10.0	8.7	10.0	41.60
	Prometryn	4	L	2	lb ai/a	PO1						
3	Flumioxazin	51	WDG	0.096	lb ai/a	POT	2.0	2.7	9.7	5.5	10.0	49.38
	Pendimethalin	3.8	CS	1.9	lb ai/a	POT						
	Linuron	50	DF	1	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
4	Flumioxazin	51	WDG	0.096	lb ai/a	POT	3.3	3.3	10.0	6.3	9.7	37.42
	s-Metolachlor	7.62	EC	1.9	lb ai/a	POT						
	Linuron	50	DF	1	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
5	Prometryn	4	L	2	lb ai/a	POT	1.0	1.3	9.3	7.3	9.0	45.77
	Prometryn	4	L	2	lb ai/a	PO1						
6	Prometryn	4	L	2	lb ai/a	POT	1.0	2.7	9.3	8.3	10.0	49.43
	Linuron	50	DF	1	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
7	Prometryn	4	L	2	lb ai/a	POT	1.3	3.7	10.0	6.7	10.0	45.22
	s-Metolachlor	7.62	EC	1.9	lb ai/a	POT						
	Linuron	50	DF	1	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
8	Oxyfluorfen	4	SC	0.5	lb ai/a	POT	1.3	2.3	10.0	2.7	10.0	42.17
	Prometryn	4	L	2	lb ai/a	PO1						
9	Pendimethalin	3.8	CS	1.9	lb ai/a	POT	1.0	1.7	10.0	4.3	10.0	49.97
	Prometryn	4	L	2	lb ai/a	PO1						
10	Acetochlor	6.4	EC	2	lb ai/a	POT	1.3	5.0	10.0	10.0	10.0	48.91
	Prometryn	4	L	2	lb ai/a	PO1						
11	s-Metolachlor	7.62	EC	1.9	lb ai/a	POT	1.0	4.0	9.7	5.7	10.0	54.62
	Prometryn	4	L	2	lb ai/a	PO1						
LSD (P=.05)							0.95	1.91	0.81	2.85	0.91	11.216
Standard Deviation							0.56	1.12	0.47	1.67	0.53	6.563
CV							32.76	39.79	4.82	25.3	5.4	14.15

Weed Control in Sweet Corn – HTRC 2008

Project Code: WC 106-08-01 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco
Crop: Sweet Corn **Variety: BC0805 and GSS0966**
Planting Method: Seed **Planting Date: 5/8/08**
Spacing: 8 inch **Row Spacing: 30 inch; 1 Row of each hybrid/plot**
Tillage Type: Conventional **Study Design: RCB Replications: 3**
Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Capac Loam **OM: 1.6%** **pH: 6.8**
Sand: 56% **Silt: 26%** **Clay: 18%** **CEC: 6.5**

Herbicide Application Information

Timing	Date	Time	Air/Soil T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/9/08							
PO1	6/10/08							

Crop and Weed Information at Application

Date	Crop or Weed	Height or Diameter	Growth Stage	Density
5/9	Sweet corn			
6/10	Sweet Corn			

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Hybrids: BC 0805 on the north row, and GSS 0966 on the south row. 1 row of each variety per plot.

Weed Control in Sweet Corn – HTRC 2008

Dept. of Horticulture, MSU

Trial ID: WC 106-08-01 Study Director: Dr. Bernard Zandstra
Location: HTRC Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code									BYGR	COLQ	CORW	LATH
Crop Variety							BC0805	GSS0966				
Description							SW CORN	SW CORN				
Rating Date							6-10-08	6-10-08	6-10-08	6-10-08	6-10-08	6-10-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	s-Metolachlor	7.62	EC	1.9	lb ai/a	PRE	1.0	1.0	9.7	5.3	7.0	7.3
2	Dimethenamid-p	6	EC	0.98	lb ai/a	PRE	1.7	1.3	10.0	7.3	9.7	8.7
3	Acetochlor	6.4	EC	2	lb ai/a	PRE	1.0	1.0	10.0	9.7	10.0	9.3
4	Mesotrione	4	SC	0.188	lb ai/a	PRE	1.3	1.0	7.7	10.0	10.0	10.0
5	Pendimethalin	3.8	CS	1	lb ai/a	PRE	1.0	1.0	6.7	9.7	6.0	4.0
6	BAS 800	70	WG	0.112	lb ai/a	PRE	1.0	1.0	1.0	1.7	7.7	2.0
7	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	9.7	5.7	7.0	3.3
	Mesotrione	4	SC	0.094	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
8	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	9.7	4.7	6.3	4.0
	Tembotrione	3.5	SC	0.123	lb ai/a	PO1						
	MSO	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
9	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	9.7	5.0	7.0	6.3
	Topramezone	2.8	L	0.0164	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
10	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	9.7	5.3	8.3	5.7
	Atrazine	4	F	1	lb ai/a	PO1						
11	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	10.0	5.3	7.0	5.0
	Halosulfuron	75	WG	0.047	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
12	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	10.0	5.0	9.0	3.7
	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1						
	Carfentrazone	1.9	EW	0.008	lb ai/a	PO1						
13	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	10.0	5.3	7.7	5.3
	Glufosinate	1.67	L	0.26	lb ai/a	PO1						
14	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	9.7	5.0	9.7	6.7
	Nicosulfuron	75	SP	0.031	lb ai/a	PO1						
LSD (P=.05)							0.36	0.26	0.83	2.26	3.94	2.86
Standard Deviation							0.21	0.15	0.50	1.35	2.35	1.71
CV							19.97	15.07	5.64	22.17	29.27	29.36

Weed Control in Sweet Corn – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	RRPW	VELE			BYGR	GRFT
Crop Variety									BC0805	GSS0966		
Description									SW CORN	SW CORN		
Rating Date							6-10-08	6-10-08	6-16-08	6-16-08	6-16-08	6-16-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	s-Metolachlor	7.62	EC	1.9	lb ai/a	PRE	9.3	7.7	1.3	1.3	10.0	9.3
2	Dimethenamid-p	6	EC	0.98	lb ai/a	PRE	10.0	9.7	1.7	1.7	10.0	10.0
3	Acetochlor	6.4	EC	2	lb ai/a	PRE	10.0	10.0	1.0	1.0	10.0	10.0
4	Mesotrione	4	SC	0.188	lb ai/a	PRE	10.0	10.0	1.0	1.0	8.3	7.3
5	Pendimethalin	3.8	CS	1	lb ai/a	PRE	8.0	10.0	1.0	1.0	1.0	7.7
6	BAS 800	70	WG	0.112	lb ai/a	PRE	3.7	8.7	1.7	1.7	1.3	3.0
7	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	10.0	9.0	1.0	1.3	10.0	9.7
	Mesotrione	4	SC	0.094	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
8	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	10.0	7.3	1.0	1.0	10.0	9.7
	Tembotrione	3.5	SC	0.123	lb ai/a	PO1						
	MSO	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
9	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	9.0	5.7	1.0	1.0	10.0	10.0
	Topramezone	2.8	L	0.0164	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
10	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	10.0	7.3	1.0	1.0	10.0	10.0
	Atrazine	4	F	1	lb ai/a	PO1						
11	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	9.0	6.3	1.7	1.7	10.0	10.0
	Halosulfuron	75	WG	0.047	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
12	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	9.7	6.0	2.0	2.0	10.0	10.0
	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1						
	Carfentrazone	1.9	EW	0.008	lb ai/a	PO1						
13	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	10.0	6.0	1.0	1.0	6.7	10.0
	Glufosinate	1.67	L	0.26	lb ai/a	PO1						
14	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	9.7	7.7	1.0	1.0	10.0	10.0
	Nicosulfuron	75	SP	0.031	lb ai/a	PO1						
LSD (P=.05)							1.56	4.03	0.71	0.75	2.64	0.71
Standard Deviation							0.93	2.40	0.42	0.44	1.58	0.43
CV							10.11	30.16	34.04	35.24	18.8	4.71

Weed Control in Sweet Corn – HTRC 2008

Dept. of Horticulture, MSU

Pest Code							COLQ	CORW	LATH	RRPW		
Crop Variety											GSS0966	GSS0966
Description											SW CORN	SW CORN
Rating Date							6-16-08	6-16-08	6-16-08	6-16-08	8-11-08	8-11-08
Rating Data Type							RATING	RATING	RATING	RATING	Harvest	Harvest
Rating Unit							1-10	1-10	1-10	1-10	Ear #	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	s-Metolachlor	7.62	EC	1.9	lb ai/a	PRE	3.7	8.0	7.0	9.3	32.0	8.15
2	Dimethenamid-p	6	EC	0.98	lb ai/a	PRE	6.7	10.0	8.0	10.0	59.3	15.60
3	Acetochlor	6.4	EC	2	lb ai/a	PRE	9.3	10.0	10.0	10.0	44.7	11.97
4	Mesotrione	4	SC	0.188	lb ai/a	PRE	10.0	10.0	10.0	10.0	50.3	14.10
5	Pendimethalin	3.8	CS	1	lb ai/a	PRE	9.0	7.0	6.3	6.3	40.3	10.79
6	BAS 800	70	WG	0.112	lb ai/a	PRE	5.7	9.0	8.0	8.7	43.2	11.13
7	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	7.7	9.7	9.3	10.0	55.2	16.07
	Mesotrione	4	SC	0.094	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
8	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	8.0	9.7	10.0	10.0	54.7	16.05
	Tembotrione	3.5	SC	0.123	lb ai/a	PO1						
	MSO	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
9	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	7.7	9.3	9.7	10.0	47.0	13.13
	Topramezone	2.8	L	0.0164	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
10	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	9.0	10.0	10.0	10.0	54.7	14.97
	Atrazine	4	F	1	lb ai/a	PO1						
11	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	5.0	9.7	9.0	10.0	40.3	10.73
	Halosulfuron	75	WG	0.047	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
12	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	9.0	10.0	9.7	10.0	44.0	12.13
	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1						
	Carfentrazone	1.9	EW	0.008	lb ai/a	PO1						
13	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	10.0	10.0	10.0	10.0	49.3	14.51
	Glufosinate	1.67	L	0.26	lb ai/a	PO1						
14	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	3.3	10.0	9.7	10.0	40.3	10.27
	Nicosulfuron	75	SP	0.031	lb ai/a	PO1						
LSD (P=.05)							2.26	2.62	1.17	0.99	17.34	4.069
Standard Deviation							1.35	1.56	0.70	0.59	10.29	2.414
CV							18.12	16.53	7.73	6.16	21.99	18.82

Weed Control in Sweet Corn – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code									BYGR	COLQ		
Crop Variety							BC0805	GSS0966			BC0805	BC0805
Description							SW CORN	SW CORN			SW CORN	SW CORN
Rating Date							8-11-08	8-11-08	8-11-08	8-11-08	8-14-08	8-14-08
Rating Data Type							RATING	RATING	RATING	RATING	Harvest	Harvest
Rating Unit							1-10	1-10	1-10	1-10	Ear #	KG/PLOT
1	s-Metolachlor	7.62	EC	1.9	lb ai/a	PRE	2.0	2.0	10.0	1.7	42.0	11.80
2	Dimethenamid-p	6	EC	0.98	lb ai/a	PRE	1.7	1.3	9.7	2.7	41.0	12.69
3	Acetochlor	6.4	EC	2	lb ai/a	PRE	1.0	1.0	8.7	8.3	43.0	13.91
4	Mesotrione	4	SC	0.188	lb ai/a	PRE	1.0	1.0	8.3	10.0	53.3	17.70
5	Pendimethalin	3.8	CS	1	lb ai/a	PRE	2.0	2.0	6.0	7.0	38.0	12.65
6	BAS 800	70	WG	0.112	lb ai/a	PRE	1.7	2.7	9.0	9.0	44.0	14.55
7	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	10.0	10.0	47.7	15.81
	Mesotrione	4	SC	0.094	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
8	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	10.0	10.0	51.7	18.45
	Tembotrione	3.5	SC	0.123	lb ai/a	PO1						
	MSO	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
9	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	10.0	6.7	43.0	14.32
	Topramezone	2.8	L	0.0164	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	UAN	28	SL	2	% v/v	PO1						
10	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.0	10.0	10.0	52.7	18.47
	Atrazine	4	F	1	lb ai/a	PO1						
11	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	2.3	2.3	10.0	3.3	37.0	10.65
	Halosulfuron	75	WG	0.047	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
12	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.7	1.7	10.0	6.7	46.3	15.65
	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1						
	Carfentrazone	1.9	EW	0.008	lb ai/a	PO1						
13	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.0	1.3	10.0	10.0	56.7	18.33
	Glufosinate	1.67	L	0.26	lb ai/a	PO1						
14	s-Metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.3	1.3	10.0	1.3	42.3	12.33
	Nicosulfuron	75	SP	0.031	lb ai/a	PO1						
LSD (P=.05)							0.93	1.20	1.55	2.90	8.65	3.548
Standard Deviation							0.55	0.72	0.92	1.73	5.15	2.114
CV							39.49	48.6	9.83	25.05	11.3	14.27

Weed Control in Pickling Cucumber – HTRC 2008

Project Code: WC 108-08-01 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco
Crop: Pickling cucumber **Variety: Journey**
Planting Method: Seeded **Planting Date: 5/27/08**
Spacing: 3 inch **Row Spacing: 14 inch; 3 rows/plot**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 16 ft wide x 40 ft long

Soil Type: Capac Loam **OM: 1.9%** **pH: 6.2**
Sand: 42% **Silt: 32%** **Clay: 26%** **CEC: 10.9**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/28/08	2:30 pm	72/72	°F	Moist	1-2 S	38	5% Cloudy	N
PO1	6/24/08	9:45 am	84/67	°F	Moist	6 W	59	20% Cloudy	N

Crop and Weed Information at Application

Date	Crop or Weed	Height or Diameter	Growth Stage	Density

Notes and Comments

1. **Sprays applied with 16 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 tractor mounted sprayer.**
2. **Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.**

Weed Control in Pickling Cucumber – HTRC 2008

Dept. of Horticulture, MSU

Trial ID: WC 108-08-01 Study Director: Dr. Bernard Zandstra
Location: HTRC Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CUCUMBER	COLQ	CORW	LATH	CUCUMBER
Pest Code								COLQ	CORW	LATH	
Crop Code							CUCUMBER				CUCUMBER
Rating Date							6-23-08	6-23-08	6-23-08	6-23-08	7-2-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
1	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	1.7	10.0	9.0	10.0	1.7
	Clomazone	3	ME	0.25	lb ai/a	PRE					
2	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	1.3	10.0	10.0	10.0	1.3
	Halosulfuron	75	WG	0.023	lb ai/a	PRE					
3	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.3	10.0	10.0	10.0	2.7
	Imazosulfuron	75	WDG	0.1	lb ai/a	PRE					
4	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	1.3	10.0	10.0	10.0	2.0
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Halosulfuron	75	WG	0.023	lb ai/a	PO1					
5	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.3	10.0	9.3	10.0	2.3
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Imazosulfuron	75	WDG	0.1	lb ai/a	PO1					
6	Enthalfluralin	2.1	SE	64	fl oz/a	PRE	2.3	10.0	10.0	10.0	3.3
	Halosulfuron	75	WG	0.031	lb ai/a	PO1					
	NIS	100	SL	0.25	% v/v	PO1					
7	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	3.0	10.0	10.0	10.0	4.7
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Flumetsulam	80	WDG	0.0057	lb ai/a	PRE					
8	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	5.0	10.0	10.0	10.0	5.7
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Atrazine	4	F	0.1	lb ai/a	PRE					
9	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	5.7	10.0	10.0	10.0	7.0
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Sulfentrazone	4	F	0.094	lb ai/a	PRE					
10	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	1.0	9.7	8.7	10.0	1.3
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Imazamox	1	AS	.0031	lb ai/a	PRE					
11	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	7.3	10.0	10.0	10.0	8.3
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Flumioxazin	51	WDG	0.016	lb ai/a	PRE					
12	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.7	10.0	9.7	10.0	3.3
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	s-Metolachlor	7.62	EC	0.25	lb ai/a	PRE					
13	Fomesafen	2	EC	0.25	lb ai/a	PRE	6.0	9.7	10.0	10.0	7.0
14	Fomesafen	2	EC	0.5	lb ai/a	PRE	3.7	10.0	9.0	10.0	4.0
LSD (P=.05)							2.72	0.35	0.82	0.00	2.95
Standard Deviation							1.62	0.21	0.49	0.00	1.75
CV							49.6	2.11	5.05	0.0	44.94

Weed Control in Pickling Cucumber – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CORW	EBNS	CUCUMBER	CUCUMBER	CUCUMBER 1
Crop Code							CORW	EBNS	CUCUMBER	CUCUMBER	CUCUMBER
Crop Variety											1
Rating Date							7-2-08	7-2-08	7-24-08	7-24-08	7-24-08
Rating Data Type							RATING	RATING	PLANT Wt.	FRUIT Wt.	Grading 1
Rating Unit							1-10	1-10	KG/PLOT	KG/PLOT	KG/PLOT
1	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	7.3	9.0	16.33	35.47	0.55
	Clomazone	3	ME	0.25	lb ai/a	PRE					
2	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	10.0	8.3	20.75	45.12	0.61
	Halosulfuron	75	WG	0.023	lb ai/a	PRE					
3	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	9.0	8.3	19.00	40.31	0.69
	Imazosulfuron	75	WDG	0.1	lb ai/a	PRE					
4	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	9.7	8.0	21.31	46.66	0.55
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Halosulfuron	75	WG	0.023	lb ai/a	PO1					
5	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	8.3	8.3	19.04	47.10	0.67
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Imazosulfuron	75	WDG	0.1	lb ai/a	PO1					
6	Enthalfluralin	2.1	SE	64	fl oz/a	PRE	10.0	8.0	19.89	44.91	0.60
	Halosulfuron	75	WG	0.031	lb ai/a	PO1					
	NIS	100	SL	0.25	% v/v	PO1					
7	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	8.0	8.3	15.49	31.79	0.68
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Flumetsulam	80	WDG	0.0057	lb ai/a	PRE					
8	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	9.3	10.0	11.98	26.82	0.54
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Atrazine	4	F	0.1	lb ai/a	PRE					
9	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	7.0	10.0	9.83	22.17	0.53
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Sulfentrazone	4	F	0.094	lb ai/a	PRE					
10	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	6.7	9.0	21.27	50.82	0.73
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Imazamox	1	AS	.0031	lb ai/a	PRE					
11	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	9.7	10.0	3.52	9.25	0.13
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	Flumioxazin	51	WDG	0.016	lb ai/a	PRE					
12	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	8.0	10.0	15.56	34.79	0.47
	Clomazone	3	ME	0.25	lb ai/a	PRE					
	s-Metolachlor	7.62	EC	0.25	lb ai/a	PRE					
13	Fomesafen	2	EC	0.25	lb ai/a	PRE	10.0	9.7	9.11	23.01	0.63
14	Fomesafen	2	EC	0.5	lb ai/a	PRE	8.7	9.3	13.84	41.53	0.58
LSD (P=.05)							1.56	0.82	9.302	26.456	0.297
Standard Deviation							0.93	0.49	5.541	15.760	0.177
CV							10.66	5.43	35.76	44.15	31.13

Weed Control in Pickling Cucumber – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
Crop Code							CUCUMBER	CUCUMBER	CUCUMBER
Crop Variety							2	3	OS
Rating Date							7-24-08	7-24-08	7-24-08
Rating Data Type							Grading 2	Grading 3	Grading OS
Rating Unit							KG/PLOT	KG/PLOT	KG/PLOT
1	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.13	14.46	18.01
	Clomazone	3	ME	0.25	lb ai/a	PRE			
2	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.15	18.52	23.33
	Halosulfuron	75	WG	0.023	lb ai/a	PRE			
3	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.71	16.99	19.21
	Imazosulfuron	75	WDG	0.1	lb ai/a	PRE			
4	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.65	20.17	22.87
	Clomazone	3	ME	0.25	lb ai/a	PRE			
	Halosulfuron	75	WG	0.023	lb ai/a	PO1			
5	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.10	18.37	25.23
	Clomazone	3	ME	0.25	lb ai/a	PRE			
	Imazosulfuron	75	WDG	0.1	lb ai/a	PO1			
6	Enthalfluralin	2.1	SE	64	fl oz/a	PRE	2.49	25.59	14.56
	Halosulfuron	75	WG	0.031	lb ai/a	PO1			
	NIS	100	SL	0.25	% v/v	PO1			
7	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	3.09	19.20	8.53
	Clomazone	3	ME	0.25	lb ai/a	PRE			
	Flumetsulam	80	WDG	0.0057	lb ai/a	PRE			
8	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.33	10.79	12.87
	Clomazone	3	ME	0.25	lb ai/a	PRE			
	Atrazine	4	F	0.1	lb ai/a	PRE			
9	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.65	15.24	3.42
	Clomazone	3	ME	0.25	lb ai/a	PRE			
	Sulfentrazone	4	F	0.094	lb ai/a	PRE			
10	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.07	19.48	27.64
	Clomazone	3	ME	0.25	lb ai/a	PRE			
	Imazamox	1	AS	.0031	lb ai/a	PRE			
11	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	0.35	3.83	4.83
	Clomazone	3	ME	0.25	lb ai/a	PRE			
	Flumioxazin	51	WDG	0.016	lb ai/a	PRE			
12	Ethalfluralin	3	EC	0.75	lb ai/a	PRE	2.23	18.05	13.68
	Clomazone	3	ME	0.25	lb ai/a	PRE			
	s-Metolachlor	7.62	EC	0.25	lb ai/a	PRE			
13	Fomesafen	2	EC	0.25	lb ai/a	PRE	2.36	15.23	4.34
14	Fomesafen	2	EC	0.5	lb ai/a	PRE	1.39	13.14	15.85
LSD (P=.05)							0.866	9.882	14.084
Standard Deviation							0.516	5.887	8.390
CV							23.53	35.98	54.8

Weed Control in Basil – Momence, IL 2008

Project Code: WC 117-08-01 **Location: VanDrunen Farms**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Basil **Variety: See notes.**
Planting Method: seeded **Planting Date: 5/9/08**
Spacing: 2 inch **Row Spacing: 10 inch**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Sandy Loam **OM: 1.9%** **pH: 7.3**
Sand: 82% **Silt: 11%** **Clay: 7%** **CEC: 7.6**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/16/08	11:00 am	75/59	°F	Dry	3 SW	49	0% Cloudy	N
PO1	6/11/08	12:00 pm	83/80	°F	Dry	8 SW	40	10% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/11	BASIL	1-3″	4-6 LF	good stand
6/11	GOGR = goosegrass	4-6″		moderate
6/11	GRFT = green foxtail	6-8″		many
6/11	LACG = large crabgrass	3-8″		moderate
6/11	COLQ = common lambsquarters	4-6″		few
6/11	COPU = common purslane	1-6″		moderate
6/11	RRPW = redroot pigweed	2-4″		few

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Plots had four rows, one for each variety: Thai, Superior, Stella, and BA-1406.

