

HORTICULTURAL REPORT

2010 WEED CONTROL RESEARCH ON FRUIT, VEGETABLE, & CHRISTMAS TREE CROPS

NUMBER 74

NOVEMBER 2010

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WEED CONTROL IN HORTICULTURAL CROPS - 2010
FORWORD

This report summarizes the results of weed control experiments on horticultural crops in Michigan in 2010. 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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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.

<u>Abbr.</u>	<u>Common Name</u>	<u>Botanical Name</u>
ALFA	alfalfa	<i>Medicago sativa</i> L.
ANBG	annual bluegrass	<i>Poa annua</i> L.
ANFB	annual fleabane	<i>Erigeron annuus</i> (L.) Pers.
ATRI	Atriplex	<i>Atriplex patula</i> L. (Gray)
BABR	bald brome (upright brome)	<i>Bromus racemosus</i> L.
BEGR	Bermudagrass	<i>Cynodon dactylon</i> L. Pers.
BFTF	birdsfoot trefoil	<i>Lotus corniculatus</i> L.
BHPL	buckhorn plantain	<i>Plantago lanceolata</i> L.
BLDO	broadleaf dock	<i>Rumex obtusifolius</i> L.
BLME	black medic	<i>Medicago lupulina</i> L.
BRFB	British fleabane	<i>Inula britannica</i> L.
BRPL	broadleaf plantain	<i>Plantago major</i> L.
BSPL	blackseed plantain	<i>Plantago rugelii</i> Dcne.
BYGR	barnyardgrass	<i>Echinochloa crus-galli</i> (L.) Beauv.
CABR	California brome	<i>Bromus carinatus</i> L.
CATH	Canada thistle	<i>Cirsium arvense</i> (L.) Scop.
CAWE	carpetweed	<i>Mollugo verticillata</i> L.
CLGC	clammy groundcherry	<i>Physalis heterophylla</i> Nees.
COBD	common burdock	<i>Arctium minus</i> (Hill) Bernh.
COBU	cocklebur	<i>Xanthium strumarium</i> L.
COCW	common chickweed	<i>Stellaria media</i> (L.) Cyrillo
COGR	common groundsel	<i>Senecio vulgaris</i> L.
COLQ	common lambsquarters	<i>Chenopodium album</i> L.
COMA	common mallow	<i>Malva neglecta</i> Wallr.
COMU	common mullien	<i>Verbascum Thapsus</i> L.
COMW	common milkweed	<i>Asclepias syriaca</i> L.
COPU	common purslane	<i>Portulaca oleracea</i> L.
COPW	common pokeweed	<i>Phytolacca americana</i> L.
CORW	common ragweed	<i>Ambrosia artemisiifolia</i> L.
CRWS	creeping woodsorrel	<i>Oxalis corniculata</i> L.
CUDO	curly dock	<i>Rumex crispus</i> L.
CWBS	catchweed bedstraw	<i>Galium aparine</i> L.
DAND	Dandelion	<i>Taraxacum officinale</i> Weber
DOBG	downy brome grass	<i>Bromus tectorum</i> L.
EBNS	eastern black nightshade	<i>Solanum ptycanthum</i> Dun.
FAPA	fall panicum	<i>Panicum dichotomiflorum</i> Michx.
FIBW	field bindweed	<i>Convolvulus arvensis</i> L.
FIPA	field pansy	<i>Viola rafinesquii</i> Greene
FIPC	field pennycress	<i>Thlaspi arvense</i> L.
FISB	field sandbur	<i>Cenchrus incertus</i> M.A.Curtis
GIRW	giant ragweed	<i>Ambrosia trifida</i> L.
GOGR	goosegrass	<i>Eleusine indica</i> (L.) Gaertn.
GORO	goldenrod	<i>Solidago nemoralis</i> Ait.
GIFT	giant foxtail	<i>Setaria faberi</i> Hermm.
GRFT	green foxtail	<i>Setaria viridis</i> (L.) Beauv.
GFPW	greenflower pepperweed	<i>Lepidium densiflorum</i> Schmd.
HABC	hairy bittercress	<i>Cardamine hirsute</i> L.
HANS	hairy nightshade	<i>Solanum sarrachoides</i> Sendtner
HOAL	hoary alyssum	<i>Berteroa incana</i> (L.) DC.
HONE	horsenettle	<i>Solanum carolinense</i> L.

WEED LIST

<u>Abbr.</u>	<u>Common Name</u>	<u>Botanical Name</u>
HOWE	horseweed (marestail)	<i>Conyza canadensis</i> (L.) Scop.
IRFB	Irish fleabane	<i>Inula salicina</i>
JIWE	jimsonweed	<i>Datura stramonium</i> L.
LACG	large crabgrass	<i>Digitaria sanguinalis</i> (L.) Scop
LATH	ladysthumb	<i>Polygonum persicaria</i> L.
MATA	marestail (horseweed)	<i>Conyza canadensis</i> (L.) Scop.
MAYC	marsh yellowcress	<i>Rorippa islandica</i> (Oeder) Barbs
MECW	mouseear chickweed	<i>Cerastium vulgatum</i> L.
MECR	mouseear cress	<i>Arabidopsis thaliana</i> (L.) Heynh
MONO	monolepis	<i>Monolepis nuttalliana</i> Greene
MUTH	musk thistle	<i>Carduus nutans</i> L.
MWCH	mayweed chamomile	<i>Anthemis cotula</i> L.
NLLQ	narrowleaf lambsquarters	<i>Chenopodium desiccatum</i> A. Nels
OEDA	oxeye daisy	<i>Chrysanthemum leucanthemum</i> L.
ORGR	orchardgrass	<i>Dactylis glomerata</i> L.
PAWE	pineappleweed	<i>Matricaria matricarioides</i> (Less) C.L. Porter
PESW	Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i> L.
PERG	perennial ryegrass	<i>Lolium perenne</i> L.
POIV	poison ivy	<i>Rhus radicans</i> L.
PRKW	prostrate knotweed	<i>Polygonum aviculare</i> L.
PRLE	prickly lettuce	<i>Lactuca serriola</i> L.
PRSP	prostrate spurge	<i>Euphorbia maculata</i> L.
PRPW	prostrate pigweed	<i>Amaranthus blitoides</i> S. Wats.
PUDN	purple deadnettle	<i>Lamium purpureum</i> L.
PUSW	purslane speedwell	<i>Veronica serpyllifolia</i> L.
PUVI	puncturevine	<i>Tribulus terrestris</i> L.
QUGR	quackgrass	<i>Agropyron repens</i> (L.) Beauv.
RECL	red clover	<i>Trifolium pratense</i> L.
REFE	red fescue	<i>Festuca rubra</i> L.
RESO	red sorrel	<i>Rumex acetosella</i> L.
ROFB	rough fleabane	<i>Erigeron strigosus</i> Muhl. ex Willd.
RRPW	redroot pigweed	<i>Amaranthus retroflexus</i> L.
RSFI	redstem filaree	<i>Erodium cicutarium</i> (L.) L'Hér. ex Ait.
RUTH	Russian thistle	<i>Salsola iberica</i> L.
SFGE	smallflower geranium	<i>Geranium pusillum</i>
SHPU	shepherdspurse	<i>Capsella bursa-pastoris</i> (L.) Medic.
SPKW	spotted knapweed	<i>Centaurea biebersteinii</i> DC.
STGR	stinkgrass	<i>Eragrostis cilianensis</i> (All.) E. Mosher
SWSW	swamp smartweed	<i>Polygonum coccineum</i> Muhl. ex Willd.
TAFE	tall fescue	<i>Festuca arundinacea</i> Schreb.
TLSW	thymeleaf sandwort	<i>Arenaria serpyllifolia</i> L.
TUPW	tumble pigweed	<i>Amaranthus albus</i> L.
VELE	velvetleaf	<i>Abutilon theophrasti</i> Medic.
VICR	Virginia creeper	<i>Parthenocissus quinquefolia</i> (L.) Planch.
VIPW	Virginia pepperweed	<i>Lepidium virginicum</i> L.
VOAS	volunteer asparagus	<i>Asparagus officinalis</i> L.
WESA	western salsify	<i>Tragopogon dubius</i> Scop.
WHCA	white campion	<i>Silene latifolia</i> Poir.
WHCL	white clover	<i>Trifolium repens</i> L.
WIBW	wild buckwheat	<i>Polygonum convolvulus</i> L.

WEED LIST

<u>Abbr.</u>	<u>Common Name</u>	<u>Botanical Name</u>
WICA	wild carrot	<i>Daucus carota</i> L.
WICH	wild chamomile	<i>Matricaria chamomilla</i> L.
WIGR	witchgrass	<i>Panicum capillare</i> L.
WIMU	wild mustard	<i>Sinapis arvensis</i> L.
WIRA	wild radish	<i>Raphanus raphanistrum</i> L.
WLDGRP	wild grape	<i>Vitis</i> sp.
WLDRASP	wild raspberry	<i>Rubus</i> sp.
YEFC	yellow fieldcress (kiek)	<i>Rorippa sylvestris</i> L.
YEFT	yellow foxtail	<i>Setaria glauca</i> (L.) Beauv.
YEHW	yellow hawkweed	<i>Hieracium caespitosum</i> Dumort.
YENS	yellow nutsedge	<i>Cyperus esculentus</i> L.
YERO	yellow rocket	<i>Barbarea vulgaris</i> R. Br.

CHEMICAL LIST

<u>COMMON NAME</u>	<u>TRADE NAME</u>	<u>FORMULATION</u>	<u>MANUFACTURER</u>
2,4-D amine	Weedar 64	3.8 L	Nufarm Inc.
acetochlor	Harness	7.0 E	Monsanto
acetochlor	Surpass	6.4 E	Dow Agrosciences
acifluorfen	Ultra Blazer	2 L	United Phosphorus
atrazine	Aatrex	4 L	Syngenta
bensulide	Prefar	4 EC	Gowan
bentazon	Basagran	4 L	Arysta
bromoxynil	Buctril	4 EC	Bayer CropScience
carfentrazone	Aim	2.0 EC	FMC
chlorimuron-ethyl	Classic	25 WDG	DuPont
clethodim	Intensity One	0.97 EC	UAP
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
dicamba	Clarity	4 L	BASF
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 WG	Valent
flumioxazin	Sureguard	51 WDG	Valent
fluroxypyr	Starane Ultra	2.8 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
glufosinate	Rely 200	1.67 L	Bayer CropScience
glufosinate	Rely 280	2.34 L	Bayer CropScience
glyphosate	Roundup Weath. Max	5.5 L	Monsanto
glyphosate	Touchdown Total	4.17 L	Syngenta
glyphosate	Roundup Original	4 L	Monsanto
glyphosate	Roundup Ultra	4 L	Monsanto

CHEMICAL LIST

<u>COMMON NAME</u>	<u>TRADE NAME</u>	<u>FORMULATION</u>	<u>MANUFACTURER</u>
glyphosate	Roundup Ultramax	5 L	Monsanto
halosulfuron	Permit	75 WG	Gowan
halosulfuron	Sandea	75 WG	Gowan
hexazinone	Velpar ULV	75 SG	DuPont
hexazinone + sulfometuron	Westar	75 WDG	DuPont
imazamox	Raptor	1 AS	BASF
imazapic	Plateau	70 WG	BASF
imazethapyr	Pursuit	2 EC	BASF
imazosulfuron	V 10142	75 WDG	Valent
indaziflam	Alion	1.67 CS	Bayer CropScience
isoxaben	Gallery	75 DF	Dow Agrosciences
linuron	Lorox	50 DF	DuPont
mesotrione	Callisto	4 SC	Syngenta
metribuzin	Sencor	75 DF	Bayer CropScience
napropamide	Devrinol	50 DF	United Phosphorus
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 Inteon	2 L	Syngenta
pendimethalin	Prowl	3.3 EC	BASF
pendimethalin	Prowl H2O	3.8 ACS	BASF
phenmedipham	Spin-Aid	1.3 L	Bayer CropScience
phenmedipham 0.6 lb ai+	Betamix	1.3 L	Bayer CropScience
desmedipham 0.6 lb ai+			
prometryn	Caparol	4 L	Syngenta
pronamide	Kerb	50 WP	Dow Agrosciences
propachlor	Ramrod	4 L	Monsanto
pyraflufen-ethyl	Venue	0.2 SC	Nichino
pyrazon	Pyramin	68 DF	Arysta
quizalofop p-ethyl	Assure II	0.88 EC	DuPont
quizalofop p-ethyl	Targa	0.88 EC	Gowan
rimsulfuron	Matrix	25 DF	DuPont
rimsulfuron	Pruven	25 DF	MANA
saflufenacil	Treevix	70 WG	BASF
sethoxydim	Poast	1.53 EC	BASF
simazine	Princep	90 DF	Syngenta
s-metolachlor	Dual Magnum	7.62 EC	Syngenta
s-metolachlor 2.68 lb ai+	Lumax	3.948 L	Syngenta
mesotrione 0.268 lb ai+			
atrazine 1.0 lb ai			
s-metolachlor 3.34 lb ai+	Camix	3.67 L	Syngenta
mesotrione 0.33 lb ai			
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 WDG	TKI

CHEMICAL LIST

<u>COMMON NAME</u>	<u>TRADE NAME</u>	<u>FORMULATION</u>	<u>MANUFACTURER</u>
topramezone	Impact	2.8 L	Ambac
triclopyr	Garlon	3 SC	Dow Agrosciences
trifloxysulfuron	Envoke	75 WG	Syngenta
trifluralin	Treflan	4 EC	Dow Agrosciences
triflusulfuron	Upbeet	50 WDG	DuPont
quinclorac	Facet	75 DF	BASF

ADJUVANTS

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

TEMPERATURE AND PRECIPITATION DATA

MSU Horticulture Teaching and Research Center

Recorded at
MSU Horticulture Teaching and Research Center (HTRC)
East Lansing, Michigan
2010

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	78.9	49.1		1	72.4	61.9	0.05	1	80.6	63.5	
2	78.7	59.2		2	71.5	54.7	0.4	2	72.9	61.2	0.61
3	71.3	44.7	0.09	3	72.6	52.9		3	75.2	60.5	
4	69.8	36.2		4	72.9	44.3		4	78.7	53.5	0.1
5	69.9	46.7	0.06	5	66.5	55	0.01	5	78.4	60.2	0.55
6	68.5	48.5	0.82	6	64.3	47.4		6	67.7	55.4	0.98
7	69	51.4	0.8	7	58.6	46.3	1.1	7	70.5	48.6	
8	58.9	33.2	0.03	8	49	38.1	0.02	8	69	47.7	0.12
9	46.9	31.8		9	55.6	32.1		9	77.2	56.2	0.01
10	69.2	26.4		10	57.6	29.2		10	75.9	56.8	
11	66.2	44.4		11	46.6	41.2	0.7	11	78.9	59.9	0.1
12	61.4	31.4		12	51.1	41.3		12	84.9	69.4	
13	55.3	41.4	0.06	13	65.5	44.3	0.7	13	74.4	62.1	
14	69.4	40.3		14	63.9	48.1		14	75.3	65	0.04
15	80.7	48.4		15	64.9	45.4		15	74.8	61.4	
16	68.6	42.4		16	65.5	40.6		16	73.5	64.7	0.04
17	46.8	36.6		17	66.8	46		17	77.9	60	
18	52.1	32.9		18	65.4	47.9	0.05	18	87.8	58.1	0.24
19	62.6	28.4		19	76.7	42.2		19	80.7	64.9	
20	66.1	32.9		20	81.2	48		20	80	61.3	
21	69.4	35.8		21	69.3	58	0.97	21	81.5	57.5	
22	61.1	34		22	75.6	57.7	0.02	22	82.6	63.9	0.74
23	64.2	31.7		23	83	52.7		23	86	65.6	0.26
24	56.6	48.5	0.01	24	85	61.9		24	79.5	68	
25	55.3	47.3	0.14	25	82.7	60.1		25	79.5	52.8	
26	62.6	44		26	90.4	60		26	83	64.9	
27	56.4	35.2		27	85.6	66.8		27	82.1	64.4	0.13
28	60.2	29.6		28	85.5	60.4		28	80.1	64.8	
29	64.9	31.1		29	84.8	58.2		29	70.3	54.5	
30	78.8	52.6	0.01	30	86.9	56.6		30	72	45.2	
				31	81.7	65.1	0.07				

TEMPERATURE AND PRECIPITATION DATA

MSU Horticulture Teaching and Research Center

Recorded at
MSU Horticulture Teaching and Research Center (HTRC)
East Lansing, Michigan
2010

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	76	49.1		1	82.4	59.9		1	83.9	69.6	0.22
2	79.6	49.7		2	83	61.5		2	74	66.1	0.22
3	83.7	52.1		3	85.5	71.6		3	73.3	55.4	0.41
4	90	59.8		4	85.4	67.2		4	60.9	49.9	
5	89.2	73.1		5	83.9	67.3		5	70.4	42.6	
6	90	68.5		6	78.7	60		6	71.6	56.2	0.13
7	91.3	69.9		7	80.5	52.2		7	79.1	61.1	
8	84.7	70.8	0.16	8	84.8	66.6		8	63.5	54.2	
9	85.4	68.8		9	81.8	71.1	0.26	9	66.8	50.3	
10	84.8	59.6		10	87.9	64.4		10	67.6	42.2	
11	85.1	61.3	0.01	11	79.8	64.2	0.26	11	60.9	51	0.45
12	81.5	65.4	0.06	12	87.8	70.5		12	74	54.7	
13	80.7	66		13	86.8	67.2		13	76.6	52.1	
14	85	59.7		14	81.7	70.5		14	70.6	48	
15	89.3	70.3	0.7	15	86.3	67.1		15	71.8	41.8	
16	85.8	61.4		16	76.5	60.7		16	66.8	54.2	1.34
17	86.2	67.5		17	78.7	55.4		17	66.3	51.5	
18	84.7	63.2		18	78.9	59.2	0.01	18	66.6	53.7	0.38
19	80.7	68.6	0.04	19	83.9	58.6		19	71.1	51.1	
20	82.2	63.9	0.03	20	86.7	63.5		20	65.6	55.4	
21	85.1	65.9		21	79.2	69.2	0.04	21	85.8	58.4	0.15
22	79.5	58.6	0.52	22	84	65.1		22	76.6	60.1	
23	87.3	73	0.12	23	73.5	63.6		23	86.5	60.2	
24	81	70.9	0.1	24	77.2	58		24	80.6	57	0.01
25	81.5	63.3		25	76.9	58.8		25	58.7	49	
26	84.7	57.5		26	75.1	50.4		26	56.8	42.5	
27	84	58.3		27	78.3	45.9		27	60.8	43.1	0.03
28	84.7	70.3		28	83.2	55.4		28	62.4	49.3	0.14
29	82.3	59.8		29	91.1	58.8		29	71.7	39.4	
30	82.3	55.4		30	89.3	65.9		30	72.1	48.1	0.01
31	76	64.3		31	88.2	70.6					

TEMPERATURE AND PRECIPITATION DATA

MSU Muck Soils Research Station

Recorded at
MSU Muck Soils Research Station (Muck Farm)
Laingsburg, Michigan
2010

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				1	74.1	62.8	0.06	1	74.1	62.8	0.06
2				2	71.5	54.7	0.44	2	71.5	54.7	0.44
3			0.1	3	74.2	48	0.01	3	74.2	48	0.01
4				4	74.5	39.2		4	74.5	39.2	
5			0.08	5	68.1	46.5	0.08	5	68.1	46.5	0.08
6			1.37	6	64.6	46.6		6	64.6	46.6	
7			0.51	7	56	43.7	1.38	7	56	43.7	1.38
8			0.03	8	48.8	36.8	0.03	8	48.8	36.8	0.03
9				9	55.1	31		9	55.1	31	
10				10	57.9	26.7		10	57.9	26.7	
11				11	46.9	40.9	0.81	11	46.9	40.9	0.81
12				12	52.3	41.2		12	52.3	41.2	
13	55.9	41.4	0.2	13	64.4	44.8	0.59	13	64.4	44.8	0.59
14	70.4	35.8		14	64	45		14	64	45	
15	81.1	50.8		15	63.9	38.1		15	63.9	38.1	
16	70	41.5		16	65.6	35.7		16	65.6	35.7	
17	45.3	36.3		17	66.4	36.5		17	66.4	36.5	
18	51.3	31.4		18	67.2	44.7	0.04	18	67.2	44.7	0.04
19	61.7	27.3		19	78.3	36.3		19	78.3	36.3	
20	65.3	30.8		20	82.2	42.6		20	82.2	42.6	
21	69.3	30.8		21	70.4	53	0.74	21	70.4	53	0.74
22	59	29.7		22	75.7	56.4	0.05	22	75.7	56.4	0.05
23	64.6	28.6		23	83.6	50.1		23	83.6	50.1	
24	58.6	49.6	0.04	24	86.1	61.7		24	86.1	61.7	
25	55.4	47.3	0.19	25	84	55.8		25	84	55.8	
26	61	35.5		26	88.8	56.4		26	88.8	56.4	
27	56	33.2		27	85.9	58.1		27	85.9	58.1	
28	60.6	26.1		28	84.9	52.5		28	84.9	52.5	
29	65.6	28	0.01	29	85.4	53.3		29	85.4	53.3	
30	80.9	54.5		30	88.7	52.9		30	88.7	52.9	
				31	82.8	64.6	0.03				

TEMPERATURE AND PRECIPITATION DATA

MSU Muck Soils Research Station

Recorded at
MSU Muck Soils Research Station (Muck Farm)
Laingsburg, Michigan
2010

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	76.3	37.8		1	83.3	58.8		1	85.8	63.9	0.41
2	82.1	42		2	83.2	58.1		2	74.5	64.7	0.17
3	86.3	46.7		3	86.2	66.5		3	73.3	55.9	0.48
4	91.4	51.6		4	85.5	62.4		4	59.8	44.7	
5	91.7	68.1		5	83.7	59.1		5	70.5	35.9	
6	91.5	62.1		6	78.7	50.8		6	71.1	55.3	0.16
7	92.1	65.7		7	81.4	45.8	0.01	7	79.9	60.9	
8	86.1	66.3	0.52	8	85.6	65.5		8	62.9	54.4	
9	84.7	63	0.02	9	83.1	68.5	0.03	9	66.4	39.2	
10	86.8	54.4		10	89.4	62.1		10	69.1	35	
11	86.1	56.4	0.07	11	82.2	58.8	0.17	11	62.6	50.4	0.54
12	83.3	63.8	0.07	12	87	66.2		12	74.4	49.9	
13	82.1	61.7		13	88.4	60.3		13	76.7	45.2	
14	86.3	57.8		14	83.4	67		14	70.8	37.1	
15	89.8	69.2	0.42	15	88.4	64.1		15	73.3	34.9	
16	86.8	56.3		16	77.3	53	0.01	16	66.1	53.7	1.24
17	87.3	60		17	78.3	50.1		17	65.8	47.7	
18	85.1	57.6		18	80.2	56.2		18	67.7	50.9	0.46
19	80.7	68.6	0.01	19	85.6	52.1		19	70.2	49.6	
20	81.2	64.1	0.03	20	88.6	59.9		20	66.3	53.7	
21	85	61.1		21	80.8	68.6	0.02	21	85.9	60.1	0.25
22	80.2	52.9	0.65	22	84.4	63.2		22	76.3	55.2	
23	88.1	72.5	0.14	23	73.8	59.3		23	86.5	56.3	
24	81.2	71.3	0.1	24	77.3	53.7		24	80.9	57.3	
25	80.9	60.4		25	77.9	53.9		25	58.5	49.3	
26	85.7	52.9		26	75.3	39.5		26	56.2	36.6	
27	85.3	54.5		27	80.3	40		27	59.5	37.2	
28	83.8	65	0.24	28	85.7	50		28	62.6	47.6	0.14
29	82.3	51.3		29	92.6	52.6		29	71.7	35.3	
30	83.4	50.8		30	91	62.1		30	73.2	43.5	
31	76.7	60.5		31	90	64.1					

TEMPERATURE AND PRECIPITATION DATA

MSU Clarksville Horticulture Research Station

Recorded at
MSU Clarksville Horticulture Research Station (Clarksville)
Clarksville, Michigan
2010

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	80.6	51.2		1	76.6	60.3	0.09	1	80.7	59.5	
2	80.4	59.7		2	65.2	52.7	0.38	2	73.6	61.2	0.93
3	67.1	42.9	0.35	3	71.4	52		3	75.2	57.5	
4	69	37.9	0.01	4	73.7	45.3		4	76.7	49.3	0.02
5	68	46.5	0.16	5	66	52.8	0.01	5	78.2	57.8	0.62
6	61.1	46.3	2.19	6	62.2	44.7		6	65.9	51.2	0.05
7	66.4	43.5	0.37	7	48.6	44	0.56	7	70.5	45.4	
8	44.6	31.6	0.01	8	46.2	35.2	0.03	8	66.2	46.8	0.16
9	45	29.9		9	54	28.9		9	76.6	56.5	0.15
10	69.5	27.5		10	58.5	28.8		10	73.2	53.4	
11	66	42.3	0.01	11	45.9	38.4	0.69	11	80.7	59.5	
12	62.6	34.4		12	50.4	39.7	0.01	12	80.1	64.4	
13	54.9	41.2	0.1	13	63.1	43.1	1.41	13	74.2	58.7	0.01
14	73	40.8		14	60.6	47.4		14	75.1	61.7	
15	79.4	54.6		15	63.7	41.2		15	72.8	58.4	0.1
16	65.4	39.9		16	65.5	41.3		16	69.5	59.7	0.01
17	47.8	32		17	68.6	43.8		17	76.7	52.8	0.01
18	52.9	29.2		18	64.8	49.4		18	86.3	61.4	0.15
19	63.2	29.8		19	77.1	44		19	79.8	63	
20	65	35.6		20	79.1	46.8		20	79.3	59.7	
21	66.4	34.1		21	67.6	55.7	0.54	21	82.6	58.4	
22	60.3	32.5		22	72.9	56	0.01	22	80.6	63.2	1.16
23	64.5	32.5		23	84	54.9		23	83.7	66.3	0.31
24	61.5	45.7	0.03	24	87.5	62.7		24	77.4	62.6	
25	52.3	44.7	0.3	25	84.6	60.7		25	78.4	53	
26	65.4	43		26	89.4	61.4		26	81.8	66.6	
27	57	31.1		27	82.8	62.9		27	77.6	62.9	0.8
28	59.6	28.6		28	85.5	52.7		28	76.6	61.3	
29	66.5	35		29	86	60		29	68.5	49.3	
30	78	50.4	0.02	30	87.6	59.1		30	69.7	45.7	
				31	80	64.1	0.09				

TEMPERATURE AND PRECIPITATION DATA

MSU Clarksville Horticulture Research Station

Recorded at
MSU Clarksville Horticulture Research Station (Clarksville)
Clarksville, Michigan
2010

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	75.4	46.4		1	82.5	61.3		1	79.3	68.3	0.11
2	79.6	53.1		2	82.5	62.3		2	73.5	67.2	0.2
3	82.9	57.2		3	84.8	68.2		3	70.5	54	0.5
4	89.3	60.7		4	81	67.8		4	59	48.1	
5	88.8	75.1		5	81	63.7		5	69.1	43	0.02
6	89	69.3	0.05	6	78.1	57.5		6	70.9	55.2	0.2
7	90.2	68.3		7	80.6	55		7	74.2	58.6	
8	81.1	70.3	1.63	8	83.8	67.3	0.19	8	63.1	52	
9	84.2	68.4		9	82.7	69.3	0.17	9	66.6	45.7	
10	83.9	60.9	0.38	10	88.5	64.9		10	70.9	42.8	
11	82.3	63.5	0.22	11	81.5	66.5	0.53	11	56.2	49.3	0.52
12	79.6	64.3	0.08	12	88	68.9		12	73.4	49.8	0.01
13	81.8	64.6		13	87.4	66.1		13	73.8	50.1	
14	85.5	62.5		14	79.6	70.3		14	69.6	44.2	
15	86.8	66.7	0.05	15	83.3	64.8		15	72.8	43.4	
16	84.7	61.8		16	74.3	58.2		16	64.6	52.8	2.76
17	85	67.8		17	74.3	57.3		17	65.9	49.8	0.01
18	79.5	65.1	0.19	18	79.4	58.4		18	64.2	51.9	0.49
19	80.6	67	0.03	19	83.5	59.9		19	70.2	47.4	
20	80.6	62.4	0.2	20	88	63.7		20	65.4	51.2	
21	82.8	65.3		21	80.7	65.6	0.51	21	84.4	58.4	0.28
22	76.7	60.9	1.04	22	82.6	61.4		22	75.5	58.9	0.01
23	84.4	71.6	0.13	23	75.7	57.8		23	85.7	57.8	
24	79.6	68.8	0.32	24	77.2	58.8		24	78.9	56.8	
25	81.5	64		25	75.1	56		25	57.8	46.3	
26	84	59.5		26	73.3	46.8		26	59.1	40.2	
27	83.6	59.9		27	78.2	46.9		27	62.3	40.7	0.01
28	82.7	67.5	0.01	28	84	57.6		28	64.8	48.2	0.02
29	78.9	56.8		29	90.6	56.4		29	70.2	41.2	
30	80.5	56.2		30	90	67.7		30	70.7	48.3	
31	79	64.7		31	89.1	69.7					

TEMPERATURE AND PRECIPITATION DATA

MSU Trevor Nichols Research Complex

Recorded at
MSU Trevor Nichols Research Complex (Fennville)
Fennville, Michigan
2010

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	82.7	52		1	73.1	58.4	0.63	1	80.4	54.5	0.01
2	82	61.1		2	65.8	52.3	0.42	2	70.5	56.5	2.31
3	65.1	43.9	0.39	3	68.1	50.9		3	70.1	53.1	0.02
4	70.8	36.9	0.11	4	75.6	43.1		4	78.9	49	
5	67.2	43.4	0.13	5	68.8	51.7	0.01	5	77.7	59.9	1.8
6	69	49.3	0.58	6	57.8	40.9		6	67.5	53.4	0.01
7	69.2	42.3	0.29	7	55.4	41.5	0.33	7	66.1	46.2	
8	50.9	32.8	0.01	8	45.1	36.7	0.01	8	62.2	45.6	0.29
9	43.5	30.3		9	50.4	28.5		9	76.7	57.9	0.01
10	68.8	29.8		10	61.4	29.2		10	73.5	54.3	
11	67.7	42.4		11	50.2	41.7	0.83	11	86.7	60.7	
12	66.8	39.5		12	51.6	42.6	0.01	12	76.8	57.4	
13	60.6	45.2	0.05	13	65.3	45.6	1.61	13	69.9	56.2	
14	77.3	45.6		14	61.7	48.1		14	72.6	61	0.04
15	78.9	53.7		15	63	40.2		15	78	63.1	1.24
16	67.9	40.7		16	68.3	41.4		16	75.7	59.9	0.04
17	48.2	35.5		17	67.9	47.7		17	82.1	56	
18	49.4	30.9		18	65.8	50.3		18	86.4	64.6	0.35
19	57.9	32.6		19	78.2	43		19	80.2	63.5	
20	65.1	32.9		20	81	42.2		20	80.1	60.7	
21	52.8	31.1		21	69.2	56.2	0.66	21	83.7	57.7	
22	60.3	37.2		22	72.2	54.2	0.01	22	81.4	65.4	1.5
23	68.7	31.7		23	88.8	55.3		23	83.3	68	1.22
24	60.4	46.6	0.03	24	92	66.7		24	74.4	62.9	
25	58.8	48.3	0.17	25	89.8	62.3		25	80.7	56	
26	65.9	43.6		26	88.6	62.6	0.01	26	79.2	65.4	
27	53.2	37.8		27	78.9	60.7		27	79.6	64.2	0.03
28	56.7	27.1		28	77.1	53.6		28	78.6	63.9	
29	72.8	35.6		29	86.4	56.2		29	70.5	50.5	
30	78.5	52.8		30	87.2	59.4		30	70.8	46.2	
				31	79.1	58.2	0.57				

TEMPERATURE AND PRECIPITATION DATA

MSU Trevor Nichols Research Complex

Recorded at
MSU Trevor Nichols Research Complex(Fennville)
Fennville, Michigan
2010

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	75.8	46.7		1	81.9	60.2		1	77.5	68.1	0.06
2	80	54.9		2	82	62.1		2	77.3	66.9	0.16
3	81.3	53		3	84.7	69.7	0.02	3	70.9	56.5	0.19
4	88.3	59.3		4	81.2	69		4	63	54.4	0.01
5	87.1	71.4		5	80.2	68.8		5	69.8	56.4	0.04
6	87.2	68.5	0.15	6	78.3	60.6		6	77.2	58.8	0.09
7	91.5	67.4	0.01	7	80.1	59.4		7	75.7	60.8	
8	80.6	69.4	0.92	8	84.6	67.4	0.03	8	64.1	55.1	
9	83.9	63.4		9	85	69.3	0.74	9	69.5	49.8	
10	82.7	61.2		10	90.4	65.2		10	71.8	43.9	
11	82.6	64.7	0.31	11	85	69.7	0.49	11	58.4	54	0.36
12	77.5	66.2	0.42	12	89.7	69		12	74.3	54.4	
13	84.1	66.3	0.04	13	91	67.5		13	74.4	51.6	
14	88.1	63.1		14	82.6	69.6		14	71.6	49.4	
15	84.8	66.5	0.65	15	80.2	69.1		15	73.9	49	
16	83.9	62.5		16	75.4	68.8		16	67.9	55.9	2.59
17	81.8	68.5		17	77.9	62.4		17	68.6	46.4	0.01
18	86.5	65.9		18	76.7	61.2	0.01	18	66.7	53.2	0.37
19	82.1	64.8		19	82.3	60.7		19	69.3	47.4	
20	81	63	0.09	20	91.2	65.8		20	68.7	55	
21	82.3	64.3		21	79.4	67.9	0.56	21	84.3	61.3	0.1
22	78.1	61.1	1.89	22	80.2	61.9		22	75.9	58	
23	85.2	69.5	1.21	23	79.8	58.9		23	86.7	58	
24	78.5	67.6	0.69	24	80.9	57.9		24	81.1	59.5	0.03
25	83.2	65.3		25	76.9	57		25	59.6	49	
26	83.1	60.2		26	76.6	47.9		26	61.6	41.9	
27	84.5	61.7		27	77.3	49.1		27	67	41.3	
28	82.5	66.9		28	86.5	56.6		28	66.1	47.9	
29	80.2	60.4		29	89.6	58.9		29	70.6	40.6	
30	79	55.9		30	90.2	68.6		30	70.2	47.9	
31	79.7	65.6	0.02	31	90	68.7					

TEMPERATURE AND PRECIPITATION DATA

Fremont and Grant

Recorded at
City of Fremont
Fremont, Michigan
2010

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	80.1	47.3		1	71.6	58.7	0.04	1	81.3	54.7	
2	79.3	62.8		2	64.5	53	0.49	2	78	60.1	0.21
3	67.7	42.8	0.32	3	67.2	50.4		3	76.2	51.1	0.02
4	68.5	36.6	0.1	4	73.1	41.4		4	73.5	46.8	0.06
5	67.4	45.6	0.13	5	68.7	51.5	0.04	5	79.5	56.9	0.34
6	55.6	47.4	0.92	6	63.1	43.6		6	66.7	50.6	0.29
7	53.9	44.4	0.19	7	47.9	43.2	0.44	7	72.2	44.4	
8	44.7	31.9	0.07	8	45.7	33.8	0.06	8	65.6	43.6	0.22
9	45.6	29.9		9	53.3	27.2		9	76.5	57.1	0.15
10	60.7	26.9		10	57.6	27.6		10	73	53.9	
11	67.7	37.1		11	46.9	39.5	0.52	11	80.6	57.6	
12	61.9	38.4		12	55.5	41.4		12	80.7	62.7	
13	55.4	43.2		13	61.6	44.9	0.75	13	75.1	59.4	
14	72.4	43.2		14	61.3	46.6		14	78.1	60.9	
15	77.4	50.4		15	64.4	38.6		15	72.9	60.8	
16	65.6	39.3		16	67.9	41.4		16	70.4	58.5	0.04
17	48.1	35.9		17	66.7	46.4		17	78.3	50.6	
18	53.3	29.2		18	73	46.3		18	84.7	63	0.01
19	66	28.1		19	80.8	41.5		19	81.3	63.8	
20	65.5	34.3		20	80.7	43.1		20	78.8	56.3	
21	63.3	30.6		21	68.5	55	0.26	21	82.3	57.2	
22	60.8	30.1		22	72.7	56.7		22	82.7	65.9	0.07
23	65.1	31.6		23	84.8	53.6		23	81.4	64.7	0.15
24	57.5	46.2	0.16	24	89.6	66.1		24	78.2	56.8	0.84
25	53.7	47.4	0.17	25	85.6	62.6		25	78.7	51	
26	69	42.7		26	88	61.6		26	83.8	67.1	
27	59.6	33.5		27	83.7	62.1		27	76.3	62.3	0.12
28	60.4	26.4		28	89.9	55.4		28	77.3	53.6	0.04
29	66.8	32.4		29	90.6	59.2		29	68.4	47.9	0.16
30	78.1	52.7		30	86.1	60		30	70.4	45.2	
				31	81.8	63.4					

TEMPERATURE AND PRECIPITATION DATA

Fremont and Grant

Recorded at
City of Fremont
Fremont, Michigan
2010

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	77.4	45.2	0.01	1	81.4	63.1		1	78.8	68.5	0.06
2	77.8	52.6		2	80.2	61.7		2	72.5	66.1	1.2
3	80.6	55.9		3	86.2	64.7		3	66.5	55.1	0.66
4	86.9	58.1		4	84.7	66.7		4	59.7	47.6	
5	86.6	73.3	0.15	5	81.4	62.9		5	68.3	41.5	0.04
6	84.9	71.7		6	79	56.6		6	70.7	57.1	0.43
7	90.2	69.5		7	80.9	54.7		7	72.6	57.5	
8	83.5	71	0.26	8	83.4	67.2	0.41	8	62.1	53.9	
9	86.8	63.4	0.01	9	81.4	68.4	0.03	9	68.6	47	
10	85.5	58.7		10	92.4	64		10	68.1	41.8	
11	84.3	61.4		11	82.5	68.9	0.23	11	57.5	51.7	0.5
12	82	64.3	0.21	12	93.1	68.9		12	73.2	51.5	
13	85.3	65.1		13	88.5	66.3		13	72.3	48.7	
14	86.1	62.6		14	83.6	72.6		14	69.1	43.8	
15	81.6	65.1	0.66	15	81.4	66.2		15	71.5	42.4	
16	83.8	60.4	0.02	16	75.3	60.8		16	63.1	53.6	0.94
17	84.9	66.5	0.01	17	76.2	54.7		17	64.5	45.6	
18	81.7	64.8		18	78.8	54.7		18	65.3	50.5	0.29
19	81.2	64.2		19	83.2	60.6		19	68.6	42.4	
20	83.1	60.1		20	88.7	62.8	0.14	20	64.7	50.9	
21	83.5	65.6		21	82.1	66.9	0.95	21	79.6	61.3	0.63
22	74.4	59.5	0.37	22	85	62.9		22	77.1	56.6	
23	83.2	71.6	0.36	23	83.2	59.6		23	81.8	56.5	
24	80.5	70.5	0.05	24	82	58.4		24	81.5	55.9	0.07
25	83.4	62.4	0.01	25	74.2	56.5	0.05	25	58.4	47.4	
26	83.5	56.5		26	74.1	46		26	61.9	40.4	
27	82.9	60.4		27	77.5	47.2		27	66.6	41.2	
28	82.6	66.6	0.02	28	84.1	57.5		28	69	45.1	
29	82	55.6		29	89.6	57.4		29	68.3	40.7	
30	80.6	56.4		30	88.7	66.1		30	70.9	45.8	
31	77.6	64.1	0.01	31	86.7	71.5					

TEMPERATURE AND PRECIPITATION DATA

Hart

Recorded at
Asparagus Research Farm
Hart, Michigan
2010

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	76.9	48.7		1	71.7	57.3		1	79.3	48.9	0.01
2	77.2	60.5		2	66	52.2	0.06	2	74.2	60.7	0.02
3	62.5	42.3	0.43	3	68.3	48.5		3	70.2	47.5	
4	67.1	42.7		4	71.5	37.7		4	73.2	44	0.06
5	66.4	45	0.07	5	65.8	49.8	0.08	5	80.6	51.7	0.44
6	59.9	46.8	0.63	6	57.2	44.4		6	63.8	48.4	0.01
7	50.3	43	1.05	7	48.2	43.3	0.34	7	65.6	40.4	
8	43.4	32	0.13	8	45	31.9	0.16	8	65.3	43.3	0.18
9	45.4	30.7		9	53.2	28		9	77	56.9	0.05
10	57.1	29.5	0.02	10	58.2	28.6		10	69.5	51.6	0.02
11	59.6	37.4		11	47.1	39.3	0.27	11	81.7	55.5	0.28
12	63.5	38.7		12	58.4	42.3		12	78.2	56.6	
13	57.3	44.3		13	60.1	45.6	0.39	13	73.4	57.1	0.02
14	75.2	45.2		14	61.4	47.4		14	74.5	58.3	0.06
15	77.6	56.1		15	58.4	35.4		15	74.1	62	2.55
16	67	38.2	0.01	16	68.6	36.6		16	69.9	56.8	0.11
17	47.8	34.8		17	71	45.7		17	79.5	50.7	
18	50.1	31.1		18	78.9	43.2		18	85.3	65.2	0.07
19	55	26		19	74.2	40		19	80.9	64	
20	58.9	33.1		20	80.2	41.4		20	76.7	54.8	
21	55.5	30.9		21	66.3	53.6	0.27	21	83.4	55.4	
22	55.5	27.8		22	72.5	54.9	0.01	22	81.7	64.9	0.06
23	64	28.5		23	86.2	56.2		23	80.5	68.1	0.15
24	57.5	47.3	0.02	24	89.4	68.1		24	77.5	55.6	0.03
25	59.4	48.5	0.19	25	86.1	64.9		25	79.8	53.2	
26	64.5	41.4		26	87.6	59		26	80	62.5	
27	52.7	33.5		27	79.6	56.7		27	76.3	62.3	0.93
28	56.5	25.1		28	82.6	52.4		28	76.2	55.5	
29	68.7	36.8		29	83.5	56.2		29	67	46.7	
30	77.5	55.8	0.11	30	85.7	60.6		30	70	44.5	
				31	83.1	55.4	0.06				

TEMPERATURE AND PRECIPITATION DATA

Hart

Recorded at
Asparagus Research Farm
Hart, Michigan
2010

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	72.8	45		1	79.1	58.9		1	81	69.3	0.18
2	78.3	56.1		2	80.3	62.7		2	76.4	65.3	1.22
3	80.7	58.8		3	84.8	64.6		3	67.7	56	0.2
4	87.5	62.4		4	84.1	67.2		4	60.5	52.7	
5	86.8	74		5	79.2	66.2		5	67.6	41	0.04
6	85.7	72.9	0.05	6	76.2	54.7		6	70.6	57.4	0.22
7	88.1	70.2	0.6	7	82.2	55.8		7	74.4	56.7	
8	80.7	68.4	0.27	8	82.7	67.3	0.34	8	61.3	54.2	
9	82.3	62.7		9	82.3	68.9		9	65.9	49	
10	83.4	60.7		10	87.9	65.2	0.01	10	68.9	41.6	
11	83.6	60.1		11	82.1	69.2	0.62	11	58.4	52.7	0.61
12	79.2	64.6	0.08	12	88.6	64.8	0.01	12	73.3	50.6	
13	85.4	64		13	88	69.4		13	70	49.2	
14	86.1	61.8		14	83.9	72.4		14	64.4	42.7	
15	79.9	63.8	0.97	15	78.9	69.8		15	69.6	42.8	
16	84.1	63.1		16	75.5	65.6		16	66	53.4	0.07
17	81.7	68.8		17	73.1	58.5		17	65.2	50.4	
18	83.2	67	0.25	18	76.9	51.6		18	66.1	45.3	0.23
19	82.7	63.2	0.13	19	79.2	64.5		19	66	42.2	
20	82.9	62.5	0.17	20	90.3	63.4	0.83	20	64.8	45.6	
21	80.4	63.2		21	80.7	65.7	1.23	21	79.1	61.4	0.05
22	73.5	61.2	1.02	22	80	60.6		22	72.3	53.5	
23	81.7	72	0.03	23	79.8	58.7		23	81	53.9	0.01
24	81.1	67.1	0.58	24	79.1	60.9	0.05	24	78.6	53.1	0.04
25	80.5	60.1		25	72.2	53.5		25	55.5	43.5	0.04
26	80.6	56.6		26	72.9	46.2		26	62.7	34.9	
27	83.3	62.5		27	78.6	48.3		27	63.5	38.8	
28	80.4	66.6	0.03	28	82.4	59		28	66.1	39	
29	78.4	53.7		29	89	59.3		29	68.3	40.7	
30	80	58.8		30	86.5	68.7		30	66	40.6	
31	71.8	64.3	0.07	31	85.4	74.4					

TEMPERATURE AND PRECIPITATION DATA

Hudsonville

Recorded at
Michigan Celery Cooperative
Hudsonville, Michigan
2010

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	83	51.1		1	73.3	58.7	0.21	1	80.5	53.5	0.01
2	82.6	61.6		2	64.9	53.6	0.39	2	72.4	57.9	0.92
3	65.1	43.6	0.43	3	69.4	51.2		3	75.6	55.9	0.02
4	71.5	40.6	0.12	4	75.8	47		4	76.5	50.1	
5	67.4	45	0.17	5	67.4	52.2	0.06	5	79.7	58.5	1.05
6	62.6	48.7	2.21	6	59.6	44		6	66.6	53.8	0.01
7	63.2	46	0.45	7	52.9	43.8	0.28	7	67.8	46.3	
8	47.6	33.2	0.01	8	47.8	35.8		8	65	47	0.17
9	44.9	31.1		9	52.8	28.5		9	77.1	58.3	0.02
10	68.8	28.7		10	59.2	29.1		10	72	52.9	
11	67.9	41.7	0.02	11	50	41.6	0.54	11	83.6	60.8	0.35
12	65.3	37.2		12	52.1	42.5		12	78.9	58.6	
13	58.4	44.6	0.08	13	66.7	45.1	1.07	13	74.8	57.2	
14	75.6	44.3		14	61.6	48.3		14	74.6	61.7	0.01
15	79.5	55.3		15	64.1	40.3		15	76	62.9	0.39
16	67.8	42		16	66.4	42.7		16	70.2	60.6	0.17
17	50.7	32.5		17	67.1	47.3		17	77.9	56.6	
18	54.9	29.8		18	65.5	48.7		18	85.9	65.7	0.27
19	60.4	29.8		19	79.4	40.8		19	80.3	63.5	
20	64.9	35.4		20	79.5	43.7		20	79.7	58.9	
21	60.8	31.9		21	69.9	57.1	0.39	21	81.9	58.5	
22	62.3	38.4		22	72.4	54.7	0.01	22	80.9	65.5	0.62
23	66.6	34.7		23	85.4	55.4		23	83.8	66.9	0.49
24	61.2	45.8	0.05	24	89.2	73.4	0.72	24	77.3	62.1	
25	55.1	48.8	0.34	25	84.8	64		25	79.4	54.7	
26	69.7	45.8		26	89.6	65.4		26	80.9	66.4	
27	55.7	38.3		27	85.5	60.8		27	76.7	64.3	0.31
28	58.4	28.3		28	84.7	52		28	77.7	63.7	
29	70.7	35.3		29	88.5	60.8		29	68.5	49.7	
30	78.6	55.4		30	87.8	60.1		30	70.7	46.4	
				31	81.3	61.6	1.67				

TEMPERATURE AND PRECIPITATION DATA

Hudsonville

Recorded at
Michigan Celery Cooperative
Hudsonville, Michigan
2010

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	78.1	45.7		1	82.6	60.3		1	77.8	68.8	0.05
2	81	55.2		2	81.5	61.1		2	76.5	68.2	0.12
3	83.4	58		3	85.8	68.6		3	73.7	57.5	0.12
4	87.6	62.9		4	83.9	67.6		4	60.7	49.4	
5	87.8	75.2		5	80.7	62.9		5	71	43.9	0.01
6	87.3	71.8		6	78.3	57.1		6	75.7	60	0.13
7	90.1	68.8		7	80.6	56.6		7	76.2	59.7	
8	80.1	70	0.31	8	83.9	67.8	0.3	8	65.2	54.6	
9	84.5	64.8	0.12	9	84.6	69.8	0.36	9	69.7	48	
10	84.3	60.1	0.05	10	89.6	65.3		10	71.2	43.6	
11	82.8	65	0.03	11	85.8	69.2	0.14	11	58.9	53.1	0.38
12	80.3	64.8	0.2	12	90	69.8		12	75.2	49.5	0.01
13	82.8	65.9		13	88.3	66.5		13	75	51.1	
14	86	63.3		14	82.1	70.4		14	71.7	46.3	
15	85	64.9	0.03	15	81.8	67		15	73.3	44.9	
16	84.3	60.3		16	75.5	60.5		16	67.4	56.5	0.34
17	83.9	68.3		17	77.1	57.4		17	68.9	48.1	
18	80.5	66.9	0.22	18	79.1	60.8		18	66.4	54.1	0.44
19	81.1	64.3	0.02	19	82.8	62.5		19	70.8	47.5	
20	81.3	63.3	0.88	20	89.1	66.3		20	67.9	55.3	
21	81.9	65.8		21	81.4	68.4	0.35	21	85.3	63.6	0.07
22	76.4	60.6	1.44	22	85.2	62.4		22	81.6	60.1	0.31
23	84.7	71.9	0.11	23	79.5	58		23	88	59	
24	79.2	70	0.38	24	78.8	61.6		24	81.1	58.4	0.02
25	83.4	66.3		25	77	56.9	0.02	25	60	49.4	
26	84.1	59.7		26	75.3	47.3		26	62	41.6	
27	85	61.5		27	79.7	47.9		27	67	42.8	
28	82.4	66.6	0.01	28	84.7	59.5		28	67.8	47.5	
29	80.3	58.3		29	91	56.5		29	72.6	40.7	
30	79.8	56		30	89.6	69.2		30	73.8	47	
31	78.5	66.3		31	90.3	71.6					

TEMPERATURE AND PRECIPITATION DATA

Imlay City

Recorded at
Lapeer USDA/NRCS Office
Lapeer, Michigan
2010

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	79.8	51.9		1	74.5	62.3	0.31	1	83.3	60.2	0.02
2	82.2	46.9		2	75.5	58.2	0.45	2	72.9	59	0.57
3	76.9	45.6	0.25	3	75.7	51.1	0.06	3	70.5	55.7	0.11
4	66.8	34.5		4	72.6	45.6		4	76.7	52.8	0.31
5	71.8	46.2	0.04	5	75.2	51.2	0.19	5	82.8	59.7	0.24
6	62.3	46.8	1.4	6	64.4	44.4		6	68.6	48.6	0.33
7	67.2	46.6	0.37	7	52	40.7	1.56	7	70.8	44.2	0.01
8	56.3	32.3	0.05	8	47.6	35.5	0.03	8	71.7	41.7	
9	43.3	28.5		9	56.1	30.5		9	78.9	53.6	0.2
10	67.6	23.9		10	58.2	27.8		10	76.7	55.7	
11	67.4	37.5		11	44.8	38.1	0.8	11	79.3	56.3	0.01
12	61.5	28.2		12	51.7	39.2		12	87.2	62.3	
13	57.7	42.5	0.01	13	58.1	38.8	0.96	13	72.1	60	
14	68.2	42.4		14	66.9	48.8		14	76.1	61.5	0.01
15	83	43.3		15	64.5	40.9		15	76.8	60.9	
16	67	39.5		16	65.7	35.9		16	75.5	61.6	0.06
17	44.1	34.8		17	66.9	39.2		17	81.2	59.1	
18	53.2	32.9		18	67.9	49.7	0.07	18	87.5	55.3	0.06
19	63.8	27.1	0.01	19	79.3	41		19	82.6	63.7	
20	65.5	28.8		20	85.1	45.4		20	81.2	59.2	
21	68.5	32.8		21	76	52.4	0.1	21	82.9	57	
22	59.4	29.4	0.05	22	77.3	58.2	0.47	22	84.4	64.7	0.28
23	64	27.1		23	85	54.7		23	85.6	60.9	0.1
24	60.1	42.2	0.02	24	85.6	58.2		24	79.3	63.9	0.02
25	50.3	46.1	0.8	25	84.1	57.2		25	81.1	50	
26	61.8	43.4		26	90.3	58.5		26	84.4	61.4	0.02
27	52.7	30.9		27	86.3	62.6		27	79.8	62.7	0.73
28	60.3	27.1		28	85.9	56.4		28	82.2	61.4	
29	67.3	28.6	0.02	29	85	53.4		29	70.8	50.9	
30	82.1	48.7		30	88.8	52.6		30	72.9	43	
				31	86.9	58.2	0.07				