Weed Control in Basil – Momence, IL 2008

Dept. of Horticulture, MSU

Trial ID: WC 117-08-01 Study Director: Dr. Bernard Zandstra
Location: VAN DRUNEN FARMS Investigator:

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	THAI 11/Jun/08 RATING 1-10	SUPERIOR 11/Jun/08 RATING 1-10	STELLA 11/Jun/08 RATING 1-10	BA-1406 11/Jun/08 RATING 1-10	GOGR 11/Jun/08 RATING 1-10	GRFT 11/Jun/08 RATING 1-10
1	Napropamide	50	DF	2	LB A/A	PRE	1.0	1.0	2.3	1.3	10.0	10.0
2	Sulfentrazone	4	F	0.125	LB A/A	PRE	3.7	4.7	6.0	4.7	10.0	10.0
3	Ethofumesate	4	SC	1	LB A/A	PRE	5.3	6.0	5.3	5.7	7.7	10.0
4	Linuron	50	DF	0.25	LB A/A	PRE	1.3	1.7	1.0	1.0	5.7	7.3
5	Clomazone	3	ME	0.25	LB A/A	PRE	2.0	2.0	4.0	2.3	10.0	10.0
6	Ethalfluralin	3	EC	0.74	LB A/A	PRE	2.0	2.9	3.3	3.7	10.0	9.7
7	Prometryn	4	L	0.5	LB A/A	PRE	3.0	1.6	2.7	2.3	7.0	9.7
8	Imazamox	1	AS	0.016	LB A/A	PRE	1.7	4.0	4.3	3.3	8.3	3.7
9	Untreated					PRE	1.0	1.7	4.0	1.0	8.3	5.7
	Bentazon	4	L	0.5	LB A/A	PO1						
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1						
10	Untreated					PRE	1.0	1.0	1.0	1.0	4.7	3.7
	Ethofumesate	4	SC	0.5	LB A/A	PO1						
LSD (P=.05)							2.56	3.53	4.75	3.02	4.66	3.70
Standard Deviation							1.49	2.03	2.77	1.76	2.72	2.16
CV							67.82	76.56	81.42	66.86	33.27	27.07

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LACG 11/Jun/08 RATING 1-10	COPU 11/Jun/08 RATING 1-10	RRPW 11/Jun/08 RATING 1-10	THAI 10/Jul/08 RATING 1-10	SUPERIOR 10/Jul/08 RATING 1-10	STELLA 10/Jul/08 RATING 1-10
1	Napropamide	50	DF	2	LB A/A	PRE	10.0	9.0	9.3	1.7	1.0	2.7
2	Sulfentrazone	4	F	0.125	LB A/A	PRE	7.0	10.0	10.0	1.3	2.7	4.3
3	Ethofumesate	4	SC	1	LB A/A	PRE	10.0	10.0	10.0	2.3	5.7	3.7
4	Linuron	50	DF	0.25	LB A/A	PRE	8.0	9.7	10.0	2.0	1.7	1.3
5	Clomazone	3	ME	0.25	LB A/A	PRE	10.0	10.0	8.3	1.0	1.0	3.3
6	Ethalfluralin	3	EC	0.74	LB A/A	PRE	9.8	9.7	7.7	1.0	3.7	1.7
7	Prometryn	4	L	0.5	LB A/A	PRE	9.7	10.0	9.3	2.3	3.0	2.3
8	Imazamox	1	AS	0.016	LB A/A	PRE	4.7	8.3	10.0	3.3	3.3	3.3
9	Untreated					PRE	7.7	5.7	9.0	1.3	2.0	3.3
	Bentazon	4	L	0.5	LB A/A	PO1						
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1						
10	Untreated					PRE	4.0	3.3	5.3	3.0	3.0	2.0
	Ethofumesate	4	SC	0.5	LB A/A	PO1						
LSD (P=.05)							5.67	3.26	3.46	2.04	3.69	4.20
Standard Deviation							3.29	1.90	2.02	1.19	2.15	2.45
CV							40.75	22.19	22.65	61.6	79.6	87.4

Weed Control in Basil – Momence, IL 2008

Dept. of Horticulture, MSU

Pest Code							BA-1406	GOGR	LACG	STGR	COPU	RRPW
Rating Date							10/Jul/08	10/Jul/08	10/Jul/08	10/Jul/08	10/Jul/08	10/Jul/08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	Napropamide	50	DF	2	LB A/A	PRE	1.0	9.0	9.3	9.0	6.3	8.0
2	Sulfentrazone	4	F	0.125	LB A/A	PRE	2.0	8.7	6.7	6.3	8.3	10.0
3	Ethofumesate	4	SC	1	LB A/A	PRE	2.0	2.7	6.3	5.7	8.3	10.0
4	Linuron	50	DF	0.25	LB A/A	PRE	1.0	3.0	7.0	6.3	8.7	9.0
5	Clomazone	3	ME	0.25	LB A/A	PRE	1.0	9.3	8.0	9.3	8.3	4.0
6	Ethalfluralin	3	EC	0.74	LB A/A	PRE	1.7	7.7	8.9	9.6	3.3	3.7
7	Prometryn	4	L	0.5	LB A/A	PRE	1.7	6.3	7.0	2.3	9.3	9.0
8	Imazamox	1	AS	0.016	LB A/A	PRE	1.7	4.3	9.0	1.0	3.7	9.0
9	Untreated					PRE	1.0	7.3	6.0	2.7	7.0	8.7
	Bentazon	4	L	0.5	LB A/A	PO1						
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1						
10	Untreated					PRE	2.0	4.7	4.3	2.0	7.7	6.0
	Ethofumesate	4	SC	0.5	LB A/A	PO1						
LSD (P=.05)							1.44	4.94	5.66	4.09	2.51	3.76
Standard Deviation							0.84	2.88	3.29	2.37	1.46	2.19
CV							55.78	45.75	45.3	43.76	20.63	28.34

Pest Code							VELE	THAI	SUPERIOR	STELLA	BA-1406
Rating Date							10/Jul/08	10/Jul/08	10/Jul/08	10/Jul/08	10/Jul/08
Rating Data Type							RATING	WEIGHT	WEIGHT	WEIGHT	WEIGHT
Rating Unit							1-10	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Napropamide	50	DF	2	LB A/A	PRE	5.3	5.92	7.39	3.70	5.45
2	Sulfentrazone	4	F	0.125	LB A/A	PRE	10.0	6.48	4.03	1.70	3.18
3	Ethofumesate	4	SC	1	LB A/A	PRE	4.0	3.27	1.89	2.18	1.56
4	Linuron	50	DF	0.25	LB A/A	PRE	6.3	4.24	5.49	4.98	4.23
5	Clomazone	3	ME	0.25	LB A/A	PRE	10.0	6.30	6.07	2.94	3.87
6	Ethalfluralin	3	EC	0.74	LB A/A	PRE	5.0	3.97	1.96	2.31	1.46
7	Prometryn	4	L	0.5	LB A/A	PRE	8.0	3.22	3.67	3.32	2.32
8	Imazamox	1	AS	0.016	LB A/A	PRE	9.7	3.77	1.84	1.75	2.77
9	Untreated					PRE	9.0	4.94	3.91	2.60	3.42
	Bentazon	4	L	0.5	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
10	Untreated					PRE	7.3	3.42	2.71	3.93	2.12
	Ethofumesate	4	SC	0.5	LB A/A	PO1					
LSD (P=.05)							5.32	4.141	4.484	3.239	2.405
Standard Deviation							3.10	2.414	2.614	1.888	1.402
CV							41.57	53.0	67.08	64.21	46.16

Weed Control in Cilantro, Dill, Fennel, and Parsley – Momence, IL 2008

Project Code: WC 117-08-02 **Location: VanDrunen Farms**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Cilantro, Dill, Fennel, Parsley **Variety: See notes**
Planting Method: **Planting Date: 5/9/08**
Spacing: 3 inch **Row Spacing: 10 inch**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Sandy Loam **OM: 1.9%** **pH: 7.3**
Sand: 82% **Silt: 11%** **Clay: 7%** **CEC: 7.6**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/16/08	12:00 pm	74/63	°F	Dry	1 SW	45	0% Cloudy	N
PO1	6/11/08	12:30 pm	83/78	°F	Dry	6-8 SW	42	10% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/11	FENNEL	3-4″	4 LF	good stand
6/11	DILL	4″	3-4 LF	good stand
6/11	CILANTRO	4″	4-5 LF	good stand
6/11	PARSLEY	1-2″	2 LF	good stand
6/11	GOGR = goosegrass	4-6″		moderate
6/11	LACG = large crabgrass	3-8″		moderate
6/11	COLQ = common lambsquarters	4-6″		few
6/11	COPU = common purslane	1-6″		moderate
6/11	RRPW = redroot pigweed	2-4″		few

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. 1 row crop/plot, Cilantro – Long Standing, Dill – Long Island Mammoth, Fennel - Zefafino, Parsley – Forest Green.

Weed Control in Cilantro, Dill, Fennel, and Parsley – Momence, IL 2008

Dept. of Horticulture, MSU

Trial ID: WC 117-08-02 Study Director: Dr. Bernard Zandstra
Location: VAN DRUNEN FARMS Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	FENNEL 11/Jun/08 RATING 1-10	DILL 11/Jun/08 RATING 1-10	CILANTRO 11/Jun/08 RATING 1-10	PARSLEY 11/Jun/08 RATING 1-10	GRFT 11/Jun/08 RATING 1-10	LACG 11/Jun/08 RATING 1-10
1	Linuron	50	DF	0.5	LB A/A	PRE	2.3	2.3	1.0	1.0	9.0	8.3
2	Trifluralin	4	EC	0.5	LB A/A	PRE	1.3	2.7	3.0	2.3	9.7	9.7
3	Prometryn	4	L	1	LB A/A	PRE	2.3	2.7	3.0	2.7	10.0	10.0
4	s-Metolachlor	7.62	EC	0.63	LB A/A	PRE	2.3	4.7	1.0	2.7	10.0	9.7
5	Pendimethalin	3.8	CS	0.7	LB A/A	PRE	1.7	1.3	2.7	1.7	10.0	9.0
6	Ethofumesate	4	SC	1	LB A/A	PRE	1.3	2.0	1.7	1.7	10.0	10.0
7	Clomazone	3	ME	0.25	LB A/A	PRE	1.7	1.0	1.3	1.3	10.0	10.0
8	Linuron	50	DF	0.25	LB A/A	PRE	2.0	2.0	1.3	1.3	7.7	6.3
	Linuron	50	DF	1	LB A/A	PO1						
9	Linuron	50	DF	0.25	LB A/A	PRE	2.3	1.7	1.7	1.7	7.7	7.3
	Prometryn	4	L	1	LB A/A	PO1						
10	Linuron	50	DF	0.5	LB A/A	PRE	2.7	2.0	2.0	2.0	9.7	9.3
	Ethofumesate	4	SC	1	LB A/A	PO1						
LSD (P=.05)							1.49	2.82	1.95	1.01	2.93	2.28
Standard Deviation							0.87	1.65	1.14	0.59	1.71	1.33
CV							43.46	73.68	60.91	32.18	18.25	14.85

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	COLQ 11/Jun/08 RATING 1-10	COPU 11/Jun/08 RATING 1-10	FENNEL 10/Jul/08 RATING 1-10	DILL 10/Jul/08 RATING 1-10	CILANTRO 10/Jul/08 RATING 1-10	PARSLEY 10/Jul/08 RATING 1-10
1	Linuron	50	DF	0.5	LB A/A	PRE	10.0	10.0	1.0	1.7	1.3	1.3
2	Trifluralin	4	EC	0.5	LB A/A	PRE	10.0	7.0	1.3	1.7	3.0	1.7
3	Prometryn	4	L	1	LB A/A	PRE	7.7	10.0	2.0	1.0	3.7	2.0
4	s-Metolachlor	7.62	EC	0.63	LB A/A	PRE	9.7	9.7	1.0	4.0	1.0	3.0
5	Pendimethalin	3.8	CS	0.7	LB A/A	PRE	10.0	10.0	1.7	1.3	2.7	1.0
6	Ethofumesate	4	SC	1	LB A/A	PRE	10.0	10.0	1.0	1.0	3.3	3.7
7	Clomazone	3	ME	0.25	LB A/A	PRE	10.0	10.0	1.0	1.0	1.0	1.7
8	Linuron	50	DF	0.25	LB A/A	PRE	10.0	9.7	2.3	2.0	1.0	4.3
	Linuron	50	DF	1	LB A/A	PO1						
9	Linuron	50	DF	0.25	LB A/A	PRE	10.0	10.0	2.0	1.3	2.3	2.0
	Prometryn	4	L	1	LB A/A	PO1						
10	Linuron	50	DF	0.5	LB A/A	PRE	10.0	10.0	1.3	1.0	1.0	1.7
	Ethofumesate	4	SC	1	LB A/A	PO1						
LSD (P=.05)							2.23	1.49	1.39	2.72	4.16	2.21
Standard Deviation							1.30	0.87	0.81	1.59	2.42	1.29
CV							13.37	9.05	55.2	99.11	119.16	57.74

Weed Control in Cilantro, Dill, Fennel, and Parsley – Momence, IL 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	GOGR	LACG	STGR	COPU	RRPW	DILL
Pest Code							GOGR	LACG	STGR	COPU	RRPW	DILL
Rating Date							10/Jul/08	10/Jul/08	10/Jul/08	10/Jul/08	10/Jul/08	10/Jul/08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	WEIGHT
Rating Unit							1-10	1-10	1-10	1-10	1-10	KG/PLOT
1	Linuron	50	DF	0.5	LB A/A	PRE	4.3	3.3	1.3	8.3	10.0	7.50
2	Trifluralin	4	EC	0.5	LB A/A	PRE	9.0	5.0	7.0	4.0	9.7	9.66
3	Prometryn	4	L	1	LB A/A	PRE	9.3	5.3	9.0	8.3	10.0	7.09
4	s-Metolachlor	7.62	EC	0.63	LB A/A	PRE	9.7	8.7	9.3	6.7	7.0	4.00
5	Pendimethalin	3.8	CS	0.7	LB A/A	PRE	9.3	8.7	9.7	8.3	9.3	7.79
6	Ethofumesate	4	SC	1	LB A/A	PRE	6.7	9.7	9.7	8.3	10.0	7.92
7	Clomazone	3	ME	0.25	LB A/A	PRE	9.7	8.3	9.0	7.7	9.3	10.40
8	Linuron	50	DF	0.25	LB A/A	PRE	5.3	5.3	3.3	9.7	10.0	5.82
	Linuron	50	DF	1	LB A/A	PO1						
9	Linuron	50	DF	0.25	LB A/A	PRE	8.3	5.7	6.0	10.0	10.0	7.16
	Prometryn	4	L	1	LB A/A	PO1						
10	Linuron	50	DF	0.5	LB A/A	PRE	8.7	6.3	7.0	9.7	10.0	7.88
	Ethofumesate	4	SC	1	LB A/A	PO1						
LSD (P=.05)							4.67	3.85	3.93	2.68	3.05	4.750
Standard Deviation							2.72	2.25	2.29	1.56	1.78	2.769
CV							33.85	33.85	32.12	19.29	18.62	36.81

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CILANTRO	FENNEL	FENNEL	PARSLEY
Pest Code							CILANTRO	FENNEL	FENNEL	PARSLEY
Rating Date							10/Jul/08	5/Aug/08	5/Aug/08	5/Aug/08
Rating Data Type							WEIGHT	Harvest	Harvest	Harvest
Rating Unit							KG/PLOT	#	KG/PLOT	KG/PLOT
1	Linuron	50	DF	0.5	LB A/A	PRE	6.05	152	12.03	1.19
2	Trifluralin	4	EC	0.5	LB A/A	PRE	3.67	187	16.32	1.31
3	Prometryn	4	L	1	LB A/A	PRE	4.69	109	11.25	1.18
4	s-Metolachlor	7.62	EC	0.63	LB A/A	PRE	8.28	125	18.11	0.79
5	Pendimethalin	3.8	CS	0.7	LB A/A	PRE	4.68	144	13.58	2.48
6	Ethofumesate	4	SC	1	LB A/A	PRE	5.57	145	13.54	1.51
7	Clomazone	3	ME	0.25	LB A/A	PRE	6.47	149	18.92	2.47
8	Linuron	50	DF	0.25	LB A/A	PRE	5.16	121	10.94	0.68
	Linuron	50	DF	1	LB A/A	PO1				
9	Linuron	50	DF	0.25	LB A/A	PRE	4.16	110	12.97	1.91
	Prometryn	4	L	1	LB A/A	PO1				
10	Linuron	50	DF	0.5	LB A/A	PRE	5.51	119	15.24	1.43
	Ethofumesate	4	SC	1	LB A/A	PO1				
LSD (P=.05)							4.556	53.8	7.288	1.381
Standard Deviation							2.656	31.3	4.249	0.805
CV							48.97	23.03	29.73	53.85

Weed Control in Lettuce – Imlay City 2008

Project Code: WC 116-08-01 **Location: Van Dyk Farms**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Romaine Lettuce **Variety: Capistrano**
Planting Method: Seeded **Planting Date: 6/12/08**
Spacing: 12 inch in row **Row Spacing: 24 inch on 36 inch bed**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 3.33 ft wide x 30 ft long

Soil Type: Adrian Muck **OM: 66%** **pH: 6.6**
Sand: 9% **Silt: 23%** **Clay: 2%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	6/12/08	11:30 am	76/70	°F	Damp	2 SW	55	20% Cloudy	N
PO1	6/24/08	10:00 am	70/68	°F	Dry	2 NE	65	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/24	LETTUCE	0.5-1″		good stand
6/24	COPU = common purslane			many

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. August 12, 2008 Harvest: all heads in 2 rows in each plot harvested.

Weed Control in Lettuce – Imlay City 2008

Dept. of Horticulture, MSU

Trial ID: WC 116-08-01 Study Director: Dr. Bernard Zandstra
Location: Van Dyk Farm Investigator: Rodney Tocco

Trt No	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code								COPU		COPU		
Crop Code							LETTUCE		LETTUCE		LETTUCE	LETTUCE
Rating Date							24/Jun/08	24/Jun/08	9/Jul/08	9/Jul/08	12/Aug/08	12/Aug/08
Rating Data Type							RATING	RATING	RATING	RATING	Harvest	Harvest
Rating Unit							1-10	1-10	1-10	1-10	#/PLOT	KG/PLOT
1	Pronamide	50	WP	6	LB A/A	PRE	1.7	1.0	1.0	3.0	30.7	27.81
2	Sulfentrazone	4	F	0.125	LB A/A	PRE	2.0	10.0	1.7	8.3	33.7	32.09
3	Imazosulfuron	75	WDG	0.2	LB A/A	PRE	3.3	7.3	3.0	5.3	30.3	27.86
4	Ethofumesate	4	SC	1	LB A/A	PRE	3.7	3.3	3.0	5.7	29.7	20.77
5	Pronamide	50	WP	4	LB A/A	PRE	1.3	2.7	4.6	7.9	34.0	29.45
	Imazamox	1	AS	0.031	LB A/A	PO1						
6	Pronamide	50	WP	4	LB A/A	PRE	1.3	3.0	2.0	8.7	38.3	34.35
	Imazethapyr	2	EC	0.063	LB A/A	PO1						
7	Pronamide	50	WP	4	LB A/A	PRE	1.0	1.0	1.3	9.3	34.7	28.13
	Ethofumesate	4	SC	0.5	LB A/A	PO1						
8	Pronamide	50	WP	4	LB A/A	PRE	1.3	1.0	7.0	7.0	30.7	19.46
	Imazosulfuron	75	WDG	0.2	LB A/A	PO1						
LSD (P=.05)							1.58	4.28	1.50	1.38	8.37	12.425
Standard Deviation							0.90	2.44	0.85	0.78	4.78	7.094
CV							46.11	66.67	28.81	11.33	14.6	25.81

Weed Control in Mint – St. Johns 2008

Project Code: WC 121-08-01 **Location: Irrer Farm**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Native Spearmint **Variety: See notes**
Planting Method: **Planting Date:**
Spacing: meadow mint **Row Spacing:**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 15 ft wide x 20 ft long

Soil Type: Gilford Loam **OM: 2.7%** **pH: 6.0**
Sand: 74% **Silt: 15%** **Clay: 11%** **CEC: 9.5**

Herbicide Application Information

Timing	Date	Time	Air/Soil T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/3/08	11:00 am	°F					N

Crop and Weed Information at Application

	Height or Diameter	Growth Stage	Density

Notes and Comments
1. Sprays applied with 15 ft boom FF8002, 22 gpa, 22 psi, 2.27 mph, tractor mounted sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.

Weed Control in Mint – St. Johns 2008

Dept. of Horticulture, MSU

Trial ID: WC 121-08-01 Study Director: Dr. Bernard Zandstra
Location: St. Johns Irrer Farm Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	MINT	FIPA	HOWE	VIPW	WHCA
Pest Code								FIPA	HOWE	VIPW	WHCA
Crop Code							MINT				
Rating Date							25/Jun/08	25/Jun/08	25/Jun/08	25/Jun/08	25/Jun/08
Rating Data Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
1	Terbacil	80	WP	0.8	LB A/A	PRE	2.0	7.7	6.3	6.0	7.7
2	Terbacil	80	WP	0.32	LB A/A	PRE	2.3	5.3	6.7	4.7	7.0
	Oxyfluorfen	2	L	0.31	LB A/A	PRE					
	Paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Clomazone	3	ME	0.5	LB A/A	PRE	1.7	5.3	8.3	5.3	5.7
	Terbacil	80	WP	0.32	LB A/A	PRE					
	Oxyfluorfen	2	L	0.31	LB A/A	PRE					
	Paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Flumioxazin	51	WDG	0.128	LB A/A	PRE	2.0	3.0	6.0	6.3	4.7
	Oxyfluorfen	2	L	0.31	LB A/A	PRE					
	Paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Flumioxazin	51	WDG	0.192	LB A/A	PRE	2.0	4.3	6.0	3.3	2.7
	Oxyfluorfen	2	L	0.31	LB A/A	PRE					
	Paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	Terbacil	80	WP	0.32	LB A/A	PRE	2.3	7.0	7.3	5.0	6.7
	Flumioxazin	51	WDG	0.192	LB A/A	PRE					
7	Sulfentrazone	4	F	0.281	LB A/A	PRE	4.0	6.0	7.0	4.3	5.7
8	Sulfentrazone	4	F	0.188	LB A/A	PRE	2.0	3.7	6.7	4.0	5.7
9	Flumioxazin	51	WDG	0.128	LB A/A	PRE	2.7	8.3	7.3	3.7	5.7
	Clomazone	3	ME	0.5	LB A/A	PRE					
	Terbacil	80	WP	0.32	LB A/A	PRE					
	Oxyfluorfen	2	L	0.31	LB A/A	PRE					
	Paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
10	Flumioxazin	51	WDG	0.064	LB A/A	PRE	3.3	5.0	6.3	3.7	4.7
	Clomazone	3	ME	0.5	LB A/A	PRE					
	Oxyfluorfen	2	L	0.31	LB A/A	PRE					
	Paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
11	Flumioxazin	51	WDG	0.128	LB A/A	PRE	2.3	5.7	6.7	5.3	4.0
	Clomazone	3	ME	0.5	LB A/A	PRE					
	Oxyfluorfen	2	L	0.31	LB A/A	PRE					
	Paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
12	Flumioxazin	51	WDG	0.192	LB A/A	PRE	2.3	4.7	7.7	3.3	2.7
	Clomazone	3	ME	0.5	LB A/A	PRE					
	Oxyfluorfen	2	L	0.31	LB A/A	PRE					
	Paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
LSD (P=.05)							2.03	5.37	5.05	4.42	5.76
Standard Deviation							1.20	3.17	2.98	2.61	3.40
CV							49.51	57.6	43.42	56.97	65.19

Preemergence Weed Control in Onion – Muck Farm 2008

Project Code: WC 112-08-01 **Location: Laingsburg, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Onion **Variety: See notes**
Planting Method: **Planting Date:**
Spacing: **Row Spacing:**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.5 ft wide x 25 ft long

Soil Type: Houghton Muck **OM: 80%** **pH: 7.1**
Sand: 8% **Silt: 13%** **Clay: 2%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/9/08	9:45 am	53/52	°F	Dry	3 N	77.4	5% Cloudy	N
PO1	6/2/08	10:30 am	68/58	°F	Good	6 SW	57.6	20% Cloudy	N
PO2	6/26/08	10:00 am	84/72	°F	Moist	1-3 W	75.4	15% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/9	ONION	″		
6/2	ONION	2-3″	1 LF	good stand
6/2	COLQ = common lambsquarters	0.5-1″		many
6/2	LATH = ladysthumb	0.5-1″		many
6/2	MAYC = marsh yellowcress	3-4″		few
6/26	LATH = ladysthumb	″	1-2 LF	few
6/26	YENS = yellow nutsedge	1-3″		few

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Three rows were 16 inches apart on a raised bed.
4. V1 East- Sherman, V2 Middle- Festival, V3 West- Santana.

Preemergence Weed Control in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Trial ID: WC 112-08-01 Study Dir.: Dr. Bernard Zandstra
Location: Muck Farm, Laingsburg Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Sherman RATING	Festival RATING	Santana RATING	COLQ RATING	LATH RATING	MAYC RATING
	Crop Code											
	Rating Data Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
	Rating Date						6-2-08	6-2-08	6-2-08	6-2-08	6-2-08	6-2-08
1	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.0	1.0	1.0	9.3	8.8	9.5
	Pendimethalin	3.8	SC	2	lb ai/a	PO1, 2						
2	Pendimethalin	3.8	SC	4	lb ai/a	PRE	1.0	1.5	1.5	9.5	9.0	9.5
	Pendimethalin	3.8	SC	4	lb ai/a	PO1, 2						
3	Pendimethalin	3.3	EC	2	lb ai/a	PRE	1.3	1.3	1.3	9.3	8.8	9.3
	Pendimethalin	3.3	EC	2	lb ai/a	PO1, 2						
4	S-metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.5	1.3	1.3	4.5	4.8	10.0
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1, 2						
5	Dimethenamid-p	6	EC	0.98	lb ai/a	PRE	3.0	1.8	1.8	7.8	7.3	9.8
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1, 2						
6	Propachlor	4	F	4	lb ai/a	PRE	2.0	1.3	1.0	8.0	8.0	8.5
	Propachlor	4	F	4	lb ai/a	PO1, 2						
7	Acetochlor	6.4	EC	1	lb ai/a	PRE	3.5	2.8	2.3	9.5	8.5	9.0
	Acetochlor	6.4	EC	1	lb ai/a	PO1, 2						
8	Ethofumesate	4	SC	1	lb ai/a	PRE	1.8	1.5	2.0	7.5	7.8	9.0
	Ethofumesate	4	SC	1	lb ai/a	PO1, 2						
9	Flumioxazin	51	WDG	0.032	lb ai/a	PRE	1.0	1.0	1.3	6.8	6.5	9.3
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2						
10	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.3	1.0	1.0	9.3	8.8	9.8
	Pendimethalin	3.3	EC	2	lb ai/a	PO1, 2						
11	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.0	1.0	1.0	9.0	9.0	7.5
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1						
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO2						
12	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.0	1.0	1.0	9.0	9.0	8.8
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1						
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO2						
13	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.8	1.3	1.3	9.3	8.8	9.3
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2						
14	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.0	1.0	1.0	9.0	8.5	9.8
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1						
	Flumioxazin	51	WDG	0.064	lb ai/a	PO2						
15	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.3	1.0	1.0	9.3	8.8	9.8
	Acetochlor	6.4	EC	1	lb ai/a	PO1, 2						
16	Handweeded						1.0	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.01	0.55	0.68	1.42	1.23	1.90
Standard Deviation							0.71	0.39	0.48	0.99	0.86	1.33
CV							46.74	30.09	37.14	12.41	11.16	15.29

Preemergence Weed Control in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Sherman RATING 1-10 6-12-08	Festival RATING 1-10 6-12-08	Santana RATING 1-10 6-12-08	Sherman RATING 1-10 7-24-08	Festival RATING 1-10 7-24-08	Santana RATING 1-10 7-24-08
1	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.0	1.0	1.0	2.0	1.5	1.3
	Pendimethalin	3.8	SC	2	lb ai/a	PO1, 2						
2	Pendimethalin	3.8	SC	4	lb ai/a	PRE	1.0	1.5	1.3	1.3	1.0	1.0
	Pendimethalin	3.8	SC	4	lb ai/a	PO1, 2						
3	Pendimethalin	3.3	EC	2	lb ai/a	PRE	1.0	1.5	1.0	1.8	1.0	1.5
	Pendimethalin	3.3	EC	2	lb ai/a	PO1, 2						
4	S-metolachlor	7.62	EC	1.3	lb ai/a	PRE	1.3	1.0	1.3	2.5	2.0	1.5
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1, 2						
5	Dimethenamid-p	6	EC	0.98	lb ai/a	PRE	1.5	1.8	1.5	2.8	1.8	2.3
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1, 2						
6	Propachlor	4	F	4	lb ai/a	PRE	1.3	1.3	1.3	1.0	1.0	1.0
	Propachlor	4	F	4	lb ai/a	PO1, 2						
7	Acetochlor	6.4	EC	1	lb ai/a	PRE	4.5	3.3	3.0	3.5	2.3	2.3
	Acetochlor	6.4	EC	1	lb ai/a	PO1, 2						
8	Ethofumesate	4	SC	1	lb ai/a	PRE	1.5	1.8	1.5	2.0	1.3	1.5
	Ethofumesate	4	SC	1	lb ai/a	PO1, 2						
9	Flumioxazin	51	WDG	0.032	lb ai/a	PRE	1.0	1.3	1.3	2.8	1.8	1.8
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2						
10	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.3	1.8	1.5	2.8	1.5	1.5
	Pendimethalin	3.3	EC	2	lb ai/a	PO1, 2						
11	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.0	1.5	1.3	2.0	1.0	1.3
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1						
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO2						
12	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.8	1.3	1.3	1.3	1.5	1.5
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1						
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO2						
13	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.3	1.5	1.0	2.0	1.8	1.8
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2						
14	Pendimethalin	3.8	SC	2	lb ai/a	PRE	1.0	1.3	1.5	1.8	1.5	2.3
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1						
	Flumioxazin	51	WDG	0.064	lb ai/a	PO2						
15	Pendimethalin	3.8	SC	2	lb ai/a	PRE	2.3	1.5	1.8	2.8	1.8	2.8
	Acetochlor	6.4	EC	1	lb ai/a	PO1, 2						
16	Handweeded						1.0	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.04	0.91	0.88	1.08	0.94	1.03
Standard Deviation							0.73	0.63	0.62	0.76	0.66	0.72
CV							49.4	42.31	44.46	36.77	44.75	44.35

Preemergence Weed Control in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	LACG RATING	YENS RATING	COLQ RATING	COPU RATING	LATH RATING	RRPW RATING
Crop Code												
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
Rating Date							7-24-08	7-24-08	7-24-08	7-24-08	7-24-08	7-24-08
1	Pendimethalin	3.8	SC	2	lb ai/a	PRE	7.5	2.3	10.0	8.8	8.3	8.5
	Pendimethalin	3.8	SC	2	lb ai/a	PO1, 2						
2	Pendimethalin	3.8	SC	4	lb ai/a	PRE	7.8	3.0	10.0	9.0	9.3	9.5
	Pendimethalin	3.8	SC	4	lb ai/a	PO1, 2						
3	Pendimethalin	3.3	EC	2	lb ai/a	PRE	6.0	3.8	10.0	8.8	9.3	9.0
	Pendimethalin	3.3	EC	2	lb ai/a	PO1, 2						
4	S-metolachlor	7.62	EC	1.3	lb ai/a	PRE	10.0	9.3	6.0	7.5	5.3	9.8
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1, 2						
5	Dimethenamid-p	6	EC	0.98	lb ai/a	PRE	9.8	8.5	8.0	9.5	7.0	10.0
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1, 2						
6	Propachlor	4	F	4	lb ai/a	PRE	4.5	2.0	4.8	6.3	4.3	7.5
	Propachlor	4	F	4	lb ai/a	PO1, 2						
7	Acetochlor	6.4	EC	1	lb ai/a	PRE	8.5	6.5	9.0	8.3	6.0	10.0
	Acetochlor	6.4	EC	1	lb ai/a	PO1, 2						
8	Ethofumesate	4	SC	1	lb ai/a	PRE	6.8	3.8	9.5	8.3	6.5	9.0
	Ethofumesate	4	SC	1	lb ai/a	PO1, 2						
9	Flumioxazin	51	WDG	0.032	lb ai/a	PRE	3.0	2.5	9.5	7.5	8.5	10.0
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2						
10	Pendimethalin	3.8	SC	2	lb ai/a	PRE	8.8	4.3	9.8	9.0	6.8	9.5
	Pendimethalin	3.3	EC	2	lb ai/a	PO1, 2						
11	Pendimethalin	3.8	SC	2	lb ai/a	PRE	9.8	8.8	7.8	8.8	6.3	10.0
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1						
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO2						
12	Pendimethalin	3.8	SC	2	lb ai/a	PRE	9.5	7.0	6.5	5.8	5.3	9.3
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1						
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO2						
13	Pendimethalin	3.8	SC	2	lb ai/a	PRE	3.5	3.0	9.5	7.0	8.8	10.0
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2						
14	Pendimethalin	3.8	SC	2	lb ai/a	PRE	9.8	7.5	9.8	9.5	9.5	10.0
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1						
	Flumioxazin	51	WDG	0.064	lb ai/a	PO2						
15	Pendimethalin	3.8	SC	2	lb ai/a	PRE	7.0	5.3	7.5	8.5	5.8	10.0
	Acetochlor	6.4	EC	1	lb ai/a	PO1, 2						
16	Handweeded						1.0	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							2.69	2.66	1.43	2.28	2.01	1.39
Standard Deviation							1.88	1.86	1.00	1.60	1.41	0.97
CV							26.69	37.99	12.44	20.75	20.92	10.86

Preemergence Weed Control in Onion – Muck Farm 2008

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Sherman Harvest KG/PLOT 9-18-08	Festival Harvest KG/PLOT 9-18-08	Santana Harvest KG/PLOT 9-18-08	ONION TOTAL KG/PLOT
1	Pendimethalin	3.8	SC	2	lb ai/a	PRE	22.39	29.85	20.34	72.58
	Pendimethalin	3.8	SC	2	lb ai/a	PO1, 2				
2	Pendimethalin	3.8	SC	4	lb ai/a	PRE	23.96	33.58	24.13	81.67
	Pendimethalin	3.8	SC	4	lb ai/a	PO1, 2				
3	Pendimethalin	3.3	EC	2	lb ai/a	PRE	23.43	30.44	21.41	75.28
	Pendimethalin	3.3	EC	2	lb ai/a	PO1, 2				
4	S-metolachlor	7.62	EC	1.3	lb ai/a	PRE	18.94	29.99	22.24	71.17
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1, 2				
5	Dimethenamid-p	6	EC	0.98	lb ai/a	PRE	18.64	36.49	22.21	77.34
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1, 2				
6	Propachlor	4	F	4	lb ai/a	PRE	22.29	34.27	26.45	83.01
	Propachlor	4	F	4	lb ai/a	PO1, 2				
7	Acetochlor	6.4	EC	1	lb ai/a	PRE	14.66	34.70	22.98	72.34
	Acetochlor	6.4	EC	1	lb ai/a	PO1, 2				
8	Ethofumesate	4	SC	1	lb ai/a	PRE	23.55	31.90	19.83	75.27
	Ethofumesate	4	SC	1	lb ai/a	PO1, 2				
9	Flumioxazin	51	WDG	0.032	lb ai/a	PRE	30.75	32.11	23.84	86.70
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2				
10	Pendimethalin	3.8	SC	2	lb ai/a	PRE	19.12	33.08	24.49	76.68
	Pendimethalin	3.3	EC	2	lb ai/a	PO1, 2				
11	Pendimethalin	3.8	SC	2	lb ai/a	PRE	24.42	36.82	23.86	85.10
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1				
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO2				
12	Pendimethalin	3.8	SC	2	lb ai/a	PRE	23.42	36.04	19.93	79.39
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1				
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO2				
13	Pendimethalin	3.8	SC	2	lb ai/a	PRE	22.42	34.84	21.02	78.29
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2				
14	Pendimethalin	3.8	SC	2	lb ai/a	PRE	28.76	33.00	20.15	81.91
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1				
	Flumioxazin	51	WDG	0.064	lb ai/a	PO2				
15	Pendimethalin	3.8	SC	2	lb ai/a	PRE	19.75	34.26	20.55	74.56
	Acetochlor	6.4	EC	1	lb ai/a	PO1, 2				
16	Handweeded						17.95	28.48	16.19	62.62
LSD (P=.05)							8.589	6.114	4.927	11.670
Standard Deviation							6.010	4.278	3.448	8.166
CV							27.13	12.92	15.78	10.59

Postemergence Weed Control in Onion – Muck Farm 2008

Project Code: WC 112-08-02 **Location: Laingsburg, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Onion **Variety: See notes**
Planting Method: seeded **Planting Date: 4/30/08**
Spacing: 2 inch **Row Spacing: 16 inch**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.5 ft wide x 25 ft long

Soil Type: Houghton Muck **OM: 80%** **pH: 7.1**
Sand: 8% **Silt: 13%** **Clay: 2%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/4/08	1:00 pm	70/63	°F	Good	0-1 W	88	100%Cloudy	N
PO2	6/25/08	9:50 am	71/65	°F	Good	4 S	64	90% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/4	ONION	6-8″	2 LF, 95%	
6/4	LATH = ladysthumb	1-2″	2-3LF, 90%	
6/4	COLQ = common lambsquarters	1-2″	2-4LF, 90%	
6/4	MAYC = marsh yellowcress	3-5″		
6/25	ONION	12-16″	4-5 LF	
6/25	LATH = ladysthumb	8-10″		
6/25	COLQ = common lambsquarters	8-12″		
6/25	YENS = yellow nutsedge	4-6″		

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Three row groupings were 16 inches apart on a raised bed.
4. V1 East- Sherman, V2 Middle- Festival, V3 West- Santana.

Postemergence Weed Control in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Trial ID: WC112-08-02 Study Director: Dr. Bernard Zandstra
Location: Muck Farm, Laingsburg Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Sherman RATING	Festival RATING	Santana RATING	YENS RATING	COLQ RATING	LATH RATING
	Weed Code									YENS	COLQ	LATH
	Crop Code						Sherman	Festival	Santana			
	Rating Data Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
	Rating Date						6-11-08	6-11-08	6-11-08	6-11-08	6-11-08	6-11-08
1	Oxyfluorfen	2	L	0.063	lb ai/a	PO1, 2	3.8	3.5	3.5	2.3	9.3	8.0
2	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	2.0	2.3	2.3	1.8	5.3	4.5
3	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2	1.5	1.5	1.3	1.8	8.3	4.8
4	Flumioxazin	51	WDG	0.064	lb ai/a	PO1, 2	2.5	2.0	1.5	2.0	9.5	7.3
5	Ethofumesate	4	SC	0.5	lb ai/a	PO1, 2	1.0	1.0	1.3	2.0	9.5	5.5
6	Ethofumesate	4	SC	1	lb ai/a	PO1, 2	2.0	1.5	1.3	1.8	7.0	5.3
7	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1, 2	2.3	2.5	2.5	1.5	6.0	4.5
8	Fluroxypyr	1.5	L	0.25	lb ai/a	PO1, 2	4.0	3.5	4.0	1.8	5.3	4.5
9	Bentazon	4	L	1	lb ai/a	PO1, 2	4.8	7.5	5.3	9.0	9.8	10.0
10	Bromoxynil	4	EC	0.125	lb ai/a	PO1, 2	2.3	1.8	1.8	1.3	10.0	9.5
11	Bromoxynil	4	EC	0.25	lb ai/a	PO1, 2	2.5	2.5	2.3	1.5	10.0	10.0
12	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	3.0	3.8	3.3	2.0	9.5	8.0
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2						
13	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	3.3	3.0	2.8	3.8	8.8	8.8
	Ethofumesate	4	SC	0.5	lb ai/a	PO1, 2						
14	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	4.0	4.3	4.3	3.5	9.0	8.8
	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1, 2						
15	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	3.5	3.5	3.3	1.8	10.0	9.8
	Bromoxynil	4	EC	0.125	lb ai/a	PO1, 2						
16	Handweeded						1.0	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.06	0.83	0.90	0.79	1.58	1.69
Standard Deviation							0.74	0.58	0.63	0.55	1.10	1.18
CV							27.34	20.53	24.33	23.02	13.8	17.21

Postemergence Weed Control in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	MAYC RATING	RRPW RATING	Sherman RATING	Festival RATING	Santana RATING	YENS RATING
Weed Code							MAYC	RRPW				YENS
Crop Code									Sherman	Festival	Santana	
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
Rating Date							6-11-08	6-11-08	7-3-08	7-3-08	7-3-08	7-3-08
1	Oxyfluorfen	2	L	0.063	lb ai/a	PO1, 2	7.5	10.0	2.5	2.5	2.8	2.3
2	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	4.8	8.8	1.5	1.8	1.8	3.5
3	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2	5.3	10.0	2.5	2.3	2.3	2.0
4	Flumioxazin	51	WDG	0.064	lb ai/a	PO1, 2	3.8	10.0	3.0	2.8	2.8	2.5
5	Ethofumesate	4	SC	0.5	lb ai/a	PO1, 2	6.0	9.0	1.8	1.0	1.0	1.0
6	Ethofumesate	4	SC	1	lb ai/a	PO1, 2	2.5	9.0	1.3	1.0	1.0	1.0
7	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1, 2	5.3	9.8	5.0	4.0	5.3	1.3
8	Fluroxypyr	1.5	L	0.25	lb ai/a	PO1, 2	6.5	8.3	5.3	5.3	6.3	1.3
9	Bentazon	4	L	1	lb ai/a	PO1, 2	8.5	9.0	4.0	7.5	5.5	9.8
10	Bromoxynil	4	EC	0.125	lb ai/a	PO1, 2	5.0	9.8	2.8	2.8	2.5	1.8
11	Bromoxynil	4	EC	0.25	lb ai/a	PO1, 2	8.8	9.8	4.5	4.3	3.0	1.3
12	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	7.3	10.0	2.8	3.0	3.0	3.0
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2						
13	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	5.5	10.0	1.8	1.8	2.0	3.3
	Ethofumesate	4	SC	0.5	lb ai/a	PO1, 2						
14	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	7.0	9.8	4.8	4.8	4.8	3.5
	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1, 2						
15	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	8.0	10.0	2.5	2.8	2.8	1.8
	Bromoxynil	4	EC	0.125	lb ai/a	PO1, 2						
16	Handweeded						1.0	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							2.56	1.28	1.12	0.83	0.85	1.57
Standard Deviation							1.79	0.90	0.78	0.58	0.59	1.10
CV							31.03	9.96	26.85	19.35	19.97	43.87

Postemergence Weed Control in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	COLQ RATING 1-10 7-3-08	COPU RATING 1-10 7-3-08	LATH RATING 1-10 7-3-08	RRPW RATING 1-10 7-3-08	Sherman Harvest KG/PLOT 9-24-08	Festival Harvest KG/PLOT 9-24-08
1	Oxyfluorfen	2	L	0.063	lb ai/a	PO1, 2	9.5	10.0	8.0	10.0	26.40	31.21
2	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	6.5	10.0	6.0	10.0	23.50	29.25
3	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2	9.5	10.0	6.3	10.0	23.01	30.56
4	Flumioxazin	51	WDG	0.064	lb ai/a	PO1, 2	9.3	10.0	7.8	10.0	20.75	30.54
5	Ethofumesate	4	SC	0.5	lb ai/a	PO1, 2	8.0	5.8	3.3	7.5	22.66	27.37
6	Ethofumesate	4	SC	1	lb ai/a	PO1, 2	7.8	7.8	2.5	5.8	19.15	26.49
7	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1, 2	5.8	10.0	3.0	2.0	15.20	26.04
8	Fluroxypyr	1.5	L	0.25	lb ai/a	PO1, 2	5.0	9.8	3.8	6.3	18.59	22.83
9	Bentazon	4	L	1	lb ai/a	PO1, 2	8.3	10.0	10.0	5.8	21.78	11.76
10	Bromoxynil	4	EC	0.125	lb ai/a	PO1, 2	10.0	1.0	9.8	7.5	23.06	28.29
11	Bromoxynil	4	EC	0.25	lb ai/a	PO1, 2	10.0	1.8	10.0	9.8	20.54	26.44
12	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	10.0	10.0	8.8	10.0	27.79	29.08
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2						
13	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	9.8	10.0	8.5	10.0	24.08	32.43
	Ethofumesate	4	SC	0.5	lb ai/a	PO1, 2						
14	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	8.3	10.0	8.3	10.0	24.98	30.88
	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1, 2						
15	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	7.8	7.8	7.8	7.8	25.41	30.09
	Bromoxynil	4	EC	0.125	lb ai/a	PO1, 2						
16	Handweeded						1.0	1.0	1.0	1.0	22.47	29.23
LSD (P=.05)							2.92	2.25	2.39	2.95	8.925	5.270
Standard Deviation							2.04	1.58	1.67	2.07	6.246	3.688
CV							25.89	20.23	25.64	26.81	27.81	13.33

Postemergence Weed Control in Onion – Muck Farm 2008

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg		
Weed Code								
Crop Code							Santana	ONION
Rating Data Type							Harvest	TOTAL
Rating Unit							KG/PLOT	KG/PLOT
Rating Date							9-24-08	
1	Oxyfluorfen	2	L	0.063	lb ai/a	PO1, 2	19.94	77.55
2	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	20.28	73.03
3	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2	21.01	74.58
4	Flumioxazin	51	WDG	0.064	lb ai/a	PO1, 2	20.15	71.43
5	Ethofumesate	4	SC	0.5	lb ai/a	PO1, 2	17.35	67.38
6	Ethofumesate	4	SC	1	lb ai/a	PO1, 2	15.09	60.73
7	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1, 2	10.54	51.78
8	Fluroxypyr	1.5	L	0.25	lb ai/a	PO1, 2	11.33	52.75
9	Bentazon	4	L	1	lb ai/a	PO1, 2	16.14	49.67
10	Bromoxynil	4	EC	0.125	lb ai/a	PO1, 2	15.67	67.01
11	Bromoxynil	4	EC	0.25	lb ai/a	PO1, 2	17.83	64.80
12	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	23.21	80.08
	Flumioxazin	51	WDG	0.032	lb ai/a	PO1, 2		
13	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	21.81	78.31
	Ethofumesate	4	SC	0.5	lb ai/a	PO1, 2		
14	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	17.79	73.65
	Fluroxypyr	1.5	L	0.125	lb ai/a	PO1, 2		
15	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2	20.37	75.87
	Bromoxynil	4	EC	0.125	lb ai/a	PO1, 2		
16	Handweeded						17.70	69.40
LSD (P=.05)							4.909	11.828
Standard Deviation							3.435	8.277
CV							19.2	12.17

Postemergence Weed Control with Basagran in Onion – Muck Farm 2008

Project Code: WC 112-08-03 **Location: Laingsburg, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Onion **Variety: Highlander, T-439, Nebula**
Planting Method: Seeded **Planting Date: 4/30/08**
Spacing: 1 inch **Row Spacing: 16 inches**
Tillage Type: Conventional **Study Design: RCB** **Replications: 4**
Plot Size: 5.5 ft wide x 25 ft long

Soil Type: Houghton Muck **OM: 79%** **pH: 6.8**
Sand: 7% **Silt: 14%** **Clay: 1%** **CEC: N/A**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/6/08	10:00 am	72/65	°F	Moist	2-3 SW	90	100% cloudy	N
PO2	6/25/08	3:30 pm	85/69	°F	Moist	3-6 NW	72	90% cloudy	N

Crop and Weed Information at Application

Date	Crop or Weed	Height or Diameter	Growth Stage	Density
6/6	Onion	6-8″	2 leaf	
6/6	YENS = yellow nutsedge	2-3″		few
6/6	COLQ = common lambsquarters	6-8″		moderate
6/6	LATH = ladysthumb	1-2″		many
6/6	MAYC = marsh yellowcress	6-8″		few
6/6	RRPW = redroot pigweed	3-4″		few
6/25	Onion	12-16″	4-5 leaf	
6/25	YENS = yellow nutsedge	3-4″		few
6/25	COLQ = common lambsquarters	4-10″		moderate
6/25	LATH = ladysthumb	4-7″		many
6/25	RRPW = redroot pigweed	6-8″		few
6/25	SPSP = spotted spurge	1-2″		few

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Three row groupings were 16 inches apart on a raised bed.
4. In each bed, one row each of Highlander, T-439, and Nebula.

Postemergence Weed Control with Basagran in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Trial ID: WC 112-08-03 Study Dir.: Dr. Bernard Zandstra
Location: Muck Farm, Laingsburg Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Highland RATING 1-10 6-12-08	T-439 RATING 1-10 6-12-08	Nebula RATING 1-10 6-12-08	YENS RATING 1-10 6-12-08	COLQ RATING 1-10 6-12-08	LATH RATING 1-10 6-12-08
1	Bentazon	4	L	1	lb ai/a	PO1, 2	9.8	10.0	9.3	9.0	10.0	10.0
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
2	Bentazon	4	L	1	lb ai/a	PO1, 2	9.5	9.8	9.8	8.8	10.0	10.0
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
3	Bentazon	4	L	1	lb ai/a	PO1, 2	6.5	7.3	6.8	8.5	7.8	7.8
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
4	Bentazon	4	L	1	lb ai/a	PO1, 2	6.8	7.5	7.0	8.8	10.0	10.0
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
5	Bentazon	4	L	0.5	lb ai/a	PO1, 2	6.5	6.8	7.0	9.0	10.0	10.0
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
6	Bentazon	4	L	0.5	lb ai/a	PO1, 2	5.5	5.5	6.8	8.3	10.0	10.0
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
7	Bentazon	4	L	0.5	lb ai/a	PO1, 2	4.5	4.0	3.5	8.0	10.0	10.0
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
8	Bentazon	4	L	0.5	lb ai/a	PO1, 2	2.5	2.8	2.5	6.0	9.5	10.0
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
9	Bentazon	4	L	0	lb ai/a	PO1, 2	2.3	1.8	1.8	2.0	10.0	4.8
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
10	Bentazon	4	L	0	lb ai/a	PO1, 2	1.0	1.0	1.0	1.0	1.0	1.0
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
11	Bentazon	4	L	0	lb ai/a	PO1, 2	1.0	1.3	1.0	2.0	10.0	3.8
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
12	Bentazon	4	L	0	lb ai/a	PO1, 2	1.0	1.0	1.0	1.0	1.0	1.0
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
LSD (P=.05)							1.92	1.88	1.76	1.47	1.90	1.91
Standard Deviation							1.33	1.30	1.22	1.02	1.32	1.33
CV							28.16	26.66	25.55	16.95	15.94	18.03

Postemergence Weed Control with Basagran in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	RRPW	MAYC	Highland	T-439	Nebula	YENS
	Weed Code						RRPW	MAYC				YENS
	Crop Code								Highland	T-439	Nebula	
	Rating Data Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
	Rating Date						6-12-08	6-12-08	7-3-08	7-3-08	7-3-08	7-3-08
1	Bentazon	4	L	1	lb ai/a	PO1, 2	10.0	10.0	9.5	9.5	8.8	8.8
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
2	Bentazon	4	L	1	lb ai/a	PO1, 2	10.0	10.0	9.8	9.3	9.0	9.0
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
3	Bentazon	4	L	1	lb ai/a	PO1, 2	7.8	9.8	7.3	7.8	7.8	9.5
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
4	Bentazon	4	L	1	lb ai/a	PO1, 2	10.0	10.0	6.8	7.3	7.0	10.0
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
5	Bentazon	4	L	0.5	lb ai/a	PO1, 2	10.0	10.0	5.3	5.5	6.0	6.8
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
6	Bentazon	4	L	0.5	lb ai/a	PO1, 2	8.8	10.0	7.0	7.0	7.8	9.8
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
7	Bentazon	4	L	0.5	lb ai/a	PO1, 2	10.0	9.8	5.8	5.0	4.8	9.8
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
8	Bentazon	4	L	0.5	lb ai/a	PO1, 2	9.0	8.5	3.5	2.8	4.0	9.8
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
9	Bentazon	4	L	0	lb ai/a	PO1, 2	110.0	3.8	3.0	2.3	3.5	4.3
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
10	Bentazon	4	L	0	lb ai/a	PO1, 2	1.0	1.0	1.0	1.0	1.0	1.0
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
11	Bentazon	4	L	0	lb ai/a	PO1, 2	10.0	5.5	2.5	2.0	2.8	4.8
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
12	Bentazon	4	L	0	lb ai/a	PO1, 2	1.0	1.0	1.3	1.0	1.5	2.5
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
LSD (P=.05)							83.51	1.44	2.18	1.88	1.97	3.06
Standard Deviation							57.84	1.00	1.51	1.30	1.36	2.12
CV							351.41	13.42	28.96	25.99	25.67	29.7

Postemergence Weed Control with Basagran in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	COLQ	LATH	RRPW	SPSP	Highland Harvest	T-439 Harvest
Weed Code												
Crop Code												
Rating Data Type							RATING	RATING	RATING	RATING	Harvest	Harvest
Rating Unit							1-10	1-10	1-10	1-10	KG/PLOT	KG/PLOT
Rating Date							7-3-08	7-3-08	7-3-08	7-3-08	9-25-08	9-25-08
1	Bentazon	4	L	1	lb ai/a	PO1, 2	10.0	10.0	10.0	9.3	0.89	1.27
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
2	Bentazon	4	L	1	lb ai/a	PO1, 2	10.0	10.0	4.0	7.3	1.54	1.41
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
3	Bentazon	4	L	1	lb ai/a	PO1, 2	10.0	10.0	10.0	9.0	9.18	7.57
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
4	Bentazon	4	L	1	lb ai/a	PO1, 2	8.8	10.0	4.5	5.0	8.07	8.21
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
5	Bentazon	4	L	0.5	lb ai/a	PO1, 2	7.8	7.8	7.8	7.0	11.29	12.19
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
6	Bentazon	4	L	0.5	lb ai/a	PO1, 2	10.0	10.0	2.3	5.0	11.02	11.42
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
7	Bentazon	4	L	0.5	lb ai/a	PO1, 2	9.8	10.0	9.8	7.8	13.53	19.19
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
8	Bentazon	4	L	0.5	lb ai/a	PO1, 2	7.3	10.0	3.0	2.8	13.92	22.92
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
9	Bentazon	4	L	0	lb ai/a	PO1, 2	10.0	5.0	10.0	10.0	16.17	29.01
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
10	Bentazon	4	L	0	lb ai/a	PO1, 2	1.0	1.0	1.0	1.0	10.71	14.38
	COC	1	L	1	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
11	Bentazon	4	L	0	lb ai/a	PO1, 2	9.5	3.8	10.0	8.5	18.59	27.95
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2						
12	Bentazon	4	L	0	lb ai/a	PO1, 2	3.3	1.8	2.3	3.0	17.29	24.06
	COC	1	L	0	% v/v	PO1, 2						
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2						
LSD (P=.05)							3.28	2.20	2.52	3.24	6.891	7.100
Standard Deviation							2.27	1.52	1.74	2.24	4.773	4.918
CV							28.02	20.45	28.07	35.62	43.33	32.86

Postemergence Weed Control with Basagran in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Crop Code							Nebula	ONION
Rating Data Type							Harvest	Harvest
Rating Unit							KG/PLOT	TOTAL KG
Rating Date							9-25-08	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg		
1	Bentazon	4	L	1	lb ai/a	PO1, 2	2.68	4.83
	COC	1	L	1	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2		
2	Bentazon	4	L	1	lb ai/a	PO1, 2	1.54	4.49
	COC	1	L	1	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2		
3	Bentazon	4	L	1	lb ai/a	PO1, 2	5.03	21.78
	COC	1	L	0	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2		
4	Bentazon	4	L	1	lb ai/a	PO1, 2	7.66	23.94
	COC	1	L	0	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2		
5	Bentazon	4	L	0.5	lb ai/a	PO1, 2	6.09	29.57
	COC	1	L	1	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2		
6	Bentazon	4	L	0.5	lb ai/a	PO1, 2	4.96	27.39
	COC	1	L	1	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2		
7	Bentazon	4	L	0.5	lb ai/a	PO1, 2	11.51	44.23
	COC	1	L	0	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2		
8	Bentazon	4	L	0.5	lb ai/a	PO1, 2	12.63	49.47
	COC	1	L	0	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2		
9	Bentazon	4	L	0	lb ai/a	PO1, 2	12.70	57.88
	COC	1	L	1	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2		
10	Bentazon	4	L	0	lb ai/a	PO1, 2	7.11	32.19
	COC	1	L	1	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2		
11	Bentazon	4	L	0	lb ai/a	PO1, 2	11.75	58.29
	COC	1	L	0	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, 2		
12	Bentazon	4	L	0	lb ai/a	PO1, 2	8.71	50.06
	COC	1	L	0	% v/v	PO1, 2		
	Oxyfluorfen	4	SC	0	lb ai/a	PO1, 2		
LSD (P=.05)							3.887	15.172
Standard Deviation							2.692	10.508
CV							34.98	31.2

Postemergence Weed Control with Chateau in Onion – Muck Farm 2008

Project Code: WC 112-08-04 **Location: Laingsburg, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Onion **Variety: Sherman, Festival, Santana**
Planting Method: Seeded **Planting Date: 4-30-08**
Spacing: 1 inch **Row Spacing: 16 inches**
Tillage Type: Conventional **Study Design: RCB** **Replications: 4**
Plot Size: 5.5 ft wide x 25 ft long

Soil Type: Houghton Muck **OM: 80%** **pH: 7.1**
Sand: 8% **Silt: 13%** **Clay: 2%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/4/08	2:00 pm	70/63	°F	Good	0-1 W	88	100% Cloud	N
PO2	6/25/08	2:30 pm	74/69	°F	Good	1-3 W	83	100% Cloud	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/4	Onion	6-8″	2 leaf	
6/4	COLQ = common lambsquarters	3-5″		many
6/4	LATH = ladysthumb	1-2″		many
6/4	MAYC = marsh yellowcress	6″		few
6/4	RRPW = redroot pigweed	1-2″		few
6/4	YENS = yellow nutsedge	2-3″		moderate
6/25	Onion	6-18″	4-5 leaf	
6/25	COLQ = common labmsquarters	8-10″		many
6/25	COPU = common purslane	0.5-1″		many
6/25	LACG = large crabgrass	2-3″		moderate
6/25	LATH = ladysthumb	1-2″		many
6/25	PRKW = prostrate knotweed	1-3″		few
6/25	RRPW = redroot pigweed	6-8″		few
6/25	SPSP = spotted spurge	1-2″		few
6/25	YENS = yellow nutsedge	4-6″		moderate

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Three row groupings were 16 inches apart on a raised bed.
4. In each bed, one row each of Sherman, Festival, and Santana.