TEMPERATURE AND PRECIPITATION DATA

Imlay City

Recorded at
Lapeer USDA/NRCS Office
Lapeer, Michigan
2010

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	74.8	43.4		1	83.5	60.6		1	91.5	64.4	0.83
2	81.1	44.6		2	85.6	59.3		2	76	67.5	0.06
3	85.4	51.6		3	87.6	64.8		3	75.2	56.7	0.21
4	90	52.6		4	89.6	62.2	0.02	4	61.5	48.1	0.02
5	91.6	71.1		5	86.7	61.4	0.01	5	71.6	40.4	
6	90.9	67.2		6	81.4	54.6		6	68.4	53.4	0.04
7	94	68.1		7	81.7	46.4		7	83	60.6	
8	91.2	69.1	0.48	8	85.5	67		8	64	51.6	
9	84	63.6		9	78.4	64.4	0.23	9	69	45.8	
10	87.3	57.4		10	89.5	62.9		10	68.5	40.4	
11	87.4	58.5	0.42	11	86.5	61.6	0.49	11	68.3	40.4	0.4
12	82	63.9	0.11	12	89.5	67.3	0.08	12	74.5	49.8	0.01
13	83.2	62.6		13	87.2	62.5		13	77	45.9	0.01
14	89	58.4		14	85.9	68.7		14	70.6	39.8	
15	89.8	66.2	1.33	15	89.9	65.5		15	72.9	36	
16	85.3	60.5	0.01	16	80.5	58.6		16	67.5	52.9	0.71
17	87.4	63.5		17	81.6	55.3		17	65.8	47	
18	82.8	58.2		18	82.5	56.8		18	69.5	49.9	0.37
19	78.2	66.9		19	86.7	53.3	0.59	19	70.4	47.1	
20	81.1	65.2	0.05	20	84.7	57.2		20	70.9	42	
21	85.4	63.7		21	80.6	62.9	0.02	21	86.4	58.8	0.13
22	80.4	56.2	0.13	22	79.3	62.1		22	77.4	54.5	0.01
23	89.3	68.1	0.01	23	73.7	62.7		23	85.1	54	
24	81.8	70.3	0.05	24	77.4	55.2		24	81	57.5	
25	81.2	58.6		25	79.6	59.3		25	58.6	48.3	
26	85.7	54.3		26	75.1	46.5		26	55.1	41.4	
27	85.6	56.3		27	81.8	43.3		27	63.6	41.2	0.14
28	88.3	69.6	0.08	28	87	49.7		28	54.4	45.9	1.08
29	81.8	55.5		29	94.8	47.6		29	72.2	38.8	0.01
30	83.9	53.5		30	95.3	61.6		30	72.4	42.7	
31	73.3	58.8		31	92.1	65.5					

TEMPERATURE AND PRECIPITATION DATA

Momence

Recorded at
Stelle, Illinois Climate Network Station
Stelle, Illinois
2010

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	79.6	45.8		1	72.3	54.8	0.12	1	85.2	60.3	
2	78.6	49.9		2	65.9	48.4	0.42	2	77.1	62.7	0.29
3	56.8	36.4	0.31	3	71.5	44.7		3	75.4	54.7	
4	72.6	34.6	0.17	4	79.4	39.5		4	84.8	52.5	0.07
5	68.8	43.2		5	71.3	49.7		5	83.2	63.5	1.37
6	79.4	58.9		6	69.1	41.1		6	75.3	55.1	
7	67.5	42.4	1.09	7	68.0	46.1	0.12	7	74.7	51.8	
8	44.1	33.4		8	49.5	34.7		8	69.3	58.4	0.09
9	56.9	28.5		9	57.5	30.4		9	81.7	59.4	
10	73.3	35.2		10	59.3	33.3	0.54	10	81.5	54.7	
11	68.2	40.3		11	60.9	45.0	0.81	11	87.7	66.3	0.01
12	73.8	44.5		12	59.1	45.7	0.41	12	81.6	66.0	1.03
13	76.1	44.5		13	75.7	50.3	0.03	13	74.0	62.1	0.42
14	82.4	44.5		14	64.6	45.3		14	76.8	62.0	
15	82.4	46.6		15	60.9	44.4	0.04	15	80.9	61.7	1.42
16	66.0	37.1	0.06	16	66.6	46.3		16	78.0	61.0	
17	59.3	30.8		17	54.5	47.7	0.74	17	82.4	57.5	
18	57.6	30.5		18	60.3	46.0		18	88.4	64.0	1.04
19	59.6	30.4		19	70.7	45.2		19	83.2	63.6	0.04
20	65.6	33.6		20	65.9	45.5	0.24	20	84.6	61.4	
21	71.0	37.0		21	70.6	55.5	0.53	21	83.5	65.9	1.53
22	70.0	32.2		22	76.2	56.6		22	81.0	66.5	
23	57.0	38.5	0.55	23	87.2	59.6		23	86.8	65.1	0.93
24	66.9	53.5	0.06	24	88.7	63.8		24	79.3	61.7	
25	59.3	46.2	0.05	25	86.1	64.1		25	81.6	59.3	
26	62.9	42.2		26	87.9	60.8		26	86.5	63.9	
27	55.4	31.2		27	78.0	54.6		27	82.4	70.8	0.37
28	63.0	28.3		28	79.3	52.9		28	79.8	61.3	
29	76.2	42.2		29	86.6	55.7		29	74.8	55.1	
30	78.9	58.2	0.06	30	89.4	60.9		30	73.8	50.6	
				31	84.0	61.6	0.05				

TEMPERATURE AND PRECIPITATION DATA

Momence

Recorded at
Stelle, Illinois Climate Network Station
Stelle, Illinois
2010

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	77.0	48.7		1	84.2	58.1		1	82.9	67.2	0.48
2	81.2	53.4		2	84.5	58.7		2	85.9	66.7	1.63
3	85.5	52.5		3	92.2	71.0	1.10	3	73.8	55.2	
4	91.0	62.6		4	89.1	71.3		4	69.6	46.1	
5	87.4	68.6		5	84.5	62.2		5	78.7	43.2	
6	90.6	67.5		6	80.5	58.4		6	86.6	59.0	0.03
7	93.3	65.6		7	85.5	56.0		7	80.3	49.6	
8	85.2	71.3	0.55	8	88.2	61.5		8	75.6	47.1	
9	83.5	64.3		9	88.9	69.2		9	75.9	43.8	
10	85.0	59.8		10	90.4	72.0	0.56	10	79.2	50.9	
11	83.9	60.1	0.24	11	89.4	70.6		11	78.5	55.3	0.02
12	84.6	63.5	0.40	12	91.1	68.0		12	84.7	46.1	
13	84.3	66.9	0.01	13	91.8	65.8	0.13	13	87.7	58.5	
14	89.2	66.6		14	87.3	70.1	0.13	14	83.2	56.4	
15	91.0	65.5		15	83.1	62.2		15	82.8	54.4	0.17
16	86.6	59.6		16	81.0	57.5		16	72.4	55.8	
17	89.3	61.4		17	77.6	57.0		17	77.7	45.2	
18	85.8	66.7		18	84.0	63.6	0.01	18	73.7	52.1	0.21
19	81.5	64.2		19	89.3	59.1		19	75.0	57.0	0.04
20	80.0	63.7		20	92.9	67.6	0.14	20	87.5	60.9	
21	89.1	66.5		21	84.4	69.3		21	93.1	62.0	0.71
22	89.1	67.2		22	85.6	61.9		22	78.9	60.7	
23	91.8	70.6	0.17	23	83.3	57.6		23	90.6	63.9	
24	90.2	72.5	0.20	24	85.9	62.0		24	76.9	54.7	0.13
25	80.7	62.2		25	80.1	54.8	0.03	25	63.3	47.9	0.03
26	83.9	59.1		26	79.1	52.9		26	59.5	45.1	
27	88.2	64.2		27	84.5	50.8		27	63.0	40.9	
28	91.3	68.9		28	88.3	52.1		28	71.7	42.4	
29	84.8	65.1		29	93.3	64.0		29	78.0	40.8	
30	77.4	64.3		30	85.9	62.3		30	75.2	47.2	
31	73.9	60.7	0.02	31	93.0	68.9					

Weed Control in Asparagus - Hart 2010

Project Code: 120-10-01

Location: Hart, MI

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Asparagus Variety: Millenium
 Planting Method: Crowns Planting Date: 4/30/10
 Spacing: 1 ft 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: 1.5% pH: 6.1
 Sand: 83.4% Silt: 13.9% Clay: 2.7% CEC: 3.7

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/19/10	12:30 PM	54/58	F	Moist	4-5 W	40	0% Cloudy	N
PO1	6/1/10	10:00 AM	70/70	F	Dry	4 SW	55	0% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/19	ASPA = asparagus			
4/19	DAND = dandelion	3-8"		Moderate
4/19	HOWE = horseweed	1-3"		Many
4/19	SFGE = small-flower geranium	2-3"		Moderate
6/1	ASPA = asparagus			

Notes and Comments

- 1.
- 2.

Weed Control in Asparagus - Hart 2010

Weed Control in Asparagus - Hart 2010

Trial ID: 120-10-01
Location: Hart, MI

Protocol ID: 120-10-01
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

							DAND	FIBW	HOWE	SFGE	
							Asparagus				
							10/May/10	10/May/10	10/May/10	10/May/10	10/May/10
							RATING	RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10	1-10
Trt	Treatment	Form	Form	Rate	Rate	Growth					
No.	Name	Conc	Type	Rate	Unit	Stage					
1	pendimethalin	3.8	CS	1.14	LB A/A	PRE	1.3	6.7	6.0	5.3	7.0
	glyphosate	5.5	L	0.5	LB A/A	PRE					
2	pendimethalin	3.8	CS	2.28	LB A/A	PRE	1.0	10.0	7.0	8.7	8.7
	glyphosate	5.5	L	0.5	LB A/A	PRE					
3	mesotrione	4	SC	0.188	LB A/A	PRE	1.0	10.0	9.3	10.0	9.3
	s-metolachlor	7.62	EC	1.26	LB A/A	PRE					
	glyphosate	5.5	L	0.5	LB A/A	PRE					
4	flumioxazin	51	WDG	0.192	LB A/A	PRE	1.0	10.0	3.0	5.7	10.0
	glyphosate	5.5	L	0.5	LB A/A	PRE					
5	indaziflam	1.67	SC	0.067	LB A/A	PRE	1.0	9.7	7.7	7.0	10.0
	glyphosate	5.5	L	0.5	LB A/A	PRE					
6	diuron	80	DF	2	LB A/A	PRE	1.0	9.3	5.3	7.7	9.3
	glyphosate	5.5	L	0.5	LB A/A	PRE					
7	terbacil	80	WDG	1	LB A/A	PRE	1.0	9.7	6.7	10.0	10.0
	glyphosate	5.5	L	0.5	LB A/A	PRE					
8	sulfentrazone	4	F	0.375	LB A/A	PRE	1.3	8.7	8.3	9.0	10.0
	glyphosate	5.5	L	0.5	LB A/A	PRE					
9	halosulfuron	75	WG	0.047	LB A/A	PRE	1.0	10.0	9.0	9.7	10.0
	pendimethalin	3.8	CS	1.14	LB A/A	PRE					
	glyphosate	5.5	L	0.5	LB A/A	PRE					
10	diuron	80	DF	2	LB A/A	PRE	1.0	7.7	5.3	6.0	10.0
	glyphosate	5.5	L	0.5	LB A/A	PRE					
	quinclorac	75	DF	0.375	LB A/A	PO1					
LSD (P=.05)							0.46	2.97	4.19	3.96	3.05
Standard Deviation							0.27	1.73	2.44	2.31	1.78
CV							24.87	18.88	36.12	29.19	18.82

Weed Control in Asparagus - Hart 2010

Dept. of Horticulture, MSU

Pest Code						FIBW	FISB	HOWE	SFGE		
Crop Name	Asparagus										
Rating Date	1/Jun/10	1/Jun/10	1/Jun/10	1/Jun/10	1/Jun/10						
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	1.14	LB A/A	PRE	1.3	5.7	9.7	4.3	7.0
	glyphosate	5.5	L	0.5	LB A/A	PRE					
2	pendimethalin	3.8	CS	2.28	LB A/A	PRE	1.0	6.0	8.7	9.0	9.0
	glyphosate	5.5	L	0.5	LB A/A	PRE					
3	mesotrione	4	SC	0.188	LB A/A	PRE	1.0	7.3	8.3	10.0	8.3
	s-metolachlor	7.62	EC	1.26	LB A/A	PRE					
	glyphosate	5.5	L	0.5	LB A/A	PRE					
4	flumioxazin	51	WDG	0.192	LB A/A	PRE	1.0	4.3	10.0	1.7	8.3
	glyphosate	5.5	L	0.5	LB A/A	PRE					
5	indaziflam	1.67	SC	0.067	LB A/A	PRE	1.0	4.0	9.3	4.3	10.0
	glyphosate	5.5	L	0.5	LB A/A	PRE					
6	diuron	80	DF	2	LB A/A	PRE	1.0	5.3	7.7	6.3	7.3
	glyphosate	5.5	L	0.5	LB A/A	PRE					
7	terbacil	80	WDG	1	LB A/A	PRE	1.3	6.3	10.0	10.0	10.0
	glyphosate	5.5	L	0.5	LB A/A	PRE					
8	sulfentrazone	4	F	0.375	LB A/A	PRE	1.7	6.0	8.0	6.0	7.7
	glyphosate	5.5	L	0.5	LB A/A	PRE					
9	halosulfuron	75	WG	0.047	LB A/A	PRE	1.0	7.3	10.0	9.7	10.0
	pendimethalin	3.8	CS	1.14	LB A/A	PRE					
	glyphosate	5.5	L	0.5	LB A/A	PRE					
10	diuron	80	DF	2	LB A/A	PRE	1.0	5.7	10.0	2.7	5.0
	glyphosate	5.5	L	0.5	LB A/A	PRE					
	quinclorac	75	DF	0.375	LB A/A	PO1					
LSD (P=.05)							0.56	5.47	3.50	4.40	5.66
Standard Deviation							0.33	3.19	2.04	2.57	3.30
CV							28.92	55.01	22.25	40.11	39.9

Weed Control in Asparagus - Hart 2010

Dept. of Horticulture, MSU

Pest Code							FISB	HOWE		
Crop Name						Asparagus			Asparagus	
Rating Date						28/Jun/10	28/Jun/10	28/Jun/10		
Rating Data Type						RATING	RATING	RATING	TOTAL	
Rating Unit						1-10	1-10	1-10	KG/PLOT	
Trt	Treatment	Form	Form	Rate	Unit	Growth				
No.	Name	Conc	Type	Rate	Unit	Stage				
1	pendimethalin	3.8	CS	1.14	LB A/A	PRE	1.0	4.0	4.3	9.11
	glyphosate	5.5	L	0.5	LB A/A	PRE				
2	pendimethalin	3.8	CS	2.28	LB A/A	PRE	1.3	4.0	7.0	8.51
	glyphosate	5.5	L	0.5	LB A/A	PRE				
3	mesotrione	4	SC	0.188	LB A/A	PRE	1.3	6.3	10.0	8.34
	s-metolachlor	7.62	EC	1.26	LB A/A	PRE				
	glyphosate	5.5	L	0.5	LB A/A	PRE				
4	flumioxazin	51	WDG	0.192	LB A/A	PRE	1.0	3.7	2.3	7.08
	glyphosate	5.5	L	0.5	LB A/A	PRE				
5	indaziflam	1.67	SC	0.067	LB A/A	PRE	1.3	2.7	4.0	9.41
	glyphosate	5.5	L	0.5	LB A/A	PRE				
6	diuron	80	DF	2	LB A/A	PRE	1.3	4.3	6.0	8.19
	glyphosate	5.5	L	0.5	LB A/A	PRE				
7	terbacil	80	WDG	1	LB A/A	PRE	1.3	4.3	9.3	8.64
	glyphosate	5.5	L	0.5	LB A/A	PRE				
8	sulfentrazone	4	F	0.375	LB A/A	PRE	1.7	4.7	5.7	8.01
	glyphosate	5.5	L	0.5	LB A/A	PRE				
9	halosulfuron	75	WG	0.047	LB A/A	PRE	1.0	6.3	9.0	9.71
	pendimethalin	3.8	CS	1.14	LB A/A	PRE				
	glyphosate	5.5	L	0.5	LB A/A	PRE				
10	diuron	80	DF	2	LB A/A	PRE	1.0	10.0	8.3	8.51
	glyphosate	5.5	L	0.5	LB A/A	PRE				
	quinclorac	75	DF	0.375	LB A/A	PO1				
LSD (P=.05)							0.97	3.82	4.64	2.143
Standard Deviation							0.56	2.23	2.71	1.249
CV							45.76	44.23	40.99	14.61

Weed Control in Asparagus - Sandhill 2010

Project Code: 120-10-02

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Asparagus Variety: Jersey Giant
 Planting Method: Planting Date: 4/20/99
 Spacing: 1 ft Row Spacing: 6 ft
 Tillage Type: Conventional Study Design: RCB
 Plot Size: 5.33 ft wide x 50 ft long

Replications: 3

Soil Type: Riddles sandy loam OM: 1.0% pH: 8.1
 Sand: 85.4% Silt: 5.5% Clay: 9.1% CEC: 15.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/12/10	3:00 PM	63/65	F	Good	3-5 SW	15	80% Cloudy	N
PO1	6/10/10	11:00 AM	71/71	F	Good	3-6 W	73	3% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/12	ASPA = asparagus		Dormant	
4/12	COCW = common chickweed	3-4"		Many
4/12	HOWE = horseweed	1", 1"		Many
4/12	SFGF = smaller-flow geranium	1-2"		Moderate
4/12	SPKW = spotted kanpweed	3-4"		Few
4/12	QUGR = quackgrass	4-5"		Many
4/12	WICA = wild carrot	2-3"		Many
6/10	ASPA = asparagus	6-12"	Just picked	
6/10	COMW = common milkweed	6-10"		Moderate
6/10	CORW = common ragweed	4-8", 4-6"		Many
6/10	DOBR = downy brome grass	10-14"		Moderate
6/10	HOWE = horseweed	4-5"		Moderate
6/10	QUGR = quackgrass	6-10"		Many
6/10	SFGF = smaller-flow geranium	6-8"		Few

Notes and Comments

- 1.
- 2.

Weed Control in Asparagus - Sandhill 2010

Weed Control in Asparagus - Sandhill 2010

Trial ID: 120-10-02
 Location: East Lansing, MI

Protocol ID: 120-10-02
 Study Director: Rodney Tocco
 Investigator: Dr. Bernard Zandstra

							QUGR	WICA	RSFI			
							Asparagus				Asparagus	
Description							4/Jun/10		4/Jun/10		25/Jun/10	
Rating Date							RATING	RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10	1-10
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Rate	Growth Stage						
1	diuron	80	DF	1.2	LB A/A	PRE	2.7	2.3	3.3	6.0	1.3	
2	metribuzin	75	DF	0.5	LB A/A	PRE	2.3	4.7	8.0	10.0	1.3	
3	diuron	80	DF	1.2	LB A/A	PRE	1.7	7.3	9.3	10.0	1.0	
	metribuzin	75	DF	0.5	LB A/A	PRE						
4	terbacil	80	WP	1.2	LB A/A	PRE	1.0	10.0	10.0	10.0	1.7	
5	flumioxazin	51	WDG	0.192	LB A/A	PRE	2.0	5.3	9.3	10.0	2.3	
6	sulfentrazone	4	F	0.375	LB A/A	PRE	1.7	5.0	4.7	10.0	1.0	
7	halosulfuron	75	WG	0.047	LB A/A	PRE	3.0	2.7	5.3	6.7	1.0	
8	mesotrione	4	SC	0.094	LB A/A	PRE	2.0	5.0	6.3	10.0	2.0	
9	diuron	80	DF	1.2	LB A/A	PRE	1.7	5.3	8.0	10.0	1.0	
	s-metolachlor	7.62	EC	1.3	LB A/A	PRE						
10	clomazone	3	ME	1	LB A/A	PRE	1.7	9.7	9.3	10.0	1.7	
11	diuron	80	DF	1.2	LB A/A	PRE	2.3	4.3	4.7	5.3	1.3	
	mesotrione	4	SC	0.094	LB A/A	PO1						
	COC	100	SL	1	% V/V	PO1						
	AMS	100	DF	2	% A/V	PO1						
12	diuron	80	DF	1.2	LB A/A	PRE	1.7	7.7	1.7	4.7	1.7	
	carfentrazone	1.9	EW	0.03	LB A/A	PO1						
	sethoxydim	1.53	EC	0.19	LB A/A	PO1						
	COC	100	SL	1	% V/V	PO1						
	AMS	100	DF	2	% A/V	PO1						
LSD (P=.05)							1.06	2.98	4.03	3.95	1.04	
Standard Deviation							0.63	1.76	2.38	2.33	0.61	
CV							31.72	30.42	35.73	27.29	42.47	

Weed Control in Asparagus - Sandhill 2010

Dept. of Horticulture, MSU

Pest Code						QUGR	LACG	WICA			
Crop Name								Asparagus		Asparagus	
Description								TOTAL 2004		TOTAL 2004	
Rating Date						25/Jun/10	25/Jun/10	25/Jun/10			
Rating Data Type						RATING	RATING	RATING	GOOD SPR	GOOD SPR	
Rating Unit						1-10	1-10	1-10	#	KG/PLOT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	diuron	80	DF	1.2	LB A/A	PRE				7.56	
2	metribuzin	75	DF	0.5	LB A/A	PRE	3.0	7.0	3.3	8.93	
3	diuron	80	DF	1.2	LB A/A	PRE	6.3	7.7	10.0	8.79	
	metribuzin	75	DF	0.5	LB A/A	PRE					
4	terbacil	80	WP	1.2	LB A/A	PRE	10.0	6.0	10.0	6.66	
5	flumioxazin	51	WDG	0.192	LB A/A	PRE	5.7	10.0	4.7	7.78	
6	sulfentrazone	4	F	0.375	LB A/A	PRE	5.7	6.0	3.0	8.98	
7	halosulfuron	75	WG	0.047	LB A/A	PRE	1.0	5.0	2.7	7.41	
8	mesotrione	4	SC	0.094	LB A/A	PRE	4.3	10.0	4.0	8.95	
9	diuron	80	DF	1.2	LB A/A	PRE	4.0	7.0	5.0	8.02	
	s-metolachlor	7.62	EC	1.3	LB A/A	PRE					
10	clomazone	3	ME	1	LB A/A	PRE	9.3	10.0	8.7	8.36	
11	diuron	80	DF	1.2	LB A/A	PRE	5.7	9.3	4.0	7.36	
	mesotrione	4	SC	0.094	LB A/A	PO1					
	COC	100	SL	1	% V/V	PO1					
	AMS	100	DF	2	% A/V	PO1					
12	diuron	80	DF	1.2	LB A/A	PRE	8.0	9.3	2.3	9.02	
	carfentrazone	1.9	EW	0.03	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	COC	100	SL	1	% V/V	PO1					
	AMS	100	DF	2	% A/V	PO1					
LSD (P=.05)							3.77	5.17	3.33	183.04	3.297
Standard Deviation							2.22	3.05	1.96	108.09	1.947
CV							41.7	39.78	40.19	23.09	23.88

Weed Control in Asparagus - Sandhill 2010

Dept. of Horticulture, MSU

Pest Code							Asparagus	Asparagus	Asparagus	Asparagus
Crop Name							TOTAL 2005	TOTAL 2005	TOTAL 2006	TOTAL 2006
Description										
Rating Date										
Rating Data Type							GOOD SPR	GOOD SPR	GOOD SPR	GOOD SPR
Rating Unit							#	KG/PLOT	#	KG/PLOT
Trt	Treatment	Form	Form	Rate	Unit	Growth				
No.	Name	Conc	Type			Stage				
1	diuron	80	DF	1.2	LB A/A	PRE	300.3	6.32	302.3	5.54
2	metribuzin	75	DF	0.5	LB A/A	PRE	353.0	6.06	416.3	7.15
3	diuron	80	DF	1.2	LB A/A	PRE	337.3	6.19	350.7	6.50
	metribuzin	75	DF	0.5	LB A/A	PRE				
4	terbacil	80	WP	1.2	LB A/A	PRE	307.7	5.59	349.7	6.50
5	flumioxazin	51	WDG	0.192	LB A/A	PRE	286.7	5.23	321.7	5.95
6	sulfentrazone	4	F	0.375	LB A/A	PRE	353.0	6.35	372.0	6.92
7	halosulfuron	75	WG	0.047	LB A/A	PRE	280.0	5.14	275.3	5.26
8	mesotrione	4	SC	0.094	LB A/A	PRE	341.3	6.24	351.0	6.68
9	diuron	80	DF	1.2	LB A/A	PRE	299.7	4.86	310.7	5.54
	s-metolachlor	7.62	EC	1.3	LB A/A	PRE				
10	clomazone	3	ME	1	LB A/A	PRE	304.7	4.97	340.7	5.66
11	diuron	80	DF	1.2	LB A/A	PRE	295.0	5.28	322.7	6.13
	mesotrione	4	SC	0.094	LB A/A	PO1				
	COC	100	SL	1	% V/V	PO1				
	AMS	100	DF	2	% A/V	PO1				
12	diuron	80	DF	1.2	LB A/A	PRE	321.7	6.32	342.0	6.23
	carfentrazone	1.9	EW	0.03	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	COC	100	SL	1	% V/V	PO1				
	AMS	100	DF	2	% A/V	PO1				
LSD (P=.05)							102.42	2.454	112.52	2.129
Standard Deviation							60.48	1.449	66.45	1.257
CV							19.2	25.37	19.66	20.37

Weed Control in Asparagus - Sandhill 2010

Dept. of Horticulture, MSU

Pest Code							Asparagus	Asparagus	Asparagus	Asparagus
Crop Name							TOTAL 2007	TOTAL 2007	TOTAL 2008	TOTAL 2008
Description										
Rating Date										
Rating Data Type							GOOD SPR	GOOD SPR	GOOD SPR	GOOD SPR
Rating Unit							#	KG/PLOT	#	KG/PLOT
Trt	Treatment	Form	Form	Rate	Growth					
No.	Name	Conc	Type	Unit	Stage					
1	diuron	80	DF	1.2	LB A/A PRE	233.3	4.68	195.0	3.18	
2	metribuzin	75	DF	0.5	LB A/A PRE	304.3	6.27	263.3	4.23	
3	diuron	80	DF	1.2	LB A/A PRE	277.7	5.65	253.0	4.27	
	metribuzin	75	DF	0.5	LB A/A PRE					
4	terbacil	80	WP	1.2	LB A/A PRE	268.7	5.42	261.0	4.18	
5	flumioxazin	51	WDG	0.192	LB A/A PRE	249.3	5.12	200.3	3.19	
6	sulfentrazone	4	F	0.375	LB A/A PRE	305.7	6.14	256.7	4.17	
7	halosulfuron	75	WG	0.047	LB A/A PRE	257.3	5.37	238.7	3.94	
8	mesotrione	4	SC	0.094	LB A/A PRE	253.0	5.11	239.7	3.96	
9	diuron	80	DF	1.2	LB A/A PRE	250.3	4.94	219.3	3.57	
	s-metolachlor	7.62	EC	1.3	LB A/A PRE					
10	clomazone	3	ME	1	LB A/A PRE	298.3	5.93	254.0	4.23	
11	diuron	80	DF	1.2	LB A/A PRE	238.0	4.85	189.7	3.11	
	mesotrione	4	SC	0.094	LB A/A PO1					
	COC	100	SL	1	% V/V PO1					
	AMS	100	DF	2	% A/V PO1					
12	diuron	80	DF	1.2	LB A/A PRE	254.3	5.21	211.3	3.41	
	carfentrazone	1.9	EW	0.03	LB A/A PO1					
	sethoxydim	1.53	EC	0.19	LB A/A PO1					
	COC	100	SL	1	% V/V PO1					
	AMS	100	DF	2	% A/V PO1					
LSD (P=.05)						85.24	1.706	67.37	1.155	
Standard Deviation						50.34	1.008	39.78	0.682	
CV						18.93	18.69	17.16	18.01	

Weed Control in Asparagus - Sandhill 2010

Dept. of Horticulture, MSU

Pest Code							Asparagus	Asparagus	Asparagus	Asparagus
Crop Name							TOTAL 2009	TOTAL 2009	TOTAL 2010	TOTAL 2010
Description										
Rating Date										
Rating Data Type							GOOD SPR	GOOD SPR	GOOD SPR	GOOD SPR
Rating Unit							#	KG/PLOT	#	KG/PLOT
Trt	Treatment	Form	Form	Rate	Growth					
No.	Name	Conc	Type	Unit	Stage					
1	diuron	80	DF	1.2	LB A/A	PRE	286.7	4.78	205.7	3.04
2	metribuzin	75	DF	0.5	LB A/A	PRE	347.7	5.78	262.7	3.74
3	diuron	80	DF	1.2	LB A/A	PRE	365.3	6.20	259.0	3.76
	metribuzin	75	DF	0.5	LB A/A	PRE				
4	terbacil	80	WP	1.2	LB A/A	PRE	385.7	6.32	240.0	3.33
5	flumioxazin	51	WDG	0.192	LB A/A	PRE	250.0	3.83	149.7	2.31
6	sulfentrazone	4	F	0.375	LB A/A	PRE	354.0	6.02	255.7	3.74
7	halosulfuron	75	WG	0.047	LB A/A	PRE	312.3	5.33	203.7	3.08
8	mesotrione	4	SC	0.094	LB A/A	PRE	320.3	5.39	253.7	3.82
9	diuron	80	DF	1.2	LB A/A	PRE	351.7	5.73	280.3	4.66
	s-metolachlor	7.62	EC	1.3	LB A/A	PRE				
10	clomazone	3	ME	1	LB A/A	PRE	343.7	5.46	257.3	3.76
11	diuron	80	DF	1.2	LB A/A	PRE	294.0	4.73	214.3	3.03
	mesotrione	4	SC	0.094	LB A/A	PO1				
	COC	100	SL	1	% V/V	PO1				
	AMS	100	DF	2	% A/V	PO1				
12	diuron	80	DF	1.2	LB A/A	PRE	354.3	5.51	263.3	3.70
	carfentrazone	1.9	EW	0.03	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	COC	100	SL	1	% V/V	PO1				
	AMS	100	DF	2	% A/V	PO1				
LSD (P=.05)							96.61	1.576	83.67	1.394
Standard Deviation							57.05	0.930	49.41	0.823
CV							17.26	17.15	20.84	23.53

Weed Control in Asparagus - Sandhill 2010

Dept. of Horticulture, MSU

Pest Code							Asparagus			
Crop Name							TOTAL 2010	TOTAL 2010	2004-2010	2004-2010
Description										
Rating Date										
Rating Data Type							BAD SPR	BAD SPR	MEAN GOOD	MEAN GOOD
Rating Unit							#	KG/PLOT	#	KG/PLOT
Trt	Treatment	Form	Form	Rate	Rate	Growth				
No.	Name	Conc	Type	Unit	Unit	Stage				
1	diuron	80	DF	1.2	LB A/A	PRE	12.0	0.18	278.9	5.01
2	metribuzin	75	DF	0.5	LB A/A	PRE	22.3	0.62	355.4	6.02
3	diuron	80	DF	1.2	LB A/A	PRE	16.3	0.31	336.1	5.91
	metribuzin	75	DF	0.5	LB A/A	PRE				
4	terbacil	80	WP	1.2	LB A/A	PRE	17.3	0.24	314.7	5.43
5	flumioxazin	51	WDG	0.192	LB A/A	PRE	18.0	0.23	270.6	4.77
6	sulfentrazone	4	F	0.375	LB A/A	PRE	19.7	0.40	344.0	6.04
7	halosulfuron	75	WG	0.047	LB A/A	PRE	12.7	0.23	283.9	5.08
8	mesotrione	4	SC	0.094	LB A/A	PRE	18.3	0.30	324.3	5.74
9	diuron	80	DF	1.2	LB A/A	PRE	19.0	0.31	311.3	5.33
	s-metolachlor	7.62	EC	1.3	LB A/A	PRE				
10	clomazone	3	ME	1	LB A/A	PRE	21.0	0.33	326.5	5.48
11	diuron	80	DF	1.2	LB A/A	PRE	19.0	0.27	282.2	4.93
	mesotrione	4	SC	0.094	LB A/A	PO1				
	COC	100	SL	1	% V/V	PO1				
	AMS	100	DF	2	% A/V	PO1				
12	diuron	80	DF	1.2	LB A/A	PRE	27.7	0.41	320.0	5.63
	carfentrazone	1.9	EW	0.03	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	COC	100	SL	1	% V/V	PO1				
	AMS	100	DF	2	% A/V	PO1				
LSD (P=.05)							10.15	0.364	91.14	1.628
Standard Deviation							5.99	0.215	53.82	0.962
CV							32.21	67.58	17.23	17.65

Weed Control in Transplanted Asparagus - Hart 2007

Project Code: 120-07-04

Location: Hart, MI Res. Station

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Asparagus Variety: Millennium

Planting Method: Transplant Planting Date: 6/21/07

Spacing: 12 inches 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
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

Height or Diameter	Growth Stage	Density
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Notes and Comments

- 1.
- 2.

Weed Control in Transplanted Asparagus - Hart 2007

Weed Control in Transplanted Asparagus - Hart 2007

Trial ID: WC 120-07-04

Protocol ID:120-07-04

Location: Hart

Study Director: Dr. Bernard Zandstra

Investigator: Dr. Bernard Zandstra

							COLQ	RRPW	STGR		
Pest Code							Asparagus		Asparagus		
Crop Name							12/Jul/07		17/Aug/07		17/Aug/07
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage					
1	diuron	80	WP	1	LB A/A	POT	1.3	9.5	7.3	1.8	9.0
2	linuron	50	DF	1	LB A/A	POT	1.3	10.0	8.5	1.5	8.8
3	s-metolachlor	7.62	EC	1.26	LB A/A	POT	1.0	7.3	7.5	1.3	9.3
4	flumioxazin	51	WDG	0.128	LB A/A	POT	2.5	9.0	8.5	2.8	9.0
5	halosulfuron	75	WG	0.047	LB A/A	POT	1.3	10.0	8.8	1.5	7.0
6	mesotrione	4	SC	0.094	LB A/A	POT	3.0	10.0	9.0	6.8	7.5
7	norflurazon	80	DF	3	LB A/A	POT	1.3	9.8	8.0	1.5	9.3
8	sulfentrazone	4	F	0.25	LB A/A	POT	3.0	9.5	9.3	3.0	7.8
9	napropamide	50	DF	2	LB A/A	POT	1.0	8.3	6.8	1.5	10.0
10	Untreated						1.0	1.0	1.0	1.5	9.0
LSD (P=.05)							0.62	1.41	1.67	1.14	2.77
Standard Deviation							0.43	0.97	1.15	0.78	1.91
CV							25.82	11.51	15.48	34.09	22.06

							RSFI				
Pest Code							Asparagus		Asparagus		Asparagus
Crop Name							17/Aug/07		27/May/08		14/Oct/08
Rating Date							RATING	PLANTS	HARVEST	RATING	Harvest
Rating Data Type							1-10	#/PLOT	KG/PLOT	1-10	#
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage					
1	diuron	80	WP	1	LB A/A	POT	7.8	24.3	0.35	2.0	22.8
2	linuron	50	DF	1	LB A/A	POT	7.3	24.0	0.24	1.5	22.0
3	s-metolachlor	7.62	EC	1.26	LB A/A	POT	9.3	23.8	0.39	2.0	21.0
4	flumioxazin	51	WDG	0.128	LB A/A	POT	9.5	24.3	0.31	2.3	20.3
5	halosulfuron	75	WG	0.047	LB A/A	POT	7.8	25.3	0.40	1.0	23.8
6	mesotrione	4	SC	0.094	LB A/A	POT	7.5	17.3	0.06	6.8	15.3
7	norflurazon	80	DF	3	LB A/A	POT	7.3	24.3	0.41	1.5	22.8
8	sulfentrazone	4	F	0.25	LB A/A	POT	8.3	22.3	0.26	2.5	20.5
9	napropamide	50	DF	2	LB A/A	POT	10.0	23.8	0.41	1.5	23.3
10	Untreated						10.0	23.0	0.25	1.5	22.5
LSD (P=.05)							4.00	3.77	0.162	1.22	3.00
Standard Deviation							2.76	2.60	0.111	0.84	2.07
CV							32.64	11.2	36.35	37.48	9.66

Weed Control in Transplanted Asparagus - Hart 2007

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Pest Code							Asparagus	Asparagus	Asparagus	Asparagus
Crop Name							14/Oct/08	23/Jun/09	13/Aug/09	8/Sep/09
Rating Date							Harvest	RATING	RATING	RATING
Rating Data Type							KG/PLOT	1-10	1-10	1-10
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	diuron	80	WP	1	LB A/A	POT	1.57	1.5	1.5	1.3
2	linuron	50	DF	1	LB A/A	POT	1.28	1.8	1.8	1.8
3	s-metolachlor	7.62	EC	1.26	LB A/A	POT	1.58	1.5	1.8	1.5
4	flumioxazin	51	WDG	0.128	LB A/A	POT	1.33	1.3	2.0	2.0
5	halosulfuron	75	WG	0.047	LB A/A	POT	1.78	1.3	1.3	1.0
6	mesotrione	4	SC	0.094	LB A/A	POT	0.40	4.8	3.0	5.0
7	norflurazon	80	DF	3	LB A/A	POT	2.13	1.0	1.0	1.0
8	sulfentrazone	4	F	0.25	LB A/A	POT	1.16	2.0	1.8	2.3
9	napropamide	50	DF	2	LB A/A	POT	1.57	1.8	1.8	1.3
10	Untreated						1.32	1.5	1.5	1.5
LSD (P=.05)							0.490	1.12	0.93	1.04
Standard Deviation							0.338	0.77	0.64	0.72
CV							23.91	42.28	37.13	38.78

Pest Code							Asparagus	Asparagus	Asparagus
Crop Name							20/Oct/09	20/Oct/09	
Rating Date							Harvest	Harvest	Total 2010
Rating Data Type							#	KG/PLOT	KG/PLOT
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	diuron	80	WP	1	LB A/A	POT	23.5	4.20	1.91
2	linuron	50	DF	1	LB A/A	POT	22.5	3.34	1.93
3	s-metolachlor	7.62	EC	1.26	LB A/A	POT	22.0	4.35	1.72
4	flumioxazin	51	WDG	0.128	LB A/A	POT	20.8	3.51	1.56
5	halosulfuron	75	WG	0.047	LB A/A	POT	23.0	4.29	2.02
6	mesotrione	4	SC	0.094	LB A/A	POT	15.3	1.42	1.41
7	norflurazon	80	DF	3	LB A/A	POT	23.0	6.22	2.11
8	sulfentrazone	4	F	0.25	LB A/A	POT	20.3	3.64	1.56
9	napropamide	50	DF	2	LB A/A	POT	22.3	4.50	1.77
10	Untreated						23.3	4.58	1.74
LSD (P=.05)							3.03	1.556	0.737
Standard Deviation							2.09	1.073	0.508
CV							9.67	26.79	28.65

Weed Control in Transplanted Asparagus - Hart 2008

Project Code: WC 120-08-03

Location: Hart, MI

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
				°F				% Cloudy	N
				°F				% Cloudy	N
				°F				% Cloudy	N
				°F				% Cloudy	N

Crop and Weed Information at Application

Height or Diameter	Growth Stage	Density
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Notes and Comments

1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO₂ 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

Weed Control in Transplanted Asparagus - Hart 2008

Trial ID: WC 120-08-03
Location: Hart

Protocol ID: 120-08-03
Study Director: Dr. Bernard Zandstra
Investigator: Dr. Bernard Zandstra

							LACG	COPU	RRPW			
							Asparagus				Asparagus	
							18/Jul/08	18/Jul/08	18/Jul/08	18/Jul/08	30/Jul/08	
							RATING	RATING	RATING	RATING	RATING	
							1-10	1-10	1-10	1-10	1-10	
Trt	Treatment	Form	Form	Rate	Growth							
No.	Name	Conc	Type	Rate	Unit	Stage						
1	diuron	80	DF	1	LB A/A	POT	1.8	7.3	6.5	6.3	2.8	
2	linuron	50	DF	1	LB A/A	POT	2.5	9.5	8.5	6.5	2.8	
	halosulfuron	75	WG	0.0155	LB A/A	PO1						
	linuron	50	DF	0.156	LB A/A	PO2						
	halosulfuron	75	WG	0.023	LB A/A	PO3						
3	s-metolachlor	7.62	EC	1.26	LB A/A	POT	2.5	9.5	9.3	9.0	5.3	
4	flumioxazin	51	WDG	0.128	LB A/A	POT	8.3	10.0	10.0	10.0	7.5	
5	halosulfuron	75	WG	0.047	LB A/A	POT	1.0	8.0	9.8	9.3	1.3	
	halosulfuron	75	WG	0.023	LB A/A	PO1						
	sethoxydim	1.53	EC	0.19	LB A/A	PO1						
6	mesotrione	4	SC	0.094	LB A/A	POT	5.0	9.3	7.5	8.5	5.4	
7	norflurazon	80	DF	3	LB A/A	POT	1.5	10.0	9.8	6.5	4.0	
	linuron	50	DF	0.156	LB A/A	PO1						
	linuron	50	DF	0.156	LB A/A	PO2						
	linuron	50	DF	0.188	LB A/A	PO3						
8	sulfentrazone	4	F	0.25	LB A/A	POT	5.8	10.0	10.0	9.8	7.0	
	pendimethalin	3.8	CS	1.6	LB A/A	PO1						
9	napropamide	50	DF	2	LB A/A	POT	3.0	9.3	8.5	7.5	3.5	
	metribuzin	75	DF	0.123	LB A/A	PO1						
	metribuzin	75	DF	0.123	LB A/A	PO2						
	metribuzin	75	DF	0.15	LB A/A	PO3						
10	Untreated						1.3	7.3	5.0	4.8	1.0	
LSD (P=.05)							1.94	2.93	2.57	2.47	1.58	
Standard Deviation							1.34	2.02	1.77	1.70	1.08	
CV							41.15	22.47	20.93	21.85	26.85	

Weed Control in Transplanted Asparagus - Hart 2008

Dept. of Horticulture, MSU

Pest Code						LACG	STGR	COLQ	COPU	RRPW	
Crop Name											
Rating Date						30/Jul/08	30/Jul/08	30/Jul/08	30/Jul/08	30/Jul/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	LB A/A	POT	5.0	8.3	10.0	7.5	4.3
2	linuron	50	DF	1	LB A/A	POT	5.8	7.0	9.3	4.5	7.8
	halosulfuron	75	WG	0.0155	LB A/A	PO1					
	linuron	50	DF	0.156	LB A/A	PO2					
	halosulfuron	75	WG	0.023	LB A/A	PO3					
3	s-metolachlor	7.62	EC	1.26	LB A/A	POT	10.0	10.0	9.3	7.3	5.8
4	flumioxazin	51	WDG	0.128	LB A/A	POT	9.3	10.0	10.0	9.5	9.5
5	halosulfuron	75	WG	0.047	LB A/A	POT	7.8	9.8	9.8	6.8	10.0
	halosulfuron	75	WG	0.023	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
6	mesotrione	4	SC	0.094	LB A/A	POT	8.0	10.0	10.0	7.3	6.0
7	norflurazon	80	DF	3	LB A/A	POT	10.0	10.0	9.8	9.8	4.8
	linuron	50	DF	0.156	LB A/A	PO1					
	linuron	50	DF	0.156	LB A/A	PO2					
	linuron	50	DF	0.188	LB A/A	PO3					
8	sulfentrazone	4	F	0.25	LB A/A	POT	8.0	10.0	10.0	9.3	9.0
	pendimethalin	3.8	CS	1.6	LB A/A	PO1					
9	napropamide	50	DF	2	LB A/A	POT	8.0	9.3	10.0	7.8	5.8
	metribuzin	75	DF	0.123	LB A/A	PO1					
	metribuzin	75	DF	0.123	LB A/A	PO2					
	metribuzin	75	DF	0.15	LB A/A	PO3					
10	Untreated						1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							2.77	2.51	0.74	1.45	2.44
Standard Deviation							1.91	1.73	0.51	1.00	1.68
CV							26.26	20.29	5.72	14.18	26.33

Weed Control in Transplanted Asparagus - Hart 2008

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Pest Code		Asparagus					HANS	LACG	HANS	RRPW	
Crop Name							30/Jul/08	26/Aug/08	26/Aug/08	26/Aug/08	
Rating Date							RATING	RATING	RATING	RATING	
Rating Data Type							1-10	1-10	1-10	1-10	
Rating Unit							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 A/A	POT	8.8	1.0	3.8	5.0	4.0
2	linuron	50	DF	1	LB A/A	POT	7.3	1.8	4.3	4.8	7.5
	halosulfuron	75	WG	0.0155	LB A/A	PO1					
	linuron	50	DF	0.156	LB A/A	PO2					
	halosulfuron	75	WG	0.023	LB A/A	PO3					
3	s-metolachlor	7.62	EC	1.26	LB A/A	POT	9.5	1.8	8.8	6.8	5.3
4	flumioxazin	51	WDG	0.128	LB A/A	POT	9.3	4.0	7.8	6.5	8.5
5	halosulfuron	75	WG	0.047	LB A/A	POT	9.0	1.3	6.3	7.3	9.8
	halosulfuron	75	WG	0.023	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
6	mesotrione	4	SC	0.094	LB A/A	POT	9.5	3.0	5.0	8.3	5.0
7	norflurazon	80	DF	3	LB A/A	POT	10.0	2.5	8.8	9.5	4.8
	linuron	50	DF	0.156	LB A/A	PO1					
	linuron	50	DF	0.156	LB A/A	PO2					
	linuron	50	DF	0.188	LB A/A	PO3					
8	sulfentrazone	4	F	0.25	LB A/A	POT	10.0	4.5	4.5	9.5	6.5
	pendimethalin	3.8	CS	1.6	LB A/A	PO1					
9	napropamide	50	DF	2	LB A/A	POT	9.3	2.0	8.5	6.8	6.3
	metribuzin	75	DF	0.123	LB A/A	PO1					
	metribuzin	75	DF	0.123	LB A/A	PO2					
	metribuzin	75	DF	0.15	LB A/A	PO3					
10	Untreated						1.0	1.5	3.8	7.8	1.8
LSD (P=.05)							1.79	1.38	4.11	4.29	3.31
Standard Deviation							1.23	0.95	2.83	2.96	2.28
CV							14.74	40.87	46.22	41.11	38.55

Weed Control in Transplanted Asparagus - Hart 2008

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Pest Code							STGR	TUPW	Asparagus		STGR	LACG
Crop Name												
Rating Date							26/Aug/08	26/Aug/08	11/Sep/08	11/Sep/08	11/Sep/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	LB A/A	POT	5.8	5.8	2.8	6.0	5.0	
2	linuron	50	DF	1	LB A/A	POT	5.5	10.0	2.8	5.8	5.5	
	halosulfuron	75	WG	0.0155	LB A/A	PO1						
	linuron	50	DF	0.156	LB A/A	PO2						
	halosulfuron	75	WG	0.023	LB A/A	PO3						
3	s-metolachlor	7.62	EC	1.26	LB A/A	POT	9.3	6.8	3.3	9.3	9.8	
4	flumioxazin	51	WDG	0.128	LB A/A	POT	9.5	10.0	7.0	9.3	8.8	
5	halosulfuron	75	WG	0.047	LB A/A	POT	9.0	10.0	2.0	9.0	7.8	
	halosulfuron	75	WG	0.023	LB A/A	PO1						
	sethoxydim	1.53	EC	0.19	LB A/A	PO1						
6	mesotrione	4	SC	0.094	LB A/A	POT	8.0	10.0	4.8	9.0	6.5	
7	norflurazon	80	DF	3	LB A/A	POT	10.0	10.0	4.8	10.0	9.3	
	linuron	50	DF	0.156	LB A/A	PO1						
	linuron	50	DF	0.156	LB A/A	PO2						
	linuron	50	DF	0.188	LB A/A	PO3						
8	sulfentrazone	4	F	0.25	LB A/A	POT	8.0	10.0	7.0	9.8	6.3	
	pendimethalin	3.8	CS	1.6	LB A/A	PO1						
9	napropamide	50	DF	2	LB A/A	POT	10.0	10.0	3.5	9.8	8.5	
	metribuzin	75	DF	0.123	LB A/A	PO1						
	metribuzin	75	DF	0.123	LB A/A	PO2						
	metribuzin	75	DF	0.15	LB A/A	PO3						
10	Untreated						5.3	10.0	1.5	3.8	3.3	
LSD (P=.05)							3.52	2.83	2.16	3.44	3.44	
Standard Deviation							2.43	1.95	1.49	2.37	2.37	
CV							30.24	21.07	38.0	29.11	33.59	

Weed Control in Transplanted Asparagus - Hart 2008

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Pest Code	Crop Name	Rating Date	Rating Data Type	Rating Unit	RRPW					
					11/Sep/08	14/Oct/08	14/Oct/08	23/Jun/09		
					RATING	Harvest	Harvest	RATING		
					1-10	# Ferns	KG/PLOT	1-10		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	diuron	80	DF	1	LB A/A	POT	5.0	20.8	0.05	2.8
2	linuron	50	DF	1	LB A/A	POT	9.0	22.0	0.05	2.8
	halosulfuron	75	WG	0.0155	LB A/A	PO1				
	linuron	50	DF	0.156	LB A/A	PO2				
	halosulfuron	75	WG	0.023	LB A/A	PO3				
3	s-metolachlor	7.62	EC	1.26	LB A/A	POT	6.8	21.5	0.07	3.0
4	flumioxazin	51	WDG	0.128	LB A/A	POT	9.3	11.0	0.02	5.8
5	halosulfuron	75	WG	0.047	LB A/A	POT	9.5	24.5	0.10	1.0
	halosulfuron	75	WG	0.023	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
6	mesotrione	4	SC	0.094	LB A/A	POT	5.3	16.3	0.04	4.3
7	norflurazon	80	DF	3	LB A/A	POT	5.8	19.0	0.04	3.8
	linuron	50	DF	0.156	LB A/A	PO1				
	linuron	50	DF	0.156	LB A/A	PO2				
	linuron	50	DF	0.188	LB A/A	PO3				
8	sulfentrazone	4	F	0.25	LB A/A	POT	8.0	12.3	0.03	5.3
	pendimethalin	3.8	CS	1.6	LB A/A	PO1				
9	napropamide	50	DF	2	LB A/A	POT	7.8	22.0	0.05	3.5
	metribuzin	75	DF	0.123	LB A/A	PO1				
	metribuzin	75	DF	0.123	LB A/A	PO2				
	metribuzin	75	DF	0.15	LB A/A	PO3				
10	Untreated						1.8	22.3	0.07	2.3
LSD (P=.05)							2.78	5.22	0.039	2.10
Standard Deviation							1.91	3.60	0.027	1.45
CV							28.15	18.78	53.61	42.34

Weed Control in Transplanted Asparagus - Hart 2008

Dept. of Horticulture, MSU

Pest Code										
Crop Name		Asparagus								
Rating Date		Asparagus		Asparagus		Asparagus		Asparagus		
Rating Data Type		13/Aug/09		8/Sep/09		20/Oct/09		20/Oct/09		
Rating Unit		RATING		RATING		Harvest		Harvest		
		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 A/A	POT	2.3	5.0	18.5	0.19
2	linuron	50	DF	1	LB A/A	POT	1.5	3.8	15.5	0.19
	halosulfuron	75	WG	0.0155	LB A/A	PO1				
	linuron	50	DF	0.156	LB A/A	PO2				
	halosulfuron	75	WG	0.023	LB A/A	PO3				
3	s-metolachlor	7.62	EC	1.26	LB A/A	POT	2.0	2.3	19.3	0.36
4	flumioxazin	51	WDG	0.128	LB A/A	POT	2.3	5.0	10.3	0.10
5	halosulfuron	75	WG	0.047	LB A/A	POT	1.5	2.0	20.3	0.40
	halosulfuron	75	WG	0.023	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
6	mesotrione	4	SC	0.094	LB A/A	POT	2.0	5.5	12.0	0.12
7	norflurazon	80	DF	3	LB A/A	POT	2.5	2.8	18.3	0.32
	linuron	50	DF	0.156	LB A/A	PO1				
	linuron	50	DF	0.156	LB A/A	PO2				
	linuron	50	DF	0.188	LB A/A	PO3				
8	sulfentrazone	4	F	0.25	LB A/A	POT	2.5	5.5	11.0	0.14
	pendimethalin	3.8	CS	1.6	LB A/A	PO1				
9	napropamide	50	DF	2	LB A/A	POT	2.0	3.8	17.5	0.11
	metribuzin	75	DF	0.123	LB A/A	PO1				
	metribuzin	75	DF	0.123	LB A/A	PO2				
	metribuzin	75	DF	0.15	LB A/A	PO3				
10	Untreated						1.8	2.5	19.5	0.27
LSD (P=.05)							1.13	2.31	6.90	0.232
Standard Deviation							0.78	1.59	4.75	0.160
CV							38.46	41.82	29.34	72.65

Weed Control in Transplanted Asparagus - Hart 2008

Dept. of Horticulture, MSU

Pest Code	Crop Name	Asparagus	Asparagus	Asparagus					
Rating Date	1/Jun/10	6/Oct/10	6/Oct/10						
Rating Data Type	RATING	Harvest	Harvest						
Rating Unit	1-10	# Ferns	KG/PLOT						
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	diuron	80	DF	1	LB A/A	POT	3.3	15.8	1.56
2	linuron	50	DF	1	LB A/A	POT	3.3	18.0	1.82
	halosulfuron	75	WG	0.0155	LB A/A	PO1			
	linuron	50	DF	0.156	LB A/A	PO2			
	halosulfuron	75	WG	0.023	LB A/A	PO3			
3	s-metolachlor	7.62	EC	1.26	LB A/A	POT	1.8	15.3	1.70
4	flumioxazin	51	WDG	0.128	LB A/A	POT	5.0	9.0	0.95
5	halosulfuron	75	WG	0.047	LB A/A	POT	1.0	19.5	2.54
	halosulfuron	75	WG	0.023	LB A/A	PO1			
	sethoxydim	1.53	EC	0.19	LB A/A	PO1			
6	mesotrione	4	SC	0.094	LB A/A	POT	4.8	11.3	0.95
7	norflurazon	80	DF	3	LB A/A	POT	3.0	12.8	1.48
	linuron	50	DF	0.156	LB A/A	PO1			
	linuron	50	DF	0.156	LB A/A	PO2			
	linuron	50	DF	0.188	LB A/A	PO3			
8	sulfentrazone	4	F	0.25	LB A/A	POT	5.3	8.3	0.62
	pendimethalin	3.8	CS	1.6	LB A/A	PO1			
9	napropamide	50	DF	2	LB A/A	POT	3.3	15.0	1.56
	metribuzin	75	DF	0.123	LB A/A	PO1			
	metribuzin	75	DF	0.123	LB A/A	PO2			
	metribuzin	75	DF	0.15	LB A/A	PO3			
10	Untreated						2.3	17.0	1.85
LSD (P=.05)							2.54	5.59	1.120
Standard Deviation							1.75	3.85	0.772
CV							53.4	27.16	51.4

Weed Control in Snap Bean - HTRC 2010

Project Code: 125-10-01

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Snap Bean

Variety: Foremost

Planting Method: Seeded

Planting Date: 5/26/10

Spacing: 3 inches

Row Spacing: 14 inches

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Marlette fine sandy loam OM: 1.2%

pH: 7.4

Sand: 52.4%

Silt: 26.4%

Clay: 21.2%

CEC: 8.2

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/27/10	11:00 AM	80/76	F	Dry	3-5 NE	80	3% Cloudy	N
PO1	6/18/10	9:30 AM	73/70	F	Dry	5-8 S	75	100% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/26	SNAP BEAN		Planted	
6/18	SNAP BEAN	6"	4-6 LF	
6/18	COLQ = common lambsquarters	1-2"	2-4 LF	Few
6/18	CORW = common ragweed	3-6", 1-2"		Moderate
6/18	LACG = large crabgrass	1-3"		Few
6/18	ORGR = orchardgrass	3-5"		Moderate

Notes and Comments

- 1.
- 2.