Postemergence Weed Control with Chateau in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Trial ID: WC 112-08-04 Study Dir.: Dr. Bernard Zandstra
Location: Muck Farm, Laingsburg Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Sherman RATING 1-10 6-12-08	Festival RATING 1-10 6-12-08	Santana RATING 1-10 6-12-08	YENS RATING 1-10 6-12-08	COLQ RATING 1-10 6-12-08	LATH RATING 1-10 6-12-08	MAYC RATING 1-10 6-12-08
1	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	1.8	1.3	1.3	2.8	9.5	7.0	5.8
	Pendimethalin	3.8	SC	2	lb ai/a	PO1,2							
2	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	6.8	7.3	7.5	4.8	10.0	10.0	9.8
	Pendimethalin	3.3	EC	2	lb ai/a	PO1,2							
3	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	7.3	7.5	7.8	9.3	10.0	10.0	10.0
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1,2							
4	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	8.3	8.0	8.0	6.5	10.0	10.0	8.5
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1,2							
5	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	2.3	2.3	1.5	2.0	9.8	8.3	4.5
	Untreated												
6	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	1.5	1.5	1.5	2.0	9.0	6.8	4.5
	Pendimethalin	3.8	SC	2	lb ai/a	PO1,2							
7	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	7.3	7.0	6.8	3.3	10.0	10.0	7.8
	Pendimethalin	3.3	EC	2	lb ai/a	PO1,2							
8	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	7.0	7.5	7.0	7.8	10.0	10.0	8.8
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1,2							
9	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	8.0	6.0	7.5	5.5	10.0	10.0	7.0
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1,2							
10	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	1.3	1.5	1.0	2.0	8.5	4.8	3.0
	Untreated												
11	Flumioxazin	51	WDG	0	lb ai/a		2.0	1.5	1.3	2.0	9.0	3.3	4.0
	Pendimethalin	3.8	SC	2	lb ai/a	PO1,2							
12	Flumioxazin	51	WDG	0	lb ai/a		3.8	3.8	3.0	2.0	10.0	6.5	6.0
	Pendimethalin	3.3	EC	2	lb ai/a	PO1,2							
13	Flumioxazin	51	WDG	0	lb ai/a		4.3	4.0	3.5	2.8	10.0	6.3	4.8
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1,2							
14	Flumioxazin	51	WDG	0	lb ai/a		6.3	6.8	6.8	2.0	10.0	8.3	3.0
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1,2							
15	Flumioxazin	51	WDG	0	lb ai/a		1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Untreated												
LSD (P=.05)							1.43	1.58	0.83	2.08	0.71	1.32	2.56
Standard Deviation							1.00	1.10	0.58	1.46	0.50	0.93	1.79
CV							21.94	24.82	13.29	39.34	5.47	12.41	30.42

Postemergence Weed Control with Chateau in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Weed Code							RRPW				COLQ	COPU
Crop Code								Sherman	Festival	Santana		
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
Rating Date							6-12-08	7-3-08	7-3-08	7-3-08	7-3-08	7-3-08
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg						
1	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	10.0	3.5	2.0	2.8	9.8	10.0
	Pendimethalin	3.8	SC	2	lb ai/a	PO1,2						
2	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	10.0	7.3	8.3	8.3	10.0	10.0
	Pendimethalin	3.3	EC	2	lb ai/a	PO1,2						
3	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	10.0	7.3	7.5	7.5	10.0	10.0
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1,2						
4	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	10.0	8.3	8.0	8.3	10.0	10.0
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1,2						
5	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	10.0	3.5	3.0	3.5	10.0	10.0
	Untreated											
6	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	9.8	2.5	1.8	2.5	10.0	10.0
	Pendimethalin	3.8	SC	2	lb ai/a	PO1,2						
7	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	10.0	8.0	7.3	7.3	10.0	10.0
	Pendimethalin	3.3	EC	2	lb ai/a	PO1,2						
8	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	10.0	7.0	7.3	7.5	10.0	10.0
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1,2						
9	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	10.0	8.0	7.5	7.5	10.0	10.0
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1,2						
10	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	10.0	3.0	2.3	2.3	9.8	10.0
	Untreated											
11	Flumioxazin	51	WDG	0	lb ai/a		10.0	1.8	1.3	1.3	9.8	8.8
	Pendimethalin	3.8	SC	2	lb ai/a	PO1,2						
12	Flumioxazin	51	WDG	0	lb ai/a		10.0	3.3	2.0	2.8	10.0	8.8
	Pendimethalin	3.3	EC	2	lb ai/a	PO1,2						
13	Flumioxazin	51	WDG	0	lb ai/a		10.0	3.3	2.3	2.5	9.8	10.0
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1,2						
14	Flumioxazin	51	WDG	0	lb ai/a		10.0	4.8	3.8	4.5	9.8	9.5
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1,2						
15	Flumioxazin	51	WDG	0	lb ai/a		1.0	1.0	1.0	1.0	1.0	1.0
	Untreated											
LSD (P=.05)							0.18	1.68	0.91	1.06	0.42	0.45
Standard Deviation							0.13	1.17	0.64	0.74	0.29	0.31
CV							1.38	24.38	14.71	16.03	3.13	3.4

Postemergence Weed Control with Chateau in Onion – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	LATH RATING 1-10 7-3-08	RRPW RATING 1-10 7-3-08	Sherman Harvest KG/PLOT 9-29-08	Festival Harvest KG/PLOT 9-29-08	Santana Harvest KG/PLOT 9-29-08	ONION Harvest TOTAL KG
1	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	9.0	10.0	29.05	34.13	22.10	85.28
	Pendimethalin	3.8	SC	2	lb ai/a	PO1,2						
2	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	10.0	10.0	18.20	14.57	11.89	44.66
	Pendimethalin	3.3	EC	2	lb ai/a	PO1,2						
3	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	10.0	10.0	15.39	15.50	10.97	41.86
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1,2						
4	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	10.0	10.0	8.94	13.43	9.73	32.10
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1,2						
5	Flumioxazin	51	WDG	0.064	lb ai/a	PO1,2	9.0	10.0	25.70	29.57	20.77	76.04
	Untreated											
6	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	8.5	10.0	31.86	30.28	20.77	82.91
	Pendimethalin	3.8	SC	2	lb ai/a	PO1,2						
7	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	10.0	10.0	11.14	19.02	13.20	43.36
	Pendimethalin	3.3	EC	2	lb ai/a	PO1,2						
8	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	10.0	10.0	18.05	15.68	10.74	44.47
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1,2						
9	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	10.0	10.0	10.18	18.16	11.52	39.86
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1,2						
10	Flumioxazin	51	WDG	0.032	lb ai/a	PO1,2	7.8	10.0	25.35	29.43	23.01	77.79
	Untreated											
11	Flumioxazin	51	WDG	0	lb ai/a		2.3	10.0	21.08	31.69	19.91	72.68
	Pendimethalin	3.8	SC	2	lb ai/a	PO1,2						
12	Flumioxazin	51	WDG	0	lb ai/a		7.5	10.0	25.40	33.21	18.74	77.35
	Pendimethalin	3.3	EC	2	lb ai/a	PO1,2						
13	Flumioxazin	51	WDG	0	lb ai/a		5.3	10.0	26.50	30.25	19.89	76.63
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1,2						
14	Flumioxazin	51	WDG	0	lb ai/a		7.0	10.0	19.32	25.40	13.38	58.11
	S-metolachlor	7.62	EC	1.3	lb ai/a	PO1,2						
15	Flumioxazin	51	WDG	0	lb ai/a		1.0	1.0	23.89	29.76	21.82	75.46
	Untreated											
LSD (P=.05)							1.57	0.00	8.825	4.679	5.855	10.064
Standard Deviation							1.10	0.00	6.176	3.274	4.097	7.042
CV							14.1	0.0	29.88	13.27	24.74	11.38

Postemergence Weed Control in Onion with Goaltender – Muck Farm 2008

Project Code: WC 112-08-05 **Location: Laingsburg, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Onion **Variety: Sherman, Festival, Santana**
Planting Method: **Planting Date: 4-30-08**
Spacing: **Row Spacing: 16 inches**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.33 ft wide x 16.7 ft long

Soil Type: Houghton Muck **OM: 80%** **pH: 7.1**
Sand: 8% **Silt: 13%** **Clay: 2%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
A	5/29/08	2:30 pm	76/68	°F	Moist	1 NW	53	0-5% Cloud	N
B	6/4/08	3:00 pm	70/64	°F	Good	0-1 W	88	100% Cloud	N
C	6/18/08	3:30 pm	64/65	°F	Good	2-5 W	66	100% Cloud	N
D	6/25/08	11:20 am	70/67	°F	Good	5 S	76	100% Cloud	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/29	ONION	3″	1 LF	
6/4	ONION	6-8″	2 LF, 95%	
6/4	LATH = ladysthumb	1-2″	2-3LF, 90%	
6/18	ONION	8-10″	3-4 LF	
6/18	LATH = ladysthumb	1-2″ +2-4″	2-4LF,100%	few-many
6/18	YENS = yellow nutsedge	3-5″ +1-2″	2-4LF, 30%	few-many
6/25	ONION	12-16″	4-5 LF	
6/25	LATH = ladysthumb	5-6″		many
6/25	YENS = yellow nutsedge	6-8″		many
6/25	COLQ = common lambsquarters	6-8″		few

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Three row groupings were 16 inches apart on a raised bed.
4. In each bed, one row each of Sherman, Festival, and Santana.

Postemergence Weed Control in Onion with Goaltender – Muck Farm 2008

Dept. of Horticulture, MSU

Trial ID: WC 112-08-05 Study Director: Dr. Bernard Zandstra
Location: Muck Farm, Laingsburg Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code										YENS	COLQ	LATH
Crop Variety							Sherman	Festival	Santana			
Rating Date							6-4-08	6-4-08	6-4-08	6-4-08	6-4-08	6-4-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Oxyfluorfen	4	SC	0.031	lb ai/a	1,2,3 LS	1.0	1.0	1.0	2.0	8.3	6.5
2	Oxyfluorfen	4	SC	0.063	lb ai/a	1,2,3 LS	1.0	1.0	1.0	2.0	7.3	6.3
3	Oxyfluorfen	4	SC	0.125	lb ai/a	1,2,3 LS	2.0	1.3	1.3	2.0	9.5	6.8
4	Oxyfluorfen	4	SC	0.188	lb ai/a	1,2,3 LS	2.3	2.5	1.8	2.0	9.3	7.8
5	Oxyfluorfen	2	L	0.031	lb ai/a	1,2,3 LS	1.3	1.0	1.0	1.8	7.0	6.5
6	Oxyfluorfen	2	L	0.063	lb ai/a	1,2,3 LS	2.0	2.5	2.5	2.0	9.5	8.8
7	Oxyfluorfen	2	L	0.125	lb ai/a	1,2,3 LS	3.8	3.3	3.8	2.3	10.0	8.8
8	Oxyfluorfen	2	L	0.188	lb ai/a	1,2,3 LS	4.3	4.3	3.8	2.0	9.8	9.0
9	Oxyfluorfen	4	SC	0.031	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	1.0	1.0
10	Oxyfluorfen	4	SC	0.063	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	1.0	1.0
11	Oxyfluorfen	4	SC	0.125	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	1.0	1.0
12	Oxyfluorfen	4	SC	0.25	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	1.0	1.0
13	Fluroxypyr	1.5	L	0.125	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	2.5	2.0
14	Ethofumesate	4	SC	1	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	1.0	1.0
15	Flumioxazin	51	WDG	0.064	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	1.0	1.0
16	Handweeded						1.0	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							0.97	0.71	0.76	0.38	2.08	1.70
Standard Deviation							0.68	0.49	0.53	0.26	1.45	1.19
CV							42.8	31.89	35.49	17.57	29.04	27.41

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code							MAYC				YENS	COLQ
Crop Variety								Sherman	Festival	Santana		
Rating Date							6-4-08	6-12-08	6-12-08	6-12-08	6-12-08	6-12-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Oxyfluorfen	4	SC	0.031	lb ai/a	1,2,3 LS	5.3	1.3	1.5	1.3	2.0	6.8
2	Oxyfluorfen	4	SC	0.063	lb ai/a	1,2,3 LS	7.8	1.3	1.8	1.8	2.0	9.8
3	Oxyfluorfen	4	SC	0.125	lb ai/a	1,2,3 LS	6.5	1.8	2.0	2.3	2.0	9.8
4	Oxyfluorfen	4	SC	0.188	lb ai/a	1,2,3 LS	9.0	2.8	3.0	3.0	2.0	10.0
5	Oxyfluorfen	2	L	0.031	lb ai/a	1,2,3 LS	5.8	2.0	2.0	2.0	2.0	9.8
6	Oxyfluorfen	2	L	0.063	lb ai/a	1,2,3 LS	8.8	3.0	3.3	3.0	2.3	10.0
7	Oxyfluorfen	2	L	0.125	lb ai/a	1,2,3 LS	6.8	3.0	2.0	1.5	2.0	9.5
8	Oxyfluorfen	2	L	0.188	lb ai/a	1,2,3 LS	9.8	5.8	6.0	4.8	3.8	10.0
9	Oxyfluorfen	4	SC	0.031	lb ai/a	2,4 LS	1.0	1.0	1.5	1.0	2.0	9.0
10	Oxyfluorfen	4	SC	0.063	lb ai/a	2,4 LS	1.0	1.5	2.0	1.8	2.0	6.5
11	Oxyfluorfen	4	SC	0.125	lb ai/a	2,4 LS	1.0	2.3	2.3	2.5	2.0	9.3
12	Oxyfluorfen	4	SC	0.25	lb ai/a	2,4 LS	1.0	2.3	2.5	2.3	2.0	9.8
13	Fluroxypyr	1.5	L	0.125	lb ai/a	2,4 LS	1.5	2.0	2.5	2.5	2.0	7.8
14	Ethofumesate	4	SC	1	lb ai/a	2,4 LS	1.0	1.3	1.0	1.0	2.0	9.5
15	Flumioxazin	51	WDG	0.064	lb ai/a	2,4 LS	1.0	1.0	1.3	1.0	2.0	9.8
16	Handweeded						1.0	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							2.74	0.86	0.80	0.60	0.38	2.23
Standard Deviation							1.92	0.60	0.56	0.42	0.27	1.56
CV							45.11	29.02	25.08	20.68	13.03	18.1

Postemergence Weed Control in Onion with Goaltender – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LATH	MAYC	RRPW			
Crop Variety										Sherman	Festival	Santana
Rating Date							6-12-08	6-12-08	6-12-08	6-23-08	6-23-08	6-23-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Oxyfluorfen	4	SC	0.031	lb ai/a	1,2,3 LS	6.0	3.8	10.0	1.3	1.3	1.3
2	Oxyfluorfen	4	SC	0.063	lb ai/a	1,2,3 LS	7.8	5.3	10.0	1.3	1.8	1.5
3	Oxyfluorfen	4	SC	0.125	lb ai/a	1,2,3 LS	7.5	6.3	10.0	1.8	2.0	2.0
4	Oxyfluorfen	4	SC	0.188	lb ai/a	1,2,3 LS	8.5	6.3	10.0	2.0	2.8	2.5
5	Oxyfluorfen	2	L	0.031	lb ai/a	1,2,3 LS	7.3	5.5	10.0	2.8	1.8	1.8
6	Oxyfluorfen	2	L	0.063	lb ai/a	1,2,3 LS	9.5	6.3	10.0	2.3	3.3	3.0
7	Oxyfluorfen	2	L	0.125	lb ai/a	1,2,3 LS	6.8	4.8	10.0	4.8	4.0	4.0
8	Oxyfluorfen	2	L	0.188	lb ai/a	1,2,3 LS	10.0	8.8	10.0	5.8	6.3	5.0
9	Oxyfluorfen	4	SC	0.031	lb ai/a	2,4 LS	4.0	3.5	10.0	1.3	1.0	1.0
10	Oxyfluorfen	4	SC	0.063	lb ai/a	2,4 LS	4.3	4.8	10.0	2.3	1.5	1.5
11	Oxyfluorfen	4	SC	0.125	lb ai/a	2,4 LS	5.3	5.0	10.0	1.0	1.3	1.5
12	Oxyfluorfen	4	SC	0.25	lb ai/a	2,4 LS	5.3	6.5	10.0	1.0	1.8	1.3
13	Fluroxypyr	1.5	L	0.125	lb ai/a	2,4 LS	3.0	4.0	10.0	1.3	1.3	1.3
14	Ethofumesate	4	SC	1	lb ai/a	2,4 LS	2.5	3.5	10.0	1.5	1.5	1.0
15	Flumioxazin	51	WDG	0.064	lb ai/a	2,4 LS	8.3	4.3	10.0	1.8	1.5	1.3
16	Handweeded						1.0	2.5	1.0	1.0	1.0	1.0
LSD (P=.05)							1.60	2.29	0.00	1.06	0.85	0.78
Standard Deviation							1.12	1.61	0.00	0.74	0.60	0.55
CV							18.5	31.81	0.0	36.11	28.34	28.45

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	YENS	COLQ	COPU	LATH		
Crop Variety											Sherman	Festival
Rating Date							6-23-08	6-23-08	6-23-08	6-23-08	7-3-08	7-3-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Oxyfluorfen	4	SC	0.031	lb ai/a	1,2,3 LS	2.0	9.0	10.0	6.8	1.8	1.5
2	Oxyfluorfen	4	SC	0.063	lb ai/a	1,2,3 LS	2.0	9.3	10.0	7.3	1.8	1.3
3	Oxyfluorfen	4	SC	0.125	lb ai/a	1,2,3 LS	2.0	9.3	9.8	7.5	2.5	2.0
4	Oxyfluorfen	4	SC	0.188	lb ai/a	1,2,3 LS	2.5	10.0	10.0	8.8	2.3	1.8
5	Oxyfluorfen	2	L	0.031	lb ai/a	1,2,3 LS	3.0	10.0	10.0	8.3	1.8	1.8
6	Oxyfluorfen	2	L	0.063	lb ai/a	1,2,3 LS	3.8	10.0	10.0	9.8	2.0	2.0
7	Oxyfluorfen	2	L	0.125	lb ai/a	1,2,3 LS	3.5	9.8	10.0	8.3	3.0	2.3
8	Oxyfluorfen	2	L	0.188	lb ai/a	1,2,3 LS	7.5	10.0	10.0	10.0	4.0	3.8
9	Oxyfluorfen	4	SC	0.031	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	1.8	1.8
10	Oxyfluorfen	4	SC	0.063	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	2.8	2.8
11	Oxyfluorfen	4	SC	0.125	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	1.8	2.5
12	Oxyfluorfen	4	SC	0.25	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	2.5	3.0
13	Fluroxypyr	1.5	L	0.125	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	3.5	3.8
14	Ethofumesate	4	SC	1	lb ai/a	2,4 LS	1.0	1.0	1.0	1.0	1.3	1.0
15	Flumioxazin	51	WDG	0.064	lb ai/a	2,4 LS	1.8	9.0	7.0	7.0	3.0	3.0
16	Handweeded						1.0	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							0.84	0.84	0.80	1.28	1.06	0.91
Standard Deviation							0.58	0.59	0.56	0.89	0.74	0.63
CV							26.72	10.05	9.5	17.76	32.47	29.01

Postemergence Weed Control in Onion with Goaltender – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code								YENS	COLQ	COPU	LATH	RRPW
Crop Variety							Santana					
Rating Date							7-3-08	7-3-08	7-3-08	7-3-08	7-3-08	7-3-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Oxyfluorfen	4	SC	0.031	lb ai/a	1,2,3 LS	1.3	1.3	7.5	6.0	5.3	8.8
2	Oxyfluorfen	4	SC	0.063	lb ai/a	1,2,3 LS	1.5	1.3	8.0	7.8	6.0	10.0
3	Oxyfluorfen	4	SC	0.125	lb ai/a	1,2,3 LS	1.8	1.3	9.8	9.5	6.5	9.3
4	Oxyfluorfen	4	SC	0.188	lb ai/a	1,2,3 LS	1.8	1.5	10.0	10.0	7.8	10.0
5	Oxyfluorfen	2	L	0.031	lb ai/a	1,2,3 LS	1.8	1.0	9.5	7.0	7.0	9.5
6	Oxyfluorfen	2	L	0.063	lb ai/a	1,2,3 LS	2.3	1.0	10.0	9.3	9.5	9.8
7	Oxyfluorfen	2	L	0.125	lb ai/a	1,2,3 LS	2.0	1.8	9.8	9.3	7.0	10.0
8	Oxyfluorfen	2	L	0.188	lb ai/a	1,2,3 LS	2.8	2.0	10.0	10.0	10.0	9.8
9	Oxyfluorfen	4	SC	0.031	lb ai/a	2,4 LS	1.8	1.8	9.3	10.0	4.5	10.0
10	Oxyfluorfen	4	SC	0.063	lb ai/a	2,4 LS	2.5	1.8	9.0	10.0	5.0	10.0
11	Oxyfluorfen	4	SC	0.125	lb ai/a	2,4 LS	2.0	2.0	9.0	10.0	5.5	10.0
12	Oxyfluorfen	4	SC	0.25	lb ai/a	2,4 LS	2.8	2.8	9.8	10.0	6.0	10.0
13	Fluroxypyr	1.5	L	0.125	lb ai/a	2,4 LS	3.8	1.3	5.0	10.0	3.3	5.8
14	Ethofumesate	4	SC	1	lb ai/a	2,4 LS	1.0	3.5	7.5	6.8	3.3	4.5
15	Flumioxazin	51	WDG	0.064	lb ai/a	2,4 LS	3.0	2.5	9.8	9.8	8.8	10.0
16	Handweeded						1.0	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							0.81	1.65	2.19	1.90	1.70	1.55
Standard Deviation							0.57	1.15	1.53	1.33	1.19	1.09
CV							27.69	67.15	18.16	15.6	19.82	12.57

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
Pest Code							SPSP				
Crop Variety								Sherman	Festival	Santana	ONION
Rating Date							7-3-08	10-2-08	10-2-08	10-2-08	
Rating Data Type							RATING	Harvest	Harvest	Harvest	Harvest
Rating Unit							1-10	KG/PLOT	KG/PLOT	KG/PLOT	TOTAL KG
1	Oxyfluorfen	4	SC	0.031	lb ai/a	1,2,3 LS	5.0	27.49	30.15	20.98	78.61
2	Oxyfluorfen	4	SC	0.063	lb ai/a	1,2,3 LS	6.5	27.50	32.79	22.13	82.41
3	Oxyfluorfen	4	SC	0.125	lb ai/a	1,2,3 LS	8.5	24.17	32.19	24.54	80.90
4	Oxyfluorfen	4	SC	0.188	lb ai/a	1,2,3 LS	9.0	28.60	31.30	26.78	86.68
5	Oxyfluorfen	2	L	0.031	lb ai/a	1,2,3 LS	5.8	25.25	33.23	22.62	81.10
6	Oxyfluorfen	2	L	0.063	lb ai/a	1,2,3 LS	7.0	28.67	31.77	24.15	84.59
7	Oxyfluorfen	2	L	0.125	lb ai/a	1,2,3 LS	7.8	24.63	34.06	18.94	77.63
8	Oxyfluorfen	2	L	0.188	lb ai/a	1,2,3 LS	8.8	23.49	25.07	22.97	71.53
9	Oxyfluorfen	4	SC	0.031	lb ai/a	2,4 LS	5.8	30.60	32.25	24.33	87.18
10	Oxyfluorfen	4	SC	0.063	lb ai/a	2,4 LS	6.5	23.79	34.76	21.65	80.20
11	Oxyfluorfen	4	SC	0.125	lb ai/a	2,4 LS	7.5	33.57	30.18	18.53	82.28
12	Oxyfluorfen	4	SC	0.25	lb ai/a	2,4 LS	7.3	28.64	32.03	22.95	83.61
13	Fluroxypyr	1.5	L	0.125	lb ai/a	2,4 LS	6.8	28.39	31.45	17.30	77.13
14	Ethofumesate	4	SC	1	lb ai/a	2,4 LS	6.3	26.05	30.60	21.17	77.82
15	Flumioxazin	51	WDG	0.064	lb ai/a	2,4 LS	9.0	30.59	30.23	22.73	83.55
16	Handweeded						1.0	21.83	37.20	23.05	82.07
LSD (P=.05)							1.74	10.008	5.390	5.289	11.386
Standard Deviation							1.22	7.003	3.772	3.701	7.967
CV							18.05	25.87	11.85	16.69	9.83

Postemergence Weed Control in Onion – Grant 2008

Project Code: WC 112-08-06 **Location: Brink Farm**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Onion **Variety: Prince**
Planting Method: seeded **Planting Date: 4/21/08**
Spacing: 1 inch **Row Spacing: 34 inch; 2 rows/plot**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.33 ft wide x 30 ft long

Soil Type: Adrian Muck **OM: 68%** **pH: 6.8**
Sand: 4% **Silt: 26%** **Clay: 2%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/4/08	1:00 pm	65/58	°F	Damp	4-6 SE		100% Cloud	N
PO2	6/27/08	11:30 am	80/71	°F	Dry	5 SW	72	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/4	ONION	3-4″	2LF	
6/4	PAWE = pineappleweed	1-2″	1-2″	moderate
6/27	ONION	10-12″	4-5 LF	
6/27	PAWE = pineappleweed	3-5″	3-5″	moderate
6/27	CORW = common ragweed	2-4″		few
6/27	LATH = ladysthumb	3-6″		moderate
6/27	SHPU = shepherdspurse	4-12″		few

Notes and Comments
1. Sprays applied with 2 nozzle boom FF11002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.