Weed Control in Snap Bean - HTRC 2010

Weed Control in Snap Bean - HTRC 2010										
Trial ID: 125-10-01						Protocol ID: 125-10-01				
Location: East Lansing, MI						Study Director: Rodney Tocco				
						Investigator: Dr. Bernard Zandstra				
Pest Code							GRFT	COLQ	CORW	
Crop Name							Snap Bean			
Rating Date							17/Jun/10	17/Jun/10	17/Jun/10	17/Jun/10
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	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	1.7	10.0	9.3	8.3
2	fomesafen	2	EC	0.25	LB A/A	PRE	1.7	10.0	9.3	10.0
3	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	1.3	10.0	9.3	10.0
	fomesafen	2	EC	0.25	LB A/A	PRE				
4	Prefix	5.29	L	1	QT/A	PRE	1.7	10.0	9.7	10.0
	s-metolachlor	4.34	L	0.82	QT/A	PRE				
	fomesafen	0.95	L	0.18		PRE				
5	pendimethalin	3.8	CS	1.42	LB A/A	PRE	2.7	9.7	10.0	8.0
6	clomazone	3	ME	0.25	LB A/A	PRE	1.0	10.0	9.7	9.7
7	pendimethalin	3.3	EC	0.95	LB A/A	PRE	1.3	10.0	10.0	9.3
	clomazone	3	ME	0.25	LB A/A	PRE				
8	imazethapyr	2	EC	0.031	LB A/A	PRE	1.3	10.0	10.0	9.7
9	pendimethalin	3.8	CS	0.95	LB A/A	PRE	2.3	9.7	10.0	10.0
	halosulfuron	75	WG	0.023	LB A/A	PRE				
10	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	2.0	10.0	8.7	8.3
	halosulfuron	75	WG	0.023	LB A/A	PO1				
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1				
11	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.7	9.3	9.0	7.7
	imazamox	1	AS	0.031	LB A/A	PO1				
	bentazon	4	L	0.75	LB A/A	PO1				
12	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.3	10.0	8.7	8.7
	imazamox	1	AS	0.031	LB A/A	PO1				
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.7	10.0	9.3	6.0
	fomesafen	2	EC	0.25	LB A/A	PO1				
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
14	Untreated					PRE	1.0	3.7	4.0	1.7
	bentazon	4	L	1	LB A/A	PO1				
	quizalofop p-ethyl	0.88	EC	0.08	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
LSD (P=.05)							1.08	2.13	2.60	2.30
Standard Deviation							0.65	1.27	1.55	1.37
CV							39.91	13.43	17.07	16.38

Weed Control in Snap Bean - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							RRPW	GRFT		COLQ
Crop Name							Snap Bean			
Rating Date							17/Jun/10	23/Jun/10	23/Jun/10	23/Jun/10
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	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	10.0	1.3	9.7	9.7
2	fomesafen	2	EC	0.25	LB A/A	PRE	10.0	1.3	10.0	9.3
3	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	10.0	1.3	10.0	9.3
4	fomesafen	2	EC	0.25	LB A/A	PRE				
4	Prefix	5.29	L	1	QT/A	PRE	10.0	1.7	10.0	10.0
	s-metolachlor	4.34	L	0.82	QT/A	PRE				
	fomesafen	0.95	L	0.18		PRE				
5	pendimethalin	3.8	CS	1.42	LB A/A	PRE	10.0	3.3	9.7	10.0
6	clomazone	3	ME	0.25	LB A/A	PRE	10.0	1.0	10.0	9.3
7	pendimethalin	3.3	EC	0.95	LB A/A	PRE	10.0	2.0	10.0	10.0
	clomazone	3	ME	0.25	LB A/A	PRE				
8	imazethapyr	2	EC	0.031	LB A/A	PRE	10.0	1.7	10.0	10.0
9	pendimethalin	3.8	CS	0.95	LB A/A	PRE	10.0	2.7	9.7	10.0
10	halosulfuron	75	WG	0.023	LB A/A	PRE				
	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	2.3	10.0	8.3
	halosulfuron	75	WG	0.023	LB A/A	PO1				
11	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1				
	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	2.0	10.0	9.7
	imazamox	1	AS	0.031	LB A/A	PO1				
12	bentazon	4	L	0.75	LB A/A	PO1				
	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	1.7	10.0	9.0
	imazamox	1	AS	0.031	LB A/A	PO1				
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	1.7	10.0	10.0
	fomesafen	2	EC	0.25	LB A/A	PO1				
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1				
14	NIS	100	SL	0.25	% V/V	PO1				
	Untreated					PRE	4.0	2.3	10.0	10.0
	bentazon	4	L	1	LB A/A	PO1				
	quizalofop p-ethyl	0.88	EC	0.08	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
LSD (P=.05)							2.33	1.15	0.45	0.89
Standard Deviation							1.39	0.68	0.27	0.53
CV							14.51	36.33	2.69	5.49

Weed Control in Snap Bean - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							CORW		
Crop Name							23/Jun/10	Snap Bean	Snap Bean
Rating Date							RATING	Harv. Plant	Harv. Beans
Rating Data Type							1-10	KG/PLOT	KG/PLOT
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	8.3	9.06	12.07
2	fomesafen	2	EC	0.25	LB A/A	PRE	10.0	10.03	14.71
3	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	10.0	11.24	14.08
	fomesafen	2	EC	0.25	LB A/A	PRE			
4	Prefix	5.29	L	1	QT/A	PRE	10.0	11.38	16.69
	s-metolachlor	4.34	L	0.82	QT/A	PRE			
	fomesafen	0.95	L	0.18		PRE			
5	pendimethalin	3.8	CS	1.42	LB A/A	PRE	4.3	3.62	3.53
6	clomazone	3	ME	0.25	LB A/A	PRE	9.0	8.36	12.78
7	pendimethalin	3.3	EC	0.95	LB A/A	PRE	9.7	11.11	16.97
	clomazone	3	ME	0.25	LB A/A	PRE			
8	imazethapyr	2	EC	0.031	LB A/A	PRE	9.7	11.56	16.86
9	pendimethalin	3.8	CS	0.95	LB A/A	PRE	10.0	6.46	9.40
	halosulfuron	75	WG	0.023	LB A/A	PRE			
10	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.3	9.91	13.77
	halosulfuron	75	WG	0.023	LB A/A	PO1			
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1			
11	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	8.3	9.73	15.76
	imazamox	1	AS	0.031	LB A/A	PO1			
	bentazon	4	L	0.75	LB A/A	PO1			
12	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.0	11.19	14.56
	imazamox	1	AS	0.031	LB A/A	PO1			
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	11.41	16.25
	fomesafen	2	EC	0.25	LB A/A	PO1			
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1			
	NIS	100	SL	0.25	% V/V	PO1			
14	Untreated					PRE	9.3	8.95	12.18
	bentazon	4	L	1	LB A/A	PO1			
	quizalofop p-ethyl	0.88	EC	0.08	LB A/A	PO1			
	NIS	100	SL	0.25	% V/V	PO1			
LSD (P=.05)							1.50	3.687	6.158
Standard Deviation							0.89	2.196	3.668
CV							9.83	22.94	27.09

Weed Control in Beet & Chard - HTRC 2010

Project Code: 109-10-01

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Red Beets, Chard, Sugar Beets Variety: See notes

Planting Method: Seeded Planting Date: 4/16/10

Spacing: 3 inches Row Spacing: 14 inches

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 5.3 ft wide x 35 ft long

Soil Type: Capac loam

OM: 1.5%

pH: 7.8

Sand: 55.8% Silt: 22.1%

Clay: 22.2%

CEC: 8.1

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE/PPI	4/16/10	11:00 AM	67/57	F	Damp	6-9 SW	38	77% Cloudy	N
PO1	4/24/10	11:00 AM	84/75	F	Moist	2 S	50	10% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

	Height or Diameter	Growth Stage	Density
4/16 Red Beet, Chard, Sugar Beet		Just planted	

Notes and Comments

1. 1 row Swiss chard, 2 rows red beets, 2 rows sugar beets in each plot.
2. Swiss chard: Fordhook Giant. Red beet: Ruby Queen. Sugar beet: Crystal 963.

Weed Control in Beet & Chard - HTRC 2010

Weed Control in Beet & Chard - HTRC 2010

Trial ID: 109-10-01
Location: East Lansing, MI

Protocol ID: 109-10-01
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

Pest Code							GRFT			
Crop Name							Red Beet	Swiss Chard	Sugar Beet	
Rating Date							24/May/10	24/May/10	24/May/10	24/May/10
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	s-metolachlor	7.62	EC	0.75	LB A/A	PRE	3.0	2.3	2.3	10.0
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	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				
2	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	3.0	2.7	3.0	10.0
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	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				
3	dimethenamid-p	6	EC	0.5	LB A/A	PRE	3.7	2.3	2.7	10.0
	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				
4	ethofumesate	4	SC	2.0	LB A/A	PRE	2.0	2.3	2.7	10.0
	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				
5	pyrazon	68	DF	3	LB A/A	PRE	2.3	1.3	2.0	10.0
	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				
6	cycloate	6	EC	3	LB A/A	PPI	2.0	1.3	3.0	9.7
	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				
7	propachlor	4	F	4	LB A/A	PRE	3.3	2.3	2.0	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				
8	pyrazon	68	DF	2	LB A/A	PRE	1.7	1.7	2.0	9.7
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	pyrazon	68	DF	3	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
9	Untreated					PRE	1.0	1.0	1.7	1.0
	ethofumesate	4	SC	1.0	LB A/A	PO1				
	phenmedipham	0.65	EC	36	FL OZ/A	PO1				
	desmedipham	0.65	EC	36						
	triflusulfuron	50	WDG	0.156	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
10	Untreated					PRE	1.0	1.0	1.7	1.0
	ethofumesate	4	SC	1.0	LB A/A	PO1				
	phenmedipham	0.65	EC	36	FL OZ/A	PO1				
	desmedipham	0.65	EC	36						
	clopyralid	3	L	0.19	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
NIS	100	SL	0.25	% V/V	PO1					
LSD (P=.05)							1.15	0.82	1.64	1.03
Standard Deviation							0.67	0.48	0.96	0.60
CV							29.11	25.93	41.67	7.46

Weed Control in Beet & Chard - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							COLQ	RRPW	Red Beet	Swiss Chard
Crop Name							24/May/10	24/May/10	4/Jun/10	4/Jun/10
Rating Date							RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	s-metolachlor	7.62	EC	0.75	LB A/A	PRE	9.0	9.7	1.7	1.3
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	pyrazon	68	DF	3	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
2	NIS	100	SL	0.25	% V/V	PO1	10.0	10.0	2.0	2.0
	s-metolachlor	7.62	EC	0.95	LB A/A	PRE				
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	pyrazon	68	DF	3	LB A/A	PO1				
3	sethoxydim	1.53	EC	0.19	LB A/A	PO1	9.0	9.7	1.7	1.3
	NIS	100	SL	0.25	% V/V	PO1				
	dimethenamid-p	6	EC	0.5	LB A/A	PRE				
	pyrazon	68	DF	3	LB A/A	PO1				
4	sethoxydim	1.53	EC	0.19	LB A/A	PO1	8.7	9.7	1.3	1.3
	NIS	100	SL	0.25	% V/V	PO1				
	ethofumesate	4	SC	2.0	LB A/A	PRE				
	pyrazon	68	DF	3	LB A/A	PO1				
5	sethoxydim	1.53	EC	0.19	LB A/A	PO1	9.0	10.0	1.0	1.0
	NIS	100	SL	0.25	% V/V	PO1				
	pyrazon	68	DF	3	LB A/A	PRE				
	pyrazon	68	DF	3	LB A/A	PO1				
6	sethoxydim	1.53	EC	0.19	LB A/A	PO1	9.0	9.0	2.0	2.0
	NIS	100	SL	0.25	% V/V	PO1				
	cycloate	6	EC	3	LB A/A	PPI				
	pyrazon	68	DF	3	LB A/A	PO1				
7	sethoxydim	1.53	EC	0.19	LB A/A	PO1	8.7	9.7	2.7	1.0
	NIS	100	SL	0.25	% V/V	PO1				
	pyrazon	68	DF	3	LB A/A	PO1				
	propachlor	4	F	4	LB A/A	PRE				
8	pyrazon	68	DF	2	LB A/A	PRE	9.0	9.3	1.3	1.3
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	pyrazon	68	DF	3	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
9	NIS	100	SL	0.25	% V/V	PO1	1.0	1.0	2.0	1.7
	Untreated					PRE				
	ethofumesate	4	SC	1.0	LB A/A	PO1				
	phenmedipham	0.65	EC	36	FL OZ/A	PO1				
	desmedipham	0.65	EC	36						
	triflusulfuron	50	WDG	0.156	LB A/A	PO1				
10	sethoxydim	1.53	EC	0.19	LB A/A	PO1	1.0	1.0	3.0	2.3
	NIS	100	SL	0.25	% V/V	PO1				
	Untreated					PRE				
	ethofumesate	4	SC	1.0	LB A/A	PO1				
	phenmedipham	0.65	EC	36	FL OZ/A	PO1				
	desmedipham	0.65	EC	36						
LSD (P=.05)							1.43	0.64	1.36	0.95
Standard Deviation							0.83	0.38	0.79	0.55
CV							11.2	4.75	42.38	36.16

Weed Control in Beet & Chard - HTRC 2010

Dept. of Horticulture, MSU

Pest Code	Crop Name	Rating Date	Rating Data Type	Rating Unit	Sugar Beet		GRFT	COLQ	Red Beet	
					4/Jun/10	4/Jun/10	4/Jun/10	15/Jun/10		
					RATING	RATING	RATING	RATING	RATING	RATING
					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	0.75	LB A/A	PRE	1.7	10.0	6.7	2.0
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	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				
2	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	2.7	10.0	9.0	2.0
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	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				
3	dimethenamid-p	6	EC	0.5	LB A/A	PRE	2.0	9.7	8.0	1.7
	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				
4	ethofumesate	4	SC	2.0	LB A/A	PRE	2.0	9.3	7.3	2.0
	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				
5	pyrazon	68	DF	3	LB A/A	PRE	2.3	10.0	9.3	1.3
	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				
6	cycloate	6	EC	3	LB A/A	PPI	3.3	9.7	8.3	2.0
	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				
7	propachlor	4	F	4	LB A/A	PRE	1.7	9.7	8.0	2.3
	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				
8	pyrazon	68	DF	2	LB A/A	PRE	2.3	10.0	9.3	1.3
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	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				
9	Untreated					PRE	3.3	7.7	9.0	1.7
	ethofumesate	4	SC	1.0	LB A/A	PO1				
	phenmedipham	0.65	EC	36	FL OZ/A	PO1				
	desmedipham	0.65	EC	36						
	triflusulfuron	50	WDG	0.156	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	4.0	9.7	10.0	2.7
	ethofumesate	4	SC	1.0	LB A/A	PO1				
	phenmedipham	0.65	EC	36	FL OZ/A	PO1				
	desmedipham	0.65	EC	36						
	clopyralid	3	L	0.19	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
LSD (P=.05)							2.15	2.42	2.07	1.21
Standard Deviation							1.26	1.41	1.20	0.71
CV							49.58	14.77	14.18	37.22

Weed Control in Beet & Chard - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							GRFT	COLQ		
Crop Name							Swiss Chard	Sugar Beet		
Rating Date							15/Jun/10	15/Jun/10		
Rating Data Type							RATING	RATING		
Rating Unit							1-10	1-10		
Trt	Treatment	Form	Form	Rate	Rate	Growth				
No.	Name	Conc	Type		Unit	Stage				
1	s-metolachlor	7.62	EC	0.75	LB A/A	PRE	1.7	1.3	10.0	7.3
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	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				
2	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	2.0	2.0	10.0	9.3
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	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				
3	dimethenamid-p	6	EC	0.5	LB A/A	PRE	1.7	1.7	10.0	8.3
	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				
4	ethofumesate	4	SC	2.0	LB A/A	PRE	1.7	2.7	10.0	8.3
	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				
5	pyrazon	68	DF	3	LB A/A	PRE	1.3	1.7	10.0	8.7
	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				
6	cycloate	6	EC	3	LB A/A	PPI	1.7	1.7	10.0	7.7
	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				
7	propachlor	4	F	4	LB A/A	PRE	1.3	2.0	9.7	6.7
	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				
8	pyrazon	68	DF	2	LB A/A	PRE	1.3	1.3	10.0	9.0
	ethofumesate	4	SC	1.0	LB A/A	PRE				
	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				
9	Untreated					PRE	1.3	3.0	9.3	8.7
	ethofumesate	4	SC	1.0	LB A/A	PO1				
	phenmedipham	0.65	EC	36	FL OZ/A	PO1				
	desmedipham	0.65	EC	36						
	triflusulfuron	50	WDG	0.156	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	2.7	10.0	10.0
	ethofumesate	4	SC	1.0	LB A/A	PO1				
	phenmedipham	0.65	EC	36	FL OZ/A	PO1				
	desmedipham	0.65	EC	36						
	clopyralid	3	L	0.19	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
LSD (P=.05)							0.97	1.06	0.67	1.05
Standard Deviation							0.56	0.62	0.39	0.61
CV							35.27	30.88	3.94	7.28

Weed Control in Beet & Chard - HTRC 2010

Dept. of Horticulture, MSU

Pest Code	Crop Name	Rating Date	Rating Data Type	Rating Unit	Swiss Chard 6/Jul/10 Harvest KG/PLOT	Red Beet 14/Jul/10 Harvest Root #	Red Beet 14/Jul/10 Harvest Root KG/PLOT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	s-metolachlor	7.62	EC	0.75	LB A/A	PRE	19.12		
	ethofumesate	4	SC	1.0	LB A/A	PRE	116.3		
	pyrazon	68	DF	3	LB A/A	PO1	19.57		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1			
	NIS	100	SL	0.25	% V/V	PO1			
2	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	18.16		
	ethofumesate	4	SC	1.0	LB A/A	PRE	147.3		
	pyrazon	68	DF	3	LB A/A	PO1	21.77		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1			
	NIS	100	SL	0.25	% V/V	PO1			
3	dimethenamid-p	6	EC	0.5	LB A/A	PRE	19.71		
	pyrazon	68	DF	3	LB A/A	PO1	107.0		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1	16.06		
	NIS	100	SL	0.25	% V/V	PO1			
4	ethofumesate	4	SC	2.0	LB A/A	PRE	17.51		
	pyrazon	68	DF	3	LB A/A	PO1	169.3		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1	20.43		
	NIS	100	SL	0.25	% V/V	PO1			
5	pyrazon	68	DF	3	LB A/A	PRE	17.57		
	pyrazon	68	DF	3	LB A/A	PO1	127.7		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1	20.02		
	NIS	100	SL	0.25	% V/V	PO1			
6	cycloate	6	EC	3	LB A/A	PPI	16.82		
	pyrazon	68	DF	3	LB A/A	PO1	134.3		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1	18.07		
	NIS	100	SL	0.25	% V/V	PO1			
7	propachlor	4	F	4	LB A/A	PRE	18.03		
	pyrazon	68	DF	3	LB A/A	PO1	86.3		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1	11.88		
	NIS	100	SL	0.25	% V/V	PO1			
8	pyrazon	68	DF	2	LB A/A	PRE	19.23		
	ethofumesate	4	SC	1.0	LB A/A	PRE	150.7		
	pyrazon	68	DF	3	LB A/A	PO1	22.29		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1			
	NIS	100	SL	0.25	% V/V	PO1			
9	Untreated					PRE	18.69		
	ethofumesate	4	SC	1.0	LB A/A	PO1	141.3		
	phenmedipham	0.65	EC	36	FL OZ/A	PO1	19.31		
	desmedipham	0.65	EC	36					
	triflusalufuron	50	WDG	0.156	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	20.02		
	ethofumesate	4	SC	1.0	LB A/A	PO1	116.7		
	phenmedipham	0.65	EC	36	FL OZ/A	PO1	15.92		
	desmedipham	0.65	EC	36					
	clopyralid	3	L	0.19	LB A/A	PO1			
	sethoxydim	1.53	EC	0.19	LB A/A	PO1			
	NIS	100	SL	0.25	% V/V	PO1			
LSD (P=.05)							4.817	28.67	5.080
Standard Deviation							2.808	16.71	2.961
CV							15.19	12.89	15.98

Weed Control in Beet & Chard - HTRC 2010

Dept. of Horticulture, MSU

Pest Code	Crop Name	Rating Date	Rating Data Type	Rating Unit	Red Beet 14/Jul/10 Harvest KG/PLOT	Sugar Beet 1/Oct/10 Harvest #	Sugar Beet 1/Oct/10 Harvest KG/PLOT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	s-metolachlor	7.62	EC	0.75	LB A/A	PRE	9.47		
	ethofumesate	4	SC	1.0	LB A/A	PRE			
	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			
2	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.91		
	ethofumesate	4	SC	1.0	LB A/A	PRE			
	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			
3	dimethenamid-p	6	EC	0.5	LB A/A	PRE	8.87		
	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			
4	ethofumesate	4	SC	2.0	LB A/A	PRE	10.94		
	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			
5	pyrazon	68	DF	3	LB A/A	PRE	9.85		
	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			
6	cycloate	6	EC	3	LB A/A	PPI	8.31		
	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			
7	propachlor	4	F	4	LB A/A	PRE	5.35		
	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			
8	pyrazon	68	DF	2	LB A/A	PRE	10.44		
	ethofumesate	4	SC	1.0	LB A/A	PRE			
	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			
9	Untreated					PRE	10.05		
	ethofumesate	4	SC	1.0	LB A/A	PO1			
	phenmedipham	0.65	EC	36	FL OZ/A	PO1			
	desmedipham	0.65	EC	36					
	triflusulfuron	50	WDG	0.156	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	8.55		
	ethofumesate	4	SC	1.0	LB A/A	PO1			
	phenmedipham	0.65	EC	36	FL OZ/A	PO1			
	desmedipham	0.65	EC	36					
	clopyralid	3	L	0.19	LB A/A	PO1			
	sethoxydim	1.53	EC	0.19	LB A/A	PO1			
	NIS	100	SL	0.25	% V/V	PO1			
LSD (P=.05)							3.161	13.764	18.326
Standard Deviation							1.843	8.023	10.683
CV							20.09	20.52	22.43

Weed Control in Bok Choi & Cauliflower - HTRC 2010

Project Code: 114-10-01

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Cabbage, Cauliflower Variety: See notes

Planting Method: Transplant Planting Date: 5/20/10

Spacing: 22 inches Row Spacing: 3 ft

Tillage Type: Conventional Study Design: RCB

Replications: 3

Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Capac loam

OM: 1.2%

pH: 7.4

Sand: 52.4%

Silt: 26.4%

Clay: 21.2%

CEC: 8.2

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	5/20/10	12:00 PM	76/70	F	Moist	1 SE	49	0% Cloudy	N
POT	5/20/10	4:00 PM	90/75	F	Moist	1 SW	21	0% Cloudy	N
C	6/14/10	3:45 PM	75/75	F	Dry	1-2 W	74	100% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

	Height or Diameter	Growth Stage	Density
6/14	COLQ = common lambsquarters		Few
6/14	CORW = common ragweed		Moderate
6/14	ORGR = orchardgrass		Many
6/14	RRPW = redroot pigweed		Many

Notes and Comments

1. Bok choi: Joi Choi. Cauliflower: Candid Charm.

2.

Weed Control in Bok Choi & Cauliflower - HTRC 2010

Weed Control in Bok Choi & Cauliflower - HTRC 2010

Trial ID: 114-10-01
 Location: East Lansing, MI

Protocol ID: 114-10-01
 Study Director: Rodney Tocco
 Investigator: Dr. Bernard Zandstra

Pest Code							GRFT	COLQ	CORW		
Crop Name							Bok Choi	Cauliflower			
Rating Date							14/Jun/10	14/Jun/10	14/Jun/10		
Rating Data Type							RATING	RATING	RATING		
Rating Unit							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	0.95	LB A/A	PRT	3.0	2.3	10.0	10.0	10.0
	oxyfluorfen	4	SC	0.5	LB A/A	PRT					
2	pendimethalin	3.8	CS	1.9	LB A/A	PRT	1.0	1.7	10.0	10.0	7.7
3	pendimethalin	3.8	CS	3.8	LB A/A	PRT	1.7	1.7	10.0	10.0	8.7
4	pendimethalin	3.8	CS	1.9	LB A/A	POT	2.3	2.3	10.0	10.0	5.3
5	pendimethalin	3.8	CS	3.8	LB A/A	POT	3.7	3.0	10.0	10.0	5.7
6	napropamide	50	DF	1	LB A/A	POT	1.0	1.7	9.7	10.0	5.0
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	2.7	3.0	10.0	10.0	8.3
	sulfentrazone	4	F	0.188	LB A/A	PRT					
8	pendimethalin	3.8	CS	0.95	LB A/A	PRT	2.7	1.3	10.0	10.0	9.3
	clomazone	3	ME	0.25	LB A/A	PRT					
9	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	1.7	1.3	10.0	10.0	10.0
	oxyfluorfen	4	SC	0.25	LB A/A	PRT					
	oxyfluorfen	4	SC	0.25	LB A/A	PO1					
10	pendimethalin	3.8	CS	1.9	LB A/A	POT	1.7	1.7	10.0	10.0	5.3
	clopyralid	3	EC	0.19	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
11	pendimethalin	3.8	CS	1.9	LB A/A	POT	3.0	1.7	9.7	10.0	4.7
	oxyfluorfen	4	SC	0.25	LB A/A	PO1					
	clethodim	0.97	EC	0.12	LB A/A	PO1					
12	Untreated						1.0	1.0	2.0	5.7	1.0
	clethodim	0.97	EC	0.12	LB A/A	PO1					
LSD (P=.05)							1.40	1.08	0.58	1.98	3.29
Standard Deviation							0.83	0.64	0.34	1.17	1.94
CV							39.26	33.76	3.71	12.1	28.75

Weed Control in Bok Choi & Cauliflower - HTRC 2010

Dept. of Horticulture, MSU

Pest Code						EBNS	RRPW	WIBW			
Crop Name						14/Jun/10	14/Jun/10	14/Jun/10	Bok Choi	Cauliflower	
Rating Date						RATING	RATING	RATING	16/Jun/10	16/Jun/10	
Rating Data Type						1-10	1-10	1-10	Plant Count	Plant Count	
Rating Unit									#	#	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage					
1	s-metolachlor oxyfluorfen	7.62 4	EC SC	0.95 0.5	LB A/A	PRT	10.0	10.0	10.0	19.7	18.0
2	pendimethalin	3.8	CS	1.9	LB A/A	PRT	10.0	9.7	10.0	20.3	18.0
3	pendimethalin	3.8	CS	3.8	LB A/A	PRT	10.0	10.0	10.0	19.7	17.3
4	pendimethalin	3.8	CS	1.9	LB A/A	POT	10.0	10.0	10.0	18.7	19.0
5	pendimethalin	3.8	CS	3.8	LB A/A	POT	10.0	10.0	10.0	19.7	15.3
6	napropamide	50	DF	1	LB A/A	POT	10.0	6.7	10.0	19.7	19.3
7	s-metolachlor sulfentrazone	7.62 4	EC F	0.95 0.188	LB A/A	PRT	10.0	10.0	10.0	20.0	19.0
8	pendimethalin clomazone	3.8 3	CS ME	0.95 0.25	LB A/A	PRT	10.0	9.3	10.0	19.7	20.0
9	s-metolachlor oxyfluorfen	7.62 4	EC SC	0.95 0.25	LB A/A	PRT	10.0	10.0	10.0	20.3	20.0
	oxyfluorfen	4	SC	0.25	LB A/A	PO1					
10	pendimethalin clopyralid	3.8 3	CS EC	1.9 0.19	LB A/A	POT	10.0	10.0	10.0	20.7	18.0
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
11	pendimethalin oxyfluorfen	3.8 4	CS SC	1.9 0.25	LB A/A	POT	10.0	10.0	10.0	17.7	16.3
	clethodim	0.97	EC	0.12	LB A/A	PO1					
12	Untreated clethodim	0.97	EC	0.12	LB A/A	PO1	1.0	3.0	7.0	21.0	19.7
LSD (P=.05)							0.00	2.60	2.54	1.99	3.31
Standard Deviation							0.00	1.54	1.50	1.18	1.95
CV							0.0	16.97	15.38	5.96	10.65

Weed Control in Bok Choi & Cauliflower - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							GRFT	COLQ	CORW		
Crop Name							Bok Choi	Cauliflower			
Rating Date							23/Jun/10	23/Jun/10	23/Jun/10		
Rating Data Type							RATING	RATING	RATING		
Rating Unit							1-10	1-10	1-10		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	s-metolachlor oxyfluorfen	7.62 4	EC SC	0.95 0.5	LB A/A	PRT	1.7	2.0	9.7	10.0	9.0
2	pendimethalin	3.8	CS	1.9	LB A/A	PRT	1.0	1.0	9.3	10.0	8.3
3	pendimethalin	3.8	CS	3.8	LB A/A	PRT	1.0	1.7	10.0	10.0	8.3
4	pendimethalin	3.8	CS	1.9	LB A/A	POT	1.7	2.0	9.0	10.0	6.0
5	pendimethalin	3.8	CS	3.8	LB A/A	POT	5.3	6.0	10.0	10.0	6.7
6	napropamide	50	DF	1	LB A/A	POT	1.0	1.0	8.7	9.7	7.3
7	s-metolachlor sulfentrazone	7.62 4	EC F	0.95 0.188	LB A/A	PRT	2.0	2.7	10.0	10.0	8.0
8	pendimethalin clomazone	3.8 3	CS ME	0.95 0.25	LB A/A	PRT	2.3	1.3	10.0	10.0	9.0
9	s-metolachlor oxyfluorfen	7.62 4	EC SC	0.95 0.25	LB A/A	PRT	5.7	2.7	10.0	7.0	10.0
10	pendimethalin oxyfluorfen	3.8 4	CS SC	1.9 0.25	LB A/A	PO1	1.7	2.0	10.0	10.0	9.7
	clopyralid	3	EC	0.19	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
11	pendimethalin oxyfluorfen	3.8 4	CS SC	1.9 0.25	LB A/A	POT	5.7	4.3	10.0	10.0	10.0
	clethodim	0.97	EC	0.12	LB A/A	PO1					
12	Untreated clethodim	0.97	EC	0.12	LB A/A	PO1	1.0	1.7	10.0	4.3	5.0
LSD (P=.05)							1.96	1.72	1.23	3.00	2.67
Standard Deviation							1.16	1.01	0.73	1.77	1.58
CV							46.32	42.94	7.47	19.17	19.42

Weed Control in Bok Choi & Cauliflower - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							RRPW					
Crop Name							Bok Choi		Bok Choi		Cauliflower	
Rating Date							23/Jun/10	2/Jul/10	2/Jul/10	23/Jul/10	23/Jul/10	
Rating Data Type							RATING	Harvest	Harvest	Harvest	Harvest	
Rating Unit							1-10	KG/PLOT	#	KG/PLOT	#	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	10.0	16.05	13.3	2.81	4.0	
	oxyfluorfen	4	SC	0.5	LB A/A	PRT						
2	pendimethalin	3.8	CS	1.9	LB A/A	PRT	9.3	28.54	13.7	5.41	4.7	
3	pendimethalin	3.8	CS	3.8	LB A/A	PRT	9.3	25.09	20.0	6.29	7.0	
4	pendimethalin	3.8	CS	1.9	LB A/A	POT	9.3	24.17	16.7	4.96	4.7	
5	pendimethalin	3.8	CS	3.8	LB A/A	POT	10.0	14.58	12.3	3.65	3.7	
6	napropamide	50	DF	1	LB A/A	POT	8.3	33.11	19.7	4.42	9.3	
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	10.0	20.02	20.0	0.51	0.7	
	sulfentrazone	4	F	0.188	LB A/A	PRT						
8	pendimethalin	3.8	CS	0.95	LB A/A	PRT	9.3	24.80	13.7	3.31	5.0	
	clomazone	3	ME	0.25	LB A/A	PRT						
9	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	10.0	18.54	13.0	3.31	4.0	
	oxyfluorfen	4	SC	0.25	LB A/A	PRT						
	oxyfluorfen	4	SC	0.25	LB A/A	PO1						
10	pendimethalin	3.8	CS	1.9	LB A/A	POT	10.0	21.30	18.3	3.02	3.7	
	clopyralid	3	EC	0.19	LB A/A	PO1						
	sethoxydim	1.53	EC	0.19	LB A/A	PO1						
11	pendimethalin	3.8	CS	1.9	LB A/A	POT	10.0	7.33	5.3	3.88	4.7	
	oxyfluorfen	4	SC	0.25	LB A/A	PO1						
	clethodim	0.97	EC	0.12	LB A/A	PO1						
12	Untreated						6.7	32.30	13.7	5.59	7.3	
	clethodim	0.97	EC	0.12	LB A/A	PO1						
LSD (P=.05)							1.94	24.806	14.29	5.453	5.76	
Standard Deviation							1.15	14.648	8.44	3.220	3.40	
CV							12.25	66.13	56.36	81.94	69.54	

Weed Control in Bok Choi & Cauliflower - HTRC 2010

Dept. of Horticulture, MSU

Pest Code	Crop Name	Rating Date	Rating Data Type	Rating Unit			Cauliflower 30/Jul/10 Harvest KG/PLOT	Cauliflower 30/Jul/10 Harvest #	Cauliflower 6/Aug/10 Harvest KG/PLOT	Cauliflower 6/Aug/10 Harvest #
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	s-metolachlor oxyfluorfen	7.62 4	EC SC	0.95 0.5	LB A/A LB A/A	PRT PRT	3.27	5.3	2.27	4.0
2	pendimethalin	3.8	CS	1.9	LB A/A	PRT	2.94	4.3	1.57	3.0
3	pendimethalin	3.8	CS	3.8	LB A/A	PRT	3.55	5.0	0.60	1.0
4	pendimethalin	3.8	CS	1.9	LB A/A	POT	2.72	4.0	1.06	1.7
5	pendimethalin	3.8	CS	3.8	LB A/A	POT	1.14	1.7	0.00	0.0
6	napropamide	50	DF	1	LB A/A	POT	2.51	3.3	0.32	3.0
7	s-metolachlor sulfentrazone	7.62 4	EC F	0.95 0.188	LB A/A LB A/A	PRT PRT	3.94	6.7	2.87	6.3
8	pendimethalin clomazone	3.8 3	CS ME	0.95 0.25	LB A/A LB A/A	PRT PRT	4.54	6.3	1.93	3.0
9	s-metolachlor oxyfluorfen	7.62 4	EC SC	0.95 0.25	LB A/A LB A/A	PRT PRT	7.22	9.3	2.75	2.7
	oxyfluorfen	4	SC	0.25	LB A/A	PO1				
10	pendimethalin clopyralid	3.8 3	CS EC	1.9 0.19	LB A/A LB A/A	POT PO1	4.13	5.3	2.42	2.7
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
11	pendimethalin oxyfluorfen	3.8 4	CS SC	1.9 0.25	LB A/A LB A/A	POT PO1	3.18	4.3	1.48	1.7
	clethodim	0.97	EC	0.12	LB A/A	PO1				
12	Untreated clethodim	0.97	EC	0.12	LB A/A	PO1	1.25	2.7	2.06	3.3
LSD (P=.05)							2.956	4.19	2.747	4.89
Standard Deviation							1.745	2.47	1.622	2.89
CV							51.85	50.89	100.75	107.12

Weed Control in Bok Choi & Cauliflower - HTRC 2010

Dept. of Horticulture, MSU

Pest Code						Cauliflower	Cauliflower	Cauliflower	Cauliflower
Crop Name						9/Aug/10	9/Aug/10	TOTAL	TOTAL
Rating Date						Harvest	Harvest		
Rating Data Type						KG/PLOT	#	KG/PLOT	#
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit Stage				
1	s-metolachlor oxyfluorfen	7.62 4	EC SC	0.95 0.5	LB A/A PRT	1.55	3.3	9.90	16.7
2	pendimethalin	3.8	CS	1.9	LB A/A PRT	0.36	0.7	10.28	12.7
3	pendimethalin	3.8	CS	3.8	LB A/A PRT	0.25	0.7	10.69	13.7
4	pendimethalin	3.8	CS	1.9	LB A/A POT	0.35	0.7	9.09	11.0
5	pendimethalin	3.8	CS	3.8	LB A/A POT	0.00	0.0	4.79	5.3
6	napropamide	50	DF	1	LB A/A POT	0.37	1.0	7.62	16.7
7	s-metolachlor sulfentrazone	7.62 4	EC F	0.95 0.188	LB A/A PRT	1.61	3.7	8.93	17.3
8	pendimethalin clomazone	3.8 3	CS ME	0.95 0.25	LB A/A PRT	1.40	3.0	11.18	17.3
9	s-metolachlor oxyfluorfen	7.62 4	EC SC	0.95 0.25	LB A/A PRT	1.69	2.3	14.97	18.3
10	pendimethalin clopyralid	3.8 3	CS EC	1.9 0.19	LB A/A POT	0.00	0.0	9.57	11.7
	sethoxydim	1.53	EC	0.19	LB A/A PO1				
11	pendimethalin oxyfluorfen	3.8 4	CS SC	1.9 0.25	LB A/A POT	0.71	1.0	9.25	11.7
	clethodim	0.97	EC	0.12	LB A/A PO1				
12	Untreated clethodim	0.97	EC	0.12	LB A/A PO1	1.70	4.3	10.59	17.7
LSD (P=.05)						1.522	3.52	4.007	5.83
Standard Deviation						0.899	2.08	2.366	3.44
CV						108.02	120.62	24.3	24.3

IR-4 Efficacy for Weed Control in Cauliflower & Bok Choy - HTRC 2010

Project Code: 114-10-02

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Sylvia Morse
 Crop: Bok Choi, Cauliflower Variety: Joi Choi, Candid Charm
 Planting Method: Transplant Planting Date: 6/16/10
 Spacing: 22inches Row Spacing: 3 ft
 Tillage Type: Conventional Study Design: RCB Replications: 4
 Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Marlette fine sandy loam OM: 1.9% pH: 6.2
 Sand: 46.1% Silt: 25.7% Clay: 28.2% CEC: 11.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
App1	6/17/10	9:30 AM	70/66	F		1-3 NW	74	% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

Height or
Diameter Growth
Stage Density

Notes and Comments

- 1.
- 2.

IR-4 Efficacy for Weed Control in Cauliflower & Bok Choy - HTRC 2010

IR-4 Efficacy for Weed Control in Cauliflower & Bok Choy - HTRC 2010

Trial ID: 114-10-02
Location: East Lansing, MI

Protocol ID: 114-10-02
Study Director: Sylvia Morse
Investigator: Dr. Bernard Zandstra

							QUGR	COLQ	COPU		
Pest Code							Cauliflower	Bok Choi			
Crop Name							28/Jun/10	28/Jun/10	28/Jun/10	28/Jun/10	28/Jun/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
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	Untreated						1.3	1.0	8.8	8.8	7.3
2	pendimethalin	3.8	CS	1	LB A/A	POT	1.0	1.3	8.3	9.0	8.8
3	pendimethalin	3.8	CS	2	LB A/A	POT	1.3	1.0	9.0	8.8	7.8
4	s-metolachlor	7.62	EC	0.63	LB A/A	POT	1.0	1.0	8.0	8.5	8.0
5	s-metolachlor	7.62	EC	1.26	LB A/A	POT	1.0	1.0	9.0	9.3	8.5
LSD (P=.05)							0.51	0.34	2.21	1.34	1.66
Standard Deviation							0.33	0.22	1.43	0.87	1.08
CV							29.92	21.3	16.68	9.84	13.37

							CORW	LATH	RRPW		
Pest Code							28/Jun/10	28/Jun/10	28/Jun/10	Cauliflower	Bok Choi
Crop Name							RATING	RATING	RATING	9/Jul/10	9/Jul/10
Rating Date							1-10	1-10	1-10	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
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	Untreated						9.0	8.3	8.0	1.3	1.0
2	pendimethalin	3.8	CS	1	LB A/A	POT	9.5	9.5	9.5	1.0	1.0
3	pendimethalin	3.8	CS	2	LB A/A	POT	9.5	9.0	30.3	1.8	1.0
4	s-metolachlor	7.62	EC	0.63	LB A/A	POT	9.3	9.0	7.3	1.3	1.0
5	s-metolachlor	7.62	EC	1.26	LB A/A	POT	9.0	9.5	9.3	1.3	1.0
LSD (P=.05)							1.07	1.72	30.25	0.97	0.00
Standard Deviation							0.70	1.12	19.64	0.63	0.00
CV							7.52	12.35	152.81	48.65	0.0

							QUGR	COLQ	COPU	CORW	LATH	RRPW
Pest Code							9/Jul/10	9/Jul/10	9/Jul/10	9/Jul/10	9/Jul/10	9/Jul/10
Crop Name							RATING	RATING	RATING	RATING	RATING	RATING
Rating Date							1-10	1-10	1-10	1-10	1-10	1-10
Rating Data Type							1-10	1-10	1-10	1-10	1-10	1-10
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	Untreated						8.8	6.8	4.5	7.0	4.8	4.5
2	pendimethalin	3.8	CS	1	LB A/A	POT	6.3	6.8	7.3	8.0	7.0	7.5
3	pendimethalin	3.8	CS	2	LB A/A	POT	8.5	8.0	7.3	8.0	7.0	6.8
4	s-metolachlor	7.62	EC	0.63	LB A/A	POT	8.0	7.0	6.3	7.0	7.3	7.5
5	s-metolachlor	7.62	EC	1.26	LB A/A	POT	9.0	8.5	6.5	9.0	8.3	8.3
LSD (P=.05)							2.37	1.85	1.47	2.05	2.55	1.94
Standard Deviation							1.54	1.20	0.95	1.33	1.66	1.26
CV							18.96	16.23	15.01	17.04	24.17	18.28

IR-4 Efficacy for Weed Control in Cauliflower & Bok Choy - HTRC 2010

Dept. of Horticulture, MSU

Pest Code		Cauliflower					Bok Choi				
Crop Name		19/Jul/10					19/Jul/10				
Rating Date		RATING					RATING				
Rating Data Type		1-10					1-10				
Rating Unit		1-10					1-10				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	QUGR	COLQ	COPU		
1	Untreated						1.3	1.0	2.0	2.0	1.8
2	pendimethalin	3.8	CS	1	LB A/A	POT	1.0	1.0	7.3	7.5	6.8
3	pendimethalin	3.8	CS	2	LB A/A	POT	2.3	1.0	5.5	5.3	5.3
4	s-metolachlor	7.62	EC	0.63	LB A/A	POT	1.8	1.0	5.3	4.0	2.5
5	s-metolachlor	7.62	EC	1.26	LB A/A	POT	1.8	1.0	7.0	7.0	2.0
LSD (P=.05)							1.48	0.00	4.40	2.35	2.21
Standard Deviation							0.96	0.00	2.85	1.53	1.43
CV							59.84	0.0	52.84	29.66	39.31

Pest Code		CORW					LATH					RRPW				
Crop Name		19/Jul/10					19/Jul/10					19/Jul/10				
Rating Date		RATING					RATING					RATING				
Rating Data Type		1-10					1-10					1-10				
Rating Unit		1-10					1-10					1-10				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	Cauliflower	Bok Choi								
1	Untreated						2.0	1.0	1.0	2.0	1.0					
2	pendimethalin	3.8	CS	1	LB A/A	POT	7.5	6.8	6.8	1.3	1.0					
3	pendimethalin	3.8	CS	2	LB A/A	POT	5.3	5.3	5.3	2.0	1.0					
4	s-metolachlor	7.62	EC	0.63	LB A/A	POT	4.0	4.0	3.8	2.0	1.0					
5	s-metolachlor	7.62	EC	1.26	LB A/A	POT	7.0	7.0	7.0	1.3	1.3					
LSD (P=.05)							2.35	2.21	2.32	1.60	0.34					
Standard Deviation							1.53	1.43	1.51	1.04	0.22					
CV							29.66	29.89	31.75	60.99	21.3					

Pest Code		QUGR					COLQ					COPU					CORW					LATH				
Crop Name		28/Jul/10					28/Jul/10					28/Jul/10					28/Jul/10					28/Jul/10				
Rating Date		RATING					RATING					RATING					RATING					RATING				
Rating Data Type		1-10					1-10					1-10					1-10					1-10				
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	QUGR	COLQ	COPU	CORW	LATH															
1	Untreated						5.5	3.5	3.5	5.5	3.5															
2	pendimethalin	3.8	CS	1	LB A/A	POT	6.3	8.3	8.3	8.3	8.3															
3	pendimethalin	3.8	CS	2	LB A/A	POT	8.5	9.0	8.5	9.0	8.5															
4	s-metolachlor	7.62	EC	0.63	LB A/A	POT	5.0	5.0	5.0	4.3	5.0															
5	s-metolachlor	7.62	EC	1.26	LB A/A	POT	6.3	5.5	5.5	5.8	5.5															
LSD (P=.05)							3.33	2.96	3.08	2.92	3.08															
Standard Deviation							2.16	1.92	2.00	1.90	2.00															
CV							34.32	30.71	32.52	28.93	32.52															

IR-4 Efficacy for Weed Control in Cauliflower & Bok Choy - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							RRPW					
Crop Name							Bok Choi		Bok Choi		Cauliflower	Cauliflower
Rating Date							28/Jul/10	28/Jul/10	28/Jul/10	1/Sep/10	1/Sep/10	
Rating Data Type							RATING	HARVEST	HARVEST	HARVEST	HARVEST	
Rating Unit							1-10	# heads	KG/PLOT	# heads	KG/PLOT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	Untreated						3.5	17.0	16.23	1.3	1.04	
2	pendimethalin	3.8	CS	1	LB A/A	POT	8.3	16.3	17.73	2.3	2.58	
3	pendimethalin	3.8	CS	2	LB A/A	POT	8.5	16.0	15.22	1.3	1.22	
4	s-metolachlor	7.62	EC	0.63	LB A/A	POT	5.0	17.3	15.65	1.8	1.25	
5	s-metolachlor	7.62	EC	1.26	LB A/A	POT	5.5	17.3	14.48	1.0	0.99	
LSD (P=.05)							3.08	1.47	4.946	1.51	1.674	
Standard Deviation							2.00	0.95	3.210	0.98	1.086	
CV							32.52	5.69	20.24	65.55	76.83	

Pest Code							Cauliflower				
Crop Name							10/Sep/10	10/Sep/10	16/Sep/10	16/Sep/10	23/Sep/10
Rating Date							10/Sep/10	10/Sep/10	16/Sep/10	16/Sep/10	23/Sep/10
Rating Data Type							HARVEST	HARVEST	HARVEST	HARVEST	HARVEST
Rating Unit							# heads	KG/PLOT	# heads	KG/PLOT	# heads
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated						4.0	2.96	3.5	3.30	2.3
2	pendimethalin	3.8	CS	1	LB A/A	POT	4.5	4.52	3.8	3.67	1.8
3	pendimethalin	3.8	CS	2	LB A/A	POT	4.3	4.19	3.0	3.68	2.0
4	s-metolachlor	7.62	EC	0.63	LB A/A	POT	4.0	3.45	3.0	3.10	3.5
5	s-metolachlor	7.62	EC	1.26	LB A/A	POT	2.8	3.48	3.5	3.79	3.0
LSD (P=.05)							4.65	5.259	2.49	3.291	3.43
Standard Deviation							2.98	3.379	1.62	2.136	2.23
CV							74.57	90.88	48.29	60.88	89.07

Pest Code							Cauliflower				
Crop Name							23/Sep/10	29/Sep/10	29/Sep/10		
Rating Date							23/Sep/10	29/Sep/10	29/Sep/10		
Rating Data Type							HARVEST	HARVEST	HARVEST	TOTAL	TOTAL
Rating Unit							KG/PLOT	# heads	KG/PLOT	# heads	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated						2.66	2.0	1.59	13.0	11.54
2	pendimethalin	3.8	CS	1	LB A/A	POT	2.28	1.3	0.77	13.5	13.81
3	pendimethalin	3.8	CS	2	LB A/A	POT	2.98	0.5	1.03	11.0	13.10
4	s-metolachlor	7.62	EC	0.63	LB A/A	POT	4.37	1.3	1.27	13.5	13.44
5	s-metolachlor	7.62	EC	1.26	LB A/A	POT	2.58	2.3	2.43	12.5	12.71
LSD (P=.05)							4.069	1.96	2.375	4.24	5.204
Standard Deviation							2.641	1.27	1.541	2.75	3.377
CV							88.81	87.91	108.91	21.66	26.15

Weed Control in Carrot - Muck Farm 2010

Project Code: 107-10-01

Location: Laingsburg, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Carrot

Variety: Sugar Snax

Planting Method: Seeded

Planting Date: 5/26/10

Spacing: 0.5 inch

Row Spacing: 16 inches

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 5.3 ft wide x 16.7 ft long

Soil Type: Houghton Muck

OM: 76.9%

pH: 6.5

Sand: 9.8%

Silt: 11.9%

Clay: 1.4%

CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/27/10	3:30 PM	85/80	F	Dry	5 N	40	4% Cloudy	N
PO1	6/22/10	12:00 PM	78/72	F	Wet	5 W	70	15% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/27	CARROT		Seeded 5/26	
6/22	CARROT	2-4"	2-3 LF	
6/22	COPU = common purslane	3-8"		Many
6/22	LATH = ladythumb	3-4"		Moderate
6/22	RRPW = redroot pigweed	5-7"		Many
6/22	YENS = yellow nutsedge	6-10"		Moderate

Notes and Comments

1. Harvest 10 ft of 3 rows.
- 2.

Weed Control in Carrot - Muck Farm 2010

Weed Control in Carrot - Muck Farm 2010					
Trial ID: 107-10-01			Protocol ID: 107-10-01		
Location: Laingsburg, MI			Study Director: Rodney Tocco		
			Investigator: Dr. Bernard Zandstra		

							LACG	COPU	LATH	RRPW	
							Carrot				
							21/Jun/10	21/Jun/10	21/Jun/10	21/Jun/10	21/Jun/10
							RATING	RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10	1-10
Trt	Treatment	Form	Form	Rate	Rate	Growth					
No.	Name	Conc	Type		Unit	Stage					
1	pendimethalin	3.8	CS	0.95	LB A/A	PRE	1.0	5.7	4.0	4.3	2.7
2	pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.0	7.3	5.0	7.0	3.7
3	pendimethalin	3.8	CS	3.8	LB A/A	PRE	1.7	10.0	8.0	8.0	8.0
4	linuron	50	DF	1	LB A/A	PRE	1.0	1.7	3.3	5.7	5.0
5	linuron	50	DF	2	LB A/A	PRE	2.7	3.3	5.3	6.3	6.7
6	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	1.7	10.0	6.3	5.0	7.3
7	s-metolachlor	7.62	EC	3.8	LB A/A	PRE	2.0	10.0	8.3	7.3	8.7
8	prometryn	4	L	1	LB A/A	PRE	1.0	4.7	3.7	5.3	4.0
9	prometryn	4	L	2	LB A/A	PRE	1.3	4.7	6.7	7.0	5.3
10	linuron	50	DF	1	LB A/A	PRE	2.0	9.3	7.3	7.3	7.3
	s-metolachlor	7.62	EC	1.9	LB A/A	PRE					
11	linuron	50	DF	1	LB A/A	PRE	1.0	5.0	4.0	6.0	4.0
	pendimethalin	3.8	CS	0.95	LB A/A	PRE					
12	ethofumesate	4	SC	2.0	LB A/A	PRE	1.0	10.0	5.7	6.3	3.0
13	metribuzin	75	DF	0.25	LB A/A	PRE	1.0	1.0	1.0	1.0	1.0
14	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	1.7	9.7	7.7	7.0	8.0
	linuron	50	DF	1	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
15	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	1.3	8.0	5.3	4.7	5.7
	prometryn	4	L	1	LB A/A	PO1					
16	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	1.0	10.0	7.3	6.3	7.0
	prometryn	4	L	2	LB A/A	PO1					
17	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	1.0	10.0	7.3	5.3	7.0
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	fluazifop-p-bu	2	EC	0.19	LB A/A	PO1					
18	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	1.3	10.0	7.3	6.7	6.7
	metribuzin	75	DF	0.25	LB A/A	PO1					
	fluazifop-p-bu	2	EC	0.19	LB A/A	PO1					
19	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	1.7	10.0	8.0	7.3	7.7
	linuron	50	DF	1	LB A/A	PRE					
	acetochlor	6.4	EC	1	LB A/A	PO1					
	linuron	50	DF	1	LB A/A	PO1					
	fluazifop-p-bu	2	EC	0.19	LB A/A	PO1					
20	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	2.3	10.0	7.3	7.3	7.7
	linuron	50	DF	1	LB A/A	PRE					
	Handweeded					PO1					
LSD (P=.05)							0.78	3.17	1.40	2.16	1.75
Standard Deviation							0.47	1.92	0.85	1.31	1.06
CV							33.13	25.54	14.25	21.6	18.27

Weed Control in Carrot - Muck Farm 2010

Dept. of Horticulture, MSU

Pest Code							COPU	LATH	RRPW	YENS	
Crop Name							Carrot				
Rating Date							25/Jun/10	25/Jun/10	25/Jun/10	25/Jun/10	25/Jun/10
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	1.0	2.7	4.3	3.7	1.7
2	pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.0	5.7	7.3	4.3	1.0
3	pendimethalin	3.8	CS	3.8	LB A/A	PRE	2.0	8.0	8.7	7.7	1.3
4	linuron	50	DF	1	LB A/A	PRE	1.3	2.0	5.3	4.3	2.0
5	linuron	50	DF	2	LB A/A	PRE	2.0	3.7	7.3	6.0	2.0
6	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	1.7	6.7	6.3	7.7	6.0
7	s-metolachlor	7.62	EC	3.8	LB A/A	PRE	2.0	8.3	6.7	8.3	6.0
8	prometryn	4	L	1	LB A/A	PRE	1.3	2.7	5.7	4.0	2.0
9	prometryn	4	L	2	LB A/A	PRE	2.0	4.0	7.3	4.3	1.3
10	linuron	50	DF	1	LB A/A	PRE	2.7	5.3	7.3	7.3	6.0
	s-metolachlor	7.62	EC	1.9	LB A/A	PRE					
11	linuron	50	DF	1	LB A/A	PRE	1.3	3.3	6.7	4.7	1.3
	pendimethalin	3.8	CS	0.95	LB A/A	PRE					
12	ethofumesate	4	SC	2.0	LB A/A	PRE	1.3	5.0	5.3	4.3	6.3
13	metribuzin	75	DF	0.25	LB A/A	PRE	4.0	5.3	4.0	8.7	5.7
14	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	3.3	10.0	8.0	10.0	7.3
	linuron	50	DF	1	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
15	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	2.7	10.0	8.0	9.7	7.0
	prometryn	4	L	1	LB A/A	PO1					
16	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	3.0	10.0	8.3	10.0	6.3
	prometryn	4	L	2	LB A/A	PO1					
17	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	3.7	10.0	8.0	10.0	5.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	fluazifop-p-bu	2	EC	0.19	LB A/A	PO1					
18	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	3.3	10.0	7.7	10.0	5.7
	metribuzin	75	DF	0.25	LB A/A	PO1					
	fluazifop-p-bu	2	EC	0.19	LB A/A	PO1					
19	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	3.7	10.0	9.7	10.0	8.0
	linuron	50	DF	1	LB A/A	PRE					
	acetochlor	6.4	EC	1	LB A/A	PO1					
	linuron	50	DF	1	LB A/A	PO1					
	fluazifop-p-bu	2	EC	0.19	LB A/A	PO1					
20	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	2.0	10.0	10.0	10.0	10.0
	linuron	50	DF	1	LB A/A	PRE					
	Handweeded					PO1					
LSD (P=.05)							0.96	1.62	1.70	1.22	1.67
Standard Deviation							0.58	0.98	1.03	0.74	1.01
CV							25.7	14.79	14.52	10.23	21.85

Weed Control in Carrot - Muck Farm 2010

Dept. of Horticulture, MSU

Pest Code							YENS		LATH	
Crop Name							Carrot		Carrot	
Rating Date							8/Jul/10		8/Jul/10	
Rating Data Type							RATING		RATING	
Rating Unit							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	2.0	8.3	6.7	15.72
2	pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.3	6.7	9.0	14.23
3	pendimethalin	3.8	CS	3.8	LB A/A	PRE	1.7	9.3	9.0	17.07
4	linuron	50	DF	1	LB A/A	PRE	2.7	7.7	7.0	10.78
5	linuron	50	DF	2	LB A/A	PRE	2.0	9.7	7.7	16.70
6	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	1.3	9.7	6.3	16.68
7	s-metolachlor	7.62	EC	3.8	LB A/A	PRE	2.3	9.7	8.0	18.84
8	prometryn	4	L	1	LB A/A	PRE	2.3	7.3	7.3	14.87
9	prometryn	4	L	2	LB A/A	PRE	1.0	7.7	9.0	14.70
10	linuron	50	DF	1	LB A/A	PRE	2.3	8.7	7.7	15.72
	s-metolachlor	7.62	EC	1.9	LB A/A	PRE				
11	linuron	50	DF	1	LB A/A	PRE	1.7	7.0	8.0	14.14
	pendimethalin	3.8	CS	0.95	LB A/A	PRE				
12	ethofumesate	4	SC	2.0	LB A/A	PRE	2.3	9.3	8.7	16.55
13	metribuzin	75	DF	0.25	LB A/A	PRE	3.3	9.3	10.0	14.02
14	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	3.0	10.0	10.0	17.14
	linuron	50	DF	1	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	4.3	10.0	10.0	13.79
	prometryn	4	L	1	LB A/A	PO1				
16	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	5.0	9.7	10.0	13.70
	prometryn	4	L	2	LB A/A	PO1				
17	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	2.3	7.0	9.3	19.40
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	fluazifop-p-bu	2	EC	0.19	LB A/A	PO1				
18	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	2.7	8.7	10.0	17.11
	metribuzin	75	DF	0.25	LB A/A	PO1				
	fluazifop-p-bu	2	EC	0.19	LB A/A	PO1				
19	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	7.0	10.0	10.0	12.12
	linuron	50	DF	1	LB A/A	PRE				
	acetochlor	6.4	EC	1	LB A/A	PO1				
	linuron	50	DF	1	LB A/A	PO1				
	fluazifop-p-bu	2	EC	0.19	LB A/A	PO1				
20	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	2.0	10.0	8.7	18.44
	linuron	50	DF	1	LB A/A	PRE				
	Handweeded					PO1				
LSD (P=.05)							1.34	1.48	1.80	4.286
Standard Deviation							0.81	0.89	1.09	2.597
CV							30.94	10.18	12.64	16.67

Weed Control in Celery - Muck Farm 2010

Project Code: 113-10-01

Location: Laingsburg, MI

Personnel: Bernard H. Zandstra, Rodney Tocco
Crop: Celery Variety: Greenbay
Planting Method: Planting Date: 5/28/10
Spacing: 6 inches Row Spacing: 3 ft; 2 rows/ plot
Tillage Type: Conventional Study Design: RCB Replications: 3
Plot Size: 5.3 ft wide x 16.7 ft long

Soil Type: Houghton Muck OM: 76.8% pH: 6.5
Sand: 7.7% Silt: 14.1% Clay: 1.4% CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	5/28/10	8:30 AM	70/67	F	Moist	3 NW	57	% Cloudy	N
POT	6/1/10	2:30 PM	85/75	F	Moist	2 N	25	% Cloudy	N
PO1	6/22/10	11:45 AM	78/72	F	Wet	6.5 W	70	% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/1	CELERY	5-7"		
6/1	RRPW = redroot pigweed	<1"		Moderate
6/1	YENS = yellow nutsedge	1"		Few
6/22	CELERY	6-9"	4-6 LF	
6/22	COPU = common purslane	2-4"		Moderate
6/22	LATH = ladythumb	2-4"		Moderate
6/22	RRPW = redroot pigweed	4-6"		Moderate
6/22	YENS = yellow nutsedge	4-8"		Many

Notes and Comments

- 1.
- 2.

Weed Control in Celery - Muck Farm 2010

Weed Control in Celery - Muck Farm 2010

Trial ID: 113-10-01
 Location: Laingsburg, MI

Protocol ID: 113-10-01
 Study Director: Rodney Tocco
 Investigator: Dr. Bernard Zandstra

							LACG	YENS	COPU	LATH	
							Celery				
							22/Jun/10	22/Jun/10	22/Jun/10	22/Jun/10	22/Jun/10
							RATING	RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	flumioxazin	51	WDG	0.096	LB A/A	PRT	1.0	6.7	3.0	8.3	8.0
	prometryn	4	L	2	LB A/A	PO1					
2	flumioxazin	51	WDG	0.096	LB A/A	POT	2.3	9.7	5.0	10.0	9.7
	prometryn	4	L	2	LB A/A	PO1					
3	flumioxazin	51	WDG	0.192	LB A/A	POT	2.7	10.0	4.3	10.0	9.7
	prometryn	4	L	2	LB A/A	PO1					
4	flumioxazin	51	WDG	0.096	LB A/A	POT	1.3	10.0	2.7	10.0	8.7
	pendimethalin	3.8	CS	1.9	LB A/A	POT					
	prometryn	4	L	2	LB A/A	PO1					
5	flumioxazin	51	WDG	0.096	LB A/A	POT	3.0	10.0	2.0	10.0	8.1
	pendimethalin	3.3	EC	1.9	LB A/A	POT					
	prometryn	4	L	2	LB A/A	PO1					
6	flumioxazin	51	WDG	0.096	LB A/A	PRT	1.3	10.0	6.3	8.3	7.7
	s-metolachlor	7.62	EC	1.9	LB A/A	PRT					
	prometryn	4	L	2	LB A/A	PO1					
7	flumioxazin	51	WDG	0.096	LB A/A	POT	3.7	10.0	6.3	10.0	10.0
	s-metolachlor	7.62	EC	1.9	LB A/A	POT					
	prometryn	4	L	2	LB A/A	PO1					
8	prometryn	4	L	1	LB A/A	POT	2.0	10.0	6.7	10.0	9.0
	s-metolachlor	7.62	EC	1.9	LB A/A	POT					
	prometryn	4	L	1	LB A/A	PO1					
9	s-metolachlor	7.62	EC	1.9	LB A/A	PRT	1.7	10.0	7.0	10.0	9.0
	prometryn	4	L	2	LB A/A	POT					
	linuron	50	DF	1	LB A/A	PO1					
10	pendimethalin	3.8	CS	1.9	LB A/A	POT	1.0	9.0	3.0	7.7	3.7
	prometryn	4	L	2	LB A/A	PO1					
11	pendimethalin	3.8	CS	1.9	LB A/A	POT	1.0	9.3	2.3	7.0	2.3
	linuron	50	DF	1	LB A/A	PO1					
12	prometryn	4	L	2	LB A/A	POT	1.3	10.0	5.3	10.0	8.3
	prometryn	4	L	2	LB A/A	PO1					
13	prometryn	4	L	2	LB A/A	POT	1.3	10.0	7.7	9.3	8.7
	flumioxazin	51	WDG	0.064	LB A/A	PO1					
14	prometryn	4	L	2	LB A/A	POT	1.3	10.0	3.0	8.7	6.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
15	sulfentrazone	4	F	0.188	LB A/A	POT	2.3	10.0	7.3	8.7	4.7
	prometryn	4	L	2	LB A/A	PO1					
16	prometryn	4	L	2	LB A/A	POT	1.3	10.0	5.7	9.3	7.0
	sulfentrazone	4	F	0.125	LB A/A	PO1					
17	Untreated					PRT/POT	1.0	1.0	1.0	1.0	1.0
	prometryn	4	L	2	LB A/A	PO1					
18	Untreated					PRT/POT	1.0	1.0	1.0	1.0	1.0
	flumioxazin	51	WDG	0.032	LB A/A	PO1					
	LSD (P=.05)						0.82	1.60	2.51	1.14	1.89
	Standard Deviation						0.49	0.96	1.51	0.69	1.13
	CV						28.99	11.02	34.02	8.26	16.57

Weed Control in Celery - Muck Farm 2010

Dept. of Horticulture, MSU

Pest Code							RRPW	TUPW		LACG	YENS
Crop Name									Celery		
Rating Date							22/Jun/10	22/Jun/10	29/Jun/10	29/Jun/10	29/Jun/10
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	flumioxazin	51	WDG	0.096	LB A/A	PRT	7.3	6.3	1.0	10.0	4.3
	prometryn	4	L	2	LB A/A	PO1					
2	flumioxazin	51	WDG	0.096	LB A/A	POT	10.0	10.0	1.3	10.0	6.3
	prometryn	4	L	2	LB A/A	PO1					
3	flumioxazin	51	WDG	0.192	LB A/A	POT	10.0	10.0	1.0	10.0	5.7
	prometryn	4	L	2	LB A/A	PO1					
4	flumioxazin	51	WDG	0.096	LB A/A	POT	9.7	9.7	1.3	10.0	5.0
	pendimethalin	3.8	CS	1.9	LB A/A	POT					
	prometryn	4	L	2	LB A/A	PO1					
5	flumioxazin	51	WDG	0.096	LB A/A	POT	10.0	9.7	2.7	10.0	3.7
	pendimethalin	3.3	EC	1.9	LB A/A	POT					
	prometryn	4	L	2	LB A/A	PO1					
6	flumioxazin	51	WDG	0.096	LB A/A	PRT	8.3	8.0	1.0	10.0	7.0
	s-metolachlor	7.62	EC	1.9	LB A/A	PRT					
	prometryn	4	L	2	LB A/A	PO1					
7	flumioxazin	51	WDG	0.096	LB A/A	POT	10.0	10.0	2.7	10.0	7.7
	s-metolachlor	7.62	EC	1.9	LB A/A	POT					
	prometryn	4	L	2	LB A/A	PO1					
8	prometryn	4	L	1	LB A/A	POT	10.0	10.0	2.0	10.0	7.0
	s-metolachlor	7.62	EC	1.9	LB A/A	POT					
	prometryn	4	L	1	LB A/A	PO1					
9	s-metolachlor	7.62	EC	1.9	LB A/A	PRT	10.0	9.7	1.7	10.0	8.7
	prometryn	4	L	2	LB A/A	POT					
	linuron	50	DF	1	LB A/A	PO1					
10	pendimethalin	3.8	CS	1.9	LB A/A	POT	5.3	7.0	1.3	10.0	7.7
	prometryn	4	L	2	LB A/A	PO1					
11	pendimethalin	3.8	CS	1.9	LB A/A	POT	4.7	7.0	1.7	10.0	7.7
	linuron	50	DF	1	LB A/A	PO1					
12	prometryn	4	L	2	LB A/A	POT	10.0	9.3	1.0	10.0	4.0
	prometryn	4	L	2	LB A/A	PO1					
13	prometryn	4	L	2	LB A/A	POT	9.7	9.0	2.3	10.0	5.7
	flumioxazin	51	WDG	0.064	LB A/A	PO1					
14	prometryn	4	L	2	LB A/A	POT	9.7	9.7	3.0	10.0	2.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
15	sulfentrazone	4	F	0.188	LB A/A	POT	9.7	9.7	2.7	10.0	7.7
	prometryn	4	L	2	LB A/A	PO1					
16	prometryn	4	L	2	LB A/A	POT	9.0	8.7	2.0	10.0	6.3
	sulfentrazone	4	F	0.125	LB A/A	PO1					
17	Untreated					PRT/POT	1.0	1.0	1.0	10.0	4.0
	prometryn	4	L	2	LB A/A	PO1					
18	Untreated					PRT/POT	1.0	1.0	2.3	7.7	2.7
	flumioxazin	51	WDG	0.032	LB A/A	PO1					
LSD (P=.05)							0.85	1.33	0.91	1.59	1.90
Standard Deviation							0.51	0.80	0.55	0.95	1.14
CV							6.32	9.88	30.84	9.65	19.79

Weed Control in Celery - Muck Farm 2010

Dept. of Horticulture, MSU

Pest Code							LATH		LACG	YENS	LATH
Crop Name							Celery				
Rating Date							29/Jun/10	8/Jul/10	8/Jul/10	8/Jul/10	8/Jul/10
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	Form Rate	Growth Unit Stage					
1	flumioxazin	51	WDG	0.096	LB A/A	PRT	9.3	1.0	10.0	4.0	9.7
	prometryn	4	L	2	LB A/A	PO1					
2	flumioxazin	51	WDG	0.096	LB A/A	POT	10.0	1.7	10.0	4.3	10.0
	prometryn	4	L	2	LB A/A	PO1					
3	flumioxazin	51	WDG	0.192	LB A/A	POT	10.0	1.3	10.0	3.3	10.0
	prometryn	4	L	2	LB A/A	PO1					
4	flumioxazin	51	WDG	0.096	LB A/A	POT	10.0	1.3	10.0	3.0	10.0
	pendimethalin	3.8	CS	1.9	LB A/A	POT					
	prometryn	4	L	2	LB A/A	PO1					
5	flumioxazin	51	WDG	0.096	LB A/A	POT	10.0	2.3	10.0	3.0	10.0
	pendimethalin	3.3	EC	1.9	LB A/A	POT					
	prometryn	4	L	2	LB A/A	PO1					
6	flumioxazin	51	WDG	0.096	LB A/A	PRT	10.0	1.7	10.0	5.7	10.0
	s-metolachlor	7.62	EC	1.9	LB A/A	PRT					
	prometryn	4	L	2	LB A/A	PO1					
7	flumioxazin	51	WDG	0.096	LB A/A	POT	10.0	3.3	10.0	6.0	10.0
	s-metolachlor	7.62	EC	1.9	LB A/A	POT					
	prometryn	4	L	2	LB A/A	PO1					
8	prometryn	4	L	1	LB A/A	POT	10.0	1.7	10.0	5.3	9.7
	s-metolachlor	7.62	EC	1.9	LB A/A	POT					
	prometryn	4	L	1	LB A/A	PO1					
9	s-metolachlor	7.62	EC	1.9	LB A/A	PRT	10.0	1.7	10.0	7.3	9.0
	prometryn	4	L	2	LB A/A	POT					
	linuron	50	DF	1	LB A/A	PO1					
10	pendimethalin	3.8	CS	1.9	LB A/A	POT	9.3	2.0	9.0	4.7	7.3
	prometryn	4	L	2	LB A/A	PO1					
11	pendimethalin	3.8	CS	1.9	LB A/A	POT	9.3	1.7	7.7	6.3	7.7
	linuron	50	DF	1	LB A/A	PO1					
12	prometryn	4	L	2	LB A/A	POT	10.0	1.3	10.0	2.7	10.0
	prometryn	4	L	2	LB A/A	PO1					
13	prometryn	4	L	2	LB A/A	POT	8.7	2.3	10.0	3.7	9.3
	flumioxazin	51	WDG	0.064	LB A/A	PO1					
14	prometryn	4	L	2	LB A/A	POT	8.0	2.3	10.0	1.3	7.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
15	sulfentrazone	4	F	0.188	LB A/A	POT	8.7	3.3	10.0	6.7	6.7
	prometryn	4	L	2	LB A/A	PO1					
16	prometryn	4	L	2	LB A/A	POT	10.0	2.7	10.0	4.0	7.7
	sulfentrazone	4	F	0.125	LB A/A	PO1					
17	Untreated					PRT/POT	6.3	2.3	10.0	8.0	8.7
	prometryn	4	L	2	LB A/A	PO1					
18	Untreated					PRT/POT	3.0	2.3	5.7	3.7	4.3
	flumioxazin	51	WDG	0.032	LB A/A	PO1					
LSD (P=.05)							1.18	1.01	2.36	2.10	2.40
Standard Deviation							0.71	0.61	1.42	1.26	1.44
CV							7.84	30.06	14.82	27.3	16.45

Weed Control in Celery - Muck Farm 2010

Dept. of Horticulture, MSU

Pest Code	Crop Name	Rating Date	Rating Data Type	Rating Unit			Celery 5/Aug/10 HARVEST # 10'/2 row	Celery 5/Aug/10 HARVEST KG 10'/2 row
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		
1	flumioxazin	51	WDG	0.096	LB A/A	PRT	36.3	39.39
	prometryn	4	L	2	LB A/A	PO1		
2	flumioxazin	51	WDG	0.096	LB A/A	POT	35.0	32.09
	prometryn	4	L	2	LB A/A	PO1		
3	flumioxazin	51	WDG	0.192	LB A/A	POT	36.0	34.01
	prometryn	4	L	2	LB A/A	PO1		
4	flumioxazin	51	WDG	0.096	LB A/A	POT	37.3	36.79
	pendimethalin	3.8	CS	1.9	LB A/A	POT		
	prometryn	4	L	2	LB A/A	PO1		
5	flumioxazin	51	WDG	0.096	LB A/A	POT	33.7	26.89
	pendimethalin	3.3	EC	1.9	LB A/A	POT		
	prometryn	4	L	2	LB A/A	PO1		
6	flumioxazin	51	WDG	0.096	LB A/A	PRT	37.7	40.38
	s-metolachlor	7.62	EC	1.9	LB A/A	PRT		
	prometryn	4	L	2	LB A/A	PO1		
7	flumioxazin	51	WDG	0.096	LB A/A	POT	33.7	22.65
	s-metolachlor	7.62	EC	1.9	LB A/A	POT		
	prometryn	4	L	2	LB A/A	PO1		
8	prometryn	4	L	1	LB A/A	POT	36.7	36.48
	s-metolachlor	7.62	EC	1.9	LB A/A	POT		
	prometryn	4	L	1	LB A/A	PO1		
9	s-metolachlor	7.62	EC	1.9	LB A/A	PRT	36.0	39.37
	prometryn	4	L	2	LB A/A	POT		
	linuron	50	DF	1	LB A/A	PO1		
10	pendimethalin	3.8	CS	1.9	LB A/A	POT	35.0	35.89
	prometryn	4	L	2	LB A/A	PO1		
11	pendimethalin	3.8	CS	1.9	LB A/A	POT	35.7	35.22
	linuron	50	DF	1	LB A/A	PO1		
12	prometryn	4	L	2	LB A/A	POT	35.3	36.79
	prometryn	4	L	2	LB A/A	PO1		
13	prometryn	4	L	2	LB A/A	POT	34.3	35.65
	flumioxazin	51	WDG	0.064	LB A/A	PO1		
14	prometryn	4	L	2	LB A/A	POT	38.0	40.05
	oxyfluorfen	4	SC	0.063	LB A/A	PO1		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1		
15	sulfentrazone	4	F	0.188	LB A/A	POT	33.0	30.52
	prometryn	4	L	2	LB A/A	PO1		
16	prometryn	4	L	2	LB A/A	POT	36.0	40.27
	sulfentrazone	4	F	0.125	LB A/A	PO1		
17	Untreated					PRT/POT	35.3	28.84
	prometryn	4	L	2	LB A/A	PO1		
18	Untreated					PRT/POT	34.3	25.84
	flumioxazin	51	WDG	0.032	LB A/A	PO1		
LSD (P=.05)							3.35	6.381
Standard Deviation							2.01	3.827
CV							5.66	11.16

Weed Control in Celery - Crossen Farms 2010

Project Code: 113-10-02

Location: Wayland, MI

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Celery Variety: 266 Duchess
 Planting Method: Transplant Planting Date: 7/12/10
 Spacing: 6 inches Row Spacing: 20 inches; 2 rows/plot
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 3.3 ft wide x 40 ft long

Soil Type: Houghton Muck OM: 57.4% pH: 7.0
 Sand: 56.4% Silt: 34.4% Clay: 9.2% CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
POT	7/13/10	11:00 AM	76/70	F	Damp	1 SE	67	100%Cloudy	Y
PO1	8/12/10	10:00 AM	80/76	F	Damp	2 SW	83	0% Cloudy	Y
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
8/12	CELERY	6-7"	6-8 leaves	

Notes and Comments

1. Harvest: 10 feet of 2 rows.
- 2.

Weed Control in Celery - Crossen Farms 2010

Weed Control in Celery - Crossen Farms 2010

Trial ID: 113-10-02
 Location: Wayland, MI

Protocol ID: 113-10-02
 Study Director: Rodney Tocco
 Investigator: Dr. Bernard Zandstra

							ANBG	COPU	RRPW	YENS	
							Celery				
							12/Aug/10	12/Aug/10	12/Aug/10	12/Aug/10	12/Aug/10
							RATING	RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	prometryn	4	L	2	LB A/A	POT, PO1	1.7	4.3	4.3	10.0	9.3
2	prometryn	4	L	2	LB A/A	POT	1.7	2.3	4.3	10.0	9.0
	linuron	50	DF	1	LB A/A	PO1					
3	flumioxazin	51	WDG	0.096	LB A/A	POT	1.7	1.0	8.0	9.7	5.0
	prometryn	4	L	2	LB A/A	PO1					
4	flumioxazin	51	WDG	0.196	LB A/A	POT	2.0	7.0	9.7	10.0	9.3
	prometryn	4	L	2	LB A/A	PO1					
5	flumioxazin	51	WDG	0.096	LB A/A	POT	1.7	2.7	9.7	10.0	6.0
	pendimethalin	3.8	CS	1.9	LB A/A	POT					
	prometryn	4	L	2	LB A/A	PO1					
6	prometryn	4	L	2	LB A/A	POT	1.3	9.0	9.0	9.7	10.0
	s-metolachlor	7.62	EC	1.9	LB A/A	POT					
7	oxyfluorfen	4	SC	0.5	LB A/A	POT	1.7	6.7	8.7	10.0	9.7
	prometryn	4	L	2	LB A/A	PO1					
8	s-metolachlor	7.62	EC	1.9	LB A/A	POT	1.7	7.7	8.7	10.0	7.7
	flumioxazin	51	WDG	0.032	LB A/A	PO1					
9	sulfentrazone	4	F	0.125	LB A/A	POT	1.7	1.7	4.7	10.0	10.0
	prometryn	4	L	2	LB A/A	PO1					
10	s-metolachlor	7.62	EC	1.9	LB A/A	POT	2.0	7.3	8.3	9.7	10.0
	prometryn	4	L	1	LB A/A	PO1					
	linuron	50	DF	1	LB A/A	PO1					
11	prometryn	4	L	2	LB A/A	POT	1.0	2.3	2.7	5.7	9.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
12	Untreated					POT	1.0	1.0	1.3	1.7	7.0
	prometryn	4	L	2	LB A/A	PO1					
LSD (P=.05)							1.26	3.25	3.40	2.31	4.31
Standard Deviation							0.74	1.92	2.01	1.37	2.54
CV							46.97	43.49	30.33	15.43	29.82

Weed Control in Celery - Crossen Farms 2010

Dept. of Horticulture, MSU

Pest Code							COPU		YENS			
Crop Name							Celery		Celery		Celery	
Rating Date							19/Aug/10	19/Aug/10	19/Aug/10	4/Oct/10	4/Oct/10	4/Oct/10
Rating Data Type							RATING	RATING	RATING	Harvest	Harvest	Harvest
Rating Unit							1-10	1-10	1-10	# of Plant	KG/PLOT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	prometryn	4	L	2	LB A/A	POT, PO1	2.0	4.7	9.3	36.0	17.95	
2	prometryn	4	L	2	LB A/A	POT	1.7	4.3	8.3	38.0	20.46	
	linuron	50	DF	1	LB A/A	PO1						
3	flumioxazin	51	WDG	0.096	LB A/A	POT	2.0	9.0	6.0	34.7	22.54	
	prometryn	4	L	2	LB A/A	PO1						
4	flumioxazin	51	WDG	0.196	LB A/A	POT	2.0	9.3	9.7	34.7	21.32	
	prometryn	4	L	2	LB A/A	PO1						
5	flumioxazin	51	WDG	0.096	LB A/A	POT	1.7	9.7	6.0	33.0	22.78	
	pendimethalin	3.8	CS	1.9	LB A/A	POT						
	prometryn	4	L	2	LB A/A	PO1						
6	prometryn	4	L	2	LB A/A	POT	2.3	8.7	9.3	35.0	24.16	
	s-metolachlor	7.62	EC	1.9	LB A/A	POT						
7	oxyfluorfen	4	SC	0.5	LB A/A	POT	2.0	9.3	9.7	35.3	23.04	
	prometryn	4	L	2	LB A/A	PO1						
8	s-metolachlor	7.62	EC	1.9	LB A/A	POT	1.7	9.7	8.7	37.3	24.58	
	flumioxazin	51	WDG	0.032	LB A/A	PO1						
9	sulfentrazone	4	F	0.125	LB A/A	POT	1.7	5.7	9.7	40.3	22.76	
	prometryn	4	L	2	LB A/A	PO1						
10	s-metolachlor	7.62	EC	1.9	LB A/A	POT	2.3	9.0	10.0	33.0	18.79	
	prometryn	4	L	1	LB A/A	PO1						
	linuron	50	DF	1	LB A/A	PO1						
11	prometryn	4	L	2	LB A/A	POT	2.0	8.3	9.0	39.7	26.28	
	oxyfluorfen	4	SC	0.063	LB A/A	PO1						
12	Untreated					POT	1.0	3.0	9.3	38.3	23.03	
	prometryn	4	L	2	LB A/A	PO1						
LSD (P=.05)							1.04	2.90	2.88	6.46	5.833	
Standard Deviation							0.61	1.71	1.70	3.82	3.445	
CV							32.96	22.65	19.47	10.52	15.44	

Weed Control in Sweet Corn - HTRC 2010

Project Code: 106-10-01

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Sweet Corn Variety: See notes

Planting Method: Seeded Planting Date: 5/17/10

Spacing: 8 inches Row Spacing: 30 inches; 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: 1.5%

pH: 6.4

Sand: 52.4%

Silt: 25.4%

Clay: 22.2%

CEC: 5.9

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/24/10	10:45 AM	88/72	F	Wet	2 SE	73	20% Cloudy	N
PO1	6/10/10	12:00 PM	73/74	F	Dry	3 NW	67	5% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/24	SW CORN		Just Planted	
5/24	COLQ = common lambsquarters		2 LF	Few
5/24	WIRA = wild radish		2 LF	Moderate
6/10	SW CORN			
6/10	COLQ = common lambsquarters			
6/10	COPU = common purslane			
6/10	LATH = ladythumb			
6/10	WIRA = wild radish			

Notes and Comments

1. Varieties: GSS0966, BC0805.
- 2.

Weed Control in Sweet Corn - HTRC 2010

Weed Control in Sweet Corn - HTRC 2010			
Trial ID: 106-10-01	Protocol ID: 106-10-01		
Location: East Lansing, MI	Study Director: Rodney Tocco		
	Investigator: Dr. Bernard Zandstra		

							COLQ	COPU		
Pest Code							Sweet Corn	Sweet Corn		
Crop Name							BC0805	GSS0966		
Crop Variety							10/Jun/10	10/Jun/10	10/Jun/10	10/Jun/10
Rating Date							RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10
Rating Unit							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	1.5	LB A/A	PRE	1.0	2.0	4.7	10.0
2	s-metolachlor	7.64	EC	1.5	LB A/A	PRE	1.0	1.3	7.3	10.0
3	dimethenamid-p	6	EC	0.75	LB A/A	PRE	1.7	2.0	5.3	9.0
4	acetochlor	6.4	EC	2	LB A/A	PRE	1.0	1.3	9.7	10.0
5	pendimethalin	3.8	CS	1.5	LB A/A	PRE	1.3	2.3	10.0	10.0
6	saflufenacil	2.85	SC	0.045	LB A/A	PRE	1.3	1.3	9.7	10.0
7	mesotrione	4	SC	0.188	LB A/A	PRE	1.7	2.7	10.0	7.7
8	atrazine	4	F	2	LB A/A	PRE	1.3	2.0	10.0	10.0
9	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.0	1.3	5.3	10.0
	mesotrione	4	SC	0.094	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
10	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.3	1.3	4.0	9.0
	tembotrione	3.5	SC	0.082	LB A/A	PO1				
	COC	100	SL	1.0	% V/V	PO1				
	ammonium sulfate	100	SG	3.0	LB A/A	PO1				
11	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.7	2.0	5.3	8.7
	halosulfuron	75	WG	0.023	LB A/A	PO1				
12	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.3	1.7	5.0	8.0
	foramsulfuron	35	WDG	0.038	LB A/A	PO1				
	COC	100	SL	1.0	% V/V	PO1				
	ammonium sulfate	100	SG	3.0	LB A/A	PO1				
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.7	3.3	4.7	9.3
	nicosulfuron	75	WDG	0.031	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
14	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.7	1.7	5.3	9.7
	fluthiacet	0.91	EC	0.006	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.0	1.0	2.7	7.3
	fluroxypyr	2.8	L	0.14	LB A/A	PO1				
16	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.3	1.7	3.3	7.0
	glufosinate	2.34	L	0.4	LB A/A	PO1				
LSD (P=.05)							0.85	1.37	2.99	2.96
Standard Deviation							0.51	0.82	1.80	1.78
CV							38.22	45.28	28.08	19.51

Weed Control in Sweet Corn - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							LATH	WIRA	Sweet Corn	Sweet Corn
Crop Name									BC0805	GSS0966
Crop Variety										
Rating Date							10/Jun/10	10/Jun/10	15/Jun/10	15/Jun/10
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	s-metolachlor	7.62	EC	1.5	LB A/A	PRE	9.7	1.3	1.0	1.0
2	s-metolachlor	7.64	EC	1.5	LB A/A	PRE	10.0	1.7	1.0	1.0
3	dimethenamid-p	6	EC	0.75	LB A/A	PRE	9.7	1.7	1.3	1.7
4	acetochlor	6.4	EC	2	LB A/A	PRE	9.7	4.3	1.3	1.3
5	pendimethalin	3.8	CS	1.5	LB A/A	PRE	9.7	5.7	1.0	1.0
6	saflufenacil	2.85	SC	0.045	LB A/A	PRE	10.0	5.3	1.0	1.3
7	mesotrione	4	SC	0.188	LB A/A	PRE	10.0	8.7	1.3	2.0
8	atrazine	4	F	2	LB A/A	PRE	10.0	10.0	1.0	1.7
9	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.0	2.0	1.0	1.0
	mesotrione	4	SC	0.094	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
10	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.7	2.0	1.0	1.0
	tembotrione	3.5	SC	0.082	LB A/A	PO1				
	COC	100	SL	1.0	% V/V	PO1				
	ammonium sulfate	100	SG	3.0	LB A/A	PO1				
11	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.7	2.3	2.3	2.3
	halosulfuron	75	WG	0.023	LB A/A	PO1				
12	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.0	2.7	2.0	2.7
	foramsulfuron	35	WDG	0.038	LB A/A	PO1				
	COC	100	SL	1.0	% V/V	PO1				
	ammonium sulfate	100	SG	3.0	LB A/A	PO1				
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.3	2.3	1.7	3.3
	nicosulfuron	75	WDG	0.031	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
14	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.7	2.0	1.7	2.0
	fluthiacet	0.91	EC	0.006	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	8.3	2.0	2.0	3.7
	fluroxypyr	2.8	L	0.14	LB A/A	PO1				
16	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.7	2.0	1.3	2.3
	glufosinate	2.34	L	0.4	LB A/A	PO1				
LSD (P=.05)							1.02	2.00	0.81	1.66
Standard Deviation							0.61	1.20	0.48	1.00
CV							6.42	34.27	35.24	54.28

Weed Control in Sweet Corn - HTRC 2010

Dept. of Horticulture, MSU

							GRFT	COLQ	RRPW	WIRA
Pest Code										
Crop Name										
Crop Variety										
Rating Date							15/Jun/10	15/Jun/10	15/Jun/10	15/Jun/10
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	s-metolachlor	7.62	EC	1.5	LB A/A	PRE	10.0	3.7	8.0	2.0
2	s-metolachlor	7.64	EC	1.5	LB A/A	PRE	10.0	8.3	9.0	2.7
3	dimethenamid-p	6	EC	0.75	LB A/A	PRE	10.0	4.0	9.3	2.3
4	acetochlor	6.4	EC	2	LB A/A	PRE	10.0	9.7	10.0	5.0
5	pendimethalin	3.8	CS	1.5	LB A/A	PRE	9.7	10.0	10.0	6.3
6	saflufenacil	2.85	SC	0.045	LB A/A	PRE	4.0	9.7	10.0	6.3
7	mesotrione	4	SC	0.188	LB A/A	PRE	7.3	10.0	10.0	8.7
8	atrazine	4	F	2	LB A/A	PRE	8.3	10.0	10.0	10.0
9	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	7.7	10.0	7.0
	mesotrione	4	SC	0.094	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
10	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	7.7	10.0	7.0
	tembotrione	3.5	SC	0.082	LB A/A	PO1				
	COC	100	SL	1.0	% V/V	PO1				
	ammonium sulfate	100	SG	3.0	LB A/A	PO1				
11	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	6.3	10.0	8.0
	halosulfuron	75	WG	0.023	LB A/A	PO1				
12	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	7.7	10.0	8.0
	foramsulfuron	35	WDG	0.038	LB A/A	PO1				
	COC	100	SL	1.0	% V/V	PO1				
	ammonium sulfate	100	SG	3.0	LB A/A	PO1				
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	5.3	10.0	7.7
	nicosulfuron	75	WDG	0.031	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
14	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	9.0	10.0	6.3
	fluthiacet	0.91	EC	0.006	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	6.3	9.7	6.3
	fluroxypyr	2.8	L	0.14	LB A/A	PO1				
16	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.7	10.0	10.0	8.7
	glufosinate	2.34	L	0.4	LB A/A	PO1				
LSD (P=.05)							1.30	2.65	1.11	2.13
Standard Deviation							0.78	1.59	0.67	1.28
CV							8.38	20.27	6.84	19.97

Weed Control in Sweet Corn - HTRC 2010

Dept. of Horticulture, MSU

Pest Code				LACG	YEFT	COLQ				
Crop Name							Sweet Corn			
Crop Variety							GSS0966			
Rating Date				11/Aug/10	11/Aug/10	11/Aug/10	9/Aug/10			
Rating Data Type				RATING	RATING	RATING	HARVEST			
Rating Unit				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	1.5	LB A/A	PRE	7.3	10.0	3.0	6.94
2	s-metolachlor	7.64	EC	1.5	LB A/A	PRE	8.0	10.0	5.3	9.83
3	dimethenamid-p	6	EC	0.75	LB A/A	PRE	9.0	10.0	1.3	7.37
4	acetochlor	6.4	EC	2	LB A/A	PRE	8.0	9.7	5.0	9.19
5	pendimethalin	3.8	CS	1.5	LB A/A	PRE	5.7	9.0	7.0	7.84
6	saflufenacil	2.85	SC	0.045	LB A/A	PRE	1.3	7.7	8.7	8.87
7	mesotrione	4	SC	0.188	LB A/A	PRE	7.7	4.7	8.7	8.80
8	atrazine	4	F	2	LB A/A	PRE	3.7	9.3	10.0	9.71
9	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.0	9.7	9.7	9.65
	mesotrione	4	SC	0.094	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
10	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	7.7	9.3	8.7	10.43
	tembotrione	3.5	SC	0.082	LB A/A	PO1				
	COC	100	SL	1.0	% V/V	PO1				
	ammonium sulfate	100	SG	3.0	LB A/A	PO1				
11	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	7.7	9.0	3.3	8.36
	halosulfuron	75	WG	0.023	LB A/A	PO1				
12	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	8.3	8.3	4.7	8.11
	foramsulfuron	35	WDG	0.038	LB A/A	PO1				
	COC	100	SL	1.0	% V/V	PO1				
	ammonium sulfate	100	SG	3.0	LB A/A	PO1				
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.0	10.0	2.0	5.09
	nicosulfuron	75	WDG	0.031	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
14	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	8.3	9.0	4.7	7.97
	fluthiacet	0.91	EC	0.006	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	8.3	10.0	2.7	8.07
	fluroxypyr	2.8	L	0.14	LB A/A	PO1				
16	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	7.7	10.0	6.7	8.73
	glufosinate	2.34	L	0.4	LB A/A	PO1				
LSD (P=.05)							1.79	2.63	2.12	2.880
Standard Deviation							1.07	1.58	1.27	1.727
CV							14.72	17.35	22.28	20.48

Weed Control in Sweet Corn - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							Sweet Corn	Sweet Corn	Sweet Corn
Crop Name							GSS0966	BC0805	BC0805
Crop Variety							9/Aug/10	10/Aug/10	10/Aug/10
Rating Date							HARVEST	HARVEST	HARVEST
Rating Data Type							#	KG/PLOT	#
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	s-metolachlor	7.62	EC	1.5	LB A/A	PRE	25.7	13.95	41.0
2	s-metolachlor	7.64	EC	1.5	LB A/A	PRE	33.0	15.88	44.3
3	dimethenamid-p	6	EC	0.75	LB A/A	PRE	27.0	12.10	34.7
4	acetochlor	6.4	EC	2	LB A/A	PRE	32.3	15.87	45.0
5	pendimethalin	3.8	CS	1.5	LB A/A	PRE	27.0	17.16	48.0
6	saflufenacil	2.85	SC	0.045	LB A/A	PRE	29.3	16.30	44.7
7	mesotrione	4	SC	0.188	LB A/A	PRE	30.0	17.93	48.3
8	atrazine	4	F	2	LB A/A	PRE	32.0	18.45	47.7
9	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	32.0	19.26	52.7
	mesotrione	4	SC	0.094	LB A/A	PO1			
	NIS	100	SL	0.25	% V/V	PO1			
10	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	37.0	16.21	42.3
	tembotrione	3.5	SC	0.082	LB A/A	PO1			
	COC	100	SL	1.0	% V/V	PO1			
	ammonium sulfate	100	SG	3.0	LB A/A	PO1			
11	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	30.3	14.95	43.0
	halosulfuron	75	WG	0.023	LB A/A	PO1			
12	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	27.7	16.33	45.3
	foramsulfuron	35	WDG	0.038	LB A/A	PO1			
	COC	100	SL	1.0	% V/V	PO1			
	ammonium sulfate	100	SG	3.0	LB A/A	PO1			
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	19.0	14.62	42.3
	nicosulfuron	75	WDG	0.031	LB A/A	PO1			
	NIS	100	SL	0.25	% V/V	PO1			
14	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	29.0	15.39	42.7
	fluthiacet	0.91	EC	0.006	LB A/A	PO1			
	NIS	100	SL	0.25	% V/V	PO1			
15	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	30.7	12.85	37.0
	fluroxypyr	2.8	L	0.14	LB A/A	PO1			
16	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	30.3	15.14	42.7
	glufosinate	2.34	L	0.4	LB A/A	PO1			
LSD (P=.05)							8.89	3.136	8.57
Standard Deviation							5.33	1.881	5.14
CV							18.07	11.92	11.71

Weed Control in Pickling Cucumber - HTRC 2010

Project Code: 108-10-01

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Cucumber Variety: Journey
 Planting Method: Seeded Planting Date: 5/26/10
 Spacing: 3 inches Row Spacing: 14 inches, 3 rows/plot
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 16 ft wide x 40 ft long

Soil Type: Clay loam OM: 1.6% pH: 6.6
 Sand: 46.1% Silt: 25.7% Clay: 28.2% CEC: 11.5

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/27/10	3:00 PM	87/83	F	Dry	3 NW	47	3% Cloudy	N
PO1	6/15/10	11:00 AM	71/70	F	Moist	5 SE	80	100% Cloudy	N
PO2	6/18/10	3:00 PM	89/84	F	Moist	5.5 SW	64	5% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/15	CUCUMBER			
6/15	COLQ = common lambsquarters	1-2"		Few
6/15	COPU = common purslane	1"	2LF	Few
6/15	CORW = common ragweed	2-4"		Few
6/15	YENS = yellow nutsedge	4-6"		Moderate
6/18	CUCUMBER			
6/18	COPU = common purslane	<1"		Moderate
6/18	CORW = common ragweed	1"		Many
6/18	EBNS = eastern black nightshade	1-2"		Few
6/18	LACG = large crabgrass	1-3"		Many
6/18	YENS = yellow nutsedge	4-6"		Moderate

Notes and Comments

- 1.
- 2.

Weed Control in Pickling Cucumber - HTRC 2010

Weed Control in Pickling Cucumber - HTRC 2010

Trial ID: 108-10-01
Location: East Lansing, MI

Protocol ID: 108-10-01
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

							GRFT		GRFT	
							Cucumber		Cucumber	
							14/Jun/10	14/Jun/10	22/Jun/10	22/Jun/10
							RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10
Trt	Treatment	Form	Form	Rate	Growth					
No.	Name	Conc	Type	Rate	Unit	Stage				
1	ethalfluralin	3	EC	1.13	LB A/A	PRE	1.3	9.7	1.3	8.7
2	ethalfluralin	3	EC	1.13	LB A/A	PRE	1.3	10.0	2.0	9.7
	clomazone	3	ME	0.25	LB A/A	PRE				
3	ethalfluralin	3	EC	0.75	LB A/A	PRE	1.7	10.0	1.0	9.3
	clomazone	3	ME	0.25	LB A/A	PRE				
4	ethalfluralin	3	EC	0.75	LB A/A	PRE	1.3	10.3	2.0	9.7
	clomazone	3	ME	0.25	LB A/A	PRE				
	halosulfuron	75	WG	0.023	LB A/A	PRE				
5	Strategy			6	PT A/A	PRE	2.0	10.0	1.7	10.0
	ethalfluralin	1.61	SE	1.2	LB A/A	PRE				
	clomazone	0.49	SE	0.37	LB A/A	PRE				
6	clomazone	3	ME	0.25	LB A/A	PRE	3.3	10.0	2.7	10.0
	s-metolachlor	7.62	EC	0.47	LB A/A	PRE				
7	clomazone	3	ME	0.25	LB A/A	PRE	1.4	9.8	3.0	9.5
	s-metolachlor	7.62	EC	0.47	LB A/A	PO1				
8	ethalfluralin	3	EC	0.75	LB A/A	PRE	1.3	10.0	2.7	10.0
	clomazone	3	ME	0.25	LB A/A	PRE				
	halosulfuron	75	WG	0.023	LB A/A	PO2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO2				
9	ethalfluralin	3	EC	0.75	LB A/A	PRE	5.7	10.0	6.0	9.7
	fomesafen	2	EC	0.188	LB A/A	PRE				
10	fomesafen	2	EC	0.188	LB A/A	PRE	6.3	10.0	6.0	9.3
11	fomesafen	2	EC	0.375	LB A/A	PRE	7.5	10.0	7.6	10.0
12	Untreated					PRE	1.0	5.7	2.3	6.7
	halosulfuron	75	WG	0.023	LB A/A	PO2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO2				
LSD (P=.05)							1.03	2.06	1.16	1.48
Standard Deviation							0.61	1.22	0.68	0.87
CV							21.27	12.63	21.28	9.28

Weed Control in Pickling Cucumber - HTRC 2010

Dept. of Horticulture, MSU

							COLQ	COPU	CORW	EBNS
Pest Code										
Crop Name										
Rating Date							22/Jun/10	22/Jun/10	22/Jun/10	22/Jun/10
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	ethalfluralin	3	EC	1.13	LB A/A	PRE	10.0	10.0	4.3	9.0
2	ethalfluralin	3	EC	1.13	LB A/A	PRE	9.3	10.0	8.0	10.0
	clomazone	3	ME	0.25	LB A/A	PRE				
3	ethalfluralin	3	EC	0.75	LB A/A	PRE	10.0	10.0	9.0	10.0
	clomazone	3	ME	0.25	LB A/A	PRE				
4	ethalfluralin	3	EC	0.75	LB A/A	PRE	10.0	10.0	10.0	9.7
	clomazone	3	ME	0.25	LB A/A	PRE				
	halosulfuron	75	WG	0.023	LB A/A	PRE				
5	Strategy			6	PT A/A	PRE	10.0	10.0	10.0	10.0
	ethalfluralin	1.61	SE	1.2	LB A/A	PRE				
	clomazone	0.49	SE	0.37	LB A/A	PRE				
6	clomazone	3	ME	0.25	LB A/A	PRE	10.0	10.0	8.3	10.0
	s-metolachlor	7.62	EC	0.47	LB A/A	PRE				
7	clomazone	3	ME	0.25	LB A/A	PRE	10.0	10.0	9.0	9.7
	s-metolachlor	7.62	EC	0.47	LB A/A	PO1				
8	ethalfluralin	3	EC	0.75	LB A/A	PRE	10.0	10.0	9.3	10.0
	clomazone	3	ME	0.25	LB A/A	PRE				
	halosulfuron	75	WG	0.023	LB A/A	PO2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO2				
9	ethalfluralin	3	EC	0.75	LB A/A	PRE	10.0	10.0	10.0	10.0
	fomesafen	2	EC	0.188	LB A/A	PRE				
10	fomesafen	2	EC	0.188	LB A/A	PRE	10.0	10.0	10.0	10.0
11	fomesafen	2	EC	0.375	LB A/A	PRE	10.0	10.0	10.0	10.0
12	Untreated					PRE	7.3	8.7	6.0	4.7
	halosulfuron	75	WG	0.023	LB A/A	PO2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO2				
LSD (P=.05)							1.35	0.75	2.06	0.94
Standard Deviation							0.80	0.44	1.22	0.56
CV							8.18	4.46	14.02	5.92

Weed Control in Pickling Cucumber - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							RRPW			
Crop Name							Cucumber		Cucumber	Cucumber
Rating Date							22/Jun/10	12/Jul/10	12/Jul/10	12/Jul/10
Rating Data Type							RATING	Harv. Plant	Harv. Fruit	Harvest
Rating Unit							1-10	KG/PLOT	KG/PLOT	KG/Grd 1
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	ethalfuralin	3	EC	1.13	LB A/A	PRE	10.0	25.71	36.67	0.94
2	ethalfuralin	3	EC	1.13	LB A/A	PRE	10.0	22.50	33.41	0.96
	clomazone	3	ME	0.25	LB A/A	PRE				
3	ethalfuralin	3	EC	0.75	LB A/A	PRE	9.7	25.93	32.41	0.91
	clomazone	3	ME	0.25	LB A/A	PRE				
4	ethalfuralin	3	EC	0.75	LB A/A	PRE	10.0	26.60	36.65	1.06
	clomazone	3	ME	0.25	LB A/A	PRE				
	halosulfuron	75	WG	0.023	LB A/A	PRE				
5	Strategy			6	PT A/A	PRE	10.0	31.47	43.40	1.35
	ethalfuralin	1.61	SE	1.2	LB A/A	PRE				
	clomazone	0.49	SE	0.37	LB A/A	PRE				
6	clomazone	3	ME	0.25	LB A/A	PRE	10.0	35.79	40.91	1.69
	s-metolachlor	7.62	EC	0.47	LB A/A	PRE				
7	clomazone	3	ME	0.25	LB A/A	PRE	9.0	33.78	34.52	1.66
	s-metolachlor	7.62	EC	0.47	LB A/A	PO1				
8	ethalfuralin	3	EC	0.75	LB A/A	PRE	10.0	23.28	35.83	1.09
	clomazone	3	ME	0.25	LB A/A	PRE				
	halosulfuron	75	WG	0.023	LB A/A	PO2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO2				
9	ethalfuralin	3	EC	0.75	LB A/A	PRE	10.0	13.25	15.53	1.01
	fomesafen	2	EC	0.188	LB A/A	PRE				
10	fomesafen	2	EC	0.188	LB A/A	PRE	10.0	10.18	13.56	1.22
11	fomesafen	2	EC	0.375	LB A/A	PRE	10.0	2.93	2.12	0.37
12	Untreated					PRE	9.3	23.47	29.51	1.11
	halosulfuron	75	WG	0.023	LB A/A	PO2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO2				
LSD (P=.05)							0.74	8.963	12.285	0.520
Standard Deviation							0.44	5.263	7.213	0.306
CV							4.43	22.97	24.41	27.45

Weed Control in Pickling Cucumber - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							Cucumber	Cucumber	Cucumber
Crop Name							12/Jul/10	12/Jul/10	12/Jul/10
Rating Date							Harvest	Harvest	Harvest
Rating Data Type							KG/Grd 2	KG/Grd 3	KG/Grd 4
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	ethalfuralin	3	EC	1.13	LB A/A	PRE	3.12	21.29	10.65
2	ethalfuralin	3	EC	1.13	LB A/A	PRE	2.73	20.03	9.22
	clomazone	3	ME	0.25	LB A/A	PRE			
3	ethalfuralin	3	EC	0.75	LB A/A	PRE	3.00	19.34	8.80
	clomazone	3	ME	0.25	LB A/A	PRE			
4	ethalfuralin	3	EC	0.75	LB A/A	PRE	3.18	22.89	8.81
	clomazone	3	ME	0.25	LB A/A	PRE			
	halosulfuron	75	WG	0.023	LB A/A	PRE			
5	Strategy			6	PT A/A	PRE	4.49	26.26	10.76
	ethalfuralin	1.61	SE	1.2	LB A/A	PRE			
	clomazone	0.49	SE	0.37	LB A/A	PRE			
6	clomazone	3	ME	0.25	LB A/A	PRE	6.29	28.05	4.23
	s-metolachlor	7.62	EC	0.47	LB A/A	PRE			
7	clomazone	3	ME	0.25	LB A/A	PRE	7.50	21.68	2.96
	s-metolachlor	7.62	EC	0.47	LB A/A	PO1			
8	ethalfuralin	3	EC	0.75	LB A/A	PRE	4.11	21.67	8.19
	clomazone	3	ME	0.25	LB A/A	PRE			
	halosulfuron	75	WG	0.023	LB A/A	PO2			
	sethoxydim	1.53	EC	0.19	LB A/A	PO2			
9	ethalfuralin	3	EC	0.75	LB A/A	PRE	3.10	10.23	0.21
	fomesafen	2	EC	0.188	LB A/A	PRE			
10	fomesafen	2	EC	0.188	LB A/A	PRE	2.73	8.17	1.30
11	fomesafen	2	EC	0.375	LB A/A	PRE	0.60	0.23	
12	Untreated					PRE	4.63	19.89	3.65
	halosulfuron	75	WG	0.023	LB A/A	PO2			
	sethoxydim	1.53	EC	0.19	LB A/A	PO2			
LSD (P=.05)							1.842	9.965	5.066
Standard Deviation							1.081	5.851	2.953
CV							28.53	31.95	47.23

Weed Control in Basil - Sandhill 2010

Project Code: 117-10-01

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Basil

Variety: Superior

Planting Method: Seeded

Planting Date: 5/25/10

Spacing: 1 inch

Row Spacing: 14 inches, 3 rows

Tillage Type: Conventional

Study Design: RCB

Replications: 4

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Sand

OM: 0.8%

pH: 7.9

Sand: 89.9%

Silt: 6.2%

Clay: 3.9%

CEC: 5.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/25/10	3:30 PM	86/91	F	Good	3-5 S	52	15% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/25	BASIL		Planted	

Notes and Comments

- 1.
- 2.