Postemergence Weed Control in Onion – Grant 2008

Dept. of Horticulture, MSU

Trial ID: WC 112-08-06 Study Director: Dr. Bernard Zandstra
Location: Grant, Brink Farm Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	ONION	CORW	LATH	PAWE	SHPU	ONION
Pest Code												
Crop Code							ONION					ONION
Rating Date							6-22-08	6-22-08	6-22-08	6-22-08	6-22-08	7-18-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, PO2	1.0	9.0	8.0	4.3	9.7	1.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
2	Oxyfluorfen	4	SC	0.125	lb ai/a	PO1, PO2	1.3	9.3	8.7	7.7	9.0	1.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
3	Oxyfluorfen	4	SC	0.25	lb ai/a	PO1, PO2	1.3	10.0	8.7	7.3	9.7	1.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
4	Oxyfluorfen	2	L	0.25	lb ai/a	PO1, PO2	2.3	9.7	9.3	9.0	10.0	1.7
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
	NIS	100	SL	0.25	% v/v	PO1, PO2						
5	Bentazon	4	L	1	lb ai/a	PO1, PO2	3.3	8.3	8.7	10.0	9.0	3.3
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
6	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2	1.0	8.0	5.7	4.7	7.3	1.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
7	Fluroxypyr	1.5	L	0.063	lb ai/a	PO1, PO2	1.3	10.0	6.7	5.3	4.0	1.0
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
8	Bromoxynil	4	EC	0.125	lb ai/a	PO1, PO2	1.3	10.0	9.7	9.3	10.0	1.7
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2						
LSD (P=.05)							0.91	2.38	2.15	4.58	2.51	1.11
Standard Deviation							0.52	1.36	1.23	2.61	1.43	0.64
CV							31.85	14.64	15.03	36.26	16.67	43.63

Postemergence Weed Control in Onion – Grant 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LATH	PAWE	RRPW	SPSP	ONION
Pest Code							LATH	PAWE	RRPW	SPSP	
Crop Code											ONION
Rating Date							7-18-08	7-18-08	7-18-08	7-18-08	9-9-08
Rating Data Type							RATING	RATING	RATING	RATING	Harvest
Rating Unit							1-10	1-10	1-10	1-10	KG/PLOT
1	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1, PO2	7.7	4.7	9.7	9.3	84.72
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2					
	NIS	100	SL	0.25	% v/v	PO1, PO2					
2	Oxyfluorfen	4	SC	0.125	lb ai/a	PO1, PO2	9.0	7.3	9.3	8.0	81.67
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2					
	NIS	100	SL	0.25	% v/v	PO1, PO2					
3	Oxyfluorfen	4	SC	0.25	lb ai/a	PO1, PO2	9.3	9.0	10.0	10.0	87.97
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2					
	NIS	100	SL	0.25	% v/v	PO1, PO2					
4	Oxyfluorfen	2	L	0.25	lb ai/a	PO1, PO2	9.3	8.7	10.0	9.7	79.19
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2					
	NIS	100	SL	0.25	% v/v	PO1, PO2					
5	Bentazon	4	L	1	lb ai/a	PO1, PO2	9.7	9.3	9.7	6.7	59.17
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2					
6	Ethofumesate	4	SC	1	lb ai/a	PO1, PO2	7.3	3.7	5.3	9.0	85.16
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2					
7	Fluroxypyr	1.5	L	0.063	lb ai/a	PO1, PO2	8.0	2.3	8.7	8.7	88.78
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2					
8	Bromoxynil	4	EC	0.125	lb ai/a	PO1, PO2	10.0	9.3	10.0	8.0	79.65
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1, PO2					
LSD (P=.05)							1.55	3.39	2.72	3.26	11.538
Standard Deviation							0.89	1.94	1.55	1.86	6.588
CV							10.08	28.54	17.09	21.49	8.15

Postemergence Weed Control in Onion – Hudsonville 2008

Project Code: WC 112-08-07 **Location: Schreur Farm**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Onion **Variety: Bradley**
Planting Method: seeded **Planting Date: 4/21/08**
Spacing: 1 inch **Row Spacing: 14 inch; 3 rows/plot**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 3.33 ft wide x 30 ft long

Soil Type: Carlisle Muck **OM: 61%** **pH: 5.8**
Sand: 7% **Silt: 30%** **Clay: 2%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	7/8/08	1:00 pm	76/75	°F	Damp	6.0 SW	86	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
7/8	ONION	8-12″	4-6 LF	good stand
7/8	CLOVER	4-6″		moderate
7/8	MAYC = marsh yellowcress	4-10″		moderate
7/8	CORW = common ragweed	5-12″		moderate

Notes and Comments
1. Sprays applied with 2 nozzle boom FF11002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. The field was flooded in late May, and growth delayed. Only one postemergence application was applied.

Postemergence Weed Control in Onion – Hudsonville 2008

Dept. of Horticulture, MSU

Trial ID: WC 112-08-07 Study Director: Dr. Bernard Zandstra
Location: Schreur Farm Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	ONION 7-15-08 RATING 1-10	CLOV 7-15-08 RATING 1-10	ONION 7-30-08 RATING 1-10	ONION 9-23-08 Harvest KG/PLOT
1	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1	3.3	7.0	2.7	54.79
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	Pendimethalin	3.8	CS	2	lb ai/a	PO1				
	Flumioxazin	51	WDG	0.064	lb ai/a	PO1				
2	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1	5.0	7.3	4.3	48.17
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	Metolachlor	7.62	EC	1.3	lb ai/a	PO1				
	Flumioxazin	51	WDG	0.064	lb ai/a	PO1				
3	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1	5.3	9.0	4.0	46.69
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	Dimethenamid-p	6	EC	0.98	lb ai/a	PO1				
	Flumioxazin	51	WDG	0.064	lb ai/a	PO1				
4	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1	1.3	5.0	1.7	64.71
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	Ethofumesate	4	SC	1	lb ai/a	PO1				
5	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1	2.3	8.0	1.7	66.30
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	Fluroxypyr	1.5	L	0.063	lb ai/a	PO1				
6	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1	2.7	6.3	2.3	57.74
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	Bentazon	4	L	1	lb ai/a	PO1				
7	Oxyfluorfen	4	SC	0.063	lb ai/a	PO1	2.0	3.0	2.7	63.02
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	Bromoxynil	4	EC	0.125	lb ai/a	PO1				
8	Oxyfluorfen	2	L	0.063	lb ai/a	PO1	3.3	7.0	3.0	54.90
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	Flumioxazin	51	WDG	0.064	lb ai/a	PO1				
9	Oxyfluorfen	2	L	0.063	lb ai/a	PO1	2.3	8.3	1.3	65.75
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	Ethofumesate	4	SC	1	lb ai/a	PO1				
10	Oxyfluorfen	2	L	0.063	lb ai/a	PO1	2.3	8.7	2.0	60.15
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	Fluroxypyr	1.5	L	0.063	lb ai/a	PO1				
11	Oxyfluorfen	2	L	0.063	lb ai/a	PO1	3.0	3.7	3.3	56.38
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	Bentazon	4	L	1	lb ai/a	PO1				
12	Oxyfluorfen	2	L	0.063	lb ai/a	PO1	3.3	7.0	3.7	53.11
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1				
	NIS	100	SL	0.25	% v/v	PO1				
LSD (P=.05)							0.92	2.75	0.97	8.865
Standard Deviation							0.54	1.62	0.58	5.235
CV							17.88	24.24	21.13	9.08

Weed Control in Seeded Green Onion and Chive – Momence,IL 2008

Project Code: WC 112-08-08 **Location: VanDrunen Farms**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Green onion, Chive **Variety: Tokyo Long White Bunching, Purly**
Planting Method: Seeded **Planting Date: 5/9/08**
Spacing: 1 inch **Row Spacing: 10 inch**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Sandy Loam **OM: 1.9%** **pH: 7.3**
Sand: 82% **Silt: 11%** **Clay: 7%** **CEC: 7.6**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/16/08	1:00 pm	78/62	°F	Dry	1 SW	38	0% Cloudy	N
PO1	6/11/08	10:30 am	83/80	°F		7 SW	42	10% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/11	CHIVE	2-3″	2 LF	good stand
6/11	GREEN ONION	4-5″	2-3 LF	good stand
6/11	STGR = stinkgrass	1-3″	2-4 LF	moderate
6/11	COPU = common purslane	1-4″	Many	moderate
6/11	RRPW = redroot pigweed	2-4″	4-8	moderate

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. 2 rows of each crop per plot.

Weed Control in Seeded Green Onion and Chive – Momence,IL 2008

Dept. of Horticulture, MSU

Trial ID: WC 112-08-08 Study Director: Dr. Bernard Zandstra
Location: VAN DRUNEN FARMS Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CHIVE 11/Jun/08 RATING 1-10	GREEN ON 11/Jun/08 RATING 1-10	CHIVE 10/Jul/08 RATING 1-10	GREEN ON 10/Jul/08 RATING 1-10	STGR 10/Jul/08 RATING 1-10
1	Pendimethalin	3.8	CS	0.95	LB A/A	PRE	1.0	1.0	2.0	1.7	8.7
2	Pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.7	1.3	1.3	1.0	9.0
3	S-metolachlor	7.62	EC	0.63	LB A/A	PRE	4.7	1.3	7.7	2.3	9.0
4	Dimethenamid-p	6	EC	0.56	LB A/A	PRE	3.3	1.7	4.3	1.3	10.0
5	Ethofumesate	4	SC	1	LB A/A	PRE	2.0	1.3	6.3	1.7	7.3
6	Propachlor	4	F	2	LB A/A	PRE	2.0	1.0	2.7	1.0	8.0
7	DCPA	75	WP	6	LB A/A	PRE	1.0	1.3	1.3	1.3	9.7
	Oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
8	DCPA	75	WP	6	LB A/A	PRE	1.3	1.3	1.7	1.7	10.0
	Flumioxazin	51	WDG	0.032	LB A/A	PO1					
9	DCPA	75	WP	6	LB A/A	PRE	1.3	1.3	2.3	1.7	9.7
	Ethofumesate	4	SC	1	LB A/A	PO1					
10	DCPA	75	WP	6	LB A/A	PRE	1.3	1.0	1.3	1.7	10.0
	Oxyfluorfen	2	L	0.063	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
LSD (P=.05)							1.27	0.97	1.47	1.16	2.18
Standard Deviation							0.74	0.57	0.86	0.68	1.26
CV							37.77	44.81	27.62	44.2	13.83

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	COPU 10/Jul/08 RATING 1-10	RRPW 10/Jul/08 RATING 1-10	CHIVE 5/Aug/08 Harvest KG/PLOT	GREEN ON 5/Aug/08 Harvest KG/PLOT
1	Pendimethalin	3.8	CS	0.95	LB A/A	PRE	6.7	7.7	0.90	11.75
2	Pendimethalin	3.8	CS	1.9	LB A/A	PRE	4.7	9.3	0.70	13.69
3	S-metolachlor	7.62	EC	0.63	LB A/A	PRE	4.3	7.0	0.04	10.03
4	Dimethenamid-p	6	EC	0.56	LB A/A	PRE	4.3	9.0	0.19	16.48
5	Ethofumesate	4	SC	1	LB A/A	PRE	4.7	8.3	0.08	12.53
6	Propachlor	4	F	2	LB A/A	PRE	2.0	9.7	0.52	14.29
7	DCPA	75	WP	6	LB A/A	PRE	9.7	10.0	1.39	12.42
	Oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
8	DCPA	75	WP	6	LB A/A	PRE	10.0	10.0	2.12	11.06
	Flumioxazin	51	WDG	0.032	LB A/A	PO1				
9	DCPA	75	WP	6	LB A/A	PRE	9.7	9.7	0.73	11.84
	Ethofumesate	4	SC	1	LB A/A	PO1				
10	DCPA	75	WP	6	LB A/A	PRE	9.7	10.0	1.77	15.28
	Oxyfluorfen	2	L	0.063	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
LSD (P=.05)							2.61	2.72	0.662	4.002
Standard Deviation							1.52	1.59	0.386	2.333
CV							23.17	17.49	45.7	18.03

Weed Control in Green Onion and Leek – Muck Farm 2008

Project Code: WC 112-08-09 **Location: Laingsburg, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Green Onion, Leek **Variety: Long White Bunching, American Flag**
Planting Method: seeded **Planting Date: 4/30/08**
Spacing: 1 inch **Row Spacing: 16 inch; 1 row of each crop/plot**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.33 ft wide x 16.7 ft long

Soil Type: Houghton Muck **OM: 80%** **pH: 7.1**
Sand: 8% **Silt: 13%** **Clay: 2%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/9/08	11:00 am	57/52	°F	Dry	4 N	65	15% Cloudy	N
2LS	6/2/08	11:30 am	73/60	°F	Good	7 SW	41	10% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/2	GR. ONION	5-6″	2 LS	good
6/2	LEEK	4-6″	2 LS	good
6/2	COLQ = common lambsquarters	1-2″	2-4 LS	many
6/2	LATH = ladysthumb	1-3″	4-5 LS	many

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Chives were also planted, but they did not germinate.

Weed Control in Green Onion and Leek – Muck Farm 2008

Dept. of Horticulture, MSU

Trial ID: WC 112-08-09 Study Director: Dr. Bernard Zandstra
Location: Muck Farm, Laingsburg Investigator: Rodney Tocco

Pest Code							GREEN ON	LEEK	COLQ	LATH	MAYC
Rating Date							2/Jun/08	2/Jun/08	2/Jun/08	2/Jun/08	2/Jun/08
Rating Data Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Pendimethalin	3.8	CS	0.95	LB A/A	PRE, 2LS	1.0	1.0	9.7	7.3	9.0
2	Pendimethalin	3.8	CS	1.9	LB A/A	PRE, 2LS	1.0	1.3	9.7	8.7	9.3
3	Pendimethalin	3.8	CS	3.8	LB A/A	PRE, 2LS	1.0	1.3	10.0	9.0	7.0
4	Dimethenamid-p	6	EC	0.98	LB A/A	PRE, 2LS	2.3	2.0	7.0	7.0	9.0
5	S-metolachlor	7.62	EC	1.9	LB A/A	PRE, 2LS	1.0	1.0	6.0	5.0	8.0
6	Acetochlor	6.4	EC	1	LB A/A	PRE, 2LS	3.7	5.0	6.0	6.7	8.3
7	Propachlor	4	F	4	LB A/A	PRE, 2LS	1.0	1.3	5.3	5.7	9.3
8	Ethofumesate	4	SC	2	LB A/A	PRE, 2LS	1.3	2.3	6.7	6.3	6.7
9	Pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.0	1.3	8.0	7.7	6.7
	Dimethenamid-p	6	EC	0.98	LB A/A	2 LS					
10	Pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.0	1.0	9.0	8.0	8.3
	Flumioxazin	51	WDG	0.064	LB A/A	2LS					
11	Pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.0	1.0	8.3	8.3	7.0
	S-metolachlor	7.62	EC	1.9	LB A/A	2LS					
12	Untreated					PRE	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							0.87	1.28	2.48	1.71	2.79
Standard Deviation							0.51	0.76	1.47	1.01	1.65
CV							37.65	46.2	20.3	15.03	22.03

Pest Code							GREEN ON	LEEK	YENS	COLQ	LATH
Rating Date							13/Jun/08	13/Jun/08	13/Jun/08	13/Jun/08	13/Jun/08
Rating Data Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Pendimethalin	3.8	CS	0.95	LB A/A	PRE, 2LS	1.7	1.0	1.0	9.3	3.3
2	Pendimethalin	3.8	CS	1.9	LB A/A	PRE, 2LS	2.3	1.3	1.0	10.0	7.0
3	Pendimethalin	3.8	CS	3.8	LB A/A	PRE, 2LS	2.0	1.7	2.3	10.0	8.3
4	Dimethenamid-p	6	EC	0.98	LB A/A	PRE, 2LS	3.0	1.3	3.3	4.3	4.7
5	S-metolachlor	7.62	EC	1.9	LB A/A	PRE, 2LS	2.7	2.0	1.3	2.7	2.3
6	Acetochlor	6.4	EC	1	LB A/A	PRE, 2LS	4.3	4.0	1.3	3.3	4.0
7	Propachlor	4	F	4	LB A/A	PRE, 2LS	2.3	1.3	1.0	3.0	3.7
8	Ethofumesate	4	SC	2	LB A/A	PRE, 2LS	2.3	1.7	1.0	8.3	5.7
9	Pendimethalin	3.8	CS	1.9	LB A/A	PRE	2.3	2.0	1.3	7.0	5.0
	Dimethenamid-p	6	EC	0.98	LB A/A	2 LS					
10	Pendimethalin	3.8	CS	1.9	LB A/A	PRE	2.3	1.7	1.3	10.0	9.3
	Flumioxazin	51	WDG	0.064	LB A/A	2LS					
11	Pendimethalin	3.8	CS	1.9	LB A/A	PRE	2.3	1.3	1.3	8.0	5.3
	S-metolachlor	7.62	EC	1.9	LB A/A	2LS					
12	Untreated					PRE	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.55	1.35	1.50	2.60	2.07
Standard Deviation							0.92	0.80	0.89	1.53	1.22
CV							38.33	46.99	61.35	23.92	24.61

Weed Control in Green Onion and Leek – Muck Farm 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	MAYC	GREEN ON	LEEK
Pest Code							MAYC	GREEN ON	LEEK
Rating Date							13/Jun/08	28/Jul/08	29/Aug/08
Rating Data Type							RATING	Harvest	Harvest
Rating Unit							1-10	KG/PLOT	KG/PLOT
1	Pendimethalin	3.8	CS	0.95	LB A/A	PRE, 2LS	1.3	5.81	12.35
2	Pendimethalin	3.8	CS	1.9	LB A/A	PRE, 2LS	1.7	4.87	12.07
3	Pendimethalin	3.8	CS	3.8	LB A/A	PRE, 2LS	2.7	4.66	13.95
4	Dimethenamid-p	6	EC	0.98	LB A/A	PRE, 2LS	2.0	4.61	18.39
5	S-metolachlor	7.62	EC	1.9	LB A/A	PRE, 2LS	2.7	4.63	15.20
6	Acetochlor	6.4	EC	1	LB A/A	PRE, 2LS	2.7	3.37	4.70
7	Propachlor	4	F	4	LB A/A	PRE, 2LS	2.0	4.55	8.26
8	Ethofumesate	4	SC	2	LB A/A	PRE, 2LS	3.0	5.30	7.86
9	Pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.3	5.53	8.36
	Dimethenamid-p	6	EC	0.98	LB A/A	2 LS			
10	Pendimethalin	3.8	CS	1.9	LB A/A	PRE	8.0	5.01	16.05
	Flumioxazin	51	WDG	0.064	LB A/A	2LS			
11	Pendimethalin	3.8	CS	1.9	LB A/A	PRE	2.0	3.03	14.05
	S-metolachlor	7.62	EC	1.9	LB A/A	2LS			
12	Untreated					PRE	1.0	3.43	13.64
LSD (P=.05)							2.20	2.922	9.490
Standard Deviation							1.30	1.726	5.604
CV							51.38	37.8	46.42

Weed Control in Banana and Jalapeno Pepper – HTRC 2008

Project Code: WC 101-08-02 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Sweet Banana,Jalapeno Variety: Sweet Banana, Jalapeno M
Planting Method: Transplant Planting Date: 5/20/08
Spacing: 22 inch Row Spacing: 36 inch; 1 row of each type/plot
Tillage Type: Conventional Study Design: RCB Replications: 3
Plot Size: 5.33 ft wide x 30 ft long

Soil Type: Capac Loam OM: 1.5% pH: 6.5
Sand: 43% Silt: 27% Clay: 30% CEC: 9.9

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	5/15/08	9:25 am	47/48	°F	Damp	7 SW	65	10% Cloudy	Y
POT	5/20/08	10:15 am	67/56	°F	Dry	3 SW	48	5% Cloudy	N
PO1	6/23/08	3:00 pm	73/72	°F	Damp	3-4 SE	60	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/23	BANANA PEPPER	4-5″	3-4 LF	poor condition
6/23	JALAPENO PEPPER	3-4″	4-5 LF	moderate
6/23	BYGR = barnyardgrass	6-12″	8-10 LF	moderate
6/23	CORW = common ragweed	2-6″	8-10 LF	many
6/23	COLQ = common lambsquarters	4-6″	10-14 LF	many
6/23	EBNS = eastern black nightshade	1-6″	4-10 LF	many

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. The crops suffered severe drought 5/24/08-5/27/08. Some plants died and harvest was delayed about 2 weeks.

Weed Control in Banana and Jalapeno Pepper – HTRC 2008

Dept. of Horticulture, MSU

Trial ID: WC 101-08-02 Study Director: Dr. Bernard Zandstra
Location: HTRC Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code									BYGR	GRFT	COLQ	CORW
Crop Code							BANANA	JALAPENO				
Rating Date							6-17-08	6-17-08	6-17-08	6-17-08	6-17-08	6-17-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Pendimethalin	3.8	CS	1	lb ai/a	PRT	1.3	2.0	5.3	8.7	10.0	2.7
2	Pendimethalin	3.8	CS	1.5	lb ai/a	PRT	2.0	2.3	8.0	9.7	10.0	3.3
3	Pendimethalin	3.8	CS	1	lb ai/a	POT	1.3	1.0	6.3	9.0	10.0	3.0
4	Pendimethalin	3.8	CS	1.5	lb ai/a	POT	2.3	2.3	9.0	10.0	10.0	2.7
5	S-metolachlor	7.62	EC	1.9	lb ai/a	POT	3.3	3.7	10.0	10.0	9.7	7.7
6	Fomesafen	2	EC	0.5	lb ai/a	PRT	2.7	3.3	10.0	9.4	9.7	10.0
7	Flumioxazin	51	WDG	0.064	lb ai/a	PRT	7.8	4.0	10.0	9.7	10.0	9.7
8	S-metolachlor	7.62	EC	1.9	lb ai/a	POT	2.3	4.7	10.0	10.0	9.3	8.3
	Halosulfuron	75	WG	0.023	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
9	S-metolachlor	7.62	EC	1.3	lb ai/a	POT	2.0	3.7	10.0	10.0	10.0	10.0
	Clomazone	3	ME	1	lb ai/a	POT						
10	Untreated					PRT, POT	1.0	1.0	1.3	1.0	2.7	1.0
	Halosulfuron	75	WG	0.023	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
LSD (P=.05)							2.04	2.90	3.35	1.17	1.68	1.88
Standard Deviation							1.19	1.69	1.95	0.68	0.98	1.09
CV							45.39	60.47	24.4	7.74	10.7	18.75

Weed Control in Banana and Jalapeno Pepper – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LATH	RRPW	BANANA	BANANA	BANANA	BANANA
Pest Code							LATH	RRPW				
Crop Code									BANANA	BANANA	BANANA	BANANA
Rating Date							6-17-08	6-17-08	8-5-08	8-18-08	9-2-08	9-17-08
Rating Data Type							RATING	RATING	Harvest	Harvest	Harvest	Harvest
Rating Unit							1-10	1-10	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
1	Pendimethalin	3.8	CS	1	lb ai/a	PRT	9.7	10.0	0.32	1.49	2.26	1.06
2	Pendimethalin	3.8	CS	1.5	lb ai/a	PRT	9.7	10.0	0.47	0.43	5.07	1.60
3	Pendimethalin	3.8	CS	1	lb ai/a	POT	9.3	10.0	0.26	1.30	4.10	1.65
4	Pendimethalin	3.8	CS	1.5	lb ai/a	POT	9.7	10.0	0.25	0.40	3.74	1.80
5	S-metolachlor	7.62	EC	1.9	lb ai/a	POT	9.7	10.0	0.20	0.77	2.80	1.22
6	Fomesafen	2	EC	0.5	lb ai/a	PRT	9.7	10.0	0.21	1.01	3.89	1.12
7	Flumioxazin	51	WDG	0.064	lb ai/a	PRT	10.0	10.0	0.09	0.18	1.28	0.52
8	S-metolachlor	7.62	EC	1.9	lb ai/a	POT	10.0	10.0	0.26	0.73	3.41	2.40
	Halosulfuron	75	WG	0.023	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
9	S-metolachlor	7.62	EC	1.3	lb ai/a	POT	10.0	10.0	0.50	1.25	4.14	1.30
	Clomazone	3	ME	1	lb ai/a	POT						
10	Untreated					PRT, POT	1.7	2.7	0.21	0.51	2.91	0.81
	Halosulfuron	75	WG	0.023	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1						
LSD (P=.05)							1.04	1.57	0.371	0.810	2.775	1.790
Standard Deviation							0.61	0.91	0.216	0.472	1.618	1.039
CV							6.78	9.85	78.14	58.41	48.15	77.09

Weed Control in Banana and Jalapeno Pepper – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BANANA 9-29-08 Harvest KG/PLOT	BANANA TOTAL KG/PLOT	JALAPENO 9-2-08 Harvest KG/PLOT	JALAPENO 9-17-08 Harvest KG/PLOT	JALAPENO TOTAL KG/PLOT
	Pest Code										
	Crop Code						BANANA	BANANA	JALAPENO	JALAPENO	JALAPENO
	Rating Date						9-29-08		9-2-08	9-17-08	
	Rating Data Type						Harvest	TOTAL	Harvest	Harvest	TOTAL
	Rating Unit						KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
1	Pendimethalin	3.8	CS	1	lb ai/a	PRT	0.54	5.67	4.67	1.07	5.74
2	Pendimethalin	3.8	CS	1.5	lb ai/a	PRT	0.92	8.49	4.63	0.91	5.54
3	Pendimethalin	3.8	CS	1	lb ai/a	POT	0.65	7.97	4.88	1.64	6.52
4	Pendimethalin	3.8	CS	1.5	lb ai/a	POT	0.60	6.79	2.19	1.24	3.44
5	S-metolachlor	7.62	EC	1.9	lb ai/a	POT	0.88	5.86	3.38	1.25	4.63
6	Fomesafen	2	EC	0.5	lb ai/a	PRT	0.73	6.32	4.52	0.78	3.59
7	Flumioxazin	51	WDG	0.064	lb ai/a	PRT	0.22	2.30	3.71	0.85	4.55
8	S-metolachlor	7.62	EC	1.9	lb ai/a	POT	1.11	7.91	2.66	1.20	3.86
	Halosulfuron	75	WG	0.023	lb ai/a	PO1					
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1					
9	S-metolachlor	7.62	EC	1.3	lb ai/a	POT	1.09	8.29	4.88	0.60	5.48
	Clomazone	3	ME	1	lb ai/a	POT					
10	Untreated					PRT, POT	0.68	5.12	2.28	0.63	2.91
	Halosulfuron	75	WG	0.023	lb ai/a	PO1					
	Sethoxydim	1.53	EC	0.19	lb ai/a	PO1					
LSD (P=.05)							0.724	5.063	3.712	1.145	4.793
Standard Deviation							0.420	2.951	2.155	0.667	2.794
CV							56.65	45.61	57.0	65.63	60.41

Weed Control in Bell Pepper and Tomato – HTRC 2008

Project Code: WC 101-08-01 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Bell Pepper, Tomato **Variety: King Arthur, Sunbrite**
Planting Method: Transplant **Planting Date: 5/20/08**
Spacing: 22 IN in row **Row Spacing: 36 IN**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.33 ft wide x 30 ft long

Soil Type: Capac Loam **OM: 1.8%** **pH: 5.0**
Sand: 49% **Silt: 28%** **Clay: 23%** **CEC: 10.9**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	5/15/08	10:00 am	47/48	°F	Damp	7 SW	65	10% Cloudy	Y
POT	5/20/08	10:45 am	67/56	°F	Dry	3 SW	48	5% Cloudy	N
PO1	6/23/08	2:30 pm	73/72	°F	Damp	3 NE	60	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/23	TOMATO	8-10″	10 LF	good
6/23	BELL PEPPER	4-5″	4-6 LF	poor stand
6/23	CORW = common ragweed	3-4″	6-8 LF	many
6/23	COLQ = common lambsquarters	3-8″	12-18 LF	many
6/23	LATH = ladysthumb	2-4″	4-8 LF	many
6/23	EBNS = eastern black nightshade	3-4″	4-8 LF	moderate
6/23	RRPW = redroot pigweed	2-6″	4-10 LF	many

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.