Weed Control in Basil - Sandhill 2010

Weed Control in Basil - Sandhill 2010					
Trial ID: 117-10-01			Protocol ID: 117-10-01		
Location: East Lansing, MI			Study Director: Rodney Tocco		
Investigator: Dr. Bernard Zandstra					

							QUGR	COLQ	COPU	CORW	
Pest Code							Basil				
Crop Name							18/Jun/10				
Rating Date							18/Jun/10	18/Jun/10	18/Jun/10	18/Jun/10	18/Jun/10
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	napropamide	50	DF	1	LB A/A	PRE	1.5	8.0	9.0	7.3	9.0
2	napropamide	50	DF	2	LB A/A	PRE	1.8	6.0	6.8	7.8	7.3
3	sulfentrazone	4	F	0.094	LB A/A	PRE	1.8	7.0	7.3	7.0	6.8
4	linuron	50	DF	0.25	LB A/A	PRE	2.0	8.8	9.8	8.8	8.3
5	linuron	50	DF	0.5	LB A/A	PRE	3.0	8.8	10.0	10.0	10.0
6	clomazone	3	ME	0.25	LB A/A	PRE	2.8	7.8	8.3	4.5	6.3
7	carfentrazone	2	EC	0.31	LB A/A	PRE	2.0	6.8	10.0	9.5	8.5
8	Untreated						1.5	1.0	2.5	3.0	2.5
LSD (P=.05)							1.02	3.63	3.56	4.14	3.20
Standard Deviation							0.70	2.47	2.42	2.81	2.18
CV							34.24	36.61	30.54	39.0	29.75

							RRPW	QUGR	COLQ	COPU	
Pest Code							Basil				
Crop Name							18/Jun/10				
Rating Date							18/Jun/10	25/Jun/10	25/Jun/10	25/Jun/10	25/Jun/10
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	napropamide	50	DF	1	LB A/A	PRE	9.0	1.0	6.8	7.3	8.0
2	napropamide	50	DF	2	LB A/A	PRE	7.3	1.8	4.0	7.5	7.8
3	sulfentrazone	4	F	0.094	LB A/A	PRE	7.0	1.3	4.8	8.0	8.0
4	linuron	50	DF	0.25	LB A/A	PRE	9.8	1.3	5.3	8.0	8.0
5	linuron	50	DF	0.5	LB A/A	PRE	10.0	2.3	7.3	7.8	7.8
6	clomazone	3	ME	0.25	LB A/A	PRE	4.8	1.0	7.3	4.8	3.8
7	carfentrazone	2	EC	0.31	LB A/A	PRE	9.5	1.5	5.3	8.8	8.8
8	Untreated						2.5	2.2	1.8	2.0	1.8
LSD (P=.05)							3.09	1.00	4.12	3.70	3.46
Standard Deviation							2.10	0.68	2.80	2.51	2.35
CV							28.16	44.23	53.02	37.25	35.0

Weed Control in Basil - Sandhill 2010

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Pest Code							CORW	RRPW	QUGR		COLQ
Crop Name							Basil				
Rating Date							25/Jun/10	25/Jun/10	14/Jul/10	14/Jul/10	14/Jul/10
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	napropamide	50	DF	1	LB A/A	PRE	8.8	8.8	4.3	4.0	4.0
2	napropamide	50	DF	2	LB A/A	PRE	7.8	7.8	4.8	7.3	4.8
3	sulfentrazone	4	F	0.094	LB A/A	PRE	7.0	5.8	2.0	4.0	7.5
4	linuron	50	DF	0.25	LB A/A	PRE	7.5	8.0	3.5	2.0	7.5
5	linuron	50	DF	0.5	LB A/A	PRE	7.8	7.8	4.3	3.8	7.5
6	clomazone	3	ME	0.25	LB A/A	PRE	4.8	4.0	4.8	8.5	5.5
7	carfentrazone	2	EC	0.31	LB A/A	PRE	8.5	8.8	5.3	2.3	7.5
8	Untreated						2.0	2.0	6.4	1.8	5.5
LSD (P=.05)							3.48	3.12	2.22	3.33	3.09
Standard Deviation							2.36	2.12	1.50	2.26	2.10
CV							35.01	32.2	34.15	54.06	33.73
Pest Code							COPU	CORW	RRPW	Basil	
Crop Name							Basil				
Rating Date							14/Jul/10	14/Jul/10	14/Jul/10	5/Aug/10	6/Aug/10
Rating Data Type							RATING	RATING	RATING	RATING	HARVEST
Rating Unit							1-10	1-10	1-10	1-10	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	napropamide	50	DF	1	LB A/A	PRE	4.0	4.0	4.0	2.3	3.08
2	napropamide	50	DF	2	LB A/A	PRE	5.3	4.8	4.8	2.0	3.62
3	sulfentrazone	4	F	0.094	LB A/A	PRE	7.5	7.5	7.5	1.5	4.01
4	linuron	50	DF	0.25	LB A/A	PRE	7.0	7.5	7.0	1.5	3.15
5	linuron	50	DF	0.5	LB A/A	PRE	7.5	7.5	7.5	2.3	2.84
6	clomazone	3	ME	0.25	LB A/A	PRE	3.8	5.0	5.3	4.0	3.74
7	carfentrazone	2	EC	0.31	LB A/A	PRE	7.8	7.5	7.5	1.5	3.01
8	Untreated						5.5	5.5	5.5	3.0	1.78
LSD (P=.05)							3.35	3.06	3.00	2.35	2.231
Standard Deviation							2.28	2.08	2.04	1.60	1.274
CV							37.76	33.75	33.28	71.1	40.39

Postemergence Weed Control in Basil - Sandhill 2010

Project Code: 117-10-05

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Basil

Variety: Superior

Planting Method:

Planting Date: 5/1/10

Spacing: 1 inch

Row Spacing: 1 row/plot

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 5.3 ft wide x 35 ft long

Soil Type: Sand

OM: 0.8%

pH: 7.9

Sand: 89.9%

Silt: 6.2%

Clay: 3.9%

CEC: 5.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/7/10	1:15 PM	67/69	F	Moist	3-4 S	59	1% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/7	BASIL			
6/7	CAWE = carpetweed	1-2"	4-6 LF	Many
6/7	COLQ = common lambsquarters	1-2"	4-6 LF	Moderate
6/7	COPU = common purslane	1-3"		Few
6/7	CORW = common ragweed	4-6"		Few
6/7	LACG = large crabgrass	2-3"	2-4 LF	Many
6/7	RRPW = redroot pigweed	2-3"	4-6 LF	Moderate

Notes and Comments

- 1.
- 2.

Postemergence Weed Control in Basil - Sandhill 2010

Postemergence Weed Control in Basil - Sandhill 2010

Trial ID: 117-10-05	Protocol ID: 117-10-05
Location: East Lansing, MI	Study Director: Rodney Tocco
	Investigator: Dr. Bernard Zandstra

							LACG	CORW	RRPW		
Pest Code							Basil				Basil
Crop Name							23/Jun/10	23/Jun/10	23/Jun/10	23/Jun/10	4/Aug/10
Rating Date							RATING	RATING	RATING	RATING	HARVEST
Rating Data Type							1-10	1-10	1-10	1-10	KG/PLOT
Rating Unit							1-10	1-10	1-10	1-10	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated - handweeded						1.3	2.0	1.0	2.3	0.21
2	bentazon	4	L	0.5	LB A/A	PO1	1.0	6.3	6.3	6.0	0.90
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1					
3	bentazon	4	L	1	LB A/A	PO1	1.3	5.3	8.3	7.0	0.55
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1					
4	linuron	50	DF	0.25	LB A/A	PO1	1.3	4.7	5.0	8.3	0.75
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1					
5	prometryn	4	L	0.5	LB A/A	PO1	7.3	6.7	6.0	5.7	0.39
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1					
6	clopyralid	3	EC	0.094	LB A/A	PO1	2.0	6.7	8.0	5.3	0.81
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1					
7	halosulfuron	75	WG	0.023	LB A/A	PO1	1.0	6.0	7.7	8.7	1.60
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1					
8	ethofumesate	4	SC	1.0	LB A/A	PO1	3.0	8.0	3.3	6.3	1.19
	quizalofop p-ethyl	0.88	EC	0.04	LB A/A	PO1					
LSD (P=.05)							1.59	4.05	3.51	2.67	0.873
Standard Deviation							0.91	2.31	2.00	1.52	0.498
CV							39.69	40.48	35.06	24.51	62.38

Weed Control in Basil - Van Drunen Farms 2010

Project Code: 117-10-02

Location: Momence, IL

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Basil Variety: See notes

Planting Method: Planting Date: 6/28/10

Spacing: 1 inch Row Spacing: 10 inches

Tillage Type: Conventional Study Design: RCB

Replications: 3

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Sandy clay loam

OM: 2.3%

pH: 5.0

Sand: 58.8% Silt: 17.4%

Clay: 23.8%

CEC: 16.4

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	7/1/10	2:00 PM	77/91	F	Good	1-3 NE	26	0% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
7/1	BASIL		Just Planted	

Notes and Comments

- Varieties: Plenty, Emerald, San Remo, and Genovese.
-

Weed Control in Basil - Van Drunen Farms 2010

Weed Control in Basil - Van Drunen Farms 2010

Trial ID: 117-10-02
Location: Momence, IL

Protocol ID: 117-10-02
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

							LACG				
Pest Code							Basil	Basil	Basil	Basil	
Crop Name							Plenty	Emerald	San Remo	Genovese	
Crop Variety							26/Jul/10	26/Jul/10	26/Jul/10	26/Jul/10	26/Jul/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	napropamide	50	DF	1	LB A/A	PRE	1.3	1.0	1.7	1.3	5.3
2	napropamide	50	DF	2	LB A/A	PRE	2.3	1.7	2.0	2.0	10.0
3	sulfentrazone	4	F	0.094	LB A/A	PRE	2.7	3.0	4.0	4.3	8.7
4	linuron	50	DF	0.25	LB A/A	PRE	1.3	1.0	1.3	1.3	9.7
5	linuron	50	DF	0.5	LB A/A	PRE	5.0	4.3	5.7	5.3	9.3
6	clomazone	3	ME	0.25	LB A/A	PRE	1.3	2.3	3.0	3.0	9.7
7	clomazone	3	ME	0.5	LB A/A	PRE	9.7	5.3	9.3	9.3	10.0
8	carfentrazone	2	EC	0.1	LB A/A	PRE	3.3	2.3	3.0	2.7	5.0
9	carfentrazone	2	EC	0.2	LB A/A	PRE	3.3	3.0	3.3	3.7	8.3
10	Untreated						1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.98	1.30	1.89	1.74	2.88
Standard Deviation							1.16	0.76	1.10	1.01	1.68
CV							36.9	30.31	32.1	29.79	21.82
							CAWE	COPU	RRPW	STGR	VELE
Pest Code											
Crop Name											
Crop Variety											
Rating Date							26/Jul/10	26/Jul/10	26/Jul/10	26/Jul/10	26/Jul/10
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	napropamide	50	DF	1	LB A/A	PRE	6.0	6.0	9.3	5.0	9.0
2	napropamide	50	DF	2	LB A/A	PRE	10.0	3.0	9.3	10.0	9.0
3	sulfentrazone	4	F	0.094	LB A/A	PRE	10.0	9.0	10.0	9.7	10.0
4	linuron	50	DF	0.25	LB A/A	PRE	9.0	1.3	10.0	10.0	7.0
5	linuron	50	DF	0.5	LB A/A	PRE	9.7	10.0	10.0	9.7	10.0
6	clomazone	3	ME	0.25	LB A/A	PRE	1.0	10.0	10.0	10.0	10.0
7	clomazone	3	ME	0.5	LB A/A	PRE	1.7	10.0	9.7	10.0	10.0
8	carfentrazone	2	EC	0.1	LB A/A	PRE	10.0	7.3	10.0	3.3	10.0
9	carfentrazone	2	EC	0.2	LB A/A	PRE	10.0	9.3	10.0	6.0	10.0
10	Untreated						1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.47	1.41	0.92	2.28	2.15
Standard Deviation							0.86	0.82	0.53	1.33	1.25
CV							12.56	12.29	5.98	17.84	14.55

Weed Control in Basil - Van Drunen Farms 2010

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Pest Code							Basil	Basil	Basil	Basil	Basil
Crop Name							Plenty	Emerald	San Remo	Genovese	Plenty
Crop Variety							13/Aug/10	13/Aug/10	13/Aug/10	13/Aug/10	25/Aug/10
Rating Date							RATING	RATING	RATING	RATING	HARVEST
Rating Data Type							1-10	1-10	1-10	1-10	KG/PLOT
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	napropamide	50	DF	1	LB A/A	PRE	1.3	1.0	1.0	1.0	7.16
2	napropamide	50	DF	2	LB A/A	PRE	1.7	1.3	1.7	1.0	7.63
3	sulfentrazone	4	F	0.094	LB A/A	PRE	2.3	1.7	1.7	2.7	7.73
4	linuron	50	DF	0.25	LB A/A	PRE	1.3	1.0	1.0	1.3	8.75
5	linuron	50	DF	0.5	LB A/A	PRE	4.0	3.3	3.7	4.0	3.77
6	clomazone	3	ME	0.25	LB A/A	PRE	2.0	2.0	3.0	2.7	6.80
7	clomazone	3	ME	0.5	LB A/A	PRE	7.0	3.0	6.3	7.7	0.35
8	carfentrazone	2	EC	0.1	LB A/A	PRE	2.7	1.3	2.0	1.7	4.85
9	carfentrazone	2	EC	0.2	LB A/A	PRE	2.3	2.0	2.3	2.3	6.17
10	Untreated						2.0	1.0	1.7	2.0	5.77
LSD (P=.05)							1.57	1.10	1.60	1.27	3.118
Standard Deviation							0.92	0.64	0.93	0.74	1.818
CV							34.38	36.29	38.42	28.21	30.82

Pest Code							Basil	Basil	Basil	Basil
Crop Name							Emerald	San Remo	Genovese	
Crop Variety							25/Aug/10	25/Aug/10	25/Aug/10	
Rating Date							HARVEST	HARVEST	HARVEST	TOTAL
Rating Data Type							KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	napropamide	50	DF	1	LB A/A	PRE	7.96	7.35	8.18	30.66
2	napropamide	50	DF	2	LB A/A	PRE	7.81	7.43	9.57	32.44
3	sulfentrazone	4	F	0.094	LB A/A	PRE	7.17	8.14	5.02	28.06
4	linuron	50	DF	0.25	LB A/A	PRE	8.99	7.25	8.12	33.10
5	linuron	50	DF	0.5	LB A/A	PRE	5.01	5.20	5.37	19.35
6	clomazone	3	ME	0.25	LB A/A	PRE	6.92	4.40	5.44	23.56
7	clomazone	3	ME	0.5	LB A/A	PRE	4.72	1.06	0.68	6.72
8	carfentrazone	2	EC	0.1	LB A/A	PRE	7.08	6.21	7.04	25.19
9	carfentrazone	2	EC	0.2	LB A/A	PRE	7.41	6.85	6.61	27.03
10	Untreated						7.80	5.36	6.32	25.25
LSD (P=.05)							2.268	1.827	2.415	7.282
Standard Deviation							1.322	1.065	1.402	4.245
CV							18.66	17.98	22.48	16.89

Fall Weed Control in Basil - Van Drunen Farms 2010

Project Code: 117-10-06

Location: Momence, IL

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Basil

Variety:

Planting Method: Seeded

Planting Date: 8/24/10

Spacing: 1 inch

Row Spacing: 10 inches

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Sandy clay loam

OM: 2.3%

pH: 5.0

Sand: 58.8%

Silt: 17.4%

Clay: 23.8%

CEC: 16.4

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	8/25/10	3:00 PM	81/93	F	Dry	5-7 NW	35	4% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

	Height or Diameter	Growth Stage	Density
8/25 BASIL		Just Planted 8/24	

Notes and Comments

- 1.
- 2.

Fall Weed Control in Basil - Van Drunen Farms 2010

Fall Weed Control in Basil - Van Drunen Farms

Trial ID: 117-10-06
 Location: Momence, IL

Protocol ID: 117-10-06
 Study Director: Rodney Tocco
 Investigator: Dr. Bernard Zandstra

							CAWE				
Pest Code							Basil	Basil	Basil	Basil	
Crop Name							Plenty	Genovese	San Remo	Esmeralda	
Description							30/Sep/10	30/Sep/10	30/Sep/10	30/Sep/10	30/Sep/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
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	napropamide	50	DF	1	LB A/A	PRE	1.3	1.0	2.0	1.3	10.0
2	napropamide	50	DF	2	LB A/A	PRE	2.7	1.3	3.3	1.3	10.0
3	napropamide	50	DF	1	LB A/A	PRE	5.3	1.7	2.0	1.3	8.7
	carfentrazone	2	EC	0.031	LB A/A	PRE					
4	napropamide	50	DF	1	LB A/A	PRE	1.7	1.7	4.0	2.0	9.3
	carfentrazone	2	EC	0.063	LB A/A	PRE					
5	carfentrazone	2	EC	0.1	LB A/A	PRE	2.3	2.3	3.7	3.0	10.0
6	carfentrazone	2	EC	0.2	LB A/A	PRE	5.0	5.3	5.7	4.3	9.7
7	sulfentrazone	4	F	0.094	LB A/A	PRE	3.0	4.0	3.0	2.7	10.0
8	Untreated					PRE	3.7	1.0	2.7	1.3	5.7
LSD (P=.05)							4.38	1.89	3.49	1.32	1.66
Standard Deviation							2.50	1.08	1.99	0.75	0.95
CV							80.11	47.01	60.53	34.71	10.34

							COLQ		COPU	
Pest Code							30/Sep/10	30/Sep/10		
Crop Name							RATING	RATING		
Description							1-10	1-10		
Rating Date							1-10	1-10		
Rating Data Type							1-10	1-10		
Rating Unit							1-10	1-10		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	napropamide	50	DF	1	LB A/A	PRE	9.0	8.3		
2	napropamide	50	DF	2	LB A/A	PRE	9.7	6.7		
3	napropamide	50	DF	1	LB A/A	PRE	10.0	7.7		
	carfentrazone	2	EC	0.031	LB A/A	PRE				
4	napropamide	50	DF	1	LB A/A	PRE	9.7	9.7		
	carfentrazone	2	EC	0.063	LB A/A	PRE				
5	carfentrazone	2	EC	0.1	LB A/A	PRE	9.7	9.3		
6	carfentrazone	2	EC	0.2	LB A/A	PRE	10.0	10.0		
7	sulfentrazone	4	F	0.094	LB A/A	PRE	10.0	9.7		
8	Untreated					PRE	6.0	3.3		
LSD (P=.05)							1.34	2.70		
Standard Deviation							0.77	1.54		
CV							8.3	19.09		

Weed Control in Cilantro, Dill, Fennel, Parsley - Van Drunen Farms 2010

Project Code: 117-10-03

Location: Momence, IL

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Cilantro, Dill, Fennel, Parsley Variety: See notes
 Planting Method: Seeded Planting Date: 7/1/10
 Spacing: 1 inch Row Spacing: 10 inches
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Hoopston fine sandy loam OM: 2.2% pH: 5.2
 Sand: 60.8% Silt: 17.4% Clay: 21.8% CEC: 16.2

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	7/1/10	1:30 PM	77/91	F	Good	1-3 NE	28	0% Cloudy	N
PO1	7/26/10	10:30 AM	83/80	F	Good	3-6 SE	66	40% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
7/1	HERBS		Just Planted	
7/26	HERBS		Bad Stand	
7/26	CAWE = carpetweed	1-3", 0-1"		Many
7/26	COPU = common purslane	4-6", 3-5"		Many
7/26	GRFT = green foxtail	1-2"		Few
7/26	LACG = large crabgrass	1-2"		Few
7/26	VELE = velvetleaf	4-6"	6-8 LF	Few

Notes and Comments

1. Row 1: Cilantro 'Long Standing', Row 2: Dill 'Green Sleeves', Row 3: Fennel 'Zefa Fino', Row 4: Parsley 'Italian Giant'.
2. Dill, fennel, and parsley had very poor stand due to adverse weather.

Weed Control in Cilantro, Dill, Fennel, Parsley - Van Drunen Farms 2010

Weed Control in Cilantro, Dill, Fennel, & Parsley - Van Drunen Farms 2010

Trial ID: 117-10-03
Location: Momence, IL

Protocol ID: 117-10-03
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

							LACG	STGR	CAWE	COPU	VELE	
							Cilantro					
							26/Jul/10	26/Jul/10	26/Jul/10	26/Jul/10	26/Jul/10	26/Jul/10
							RATING	RATING	RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage						
1	linuron	50	DF	0.5	LB A/A	PRE	6.0	9.3	9.7	10.0	10.0	10.0
2	trifluralin	4	EC	0.5	LB A/A	PRE	6.3	9.3	9.3	9.0	1.0	9.3
3	prometryn	4	L	1	LB A/A	PRE	7.0	9.7	10.0	10.0	9.7	10.0
4	s-metolachlor	7.62	EC	0.63	LB A/A	PRE	7.3	10.0	10.0	7.7	8.3	10.0
5	pendimethalin	3.8	CS	0.7	LB A/A	PRE	6.3	10.0	10.0	10.0	9.7	10.0
6	ethofumesate	4	SC	1.0	LB A/A	PRE	7.7	10.0	10.0	7.7	1.0	6.3
7	clomazone	3	ME	0.25	LB A/A	PRE	6.0	9.7	10.0	2.0	10.0	10.0
8	linuron	50	DF	0.25	LB A/A	PRE	7.7	7.0	7.7	7.0	3.0	7.7
9	linuron	50	DF	0.25	LB A/A	PRE	7.0	4.3	5.7	6.3	4.3	10.0
	linuron	50	DF	0.5	LB A/A	PO1						
	clethodim	0.97	EC	.12	LB A/A	PO1						
	NIS	100	SL	0.25	% V/V	PO1						
10	linuron	50	DF	0.25	LB A/A	PRE	6.0	5.0	7.3	5.0	2.0	10.0
	prometryn	4	L	1	LB A/A	PO1						
LSD (P=.05)							4.42	3.44	3.56	3.36	1.62	3.29
Standard Deviation							2.57	2.01	2.08	1.96	0.94	1.92
CV							38.23	23.79	23.17	26.25	16.01	20.54

Fall Weed Control in Cilantro, Dill, Fennel, Parsley - Van Drunen Farms 2010

Project Code: 117-10-07

Location: Momence, IL

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Cilantro, Dill, Fennel, Parsley Variety: See Notes
 Planting Method: Planting Date: 8/24/10
 Spacing: ft Row Spacing: ft
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Sandy clay loam OM: 2.2% pH: 5.2
 Sand: 60.8% Silt: 17.4% Clay: 21.8% CEC: 16.2

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	8/25/10	2:30 PM	81/93	F	Dry	5-7 NW	35	4% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
8/25	HERBS		Just Planted 8/24	

Notes and Comments

1. Row 1: Cilantro 'Long Standing', Row 2: Dill 'Green Sleeves', Row 3: Fennel 'Selma Fino', Row 4: Parsley 'Italian Giant'.

Fall Weed Control in Cilantro, Dill, Fennel, Parsley - Van Drunen Farms 2010

Fall Weed Control in Cilantro, Dill, Fennel, & Parsley - Van Drunen Farms

Trial ID: 117-10-07
Location: Momence, IL

Protocol ID: 117-10-07
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

Pest Code							CAWE				
Crop Name							Cilantro	Dill	Fennel	Parsley	
Rating Date							30/Sep/10	30/Sep/10	30/Sep/10	30/Sep/10	30/Sep/10
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	Unit	Growth Stage					
1	linuron	50	DF	0.25	LB A/A	PRE	1.0	1.3	1.0	1.3	10.0
2	linuron	50	DF	0.5	LB A/A	PRE	1.0	1.7	2.3	2.7	10.0
3	linuron	50	DF	0.25	LB A/A	PRE	1.3	3.3	2.0	2.3	7.0
	carfentrazone	2	EC	0.031	LB A/A	PRE					
4	linuron	50	DF	0.5	LB A/A	PRE	3.3	3.3	2.7	3.7	10.0
	carfentrazone	2	EC	0.031	LB A/A	PRE					
5	carfentrazone	2	EC	0.1	LB A/A	PRE	4.7	8.3	3.0	2.7	10.0
6	carfentrazone	2	EC	0.2	LB A/A	PRE	9.0	9.7	4.3	9.7	10.0
7	prometryn	4	L	0.75	LB A/A	PRE	1.3	1.3	1.3	2.0	10.0
8	Untreated					PRE	1.0	1.0	1.3	2.0	6.0
LSD (P=.05)							1.95	1.98	2.11	2.28	3.35
Standard Deviation							1.11	1.13	1.21	1.30	1.91
CV							39.27	30.17	53.56	39.5	20.97

Pest Code							COLQ	COPU
Crop Name								
Rating Date							30/Sep/10	30/Sep/10
Rating Data Type							RATING	RATING
Rating Unit							1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage		
1	linuron	50	DF	0.25	LB A/A	PRE	10.0	10.0
2	linuron	50	DF	0.5	LB A/A	PRE	10.0	10.0
3	linuron	50	DF	0.25	LB A/A	PRE	10.0	10.0
	carfentrazone	2	EC	0.031	LB A/A	PRE		
4	linuron	50	DF	0.5	LB A/A	PRE	10.0	10.0
	carfentrazone	2	EC	0.031	LB A/A	PRE		
5	carfentrazone	2	EC	0.1	LB A/A	PRE	10.0	10.0
6	carfentrazone	2	EC	0.2	LB A/A	PRE	10.0	10.0
7	prometryn	4	L	0.75	LB A/A	PRE	10.0	10.0
8	Untreated					PRE	5.3	6.7
LSD (P=.05)							1.99	0.95
Standard Deviation							1.14	0.54
CV							12.07	5.64

Weed Control in Lettuce - Muck Farm 2010

Project Code: 116-10-02

Location: Lainsburg, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Lettuce

Variety: See notes.

Planting Method: Seeded

Planting Date: 6/1/10

Spacing: 3 inches; thinned 12 inches

Row Spacing: 16 inches

Tillage Type: Conventional

Study Design: RCB Replications: 3

Plot Size: 3 ft wide x 30 ft long

Soil Type: Organic

OM: 75.5%

pH: 6.8

Sand: 11.0%

Silt: 12.3%

Clay: 1.2%

CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	6/4/10	3:00 PM	79/69	F	Good	1-3 SW	80	100% Cloudy	N
PO1	6/22/10	11:00 AM	78/72	F	Wet	5 W	70	30% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/4	LETTUCE		Planted	
6/22	LETTUCE	2-3"	2-4 LF	
6/22	COPU = common purslane	1-2"		Many
6/22	LACG = large crabgrass	1-2"		Moderate
6/22	LATH = ladythumb	2-3"		Few
6/22	RRPW = redroot pigweed	2-3"		Many
6/22	YENS = yellow nutsedge	2-3"		Moderate

Notes and Comments

1. Varieties: East: Black Seeded Simpson, Middle: Great Lakes 659, West: Paris Island Cos.
- 2.

Weed Control in Lettuce - Muck Farm 2010

Weed Control in Lettuce - Muck Farm 2010					
Trial ID: 116-10-02		Protocol ID: 116-10-02			
Location: Laingsburg, MI		Study Director: Rodney Tocco			
Investigator: Dr. Bernard Zandstra					

							LACG	COPU					
Pest Code							Lettuce	Lettuce	Romaine				
Crop Name							Leaf	Head					
Crop Variety							21/Jun/10	21/Jun/10	21/Jun/10	21/Jun/10	21/Jun/10		
Rating Date							RATING	RATING	RATING	RATING	RATING		
Rating Data Type							1-10	1-10	1-10	1-10	1-10		
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	pronamide	50	WP	6	LB A/A	PRE	1.0	1.0	1.0	8.7	8.7		
2	sulfentrazone	4	F	0.125	LB A/A	PRE	2.0	2.3	3.0	7.3	7.3		
3	ethofumesate	4	SC	1.0	LB A/A	PRE	2.3	2.7	2.7	8.7	6.7		
4	imazamox	1	AS	0.015	LB A/A	PRE	2.0	2.3	2.7	3.0	5.7		
5	imazethapyr	2	EC	0.031	LB A/A	PRE	2.0	2.7	2.7	7.0	7.7		
6	pendimethalin	3.8	CS	0.95	LB A/A	PRE	1.0	1.0	1.0	5.3	3.0		
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	5.3	5.7	5.7	10.0	7.0		
8	pronamide	50	WP	4	LB A/A	PRE	1.0	1.0	2.0	9.0	8.0		
	imazamox	1	AS	0.031	LB A/A	PO1							
9	pronamide	50	WP	4	LB A/A	PRE	1.0	1.0	1.0	9.3	8.7		
	imazamox	1	AS	0.063	LB A/A	PO1							
10	pronamide	50	WP	4	LB A/A	PRE	1.0	1.0	1.0	8.7	8.0		
	imazethapyr	2	EC	0.063	LB A/A	PO1							
11	pronamide	50	WP	4	LB A/A	PRE	1.0	1.0	1.0	9.0	8.3		
	ethofumesate	4	SC	1.0	LB A/A	PO1							
12	Untreated						1.0	1.0	1.0	1.0	1.0		
LSD (P=.05)							0.96	0.83	1.53	2.13	1.05		
Standard Deviation							0.57	0.49	0.90	1.26	0.62		
CV							33.01	25.93	43.94	17.36	9.32		
Pest Code							LATH	RRPW					
Crop Name							Lettuce	Lettuce	Romaine				
Crop Variety							Leaf	Head					
Rating Date							21/Jun/10	21/Jun/10	29/Jun/10	29/Jun/10	29/Jun/10		
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	pronamide	50	WP	6	LB A/A	PRE	9.0	5.3	1.0	1.0	1.0		
2	sulfentrazone	4	F	0.125	LB A/A	PRE	7.7	8.3	1.3	1.0	1.7		
3	ethofumesate	4	SC	1.0	LB A/A	PRE	7.3	5.7	1.0	1.0	1.0		
4	imazamox	1	AS	0.015	LB A/A	PRE	7.7	7.3	1.0	1.0	1.0		
5	imazethapyr	2	EC	0.031	LB A/A	PRE	8.0	6.0	1.3	1.3	1.3		
6	pendimethalin	3.8	CS	0.95	LB A/A	PRE	5.7	1.7	1.0	1.0	1.0		
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	6.3	6.7	3.7	3.3	3.7		
8	pronamide	50	WP	4	LB A/A	PRE	8.3	4.0	2.7	2.0	2.0		
	imazamox	1	AS	0.031	LB A/A	PO1							
9	pronamide	50	WP	4	LB A/A	PRE	8.7	3.7	3.0	2.7	2.7		
	imazamox	1	AS	0.063	LB A/A	PO1							
10	pronamide	50	WP	4	LB A/A	PRE	8.7	4.0	1.7	1.3	1.7		
	imazethapyr	2	EC	0.063	LB A/A	PO1							
11	pronamide	50	WP	4	LB A/A	PRE	8.3	4.0	1.0	1.0	1.0		
	ethofumesate	4	SC	1.0	LB A/A	PO1							
12	Untreated						1.0	1.0	1.0	1.0	1.0		
LSD (P=.05)							1.12	1.89	0.65	0.58	0.82		
Standard Deviation							0.66	1.11	0.39	0.34	0.48		
CV							9.15	23.17	23.55	23.4	30.61		

Weed Control in Lettuce - Muck Farm 2010

Dept. of Horticulture, MSU

Pest Code							LACG	COPU	RRPW	TUPW	Lettuce	
Crop Name											Leaf	
Crop Variety												
Rating Date							29/Jun/10	29/Jun/10	29/Jun/10	29/Jun/10	8/Jul/10	
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	pronamide	50	WP	6	LB A/A	PRE	9.7	9.0	7.3	8.7	1.3	
2	sulfentrazone	4	F	0.125	LB A/A	PRE	9.3	8.3	9.0	9.3	1.7	
3	ethofumesate	4	SC	1.0	LB A/A	PRE	9.3	8.7	8.3	9.0	2.0	
4	imazamox	1	AS	0.015	LB A/A	PRE	5.3	5.0	7.7	8.3	1.7	
5	imazethapyr	2	EC	0.031	LB A/A	PRE	8.3	7.7	7.7	10.0	2.0	
6	pendimethalin	3.8	CS	0.95	LB A/A	PRE	8.7	5.3	5.7	9.0	1.3	
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	8.0	8.3	10.0	4.0	
8	pronamide	50	WP	4	LB A/A	PRE	10.0	10.0	9.3	10.0	3.7	
	imazamox	1	AS	0.031	LB A/A	PO1						
9	pronamide	50	WP	4	LB A/A	PRE	10.0	10.0	9.3	10.0	5.7	
	imazamox	1	AS	0.063	LB A/A	PO1						
10	pronamide	50	WP	4	LB A/A	PRE	10.0	10.0	9.3	9.7	2.3	
	imazethapyr	2	EC	0.063	LB A/A	PO1						
11	pronamide	50	WP	4	LB A/A	PRE	9.7	9.7	7.7	7.7	1.3	
	ethofumesate	4	SC	1.0	LB A/A	PO1						
12	Untreated						6.3	1.7	2.3	6.3	1.3	
LSD (P=.05)							2.75	2.07	2.08	2.79	1.00	
Standard Deviation							1.62	1.22	1.23	1.65	0.59	
CV							18.26	15.73	16.06	18.32	24.91	
Pest Code									LACG	COPU	RRPW	
Crop Name							Lettuce	Romaine				
Crop Variety							Head					
Rating Date							8/Jul/10	8/Jul/10	8/Jul/10	8/Jul/10	8/Jul/10	
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	pronamide	50	WP	6	LB A/A	PRE	1.0	1.3	8.0	8.0	5.7	
2	sulfentrazone	4	F	0.125	LB A/A	PRE	1.0	2.3	6.3	7.3	8.3	
3	ethofumesate	4	SC	1.0	LB A/A	PRE	1.3	2.0	9.3	6.7	5.3	
4	imazamox	1	AS	0.015	LB A/A	PRE	1.7	2.3	2.3	2.3	6.3	
5	imazethapyr	2	EC	0.031	LB A/A	PRE	2.0	2.0	5.0	4.3	6.0	
6	pendimethalin	3.8	CS	0.95	LB A/A	PRE	1.3	2.7	7.3	3.0	2.3	
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	3.7	4.7	9.0	4.7	5.0	
8	pronamide	50	WP	4	LB A/A	PRE	3.0	3.0	9.7	8.3	9.3	
	imazamox	1	AS	0.031	LB A/A	PO1						
9	pronamide	50	WP	4	LB A/A	PRE	4.3	3.7	9.7	8.7	9.7	
	imazamox	1	AS	0.063	LB A/A	PO1						
10	pronamide	50	WP	4	LB A/A	PRE	2.0	2.3	9.7	8.3	9.3	
	imazethapyr	2	EC	0.063	LB A/A	PO1						
11	pronamide	50	WP	4	LB A/A	PRE	1.0	1.0	8.0	9.0	6.7	
	ethofumesate	4	SC	1.0	LB A/A	PO1						
12	Untreated						1.0	1.3	1.0	1.0	1.0	
LSD (P=.05)							0.97	1.54	2.29	2.20	2.52	
Standard Deviation							0.58	0.91	1.35	1.30	1.49	
CV							29.58	38.16	19.03	21.75	23.84	

Weed Control in Lettuce - Muck Farm 2010

Dept. of Horticulture, MSU

Pest Code							Lettuce	Romaine	Lettuce
Crop Name							Leaf		Head
Crop Variety							12/Jul/10	27/Jul/10	2/Aug/10
Rating Date							Harvest	Harvest	Harvest
Rating Data Type							KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	pronamide	50	WP	6	LB A/A	PRE	5.10	11.10	10.79
2	sulfentrazone	4	F	0.125	LB A/A	PRE	5.26	9.75	10.81
3	ethofumesate	4	SC	1.0	LB A/A	PRE	4.03	10.22	12.65
4	imazamox	1	AS	0.015	LB A/A	PRE	4.09	7.80	9.62
5	imazethapyr	2	EC	0.031	LB A/A	PRE	3.94	9.80	9.94
6	pendimethalin	3.8	CS	0.95	LB A/A	PRE	4.92	7.81	8.90
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	1.44	5.23	9.51
8	pronamide	50	WP	4	LB A/A	PRE	3.33	12.46	12.50
	imazamox	1	AS	0.031	LB A/A	PO1			
9	pronamide	50	WP	4	LB A/A	PRE	0.56	13.91	15.04
	imazamox	1	AS	0.063	LB A/A	PO1			
10	pronamide	50	WP	4	LB A/A	PRE	3.10	14.24	13.27
	imazethapyr	2	EC	0.063	LB A/A	PO1			
11	pronamide	50	WP	4	LB A/A	PRE	5.30	11.95	14.06
	ethofumesate	4	SC	1.0	LB A/A	PO1			
12	Untreated						4.35	5.22	9.35
LSD (P=.05)							1.600	3.957	3.195
Standard Deviation							0.945	2.337	1.886
CV							24.96	23.47	16.59

Postemergence Weed Control in Lettuce with a Shielded Sprayer I - Muck Farm 2010

Postemergence Weed Control in Lettuce with a Shielded Sprayer - Muck Farm 2010					
Trial ID: 116-10-03			Study Dir.: Dr. Bernard Zandstra		
Location: Muck Farm, Laingsburg			Investigator: Dr. Bernard Zandstra		

		RRPW				COPU					
		Leaf	Head	Romaine							
		RATING	RATING	RATING	RATING	RATING					
		1-10	1-10	1-10	1-10	1-10					
		1/Jul/10	1/Jul/10	1/Jul/10	1/Jul/10	1/Jul/10					
Trt	Treatment	Form	Form	Rate	Growth						
No.	Name	Conc	Type	Rate	Unit	Stage					
1	Aim	2	EC	0.063	LB A/A	PO1	4.7	6.3	5.7	8.0	9.7
2	Roundup Original	4.5	L	0.21	LB A/A	PO1	2.7	2.0	3.0	6.0	6.3
3	Gramoxone Inteon	2	L	0.75	LB A/A	PO1	5.3	6.0	7.0	7.3	8.0
4	Untreated						1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							2.75	3.87	3.21	1.00	1.97
Standard Deviation							1.37	1.94	1.61	0.50	0.99
CV							40.23	50.52	38.57	8.96	15.78

		LACG								
		Leaf	Head	Romaine						
		YIELD	YIELD	YIELD	YIELD					
		KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT					
		12/Jul/10	2/Aug/10	27/Jul/10						
Trt	Treatment	Form	Form	Rate	Grow					
No.	Name	Conc	Type	Rate	Unit	Stg				
1	Aim	2	EC	0.063	LB A/A	PO1	2.7	7.18	6.41	6.90
2	Roundup Original	4.5	L	0.21	LB A/A	PO1	7.3	9.23	13.88	10.04
3	Gramoxone Inteon	2	L	0.75	LB A/A	PO1	8.7	3.52	7.59	3.91
4	Untreated						1.0	11.19	13.90	8.55
LSD (P=.05)							2.75	4.928	8.875	4.085
Standard Deviation							1.37	2.466	4.442	2.044
CV							27.95	31.71	42.52	27.82

Postemergence Weed Control in Lettuce with a Shielded Sprayer II - Muck Farm 2010

Project Code: 116-10-04

Location: Laingsburg, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
 Crop: Lettuce Variety: See notes
 Planting Method: Seeded Planting Date: 7/16/10
 Spacing: 3 inches Row Spacing: 16 inches
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 5.5 ft wide x 25 ft long

Soil Type: Houghton Muck OM: 76.9% pH: 6.5
 Sand: 9.8% Silt: 11.9% Clay: 1.4% CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	8/6/10	2:00 pm	76/72	F	Moist	6-8 W	44	70% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/25	LETTUCE	2-3"		
6/25	LACG = large crabgrass	1-2"		Few
6/25	RRPW = redroot pigweed	2-3"		Many
6/25	YENS = yellow nutsedge	2-3"		Moderate

Notes and Comments

1. Sprays applied with a tractor-mounted, precision-guided shielded sprayer: FF80015, 20 gpa, 25 psi, 3.2 mph, CO2 pressurized.
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- Black Seeded Simpson Leaf Lettuce, V2 Middle- Parris Island Cos Romaine Lettuce, V3- Great Lakes 659 Head Lettuce.

Postemergence Weed Control in Lettuce with a Shielded Sprayer II - Muck Farm 2010

Postemergence Weed Control in Lettuce with a Shielded Sprayer - Muck Farm 2010												
Trial ID: 116-10-04					Study Dir.: Dr. Bernard Zandstra							
Location: Muck Farm, Laingsburg					Investigator: Dr. Bernard Zandstra							
Weed Code							RRPW	YENS				
Crop Code							Leaf	Romaine	Head			
Rating Data Type							RATING	RATING	RATING			
Rating Unit							1-10	1-10	1-10			
Rating Date							20/Aug/10	20/Aug/10	20/Aug/10			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage						
1	Aim	2	EC	0.063	LB A/A	PO1	1.7	2.3	7.0	7.3	4.0	
2	Roundup Original	4.5	L	0.21	LB A/A	PO1	1.0	1.0	1.0	4.3	6.7	
3	Gramoxone Inteon	2	L	0.75	LB A/A	PO1	1.0	1.0	5.7	6.3	7.7	
4	Untreated						1.0	1.0	1.0	1.0	1.0	
LSD (P=.05)							0.58	2.31	2.00	2.64	1.45	
Standard Deviation							0.29	1.15	1.00	1.32	0.73	
CV							24.74	86.6	27.27	27.85	15.03	
Weed Code							LACG	COPU	RRPW	YENS		
Crop Code												
Rating Data Type							RATING	Weed Count	WEED COUNT	WEED COUNT		
Rating Unit							1-10	#/sq m	#/sq m	#/sq m		
Rating Date							20/Aug/10	20/Aug/10	20/Aug/10	20/Aug/10		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage						
1	Aim	2	EC	0.063	LB A/A	PO1	4.7	2.1	1.1	1.7		
2	Roundup Original	4.5	L	0.21	LB A/A	PO1	8.0	12.0	8.0	2.9		
3	Gramoxone Inteon	2	L	0.75	LB A/A	PO1	9.0	4.4	1.6	1.1		
4	Untreated						1.0	2.8	12.0	1.8		
LSD (P=.05)							3.65	6.29	7.26	3.27		
Standard Deviation							1.83	3.15	3.64	1.64		
CV							32.22	59.05	64.16	88.0		
Weed Code							LACG					
Crop Code								Leaf	Romaine	Head		
Rating Data Type							WEED COUNT	YIELD	YIELD	YIELD		
Rating Unit							#/sq m	KG/PLOT	KG/PLOT	KG/PLOT		
Rating Date							20/Aug/10	31/Aug/10	13/Sep/10	27/Sep/10		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage						
1	Aim	2	EC	0.063	LB A/A	PO1	0.0	12.30	23.16	12.87		
2	Roundup Original	4.5	L	0.21	LB A/A	PO1	0.1	12.11	22.62	25.85		
3	Gramoxone Inteon	2	L	0.75	LB A/A	PO1	0.2	14.03	28.55	12.97		
4	Untreated						0.0	5.32	14.74	17.91		
LSD (P=.05)							0.46	6.710	7.333	8.150		
Standard Deviation							0.23	3.358	3.670	4.079		
CV							274.87	30.71	16.48	23.44		

Weed Control in Lettuce - Van Dyk Farms 2010

Project Code: 116-10-01

Location: Imlay City, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Lettuce Romaine Variety: Romaine Sunbelt

Planting Method: Seeded Planting Date: 6/9/10

Spacing: 12 inches Row Spacing: 24 inches; 2 rows/plot

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 3 ft wide x 30 ft long

Soil Type: Organic

OM: 73.8%

pH: 6.8

Sand: 6.0%

Silt: 18.0%

Clay: 2.2%

CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	6/9/10	2:00 PM	81/64	F	Damp	4-5 NW	70	50% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

Height or Diameter	Growth Stage	Density
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Notes and Comments

- 1.
- 2.

Weed Control in Lettuce - Van Dyk Farms 2010

Weed Control in Lettuce - Van Dyk Farms 2010										
Trial ID: 116-10-01				Protocol ID: 116-10-01						
Location: Imlay City, MI				Study Director: Rodney Tocco						
Investigator: Dr. Bernard Zandstra										

							COPU		RRPW	
							Lettuce		Lettuce	
							21/Jun/10		21/Jun/10	
							RATING		RATING	
							1-10		1-10	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	pronamide	50	WP	6	LB A/A	PRE	1.3	8.7	8.0	1.0
2	sulfentrazone	4	F	0.125	LB A/A	PRE	1.3	7.7	7.7	1.3
3	pendimethalin	3.8	CS	0.95	LB A/A	PRE	3.7	8.3	7.7	1.7
4	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	5.0	8.7	9.3	2.7
5	pronamide	50	WP	4	LB A/A	PRE	1.3	5.7	6.0	1.0
	imazamox	1	AS	0.031	LB A/A	PO1				
6	pronamide	50	WP	4	LB A/A	PRE	1.7	7.7	6.7	2.0
	imazamox	1	AS	0.063	LB A/A	PO1				
7	pronamide	50	WP	4	LB A/A	PRE	1.3	7.0	6.7	1.3
	imazethapyr	2	EC	0.063	LB A/A	PO1				
8	pronamide	50	WP	4	LB A/A	PRE	1.0	4.3	4.3	1.3
	ethofumesate	4	SC	1.0	LB A/A	PO1				
LSD (P=.05)							1.23	4.38	4.51	1.34
Standard Deviation							0.70	2.50	2.58	0.77
CV							33.74	34.52	36.59	49.79

							COPU		RRPW		BARLEY	
							Lettuce		Lettuce		Lettuce	
							29/Jun/10		29/Jun/10		29/Jun/10	
							RATING		RATING		RATING	
							1-10		1-10		1-10	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	pronamide	50	WP	6	LB A/A	PRE	7.3	5.0	4.0	1.0		
2	sulfentrazone	4	F	0.125	LB A/A	PRE	4.3	6.7	1.0	1.0		
3	pendimethalin	3.8	CS	0.95	LB A/A	PRE	7.0	5.7	2.3	2.7		
4	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	6.7	8.7	1.0	4.7		
5	pronamide	50	WP	4	LB A/A	PRE	8.0	9.3	7.3	1.3		
	imazamox	1	AS	0.031	LB A/A	PO1						
6	pronamide	50	WP	4	LB A/A	PRE	8.3	9.3	7.7	3.0		
	imazamox	1	AS	0.063	LB A/A	PO1						
7	pronamide	50	WP	4	LB A/A	PRE	8.3	9.0	6.0	2.0		
	imazethapyr	2	EC	0.063	LB A/A	PO1						
8	pronamide	50	WP	4	LB A/A	PRE	8.0	8.0	8.0	4.3		
	ethofumesate	4	SC	1.0	LB A/A	PO1						
LSD (P=.05)							2.75	3.11	1.93	0.73		
Standard Deviation							1.57	1.78	1.10	0.42		
CV							21.68	23.06	23.56	16.62		

Weed Control in Lettuce - Van Dyk Farms 2010

Pest Code							Lettuce	Lettuce	Lettuce
Crop Name							27/Jul/10	30/Jul/10	30/Jul/10
Rating Date							RATING	HARVEST	HARVEST
Rating Data Type							1-10	#	KG/PLOT
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	pronamide	50	WP	6	LB A/A	PRE	1.7	83.7	79.71
2	sulfentrazone	4	F	0.125	LB A/A	PRE	1.3	85.7	79.13
3	pendimethalin	3.8	CS	0.95	LB A/A	PRE	1.7	69.3	63.03
4	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	2.7	66.7	51.34
5	pronamide	50	WP	4	LB A/A	PRE	1.3	85.0	74.03
	imazamox	1	AS	0.031	LB A/A	PO1			
6	pronamide	50	WP	4	LB A/A	PRE	1.0	87.0	59.40
	imazamox	1	AS	0.063	LB A/A	PO1			
7	pronamide	50	WP	4	LB A/A	PRE	1.3	95.3	74.73
	imazethapyr	2	EC	0.063	LB A/A	PO1			
8	pronamide	50	WP	4	LB A/A	PRE	4.7	76.3	35.28
	ethofumesate	4	SC	1.0	LB A/A	PO1			
LSD (P=.05)							1.20	15.80	9.189
Standard Deviation							0.69	9.02	5.247
CV							35.02	11.12	8.12

Weed Control in Mint - Irrer Farms 2010

Project Code: 121-10-01

Location: St. John, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Mint Variety: Native Spearmint

Planting Method: Roots Planting Date: 2000

Spacing: none Row Spacing: none

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 6 ft wide x 50 ft long

Soil Type: Gilford Loam

OM: 3.4%

pH: 6.2

Sand: 57% Silt: 29%

Clay: 14%

CEC: 10

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	3/24/10	2:00 PM	56/48	F	Damp	5-6 NW	30	50% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
3/24	MINT	0.5-1"	2-3 LF	Pre-emerge
3/24	ANBG = annual bluegrass	2-3"		Few
3/24	COCW = common chickweed	4-6", 1-2"		Moderate
3/24	FIPA = field pansy	3", 1-2"		Many
3/24	QUGR = quackgrass	5-6", 3-4"		Moderate
3/24	WHCA = white campion	3-4", 1-2"	Rosette	Moderate

Notes and Comments

- 1.
- 2.