Weed Control in Bell Pepper and Tomato – HTRC 2008

Dept. of Horticulture, MSU

Trial ID: WC 101-08-01 Study Director: Dr. Bernard Zandstra
Location: HTRC, East Lansing Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	PEPPER	TOMATO	BYGR	GRFT	COLQ
Pest Code									BYGR	GRFT	COLQ
Crop Code							PEPPER	TOMATO			
Rating Date							17/Jun/08	17/Jun/08	17/Jun/08	17/Jun/08	17/Jun/08
Rating Data Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
1	S-metolachlor	7.62	EC	1.9	LB A/A	POT	4.3	4.0	10.0	10.0	8.3
2	Fomesafen	2	EC	0.5	LB A/A	PRT	3.3	1.7	9.7	10.0	8.3
3	Flumioxazin	51	WDG	0.064	LB A/A	PRT	3.0	4.0	10.0	10.0	9.3
4	Metribuzin	75	DF	0.5	LB A/A	POT	9.3	4.0	9.7	10.0	10.0
5	Pendimethalin	3.8	CS	1	LB A/A	PRT	3.0	1.7	10.0	10.0	10.0
6	Pendimethalin	3.8	CS	1.5	LB A/A	POT	2.0	2.7	10.0	10.0	10.0
7	Pendimethalin	3.8	CS	0.71	LB A/A	PRT	4.3	1.3	10.0	10.0	10.0
	S-metolachlor	7.62	EC	0.95	LB A/A	PRT					
	Metribuzin	75	DF	0.188	LB A/A	PRT					
8	Pendimethalin	3.8	CS	0.95	LB A/A	PRT	2.0	1.7	10.0	10.0	10.0
	S-metolachlor	7.62	EC	0.95	LB A/A	PRT					
	Metribuzin	75	DF	0.188	LB A/A	PRT					
9	Pendimethalin	3.8	CS	0.71	LB A/A	PRT	2.3	1.3	10.0	10.0	10.0
	Metribuzin	75	DF	0.188	LB A/A	PRT					
10	Pendimethalin	3.8	CS	0.71	LB A/A	POT	4.3	3.7	10.0	10.0	10.0
	Metribuzin	75	DF	0.188	LB A/A	POT					
11	S-metolachlor	7.62	EC	1.3	LB A/A	POT	2.0	1.7	10.0	10.0	8.3
	Halosulfuron	75	WG	0.023	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
12	S-metolachlor	7.62	EC	1.3	LB A/A	POT	1.7	3.0	10.0	10.0	7.3
	Rimsulfuron	25	DF	0.031	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
13	S-metolachlor	7.62	EC	1.3	LB A/A	POT	3.7	3.0	10.0	10.0	8.7
	Metribuzin	75	DF	0.25	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
14	S-metolachlor	7.62	EC	1.3	LB A/A	POT	4.3	5.3	10.0	10.0	10.0
	Clomazone	3	ME	0.5	LB A/A	POT					
15	Untreated					PRT, POT	1.7	1.3	7.0	7.7	1.0
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	Metribuzin	75	DF	0.25	LB A/A	PO1					
LSD (P=.05)							2.50	2.26	1.59	0.66	1.60
Standard Deviation							1.49	1.35	0.95	0.39	0.96
CV							43.65	50.2	9.77	4.01	10.94

Weed Control in Bell Pepper and Tomato – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CORW	LATH	RRPW	PEPPER	PEPPER
Pest Code							CORW	LATH	RRPW		
Crop Code										PEPPER	PEPPER
Rating Date							17/Jun/08	17/Jun/08	17/Jun/08	18/Aug/08	18/Aug/08
Rating Data Type							RATING	RATING	RATING	Harvest	Harvest
Rating Unit							1-10	1-10	1-10	#	KG/PLOT
1	S-metolachlor	7.62	EC	1.9	LB A/A	POT	6.7	10.0	9.7	6.7	1.34
2	Fomesafen	2	EC	0.5	LB A/A	PRT	9.0	10.0	10.0	15.0	2.92
3	Flumioxazin	51	WDG	0.064	LB A/A	PRT	9.3	10.0	9.7	11.3	2.46
4	Metribuzin	75	DF	0.5	LB A/A	POT	10.0	10.0	10.0	1.7	0.28
5	Pendimethalin	3.8	CS	1	LB A/A	PRT	2.0	9.3	10.0	7.3	1.56
6	Pendimethalin	3.8	CS	1.5	LB A/A	POT	1.7	10.0	10.0	7.7	1.66
7	Pendimethalin	3.8	CS	0.71	LB A/A	PRT	9.3	10.0	9.3	4.3	0.95
	S-metolachlor	7.62	EC	0.95	LB A/A	PRT					
	Metribuzin	75	DF	0.188	LB A/A	PRT					
8	Pendimethalin	3.8	CS	0.95	LB A/A	PRT	9.7	10.0	10.0	9.7	2.33
	S-metolachlor	7.62	EC	0.95	LB A/A	PRT					
	Metribuzin	75	DF	0.188	LB A/A	PRT					
9	Pendimethalin	3.8	CS	0.71	LB A/A	PRT	8.3	9.3	9.0	17.7	3.73
	Metribuzin	75	DF	0.188	LB A/A	PRT					
10	Pendimethalin	3.8	CS	0.71	LB A/A	POT	9.7	10.0	10.0	4.3	0.74
	Metribuzin	75	DF	0.188	LB A/A	POT					
11	S-metolachlor	7.62	EC	1.3	LB A/A	POT	4.7	10.0	10.0	6.0	1.25
	Halosulfuron	75	WG	0.023	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
12	S-metolachlor	7.62	EC	1.3	LB A/A	POT	3.7	10.0	9.7	5.0	0.91
	Rimsulfuron	25	DF	0.031	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
13	S-metolachlor	7.62	EC	1.3	LB A/A	POT	4.3	10.0	10.0	2.0	0.46
	Metribuzin	75	DF	0.25	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
14	S-metolachlor	7.62	EC	1.3	LB A/A	POT	9.7	10.0	10.0	17.0	3.63
	Clomazone	3	ME	0.5	LB A/A	POT					
15	Untreated					PRT, POT	1.0	1.0	1.0	0.3	0.10
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	Metribuzin	75	DF	0.25	LB A/A	PO1					
LSD (P=.05)							2.38	0.68	0.80	9.80	2.094
Standard Deviation							1.42	0.41	0.48	5.86	1.253
CV							21.53	4.36	5.17	75.76	77.25

Weed Control in Bell Pepper and Tomato – HTRC 2008

Dept. of Horticulture, MSU

Crop Code							PEPPER	PEPPER	PEPPER	PEPPER	PEPPER
Rating Date							2/Sep/08	2/Sep/08	17/Sep/08	17/Sep/08	29/Sep/08
Rating Data Type							Harvest	Harvest	Harvest	Harvest	Harvest
Rating Unit							#	KG/PLOT	#	KG/PLOT	#
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	S-metolachlor	7.62	EC	1.9	LB A/A	POT	22.7	4.03	13.7	1.87	5.0
2	Fomesafen	2	EC	0.5	LB A/A	PRT	32.0	5.49	18.0	2.42	10.7
3	Flumioxazin	51	WDG	0.064	LB A/A	PRT	49.0	8.36	18.3	2.78	8.7
4	Metribuzin	75	DF	0.5	LB A/A	POT	5.3	1.04	3.7	0.58	1.7
5	Pendimethalin	3.8	CS	1	LB A/A	PRT	32.3	5.29	13.7	1.82	6.3
6	Pendimethalin	3.8	CS	1.5	LB A/A	POT	69.3	11.47	20.3	2.90	10.3
7	Pendimethalin	3.8	CS	0.71	LB A/A	PRT	33.7	5.30	10.7	1.56	9.0
	S-metolachlor	7.62	EC	0.95	LB A/A	PRT					
	Metribuzin	75	DF	0.188	LB A/A	PRT					
8	Pendimethalin	3.8	CS	0.95	LB A/A	PRT	54.0	9.49	23.3	3.21	14.0
	S-metolachlor	7.62	EC	0.95	LB A/A	PRT					
	Metribuzin	75	DF	0.188	LB A/A	PRT					
9	Pendimethalin	3.8	CS	0.71	LB A/A	PRT	47.7	7.55	20.7	2.52	11.0
	Metribuzin	75	DF	0.188	LB A/A	PRT					
10	Pendimethalin	3.8	CS	0.71	LB A/A	POT	26.0	4.15	16.0	2.26	4.3
	Metribuzin	75	DF	0.188	LB A/A	POT					
11	S-metolachlor	7.62	EC	1.3	LB A/A	POT	53.3	8.53	22.7	3.21	8.3
	Halosulfuron	75	WG	0.023	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
12	S-metolachlor	7.62	EC	1.3	LB A/A	POT	48.3	6.81	16.0	2.02	13.7
	Rimsulfuron	25	DF	0.031	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
13	S-metolachlor	7.62	EC	1.3	LB A/A	POT	33.0	4.53	18.7	2.82	8.7
	Metribuzin	75	DF	0.25	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
14	S-metolachlor	7.62	EC	1.3	LB A/A	POT	45.0	8.14	14.7	1.92	12.7
	Clomazone	3	ME	0.5	LB A/A	POT					
15	Untreated					PRT, POT	43.7	6.48	21.3	2.91	12.3
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	Metribuzin	75	DF	0.25	LB A/A	PO1					
LSD (P=.05)							24.05	4.278	13.44	1.787	8.01
Standard Deviation							14.38	2.558	8.04	1.069	4.79
CV							36.23	39.7	47.91	46.07	52.59

Weed Control in Bell Pepper and Tomato – HTRC 2008

Dept. of Horticulture, MSU

Crop Code							PEPPER	PEPPER	PEPPER	TOMATO	TOMATO
Rating Date							29/Sep/08			21/Aug/08	28/Aug/08
Rating Data Type							Harvest	TOTAL	TOTAL	Harvest	Harvest
Rating Unit							KG/PLOT	#	KG/PLOT	KG/PLOT	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	S-metolachlor	7.62	EC	1.9	LB A/A	POT	0.87	48.0	8.11	1.93	11.00
2	Fomesafen	2	EC	0.5	LB A/A	PRT	1.68	75.7	12.51	7.19	15.13
3	Flumioxazin	51	WDG	0.064	LB A/A	PRT	1.52	87.3	15.12	2.12	7.77
4	Metribuzin	75	DF	0.5	LB A/A	POT	0.27	12.3	2.16	2.83	7.61
5	Pendimethalin	3.8	CS	1	LB A/A	PRT	0.98	59.7	9.64	2.39	12.90
6	Pendimethalin	3.8	CS	1.5	LB A/A	POT	1.62	107.7	17.66	0.69	3.01
7	Pendimethalin	3.8	CS	0.71	LB A/A	PRT	1.40	57.7	9.21	4.59	17.09
	S-metolachlor	7.62	EC	0.95	LB A/A	PRT					
	Metribuzin	75	DF	0.188	LB A/A	PRT					
8	Pendimethalin	3.8	CS	0.95	LB A/A	PRT	2.28	101.0	17.31	2.50	13.37
	S-metolachlor	7.62	EC	0.95	LB A/A	PRT					
	Metribuzin	75	DF	0.188	LB A/A	PRT					
9	Pendimethalin	3.8	CS	0.71	LB A/A	PRT	1.74	97.0	15.54	6.22	18.33
	Metribuzin	75	DF	0.188	LB A/A	PRT					
10	Pendimethalin	3.8	CS	0.71	LB A/A	POT	0.73	50.7	7.89	0.35	0.43
	Metribuzin	75	DF	0.188	LB A/A	POT					
11	S-metolachlor	7.62	EC	1.3	LB A/A	POT	1.33	90.3	14.32	3.61	19.19
	Halosulfuron	75	WG	0.023	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
12	S-metolachlor	7.62	EC	1.3	LB A/A	POT	1.82	83.0	11.57	2.51	17.33
	Rimsulfuron	25	DF	0.031	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
13	S-metolachlor	7.62	EC	1.3	LB A/A	POT	1.22	62.3	9.02	2.72	12.53
	Metribuzin	75	DF	0.25	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
14	S-metolachlor	7.62	EC	1.3	LB A/A	POT	2.13	89.3	15.82	0.67	8.54
	Clomazone	3	ME	0.5	LB A/A	POT					
15	Untreated					PRT, POT	1.80	77.7	11.30	5.12	13.98
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	Metribuzin	75	DF	0.25	LB A/A	PO1					
LSD (P=.05)							1.280	35.25	6.216	3.269	8.226
Standard Deviation							0.765	21.08	3.717	1.955	4.920
CV							53.65	28.75	31.47	64.49	41.41

Weed Control in Bell Pepper and Tomato – HTRC 2008

Dept. of Horticulture, MSU

Crop Code							TOMATO	TOMATO	TOMATO	TOMATO	TOMATO
Rating Date							2/Sep/08	10/Sep/08	22/Sep/08	29/Sep/08	
Rating Data Type							Harvest	Harvest	Harvest	Harvest	TOTAL
Rating Unit							KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	S-metolachlor	7.62	EC	1.9	LB A/A	POT	12.59	8.95	8.62	8.41	51.50
2	Fomesafen	2	EC	0.5	LB A/A	PRT	19.05	13.64	13.27	11.54	79.81
3	Flumioxazin	51	WDG	0.064	LB A/A	PRT	7.42	9.40	11.48	4.52	42.70
4	Metribuzin	75	DF	0.5	LB A/A	POT	7.98	15.15	18.32	9.88	61.78
5	Pendimethalin	3.8	CS	1	LB A/A	PRT	13.98	14.18	14.91	7.15	65.51
6	Pendimethalin	3.8	CS	1.5	LB A/A	POT	2.97	3.31	6.25	2.89	19.12
7	Pendimethalin	3.8	CS	0.71	LB A/A	PRT	16.93	13.80	16.92	7.38	76.70
	S-metolachlor	7.62	EC	0.95	LB A/A	PRT					
	Metribuzin	75	DF	0.188	LB A/A	PRT					
8	Pendimethalin	3.8	CS	0.95	LB A/A	PRT	18.55	21.58	21.47	11.82	89.29
	S-metolachlor	7.62	EC	0.95	LB A/A	PRT					
	Metribuzin	75	DF	0.188	LB A/A	PRT					
9	Pendimethalin	3.8	CS	0.71	LB A/A	PRT	20.11	14.67	15.31	11.94	86.58
	Metribuzin	75	DF	0.188	LB A/A	PRT					
10	Pendimethalin	3.8	CS	0.71	LB A/A	POT	2.31	4.12	5.94	3.65	16.81
	Metribuzin	75	DF	0.188	LB A/A	POT					
11	S-metolachlor	7.62	EC	1.3	LB A/A	POT	20.54	15.76	8.34	11.20	78.64
	Halosulfuron	75	WG	0.023	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
12	S-metolachlor	7.62	EC	1.3	LB A/A	POT	12.12	12.16	9.77	10.80	64.70
	Rimsulfuron	25	DF	0.031	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
13	S-metolachlor	7.62	EC	1.3	LB A/A	POT	10.92	10.32	9.85	7.32	53.66
	Metribuzin	75	DF	0.25	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
14	S-metolachlor	7.62	EC	1.3	LB A/A	POT	10.75	12.79	9.04	10.28	52.07
	Clomazone	3	ME	0.5	LB A/A	POT					
15	Untreated					PRT, POT	8.59	11.94	17.67	15.38	72.68
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	Metribuzin	75	DF	0.25	LB A/A	PO1					
LSD (P=.05)							9.746	8.672	10.828	7.349	28.837
Standard Deviation							5.828	5.186	6.475	4.395	17.245
CV							47.3	42.79	51.9	49.14	28.38

Weed Control in Pumpkin and Squash – HTRC 2008

Project Code: WC 108-08-02 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Pumpkin, Squash **Variety: Howden, Burgess Buttercup, Golden Hubbard**
Planting Method: seeded **Planting Date: 6/3/08**
Spacing: 6 inch **Row Spacing: 28 inch; 1 row each crop/plot**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 16 ft wide x 50 ft long

Soil Type: Marlette Fine Sandy Loam **OM: 1.2%** **pH: 6.2**
Sand: 67% **Silt: 17%** **Clay: 16%** **CEC: 4.4**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	6/11/08	9:30 am	87/70	°F	Good	3 SW	61	0% Cloudy	N
PO1	6/24/08	11:00 am	85/73	°F	Good	1 N	62	50% Cloudy	N

Crop and Weed Information at Application

	Height or Diameter	Growth Stage	Density

Notes and Comments
1. Sprays applied with 16 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 tractor mounted sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Spray center 16 ft of plot with tractor; area between plots cultivated until covered with vines.
4. Crops had emerged before preemergence herbicides were applied.

Weed Control in Pumpkin and Squash – HTRC 2008

Dept. of Horticulture, MSU

Trial ID: WC 108-08-02 Study Director: Dr. Bernard Zandstra
Location: HTRC Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Buttercup 23/Jun/08 RATING 1-10	Golden Hubbard 23/Jun/08 RATING 1-10	Pumpkin 23/Jun/08 RATING 1-10	GRFT 23/Jun/08 RATING 1-10	EBNS 23/Jun/08 RATING 1-10
1	Ethalfluralin	3	EC	0.75	LB A/A	PRE	1.7	2.0	1.7	9.0	9.0
	Clomazone	3	ME	0.25	LB A/A	PRE					
2	Ethalfluralin	3	EC	0.75	LB A/A	PRE	2.0	2.3	2.3	9.6	9.3
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Halosulfuron	75	WG	0.023	LB A/A	PRE					
3	Ethalfluralin	3	EC	0.75	LB A/A	PRE	1.3	1.7	1.7	9.7	9.3
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Imazosulfuron	75	WDG	0.1	LB A/A	PRE					
4	S-metolachlor	7.62	EC	1.9	LB A/A	PRE	1.3	1.0	1.0	9.3	9.7
5	Ethalfluralin	3	EC	0.75	LB A/A	PRE	4.7	5.7	5.0	8.3	9.7
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Flumetsulam	80	WDG	0.0057	LB A/A	PRE					
6	Ethalfluralin	3	EC	0.75	LB A/A	PRE	5.3	6.3	6.7	10.0	10.0
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Sulfentrazone	4	F	0.14	LB A/A	PRE					
7	Ethalfluralin	3	EC	0.75	LB A/A	PRE	9.3	10.0	10.0	10.0	10.0
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Flumioxazin	51	WDG	0.016	LB A/A	PRE					
8	Ethalfluralin	3	EC	0.75	LB A/A	PRE	1.3	1.7	1.7	10.0	9.3
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Halosulfuron	75	WG	0.023	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
9	Ethalfluralin	3	EC	0.75	LB A/A	PRE	2.3	1.7	1.7	10.0	9.0
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Imazosulfuron	75	WDG	0.1	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
10	Fomesafen	2	EC	0.5	LB A/A	PRE	5.7	5.0	5.3	9.3	10.0
LSD (P=.05)							1.44	1.43	0.80	1.98	0.82
Standard Deviation							0.84	0.83	0.46	1.15	0.48
CV							23.9	22.35	12.53	12.06	4.99

Weed Control in Pumpkin and Squash – HTRC 2008

Dept. of Horticulture, MSU

Trt No	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	RRPW	WIRA	Buttercup	Golden Hubbard	Pumpkin
Pest Code							RRPW	WIRA			
Crop Variety									Buttercup	Golden Hubbard	Pumpkin
Rating Date							23/Jun/08	23/Jun/08	2/Jul/08	2/Jul/08	2/Jul/08
Rating Data Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
1	Ethalfluralin	3	EC	0.75	LB A/A	PRE	8.7	7.7	2.3	3.0	1.3
	Clomazone	3	ME	0.25	LB A/A	PRE					
2	Ethalfluralin	3	EC	0.75	LB A/A	PRE	9.7	9.7	3.3	4.3	3.0
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Halosulfuron	75	WG	0.023	LB A/A	PRE					
3	Ethalfluralin	3	EC	0.75	LB A/A	PRE	9.3	8.3	2.0	3.0	1.3
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Imazosulfuron	75	WDG	0.1	LB A/A	PRE					
4	S-metolachlor	7.62	EC	1.9	LB A/A	PRE	9.3	8.3	1.0	1.3	1.0
5	Ethalfluralin	3	EC	0.75	LB A/A	PRE	9.7	9.3	7.7	7.7	6.7
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Flumetsulam	80	WDG	0.0057	LB A/A	PRE					
6	Ethalfluralin	3	EC	0.75	LB A/A	PRE	10.0	9.3	7.3	8.3	8.0
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Sulfentrazone	4	F	0.14	LB A/A	PRE					
7	Ethalfluralin	3	EC	0.75	LB A/A	PRE	10.0	10.0	9.3	9.7	10.0
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Flumioxazin	51	WDG	0.016	LB A/A	PRE					
8	Ethalfluralin	3	EC	0.75	LB A/A	PRE	9.3	8.0	3.3	3.3	2.3
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Halosulfuron	75	WG	0.023	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
9	Ethalfluralin	3	EC	0.75	LB A/A	PRE	9.7	8.0	2.3	2.7	1.3
	Clomazone	3	ME	0.25	LB A/A	PRE					
	Imazosulfuron	75	WDG	0.1	LB A/A	PO1					
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1					
10	Fomesafen	2	EC	0.5	LB A/A	PRE	10.0	10.0	7.7	5.7	6.7
LSD (P=.05)							0.85	1.54	1.20	1.40	1.17
Standard Deviation							0.49	0.90	0.70	0.81	0.68
CV							5.17	10.13	15.15	16.62	16.33

Weed Control in Pumpkin and Squash – HTRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	YEFT 2/Jul/08 RATING 1-10	COPU 2/Jul/08 RATING 1-10	COLQ 2/Jul/08 RATING 1-10	EBNS 2/Jul/08 RATING 1-10	RRPW 2/Jul/08 RATING 1-10	WIRA 2/Jul/08 RATING 1-10
1	Ethalfluralin	3	EC	0.75	LB A/A	PRE	8.3	9.0	9.3	5.7	7.0	5.7
	Clomazone	3	ME	0.25	LB A/A	PRE						
2	Ethalfluralin	3	EC	0.75	LB A/A	PRE	8.6	7.7	9.0	7.3	10.0	10.0
	Clomazone	3	ME	0.25	LB A/A	PRE						
	Halosulfuron	75	WG	0.023	LB A/A	PRE						
3	Ethalfluralin	3	EC	0.75	LB A/A	PRE	8.7	7.7	9.0	8.3	8.7	8.7
	Clomazone	3	ME	0.25	LB A/A	PRE						
	Imazosulfuron	75	WDG	0.1	LB A/A	PRE						
4	S-metolachlor	7.62	EC	1.9	LB A/A	PRE	10.0	8.0	6.0	10.0	7.0	4.0
5	Ethalfluralin	3	EC	0.75	LB A/A	PRE	7.3	9.0	9.0	7.3	8.0	9.3
	Clomazone	3	ME	0.25	LB A/A	PRE						
	Flumetsulam	80	WDG	0.0057	LB A/A	PRE						
6	Ethalfluralin	3	EC	0.75	LB A/A	PRE	8.7	10.0	10.0	10.0	10.0	5.7
	Clomazone	3	ME	0.25	LB A/A	PRE						
	Sulfentrazone	4	F	0.14	LB A/A	PRE						
7	Ethalfluralin	3	EC	0.75	LB A/A	PRE	10.0	10.0	10.0	10.0	10.0	9.3
	Clomazone	3	ME	0.25	LB A/A	PRE						
	Flumioxazin	51	WDG	0.016	LB A/A	PRE						
8	Ethalfluralin	3	EC	0.75	LB A/A	PRE	10.0	8.7	9.3	6.3	9.3	9.7
	Clomazone	3	ME	0.25	LB A/A	PRE						
	Halosulfuron	75	WG	0.023	LB A/A	PO1						
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1						
9	Ethalfluralin	3	EC	0.75	LB A/A	PRE	10.0	8.3	9.0	4.7	6.7	4.7
	Clomazone	3	ME	0.25	LB A/A	PRE						
	Imazosulfuron	75	WDG	0.1	LB A/A	PO1						
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1						
10	Fomesafen	2	EC	0.5	LB A/A	PRE	6.7	9.7	9.3	10.0	10.0	10.0
LSD (P=.05)							2.34	1.57	1.44	1.75	1.41	1.83
Standard Deviation							1.36	0.92	0.84	1.02	0.82	1.07
CV							15.42	10.42	9.3	12.81	9.47	13.85

Weed Control in Pumpkin and Squash – HTRC 2008

Dept. of Horticulture, MSU

Crop Variety							Buttercup	Buttercup	Golden Hubbard	Golden Hubbard
Rating Date							6/Oct/08	6/Oct/08	6/Oct/08	6/Oct/08
Rating Data Type							Harvest	Harvest	Harvest	Harvest
Rating Unit							#	KG/PLOT	#	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Ethalfluralin	3	EC	0.75	LB A/A	PRE	24	16.56	32	43.28
	Clomazone	3	ME	0.25	LB A/A	PRE				
2	Ethalfluralin	3	EC	0.75	LB A/A	PRE	29	20.81	26	37.02
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Halosulfuron	75	WG	0.023	LB A/A	PRE				
3	Ethalfluralin	3	EC	0.75	LB A/A	PRE	34	25.36	31	44.29
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Imazosulfuron	75	WDG	0.1	LB A/A	PRE				
4	S-metolachlor	7.62	EC	1.9	LB A/A	PRE	27	14.66	29	30.29
5	Ethalfluralin	3	EC	0.75	LB A/A	PRE	11	8.39	17	25.27
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Flumetsulam	80	WDG	0.0057	LB A/A	PRE				
6	Ethalfluralin	3	EC	0.75	LB A/A	PRE	23	19.28	27	38.52
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Sulfentrazone	4	F	0.14	LB A/A	PRE				
7	Ethalfluralin	3	EC	0.75	LB A/A	PRE	13	15.48	4	7.50
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Flumioxazin	51	WDG	0.016	LB A/A	PRE				
8	Ethalfluralin	3	EC	0.75	LB A/A	PRE	23	16.74	30	39.09
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Halosulfuron	75	WG	0.023	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
9	Ethalfluralin	3	EC	0.75	LB A/A	PRE	22	15.57	28	38.38
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Imazosulfuron	75	WDG	0.1	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
10	Fomesafen	2	EC	0.5	LB A/A	PRE	21	15.83	28	38.83
LSD (P=.05)							12.9	9.848	10.7	16.222
Standard Deviation							7.5	5.741	6.2	9.457
CV							33.21	34.03	24.77	27.61

Weed Control in Pumpkin and Squash – HTRC 2008

Dept. of Horticulture, MSU

Crop Variety							Pumpkin	Pumpkin	Green Pumpkin	Green Pumpkin
Rating Date							6/Oct/08	6/Oct/08	6/Oct/08	6/Oct/08
Rating Data Type							Harvest	Harvest	Harvest	Harvest
Rating Unit							#	KG/PLOT	#	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Ethalfluralin	3	EC	0.75	LB A/A	PRE	21	56.92	2	6.93
	Clomazone	3	ME	0.25	LB A/A	PRE				
2	Ethalfluralin	3	EC	0.75	LB A/A	PRE	27	90.38	3	6.28
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Halosulfuron	75	WG	0.023	LB A/A	PRE				
3	Ethalfluralin	3	EC	0.75	LB A/A	PRE	26	76.71	4	11.83
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Imazosulfuron	75	WDG	0.1	LB A/A	PRE				
4	S-metolachlor	7.62	EC	1.9	LB A/A	PRE	19	47.55	2	6.94
5	Ethalfluralin	3	EC	0.75	LB A/A	PRE	26	80.40	4	13.48
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Flumetsulam	80	WDG	0.0057	LB A/A	PRE				
6	Ethalfluralin	3	EC	0.75	LB A/A	PRE	17	101.16	3	12.91
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Sulfentrazone	4	F	0.14	LB A/A	PRE				
7	Ethalfluralin	3	EC	0.75	LB A/A	PRE	4	36.28	1	1.61
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Flumioxazin	51	WDG	0.016	LB A/A	PRE				
8	Ethalfluralin	3	EC	0.75	LB A/A	PRE	23	62.43	3	7.08
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Halosulfuron	75	WG	0.023	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
9	Ethalfluralin	3	EC	0.75	LB A/A	PRE	25	72.26	3	9.11
	Clomazone	3	ME	0.25	LB A/A	PRE				
	Imazosulfuron	75	WDG	0.1	LB A/A	PO1				
	Sethoxydim	1.53	EC	0.19	LB A/A	PO1				
10	Fomesafen	2	EC	0.5	LB A/A	PRE	24	111.82	6	20.74
LSD (P=.05)							9.8	36.982	3.2	12.332
Standard Deviation							5.7	21.558	1.9	7.189
CV							27.18	29.29	61.94	74.18

Weed Control in Strawberry Fall 2007 – HTRC 2008

Project Code: WC 102-08-01 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Rhubarb **Variety: German Wine**
Planting Method: Root Divisions **Planting Date: 5/21/07**
Spacing: 4 FT **Row Spacing: 6 FT**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 24 ft long; 6 plants/plot

Soil Type: Spinks Loamy Sand **OM: 2.0%** **pH: 5.4**
Sand: 79% **Silt: 17%** **Clay: 4%** **CEC: 8.4**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/3/08	10:45 am	53/38	°F	Moist	4 SE	45	25% Cloudy	N

Crop and Weed Information at Application

Date	Crop or Weed	Height or Diameter	Growth Stage	Density
4/3	Rhubarb			

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.

Weed Control in Strawberry Fall 2007 – HTRC 2008

Dept. of Horticulture, MSU

Trial ID: 102-08-01 Study Director: Dr. Bernard Zandstra
Location: HTRC B.119 Investigator: Rodney Tocco

Pest Code							QUGR		QUGR	CUDO	COLQ
Crop Code						RHUBARB		RHUBARB			
Rating Date						5-1-08	5-1-08	5-19-08	5-19-08	5-19-08	5-19-08
Rating Data Type						RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Pronamide	50	WP	2	lb ai/a	PRE	2.0	4.7	2.3	5.7	4.3	10.0
2	Mesotrione	4	SC	0.094	lb ai/a	PRE	2.0	6.0	3.0	5.0	7.3	10.0
3	Mesotrione	4	SC	0.188	lb ai/a	PRE	4.0	5.7	3.3	4.7	7.7	10.0
4	S-metolachlor	7.62	EC	1.3	lb ai/a	PRE	4.3	6.3	4.3	3.0	8.0	10.0
	Mesotrione	4	SC	0.188	lb ai/a	PRE						
5	Halosulfuron	75	WG	0.047	lb ai/a	PRE	5.0	4.0	4.0	4.3	5.0	10.0
6	Diuron	80	DF	3	lb ai/a	PRE	3.0	4.3	2.7	3.3	8.3	10.0
7	Pendimethalin	3.8	CS	2	lb ai/a	PRE	4.7	5.0	4.7	4.9	8.7	10.0
8	Fomesafen	2	EC	0.25	lb ai/a	PRE	2.3	5.3	3.0	4.3	7.0	10.0
9	Dichlobenil	4	GR	2.8	lb ai/a	PRE	3.3	7.3	4.0	7.7	9.0	9.7
10	Untreated					PRE	1.3	1.0	1.7	2.7	1.7	2.3
LSD (P=.05)							2.58	3.49	2.65	4.16	4.73	0.67
Standard Deviation							1.50	2.03	1.55	2.41	2.75	0.39
CV							47.01	40.97	46.84	52.94	41.12	4.24

Pest Code							DAND	HOWE	
Crop Code									RHUBARB
Rating Date							5-19-08	5-19-08	5-19-08
Rating Data Type							RATING	RATING	NUMBER
Rating Unit							1-10	1-10	#
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	8	9	10
1	Pronamide	50	WP	2	lb ai/a	PRE	8.0	8.0	6
2	Mesotrione	4	SC	0.094	lb ai/a	PRE	8.7	9.3	6
3	Mesotrione	4	SC	0.188	lb ai/a	PRE	8.3	10.0	5
4	S-metolachlor	7.62	EC	1.3	lb ai/a	PRE	9.3	10.0	5
	Mesotrione	4	SC	0.188	lb ai/a	PRE			
5	Halosulfuron	75	WG	0.047	lb ai/a	PRE	7.0	10.0	5
6	Diuron	80	DF	3	lb ai/a	PRE	9.3	9.7	5
7	Pendimethalin	3.8	CS	2	lb ai/a	PRE	7.0	7.7	4
8	Fomesafen	2	EC	0.25	lb ai/a	PRE	8.0	7.3	6
9	Dichlobenil	4	GR	2.8	lb ai/a	PRE	10.0	9.0	5
10	Untreated					PRE	5.7	4.0	5
LSD (P=.05)							3.95	3.65	1.6
Standard Deviation							2.30	2.12	1.0
CV							28.32	25.0	18.47

Weed Control in Strawberry Fall 2007 – HTRC 2008

Project Code: WC 126-08-01 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Strawberry **Variety: Noreaster**
Planting Method: Transplant **Planting Date: 5/5/06**
Spacing: Solid row **Row Spacing: 6 FT**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Thetford Loamy Sand **OM: 1.1%** **pH: 5.3**
Sand: 89% **Silt: 11%** **Clay: 0.1%** **CEC: 3.5**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
FALL	11/13/07	2:15 pm	65/55	°F	Dry	4 N	47	5% Cloudy	N

Crop and Weed Information at Application

Date	Crop or Weed	Height or Diameter	Growth Stage	Density
11/13	Strawberry		dormant	

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. All plots handweeded 2-3 times before harvest in 2008.

Weed Control in Strawberry Fall 2007 – HTRC 2008

Dept. of Horticulture, MSU

Trial ID: WC 126-08-01 Study Director: Dr. Bernard Zandstra
Location: HTRC Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	STRWBERR 5-1-08 RATING 1-10	STRWBERR 5-28-08 RATING 1-10	STRWBERR 6-6-08 RATING 1-10	STRWBERR TOTAL Wt KG/PLOT
1	Terbacil	80	WP	0.4	lb ai/a	FALPRE	1.0	1.3	1.3	5.63
2	S-metolachlor	7.62	EC	1.3	lb ai/a	FALPRE	1.0	1.7	2.0	6.15
3	Acifluorfen	2	L	0.5	lb ai/a	FALPRE	1.3	2.3	1.7	7.09
4	Oxyfluorfen	4	SC	0.5	lb ai/a	FALPRE	1.3	1.3	1.3	6.10
5	Pendimethalin	3.8	CS	1.5	lb ai/a	FALPRE	1.7	2.0	2.0	6.48
6	Sulfentrazone	4	F	0.375	lb ai/a	FALPRE	1.3	3.0	2.7	7.71
7	Diuron	80	WP	2	lb ai/a	FALPRE	2.7	5.0	5.0	3.44
8	Dichlobenil	4	GR	2	lb ai/a	FALPRE	4.0	4.0	4.3	5.01
9	Flumioxazin	51	WDG	0.094	lb ai/a	FALPRE	1.3	2.0	2.0	7.18
10	Untreated					FALPRE	2.0	3.0	3.3	7.17
LSD (P=.05)							1.55	1.64	1.51	2.190
Standard Deviation							0.90	0.95	0.88	1.276
CV							51.21	37.19	34.28	20.6

Weed Control in Apple – Clarksville 2008

Project Code: WC 128-08-01 **Location: Clarksville, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann, Eric Ott
Crop: Apple **Variety: Liberty, Empire, Ida Red**
Planting Method: Transplant **Planting Date: 2005**
Spacing: 4 FT **Row Spacing: 15 FT**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 15 ft wide x 60 ft long

Soil Type: Lapeer Sandy Loam **OM: 2.3%** **pH: 6.4**
Sand: 50% **Silt: 44%** **Clay: 6%** **CEC: 5.9**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPRE	4/17/08	9:15 am	55/47	°F	Good	4.0 SW	66	50% Cloudy	N
LPRE	5/2/08	12:15 pm	/61	°F	Dry	7.0 SW	70	85% Cloudy	N
EPOS	6/4/08	4:00 pm	65/67	°F	Damp	3.0 S	90	100% Cloudy	Y
LPOS	7/8/08	10:30 am	77/71	°F	Damp	5.0 SW	76	50% Cloudy	Y

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/2	ANBG = annual bluegrass	2-4″		moderate
5/2	HOWE = horseweed (marestail)	2-4″		moderate
6/4	APPLE	4-6″	Post Bloom	
6/4	COLQ = common lambsquarters	2-4″	6-10 LF	many
6/4	HOWE = horseweed (marestail)	6-12″	Many LF	many
6/4	COGR = common groundsel	6-12″	Flower	moderate
6/4	SHPU = shepherdspurse	10-16″	Flower	many
7/8	APPLE	2-3″	Fruit	
7/8	COLQ = common lambsquarters	18-24″		many
7/8	HOWE = horseweed (marestail)	2-3″		many
7/8	RRPW = redroot pigweed	4-24″		many
7/8	FAPA = fall panicum	2-4″	4-6 LF	moderate

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. One boom pass on each side of row

Weed Control in Apple – Clarksville 2008

Dept. of Horticulture, MSU

Trial ID: 128-08-01 Study Director: Dr. Bernard Zandstra
Location: CHES Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	APPLE 5-22-08 RATING 1-10	ANBG 5-22-08 RATING 1-10	REFE 5-22-08 RATING 1-10	COCW 5-22-08 RATING 1-10	HOWE 5-22-08 RATING 1-10	APPLE 6-9-08 RATING 1-10
1	Untreated						1.0	4.7	7.0	1.3	1.0	1.0
2	Glyphosate	5.4	L	1	lb ai/a	LPRE	1.0	9.3	9.0	8.7	10.0	1.0
	AMS	100	SG	3.4	lb ai/a	LPRE						
3	BAS 800	70	WG	0.045	lb ai/a	LPRE	1.0	10.0	10.0	6.0	10.0	1.0
	COC	100	SL	1	% v/v	LPRE						
	AMS	100	SG	3.4	lb ai/a	LPRE						
4	BAS 800	70	WG	0.045	lb ai/a	LPRE	1.0	9.7	10.0	8.0	9.3	1.0
	Glyphosate	5.4	L	1	lb ai/a	LPRE						
	COC	100	SL	1	% v/v	LPRE						
	AMS	100	SG	3.4	lb ai/a	LPRE						
5	Simazine	90	WDG	3	lb ai/a	LPRE	1.0	10.0	9.0	8.7	10.0	1.0
	Glyphosate	5.4	L	1	lb ai/a	LPRE						
	AMS	100	SG	3.4	lb ai/a	LPRE						
6	BAS 800	70	WG	0.045	lb ai/a	EPOS	1.0	4.7	6.3	4.0	1.0	1.0
	Glyphosate	5.4	L	1	lb ai/a	EPOS						
	COC	100	SL	1	% v/v	EPOS						
	AMS	100	SG	3.4	lb ai/a	EPOS						
7	BAS 800	70	WG	0.045	lb ai/a	EPOS	1.0	7.7	9.3	1.7	2.0	1.0
	Glyphosate	5.4	L	1	lb ai/a	EPOS						
	Pendimethalin	3.8	CS	1.9	lb ai/a	EPOS						
	COC	100	SL	1	% v/v	EPOS						
	AMS	100	SG	3.4	lb ai/a	EPOS						
8	Flumioxazin	51	WDG	0.256	lb ai/a	EPRE	1.0	10.0	10.0	10.0	10.0	1.0
	Glyphosate	5.4	L	1	lb ai/a	EPRE						
9	Flumioxazin	51	WDG	0.256	lb ai/a	LPRE	1.0	8.7	8.7	10.0	9.3	1.0
	Glyphosate	5.4	L	1	lb ai/a	LPRE						
10	Diuron	80	DF	3	lb ai/a	LPRE	1.0	9.7	9.3	10.0	8.3	1.0
	Glufosinate	1.67	L	1.04	lb ai/a	LPRE,LPO						
11	Diuron	80	DF	3	lb ai/a	LPRE	1.0	9.3	9.7	9.7	9.3	1.0
	Glufosinate	1.67	L	1.47	lb ai/a	LPRE,LPO						
12	Dichlobenil	4	GR	2.8	lb ai/a	EPRE	1.0	9.0	10.0	7.3	4.0	1.0
LSD (P=.05)							0.00	4.08	3.72	3.84	1.93	0.00
Standard Deviation							0.00	2.41	2.20	2.27	1.14	0.00
CV							0.0	28.19	24.35	31.89	16.23	0.0

Weed Control in Apple – Clarksville 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	ANBG	COCW	COLQ	HOWE	SHPU	APPLE
Pest Code												
Rating Date							6-9-08	6-9-08	6-9-08	6-9-08	6-9-08	7-8-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						2.3	1.0	1.0	1.0	1.0	2.0
2	Glyphosate	5.4	L	1	lb ai/a	LPRE	6.3	7.7	1.7	8.7	8.7	1.0
	AMS	100	SG	3.4	lb ai/a	LPRE						
3	BAS 800	70	WG	0.045	lb ai/a	LPRE	7.7	4.0	8.0	7.7	8.3	1.7
	COC	100	SL	1	% v/v	LPRE						
	AMS	100	SG	3.4	lb ai/a	LPRE						
4	BAS 800	70	WG	0.045	lb ai/a	LPRE	9.3	8.0	8.3	9.3	9.3	1.0
	Glyphosate	5.4	L	1	lb ai/a	LPRE						
	COC	100	SL	1	% v/v	LPRE						
	AMS	100	SG	3.4	lb ai/a	LPRE						
5	Simazine	90	WDG	3	lb ai/a	LPRE	8.7	6.7	6.0	9.3	7.7	1.0
	Glyphosate	5.4	L	1	lb ai/a	LPRE						
	AMS	100	SG	3.4	lb ai/a	LPRE						
6	BAS 800	70	WG	0.045	lb ai/a	EPOS	6.3	8.3	9.0	6.3	8.7	1.0
	Glyphosate	5.4	L	1	lb ai/a	EPOS						
	COC	100	SL	1	% v/v	EPOS						
	AMS	100	SG	3.4	lb ai/a	EPOS						
7	BAS 800	70	WG	0.045	lb ai/a	EPOS	7.7	9.0	9.3	7.7	8.7	1.7
	Glyphosate	5.4	L	1	lb ai/a	EPOS						
	Pendimethalin	3.8	CS	1.9	lb ai/a	EPOS						
	COC	100	SL	1	% v/v	EPOS						
	AMS	100	SG	3.4	lb ai/a	EPOS						
8	Flumioxazin	51	WDG	0.256	lb ai/a	EPRE	9.7	10.0	10.0	8.7	10.0	1.3
	Glyphosate	5.4	L	1	lb ai/a	EPRE						
9	Flumioxazin	51	WDG	0.256	lb ai/a	LPRE	6.7	10.0	10.0	5.3	7.0	1.3
	Glyphosate	5.4	L	1	lb ai/a	LPRE						
10	Diuron	80	DF	3	lb ai/a	LPRE	9.3	9.7	10.0	3.3	10.0	1.0
	Glufosinate	1.67	L	1.04	lb ai/a	LPRE,LPO						
11	Diuron	80	DF	3	lb ai/a	LPRE	9.7	7.3	10.0	4.3	10.0	1.0
	Glufosinate	1.67	L	1.47	lb ai/a	LPRE,LPO						
12	Dichlobenil	4	GR	2.8	lb ai/a	EPRE	7.7	6.3	10.0	3.3	9.7	1.3
LSD (P=.05)							4.78	4.01	2.20	2.61	2.51	0.80
Standard Deviation							2.82	2.37	1.30	1.54	1.48	0.47
CV							37.05	32.31	16.74	24.64	18.0	37.1

Weed Control in Apple – Clarksville 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BYGR	HOWE	COLQ	RRPW	APPLE	FAPA
Pest Code							BYGR	HOWE	COLQ	RRPW	APPLE	FAPA
Rating Date							7-8-08	7-8-08	7-8-08	7-8-08	8-21-08	8-21-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						7.0	1.0	1.0	1.0	2.3	10.0
2	Glyphosate	5.4	L	1	lb ai/a	LPRE	9.3	8.3	1.0	5.0	1.0	7.0
	AMS	100	SG	3.4	lb ai/a	LPRE						
3	BAS 800	70	WG	0.045	lb ai/a	LPRE	4.7	8.7	3.7	4.7	1.7	3.3
	COC	100	SL	1	% v/v	LPRE						
	AMS	100	SG	3.4	lb ai/a	LPRE						
4	BAS 800	70	WG	0.045	lb ai/a	LPRE	1.3	7.3	4.0	3.0	2.0	2.0
	Glyphosate	5.4	L	1	lb ai/a	LPRE						
	COC	100	SL	1	% v/v	LPRE						
	AMS	100	SG	3.4	lb ai/a	LPRE						
5	Simazine	90	WDG	3	lb ai/a	LPRE	10.0	7.3	3.3	8.0	1.7	9.7
	Glyphosate	5.4	L	1	lb ai/a	LPRE						
	AMS	100	SG	3.4	lb ai/a	LPRE						
6	BAS 800	70	WG	0.045	lb ai/a	EPOS	9.0	10.0	6.3	8.3	1.0	5.3
	Glyphosate	5.4	L	1	lb ai/a	EPOS						
	COC	100	SL	1	% v/v	EPOS						
	AMS	100	SG	3.4	lb ai/a	EPOS						
7	BAS 800	70	WG	0.045	lb ai/a	EPOS	10.0	9.3	6.3	9.3	2.3	8.3
	Glyphosate	5.4	L	1	lb ai/a	EPOS						
	Pendimethalin	3.8	CS	1.9	lb ai/a	EPOS						
	COC	100	SL	1	% v/v	EPOS						
	AMS	100	SG	3.4	lb ai/a	EPOS						
8	Flumioxazin	51	WDG	0.256	lb ai/a	EPRE	10.0	7.7	10.0	9.3	2.0	8.0
	Glyphosate	5.4	L	1	lb ai/a	EPRE						
9	Flumioxazin	51	WDG	0.256	lb ai/a	LPRE	10.0	2.0	10.0	10.0	1.7	9.3
	Glyphosate	5.4	L	1	lb ai/a	LPRE						
10	Diuron	80	DF	3	lb ai/a	LPRE	10.0	1.0	10.0	9.7	1.7	9.7
	Glufosinate	1.67	L	1.04	lb ai/a	LPRE,LPO						
11	Diuron	80	DF	3	lb ai/a	LPRE	10.0	3.3	10.0	8.7	1.3	9.7
	Glufosinate	1.67	L	1.47	lb ai/a	LPRE,LPO						
12	Dichlobenil	4	GR	2.8	lb ai/a	EPRE	9.3	4.0	10.0	8.3	1.3	3.3
LSD (P=.05)							3.77	2.78	2.90	2.56	1.41	3.69
Standard Deviation							2.23	1.64	1.71	1.51	0.83	2.18
CV							26.55	28.11	27.14	21.29	50.09	30.5

Weed Control in Apple – Clarksville 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LACG	COLQ	HOWE	RRPW
Pest Code							LACG	COLQ	HOWE	RRPW
Rating Date							8-21-08	8-21-08	8-21-08	8-21-08
Rating Data Type							RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10
1	Untreated						10.0	1.7	1.0	8.0
2	Glyphosate	5.4	L	1	lb ai/a	LPRE	9.0	1.3	8.3	7.7
	AMS	100	SG	3.4	lb ai/a	LPRE				
3	BAS 800	70	WG	0.045	lb ai/a	LPRE	7.0	2.3	9.7	6.3
	COC	100	SL	1	% v/v	LPRE				
	AMS	100	SG	3.4	lb ai/a	LPRE				
4	BAS 800	70	WG	0.045	lb ai/a	LPRE	5.0	3.3	8.0	3.7
	Glyphosate	5.4	L	1	lb ai/a	LPRE				
	COC	100	SL	1	% v/v	LPRE				
	AMS	100	SG	3.4	lb ai/a	LPRE				
5	Simazine	90	WDG	3	lb ai/a	LPRE	10.0	3.0	7.3	8.3
	Glyphosate	5.4	L	1	lb ai/a	LPRE				
	AMS	100	SG	3.4	lb ai/a	LPRE				
6	BAS 800	70	WG	0.045	lb ai/a	EPOS	4.3	6.7	9.3	8.0
	Glyphosate	5.4	L	1	lb ai/a	EPOS				
	COC	100	SL	1	% v/v	EPOS				
	AMS	100	SG	3.4	lb ai/a	EPOS				
7	BAS 800	70	WG	0.045	lb ai/a	EPOS	9.0	4.3	10.0	8.0
	Glyphosate	5.4	L	1	lb ai/a	EPOS				
	Pendimethalin	3.8	CS	1.9	lb ai/a	EPOS				
	COC	100	SL	1	% v/v	EPOS				
	AMS	100	SG	3.4	lb ai/a	EPOS				
8	Flumioxazin	51	WDG	0.256	lb ai/a	EPRE	5.3	9.3	6.7	8.0
	Glyphosate	5.4	L	1	lb ai/a	EPRE				
9	Flumioxazin	51	WDG	0.256	lb ai/a	LPRE	9.3	10.0	1.7	9.3
	Glyphosate	5.4	L	1	lb ai/a	LPRE				
10	Diuron	80	DF	3	lb ai/a	LPRE	9.0	6.7	2.7	10.0
	Glufosinate	1.67	L	1.04	lb ai/a	LPRE,LPO				
11	Diuron	80	DF	3	lb ai/a	LPRE	9.7	10.0	6.3	8.7
	Glufosinate	1.67	L	1.47	lb ai/a	LPRE,LPO				
12	Dichlobenil	4	GR	2.8	lb ai/a	EPRE	4.0	10.0	3.0	7.7
LSD (P=.05)							4.44	3.60	3.55	3.08
Standard Deviation							2.62	2.13	2.10	1.82
CV							34.31	37.19	34.02	23.27

Weed Control in Blueberry – TNRC 2008

Project Code: WC 127-08-01 **Location: Fennville, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Blueberry **Variety: Jersey**
Planting Method: **Planting Date:**
Spacing: 5 ft **Row Spacing: 10 ft**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 6 ft wide x 34 ft long

Soil Type: Loamy Sand **OM: 6.9%** **pH: 4.5**
Sand: 78% **Silt: 21%** **Clay: 1%** **CEC: 18.1**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPRE	4/8/08	10:00 am	40/45	°F	Damp	2-3 NE	75	100% Cloud	N
LPRE	5/2/08	9:45 am	72/59	°F	Good	3 SE	69	90% Cloudy	N
EPOS	6/17/08	2:30 pm	76/70	°F	Dry	1 SW	60	0% Cloudy	N
LPOS	7/15/08	1:00 pm	88/70	°F	Dry	2 SW	46	0% Cloudy	N
FALL	N/A	-	-	-	-	-	-	-	-

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/8	Blueberry	4-8′	pre-bud	
4/8	QUGR = quackgrass	2-3″	emerging	
6/17	Blueberry	″	fruit expanding	
6/17	QUGR = quackgrass	6-12″		many
6/17	ORGR = orchardgrass	10-15″		moderate
7/15	Blueberry		Grn. berry	
7/15	QUGR = quackgrass			many
7/15	HOWE = horseweed			many
7/15	CORW = common ragweed			many

Notes and Comments
1. Sprays applied with 2 nozzle boom FF11002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. One boom pass on each side of row.
4. All plots mowed prior to 7/15/08 spray.