Weed Control in Mint - Irrer Farms 2010

Weed Control in Mint - Irrer Farms 2010

Trial ID: 121-10-01
Location: St. Johns, MI

Protocol ID: 121-10-01
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

Pest Code							QUGR	FIPA	SHPU	WHCA	
Crop Name							Mint				
Rating Date							19/May/10	19/May/10	19/May/10	19/May/10	19/May/10
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	terbacil	80	WDG	0.8	LB A/A	PRE	1.3	10.0	2.3	10.0	4.3
2	oxyfluorfen	2	EC	0.31	LB A/A	PRE	2.3	10.0	9.0	10.0	10.0
	paraquat	2	L	0.375	LB A/A	PRE					
	terbacil	80	WDG	0.32	LB A/A	PRE					
	clomazone	3	ME	0.5	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	clopyralid	3	L	0.125	LB A/A	PRE	3.3	10.0	7.7	10.0	7.0
	paraquat	2	L	0.375	LB A/A	PRE					
	terbacil	80	WDG	0.32	LB A/A	PRE					
4	flumioxazin	51	WDG	0.128	LB A/A	PRE	4.3	10.0	8.3	10.0	6.3
	terbacil	80	WDG	0.32	LB A/A	PRE					
	paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	paraquat	2	L	0.375	LB A/A	PRE	1.3	10.0	6.0	7.3	4.0
	fluroxypyr	2.8	L	0.125	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	paraquat	2	L	0.375	LB A/A	PRE	2.7	10.0	5.0	6.3	7.0
	fluroxypyr	2.8	L	0.25	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	flumioxazin	51	WDG	0.128	LB A/A	PRE	5.0	10.0	7.0	8.3	7.0
	paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	flumioxazin	51	WDG	0.128	LB A/A	PRE	4.7	10.0	7.3	9.0	9.7
	terbacil	80	WDG	0.32	LB A/A	PRE					
	paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
9	flumioxazin	51	WDG	0.128	LB A/A	PRE	3.3	8.7	3.0	7.7	4.7
	terbacil	80	WDG	0.32	LB A/A	PRE					
	clopyralid	3	L	0.125	LB A/A	PRE					
10	flumioxazin	51	WDG	0.128	LB A/A	PRE	2.7	4.0	1.7	6.3	6.7
	clopyralid	3	L	0.125	LB A/A	PRE					
11	sulfentrazone	4	F	0.188	LB A/A	PRE	3.3	8.7	7.7	7.3	7.0
	paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
12	sulfentrazone	4	F	0.28	LB A/A	PRE	6.0	10.0	8.7	9.0	6.7
	paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
LSD (P=.05)							2.62	2.93	2.24	3.27	7.01
Standard Deviation							1.55	1.73	1.32	1.93	4.14
CV							46.01	18.66	21.58	22.85	61.86

Weed Control in Mint - Irrer Farms 2010

Dept. of Horticulture, MSU

Pest Code							GRASS	FIPA	HOWE	VIPW	
Crop Name							Mint				
Rating Date							17/Jun/10	17/Jun/10	17/Jun/10	17/Jun/10	17/Jun/10
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	terbacil	80	WDG	0.8	LB A/A	PRE	2.3	10.0	1.3	10.0	10.0
2	oxyfluorfen	2	EC	0.31	LB A/A	PRE	1.7	10.0	8.3	10.0	8.0
	paraquat	2	L	0.375	LB A/A	PRE					
	terbacil	80	WDG	0.32	LB A/A	PRE					
	clomazone	3	ME	0.5	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	clopyralid	3	L	0.125	LB A/A	PRE	2.0	9.7	1.7	10.0	6.3
	paraquat	2	L	0.375	LB A/A	PRE					
	terbacil	80	WDG	0.32	LB A/A	PRE					
4	flumioxazin	51	WDG	0.128	LB A/A	PRE	4.3	9.7	5.0	9.7	8.7
	terbacil	80	WDG	0.32	LB A/A	PRE					
	paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	paraquat	2	L	0.375	LB A/A	PRE	2.0	10.0	2.0	8.3	5.7
	fluroxypyr	2.8	L	0.125	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	paraquat	2	L	0.375	LB A/A	PRE	1.7	7.7	1.7	9.3	2.7
	fluroxypyr	2.8	L	0.25	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	flumioxazin	51	WDG	0.128	LB A/A	PRE	3.7	10.0	3.3	7.0	4.0
	paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	flumioxazin	51	WDG	0.128	LB A/A	PRE	4.0	10.0	5.0	9.3	10.0
	terbacil	80	WDG	0.32	LB A/A	PRE					
	paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
9	flumioxazin	51	WDG	0.128	LB A/A	PRE	2.7	9.3	1.3	10.0	8.3
	terbacil	80	WDG	0.32	LB A/A	PRE					
	clopyralid	3	L	0.125	LB A/A	PRE					
10	flumioxazin	51	WDG	0.128	LB A/A	PRE	2.0	7.0	1.0	10.0	7.0
	clopyralid	3	L	0.125	LB A/A	PRE					
11	sulfentrazone	4	F	0.188	LB A/A	PRE	3.0	9.3	6.0	10.0	5.0
	paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
12	sulfentrazone	4	F	0.28	LB A/A	PRE	4.0	10.0	6.7	10.0	6.3
	paraquat	2	L	0.375	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
LSD (P=.05)							1.34	3.41	1.72	2.59	3.53
Standard Deviation							0.79	2.01	1.01	1.53	2.08
CV							28.49	21.44	28.07	16.12	30.49

Weed Control in Mint - Irrer Farms 2010

Dept. of Horticulture, MSU

Pest Code							WHCA	Mint		FIPA	HOWE	VIPW	WHCA
Crop Name													
Rating Date							17/Jun/10	29/Jun/10	29/Jun/10	29/Jun/10	29/Jun/10	29/Jun/10	29/Jun/10
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	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	terbacil	80	WDG	0.8	LB A/A	PRE	1.7	4.3	3.3	10.0	10.0	9.3	
2	oxyfluorfen	2	EC	0.31	LB A/A	PRE	10.0	1.0	8.0	10.0	10.0	8.0	
	paraquat	2	L	0.375	LB A/A	PRE							
	terbacil	80	WDG	0.32	LB A/A	PRE							
	clomazone	3	ME	0.5	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
3	clopyralid	3	L	0.125	LB A/A	PRE	7.0	2.7	4.0	9.7	9.7	7.0	
	paraquat	2	L	0.375	LB A/A	PRE							
	terbacil	80	WDG	0.32	LB A/A	PRE							
4	flumioxazin	51	WDG	0.128	LB A/A	PRE	6.0	3.3	5.3	9.7	9.7	8.0	
	terbacil	80	WDG	0.32	LB A/A	PRE							
	paraquat	2	L	0.375	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
5	paraquat	2	L	0.375	LB A/A	PRE	4.0	2.3	2.3	8.7	8.7	2.7	
	fluroxypyr	2.8	L	0.125	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
6	paraquat	2	L	0.375	LB A/A	PRE	7.0	2.3	2.0	8.0	8.0	2.0	
	fluroxypyr	2.8	L	0.25	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
7	flumioxazin	51	WDG	0.128	LB A/A	PRE	7.3	3.0	2.3	5.7	5.7	1.3	
	paraquat	2	L	0.375	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
8	flumioxazin	51	WDG	0.128	LB A/A	PRE	9.7	4.0	2.7	9.0	9.0	9.3	
	terbacil	80	WDG	0.32	LB A/A	PRE							
	paraquat	2	L	0.375	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
9	flumioxazin	51	WDG	0.128	LB A/A	PRE	4.3	4.7	1.3	9.7	9.7	7.7	
	terbacil	80	WDG	0.32	LB A/A	PRE							
	clopyralid	3	L	0.125	LB A/A	PRE							
10	flumioxazin	51	WDG	0.128	LB A/A	PRE	4.7	4.3	1.0	10.0	10.0	6.3	
	clopyralid	3	L	0.125	LB A/A	PRE							
11	sulfentrazone	4	F	0.188	LB A/A	PRE	6.3	3.0	3.3	7.7	7.7	5.7	
	paraquat	2	L	0.375	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
12	sulfentrazone	4	F	0.28	LB A/A	PRE	8.3	3.0	5.7	10.0	10.0	6.0	
	paraquat	2	L	0.375	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
LSD (P=.05)							5.88	2.48	3.17	2.39	2.39	4.48	
Standard Deviation							3.47	1.46	1.87	1.41	1.41	2.64	
CV							54.57	46.24	54.35	15.68	15.68	43.26	

Mint Weed Control with Indaziflam - Irrer Farms 2010

Project Code: 121-10-02

Location: St. Johns, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Mint Variety: Native Spearmint

Planting Method: Roots Planting Date: 2000

Spacing: none Row Spacing: none

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 6 ft wide x 50 ft long

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	3/24/10	3:30 PM	58/48	F	Damp	2-3 SW	23	50% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
3/24	MINT	1", 0.5-1"	PRE	
3/24	NATIVE SPEARMINT		2-3 LF	10% up
3/24	QUGR = quackgrass	2-3"		Moderate

Notes and Comments

1. Un-replicated observation plot.
- 2.

Mint Weed Control with Indaziflam - Irrer Farms 2010

Mint Weed Control with Indaziflam - Irrer Farms 2010

Trial ID: 121-10-02	Protocol ID: 121-10-02
Location: St. Johns, MI	Study Director: Rodney Tocco
	Investigator: Dr. Bernard Zandstra

Pest Code			QUGR			COCW			DOBR
Crop Name			Mint			Mint			
Rating Date			19/May/10	19/May/10	19/May/10	17/Jun/10	17/Jun/10	17/Jun/10	
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	Unit	Growth Stage			
1	Untreated			1.0		PRE	1.0	1.0	1.0
2	indaziflam	1.67	SC	0.022	LB A/A	PRE	5.0	1.0	10.0
3	indaziflam	1.67	SC	0.045	LB A/A	PRE	9.0	8.0	10.0
4	indaziflam	1.67	SC	0.065	LB A/A	PRE	9.0	10.0	10.0
5	indaziflam	1.67	SC	0.13	LB A/A	PRE	10.0	10.0	10.0
LSD (P=.05)							.	.	.
Standard Deviation							.	.	.
CV							.	.	.

Preemergence Weed Control in Onion - Muck Farm 2010

Project Code: 112-10-01

Location: Laingsburg, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
 Crop: Onion Variety: See notes
 Planting Method: Seeded Planting Date: 5/4/10
 Spacing: 0.75 inches 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: 76.4% pH: 6.9
 Sand: 9.4% Silt: 12.6% Clay: 1.6% CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/6/10	1:00 pm	64/58	F	Moist	1-3 SW	41	40% Cloudy	N
PO1	6/14/10	10:00 am	75/68	F	Moist	1-2 SW	86	100% Cloudy	N
PO2	6/28/10	10:00 am	81/69	F	Moist	4-5 W	58	10% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/6	ONION		PRE	
6/14	ONION	4-7"	2 LF	
6/14	COLQ = common lambsquarters	5-7"		Many
6/14	LATH = ladythumb	3-5"		Many
6/14	YENS = yellow nutsedge	3-5"		Moderate
6/28	ONION	12-16"	4-5 LF	

Notes and Comments

1. Sprays applied with 4-nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 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- Santana, V3- Festival. The 3 cultivars were combined for yield calculation.

Preemergence Weed Control in Onion - Muck Farm 2010

Preemergence Weed Control in Onion - Muck Farm										
Trial ID: 112-10-01					Study Dir.: Dr. Bernard Zandstra					
Location: Muck Farm, Laingsburg					Investigator: Dr. Bernard Zandstra					
Weed Code							COLQ			
Crop Code							Onion	Onion	Onion	COLQ
Rating Data Type							RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10
Rating Date							27/May/10	27/May/10	27/May/10	27/May/10
Crop Variety							Sherman	Santana	Festival	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	pendimethalin	3.8	CS	2	LB A/A	PRE	1.3	1.3	1.0	9.0
	pendimethalin	3.8	CS	2	LB A/A	PO1, 2				
2	pendimethalin	3.8	CS	4	LB A/A	PRE	1.0	1.0	1.0	10.0
	pendimethalin	3.8	CS	4	LB A/A	PO1, 2				
3	pendimethalin	3.3	EC	2	LB A/A	PRE	1.8	1.5	1.3	9.5
	pendimethalin	3.3	EC	2	LB A/A	PO1, 2				
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRE	1.8	1.8	2.0	5.0
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1, 2				
5	dimethenamid-p	6	EC	0.98	LB A/A	PRE	2.0	2.3	3.0	8.3
	dimethenamid-p	6	EC	0.98	LB A/A	PO1, 2				
6	propachlor	4	F	4	LB A/A	PRE	1.0	1.0	1.0	8.0
	propachlor	4	F	4	LB A/A	PO1, 2				
7	acetochlor	6.4	EC	1	LB A/A	PRE	2.0	2.3	2.0	8.0
	acetochlor	6.4	EC	1	LB A/A	PO1, 2				
8	ethofumesate	4	SC	1	LB A/A	PRE	1.3	1.0	1.0	3.5
	ethofumesate	4	SC	1	LB A/A	PO1, 2				
9	flumioxazin	51	WDG	0.032	LB A/A	PRE	1.0	1.5	1.0	9.5
	flumioxazin	51	WDG	0.032	LB A/A	PO1, 2				
10	pendimethalin	3.8	CS	2	LB A/A	PRE	1.0	1.0	1.0	9.0
	pendimethalin	3.3	EC	2	LB A/A	PO1, 2				
11	pendimethalin	3.8	CS	2	LB A/A	PRE	1.3	1.5	1.3	9.8
	dimethenamid-p	6	EC	0.98	LB A/A	PO1				
	s-metolachlor	7.62	EC	1.3	LB A/A	PO2				
12	pendimethalin	3.8	CS	2	LB A/A	PRE	1.3	1.3	1.3	9.3
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1				
	dimethenamid-p	6	EC	0.98	LB A/A	PO2				
13	pendimethalin	3.8	CS	2	LB A/A	PRE	1.0	1.3	1.0	9.0
	flumioxazin	51	WDG	0.032	LB A/A	PO1, 2				
14	pendimethalin	3.8	CS	2	LB A/A	PRE	1.0	1.5	1.0	9.5
	dimethenamid-p	6	EC	0.98	LB A/A	PO1				
	flumioxazin	51	WDG	0.064	LB A/A	PO2				
15	pendimethalin	3.8	CS	2	LB A/A	PRE	1.0	1.0	1.3	8.8
	acetochlor	6.4	EC	1	LB A/A	PO1, 2				
16	Handweeded						1.0	1.0	1.0	1.0
LSD (P=.05)							0.60	0.66	0.87	0.78
Standard Deviation							0.42	0.46	0.61	0.55
CV							32.52	33.64	46.31	6.87

Preemergence Weed Control in Onion - Muck Farm 2010

Dept. of Horticulture, MSU

Weed Code							COPU	LATH	RRPW	Onion
Crop Code										Stand Count
Rating Data Type							RATING	RATING	RATING	#/m
Rating Unit							1-10	1-10	1-10	
Rating Date							27/May/10	27/May/10	27/May/10	12/Aug/10
Crop Variety							TOTAL/3 rows			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	pendimethalin	3.8	CS	2	LB A/A	PRE	8.8	3.8	5.5	71.3
	pendimethalin	3.8	CS	2	LB A/A	PO1, 2				
2	pendimethalin	3.8	CS	4	LB A/A	PRE	9.3	6.0	7.8	71.5
	pendimethalin	3.8	CS	4	LB A/A	PO1, 2				
3	pendimethalin	3.3	EC	2	LB A/A	PRE	8.8	4.8	6.8	67.8
	pendimethalin	3.3	EC	2	LB A/A	PO1, 2				
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRE	8.3	6.5	9.5	64.8
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1, 2				
5	dimethenamid-p	6	EC	0.98	LB A/A	PRE	9.3	8.5	9.8	64.8
	dimethenamid-p	6	EC	0.98	LB A/A	PO1, 2				
6	propachlor	4	F	4	LB A/A	PRE	9.0	7.3	9.0	66.8
	propachlor	4	F	4	LB A/A	PO1, 2				
7	acetochlor	6.4	EC	1	LB A/A	PRE	9.5	7.5	9.8	63.3
	acetochlor	6.4	EC	1	LB A/A	PO1, 2				
8	ethofumesate	4	SC	1	LB A/A	PRE	4.8	3.5	5.8	69.0
	ethofumesate	4	SC	1	LB A/A	PO1, 2				
9	flumioxazin	51	WDG	0.032	LB A/A	PRE	9.3	8.5	9.3	70.5
	flumioxazin	51	WDG	0.032	LB A/A	PO1, 2				
10	pendimethalin	3.8	CS	2	LB A/A	PRE	8.5	3.3	4.5	61.5
	pendimethalin	3.3	EC	2	LB A/A	PO1, 2				
11	pendimethalin	3.8	CS	2	LB A/A	PRE	9.0	3.5	5.3	68.3
	dimethenamid-p	6	EC	0.98	LB A/A	PO1				
	s-metolachlor	7.62	EC	1.3	LB A/A	PO2				
12	pendimethalin	3.8	CS	2	LB A/A	PRE	8.8	4.0	5.5	68.8
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1				
	dimethenamid-p	6	EC	0.98	LB A/A	PO2				
13	pendimethalin	3.8	CS	2	LB A/A	PRE	8.5	3.8	5.5	71.3
	flumioxazin	51	WDG	0.032	LB A/A	PO1, 2				
14	pendimethalin	3.8	CS	2	LB A/A	PRE	8.8	3.8	6.0	67.8
	dimethenamid-p	6	EC	0.98	LB A/A	PO1				
	flumioxazin	51	WDG	0.064	LB A/A	PO2				
15	pendimethalin	3.8	CS	2	LB A/A	PRE	8.8	3.8	5.5	59.0
	acetochlor	6.4	EC	1	LB A/A	PO1, 2				
16	Handweeded						1.0	1.0	1.0	50.8
LSD (P=.05)							1.09	1.08	1.47	11.34
Standard Deviation							0.76	0.76	1.03	7.93
CV							9.38	15.3	15.52	12.01

Preemergence Weed Control in Onion - Muck Farm 2010

Dept. of Horticulture, MSU

Weed Code							Onion	Onion	Onion	Onion
Crop Code							YIELD	YIELD	YIELD	YIELD
Rating Data Type							KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit							24/Sep/10	24/Sep/10	24/Sep/10	24/Sep/10
Rating Date							Sherman	Santana	Festival	TOTAL
Crop Variety										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	pendimethalin	3.8	CS	2	LB A/A	PRE	22.40	24.54	31.88	78.82
	pendimethalin	3.8	CS	2	LB A/A	PO1, 2				
2	pendimethalin	3.8	CS	4	LB A/A	PRE	27.94	26.48	33.93	88.34
	pendimethalin	3.8	CS	4	LB A/A	PO1, 2				
3	pendimethalin	3.3	EC	2	LB A/A	PRE	22.74	24.14	31.35	78.23
	pendimethalin	3.3	EC	2	LB A/A	PO1, 2				
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRE	23.57	23.36	31.17	78.10
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1, 2				
5	dimethenamid-p	6	EC	0.98	LB A/A	PRE	25.97	28.03	22.39	76.38
	dimethenamid-p	6	EC	0.98	LB A/A	PO1, 2				
6	propachlor	4	F	4	LB A/A	PRE	20.86	24.55	28.57	73.97
	propachlor	4	F	4	LB A/A	PO1, 2				
7	acetochlor	6.4	EC	1	LB A/A	PRE	25.88	23.96	29.30	79.14
	acetochlor	6.4	EC	1	LB A/A	PO1, 2				
8	ethofumesate	4	SC	1	LB A/A	PRE	21.97	23.05	29.49	74.50
	ethofumesate	4	SC	1	LB A/A	PO1, 2				
9	flumioxazin	51	WDG	0.032	LB A/A	PRE	23.26	25.00	29.87	78.13
	flumioxazin	51	WDG	0.032	LB A/A	PO1, 2				
10	pendimethalin	3.8	CS	2	LB A/A	PRE	18.95	23.93	28.85	71.73
	pendimethalin	3.3	EC	2	LB A/A	PO1, 2				
11	pendimethalin	3.8	CS	2	LB A/A	PRE	23.81	25.59	29.99	79.38
	dimethenamid-p	6	EC	0.98	LB A/A	PO1				
	s-metolachlor	7.62	EC	1.3	LB A/A	PO2				
12	pendimethalin	3.8	CS	2	LB A/A	PRE	24.10	26.81	29.07	79.97
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1				
	dimethenamid-p	6	EC	0.98	LB A/A	PO2				
13	pendimethalin	3.8	CS	2	LB A/A	PRE	22.08	20.37	29.14	71.59
	flumioxazin	51	WDG	0.032	LB A/A	PO1, 2				
14	pendimethalin	3.8	CS	2	LB A/A	PRE	19.99	23.21	31.97	75.17
	dimethenamid-p	6	EC	0.98	LB A/A	PO1				
	flumioxazin	51	WDG	0.064	LB A/A	PO2				
15	pendimethalin	3.8	CS	2	LB A/A	PRE	23.58	25.24	30.56	79.37
	acetochlor	6.4	EC	1	LB A/A	PO1, 2				
16	Handweeded						12.09	14.07	18.49	44.65
LSD (P=.05)							4.377	4.109	5.887	8.592
Standard Deviation							3.063	2.875	4.119	6.013
CV							13.65	12.03	14.14	7.97

Postemergence Weed Control with Basagran in Onion - Muck Farm 2010

Project Code: 112-10-03

Location: Laingsburg, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
 Crop: Onion Variety: See notes
 Planting Method: Seeded Planting Date: 5/4/10
 Spacing: 0.75 inches 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: 74.0% pH: 6.7
 Sand: 9.3% Silt: 14.9% Clay: 1.8% CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/11/10	10:30 am	68/65	F	Moist	5-6 S	73	95% Cloudy	N
PO2	6/18/10	11:30 am	83/71	F	Moist	5-8 S	63	5% Cloudy	N
PO3	6/28/10	11:20 am	87/69	F	Moist	1-2 W	46	10% Cloudy	N

Crop and Weed Information at Application

Date	Crop	Weed	Height or Diameter	Growth Stage	Density
6/11	ONION		4-8"	2 LF	
6/11	LATH = ladythumb		3-4"		Many
6/11	MAYC = marsh yellowcress		3-5"		Few
6/14	ONION		8-12"	3 LF	
6/14	LATH = ladythumb		6-10"		Many
6/14	MAYC = marsh yellowcress		8-10"		Few
6/14	RRPW = redroot pigweed		10-12"		Moderate
6/14	YENS = yellow nutsedge		6-12"		Moderate
6/28	ONION		12-16"	4-5 LF	
6/28	LATH = ladythumb		8-12"		Many
6/28	RRPW = redroot pigweed		4-18"		Many
6/28	YENS = yellow nutsedge		6-18"		Many

Notes and Comments

1. Sprays applied with 4-nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 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- Highlander, V2 Middle- Nebula, V3 West- T-439. The 3 cultivars were combined for yield calculation.

Postemergence Weed Control with Basagran in Onion - Muck Farm 2010

Postemergence Weed Control with Basagran in Onion - Muck Farm													
Trial ID: 112-10-03						Study Dir.: Dr. Bernard Zandstra							
Location: Muck Farm, Laingsburg						Investigator: Dr. Bernard Zandstra							
Weed Code							LATH	MAYC					
Crop Code							Onion	Onion	Onion				
Rating Data Type							RATING	RATING	RATING	RATING	RATING		
Rating Unit							1-10	1-10	1-10	1-10	1-10		
Rating Date							21/Jun/10	21/Jun/10	21/Jun/10	21/Jun/10	21/Jun/10		
Crop Stage							Highlander	Nebula	T-439				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage							
1	bentazon	4	L	0.5	LB A/A	PO1, 3	4.5	3.3	4.5	4.8	3.5		
2	bentazon	4	L	1	LB A/A	PO1, 3	5.3	3.8	6.0	9.3	6.0		
3	bentazon	4	L	0.5	LB A/A	PO1, 3	5.8	4.5	6.0	6.0	5.3		
	COC		L	1	% V/V	PO1, 3							
4	bentazon	4	L	1	LB A/A	PO1, 3	6.3	5.5	6.8	8.8	5.3		
	COC		L	1	% V/V	PO1, 3							
5	bentazon	4	L	0.5	LB A/A	PO1, 3	4.5	3.5	5.5	6.0	5.5		
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 3							
6	bentazon	4	L	0.5	LB A/A	PO1, 3	4.0	3.8	5.3	5.5	4.8		
	flumioxazin	51	WDG	0.032	LB A/A	PO1, 3							
7	bentazon	4	L	0.5	LB A/A	PO2,3	1.0	1.0	1.0	1.0	1.0		
8	bentazon	4	L	1	LB A/A	PO2,3	1.0	1.0	1.0	1.0	1.0		
9	bentazon	4	L	0.5	LB A/A	PO2,3	1.0	1.0	1.0	1.0	1.0		
	COC		L	1	% V/V	PO2,3							
10	bentazon	4	L	1	LB A/A	PO2,3	1.0	1.0	1.0	1.0	1.0		
	COC		L	1	% V/V	PO2,3							
11	bentazon	4	L	0.5	LB A/A	PO2,3	1.0	1.0	1.0	1.0	1.0		
	NIS		L	0.25	% V/V	PO2,3							
12	bentazon	4	L	1	LB A/A	PO2,3	1.0	1.0	1.0	1.0	1.0		
	NIS		L	0.25	% V/V	PO2,3							
13	Handweeded						1.0	1.0	1.0	1.0	1.0		
LSD (P=.05)							0.82	0.84	0.83	0.67	1.01		
Standard Deviation							0.57	0.59	0.58	0.47	0.71		
CV							20.05	24.59	18.39	12.81	24.7		

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Dept. of Horticulture, MSU

Weed Code							RRPW	YENS			
Crop Code									Onion	Onion	Onion
Rating Data Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
Rating Date							21/Jun/10	21/Jun/10	7/Jul/10	7/Jul/10	7/Jul/10
Crop Stage									Highlander	Nebula	T-439
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	bentazon	4	L	0.5	LB A/A	PO1,3	2.8	4.3	3.3	2.3	3.0
2	bentazon	4	L	1	LB A/A	PO1,3	2.5	9.0	4.3	3.5	4.5
3	bentazon	4	L	0.5	LB A/A	PO1,3	2.5	5.5	5.5	4.0	4.5
	COC		L	1	% V/V	PO1,3					
4	bentazon	4	L	1	LB A/A	PO1,3	2.8	8.5	5.8	5.3	6.5
	COC		L	1	% V/V	PO1,3					
5	bentazon	4	L	0.5	LB A/A	PO1,3	6.8	5.0	3.0	2.3	3.0
	oxyfluorfen	4	SC	0.063	LB A/A	PO1,3					
6	bentazon	4	L	0.5	LB A/A	PO1,3	7.5	4.8	2.3	2.0	2.0
	flumioxazin	51	WDG	0.032	LB A/A	PO1,3					
7	bentazon	4	L	0.5	LB A/A	PO2,3	1.0	1.0	3.3	3.3	3.0
8	bentazon	4	L	1	LB A/A	PO2,3	1.0	1.0	2.5	3.0	3.3
9	bentazon	4	L	0.5	LB A/A	PO2,3	1.0	1.0	3.5	3.3	4.3
	COC		L	1	% V/V	PO2,3					
10	bentazon	4	L	1	LB A/A	PO2,3	1.0	1.0	4.5	4.5	5.0
	COC		L	1	% V/V	PO2,3					
11	bentazon	4	L	0.5	LB A/A	PO2,3	1.0	1.0	4.0	3.8	4.5
	NIS		L	0.25	% V/V	PO2,3					
12	bentazon	4	L	1	LB A/A	PO2,3	1.0	1.0	5.8	5.0	6.3
	NIS		L	0.25	% V/V	PO2,3					
13	Handweeded						1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.05	0.70	0.97	1.20	1.53
Standard Deviation							0.73	0.49	0.68	0.84	1.07
CV							30.02	14.55	18.1	25.48	27.48

Postemergence Weed Control with Basagran in Onion - Muck Farm 2010

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Weed Code							LATH	RRPW	YENS	Onion	
Crop Code										Heights	Heights
Rating Data Type							RATING	RATING	RATING	cm	cm
Rating Unit							1-10	1-10	1-10	cm	cm
Rating Date							7/Jul/10	7/Jul/10	7/Jul/10	21/Jul/10	21/Jul/10
Crop Stage										Highlander	Nebula
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	bentazon	4	L	0.5	LB A/A	PO1,3	9.5	2.8	5.5	50.95	62.90
2	bentazon	4	L	1	LB A/A	PO1,3	10.0	3.3	9.8	51.35	61.95
3	bentazon	4	L	0.5	LB A/A	PO1,3	10.0	3.5	8.3	48.90	60.45
	COC		L	1	% V/V	PO1,3					
4	bentazon	4	L	1	LB A/A	PO1,3	10.0	3.3	9.5	45.70	54.95
	COC		L	1	% V/V	PO1,3					
5	bentazon	4	L	0.5	LB A/A	PO1,3	9.8	8.3	6.5	52.25	62.65
	oxyfluorfen	4	SC	0.063	LB A/A	PO1,3					
6	bentazon	4	L	0.5	LB A/A	PO1,3	9.3	9.0	6.0	57.65	67.10
	flumioxazin	51	WDG	0.032	LB A/A	PO1,3					
7	bentazon	4	L	0.5	LB A/A	PO2,3	9.8	3.3	5.3	45.40	57.00
8	bentazon	4	L	1	LB A/A	PO2,3	10.0	3.3	9.0	51.25	59.95
9	bentazon	4	L	0.5	LB A/A	PO2,3	9.8	2.8	7.3	48.85	59.70
	COC		L	1	% V/V	PO2,3					
10	bentazon	4	L	1	LB A/A	PO2,3	10.0	3.5	9.8	44.75	54.70
	COC		L	1	% V/V	PO2,3					
11	bentazon	4	L	0.5	LB A/A	PO2,3	9.8	3.0	6.0	46.85	56.40
	NIS		L	0.25	% V/V	PO2,3					
12	bentazon	4	L	1	LB A/A	PO2,3	10.0	3.5	9.8	40.60	52.05
	NIS		L	0.25	% V/V	PO2,3					
13	Handweeded						1.0	1.0	1.0	53.55	65.45
LSD (P=.05)							0.50	0.88	1.18	7.756	7.215
Standard Deviation							0.35	0.61	0.83	5.427	5.049
CV							3.82	15.89	11.51	11.06	8.47

Postemergence Weed Control with Basagran in Onion - Muck Farm 2010

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Weed Code							Onion	Onion	Onion	Onion
Crop Code							Heights	STAND COUNT	STAND COUNT	STAND COUNT
Rating Data Type							cm	#/m	#/m	#/m
Rating Unit										
Rating Date							21/Jul/10	12/Aug/10	12/Aug/10	12/Aug/10
Crop Stage							T-439	Highlander	Nebula	T-439
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	bentazon	4	L	0.5	LB A/A	PO1, 3	57.35	16.8	17.3	22.0
2	bentazon	4	L	1	LB A/A	PO1, 3	53.25	15.8	20.8	15.5
3	bentazon	4	L	0.5	LB A/A	PO1, 3	52.00	17.3	22.8	20.3
	COC		L	1	% V/V	PO1, 3				
4	bentazon	4	L	1	LB A/A	PO1, 3	46.70	18.3	23.3	22.0
	COC		L	1	% V/V	PO1, 3				
5	bentazon	4	L	0.5	LB A/A	PO1, 3	57.15	19.5	22.3	19.8
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 3				
6	bentazon	4	L	0.5	LB A/A	PO1, 3	58.15	14.5	21.0	17.0
	flumioxazin	51	WDG	0.032	LB A/A	PO1, 3				
7	bentazon	4	L	0.5	LB A/A	PO2,3	52.50	12.5	19.0	16.8
8	bentazon	4	L	1	LB A/A	PO2,3	52.80	12.0	19.8	16.5
9	bentazon	4	L	0.5	LB A/A	PO2,3	51.60	16.5	22.3	17.3
	COC		L	1	% V/V	PO2,3				
10	bentazon	4	L	1	LB A/A	PO2,3	48.30	15.8	22.8	19.5
	COC		L	1	% V/V	PO2,3				
11	bentazon	4	L	0.5	LB A/A	PO2,3	50.50	14.8	19.5	20.0
	NIS		L	0.25	% V/V	PO2,3				
12	bentazon	4	L	1	LB A/A	PO2,3	47.45	18.3	21.8	19.0
	NIS		L	0.25	% V/V	PO2,3				
13	Handweeded						57.55	13.0	17.0	15.3
LSD (P=.05)							8.016	8.28	9.00	6.96
Standard Deviation							5.609	5.79	6.30	4.87
CV							10.64	36.77	30.4	26.32

Postemergence Weed Control with Basagran in Onion - Muck Farm 2010

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Weed Code							Onion	Onion	Onion	Onion	Onion
Crop Code							STAND COUNT	YIELD	YIELD	YIELD	YIELD
Rating Data Type							#/m	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit							12/Aug/10	13/Sep/10	13/Sep/10	13/Sep/10	13/Sep/10
Rating Date							TOTAL	Highlander	Nebula	T-439	TOTAL
Crop Stage											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	bentazon	4	L	0.5	LB A/A	PO1, 3	56.0	7.65	20.83	15.13	43.61
2	bentazon	4	L	1	LB A/A	PO1, 3	52.0	8.24	20.28	11.08	39.59
3	bentazon	4	L	0.5	LB A/A	PO1, 3	60.3	5.53	16.30	10.32	32.15
	COC		L	1	% V/V	PO1, 3					
4	bentazon	4	L	1	LB A/A	PO1, 3	63.5	6.50	13.17	6.57	26.24
	COC		L	1	% V/V	PO1, 3					
5	bentazon	4	L	0.5	LB A/A	PO1, 3	61.5	8.63	20.86	13.08	42.57
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 3					
6	bentazon	4	L	0.5	LB A/A	PO1, 3	52.5	9.27	22.43	16.22	47.92
	flumioxazin	51	WDG	0.032	LB A/A	PO1, 3					
7	bentazon	4	L	0.5	LB A/A	PO2,3	48.3	3.61	14.42	10.41	28.44
8	bentazon	4	L	1	LB A/A	PO2,3	48.3	6.62	16.77	11.32	34.70
9	bentazon	4	L	0.5	LB A/A	PO2,3	56.0	7.05	18.49	10.51	36.04
	COC		L	1	% V/V	PO2,3					
10	bentazon	4	L	1	LB A/A	PO2,3	58.0	5.38	13.64	9.53	28.55
	COC		L	1	% V/V	PO2,3					
11	bentazon	4	L	0.5	LB A/A	PO2,3	54.3	4.47	13.19	11.93	29.58
	NIS		L	0.25	% V/V	PO2,3					
12	bentazon	4	L	1	LB A/A	PO2,3	59.0	3.45	11.71	6.71	21.86
	NIS		L	0.25	% V/V	PO2,3					
13	Handweeded						45.3	7.52	20.33	13.54	41.39
LSD (P=.05)							20.79	3.590	8.083	7.043	17.087
Standard Deviation							14.55	2.512	5.656	4.929	11.957
CV							26.46	38.93	33.06	43.79	34.34

Postemergence Weed Control with Goaltender in Onion - Muck Farm 2010

Project Code: 112-10-05

Location: Laingsburg, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
 Crop: Onion Variety: See notes
 Planting Method: Seeded Planting Date: 5/4/10
 Spacing: 0.75 inches Row Spacing: 16 inches
 Tillage Type: Conventional Study Design: RCB Replications: 2
 Plot Size: 5.5 ft wide x 25 ft long

Soil Type: Houghton Muck OM: 75.9% pH: 7.1
 Sand: 9.8% Silt: 12.8% Clay: 1.5% CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/08/10	10:30 am	68/65	F	Moist	5-6 S	73	95% Cloudy	N
PO2	6/11/10	11:30 am	83/71	F	Moist	5-8 S	63	5% Cloudy	N
PO3	6/18/10	12:00 pm	83/71	F	Moist	1-2 W	46	10% Cloudy	N
PO4	6/28/10	1:20 pm	81/72	F	Moist	6-9 W	50	35% Cloudy	N

Crop and Weed Information at Application

Date	Crop	Height or Diameter	Growth Stage	Density
6/08	ONION	3-6"	1 LF	
6/08	LATH = ladythumb	2-4"		Many
6/11	ONION	4-8"	2 LF	
6/11	LATH = ladythumb	4-8"		Many
6/11	RRPW = redroot pigweed	2-4"		Moderate
6/18	ONION	8-10"	3 LF	
6/18	LATH = ladythumb	6-10"		Many
6/18	RRPW = redroot pigweed	10-12"		Moderate
6/18	YENS = yellow nutsedge	6-12"		Moderate
6/28	ONION	12-16"	4-5 LF	

Notes and Comments

1. Sprays applied with 4-nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 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- Santana, V3- Festival. The 3 cultivars were combined for yield calculation.
5. Only 2 reps were harvested due to weather damage.

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Postemergence Weed Control with Goaltender in Onion - Muck Farm											
Trial ID: 112-10-05						Study Dir.: Dr. Bernard Zandstra					
Location: Muck Farm, Laingsburg						Investigator: Dr. Bernard Zandstra					
Weed Code								LATH	YENS		
Crop Code				Onion		Onion		Onion			
Rating Data Type				RATING		RATING		RATING		RATING	
Rating Unit				1-10		1-10		1-10		1-10	
Rating Date				18/Jun/10		18/Jun/10		18/Jun/10		18/Jun/10	
Crop Stage				Sherman		Santana		Festival			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Growth Stage					
1	oxyfluorfen	4	SC	0.031	LB A/A	PO1,2,3	1.4	1.0	1.2	3.5	2.6
2	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2,3	1.5	1.8	2.3	5.0	3.3
3	oxyfluorfen	4	SC	0.125	LB A/A	PO1,2,3	2.4	2.3	2.5	5.8	3.9
4	oxyfluorfen	4	SC	0.188	LB A/A	PO1,2,3	3.4	3.3	3.5	6.8	4.2
5	oxyfluorfen	2	L	0.031	LB A/A	PO1,2,3	2.3	2.0	2.0	3.8	2.5
6	oxyfluorfen	2	L	0.063	LB A/A	PO1,2,3	2.4	2.7	3.5	5.8	3.6
7	oxyfluorfen	2	L	0.125	LB A/A	PO1,2,3	2.4	3.0	3.2	6.8	5.9
8	oxyfluorfen	2	L	0.188	LB A/A	PO1,2,3	4.0	4.0	4.3	8.5	7.0
9	oxyfluorfen	4	SC	0.031	LB A/A	PO2, 4	1.5	1.5	2.0	3.0	2.3
10	oxyfluorfen	4	SC	0.063	LB A/A	PO2, 4	1.4	1.7	1.9	3.2	2.2
11	oxyfluorfen	4	SC	0.125	LB A/A	PO2, 4	1.8	2.3	2.9	4.8	2.9
12	oxyfluorfen	4	SC	0.25	LB A/A	PO2, 4	3.8	3.0	3.2	5.5	3.6
13	oxyfluorfen	4	SC	0.188	LB A/A	PO2, 4	2.0	2.3	2.3	4.5	3.3
14	oxyfluorfen	2	L	0.031	LB A/A	PO2, 4	2.1	2.0	1.5	3.5	2.2
15	oxyfluorfen	2	L	0.063	LB A/A	PO2, 4	2.0	2.0	2.3	4.0	2.5
16	oxyfluorfen	2	L	0.125	LB A/A	PO2, 4	2.3	2.5	2.5	5.5	3.5
17	oxyfluorfen	2	L	0.188	LB A/A	PO2, 4	3.5	3.5	4.0	6.3	4.0
18	Handweeded						1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.14	1.32	1.20	1.14	1.02
Standard Deviation							0.80	0.93	0.84	0.80	0.72
CV							34.75	39.7	32.89	16.47	21.3

Postemergence Weed Control with Goaltender in Onion - Muck Farm 2010

Dept. of Horticulture, MSU

Weed Code							Onion	Onion	Onion	Onion	Onion
Crop Code							RATING	RATING	RATING	Stand Count	YIELD
Rating Data Type							1-10	1-10	1-10	#/m	KG/PLOT
Rating Unit							7/Jul/10	7/Jul/10	7/Jul/10	12/Aug/10	14/Sep/10
Rating Date							Sherman	Santana	Festival	TOTAL	Sherman
Crop Stage											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	oxyfluorfen	4	SC	0.031	LB A/A	PO1,2,3	1.5	1.0	1.0	58.0	16.02
2	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2,3	1.0	1.0	1.0	72.5	20.94
3	oxyfluorfen	4	SC	0.125	LB A/A	PO1,2,3	1.5	1.0	1.0	56.5	17.89
4	oxyfluorfen	4	SC	0.188	LB A/A	PO1,2,3	3.0	1.5	1.5	56.0	11.65
5	oxyfluorfen	2	L	0.031	LB A/A	PO1,2,3	1.0	1.0	1.0	68.0	22.90
6	oxyfluorfen	2	L	0.063	LB A/A	PO1,2,3	2.5	3.5	3.0	35.0	11.60
7	oxyfluorfen	2	L	0.125	LB A/A	PO1,2,3	1.5	1.0	1.0	62.5	19.39
8	oxyfluorfen	2	L	0.188	LB A/A	PO1,2,3	3.0	2.5	1.5	51.5	15.98
9	oxyfluorfen	4	SC	0.031	LB A/A	PO2, 4	1.5	2.0	1.0	64.5	21.45
10	oxyfluorfen	4	SC	0.063	LB A/A	PO2, 4	2.5	2.0	2.0	57.5	15.85
11	oxyfluorfen	4	SC	0.125	LB A/A	PO2, 4	1.5	2.0	1.5	64.0	27.71
12	oxyfluorfen	4	SC	0.25	LB A/A	PO2, 4	4.0	4.5	3.5	55.0	13.36
13	oxyfluorfen	4	SC	0.188	LB A/A	PO2, 4	3.0	2.5	2.5	59.0	15.32
14	oxyfluorfen	2	L	0.031	LB A/A	PO2, 4	2.0	1.5	1.5	50.5	20.19
15	oxyfluorfen	2	L	0.063	LB A/A	PO2, 4	2.5	2.5	2.0	56.5	15.41
16	oxyfluorfen	2	L	0.125	LB A/A	PO2, 4	2.5	2.5	2.5	46.5	11.03
17	oxyfluorfen	2	L	0.188	LB A/A	PO2, 4	3.5	3.5	4.0	44.5	14.13
18	Handweeded						3.0	4.0	3.5	34.5	12.03
LSD (P=.05)							1.84	2.46	2.35	28.77	12.686
Standard Deviation							0.87	1.17	1.11	13.64	6.012
CV							38.23	53.16	57.16	24.73	35.74

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Weed Code							Onion	Onion	Onion
Crop Code							YIELD	YIELD	YIELD
Rating Data Type							KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit							14/Sep/10	14/Sep/10	14/Sep/10
Rating Date							Santana	Festival	TOTAL
Crop Stage									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	oxyfluorfen	4	SC	0.031	LB A/A	PO1,2,3	23.59	29.47	69.07
2	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2,3	24.94	25.63	71.50
3	oxyfluorfen	4	SC	0.125	LB A/A	PO1,2,3	20.25	32.84	70.98
4	oxyfluorfen	4	SC	0.188	LB A/A	PO1,2,3	22.23	29.68	63.55
5	oxyfluorfen	2	L	0.031	LB A/A	PO1,2,3	23.31	28.02	74.23
6	oxyfluorfen	2	L	0.063	LB A/A	PO1,2,3	13.17	13.98	38.74
7	oxyfluorfen	2	L	0.125	LB A/A	PO1,2,3	24.96	32.62	76.96
8	oxyfluorfen	2	L	0.188	LB A/A	PO1,2,3	19.72	26.50	62.19
9	oxyfluorfen	4	SC	0.031	LB A/A	PO2, 4	15.42	27.36	64.22
10	oxyfluorfen	4	SC	0.063	LB A/A	PO2, 4	19.08	19.84	54.77
11	oxyfluorfen	4	SC	0.125	LB A/A	PO2, 4	17.89	28.77	74.37
12	oxyfluorfen	4	SC	0.25	LB A/A	PO2, 4	11.60	19.50	44.45
13	oxyfluorfen	4	SC	0.188	LB A/A	PO2, 4	15.05	18.94	49.31
14	oxyfluorfen	2	L	0.031	LB A/A	PO2, 4	18.76	27.04	65.99
15	oxyfluorfen	2	L	0.063	LB A/A	PO2, 4	17.80	20.49	53.69
16	oxyfluorfen	2	L	0.125	LB A/A	PO2, 4	12.66	24.86	48.55
17	oxyfluorfen	2	L	0.188	LB A/A	PO2, 4	12.29	11.28	37.70
18	Handweeded						8.37	11.64	32.04
LSD (P=.05)							12.333	19.312	39.382
Standard Deviation							5.845	9.153	18.664
CV							32.77	38.45	31.93

Weed Control in Onion - Brink Farms 2010

Project Code: 112-10-06

Location: Grant, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann

Crop: Onion

Variety: Latigo

Planting Method: Seeded

Planting Date: 4/14/10

Spacing: 1 inch

Row Spacing: 34 inches; 2 rows/plot

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Martisco Muck

OM: 34.4%

pH: 7.2

Sand: 33.3%

Silt: 8.5%

Clay: 23.8%

CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	5/26/10	1:00 pm	89/78	F	Moist	3 W	39	30% Cloudy	N
PO2	6/16/10	1:45 pm	69/65	F	Moist	3-5 w	75	100% Cloudy	N

Crop and Weed Information at Application

Date	Crop	Weed	Height or Diameter	Growth Stage	Density
5/26	ONION		4-6"	2 LF	
5/26	COGR = common groundsel		2-4"		Few
5/26	LATH = ladythumb		3-4"		Few
6/16	ONION		12-14"	4-5 LF	

Notes and Comments

1. Sprays applied with 4-nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack.

2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.

3. The field was treated with 4 qt. Prowl H2O preemergence.

Weed Control in Onion - Brink Farms 2010

Weed Control in Onion - Brink Farms 2010

Trial ID: 112-10-06
Location: Grant, MI

Protocol ID: 112-10-06
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

							Onion	Onion	Onion
							10/Jun/10	8/Jul/10	31/Aug/10
							RATING	RATING	HARVEST
							1-10	1-10	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	oxyfluorfen	4	SC	0.063	LB A/A	PO1, PO2	1.3	1.7	33.15
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, PO2			
	NIS	100	SL	0.25	% V/V	PO1, PO2			
2	oxyfluorfen	4	SC	0.125	LB A/A	PO1, PO2	2.3	1.7	37.80
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, PO2			
	NIS	100	SL	0.25	% V/V	PO1, PO2			
3	oxyfluorfen	4	SC	0.25	LB A/A	PO1, PO2	3.0	2.0	40.65
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, PO2			
	NIS	100	SL	0.25	% V/V	PO1, PO2			
4	oxyfluorfen	2	L	0.25	LB A/A	PO1, PO2	3.3	2.3	34.00
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, PO2			
	NIS	100	SL	0.25	% V/V	PO1, PO2			
5	bentazon	4	L	1	LB A/A	PO1, PO2	6.0	5.7	11.98
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, PO2			
6	ethofumesate	4	SC	1	LB A/A	PO1, PO2	2.0	1.7	42.81
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, PO2			
7	fluroxypyr	1.5	L	0.063	LB A/A	PO1, PO2	2.3	1.7	39.52
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, PO2			
8	bromoxynil	4	EC	0.125	LB A/A	PO1, PO2	3.0	1.3	42.82
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, PO2			
LSD (P=.05)							1.20	1.36	9.783
Standard Deviation							0.69	0.78	5.586
CV							23.51	34.46	15.81

Weed Control in Onion - Schreur Farms 2010

Project Code: 112-10-07

Location: Hudsonville, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann

Crop: Onion

Variety: Sherman

Planting Method: Seeded

Planting Date: 4/1/10

Spacing: 1 inch

Row Spacing: 14 inches; 3 rows/plot

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 3.3 ft wide x 30 ft long

Soil Type: Carlisle Muck

OM: 66.7%

pH: 6.7

Sand: 9.9%

Silt: 20.3%

Clay: 66.7%

CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	4/05/10	1:00 pm	60/53	F	Wet	6 SW	57	5% Cloudy	N
PO2	5/14/10	2:30 pm	60/61	F	Wet	5-9 W	49	50% Cloudy	N
PO3	6/10/10	4:45 pm	74/68	F	Moist	1 E	43	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/05	ONION		PRE	
5/14	ONION	4-6"	2 LF	
5/14	MAYC = marsh yellowcress	4-6"		Many
6/10	ONION	10-14"	4-5 LF	
6/10	MAYC = marsh yellowcress	6-12"		Many

Notes and Comments

1. Sprays applied with 2-nozzle boom FF11002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.

Weed Control in Onion - Schreur Farms 2010

Weed Control in Onion - Hudsonville										
Trial ID: WC 112-10-07				Study Dir.: Dr. Bernard Zandstra						
Location: Schreur Farms				Investigator: Dr. Bernard Zandstra						
Weed Code							COLQ	LATH	MAYC	
Crop Code							Onion			
Rating Data Type							RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10
Rating Date							14/May/10	14/May/10	14/May/10	14/May/10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	1.3	9.0	6.7	4.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2				
2	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	1.3	8.3	7.0	3.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1, 2				
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2				
3	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	1.0	9.0	7.3	2.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	dimethenamid-p	6	EC	0.98	LB A/A	PO1, 2				
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2				
4	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	1.7	8.3	7.3	3.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	ethofumesate	4	SC	1	LB A/A	PO1, 2				
5	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	1.0	8.0	7.3	3.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	fluroxypyr	1.5	L	0.063	LB A/A	PO1, 2				
6	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	1.0	8.3	7.0	3.3
	oxyfluorfen	2	L	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2				
7	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	1.0	8.3	8.0	3.0
	oxyfluorfen	2	L	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	ethofumesate	4	SC	1	LB A/A	PO1, 2				
8	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	1.0	8.3	7.3	3.3
	oxyfluorfen	2	L	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	NIS			0.25	% V/V	PO1, 2				
9	flumioxazin	51	WDG	0.016	LB A/A	PREPO1,2	1.9	10.0	10.0	6.7
	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2				
10	flumioxazin	51	WDG	0.032	LB A/A	PREPO1,2	3.5	10.0	10.0	7.3
	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2				
11	flumioxazin	51	WDG	0.064	LB A/A	PREPO1,2	3.3	10.0	10.0	7.7
	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2				
12	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2	1.1	8.7	7.7	4.0
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
LSD (P=.05)							0.78	1.08	1.02	2.00
Standard Deviation							0.45	0.64	0.60	1.18
CV							28.41	7.2	7.54	27.05

Weed Control in Onion - Schreur Farms 2010

Dept. of Horticulture, MSU

Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	MAYC		MAYC			
					Onion RATING	Onion RATING	Onion RATING	Onion RATING		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	26/May/10	26/May/10	16/Jun/10	16/Jun/10
1	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	5.7	5.7	5.7	6.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2				
2	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	5.3	6.3	6.7	8.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1, 2				
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2				
3	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	6.0	7.0	8.0	9.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	dimethenamid-p	6	EC	0.98	LB A/A	PO1, 2				
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2				
4	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	3.3	5.3	2.7	6.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	Ethofumesate	4	SC	1	LB A/A	PO1, 2				
5	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	3.0	4.0	3.0	5.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	fluroxypyr	1.5	L	0.063	LB A/A	PO1, 2				
6	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	5.0	5.3	5.3	5.0
	oxyfluorfen	2	L	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2				
7	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	2.7	5.3	2.0	6.3
	oxyfluorfen	2	L	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	ethofumesate	4	SC	1	LB A/A	PO1, 2				
8	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	2.0	3.0	2.3	5.3
	oxyfluorfen	2	L	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
	NIS			0.25	% V/V	PO1, 2				
9	flumioxazin	51	WDG	0.016	LB A/A	PREPO1,2	1.4	5.0	1.5	6.3
	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2				
10	flumioxazin	51	WDG	0.032	LB A/A	PREPO1,2	2.0	5.7	2.4	7.0
	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2				
11	flumioxazin	51	WDG	0.064	LB A/A	PREPO1,2	2.3	6.3	2.3	8.3
	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2				
12	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2	1.6	4.0	1.6	6.0
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2				
LSD (P=.05)							1.08	3.31	0.85	2.13
Standard Deviation							0.63	1.96	0.50	1.26
CV							18.76	37.26	13.78	18.64

Weed Control in Onion - Schreur Farms 2010

Dept. of Horticulture, MSU

Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Onion RATING 1-10 8/Jul/10	Onion HARVEST KG/PLOT 23/Aug/10		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		
1	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	4.0	24.47
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2		
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2		
2	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	5.0	21.32
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2		
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1, 2		
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2		
3	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	4.3	23.09
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2		
	dimethenamid-p	6	EC	0.98	LB A/A	PO1, 2		
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2		
4	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	2.3	31.88
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2		
	Ethofumesate	4	SC	1	LB A/A	PO1, 2		
5	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	2.7	27.74
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2		
	fluroxypyr	1.5	L	0.063	LB A/A	PO1, 2		
6	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	3.7	22.60
	oxyfluorfen	2	L	0.063	LB A/A	PO1, 2		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2		
	flumioxazin	51	WDG	0.064	LB A/A	PO1, 2		
7	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	2.0	29.51
	oxyfluorfen	2	L	0.063	LB A/A	PO1, 2		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2		
	ethofumesate	4	SC	1	LB A/A	PO1, 2		
8	pendimethalin	3.8	CS	2	LB A/A	PREPO1,2	2.7	28.66
	oxyfluorfen	2	L	0.063	LB A/A	PO1, 2		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2		
	NIS			0.25	% V/V	PO1, 2		
9	flumioxazin	51	WDG	0.016	LB A/A	PREPO1,2	1.4	33.54
	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2		
10	flumioxazin	51	WDG	0.032	LB A/A	PREPO1,2	1.6	30.16
	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2		
11	flumioxazin	51	WDG	0.064	LB A/A	PREPO1,2	1.7	30.48
	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2		
12	pendimethalin	3.8	CS	1.9	LB A/A	PREPO1,2	1.5	33.43
	oxyfluorfen	4	SC	0.063	LB A/A	PO1, 2		
	sethoxydim	1.53	EC	0.19	LB A/A	PO1, 2		
LSD (P=.05)							1.04	4.293
Standard Deviation							0.61	2.512
CV							22.27	8.95

Weed Control in Onion on Mineral Soil - Vogel Farms 2010

Project Code: 112-10-08

Location: Fremont, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
 Crop: Onion Variety: Pulsar
 Planting Method: Seeded Planting Date: 4/1/10
 Spacing: 1.5 inches Row Spacing: 10 inches; 4 rows/plot
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Pipestone Sand OM: 2.4% pH: 5.9
 Sand: 84.9% Silt: 5.0% Clay: 10.1% CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	4/14/10	12:00 pm	65/55	F	Moist	6-9 SW	37	5% Cloudy	N