Weed Control in Blueberry – TNRC 2008

Dept. of Horticulture, MSU

Trial ID: 127-08-01 Study Director: Dr. Bernard Zandstra
Location: TNRC - Felker Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BLUEBERRY 22/May/08 RATING 1-10	ORGR 22/May/08 RATING 1-10	QUGR 22/May/08 RATING 1-10	CORW 22/May/08 RATING 1-10	HOWE 22/May/08 RATING 1-10
1	Diuron	80	DF	1.6	LB A/A	LPRE	1.0	9.7	7.3	10.0	10.0
	Rimsulfuron	25	DF	0.0625	LB A/A	LPOS					
	NIS	100	SL	0.25	% V/V	LPOS					
2	Diuron	80	DF	1.6	LB A/A	LPRE	1.0	9.3	8.0	10.0	10.0
	Rimsulfuron	25	DF	0.0625	LB A/A	LPOS					
	COC	100	SL	1	% V/V	LPOS					
3	Diuron	80	DF	1.6	LB A/A	LPRE	1.0	10.0	7.3	10.0	10.0
	Halosulfuron	75	WG	0.094	LB A/A	LPOS					
	COC	100	SL	1	% V/V	LPOS					
4	Diuron	80	DF	1.6	LB A/A	LPRE	1.0	9.7	9.0	10.0	10.0
	Terbacil	80	WP	0.8	LB A/A	LPRE					
	COC	100	SL	1	% V/V	LPRE					
	Rimsulfuron	25	DF	0.0625	LB A/A	FALL					
	COC	100	SL	1	% V/V	FALL					
5	Flumioxazin	51	WDG	0.383	LB A/A	EPRE	1.0	9.0	8.7	10.0	10.0
	NIS	100	SL	0.25	% V/V	EPRE					
6	Flumioxazin	51	WDG	0.383	LB A/A	LPRE	1.0	9.7	10.0	10.0	9.7
	Paraquat	2	L	1	LB A/A	LPRE					
	NIS	100	SL	0.25	% V/V	LPRE					
7	Flumioxazin	51	WDG	0.383	LB A/A	LPOS	1.0	7.0	8.7	7.0	7.0
	Glyphosate	5.4	L	1	LB A/A	LPOS					
8	Diuron	80	DF	1.6	LB A/A	LPRE	1.0	8.7	9.0	10.0	10.0
	Glufosinate	1.67	L	1.04	LB A/A	LPRE					
	Glufosinate	1.67	L	1.04	LB A/A	LPOS					
9	Diuron	80	DF	1.6	LB A/A	LPRE	1.0	3.0	3.3	4.0	7.0
	Glufosinate	1.67	L	1.46	LB A/A	LPRE					
	Glufosinate	1.67	L	1.46	LB A/A	LPOS					
10	Flumioxazin	51	WDG	0.256	LB A/A	LPRE	1.0	7.0	4.0	10.0	9.0
	Glufosinate	1.67	L	1.04	LB A/A	LPRE					
	Glufosinate	1.67	L	1.04	LB A/A	LPOS					
11	Mesotrione	4	SC	0.094	LB A/A	LPRE	1.0	5.3	4.7	7.0	10.0
	Glufosinate	1.67	L	1.04	LB A/A	LPRE					
	Glufosinate	1.67	L	1.04	LB A/A	LPOS					
12	Mesotrione	4	SC	0.094	LB A/A	EPRE	1.0	9.7	6.7	10.0	10.0
13	Mesotrione	4	SC	0.188	LB A/A	EPRE	1.0	8.7	3.7	10.0	10.0
14	Untreated					PRE	1.0	5.0	5.3	7.0	7.0
	Sethoxydim	1.53	EC	0.38	LB A/A	EPOS					
	Carfentrazone	1.9	EW	.03	LB A/A	EPOS					
	NIS	100	SL	0.25	% V/V	EPOS					
LSD (P=.05)							0.00	3.86	5.07	4.53	3.71
Standard Deviation							0.00	2.30	3.02	2.70	2.21
CV							0.0	28.79	44.19	30.2	23.88

Weed Control in Blueberry – TNRC 2008

Dept. of Horticulture, MSU

Pest Code							REFE		ORGR	QUGR	CORW
Description								BLUEBERRY			
Rating Date							22/May/08	17/Jun/08	17/Jun/08	17/Jun/08	17/Jun/08
Rating Data Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Diuron	80	DF	1.6	LB A/A	LPRE	9.3	1.0	3.3	6.0	9.7
	Rimsulfuron	25	DF	0.0625	LB A/A	LPOS					
	NIS	100	SL	0.25	% V/V	LPOS					
2	Diuron	80	DF	1.6	LB A/A	LPRE	9.0	1.0	9.0	10.0	10.0
	Rimsulfuron	25	DF	0.0625	LB A/A	LPOS					
	COC	100	SL	1	% V/V	LPOS					
3	Diuron	80	DF	1.6	LB A/A	LPRE	9.3	1.0	7.7	7.3	9.7
	Halosulfuron	75	WG	0.094	LB A/A	LPOS					
	COC	100	SL	1	% V/V	LPOS					
4	Diuron	80	DF	1.6	LB A/A	LPRE	8.7	1.0	7.7	9.0	10.0
	Terbacil	80	WP	0.8	LB A/A	LPRE					
	COC	100	SL	1	% V/V	LPRE					
	Rimsulfuron	25	DF	0.0625	LB A/A	FALL					
	COC	100	SL	1	% V/V	FALL					
5	Flumioxazin	51	WDG	0.383	LB A/A	EPRE	9.3	1.0	8.3	8.0	10.0
	NIS	100	SL	0.25	% V/V	EPRE					
6	Flumioxazin	51	WDG	0.383	LB A/A	LPRE	9.7	1.0	9.3	9.7	10.0
	Paraquat	2	L	1	LB A/A	LPRE					
	NIS	100	SL	0.25	% V/V	LPRE					
7	Flumioxazin	51	WDG	0.383	LB A/A	LPOS	8.3	1.0	6.3	6.7	7.0
	Glyphosate	5.4	L	1	LB A/A	LPOS					
8	Diuron	80	DF	1.6	LB A/A	LPRE	9.0	1.0	7.3	7.3	8.7
	Glufosinate	1.67	L	1.04	LB A/A	LPRE					
	Glufosinate	1.67	L	1.04	LB A/A	LPOS					
9	Diuron	80	DF	1.6	LB A/A	LPRE	6.0	1.0	3.3	4.3	10.0
	Glufosinate	1.67	L	1.46	LB A/A	LPRE					
	Glufosinate	1.67	L	1.46	LB A/A	LPOS					
10	Flumioxazin	51	WDG	0.256	LB A/A	LPRE	8.0	1.0	3.3	3.0	7.0
	Glufosinate	1.67	L	1.04	LB A/A	LPRE					
	Glufosinate	1.67	L	1.04	LB A/A	LPOS					
11	Mesotrione	4	SC	0.094	LB A/A	LPRE	6.0	1.0	3.3	3.7	4.0
	Glufosinate	1.67	L	1.04	LB A/A	LPRE					
	Glufosinate	1.67	L	1.04	LB A/A	LPOS					
12	Mesotrione	4	SC	0.094	LB A/A	EPRE	9.3	1.0	5.3	6.0	9.7
13	Mesotrione	4	SC	0.188	LB A/A	EPRE	9.3	1.0	4.0	4.7	7.0
14	Untreated					PRE	6.3	1.0	5.0	5.0	10.0
	Sethoxydim	1.53	EC	0.38	LB A/A	EPOS					
	Carfentrazone	1.9	EW	.03	LB A/A	EPOS					
	NIS	100	SL	0.25	% V/V	EPOS					
LSD (P=.05)							4.06	0.00	5.15	5.68	4.24
Standard Deviation							2.42	0.00	3.07	3.38	2.52
CV							28.79	0.0	51.54	52.24	28.82

Weed Control in Blueberry – TNRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	VICR	BLUEBERRY	QUGR	CORW	HOWE
Pest Code							VICR		QUGR	CORW	HOWE
Description								BLUEBERRY			
Rating Date							17/Jun/08	29/Jul/08	29/Jul/08	29/Jul/08	29/Jul/08
Rating Data Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
1	Diuron	80	DF	1.6	LB A/A	LPRE	5.3	1.0	6.7	10.0	10.0
	Rimsulfuron	25	DF	0.0625	LB A/A	LPOS					
	NIS	100	SL	0.25	% V/V	LPOS					
2	Diuron	80	DF	1.6	LB A/A	LPRE	5.3	1.0	5.7	9.7	10.0
	Rimsulfuron	25	DF	0.0625	LB A/A	LPOS					
	COC	100	SL	1	% V/V	LPOS					
3	Diuron	80	DF	1.6	LB A/A	LPRE	8.3	1.0	7.0	10.0	10.0
	Halosulfuron	75	WG	0.094	LB A/A	LPOS					
	COC	100	SL	1	% V/V	LPOS					
4	Diuron	80	DF	1.6	LB A/A	LPRE	7.0	1.0	8.0	10.0	9.3
	Terbacil	80	WP	0.8	LB A/A	LPRE					
	COC	100	SL	1	% V/V	LPRE					
	Rimsulfuron	25	DF	0.0625	LB A/A	FALL					
	COC	100	SL	1	% V/V	FALL					
5	Flumioxazin	51	WDG	0.383	LB A/A	EPRE	6.7	1.0	6.7	10.0	10.0
	NIS	100	SL	0.25	% V/V	EPRE					
6	Flumioxazin	51	WDG	0.383	LB A/A	LPRE	8.7	1.0	8.3	9.7	9.7
	Paraquat	2	L	1	LB A/A	LPRE					
	NIS	100	SL	0.25	% V/V	LPRE					
7	Flumioxazin	51	WDG	0.383	LB A/A	LPOS	5.3	1.0	9.0	9.0	10.0
	Glyphosate	5.4	L	1	LB A/A	LPOS					
8	Diuron	80	DF	1.6	LB A/A	LPRE	3.0	1.0	8.7	10.0	10.0
	Glufosinate	1.67	L	1.04	LB A/A	LPRE					
	Glufosinate	1.67	L	1.04	LB A/A	LPOS					
9	Diuron	80	DF	1.6	LB A/A	LPRE	4.0	1.0	9.7	10.0	10.0
	Glufosinate	1.67	L	1.46	LB A/A	LPRE					
	Glufosinate	1.67	L	1.46	LB A/A	LPOS					
10	Flumioxazin	51	WDG	0.256	LB A/A	LPRE	1.7	1.0	9.0	10.0	10.0
	Glufosinate	1.67	L	1.04	LB A/A	LPRE					
	Glufosinate	1.67	L	1.04	LB A/A	LPOS					
11	Mesotrione	4	SC	0.094	LB A/A	LPRE	3.3	1.0	7.0	10.0	10.0
	Glufosinate	1.67	L	1.04	LB A/A	LPRE					
	Glufosinate	1.67	L	1.04	LB A/A	LPOS					
12	Mesotrione	4	SC	0.094	LB A/A	EPRE	5.3	1.0	6.0	9.3	9.7
13	Mesotrione	4	SC	0.188	LB A/A	EPRE	4.7	1.0	4.0	10.0	9.3
14	Untreated					PRE	2.0	1.0	6.7	7.0	6.7
	Sethoxydim	1.53	EC	0.38	LB A/A	EPOS					
	Carfentrazone	1.9	EW	.03	LB A/A	EPOS					
	NIS	100	SL	0.25	% V/V	EPOS					
LSD (P=.05)							5.33	0.00	5.04	2.46	2.34
Standard Deviation							3.18	0.00	3.00	1.47	1.39
CV							62.91	0.0	41.08	15.23	14.5

Weed Control in Blueberry – TNRC 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
Pest Code								ORGR	QUGR	VICR
Description							BLUEBERRY			
Rating Date							21/Aug/08	21/Aug/08	21/Aug/08	21/Aug/08
Rating Data Type							RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10
1	Diuron	80	DF	1.6	LB A/A	LPRE	1.0	9.3	7.3	8.0
	Rimsulfuron	25	DF	0.0625	LB A/A	LPOS				
	NIS	100	SL	0.25	% V/V	LPOS				
2	Diuron	80	DF	1.6	LB A/A	LPRE	1.3	9.7	10.0	8.3
	Rimsulfuron	25	DF	0.0625	LB A/A	LPOS				
	COC	100	SL	1	% V/V	LPOS				
3	Diuron	80	DF	1.6	LB A/A	LPRE	1.3	8.7	8.3	8.7
	Halosulfuron	75	WG	0.094	LB A/A	LPOS				
	COC	100	SL	1	% V/V	LPOS				
4	Diuron	80	DF	1.6	LB A/A	LPRE	1.0	10.0	10.0	9.7
	Terbacil	80	WP	0.8	LB A/A	LPRE				
	COC	100	SL	1	% V/V	LPRE				
	Rimsulfuron	25	DF	0.0625	LB A/A	FALL				
	COC	100	SL	1	% V/V	FALL				
5	Flumioxazin	51	WDG	0.383	LB A/A	EPRE	1.0	9.0	8.3	7.7
	NIS	100	SL	0.25	% V/V	EPRE				
6	Flumioxazin	51	WDG	0.383	LB A/A	LPRE	1.0	10.0	9.7	8.0
	Paraquat	2	L	1	LB A/A	LPRE				
	NIS	100	SL	0.25	% V/V	LPRE				
7	Flumioxazin	51	WDG	0.383	LB A/A	LPOS	1.0	9.0	9.3	9.7
	Glyphosate	5.4	L	1	LB A/A	LPOS				
8	Diuron	80	DF	1.6	LB A/A	LPRE	1.0	9.7	8.7	8.7
	Glufosinate	1.67	L	1.04	LB A/A	LPRE				
	Glufosinate	1.67	L	1.04	LB A/A	LPOS				
9	Diuron	80	DF	1.6	LB A/A	LPRE	1.0	9.3	9.3	9.0
	Glufosinate	1.67	L	1.46	LB A/A	LPRE				
	Glufosinate	1.67	L	1.46	LB A/A	LPOS				
10	Flumioxazin	51	WDG	0.256	LB A/A	LPRE	1.0	9.3	8.3	9.0
	Glufosinate	1.67	L	1.04	LB A/A	LPRE				
	Glufosinate	1.67	L	1.04	LB A/A	LPOS				
11	Mesotrione	4	SC	0.094	LB A/A	LPRE	1.0	9.3	6.3	7.7
	Glufosinate	1.67	L	1.04	LB A/A	LPRE				
	Glufosinate	1.67	L	1.04	LB A/A	LPOS				
12	Mesotrione	4	SC	0.094	LB A/A	EPRE	1.0	8.7	6.3	8.3
13	Mesotrione	4	SC	0.188	LB A/A	EPRE	1.0	6.7	6.0	9.0
14	Untreated					PRE	1.0	9.3	8.3	7.3
	Sethoxydim	1.53	EC	0.38	LB A/A	EPOS				
	Carfentrazone	1.9	EW	.03	LB A/A	EPOS				
	NIS	100	SL	0.25	% V/V	EPOS				
LSD (P=.05)							0.37	2.02	3.66	3.19
Standard Deviation							0.22	1.20	2.18	1.90
CV							21.23	13.16	26.24	22.39

Weed Control in Cherry Fall 2007 and Spring 2008 – Clarksville 2008

Project Code: WC 128-08-03 **Location: Clarksville, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Sweet Cherry **Variety: Heidlefingen, Ulster**
Planting Method: Transplant **Planting Date:**
Spacing: 8 FT in row **Row Spacing: 16 FT**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 10 ft wide x 32 ft long

Soil Type: Dryden Sandy Loam **OM: 1.6%** **pH: 6.8**
Sand: 46% **Silt: 40%** **Clay: 14%** **CEC: 7.2**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
SPR 07	5/03/07								N
FALL	11/1/07								
LPRE	5/2/08	1:15 pm	72/66	°F	Dry	4 SW	73	100%Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
11/1	CHERRY			
11/1	COCW = common chickweed	3-5″		many
11/1	ANBG = annual bluegrass	3-5″		many
5/2	DOBR = downybrome	4-6″		moderate
5/2	COCW = common chickweed	6-8″	flower	moderate
5/2	HOWE = horseweed	3-6″	foliar	moderate

Notes and Comments
1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 backpack sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. One boom pass on each side of row.
4. Treatments 5, 9, 10, and 11 were applied in spring and fall 2007. Treatments 13, 14, and 15 were applied in fall 2007. Other treatments applied in spring 2008.

Weed Control in Cherry Fall 2007 and Spring 2008 – Clarksville 2008

Dept. of Horticulture, MSU

Trial ID: WC 128-08-03 Study Director: Dr. Bernard Zandstra
Location: CHES Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CHERRY 22/May/08 RATING 1-10	ANBG 22/May/08 RATING 1-10	DOBR 22/May/08 RATING 1-10	REFE 22/May/08 RATING 1-10	COCW 22/May/08 RATING 1-10
1	BAS 800	70	WG	0.045	LB A/A	LPRE	1.0	9.0	9.3	9.7	9.3
	Glyphosate	5.4	L	1	LB A/A	LPRE					
	COC	100	SL	1	% V/V	LPRE					
	AMS	100	SG	3.4	LB A/A	LPRE					
2	BAS 800	70	WG	0.045	LB A/A	LPRE	1.0	2.7	5.0	9.3	4.7
	Pendimethalin	3.8	CS	1.9	LB A/A	LPRE					
	COC	100	SL	1	% V/V	LPRE					
	AMS	100	SG	3.4	LB A/A	LPRE					
3	Rimsulfuron	25	DF	0.125	LB A/A	LPRE	1.0	9.3	10.0	10.0	9.0
	Glyphosate	5.4	L	1	LB A/A	LPRE					
4	Flumioxazin	51	WDG	0.373	LB A/A	LPRE	1.0	9.0	8.3	9.7	9.3
5	Simazine	90	WDG	3.6	LB A/A	FALL07	1.0	9.7	8.7	10.0	10.0
6	Dichlobenil	1.4	CS	2.8	LB A/A	LPRE	1.0	8.7	10.0	10.0	9.7
7	Dichlobenil	1.4	CS	4	LB A/A	LPRE	1.0	8.3	9.0	9.7	7.7
8	Dichlobenil	4	GR	4	LB A/A	LPRE	1.0	8.7	7.7	10.0	9.0
9	Dichlobenil	1.4	CS	2.8	LB A/A	FALL07	1.0	9.0	10.0	9.7	10.0
10	Dichlobenil	1.4	CS	4	LB A/A	FALL07	1.0	10.0	10.0	9.7	9.7
11	Dichlobenil	4	GR	4	LB A/A	FALL07	1.7	9.0	10.0	9.7	9.3
12	Untreated				LB A/A		1.0	4.0	7.7	8.0	6.3
13	Dichlobenil	4	GR	4	LB A/A	FALL07	1.0	10.0	8.3	9.0	5.0
14	Dichlobenil	1.4	CS	4	LB A/A	FALL07	1.0	8.0	6.0	8.7	3.7
15	Dichlobenil	1.4	CS	2.8	LB A/A	FALL07	1.0	9.7	7.0	7.7	5.7
LSD (P=.05)							0.50	2.09	3.21	1.67	3.13
Standard Deviation							0.30	1.25	1.92	1.00	1.87
CV							28.55	15.0	22.7	10.63	23.69

Weed Control in Cherry Fall 2007 and Spring 2008 – Clarksville 2008

Dept. of Horticulture, MSU

Pest Code							HOWE		DOBR	HOWE
Crop Name								CHERRY		
Rating Date							22/May/08	30/Jun/08	30/Jun/08	30/Jun/08
Rating Data Type							RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	BAS 800	70	WG	0.045	LB A/A	LPRE	10.0	1.0	8.3	9.3
	Glyphosate	5.4	L	1	LB A/A	LPRE				
	COC	100	SL	1	% V/V	LPRE				
	AMS	100	SG	3.4	LB A/A	LPRE				
2	BAS 800	70	WG	0.045	LB A/A	LPRE	10.0	1.0	7.0	8.7
	Pendimethalin	3.8	CS	1.9	LB A/A	LPRE				
	COC	100	SL	1	% V/V	LPRE				
	AMS	100	SG	3.4	LB A/A	LPRE				
3	Rimsulfuron	25	DF	0.125	LB A/A	LPRE	9.3	1.0	10.0	10.0
	Glyphosate	5.4	L	1	LB A/A	LPRE				
4	Flumioxazin	51	WDG	0.373	LB A/A	LPRE	8.7	1.0	8.3	8.7
5	Simazine	90	WDG	3.6	LB A/A	FALL07	10.0	1.0	9.0	9.7
6	Dichlobenil	1.4	CS	2.8	LB A/A	LPRE	10.0	1.0	10.0	10.0
7	Dichlobenil	1.4	CS	4	LB A/A	LPRE	9.7	1.0	8.7	9.3
8	Dichlobenil	4	GR	4	LB A/A	LPRE	7.7	1.0	7.3	7.0
9	Dichlobenil	1.4	CS	2.8	LB A/A	FALL07	10.0	1.0	8.7	8.7
10	Dichlobenil	1.4	CS	4	LB A/A	FALL07	10.0	1.0	8.7	10.0
11	Dichlobenil	4	GR	4	LB A/A	FALL07	6.0	1.0	9.7	7.3
12	Untreated				LB A/A		10.0	1.0	5.3	3.3
13	Dichlobenil	4	GR	4	LB A/A	FALL07	2.7	1.0	7.7	3.0
14	Dichlobenil	1.4	CS	4	LB A/A	FALL07	8.3	1.0	5.3	3.3
15	Dichlobenil	1.4	CS	2.8	LB A/A	FALL07	4.7	1.0	7.3	3.7
LSD (P=.05)							2.95	0.00	3.95	3.96
Standard Deviation							1.76	0.00	2.36	2.37
CV							20.81	0.0	29.18	31.71

Weed Control in Raspberry – Clarksville 2008

Project Code: WC 131-08-01 **Location: Clarksville, MI**

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
Crop: Raspberry **Variety: Heritage**
Planting Method: Transplant **Planting Date: 5/3/02**
Spacing: Solid row **Row Spacing: 10 FT**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Lapeer Sandy Loam **OM: 1.2%** **pH: 7.0**
Sand: 63% **Silt: 25%** **Clay: 12%** **CEC: 7.0**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/4/08	3:30 pm	68/60	°F	Dry-Damp	1-3 SE	90	100% Cloud	Y

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/4	RASPBERRY	8-16″		good stand
6/4	DOBR = downy brome	12-15″		moderate
6/4	WHCA = white champion	16-24″		moderate
6/4	QUGR = quackgrass	8-12″		moderate

Notes and Comments
1. Sprays applied with 16 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO_2 tractor mounted sprayer.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Spray center 16 ft of plot with tractor; area between plots cultivated until covered with vines.

Weed Control in Raspberry – Clarksville 2008

Dept. of Horticulture, MSU

Trial ID: WC 131-08-01 Study Director: Dr. Bernard Zandstra
Location: CHES Investigator: Rodney Tocco

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code								DOBR	QUGR		DOBR	WHCA
Crop Code							RASP			RASP		
Rating Date							5-22-08	5-22-08	5-22-08	6-4-08	6-4-08	6-4-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated					PRE	1.3	9.3	6.3	1.3	7.7	6.3
	Clopyralid	3	EC	0.125	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.38	lb ai/a	PO1						
2	Mesotrione	4	SC	0.188	lb ai/a	PRE	3.0	8.7	8.7	2.3	8.3	9.3
3	BAS 800	70	WG	0.045	lb ai/a	PRE	1.3	6.3	5.7	1.7	6.3	4.0
4	Flumioxazin	51	WDG	0.192	lb ai/a	PRE	2.7	7.0	9.7	2.3	7.0	3.0
5	Diuron	80	DF	3	lb ai/a	PRE	2.3	6.0	7.7	1.3	6.7	7.0
6	Rimsulfuron	25	DF	0.125	lb ai/a	PRE	4.3	9.3	10.0	3.3	10.0	8.7
LSD (P=.05)							2.07	4.76	6.12	1.68	5.28	4.94
Standard Deviation							1.14	2.62	3.36	0.92	2.90	2.72
CV							45.61	33.66	42.02	45.0	37.88	42.55

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code								QUGR	WHCA		BYGR	YEFT
Crop Code							RASP			RASP		
Rating Date							7-8-08	7-8-08	7-8-08	8-21-08	8-21-08	8-21-08
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated					PRE	1.3	9.3	8.7	1.7	9.7	10.0
	Clopyralid	3	EC	0.125	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.38	lb ai/a	PO1						
2	Mesotrione	4	SC	0.188	lb ai/a	PRE	2.0	5.0	8.3	2.3	3.0	2.7
3	BAS 800	70	WG	0.045	lb ai/a	PRE	2.0	5.3	6.7	1.7	9.7	9.7
4	Flumioxazin	51	WDG	0.192	lb ai/a	PRE	2.7	7.0	6.3	2.3	9.3	9.3
5	Diuron	80	DF	3	lb ai/a	PRE	1.7	8.7	8.0	2.0	8.0	10.0
6	Rimsulfuron	25	DF	0.125	lb ai/a	PRE	2.0	8.7	7.7	2.3	8.7	8.3
LSD (P=.05)							1.40	5.19	5.57	1.87	2.65	2.55
Standard Deviation							0.77	2.85	3.06	1.03	1.46	1.40
CV							39.47	38.89	40.26	49.98	18.08	16.83

Weed Control in Raspberry – Clarksville 2008

Dept. of Horticulture, MSU

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code							WHCA					
Crop Code								RASP	RASP	RASP	RASP	RASP
Rating Date							8-21-08	8-21-08	8-29-08	9-3-08	9-8-08	9-11-08
Rating Data Type							RATING	Height	Harvest	Harvest	Harvest	Harvest
Rating Unit							1-10	m	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
1	Untreated					PRE	9.0	1.21	1.15	2.35	5.21	3.68
	Clopyralid	3	EC	0.125	lb ai/a	PO1						
	Sethoxydim	1.53	EC	0.38	lb ai/a	PO1						
2	Mesotrione	4	SC	0.188	lb ai/a	PRE	9.3	1.13	0.52	1.22	3.33	2.31
3	BAS 800	70	WG	0.045	lb ai/a	PRE	9.3	1.21	0.82	1.44	3.45	2.70
4	Flumioxazin	51	WDG	0.192	lb ai/a	PRE	9.0	1.13	0.57	1.63	4.23	3.21
5	Diuron	80	DF	3	lb ai/a	PRE	9.3	1.15	0.97	2.28	5.54	3.39
6	Rimsulfuron	25	DF	0.125	lb ai/a	PRE	9.0	1.09	0.79	1.60	4.71	2.17
LSD (P=.05)							2.51	0.429	0.721	1.003	2.197	1.585
Standard Deviation							1.38	0.236	0.396	0.551	1.207	0.871
CV							15.04	20.44	49.35	31.46	27.36	29.93

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		
Crop Code							RASP	RASP
Rating Date							9-16-08	
Rating Data Type							Harvest	TOTAL
Rating Unit							KG/PLOT	KG/PLOT
1	Untreated					PRE	6.30	18.68
	Clopyralid	3	EC	0.125	lb ai/a	PO1		
	Sethoxydim	1.53	EC	0.38	lb ai/a	PO1		
2	Mesotrione	4	SC	0.188	lb ai/a	PRE	3.79	11.16
3	BAS 800	70	WG	0.045	lb ai/a	PRE	4.78	13.19
4	Flumioxazin	51	WDG	0.192	lb ai/a	PRE	5.47	15.12
5	Diuron	80	DF	3	lb ai/a	PRE	5.82	18.00
6	Rimsulfuron	25	DF	0.125	lb ai/a	PRE	4.24	13.51
LSD (P=.05)							2.801	6.209
Standard Deviation							1.540	3.413
CV							30.41	22.84