Crop and Weed Information at Application

4/14	ONION	Height or Diameter	Growth Stage	Density
			PRE	

Notes and Comments

1. Sprays applied with 4-nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.

Weed Control in Onion on Mineral Soil - Vogel Farms 2010

Weed Control in Onion on Mineral Soils - Vogel Farms 2010

Trial ID: 112-10-08

Location: Fremont, MI

Protocol ID: 112-10-01

Study Director: Rodney Tocco

Investigator: Dr. Bernard Zandstra

							COGR	PAWE	COLQ	LATH	
							Onion				
							14/May/10	14/May/10	14/May/10	14/May/10	14/May/10
							RATING	RATING	RATING	RATING	RATING
							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	0.75	LB A/A	PRE	2.0	9.0	10.0	10.0	9.3
2	pendimethalin	3.8	CS	0.95	LB A/A	PRE	2.0	8.0	10.0	10.0	10.0
3	pendimethalin	3.8	CS	1.9	LB A/A	PRE	3.7	8.3	10.0	10.0	10.0
4	pendimethalin	3.8	CS	0.95	LB A/A	PRE	2.0	10.0	10.0	10.0	10.0
	bromoxynil	4	EC	0.13	LB A/A	PRE					
5	ethofumesate	4	SC	0.5	LB A/A	PRE	1.3	10.0	7.0	7.3	9.0
6	ethofumesate	4	SC	1.0	LB A/A	PRE	1.0	3.3	10.0	9.0	10.0
7	flumioxazin	51	WDG	0.032	LB A/A	PRE	7.3	9.7	10.0	10.0	9.7
8	propachlor	4	F	2	LB A/A	PRE	1.7	10.0	8.3	8.3	9.0
9	s-metolachlor	7.62	EC	0.63	LB A/A	PRE	6.3	10.0	10.0	9.0	10.0
10	DCPA	75	WP	8	LB A/A	PRE	2.0	5.3	9.3	9.3	9.3
11	acetochlor	6.4	EC	0.5	LB A/A	PRE	7.3	10.0	10.0	9.7	9.7
12	Untreated						1.0	1.0	4.0	1.0	1.0
LSD (P=.05)							0.76	2.11	4.06	1.88	1.44
Standard Deviation							0.45	1.25	2.40	1.11	0.85
CV							14.32	15.82	26.46	12.85	9.56

							Onion	Onion
							8/Jul/10	16/Aug/10
							RATING	HARVEST
							1-10	KG/15'
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		
1	pendimethalin	3.8	CS	0.75	LB A/A	PRE	2.0	52.95
2	pendimethalin	3.8	CS	0.95	LB A/A	PRE	3.0	50.48
3	pendimethalin	3.8	CS	1.9	LB A/A	PRE	3.3	46.16
4	pendimethalin	3.8	CS	0.95	LB A/A	PRE	2.3	52.81
	bromoxynil	4	EC	0.13	LB A/A	PRE		
5	ethofumesate	4	SC	0.5	LB A/A	PRE	1.0	54.95
6	ethofumesate	4	SC	1.0	LB A/A	PRE	2.3	51.21
7	flumioxazin	51	WDG	0.032	LB A/A	PRE	6.3	26.13
8	propachlor	4	F	2	LB A/A	PRE	1.3	52.53
9	s-metolachlor	7.62	EC	0.63	LB A/A	PRE	6.7	24.23
10	DCPA	75	WP	8	LB A/A	PRE	2.0	53.79
11	acetochlor	6.4	EC	0.5	LB A/A	PRE	7.0	18.64
12	Untreated						2.3	48.67
LSD (P=.05)							1.59	11.073
Standard Deviation							0.94	6.539
CV							28.32	14.73

Preemergence Weed Control in Onion - Keilen Farms 2010

Project Code: 112-10-01.1

Location: Bath, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
 Crop: Onion Variety: Pulsar
 Planting Method: Seeded Planting Date: 4/15/10
 Spacing: 1.5 inches Row Spacing: 10 inches
 Tillage Type: Conventional Study Design: RCB Replications: 4
 Plot Size: 5.5 ft wide x 25 ft long

Soil Type: Houghton Muck OM: 76.5% pH: 6.6
 Sand: 8.4% Silt: 13.4% Clay: 1.7% CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/22/10	11:00 am	49/48	F	Moist	3-5 E	37	5% Cloudy	N
PO1	5/24/10	9:30 am	72/66	F	Moist	3-4 SE	80	100% Cloudy	N
PO2	6/14/10	3:00 pm	81/69	F	Moist	3-4 N	66	100% Cloudy	N

Crop and Weed Information at Application

Date	Crop	Height or Diameter	Growth Stage	Density
4/22	ONION		PRE	
5/24	ONION	4-7"	2 LF	
5/24	LATH = ladythumb	3-5"		many
6/14	ONION	12-16"	4-5 LF	
6/14	LATH = ladythumb	6-8"		many

Notes and Comments

1. Sprays applied with 4-nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Four double rows on a raised bed.

Preemergence Weed Control in Onion - Keilen Farms 2010

Preemergence Weed Control in Onion - Keilen Farms

Trial ID: 112-10-01.1
Location: Lansing, MI

Study Dir.: Dr. Bernard Zandstra
Investigator: Dr. Bernard Zandstra

Weed Code							LATH			
Crop Code							Onion		Onion	Onion
Rating Data Type							RATING	RATING	STAND COUNT	YIELD
Rating Unit							1-10	1-10	#/m	KG/PLOT
Rating Date							19/May/10	19/May/10	21/Jul/10	17/Aug/10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	pendimethalin	3.8	CS	2	LB A/A	PRE	1.3	6.0	83.0	51.64
	pendimethalin	3.8	CS	2	LB A/A	PO1, 2				
2	pendimethalin	3.8	CS	4	LB A/A	PRE	1.3	6.8	75.8	52.77
	pendimethalin	3.8	CS	4	LB A/A	PO1, 2				
3	pendimethalin	3.3	EC	2	LB A/A	PRE	1.5	6.0	78.0	56.49
	pendimethalin	3.3	EC	2	LB A/A	PO1, 2				
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRE	3.3	5.3	80.8	55.38
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1, 2				
5	dimethenamid-p	6	EC	0.98	LB A/A	PRE	3.3	6.8	74.3	53.25
	dimethenamid-p	6	EC	0.98	LB A/A	PO1, 2				
6	propachlor	4	F	4	LB A/A	PRE	1.3	5.5	83.3	60.38
	propachlor	4	F	4	LB A/A	PO1, 2				
7	acetochlor	6.4	EC	1	LB A/A	PRE	4.8	5.0	66.8	44.15
	acetochlor	6.4	EC	1	LB A/A	PO1, 2				
8	ethofumesate	4	SC	1	LB A/A	PRE	1.5	4.0	82.8	54.07
	ethofumesate	4	SC	1	LB A/A	PO1, 2				
9	flumioxazin	51	WDG	0.032	LB A/A	PRE	3.8	4.0	80.3	53.15
	flumioxazin	51	WDG	0.032	LB A/A	PO1, 2				
10	pendimethalin	3.8	CS	2	LB A/A	PRE	1.0	4.5	78.3	51.38
	pendimethalin	3.3	EC	2	LB A/A	PO1, 2				
11	pendimethalin	3.8	CS	2	LB A/A	PRE	1.0	5.8	83.8	51.23
	dimethenamid-p	6	EC	0.98	LB A/A	PO1				
	s-metolachlor	7.62	EC	1.3	LB A/A	PO2				
12	pendimethalin	3.8	CS	2	LB A/A	PRE	1.5	5.5	82.0	54.71
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1				
	dimethenamid-p	6	EC	0.98	LB A/A	PO2				
13	pendimethalin	3.8	CS	2	LB A/A	PRE	1.3	5.8	76.3	53.73
	flumioxazin	51	WDG	0.032	LB A/A	PO1, 2				
14	pendimethalin	3.8	CS	2	LB A/A	PRE	1.0	5.0	82.3	54.04
	dimethenamid-p	6	EC	0.98	LB A/A	PO1				
	flumioxazin	51	WDG	0.064	LB A/A	PO2				
15	pendimethalin	3.8	CS	2	LB A/A	PRE	1.5	4.5	70.8	44.72
	acetochlor	6.4	EC	1	LB A/A	PO1, 2				
16	Handweeded						1.0	1.0	82.5	46.92
LSD (P=.05)							0.75	1.55	13.49	8.903
Standard Deviation							0.53	1.08	9.44	6.230
CV							28.11	21.34	11.99	11.9

Postemergence Weed Control in Onion - Keilen Farms 2010

Project Code: 112-10-02.1

Location: Bath, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
 Crop: Onion Variety: Pulsar
 Planting Method: Seeded Planting Date: 4/15/10
 Spacing: 1.5 inches Row Spacing: 10 inches
 Tillage Type: Conventional Study Design: RCB Replications: 4
 Plot Size: 5.5 ft wide x 25 ft long

Soil Type: Houghton Muck OM: 76.5% pH: 6.6
 Sand: 8.4% Silt: 13.4% Clay: 1.7% CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/08/10	9:30 am	76/59	F	Moist	2-3 SE	47	80% Cloudy	N
PO2	6/15/10	2:30 pm	75/70	F	Moist	3 E	70	100% Cloudy	N

Crop and Weed Information at Application

Date	Crop	Height or Diameter	Growth Stage	Density
6/08	ONION	4-8"	2 LF	
6/08	LATH = ladythumb	2-4"		Many
6/08	RRPW = redroot pigweed	2-5"		Moderate
6/15	ONION	12-18"	4-5 LF	
6/15	LATH = ladythumb	4-6"		Many
6/15	RRPW = redroot pigweed	3-6"		Moderate
6/15	COPU = common purslane	1-3"		Few

Notes and Comments

1. Sprays applied with 4-nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Four double rows on a raised bed.

Postemergence Weed Control in Onion - Keilen Farms 2010

Postemergence Weed Control in Onion- Keilen Farms											
Trial ID: 112-10-02.1						Study Dir.: Dr. Bernard Zandstra					
Location: Lansing, MI						Investigator: Dr. Bernard Zandstra					
Weed Code		LATH		COLQ		LATH					
Crop Code		Onion		Onion							
Rating Data Type		RATING		RATING		RATING		RATING		RATING	
Rating Unit		1-10		1-10		1-10		1-10		1-10	
Rating Date		3/Jun/10		3/Jun/10		24/Jun/10		24/Jun/10		24/Jun/10	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	oxyfluorfen	2	L	0.063	LB A/A	PO1,2	1.5	3.3	2.5	9.0	6.8
2	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2	1.5	3.0	1.5	8.3	4.5
3	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	2.3	4.8	2.3	8.3	6.8
4	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	1.8	4.0	2.3	9.0	6.0
5	ethofumesate	4	SC	0.5	LB A/A	PO1,2	1.0	2.5	1.0	5.8	3.3
6	ethofumesate	4	SC	1	LB A/A	PO1,2	1.8	4.8	1.3	7.8	4.8
7	fluroxypyr	2.8	L	0.125	LB A/A	PO1,2	3.5	5.8	5.0	4.3	6.0
8	fluroxypyr	2.8	L	0.25	LB A/A	PO1,2	5.0	7.8	6.0	5.0	7.5
9	bentazon	4	L	1	LB A/A	PO1,2	3.5	10.0	2.8	10.0	10.0
10	bromoxynil	2	EC	0.125	LB A/A	PO1,2	1.5	6.0	2.0	10.0	6.3
11	bromoxynil	2	EC	0.25	LB A/A	PO1,2	2.0	10.0	2.8	10.0	9.3
12	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2	2.3	6.5	3.3	9.5	8.3
	flumioxazin	51	WDG	0.032	LB A/A	PO1,2					
13	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2	2.0	5.5	2.0	9.0	6.0
	ethofumesate	4	SC	0.5	LB A/A	PO1,2					
14	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2	4.0	7.3	5.0	7.5	7.3
	fluroxypyr	2.8	L	0.125	LB A/A	PO1,2					
15	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2	1.8	7.0	2.5	10.0	7.0
	bromoxynil	2	EC	0.125	LB A/A	PO1,2					
16	Handweeded						1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							0.85	1.63	0.65	1.74	1.64
Standard Deviation							0.60	1.14	0.46	1.22	1.15
CV							26.28	20.48	16.98	15.71	18.26

Postemergence Weed Control in Onion - Keilen Farms 2010

Dept. of Horticulture, MSU

Weed Code							RRPW	Onion	Onion
Crop Code								STAND COUNT	YIELD
Rating Data Type							RATING		
Rating Unit							1-10	#/m	KG/PLOT
Rating Date							24/Jun/10	11/Aug/10	18/Aug/10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	oxyfluorfen	2	L	0.063	LB A/A	PO1,2	9.5	73.8	53.69
2	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2	9.8	73.5	50.44
3	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	9.8	70.5	53.90
4	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	9.5	70.8	51.45
5	ethofumesate	4	SC	0.5	LB A/A	PO1,2	3.8	75.8	55.95
6	ethofumesate	4	SC	1	LB A/A	PO1,2	4.3	73.5	57.25
7	fluroxypyr	2.8	L	0.125	LB A/A	PO1,2	3.8	77.0	46.73
8	fluroxypyr	2.8	L	0.25	LB A/A	PO1,2	5.0	73.8	39.55
9	bentazon	4	L	1	LB A/A	PO1,2	2.5	66.0	46.54
10	bromoxynil	2	EC	0.125	LB A/A	PO1,2	4.0	80.5	51.75
11	bromoxynil	2	EC	0.25	LB A/A	PO1,2	7.5	83.3	58.73
12	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2	10.0	81.0	58.85
	flumioxazin	51	WDG	0.032	LB A/A	PO1,2			
13	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2	8.3	75.3	57.47
	ethofumesate	4	SC	0.5	LB A/A	PO1,2			
14	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2	10.0	77.5	47.63
	fluroxypyr	2.8	L	0.125	LB A/A	PO1,2			
15	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2	10.0	76.8	59.44
	bromoxynil	2	EC	0.125	LB A/A	PO1,2			
16	Handweeded						1.0	69.5	44.77
LSD (P=.05)							1.64	10.54	9.103
Standard Deviation							1.15	7.37	6.370
CV							16.91	9.85	12.22

Postemergence Weed Control with Chateau in Onion - Keilen Farms 2010

Project Code: 112-10-04.1

Location: Bath, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann

Crop: Onion

Variety: Pulsar

Planting Method: Seeded

Planting Date: 4/15/10

Spacing: 1.5 inches

Row Spacing: 10 inches

Tillage Type: Conventional

Study Design: RCB

Replications: 4

Plot Size: 5.5 ft wide x 25 ft long

Soil Type: Houghton Muck

OM: 76.5%

pH: 6.6

Sand: 8.4%

Silt: 13.4%

Clay: 1.7%

CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/08/10	11:00 am	80/62	F	Moist	3-5 SE	45	50% Cloudy	N
PO2	6/15/10	9:30 am	69/64	F	Moist	2 E	70	100% Cloudy	N

Crop and Weed Information at Application

Date	Crop	Height or Diameter	Growth Stage	Density
6/08	ONION	4-8"	2 LF	
6/08	LATH = ladythumb	2-4"		Many
6/15	ONION	12-18"	4-5 LF	
6/15	LATH = ladythumb	4-8"		Moderate

Notes and Comments

1. Sprays applied with 4-nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Four double rows on a raised bed.

Postemergence Weed Control with Chateau in Onion - Keilen Farms 2010

Postemergence Weed Control with Chateau in Onion - Keilen Farms			
Trial ID: 112-10-04.1		Study Dir.: Dr. Bernard Zandstra	
Location: Lansing, MI		Investigator: Dr. Bernard Zandstra	

							LATH		LATH	
							Onion		Onion	
							RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10
							3/Jun/10	3/Jun/10	24/Jun/10	24/Jun/10
Trt	Treatment	Form	Form	Rate	Rate	Grow				
No.	Name	Conc	Type	Rate	Unit	Stg				
1	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	2.0	5.0	2.0	8.0
	pendimethalin	3.8	CS	2	LB A/A	PO1,2				
2	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	7.3	9.8	7.3	10.0
	pendimethalin	3.3	EC	2	LB A/A	PO1,2				
3	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	7.0	10.0	7.3	10.0
	dimethenamid-p	6	EC	0.98	LB A/A	PO1,2				
4	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	7.3	10.0	7.5	10.0
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1,2				
5	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	1.5	3.0	2.0	7.3
6	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	1.3	3.5	2.0	6.5
	pendimethalin	3.8	CS	2	LB A/A	PO1,2				
7	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	7.0	10.0	7.0	10.0
	pendimethalin	3.3	EC	2	LB A/A	PO1,2				
8	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	7.0	9.5	7.3	10.0
	dimethenamid-p	6	EC	0.98	LB A/A	PO1,2				
9	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	7.0	9.8	7.0	10.0
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1,2				
10	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	1.3	2.8	1.8	6.0
11	pendimethalin	3.8	CS	2	LB A/A	PO1,2	1.5	1.5	1.0	2.8
12	pendimethalin	3.3	EC	2	LB A/A	PO1,2	2.3	2.0	2.0	4.0
13	dimethenamid-p	6	EC	0.98	LB A/A	PO1,2	2.0	2.0	2.3	4.3
14	s-metolachlor	7.62	EC	1.3	LB A/A	PO1,2	2.5	1.8	3.5	4.0
15	Untreated						1.0	1.0	1.0	1.0
LSD (P=.05)							1.04	1.12	0.52	1.26
Standard Deviation							0.73	0.78	0.36	0.88
CV							18.87	14.39	8.99	12.7

Postemergence Weed Control with Chateau in Onion - Keilen Farms 2010

Dept. of Horticulture, MSU

Pest Code							Onion	Onion
Crop Code							STAND COUNT	YIELD
Rating Data Type							#/m	KG/PLOT
Rating Unit							11/Aug/10	18/Aug/10
Rating Date								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg		
1	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	79.5	62.43
	pendimethalin	3.8	CS	2	LB A/A	PO1,2		
2	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	68.3	38.90
	pendimethalin	3.3	EC	2	LB A/A	PO1,2		
3	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	71.0	36.13
	dimethenamid-p	6	EC	0.98	LB A/A	PO1,2		
4	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	60.0	32.05
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1,2		
5	flumioxazin	51	WDG	0.064	LB A/A	PO1,2	82.8	64.00
6	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	81.3	63.62
	pendimethalin	3.8	CS	2	LB A/A	PO1,2		
7	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	65.3	34.01
	pendimethalin	3.3	EC	2	LB A/A	PO1,2		
8	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	72.3	41.16
	dimethenamid-p	6	EC	0.98	LB A/A	PO1,2		
9	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	61.8	36.51
	s-metolachlor	7.62	EC	1.3	LB A/A	PO1,2		
10	flumioxazin	51	WDG	0.032	LB A/A	PO1,2	79.3	60.28
11	pendimethalin	3.8	CS	2	LB A/A	PO1,2	80.0	64.72
12	pendimethalin	3.3	EC	2	LB A/A	PO1,2	80.5	59.18
13	dimethenamid-p	6	EC	0.98	LB A/A	PO1,2	80.3	60.17
14	s-metolachlor	7.62	EC	1.3	LB A/A	PO1,2	78.0	56.70
15	Untreated						81.8	57.66
LSD (P=.05)							10.06	8.768
Standard Deviation							7.04	6.136
CV							9.41	11.99

Postemergence Weed Control with Goaltender in Onion - Keilen Farms 2010

Project Code: 112-10-05.1

Location: Bath, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Chad Herrmann
 Crop: Onion Variety: Pulsar
 Planting Method: Seeded Planting Date: 4/15/10
 Spacing: 1.5 inches Row Spacing: 10 inches
 Tillage Type: Conventional Study Design: RCB Replications: 4
 Plot Size: 5.5 ft wide x 25 ft long

Soil Type: Houghton Muck OM: 76.5% pH: 6.6
 Sand: 8.4% Silt: 13.4% Clay: 1.7% CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	5/19/10	10:00 am	58/52	F	Moist	4-5 E	65	25% Cloudy	N
PO2	5/25/10	1:30 pm	79/69	F	Moist	5-8 SE	57	5% Cloudy	N
PO3	6/08/10	12:30 pm	68/60	F	Moist	6 SE	47	100% Cloudy	N
PO4	6/15/10	11:00 am	75/65	F	Moist	2 E	70	100% Cloudy	N

Crop and Weed Information at Application

Date	Crop	Height or Diameter	Growth Stage	Density
5/19	ONION	3-6"	1 LF	
5/19	LATH = ladythumb	1-3"		Many
5/25	ONION	4-8"	2 LF	
5/25	LATH = ladythumb	2-4"		Many
6/08	ONION	8-10"	3 LF	
6/08	HANS = hairy nightshade	2-4"		Few
6/08	LATH = ladythumb	2-5"		Many
6/15	ONION	12-16"	4-5 LF	
6/15	HANS = hairy nightshade	5-7"		Moderate
6/15	LATH = ladythumb	5-8"		Many

Notes and Comments

1. Sprays applied with 4-nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Four double rows on a raised bed.

Postemergence Weed Control with Goaltender in Onion - Keilen Farms 2010

Postemergence Weed Control with Goaltender in Onion - Keilen Farms

Trial ID: 112-10-05.1
Location: Lansing, MI

Study Dir.: Dr. Bernard Zandstra
Investigator: Dr. Bernard Zandstra

							LATH		LATH		
							Onion		Onion		Onion
							RATING	RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10	1-10
							24/May/10	24/May/10	3/Jun/10	3/Jun/10	15/Jun/10
Trt	Treatment	Form	Form	Rate	Rate	Growth					
No.	Name	Conc	Type	Rate	Unit	Stage					
1	oxyfluorfen	4	SC	0.031	LB A/A	PO1,2,3	1.3	4.0	1.0	7.3	2.0
2	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2,3	1.8	6.0	1.0	7.8	2.0
3	oxyfluorfen	4	SC	0.125	LB A/A	PO1,2,3	3.0	7.5	2.8	9.8	3.0
4	oxyfluorfen	4	SC	0.188	LB A/A	PO1,2,3	4.3	9.5	3.8	10.0	3.5
5	oxyfluorfen	2	L	0.031	LB A/A	PO1,2,3	1.3	5.5	1.0	7.3	2.8
6	oxyfluorfen	2	L	0.063	LB A/A	PO1,2,3	2.8	6.8	2.3	9.3	3.0
7	oxyfluorfen	2	L	0.125	LB A/A	PO1,2,3	4.3	9.0	3.0	10.0	4.0
8	oxyfluorfen	2	L	0.188	LB A/A	PO1,2,3	5.5	9.8	4.5	10.0	4.8
9	oxyfluorfen	4	SC	0.031	LB A/A	PO2, 4	1.0	1.0	1.3	3.3	1.0
10	oxyfluorfen	4	SC	0.063	LB A/A	PO2, 4	1.0	1.0	1.3	5.0	1.3
11	oxyfluorfen	4	SC	0.125	LB A/A	PO2, 4	1.0	1.0	2.0	5.0	1.5
12	oxyfluorfen	4	SC	0.25	LB A/A	PO2, 4	1.0	1.0	2.8	7.5	2.0
13	oxyfluorfen	4	SC	0.188	LB A/A	PO2, 4	1.0	1.0	2.5	6.5	2.0
14	oxyfluorfen	2	L	0.031	LB A/A	PO2, 4	1.0	1.0	1.5	4.5	2.0
15	oxyfluorfen	2	L	0.063	LB A/A	PO2, 4	1.0	1.0	1.3	4.8	2.0
16	oxyfluorfen	2	L	0.125	LB A/A	PO2, 4	1.0	1.0	2.8	6.0	2.0
17	oxyfluorfen	2	L	0.188	LB A/A	PO2, 4	1.0	1.0	3.3	7.5	2.0
18	Handweeded						1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							0.45	0.97	0.60	1.59	0.79
Standard Deviation							0.32	0.69	0.42	1.12	0.56
CV							17.03	18.18	19.68	16.55	24.22

Postemergence Weed Control with Goaltender in Onion - Keilen Farms 2010

Dept. of Horticulture, MSU

Weed Code							LATH	HANS	Onion		
Crop Code										LATH	HANS
Rating Data Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
Rating Date							15/Jun/10	15/Jun/10	21/Jun/10	21/Jun/10	21/Jun/10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	oxyfluorfen	4	SC	0.031	LB A/A	PO1,2,3	7.5	10.0	1.3	5.5	9.0
2	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2,3	9.0	10.0	1.5	8.3	9.8
3	oxyfluorfen	4	SC	0.125	LB A/A	PO1,2,3	10.0	10.0	2.3	9.3	10.0
4	oxyfluorfen	4	SC	0.188	LB A/A	PO1,2,3	10.0	10.0	2.5	10.0	10.0
5	oxyfluorfen	2	L	0.031	LB A/A	PO1,2,3	9.0	10.0	1.3	7.0	8.3
6	oxyfluorfen	2	L	0.063	LB A/A	PO1,2,3	10.0	10.0	2.5	9.3	10.0
7	oxyfluorfen	2	L	0.125	LB A/A	PO1,2,3	10.0	10.0	3.0	10.0	10.0
8	oxyfluorfen	2	L	0.188	LB A/A	PO1,2,3	10.0	10.0	3.5	10.0	10.0
9	oxyfluorfen	4	SC	0.031	LB A/A	PO2, 4	3.0	3.3	1.0	3.3	3.8
10	oxyfluorfen	4	SC	0.063	LB A/A	PO2, 4	4.0	4.5	1.5	4.5	4.8
11	oxyfluorfen	4	SC	0.125	LB A/A	PO2, 4	6.5	6.0	2.3	5.5	5.5
12	oxyfluorfen	4	SC	0.25	LB A/A	PO2, 4	6.3	6.3	3.3	7.5	8.3
13	oxyfluorfen	4	SC	0.188	LB A/A	PO2, 4	5.3	7.5	2.0	6.0	8.0
14	oxyfluorfen	2	L	0.031	LB A/A	PO2, 4	5.5	4.8	2.3	3.8	4.3
15	oxyfluorfen	2	L	0.063	LB A/A	PO2, 4	5.5	6.0	2.5	5.0	5.0
16	oxyfluorfen	2	L	0.125	LB A/A	PO2, 4	5.8	6.0	3.3	5.5	6.5
17	oxyfluorfen	2	L	0.188	LB A/A	PO2, 4	5.8	6.5	3.5	7.0	8.5
18	Handweeded						1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.52	1.95	0.65	1.36	1.63
Standard Deviation							1.07	1.38	0.46	0.96	1.15
CV							15.57	18.83	20.55	14.69	15.62

Weed Code							Onion	
Crop Code							Stand Count	YIELD
Rating Data Type							#/m	KG/PLOT
Rating Unit								
Rating Date							11/Aug/10	19/Aug/10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		
1	oxyfluorfen	4	SC	0.031	LB A/A	PO1,2,3	82.3	62.35
2	oxyfluorfen	4	SC	0.063	LB A/A	PO1,2,3	76.8	60.06
3	oxyfluorfen	4	SC	0.125	LB A/A	PO1,2,3	78.8	57.20
4	oxyfluorfen	4	SC	0.188	LB A/A	PO1,2,3	81.5	62.30
5	oxyfluorfen	2	L	0.031	LB A/A	PO1,2,3	80.3	61.30
6	oxyfluorfen	2	L	0.063	LB A/A	PO1,2,3	79.5	55.48
7	oxyfluorfen	2	L	0.125	LB A/A	PO1,2,3	78.3	55.70
8	oxyfluorfen	2	L	0.188	LB A/A	PO1,2,3	76.8	51.12
9	oxyfluorfen	4	SC	0.031	LB A/A	PO2, 4	79.0	57.85
10	oxyfluorfen	4	SC	0.063	LB A/A	PO2, 4	82.0	57.72
11	oxyfluorfen	4	SC	0.125	LB A/A	PO2, 4	79.5	56.64
12	oxyfluorfen	4	SC	0.25	LB A/A	PO2, 4	78.8	63.98
13	oxyfluorfen	4	SC	0.188	LB A/A	PO2, 4	82.3	61.78
14	oxyfluorfen	2	L	0.031	LB A/A	PO2, 4	75.0	58.40
15	oxyfluorfen	2	L	0.063	LB A/A	PO2, 4	83.5	59.64
16	oxyfluorfen	2	L	0.125	LB A/A	PO2, 4	76.3	52.96
17	oxyfluorfen	2	L	0.188	LB A/A	PO2, 4	78.0	58.21
18	Handweeded						84.5	55.35
LSD (P=.05)							11.27	11.344
Standard Deviation							7.97	8.022
CV							10.01	13.78

Weed Control in Green Onion & Leek - Muck Farm 2010

Project Code: 112-10-09

Location: Laingsburg, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Green Onion & Leek Variety: See notes.

Planting Method: Seeded Planting Date: 5/4/10

Spacing: 20/ft 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: 76.9%

pH: 6.5

Sand: 9.8%

Silt: 11.9%

Clay: 1.4%

CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/6/10	2:30 PM	65/58	F	Moist	3 W	41	30% Cloudy	N
PO1	6/8/10	10:00 AM	76/59	F	Moist	3 SE	47	80% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/6	ONION		Seeded 5/4	
6/8	ONION	1-1.5 ft		
6/8	LATH = ladythumb	2-4"		Many
6/8	RRPW = redroot pigweed	2-5"		Moderate

Notes and Comments

1. Green onion: Tokyo Long White Bunching & White Lisbon. Leek: American Flag.
2. PO1: Onion at 2 leaf stage.
3. Handweeded Treatments: At PO1: 9.10.11. Other treatments handweeded as needed.

Weed Control in Green Onion & Leek - Muck Farm 2010

Weed Control in Green Onion & Leek - Muck Farm 2010			
Trial ID: 112-10-09		Protocol ID: 112-10-09	
Location: Laingsburg, MI		Study Director: Rodney Tocco	
		Investigator: Dr. Bernard Zandstra	

							COLQ				
							Gr. Onion		Leek		
							Tok	Wht	Bun	Wht	Lisb
							4/	4/	4/	4/	4/
							Jun/	Jun/	Jun/	Jun/	Jun/
							10	10	10	10	10
							RATING	RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10	1-10
Trt	Treatment	Form	Form	Rate	Rate	Growth					
No.	Name	Conc	Type		Unit	Stage					
1	Untreated						1.0	1.0	1.0	1.0	
2	pendimethalin	3.8	CS	0.95	LB A/A	PRE	1.7	1.7	2.0	6.3	
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
3	pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.7	1.3	2.0	9.3	
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
4	pendimethalin	3.8	CS	3.8	LB A/A	PRE	1.7	2.0	2.0	10.0	
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
5	pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.3	1.0	1.0	9.3	
	pendimethalin	3.8	CS	1.9	LB A/A	PO1					
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
6	propachlor	4	F	2	LB A/A	PRE	1.0	1.7	1.3	8.7	
	pendimethalin	3.8	CS	1.9	LB A/A	PO1					
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
7	propachlor	4	F	4	LB A/A	PRE	2.0	1.7	2.7	9.3	
	pendimethalin	3.8	CS	1.9	LB A/A	PO1					
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
8	acetochlor	6.4	EC	1	LB A/A	PRE	4.0	3.0	4.0	9.3	
	pendimethalin	3.8	CS	1.9	LB A/A	PO1					
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
9	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	3.3	3.7	3.0	5.7	
10	flumioxazin	51	WDG	0.064	LB A/A	PRE	5.7	4.7	7.0	10.0	
11	dimethenamid-p	6	EC	0.98	LB A/A	PRE	3.7	3.3	4.0	9.0	
12	pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.7	1.7	1.0	9.0	
	flumioxazin	51	WDG	0.032	LB A/A	PO1					
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
13	pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.7	1.0	1.7	9.3	
	pendimethalin	3.8	CS	1.9	LB A/A	PO1					
	flumioxazin	51	WDG	0.032	LB A/A	PO1					
14	pendimethalin	3.8	CS	1.9	LB A/A	PRE	1.0	1.3	1.0	8.7	
	flumioxazin	51	WDG	0.064	LB A/A	PO1					
15	Untreated					PRE	1.0	1.0	1.0	1.0	
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
LSD (P=.05)							1.46	1.18	1.49	0.97	
Standard Deviation							0.87	0.70	0.89	0.58	
CV							40.45	35.19	38.66	7.52	

Weed Control in Green Onion & Leek - Muck Farm 2010

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							COPU	LATH	RRPW	SHPU
Pest Code										
Crop Name										
Crop Variety										
Rating Date							4/Jun/10	4/Jun/10	4/Jun/10	4/Jun/10
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	Untreated						1.0	1.0	1.0	1.0
2	pendimethalin	3.8	CS	0.95	LB A/A	PRE	6.7	2.7	3.3	4.0
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
3	pendimethalin	3.8	CS	1.9	LB A/A	PRE	7.3	3.0	4.7	4.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
4	pendimethalin	3.8	CS	3.8	LB A/A	PRE	8.7	4.0	5.3	5.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
5	pendimethalin	3.8	CS	1.9	LB A/A	PRE	7.7	4.3	4.3	5.0
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
6	propachlor	4	F	2	LB A/A	PRE	7.7	6.0	7.3	7.7
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
7	propachlor	4	F	4	LB A/A	PRE	8.7	7.0	9.0	9.0
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
8	acetochlor	6.4	EC	1	LB A/A	PRE	10.0	7.3	10.0	9.3
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
9	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	10.0	6.0	9.3	10.0
10	flumioxazin	51	WDG	0.064	LB A/A	PRE	10.0	8.3	9.7	10.0
11	dimethenamid-p	6	EC	0.98	LB A/A	PRE	10.0	7.7	10.0	10.0
12	pendimethalin	3.8	CS	1.9	LB A/A	PRE	7.7	3.0	4.0	3.7
	flumioxazin	51	WDG	0.032	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
13	pendimethalin	3.8	CS	1.9	LB A/A	PRE	8.0	3.0	4.0	4.3
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	flumioxazin	51	WDG	0.032	LB A/A	PO1				
14	pendimethalin	3.8	CS	1.9	LB A/A	PRE	7.3	3.3	4.0	4.0
	flumioxazin	51	WDG	0.064	LB A/A	PO1				
15	Untreated						1.0	1.0	1.0	1.0
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
LSD (P=.05)							1.06	1.45	1.28	0.85
Standard Deviation							0.63	0.87	0.77	0.51
CV							8.48	19.27	13.25	8.55

Weed Control in Green Onion & Leek - Muck Farm 2010

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							YENS			
							Gr. Onion		Gr. Onion	Leek
							Tok Wht	Bun	Wht Lisb	
							4/Jun/10	14/Jun/10	14/Jun/10	14/Jun/10
							RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Untreated						1.0	1.0	1.0	1.0
2	pendimethalin	3.8	CS	0.95	LB A/A	PRE	2.7	3.7	4.0	3.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
3	pendimethalin	3.8	CS	1.9	LB A/A	PRE	3.0	3.7	3.0	2.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
4	pendimethalin	3.8	CS	3.8	LB A/A	PRE	3.3	3.0	3.0	3.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
5	pendimethalin	3.8	CS	1.9	LB A/A	PRE	3.3	3.7	3.0	2.3
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
6	propachlor	4	F	2	LB A/A	PRE	7.7	3.3	3.0	2.7
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
7	propachlor	4	F	4	LB A/A	PRE	7.3	2.7	2.7	3.0
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
8	acetochlor	6.4	EC	1	LB A/A	PRE	8.3	3.3	2.7	3.0
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
9	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	8.3	2.1	2.6	1.3
10	flumioxazin	51	WDG	0.064	LB A/A	PRE	2.7	5.3	4.0	7.3
11	dimethenamid-p	6	EC	0.98	LB A/A	PRE	7.7	2.7	2.7	2.3
12	pendimethalin	3.8	CS	1.9	LB A/A	PRE	2.3	5.3	6.7	5.3
	flumioxazin	51	WDG	0.032	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
13	pendimethalin	3.8	CS	1.9	LB A/A	PRE	3.3	3.0	2.3	2.0
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	flumioxazin	51	WDG	0.032	LB A/A	PO1				
14	pendimethalin	3.8	CS	1.9	LB A/A	PRE	3.0	3.0	2.3	1.7
	flumioxazin	51	WDG	0.064	LB A/A	PO1				
15	Untreated						1.0	2.7	3.3	3.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
LSD (P=.05)							1.11	1.38	1.65	1.95
Standard Deviation							0.67	0.82	0.98	1.17
CV							15.36	25.54	31.86	39.17

Weed Control in Green Onion & Leek - Muck Farm 2010

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Pest Code							COLQ	LATH	MAYC	RRPW
Crop Name										
Crop Variety										
Rating Date							14/Jun/10	14/Jun/10	14/Jun/10	14/Jun/10
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	Untreated						10.0	10.0	10.0	10.0
2	pendimethalin	3.8	CS	0.95	LB A/A	PRE	6.3	4.3	4.3	8.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
3	pendimethalin	3.8	CS	1.9	LB A/A	PRE	7.0	4.7	5.0	9.7
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
4	pendimethalin	3.8	CS	3.8	LB A/A	PRE	8.0	4.7	4.3	9.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
5	pendimethalin	3.8	CS	1.9	LB A/A	PRE	7.3	5.0	4.7	9.7
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
6	propachlor	4	F	2	LB A/A	PRE	9.0	6.7	6.7	10.0
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
7	propachlor	4	F	4	LB A/A	PRE	9.3	6.7	7.3	10.0
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
8	acetochlor	6.4	EC	1	LB A/A	PRE	9.3	6.7	9.0	10.0
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
9	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	10.0	10.0	10.0	10.0
10	flumioxazin	51	WDG	0.064	LB A/A	PRE	10.0	10.0	10.0	10.0
11	dimethenamid-p	6	EC	0.98	LB A/A	PRE	10.0	10.0	10.0	10.0
12	pendimethalin	3.8	CS	1.9	LB A/A	PRE	10.0	8.7	7.7	10.0
	flumioxazin	51	WDG	0.032	LB A/A	PO1				
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
13	pendimethalin	3.8	CS	1.9	LB A/A	PRE	9.0	3.3	2.7	7.3
	pendimethalin	3.8	CS	1.9	LB A/A	PO1				
	flumioxazin	51	WDG	0.032	LB A/A	PO1				
14	pendimethalin	3.8	CS	1.9	LB A/A	PRE	9.3	4.7	3.0	9.0
	flumioxazin	51	WDG	0.064	LB A/A	PO1				
15	Untreated					PRE	6.0	3.7	3.7	6.3
	oxyfluorfen	4	SC	0.063	LB A/A	PO1				
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
LSD (P=.05)							1.49	1.09	1.14	2.15
Standard Deviation							0.89	0.65	0.68	1.29
CV							10.2	9.86	10.4	13.79

Weed Control in Green Onion & Leek - Muck Farm 2010

Dept. of Horticulture, MSU

Pest Code							YENS				
Crop Name							Gr. Onion		Gr. Onion		Leek
Crop Variety							Wht Lisb		Tok Wht Bun		
Rating Date							14/Jun/10	15/Jul/10	5/Aug/10	27/Sep/10	
Rating Data Type							RATING	Harvest	Harvest	Harvest	
Rating Unit							1-10	KG/PLOT	KG/PLOT	KG/PLOT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated						10.0	1.62	4.37	14.47	
2	pendimethalin	3.8	CS	0.95	LB A/A	PRE	3.3	1.21	2.95	13.44	
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
3	pendimethalin	3.8	CS	1.9	LB A/A	PRE	3.0	0.90	2.36	8.81	
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
4	pendimethalin	3.8	CS	3.8	LB A/A	PRE	3.0	0.98	3.12	10.44	
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
5	pendimethalin	3.8	CS	1.9	LB A/A	PRE	3.0	1.36	3.16	12.97	
	pendimethalin	3.8	CS	1.9	LB A/A	PO1					
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
6	propachlor	4	F	2	LB A/A	PRE	5.0	1.41	4.25	15.77	
	pendimethalin	3.8	CS	1.9	LB A/A	PO1					
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
7	propachlor	4	F	4	LB A/A	PRE	4.7	1.28	3.07	10.32	
	pendimethalin	3.8	CS	1.9	LB A/A	PO1					
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
8	acetochlor	6.4	EC	1	LB A/A	PRE	5.7	1.67	2.17	12.58	
	pendimethalin	3.8	CS	1.9	LB A/A	PO1					
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
9	s-metolachlor	7.62	EC	1.9	LB A/A	PRE	10.0	0.93	2.11	13.90	
10	flumioxazin	51	WDG	0.064	LB A/A	PRE	10.0	0.97	1.21	5.73	
11	dimethenamid-p	6	EC	0.98	LB A/A	PRE	10.0	1.53	2.52	11.13	
12	pendimethalin	3.8	CS	1.9	LB A/A	PRE	4.0	0.55	2.33	9.13	
	flumioxazin	51	WDG	0.032	LB A/A	PO1					
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
13	pendimethalin	3.8	CS	1.9	LB A/A	PRE	2.7	0.81	2.51	10.29	
	pendimethalin	3.8	CS	1.9	LB A/A	PO1					
	flumioxazin	51	WDG	0.032	LB A/A	PO1					
14	pendimethalin	3.8	CS	1.9	LB A/A	PRE	3.0	1.20	2.79	14.78	
	flumioxazin	51	WDG	0.064	LB A/A	PO1					
15	Untreated					PRE	3.0	0.63	0.93	10.03	
	oxyfluorfen	4	SC	0.063	LB A/A	PO1					
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
LSD (P=.05)							1.40	0.809	2.146	6.000	
Standard Deviation							0.84	0.484	1.283	3.588	
CV							15.66	42.55	48.3	30.97	

Fall Weed Control in Seeded Green Onions and Chives - Van Drunen Farms 2010

Project Code: 117-10-08

Location: Momence, IL

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Green Onion, Chive Variety: See notes.

Planting Method: Seeded Planting Date: 8/24/10

Spacing: 1 inch Row Spacing: 10 inches

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Sandy clay loam

OM: 3.0%

pH: 5.2

Sand: 60.1% Silt: 17.7%

Clay: 22.2%

CEC: 16.8

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	8/25/10			F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
8/25	CHIVES		Planted 8/24	

Notes and Comments

1. Row 1: Chives, 'Purly'; Row 2: Chives: 'Purly'; Row 3: Gr. Onion: 'Tokyo Long White Bunching'; Row 4: Gr. Onion: 'Tokyo Long White Bunching'.

2.

Fall Weed Control in Seeded Green Onions and Chives - Van Drunen Farms 2010

Fall Weed Control in Seeded Green Onions and Chives - Van Drunen Farms

Trial ID: 117-10-08
Location: Momence, IL

Protocol ID: 117-10-08
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

Pest Code							CAWE	COLQ	COPU		
Crop Name							Chive	Green Onion			
Rating Date							30/Sep/10	30/Sep/10	30/Sep/10	30/Sep/10	
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	Unit	Growth Stage					
1	carfentrazone	2 EC		0.1 LB	A/A	PRE	1.3	1.3	10.0	10.0	10.0
2	carfentrazone	2 EC		0.2 LB	A/A	PRE	7.0	6.0	10.0	10.0	9.0
3	pendimethalin	3.8 CS		0.75 LB	A/A	PRE	1.0	1.0	10.0	9.7	10.0
4	Untreated					PRE	1.0	1.0	1.0	4.3	1.0
LSD (P=.05)							1.73	1.00	0.00	4.06	1.73
Standard Deviation							0.87	0.50	0.00	2.03	0.87
CV							33.52	21.43	0.0	23.93	11.55

Weed Control on Hot Banana and Cherry Pepper - HTRC 2010

Project Code: 101-10-02

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Banana, Cherry Pepper

Variety: Hungarian Yellowwax, Red Cherry

Planting Method: Transplant 1 row each

Planting Date: 5/18/10

Spacing: 24 inches

Row Spacing: 3 ft

Tillage Type: Conventional

Study Design: RCB Replications: 3

Plot Size: 5.33 ft wide x 35 ft long

Soil Type: Marlette Sandy Loam

OM: 1.5%

pH: 7.8

Sand: 55.8%

Silt: 22.1%

Clay: 22.2%

CEC: 8.1

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/17/10	9:30 AM	60/54	F	Moist	7 E	51	100%Cloudy	N
POT	5/17/10	12:30 PM	66/61	F	Moist	7-9 NE	43	100%Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

Height or Diameter	Growth Stage	Density
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Notes and Comments

- 1.
- 2.

Weed Control on Hot Banana and Cherry Pepper - HTRC 2010

Weed Control in Hot Banana and Cherry Pepper - HTRC 2010

Trial ID: 101-10-02
Location: East Lansing, MI

Protocol ID: 101-10-02
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

Pest Code							GRFT	COLQ	COPU		
Crop Name							Banana	Cherry			
Rating Date							14/Jun/10	14/Jun/10	14/Jun/10	14/Jun/10	
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	Untreated						1.0	1.0	1.0	1.0	
2	fomesafen	2	SL	0.188	LB A/A	PRT	1.0	1.0	9.0	9.0	
3	fomesafen	2	SL	0.25	LB A/A	PRT	1.0	1.0	9.7	9.0	
4	fomesafen	2	SL	0.31	LB A/A	PRT	1.3	1.0	10.0	9.0	
5	fomesafen	2	SL	0.38	LB A/A	PRT	1.3	1.0	9.7	10.0	
6	fomesafen	2	SL	0.5	LB A/A	PRT	1.0	1.0	10.0	9.7	
7	fomesafen	2	SL	0.75	LB A/A	PRT	1.3	1.0	10.0	9.7	
8	fomesafen	2	SL	0.188	LB A/A	PRT	1.3	1.3	9.7	9.7	
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
9	fomesafen	2	SL	0.31	LB A/A	PRT	2.0	1.3	10.0	10.0	
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
10	fomesafen	2	SL	0.38	LB A/A	PRT	1.7	1.0	10.0	10.0	
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
11	clomazone	3	ME	1	LB A/A	PRT	1.3	1.3	10.0	10.0	
12	clomazone	3	ME	1	LB A/A	POT	1.3	1.3	10.0	10.0	
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	1.3	1.3	10.0	9.3	
14	s-metolachlor	7.62	EC	0.95	LB A/A	POT	1.0	1.0	10.0	8.7	
15	pendimethalin	3.8	CS	1.4	LB A/A	PRT	1.7	1.0	10.0	10.0	
16	napropamide	50	DF	2	LB A/A	PRT	1.0	1.0	10.0	10.0	
LSD (P=.05)							0.85	0.53	0.42	0.74	0.62
Standard Deviation							0.51	0.32	0.25	0.45	0.37
CV							39.56	28.84	2.68	4.93	4.03

Weed Control on Hot Banana and Cherry Pepper - HTRC 2010

Dept. of Horticulture, MSU

Pest Code						EBNS	LATH	SHPU	RRPW	Banana	
Crop Name						14/Jun/10	14/Jun/10	14/Jun/10	14/Jun/10	16/Jun/10	
Rating Date						RATING	RATING	RATING	RATING	Plant Count	
Rating Data Type						1-10	1-10	1-10	1-10	#	
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated						1.0	1.0	1.0	1.0	20.7
2	fomesafen	2	SL	0.188	LB A/A	PRT	10.0	10.0	10.0	10.0	20.7
3	fomesafen	2	SL	0.25	LB A/A	PRT	9.7	9.3	9.7	10.0	20.0
4	fomesafen	2	SL	0.31	LB A/A	PRT	10.0	10.0	9.7	10.0	20.7
5	fomesafen	2	SL	0.38	LB A/A	PRT	10.0	10.0	10.0	10.0	20.0
6	fomesafen	2	SL	0.5	LB A/A	PRT	10.0	10.0	10.0	10.0	20.7
7	fomesafen	2	SL	0.75	LB A/A	PRT	10.0	9.7	10.0	10.0	20.0
8	fomesafen	2	SL	0.188	LB A/A	PRT	10.0	10.0	10.0	10.0	20.7
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
9	fomesafen	2	SL	0.31	LB A/A	PRT	10.0	10.0	10.0	10.0	19.3
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
10	fomesafen	2	SL	0.38	LB A/A	PRT	10.0	10.0	10.0	10.0	20.0
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
11	clomazone	3	ME	1	LB A/A	PRT	10.0	10.0	10.0	10.0	20.7
12	clomazone	3	ME	1	LB A/A	POT	10.0	10.0	10.0	10.0	21.0
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	10.0	9.0	9.7	10.0	21.3
14	s-metolachlor	7.62	EC	0.95	LB A/A	POT	10.0	9.3	9.7	10.0	20.7
15	pendimethalin	3.8	CS	1.4	LB A/A	PRT	10.0	9.3	10.0	10.0	20.3
16	napropamide	50	DF	2	LB A/A	PRT	1.3	8.7	9.7	10.0	20.7
LSD (P=.05)							0.33	0.54	0.51	0.00	1.64
Standard Deviation							0.20	0.32	0.31	0.00	0.99
CV							2.26	3.55	3.27	0.0	4.82

Weed Control on Hot Banana and Cherry Pepper - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							GRFT	COLQ			
Crop Name							Cherry	Banana	Cherry		
Rating Date							16/Jun/10	23/Jun/10	23/Jun/10	23/Jun/10	23/Jun/10
Rating Data Type							Plant Count	RATING	RATING	RATING	RATING
Rating Unit							#	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage					
1	Untreated						19.7	1.0	1.0	5.3	5.7
2	fomesafen	2	SL	0.188	LB A/A	PRT	20.3	1.0	1.0	3.0	6.0
3	fomesafen	2	SL	0.25	LB A/A	PRT	20.0	1.0	1.0	7.7	8.0
4	fomesafen	2	SL	0.31	LB A/A	PRT	20.7	1.3	1.0	9.0	8.3
5	fomesafen	2	SL	0.38	LB A/A	PRT	20.3	1.0	1.0	8.3	8.7
6	fomesafen	2	SL	0.5	LB A/A	PRT	19.7	1.0	1.0	8.7	8.3
7	fomesafen	2	SL	0.75	LB A/A	PRT	21.3	1.0	1.0	9.0	9.7
8	fomesafen	2	SL	0.188	LB A/A	PRT	20.7	1.3	1.0	9.3	8.3
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
9	fomesafen	2	SL	0.31	LB A/A	PRT	21.3	1.3	1.0	10.0	10.0
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
10	fomesafen	2	SL	0.38	LB A/A	PRT	21.0	1.3	1.0	10.0	9.7
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
11	clomazone	3	ME	1	LB A/A	PRT	20.0	1.0	1.0	10.0	9.7
12	clomazone	3	ME	1	LB A/A	POT	20.7	1.0	1.0	10.0	10.0
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	20.7	1.7	1.3	10.0	7.0
14	s-metolachlor	7.62	EC	0.95	LB A/A	POT	20.7	1.0	1.0	9.7	6.7
15	pendimethalin	3.8	CS	1.4	LB A/A	PRT	21.0	1.3	1.0	9.3	9.7
16	napropamide	50	DF	2	LB A/A	PRT	19.7	1.0	1.0	9.7	9.0
LSD (P=.05)							1.37	0.69	0.24	2.17	2.59
Standard Deviation							0.82	0.42	0.14	1.30	1.55
CV							4.01	36.36	14.14	14.98	18.45

Weed Control on Hot Banana and Cherry Pepper - HTRC 2010

Dept. of Horticulture, MSU

Pest Code						CORW	EBNS	LATH	RRPW	Banana		
Crop Name						23/Jun/10	23/Jun/10	23/Jun/10	23/Jun/10	26/Jul/10		
Rating Date						RATING	RATING	RATING	RATING	Harvest		
Rating Data Type						1-10	1-10	1-10	1-10	KG/PLOT		
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Rate	Growth Unit	Stage					
1	Untreated							5.0	7.0	5.7	4.7	4.76
2	fomesafen	2	SL	0.188		LB A/A	PRT	8.7	7.0	6.7	7.0	3.67
3	fomesafen	2	SL	0.25		LB A/A	PRT	9.7	6.3	9.7	10.0	4.65
4	fomesafen	2	SL	0.31		LB A/A	PRT	10.0	9.3	9.3	10.0	4.86
5	fomesafen	2	SL	0.38		LB A/A	PRT	10.0	9.3	9.7	10.0	5.18
6	fomesafen	2	SL	0.5		LB A/A	PRT	10.0	9.3	10.0	10.0	4.42
7	fomesafen	2	SL	0.75		LB A/A	PRT	10.0	10.0	9.7	10.0	3.89
8	fomesafen	2	SL	0.188		LB A/A	PRT	9.7	10.0	9.7	10.0	4.13
	s-metolachlor	7.62	EC	0.95		LB A/A	PRT					
9	fomesafen	2	SL	0.31		LB A/A	PRT	10.0	10.0	10.0	10.0	3.88
	s-metolachlor	7.62	EC	0.95		LB A/A	PRT					
10	fomesafen	2	SL	0.38		LB A/A	PRT	10.0	10.0	10.0	10.0	4.02
	s-metolachlor	7.62	EC	0.95		LB A/A	PRT					
11	clomazone	3	ME	1		LB A/A	PRT	10.0	9.7	10.0	10.0	4.04
12	clomazone	3	ME	1		LB A/A	POT	10.0	10.0	10.0	10.0	3.86
13	s-metolachlor	7.62	EC	0.95		LB A/A	PRT	8.0	10.0	8.0	10.0	4.00
14	s-metolachlor	7.62	EC	0.95		LB A/A	POT	7.0	10.0	8.0	10.0	4.49
15	pendimethalin	3.8	CS	1.4		LB A/A	PRT	7.3	9.3	8.0	9.3	4.67
16	napropamide	50	DF	2		LB A/A	PRT	8.7	2.0	5.3	8.3	4.63
LSD (P=.05)								2.46	3.39	2.29	2.71	2.028
Standard Deviation								1.47	2.03	1.37	1.63	1.216
CV								16.38	23.32	15.73	17.44	28.14

Weed Control on Hot Banana and Cherry Pepper - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							Banana	Banana	Banana	Cherry	Cherry
Crop Name							10/Aug/10	24/Aug/10	TOTAL	10/Aug/10	28/Jul/10
Rating Date							Harvest	Harvest		Harvest	Harvest
Rating Data Type							KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated						3.10	1.97	9.83	1.20	2.64
2	fomesafen	2	SL	0.188	LB A/A	PRT	7.30	1.55	12.53	2.88	6.43
3	fomesafen	2	SL	0.25	LB A/A	PRT	8.84	2.76	16.25	5.63	6.12
4	fomesafen	2	SL	0.31	LB A/A	PRT	6.01	2.65	13.53	3.52	5.59
5	fomesafen	2	SL	0.38	LB A/A	PRT	5.06	3.56	13.80	4.18	4.98
6	fomesafen	2	SL	0.5	LB A/A	PRT	9.41	2.23	16.05	7.03	5.24
7	fomesafen	2	SL	0.75	LB A/A	PRT	6.23	4.73	14.85	4.58	5.94
8	fomesafen	2	SL	0.188	LB A/A	PRT	5.70	3.15	12.97	5.17	3.25
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
9	fomesafen	2	SL	0.31	LB A/A	PRT	7.77	2.70	14.35	5.22	5.79
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
10	fomesafen	2	SL	0.38	LB A/A	PRT	7.77	4.74	16.53	6.61	5.45
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT					
11	clomazone	3	ME	1	LB A/A	PRT	10.92	3.43	18.39	3.41	7.25
12	clomazone	3	ME	1	LB A/A	POT	12.06	4.79	20.71	5.63	6.24
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	7.81	2.67	14.47	4.61	4.20
14	s-metolachlor	7.62	EC	0.95	LB A/A	POT	6.67	2.72	13.88	4.91	5.37
15	pendimethalin	3.8	CS	1.4	LB A/A	PRT	7.56	3.14	15.37	6.46	4.59
16	napropamide	50	DF	2	LB A/A	PRT	6.41	2.19	13.22	4.23	4.97
LSD (P=.05)							4.468	1.211	4.133	2.711	2.525
Standard Deviation							2.680	0.726	2.479	1.626	1.514
CV							36.15	23.73	16.75	34.56	28.82

Weed Control on Hot Banana and Cherry Pepper - HTRC 2010

Dept. of Horticulture, MSU

Pest Code						Cherry	Cherry
Crop Name						24/Aug/10	
Rating Date						Harvest	TOTAL
Rating Data Type						KG/PLOT	KG/PLOT
Rating Unit							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	
1	Untreated						1.28 5.12
2	fomesafen	2	SL	0.188	LB A/A	PRT	2.57 11.88
3	fomesafen	2	SL	0.25	LB A/A	PRT	2.98 14.73
4	fomesafen	2	SL	0.31	LB A/A	PRT	2.65 11.76
5	fomesafen	2	SL	0.38	LB A/A	PRT	3.52 12.68
6	fomesafen	2	SL	0.5	LB A/A	PRT	4.21 16.49
7	fomesafen	2	SL	0.75	LB A/A	PRT	4.23 14.75
8	fomesafen	2	SL	0.188	LB A/A	PRT	2.89 11.31
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	
9	fomesafen	2	SL	0.31	LB A/A	PRT	3.80 14.81
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	
10	fomesafen	2	SL	0.38	LB A/A	PRT	4.00 16.07
	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	
11	clomazone	3	ME	1	LB A/A	PRT	3.76 14.42
12	clomazone	3	ME	1	LB A/A	POT	3.93 15.80
13	s-metolachlor	7.62	EC	0.95	LB A/A	PRT	2.29 11.09
14	s-metolachlor	7.62	EC	0.95	LB A/A	POT	3.17 13.45
15	pendimethalin	3.8	CS	1.4	LB A/A	PRT	2.95 13.99
16	napropamide	50	DF	2	LB A/A	PRT	2.70 11.90
LSD (P=.05)							1.026 3.691
Standard Deviation							0.615 2.214
CV							19.34 16.85

Weed Control in Bell Pepper & Tomato - HTRC 2010

Project Code: 101-10-01

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Bell Pepper, Tomato Variety: See notes

Planting Method: Transplant Planting Date: 5/20/10

Spacing: 22 inches Row Spacing: 3 ft

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: 7.8

Sand: 55.8%

Silt: 22.1%

Clay: 22.2%

CEC: 8.1

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	5/19/10	3:00 PM	74/	F	Moist	6-7 E	42	0% Cloudy	N
POT	5/26/10	11:00 AM	72/70	F	Moist	2 E	56	0% Cloudy	N
C	6/14/10	3:30 PM	75/75	F	Dry	2-3 W	74	100% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/14	Bell Pepper			
6/14	Tomato			
6/14	BYGR = barnyardgrass	6-10"		Few
6/14	COPU = common purslane	1-2", 3-4"		Many
6/14	CORW = common ragweed	4-6", 2-3"		Few
6/14	COLQ = common lambsquarters	1-2"		Few
6/14	LATH = ladythumb	2-3", 6-8"		Many
6/14	ORGR = orchardgrass	4-8"		Moderate
6/14	RRPW = redroot pigweed	3-4", 4-5"		Moderate

Notes and Comments

1. Varieties: Tomato: Mountain Spring. Pepper: King Arthur.
- 2.

Weed Control in Bell Pepper & Tomato - HTRC 2010

Weed Control in Bell Pepper & Tomato - HTRC 2010									
Trial ID: 101-10-01					Protocol ID:				
Location: East Lansing, MI					Study Director: Rodney Tocco				
					Investigator: Dr. Bernard Zandstra				

							GRFT	COLQ		
Pest Code							Bell Pepper	Tomato		
Crop Name							14/Jun/10	14/Jun/10	14/Jun/10	14/Jun/10
Rating Date							RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10
Rating Unit							1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Untreated						1.0	1.0	1.0	1.0
2	napropamide	50	DF	2	LB A/A	PRT	1.0	1.0	9.0	9.3
3	napropamide-UV	50	DF	2	LB A/A	PRT	1.3	1.0	9.0	10.0
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	2.3	1.3	9.3	9.3
5	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	2.7	1.3	10.0	10.0
	metribuzin	75	DF	0.25	LB A/A	PRT				
6	pendimethalin	3.8	CS	1.4	LB A/A	PRT	2.0	1.3	9.7	10.0
	metribuzin	75	DF	0.25	LB A/A	PRT				
7	fomesafen	2	SL	0.38	LB A/A	PRT	1.3	1.3	9.7	10.0
8	fomesafen	2	SL	0.75	LB A/A	PRT	1.7	2.7	10.0	10.0
9	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	2.0	4.0	10.0	10.0
	clomazone	3	ME	0.5	LB A/A	PRT				
10	pendimethalin	3.8	CS	1.4	LB A/A	PRT	1.0	1.0	9.0	10.0
	rimsulfuron (M)	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				
11	pendimethalin	3.8	CS	1.4	LB A/A	PRT	1.3	1.7	10.0	10.0
	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	PRT	2.0	1.7	9.7	9.3
	rimsulfuron (M)	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	PRT	2.0	1.3	9.7	9.3
	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	2.3	3.7	9.7	9.3
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-metolachlor	7.62	EC	1.9	LB A/A	POT	1.7	2.0	10.0	10.0
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
16	pendimethalin	3.8	CS	0.95	LB A/A	POT	1.0	3.3	8.3	9.7
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
LSD (P=.05)							0.88	1.29	1.02	0.74
Standard Deviation							0.53	0.77	0.61	0.44
CV							31.54	41.63	6.78	4.79

Weed Control in Bell Pepper & Tomato - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							COPU	EBNS	LATH	SHPU	RRPW
Crop Name							14/Jun/10	14/Jun/10	14/Jun/10	14/Jun/10	14/Jun/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
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	Untreated						1.0	1.0	1.0	1.0	1.0
2	napropamide	50	DF	2	LB A/A	PRT	8.3	1.0	8.0	8.3	10.0
3	napropamide-UV	50	DF	2	LB A/A	PRT	9.7	1.7	8.3	9.7	10.0
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	10.0	10.0	8.7	9.3	10.0
5	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	10.0	10.0	10.0	10.0	10.0
	metribuzin	75	DF	0.25	LB A/A	PRT					
6	pendimethalin	3.8	CS	1.4	LB A/A	PRT	10.0	10.0	10.0	10.0	10.0
	metribuzin	75	DF	0.25	LB A/A	PRT					
7	fomesafen	2	SL	0.38	LB A/A	PRT	10.0	10.0	10.0	10.0	10.0
8	fomesafen	2	SL	0.75	LB A/A	PRT	10.0	10.0	10.0	10.0	10.0
9	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	10.0	10.0	10.0	10.0	10.0
	clomazone	3	ME	0.5	LB A/A	PRT					
10	pendimethalin	3.8	CS	1.4	LB A/A	PRT	10.0	10.0	9.7	9.3	10.0
	rimsulfuron (M)	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					
11	pendimethalin	3.8	CS	1.4	LB A/A	PRT	10.0	10.0	9.7	9.3	10.0
	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	PRT	10.0	10.0	9.0	9.7	10.0
	rimsulfuron (M)	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	PRT	10.0	10.0	9.0	10.0	10.0
	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	10.0	10.0	9.7	9.7	10.0
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
15	s-metolachlor	7.62	EC	1.9	LB A/A	POT	10.0	10.0	10.0	10.0	10.0
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
16	pendimethalin	3.8	CS	0.95	LB A/A	POT	10.0	9.3	7.7	8.7	9.3
	sethoxydim	1.53	EC	0.19	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
LSD (P=.05)							0.67	0.67	0.93	1.02	0.48
Standard Deviation							0.40	0.40	0.56	0.61	0.29
CV							4.31	4.83	6.34	6.78	3.07

Weed Control in Bell Pepper & Tomato - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							Bell Pepper	Tomato	Bell Pepper	Tomato
Crop Name							16/Jun/10	16/Jun/10	23/Jun/10	23/Jun/10
Rating Date							Plant Count	Plant Count	RATING	RATING
Rating Data Type							Number	Number	1-10	1-10
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Untreated						19.3	19.7	1.0	1.0
2	napropamide	50	DF	2	LB A/A	PRT	20.7	19.3	1.0	1.0
3	napropamide-UV	50	DF	2	LB A/A	PRT	21.0	19.7	1.0	1.0
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	21.0	18.7	2.0	2.7
5	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	19.0	20.3	2.7	1.3
	metribuzin	75	DF	0.25	LB A/A	PRT				
6	pendimethalin	3.8	CS	1.4	LB A/A	PRT	19.3	20.7	1.3	1.0
	metribuzin	75	DF	0.25	LB A/A	PRT				
7	fomesafen	2	SL	0.38	LB A/A	PRT	21.0	20.3	1.0	1.0
8	fomesafen	2	SL	0.75	LB A/A	PRT	20.0	19.7	1.0	2.3
9	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	21.0	19.0	1.3	3.7
	clomazone	3	ME	0.5	LB A/A	PRT				
10	pendimethalin	3.8	CS	1.4	LB A/A	PRT	20.7	18.7	3.3	1.3
	rimsulfuron (M)	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				
11	pendimethalin	3.8	CS	1.4	LB A/A	PRT	21.0	20.3	2.0	2.0
	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	PRT	20.0	17.7	3.3	2.0
	rimsulfuron (M)	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	PRT	19.3	19.3	4.7	2.7
	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	20.7	15.0	1.7	3.0
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-metolachlor	7.62	EC	1.9	LB A/A	POT	20.7	18.7	2.0	2.7
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
16	pendimethalin	3.8	CS	0.95	LB A/A	POT	19.7	16.7	1.3	3.3
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
LSD (P=.05)							2.06	2.60	1.03	1.29
Standard Deviation							1.24	1.56	0.62	0.77
CV							6.09	8.23	32.36	38.55

Weed Control in Bell Pepper & Tomato - HTRC 2010

Dept. of Horticulture, MSU

							GRFT	COPU	COLQ	EBNS	LATH	
Pest Code												
Crop Name												
Rating Date							23/Jun/10	23/Jun/10	23/Jun/10	23/Jun/10	23/Jun/10	
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	Untreated						3.0	3.0	7.7	3.3	4.8	
2	napropamide	50	DF	2	LB A/A	PRT	8.0	6.7	9.7	1.0	3.3	
3	napropamide-UV	50	DF	2	LB A/A	PRT	9.3	7.7	10.0	2.3	5.0	
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	10.0	10.0	8.0	10.0	8.7	
5	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	10.0	10.0	10.0	10.0	9.0	
	metribuzin	75	DF	0.25	LB A/A	PRT						
6	pendimethalin	3.8	CS	1.4	LB A/A	PRT	9.0	10.0	10.0	10.0	10.0	
	metribuzin	75	DF	0.25	LB A/A	PRT						
7	fomesafen	2	SL	0.38	LB A/A	PRT	8.3	9.7	10.0	9.0	10.0	
8	fomesafen	2	SL	0.75	LB A/A	PRT	10.0	10.0	10.0	10.0	9.7	
9	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	10.0	10.0	10.0	10.0	10.0	
	clomazone	3	ME	0.5	LB A/A	PRT						
10	pendimethalin	3.8	CS	1.4	LB A/A	PRT	10.0	10.0	10.0	10.0	9.7	
	rimsulfuron (M)	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						
11	pendimethalin	3.8	CS	1.4	LB A/A	PRT	9.3	10.0	10.0	10.0	10.0	
	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	PRT	10.0	10.0	10.0	10.0	10.0	
	rimsulfuron (M)	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	PRT	10.0	10.0	10.0	10.0	10.0	
	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	9.3	10.0	8.7	10.0	9.7	
	sethoxydim	1.53	EC	0.19	LB A/A	PO1						
	NIS	100	SL	0.25	% V/V	PO1						
15	s-metolachlor	7.62	EC	1.9	LB A/A	POT	10.0	10.0	9.3	10.0	9.7	
	sethoxydim	1.53	EC	0.19	LB A/A	PO1						
	NIS	100	SL	0.25	% V/V	PO1						
16	pendimethalin	3.8	CS	0.95	LB A/A	POT	9.0	10.0	9.7	10.0	8.3	
	sethoxydim	1.53	EC	0.19	LB A/A	PO1						
	NIS	100	SL	0.25	% V/V	PO1						
LSD (P=.05)							1.64	1.38	0.77	1.57	2.40	
Standard Deviation							0.99	0.83	0.46	0.94	1.44	
CV							10.85	9.0	4.85	11.12	16.72	

Weed Control in Bell Pepper & Tomato - HTRC 2010

Dept. of Horticulture, MSU

Pest Code	Crop Name	Rating Date	Rating Data Type	Rating Unit	RRPW						
					23/Jun/10 RATING 1-10	Bell Pepper 26/Jul/10 HARVEST #Frt/PLOT	Bell Pepper 26/Jul/10 HARVEST KG/PLOT	Bell Pepper 9/Aug/10 HARVEST #Frt/PLOT			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Rate	Unit	Growth Stage				
1	Untreated							7.3	13.7	1.76	23.0
2	napropamide	50	DF	2		LB A/A	PRT	9.0	29.3	3.95	32.0
3	napropamide-UV	50	DF	2		LB A/A	PRT	10.0	31.7	5.33	44.0
4	s-metolachlor	7.62	EC	1.3		LB A/A	PRT	10.0	27.0	4.17	48.7
5	s-metolachlor	7.62	EC	1.3		LB A/A	PRT	10.0	31.3	4.53	37.3
	metribuzin	75	DF	0.25		LB A/A	PRT				
6	pendimethalin	3.8	CS	1.4		LB A/A	PRT	10.0	37.0	6.25	55.0
	metribuzin	75	DF	0.25		LB A/A	PRT				
7	fomesafen	2	SL	0.38		LB A/A	PRT	10.0	33.0	5.14	65.7
8	fomesafen	2	SL	0.75		LB A/A	PRT	10.0	30.3	5.41	55.0
9	s-metolachlor	7.62	EC	1.3		LB A/A	PRT	10.0	42.3	6.79	37.3
	clomazone	3	ME	0.5		LB A/A	PRT				
10	pendimethalin	3.8	CS	1.4		LB A/A	PRT	10.0			18.0
	rimsulfuron (M)	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				
11	pendimethalin	3.8	CS	1.4		LB A/A	PRT	10.0	15.3	2.34	65.3
	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	PRT	10.0			29.3
	rimsulfuron (M)	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	PRT	10.0	4.0	0.48	30.3
	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	10.0	27.3	4.68	54.3
	sethoxydim	1.53	EC	0.19		LB A/A	PO1				
	NIS	100	SL	0.25		% V/V	PO1				
15	s-metolachlor	7.62	EC	1.9		LB A/A	POT	10.0	32.3	5.11	38.0
	sethoxydim	1.53	EC	0.19		LB A/A	PO1				
	NIS	100	SL	0.25		% V/V	PO1				
16	pendimethalin	3.8	CS	0.95		LB A/A	POT	9.3	15.7	2.39	47.7
	sethoxydim	1.53	EC	0.19		LB A/A	PO1				
	NIS	100	SL	0.25		% V/V	PO1				
LSD (P=.05)								0.67	15.10	2.136	19.01
Standard Deviation								0.40	8.96	1.268	11.40
CV								4.11	33.88	30.42	26.78

Weed Control in Bell Pepper & Tomato - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Name							9/Aug/10	24/Aug/10	24/Aug/10	8/Sep/10
Rating Date							HARVEST	HARVEST	HARVEST	HARVEST
Rating Data Type							KG/PLOT	#Frt/PLOT	KG/PLOT	#Frt/PLOT
Rating Unit							KG/PLOT	#Frt/PLOT	KG/PLOT	#Frt/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Untreated						3.84	4.0	0.60	7.3
2	napropamide	50	DF	2	LB A/A	PRT	5.47	12.0	1.45	13.0
3	napropamide-UV	50	DF	2	LB A/A	PRT	8.33	8.3	1.51	14.3
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	9.02	7.0	1.28	26.7
5	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	7.12	17.3	2.86	22.3
	metribuzin	75	DF	0.25	LB A/A	PRT				
6	pendimethalin	3.8	CS	1.4	LB A/A	PRT	9.97	20.7	3.33	14.3
	metribuzin	75	DF	0.25	LB A/A	PRT				
7	fomesafen	2	SL	0.38	LB A/A	PRT	12.23	16.7	2.50	16.3
8	fomesafen	2	SL	0.75	LB A/A	PRT	9.65	11.0	1.62	23.7
9	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	7.21	23.3	3.39	18.3
	clomazone	3	ME	0.5	LB A/A	PRT				
10	pendimethalin	3.8	CS	1.4	LB A/A	PRT	2.25	27.0	4.00	25.0
	rimsulfuron (M)	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				
11	pendimethalin	3.8	CS	1.4	LB A/A	PRT	8.79	25.0	3.83	25.0
	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	PRT	3.26	29.3	3.67	28.0
	rimsulfuron (M)	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	PRT	3.87	31.3	4.76	20.7
	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	9.47	14.3	1.82	15.0
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-metolachlor	7.62	EC	1.9	LB A/A	POT	6.83	12.0	1.68	24.0
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
16	pendimethalin	3.8	CS	0.95	LB A/A	POT	7.95	23.0	2.92	24.3
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
LSD (P=.05)							3.493	15.67	2.248	12.05
Standard Deviation							2.095	9.40	1.348	7.22
CV							29.08	53.26	52.33	36.27

Weed Control in Bell Pepper & Tomato - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Name							8/Sep/10	22/Sep/10	22/Sep/10	5/Oct/10
Rating Date							HARVEST	HARVEST	HARVEST	HARVEST
Rating Data Type							KG/PLOT	#Frt/PLOT	KG/PLOT	#Frt/PLOT
Rating Unit							KG/PLOT	#Frt/PLOT	KG/PLOT	#Frt/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Untreated						0.90	13.0	1.57	4.0
2	napropamide	50	DF	2	LB A/A	PRT	1.79	10.0	1.23	8.3
3	napropamide-UV	50	DF	2	LB A/A	PRT	1.89	36.7	4.86	13.7
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	3.39	17.3	2.30	16.7
5	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	2.68	8.0	1.15	23.7
	metribuzin	75	DF	0.25	LB A/A	PRT				
6	pendimethalin	3.8	CS	1.4	LB A/A	PRT	2.07	31.3	4.49	31.7
	metribuzin	75	DF	0.25	LB A/A	PRT				
7	fomesafen	2	SL	0.38	LB A/A	PRT	2.33	22.0	3.23	24.7
8	fomesafen	2	SL	0.75	LB A/A	PRT	3.01	37.3	5.16	18.3
9	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	2.33	18.3	2.64	24.0
	clomazone	3	ME	0.5	LB A/A	PRT				
10	pendimethalin	3.8	CS	1.4	LB A/A	PRT	3.87	56.0	8.09	18.7
	rimsulfuron (M)	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				
11	pendimethalin	3.8	CS	1.4	LB A/A	PRT	3.51	30.3	4.41	18.7
	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	PRT	3.53	28.7	3.77	12.7
	rimsulfuron (M)	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	PRT	2.84	18.0	2.67	14.0
	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	2.19	30.0	4.03	17.0
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-metolachlor	7.62	EC	1.9	LB A/A	POT	3.68	39.0	4.89	20.0
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
16	pendimethalin	3.8	CS	0.95	LB A/A	POT	3.75	32.7	4.27	9.0
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
LSD (P=.05)							1.796	17.68	2.224	13.82
Standard Deviation							1.076	10.60	1.334	8.29
CV							39.36	39.57	36.33	48.22

Weed Control in Bell Pepper & Tomato - HTRC 2010

Dept. of Horticulture, MSU

Pest Code	Crop Name	Rating Date	Rating Data Type	Rating Unit	Bell Pepper 5/Oct/10 HARVEST KG/PLOT	Bell Pepper TOTAL #Frt/PLOT	Bell Pepper TOTAL KG/PLOT	Tomato 11/Aug/10 HARVEST KG/PLOT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Untreated						0.55	65.0	9.22	11.61
2	napropamide	50	DF	2	LB A/A	PRT	1.17	104.7	15.06	10.61
3	napropamide-UV	50	DF	2	LB A/A	PRT	1.75	148.7	23.67	10.51
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	2.54	143.3	22.70	6.20
5	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	3.33	140.0	21.68	9.97
	metribuzin	75	DF	0.25	LB A/A	PRT				
6	pendimethalin	3.8	CS	1.4	LB A/A	PRT	4.71	190.0	30.82	16.05
	metribuzin	75	DF	0.25	LB A/A	PRT				
7	fomesafen	2	SL	0.38	LB A/A	PRT	3.63	178.3	29.05	13.83
8	fomesafen	2	SL	0.75	LB A/A	PRT	2.77	175.7	27.61	7.64
9	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	3.41	163.7	25.77	4.13
	clomazone	3	ME	0.5	LB A/A	PRT				
10	pendimethalin	3.8	CS	1.4	LB A/A	PRT	2.79	144.7	21.01	9.64
	rimsulfuron (M)	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				
11	pendimethalin	3.8	CS	1.4	LB A/A	PRT	2.77	179.7	25.65	12.85
	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	PRT	1.89	128.0	16.11	7.66
	rimsulfuron (M)	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	PRT	2.20	111.3	15.93	6.85
	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	2.50	158.0	24.69	2.57
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-metolachlor	7.62	EC	1.9	LB A/A	POT	2.69	165.3	24.87	6.13
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
16	pendimethalin	3.8	CS	0.95	LB A/A	POT	1.45	152.3	22.74	3.83
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
LSD (P=.05)							2.048	34.95	5.703	6.496
Standard Deviation							1.228	20.96	3.420	3.896
CV							48.96	14.28	15.35	44.5

Weed Control in Bell Pepper & Tomato - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							Tomato	Tomato	Tomato	Tomato
Crop Name							18/Aug/10	24/Aug/10	1/Sep/10	8/Sep/10
Rating Date							HARVEST	HARVEST	HARVEST	HARVEST
Rating Data Type							KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Growth Stage				
1	Untreated						6.47	8.22	9.46	5.92
2	napropamide	50	DF	2	LB A/A	PRT	10.81	11.15	14.58	7.19
3	napropamide-UV	50	DF	2	LB A/A	PRT	11.33	12.14	18.14	11.86
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	6.51	13.43	17.57	11.59
5	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	14.29	15.73	20.59	10.79
	metribuzin	75	DF	0.25	LB A/A	PRT				
6	pendimethalin	3.8	CS	1.4	LB A/A	PRT	12.27	10.61	24.03	12.09
	metribuzin	75	DF	0.25	LB A/A	PRT				
7	fomesafen	2	SL	0.38	LB A/A	PRT	14.62	15.09	19.55	11.27
8	fomesafen	2	SL	0.75	LB A/A	PRT	9.65	12.05	14.89	12.17
9	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	4.51	11.29	13.15	10.73
	clomazone	3	ME	0.5	LB A/A	PRT				
10	pendimethalin	3.8	CS	1.4	LB A/A	PRT	15.37	14.67	18.93	13.13
	rimsulfuron (M)	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				
11	pendimethalin	3.8	CS	1.4	LB A/A	PRT	13.85	14.95	14.29	11.49
	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	PRT	9.45	12.60	22.68	14.67
	rimsulfuron (M)	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	PRT	7.63	17.14	17.44	13.71
	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	4.76	11.09	11.61	7.27
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
15	s-metolachlor	7.62	EC	1.9	LB A/A	POT	12.51	16.05	19.99	8.16
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
16	pendimethalin	3.8	CS	0.95	LB A/A	POT	5.58	9.37	7.16	5.83
	sethoxydim	1.53	EC	0.19	LB A/A	PO1				
	NIS	100	SL	0.25	% V/V	PO1				
LSD (P=.05)							6.806	7.061	5.727	5.989
Standard Deviation							4.082	4.235	3.435	3.592
CV							40.92	32.96	20.81	34.23

Weed Control in Bell Pepper & Tomato - HTRC 2010

Dept. of Horticulture, MSU

Pest Code	Crop Name	Rating Date	Rating Data Type	Rating Unit	Tomato 14/Sep/10 HARVEST KG/PLOT	Tomato 22/Sep/10 HARVEST KG/PLOT	Tomato 29/Sep/10 HARVEST KG/PLOT	Tomato TOTAL KG/PLOT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Untreated						3.45	3.90	8.84	57.86
2	napropamide	50	DF	2	LB A/A	PRT	3.25	6.03	10.03	73.66
3	napropamide-UV	50	DF	2	LB A/A	PRT	6.43	8.77	18.39	97.57
4	s-metolachlor	7.62	EC	1.3	LB A/A	PRT	6.80	10.66	28.85	101.61
5	s-metolachlor metribuzin	7.62 75	EC DF	1.3 0.25	LB A/A	PRT	7.94	10.07	27.33	116.70
6	pendimethalin metribuzin	3.8 75	CS DF	1.4 0.25	LB A/A	PRT	8.64	8.04	19.29	111.03
7	fomesafen	2	SL	0.38	LB A/A	PRT	8.26	9.53	21.61	113.77
8	fomesafen	2	SL	0.75	LB A/A	PRT	5.84	11.39	26.03	99.66
9	s-metolachlor clomazone	7.62 3	EC ME	1.3 0.5	LB A/A	PRT	10.29	14.72	32.47	101.30
10	pendimethalin rimsulfuron (M) sethoxydim NIS	3.8 25 1.53 100	CS DF EC SL	1.4 0.031 0.19 0.25	LB A/A	PRT PO1 PO1 PO1	9.82	11.72	27.38	120.65
11	pendimethalin halosulfuron sethoxydim NIS	3.8 75 1.53 100	CS WG EC SL	1.4 0.023 0.19 0.25	LB A/A	PRT PO1 PO1 PO1	6.85	10.90	25.71	110.88
12	s-metolachlor rimsulfuron (M) sethoxydim NIS	7.62 25 1.53 100	EC DF EC SL	1.3 0.031 0.19 0.25	LB A/A	PRT PO1 PO1 PO1	7.96	13.43	34.91	123.36
13	s-metolachlor metribuzin sethoxydim	7.62 75 1.53	EC DF EC	1.3 0.25 0.19	LB A/A	PRT PO1 PO1	7.43	10.69	28.55	109.43
14	s-metolachlor sethoxydim NIS	7.62 1.53 100	EC EC SL	1.3 0.19 0.25	LB A/A	POT PO1 PO1	3.17	7.43	20.16	68.05
15	s-metolachlor sethoxydim NIS	7.62 1.53 100	EC EC SL	1.9 0.19 0.25	LB A/A	POT PO1 PO1	5.28	11.14	27.61	106.87
16	pendimethalin sethoxydim NIS	3.8 1.53 100	CS EC SL	0.95 0.19 0.25	LB A/A	POT PO1 PO1	2.88	6.69	21.81	63.16
LSD (P=.05)							3.693	5.626	9.737	23.167
Standard Deviation							2.215	3.374	5.840	13.895
CV							33.99	34.81	24.66	14.11

Weed Control in Pumpkin & Squash - HTRC 2010

Project Code: 108-10-02

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Pumpkin & Squash Variety: See notes.

Planting Method: Seeded Planting Date:

Spacing: 8 inches Row Spacing: 5 ft; 1 row of each type/plot

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 16 ft wide x 50 ft long

Soil Type: Capac loam

OM: 1.8%

pH: 5.0

Sand: 49.4%

Silt: 27.8%

Clay: 22.8%

CEC: 10.9

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	6/14/10	11:30 AM	73/70	F	Moist	1-3 W	80	100% Cloudy	Y
PO1	7/12/10	10:00 AM	73/75	F	Damp	2 SW	66	80% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
7/12	Squash & Pumpkin	6-18"	6-8 leaves	Good
7/12	BYGR = barnyardgrass	4-6"	4-6 leaves	Moderate
7/12	COLQ = common lambsquarters	6-8"	10-12 leaves	Moderate
7/12	COPU = common purslane	3-12"		Many
7/12	CORW = common ragweed	4-6"	6-8 leaves	Many
7/12	EBNS = eastern black nightshade	2-4"	4-6 leaves	Many
7/12	RRPW = redroot pigweed	4-10"	8-12 leaves	Many

Notes and Comments

1. Varieties: Left: 'Burgess' Buttercup; Middle: Howden; Right: 'Ultra' Butternut.

2.

Weed Control in Pumpkin & Squash - HTRC 2010

Weed Control in Pumpkin & Squash - HTRC 2010					
Trial ID: 108-10-02			Protocol ID: 108-10-02		
Location: East Lansing, MI			Study Director: Rodney Tocco		
Investigator: Dr. Bernard Zandstra					

							GRFT	COLQ			
Pest Code							Buttercup	Howden	Butternut		
Crop Name							1/Jul/10	1/Jul/10	1/Jul/10	1/Jul/10	1/Jul/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	ethalfuralin	3	EC	1.13	LB A/A	PRE	1.0	1.0	1.0	10.0	
	clomazone	3	ME	0.25	LB A/A	PRE					
2	ethalfuralin	3	EC	1.13	LB A/A	PRE	1.0	1.0	1.0	10.0	
	clomazone	3	ME	0.25	LB A/A	PRE					
	halosulfuron	75	WG	0.023	LB A/A	PRE					
3	ethalfuralin	3	EC	1.13	LB A/A	PRE	1.0	3.0	3.3	10.0	
	clomazone	3	ME	0.25	LB A/A	PRE					
	sulfentrazone	4	F	0.14	LB A/A	PRE					
4	clomazone	3	ME	0.25	LB A/A	PRE	2.3	2.7	2.3	10.0	
	s-metolachlor	7.62	EC	1.26	LB A/A	PRE					
5	ethalfuralin	3	EC	1.13	LB A/A	PRE	1.0	1.0	1.0	10.0	
	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					
6	ethalfuralin	3	EC	1.13	LB A/A	PRE	1.0	1.0	1.0	10.0	
	clomazone	3	ME	0.25	LB A/A	PRE					
	halosulfuron	75	WG	0.023	LB A/A	POSDIR					
	sethoxydim	1.53	EC	0.19	LB A/A	POSDIR					
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	2.7	3.0	3.7	10.0	
	fomesafen	2	EC	0.188	LB A/A	PRE					
8	fomesafen	2	EC	0.25	LB A/A	PRE	1.0	1.3	2.3	10.0	
9	fomesafen	2	EC	0.375	LB A/A	PRE	1.0	2.3	3.3	10.0	
10	fomesafen	2	EC	0.5	LB A/A	PRE	1.0	3.7	5.3	9.7	
11	fomesafen	2	EC	0.75	LB A/A	PRE	2.0	5.7	7.0	10.0	
12	fomesafen	2	EC	1	LB A/A	PRE	3.7	8.0	9.3	10.0	
13	fomesafen	2	EC	0.375	LB A/A	POSDIR	1.3	1.0	1.3	4.0	
14	fomesafen	2	EC	0.75	LB A/A	POSDIR	1.0	1.0	1.0	4.7	
15	Untreated					PRE	1.0	1.0	1.0	6.3	
	Cultivation					PO1,2				6.0	
LSD (P=.05)							1.12	1.98	2.17	3.44	3.27
Standard Deviation							0.67	1.19	1.30	2.06	1.95
CV							45.62	48.54	44.26	22.9	21.4

Weed Control in Pumpkin & Squash - HTRC 2010

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Pest Code							CORW	LATH	RRPW	YENS	
Crop Name											Buttercup
Rating Date							1/Jul/10	1/Jul/10	1/Jul/10	1/Jul/10	23/Jul/10
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	ethalfuralin	3	EC	1.13	LB A/A	PRE	9.3	10.0	10.0	10.0	1.3
	clomazone	3	ME	0.25	LB A/A	PRE					
2	ethalfuralin	3	EC	1.13	LB A/A	PRE	10.0	10.0	10.0	10.0	2.0
	clomazone	3	ME	0.25	LB A/A	PRE					
	halosulfuron	75	WG	0.023	LB A/A	PRE					
3	ethalfuralin	3	EC	1.13	LB A/A	PRE	10.0	10.0	10.0	10.0	2.0
	clomazone	3	ME	0.25	LB A/A	PRE					
	sulfentrazone	4	F	0.14	LB A/A	PRE					
4	clomazone	3	ME	0.25	LB A/A	PRE	9.7	10.0	10.0	10.0	2.7
	s-metolachlor	7.62	EC	1.26	LB A/A	PRE					
5	ethalfuralin	3	EC	1.13	LB A/A	PRE	9.7	10.0	9.7	9.0	1.7
	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					
6	ethalfuralin	3	EC	1.13	LB A/A	PRE	10.0	10.0	10.0	9.7	2.3
	clomazone	3	ME	0.25	LB A/A	PRE					
	halosulfuron	75	WG	0.023	LB A/A	POSDIR					
	sethoxydim	1.53	EC	0.19	LB A/A	POSDIR					
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	10.0	10.0	10.0	10.0	2.7
	fomesafen	2	EC	0.188	LB A/A	PRE					
8	fomesafen	2	EC	0.25	LB A/A	PRE	10.0	10.0	10.0	9.0	1.0
9	fomesafen	2	EC	0.375	LB A/A	PRE	9.7	10.0	10.0	9.3	1.0
10	fomesafen	2	EC	0.5	LB A/A	PRE	10.0	10.0	10.0	9.7	1.0
11	fomesafen	2	EC	0.75	LB A/A	PRE	10.0	10.0	10.0	10.0	1.3
12	fomesafen	2	EC	1	LB A/A	PRE	10.0	10.0	10.0	10.0	2.3
13	fomesafen	2	EC	0.375	LB A/A	POSDIR	6.0	6.0	6.3	4.0	1.7
14	fomesafen	2	EC	0.75	LB A/A	POSDIR	5.7	6.3	5.7	4.0	2.3
15	Untreated Cultivation					PRE PO1,2	5.7	6.0	6.3	4.0	2.7
LSD (P=.05)							2.89	3.16	3.10	3.63	1.49
Standard Deviation							1.73	1.89	1.86	2.17	0.89
CV							19.11	20.49	20.18	25.3	47.63

Weed Control in Pumpkin & Squash - HTRC 2010

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Pest Code							Howden	Butternut	Buttercup	Buttercup
Crop Name							23/Jul/10	23/Jul/10	21/Sep/10	21/Sep/10
Rating Date							RATING	RATING	Harvest	Harvest
Rating Data Type							1-10	1-10	# fruit	KG/PLOT
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	ethalfuralin	3	EC	1.13	LB A/A	PRE	1.0	1.3	48.7	55.93
	clomazone	3	ME	0.25	LB A/A	PRE				
2	ethalfuralin	3	EC	1.13	LB A/A	PRE	1.3	1.7	57.3	64.06
	clomazone	3	ME	0.25	LB A/A	PRE				
	halosulfuron	75	WG	0.023	LB A/A	PRE				
3	ethalfuralin	3	EC	1.13	LB A/A	PRE	2.0	2.0	45.7	50.40
	clomazone	3	ME	0.25	LB A/A	PRE				
	sulfentrazone	4	F	0.14	LB A/A	PRE				
4	clomazone	3	ME	0.25	LB A/A	PRE	2.3	2.3	42.7	43.81
	s-metolachlor	7.62	EC	1.26	LB A/A	PRE				
5	ethalfuralin	3	EC	1.13	LB A/A	PRE	1.7	1.7	44.0	46.61
	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				
6	ethalfuralin	3	EC	1.13	LB A/A	PRE	1.7	1.7	48.3	50.17
	clomazone	3	ME	0.25	LB A/A	PRE				
	halosulfuron	75	WG	0.023	LB A/A	POSDIR				
	sethoxydim	1.53	EC	0.19	LB A/A	POSDIR				
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	2.7	4.0	42.0	46.85
	fomesafen	2	EC	0.188	LB A/A	PRE				
8	fomesafen	2	EC	0.25	LB A/A	PRE	1.3	1.0	51.0	56.53
9	fomesafen	2	EC	0.375	LB A/A	PRE	1.0	1.3	51.7	58.37
10	fomesafen	2	EC	0.5	LB A/A	PRE	1.7	1.7	46.7	60.84
11	fomesafen	2	EC	0.75	LB A/A	PRE	4.0	5.3	49.7	57.07
12	fomesafen	2	EC	1	LB A/A	PRE	6.0	8.3	45.3	50.03
13	fomesafen	2	EC	0.375	LB A/A	POSDIR	1.7	2.0	35.7	41.40
14	fomesafen	2	EC	0.75	LB A/A	POSDIR	2.3	2.0	38.3	39.39
15	Untreated Cultivation					PRE PO1,2	2.0	2.3	18.3	17.43
LSD (P=.05)							1.69	1.43	11.86	18.402
Standard Deviation							1.01	0.86	7.09	11.005
CV							46.53	33.18	15.99	22.34

Weed Control in Pumpkin & Squash - HTRC 2010

Dept. of Horticulture, MSU

Pest Code	Crop Name	Rating Date	Rating Data Type	Rating Unit			Howden 21/Sep/10 Harv. Orange # fruit	Howden 21/Sep/10 Harv. Orange KG/PLOT	Howden 21/Sep/10 Harv. Green # fruit
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	ethalfuralin	3	EC	1.13	LB A/A	PRE	28.3	144.83	2.0
	clomazone	3	ME	0.25	LB A/A	PRE			
2	ethalfuralin	3	EC	1.13	LB A/A	PRE	21.7	109.58	3.3
	clomazone	3	ME	0.25	LB A/A	PRE			
	halosulfuron	75	WG	0.023	LB A/A	PRE			
3	ethalfuralin	3	EC	1.13	LB A/A	PRE	18.7	100.89	5.8
	clomazone	3	ME	0.25	LB A/A	PRE			
	sulfentrazone	4	F	0.14	LB A/A	PRE			
4	clomazone	3	ME	0.25	LB A/A	PRE	24.0	110.35	4.8
	s-metolachlor	7.62	EC	1.26	LB A/A	PRE			
5	ethalfuralin	3	EC	1.13	LB A/A	PRE	21.7	104.15	3.0
	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			
6	ethalfuralin	3	EC	1.13	LB A/A	PRE	19.3	87.20	2.3
	clomazone	3	ME	0.25	LB A/A	PRE			
	halosulfuron	75	WG	0.023	LB A/A	POSDIR			
	sethoxydim	1.53	EC	0.19	LB A/A	POSDIR			
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	19.7	103.19	2.7
	fomesafen	2	EC	0.188	LB A/A	PRE			
8	fomesafen	2	EC	0.25	LB A/A	PRE	23.0	119.01	3.7
9	fomesafen	2	EC	0.375	LB A/A	PRE	19.3	115.30	1.3
10	fomesafen	2	EC	0.5	LB A/A	PRE	15.3	102.71	3.3
11	fomesafen	2	EC	0.75	LB A/A	PRE	10.0	73.24	2.3
12	fomesafen	2	EC	1	LB A/A	PRE	7.0	41.00	3.0
13	fomesafen	2	EC	0.375	LB A/A	POSDIR	21.0	97.25	3.7
14	fomesafen	2	EC	0.75	LB A/A	POSDIR	15.0	68.07	7.3
15	Untreated Cultivation					PRE PO1,2	14.0	56.79	4.3
LSD (P=.05)							7.70	38.004	3.30
Standard Deviation							4.61	22.727	1.96
CV							24.85	23.78	55.73

Weed Control in Pumpkin & Squash - HTRC 2010

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Pest Code							Howden	Butternut	Butternut
Crop Name							21/Sep/10	21/Sep/10	21/Sep/10
Rating Date							Harv. Green	Harvest	Harvest
Rating Data Type							KG/PLOT	# fruit	KG/PLOT
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	ethalfluralin	3	EC	1.13	LB A/A	PRE	4.87	65.7	118.65
	clomazone	3	ME	0.25	LB A/A	PRE			
2	ethalfluralin	3	EC	1.13	LB A/A	PRE	8.64	61.7	131.65
	clomazone	3	ME	0.25	LB A/A	PRE			
	halosulfuron	75	WG	0.023	LB A/A	PRE			
3	ethalfluralin	3	EC	1.13	LB A/A	PRE	16.02	48.7	91.75
	clomazone	3	ME	0.25	LB A/A	PRE			
	sulfentrazone	4	F	0.14	LB A/A	PRE			
4	clomazone	3	ME	0.25	LB A/A	PRE	16.74	49.7	99.71
	s-metolachlor	7.62	EC	1.26	LB A/A	PRE			
5	ethalfluralin	3	EC	1.13	LB A/A	PRE	7.43	58.3	98.01
	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			
6	ethalfluralin	3	EC	1.13	LB A/A	PRE	5.61	47.3	90.22
	clomazone	3	ME	0.25	LB A/A	PRE			
	halosulfuron	75	WG	0.023	LB A/A	POSDIR			
	sethoxydim	1.53	EC	0.19	LB A/A	POSDIR			
7	s-metolachlor	7.62	EC	0.95	LB A/A	PRE	9.43	40.7	74.59
	fomesafen	2	EC	0.188	LB A/A	PRE			
8	fomesafen	2	EC	0.25	LB A/A	PRE	12.42	54.3	120.80
9	fomesafen	2	EC	0.375	LB A/A	PRE	5.83	48.0	93.55
10	fomesafen	2	EC	0.5	LB A/A	PRE	11.17	33.7	70.71
11	fomesafen	2	EC	0.75	LB A/A	PRE	13.76	24.3	41.09
12	fomesafen	2	EC	1	LB A/A	PRE	21.01	11.7	23.65
13	fomesafen	2	EC	0.375	LB A/A	POSDIR	12.81	49.3	88.99
14	fomesafen	2	EC	0.75	LB A/A	POSDIR	23.13	44.7	111.41
15	Untreated					PRE	13.71	29.3	50.27
	Cultivation					PO1,2			
LSD (P=.05)							13.095	15.82	39.294
Standard Deviation							7.785	9.46	23.499
CV							63.96	21.26	27.01

Weed Control in Seeded Summer Squash - HTRC 2010

Project Code: 108-10-03

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Summer Squash

Variety: Black Beauty

Planting Method: Seeded

Planting Date: 5/26/10

Spacing: 12 inches

Row Spacing: 8 ft (1 row/plot)

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Marlette Sandy Loam

OM: 1.4%

pH: 6.4

Sand: 51.1%

Silt: 23.4%

Clay: 25.5%

CEC: 10.9

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/27/10	1:10 PM	85/80	F	Dry	3-5 NW	58	3% Cloudy	N
POSDIR	6/15/10	10:30 AM	71/70	F	Moist	4-6 SE	80	100% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/27	Summer Squash		Seeded	
6/15	COLQ = common lambsquarters		4-6 LF	Moderate
6/15	COPU = common purslane	3-5"		Many
6/15	CORW = common ragweed	2-3", 4-6"		Few
6/15	GRFT = green foxtail	2-6"		Many
6/15	LACG = large crabgrass	2-3", 1-2"		Moderate
6/15	LATH = ladythumb	2", 3"	2-4 LF	Few
6/15	RRPW = redroot pigweed	1-2", 1-2"	4-6 LF	Few

Notes and Comments

1. Planted at 6 inches and thinned to 12 inches in row. 1 row/ plot.
2. Harvest 2-3 times/week for 4 weeks.

Weed Control in Seeded Summer Squash - HTRC 2010

Weed Control in Seeded Summer Squash - HTRC 2010

Trial ID: 108-10-03
 Location: East Lansing, MI

Protocol ID: 108-10-03
 Study Director: Rodney Tocco
 Investigator: Dr. Bernard Zandstra

Pest Code		GRFT		LAGG		COLQ		RRPW			
Crop Name		Zucchini									
Rating Date		14/Jun/10		14/Jun/10		14/Jun/10		14/Jun/10			
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	Untreated Handweeded					PRE	1.7	1.0	1.0	1.0	1.0
2	fomesafen	2	EC	0.25	LB A/A	PRE	2.7	9.3	9.7	10.0	10.0
3	fomesafen	2	EC	0.375	LB A/A	PRE	2.7	10.0	10.0	10.0	10.0
4	fomesafen	2	EC	0.5	LB A/A	PRE	3.7	9.7	10.0	10.0	10.0
5	fomesafen	2	EC	0.75	LB A/A	PRE	3.7	10.0	10.0	10.0	10.0
6	fomesafen	2	EC	1	LB A/A	PRE	4.3	10.0	10.0	10.0	10.0
7	fomesafen	2	EC	0.375	LB A/A	POSDIR	1.0	1.7	1.7	3.3	3.0
8	fomesafen	2	EC	0.75	LB A/A	POSDIR	1.3	1.7	3.3	3.0	6.0
9	ethalfluralin	3	EC	1.13	LB A/A	PRE	2.7	10.0	9.7	10.0	10.0
	clomazone	3	ME	0.25	LB A/A	PRE					
10	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	3.3	10.0	10.0	10.0	10.0
LSD (P=.05)							1.92	0.87	2.21	2.72	3.08
Standard Deviation							1.12	0.51	1.29	1.59	1.80
CV							41.5	6.89	17.08	20.54	22.48

Pest Code		GRFT		EBNS		RRPW		Zucchini			
Crop Name		Zucchini									
Rating Date		22/Jun/10		22/Jun/10		22/Jun/10		8/Jul/10			
Rating Data Type		RATING		RATING		RATING		Harvest			
Rating Unit		1-10		1-10		1-10		1-10 KG/PLOT			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated Handweeded					PRE	1.3	1.0	1.0	1.0	2.67
2	fomesafen	2	EC	0.25	LB A/A	PRE	1.3	8.7	10.0	10.0	5.48
3	fomesafen	2	EC	0.375	LB A/A	PRE	2.3	9.0	10.0	10.0	4.20
4	fomesafen	2	EC	0.5	LB A/A	PRE	2.3	8.7	9.7	10.0	3.07
5	fomesafen	2	EC	0.75	LB A/A	PRE	2.3	9.7	10.0	10.0	7.09
6	fomesafen	2	EC	1	LB A/A	PRE	3.3	9.0	10.0	10.0	2.07
7	fomesafen	2	EC	0.375	LB A/A	POSDIR	1.0	3.0	10.0	10.0	4.01
8	fomesafen	2	EC	0.75	LB A/A	POSDIR	1.7	5.7	10.0	10.0	5.42
9	ethalfluralin	3	EC	1.13	LB A/A	PRE	2.0	9.7	9.7	10.0	7.52
	clomazone	3	ME	0.25	LB A/A	PRE					
10	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	3.3	9.7	9.7	9.3	5.80
LSD (P=.05)							2.20	1.74	0.54	0.31	5.098
Standard Deviation							1.29	1.02	0.32	0.18	2.972
CV							61.2	13.74	3.51	2.02	62.78

Weed Control in Seeded Summer Squash – HTRC 2010

Dept. of Horticulture, MSU

Pest Code							Zucchini	Zucchini	Zucchini	Zucchini	Zucchini
Crop Name							8/Jul/10	12/Jul/10	12/Jul/10	14/Jul/10	14/Jul/10
Rating Date							Harvest	Harvest	Harvest	Harvest	Harvest
Rating Data Type							#	KG/PLOT	#	KG/PLOT	#
Rating Unit							#	KG/PLOT	#	KG/PLOT	#
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated					PRE	7.0	1.56	4.0		
	Handweeded										
2	fomesafen	2	EC	0.25	LB A/A	PRE	14.3	2.84	6.7	0.61	2.0
3	fomesafen	2	EC	0.375	LB A/A	PRE	13.0	3.74	8.3	0.41	1.0
4	fomesafen	2	EC	0.5	LB A/A	PRE	9.0	2.39	5.0	0.53	1.7
5	fomesafen	2	EC	0.75	LB A/A	PRE	16.0	4.89	10.7	0.41	2.3
6	fomesafen	2	EC	1	LB A/A	PRE	5.3	2.71	5.7	2.07	3.5
7	fomesafen	2	EC	0.375	LB A/A	POSDIR	9.7	1.37	3.3	1.01	1.7
8	fomesafen	2	EC	0.75	LB A/A	POSDIR	12.7	2.49	7.3	0.00	0.0
9	ethalfluralin	3	EC	1.13	LB A/A	PRE	19.0	3.46	8.3	0.25	1.5
	clomazone	3	ME	0.25	LB A/A	PRE					
10	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	12.7	3.44	6.0	0.27	1.3
LSD (P=.05)							9.60	2.448	4.86	0.913	1.58
Standard Deviation							5.60	1.427	2.83	0.508	0.88
CV							47.17	49.39	43.32	82.15	52.74

Pest Code							Zucchini	Zucchini	Zucchini	Zucchini	Zucchini
Crop Name							16/Jul/10	16/Jul/10	19/Jul/10	19/Jul/10	21/Jul/10
Rating Date							Harvest	Harvest	Harvest	Harvest	Harvest
Rating Data Type							KG/PLOT	#	KG/PLOT	#	KG/PLOT
Rating Unit							KG/PLOT	#	KG/PLOT	#	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated					PRE	0.37	1.0	0.39	2.0	0.43
	Handweeded										
2	fomesafen	2	EC	0.25	LB A/A	PRE	0.37	1.3	0.54	1.5	1.14
3	fomesafen	2	EC	0.375	LB A/A	PRE	0.41	1.0	0.44	1.0	0.49
4	fomesafen	2	EC	0.5	LB A/A	PRE	0.39	2.0	0.67	4.5	0.79
5	fomesafen	2	EC	0.75	LB A/A	PRE	0.51	2.3	1.41	5.7	1.87
6	fomesafen	2	EC	1	LB A/A	PRE	0.48	1.0	0.75	2.7	0.65
7	fomesafen	2	EC	0.375	LB A/A	POSDIR	0.00	0.0	0.30	1.0	0.29
8	fomesafen	2	EC	0.75	LB A/A	POSDIR	0.00	0.0	0.46	1.5	1.21
9	ethalfluralin	3	EC	1.13	LB A/A	PRE	0.56	1.5	0.32	1.5	1.97
	clomazone	3	ME	0.25	LB A/A	PRE					
10	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	0.55	1.7	0.37	1.5	1.61
LSD (P=.05)							0.434	1.38	0.508	1.94	1.191
Standard Deviation							0.244	0.77	0.280	1.06	0.688
CV							67.21	65.38	49.56	46.59	65.91

Weed Control in Seeded Summer Squash - HTRC 2010

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Pest Code							Zucchini	Zucchini	Zucchini	Zucchini	Zucchini
Crop Name							21/Jul/10	23/Jul/10	23/Jul/10	26/Jul/10	26/Jul/10
Rating Date							Harvest	Harvest	Harvest	Harvest	Harvest
Rating Data Type							#	KG/PLOT	#	KG/PLOT	#
Rating Unit							#	KG/PLOT	#	KG/PLOT	#
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated Handweeded					PRE	2.0	0.73	4.0	0.75	2.7
2	fomesafen	2	EC	0.25	LB A/A	PRE	5.3	1.14	6.3	1.53	4.7
3	fomesafen	2	EC	0.375	LB A/A	PRE	3.0	1.19	5.7	2.30	7.3
4	fomesafen	2	EC	0.5	LB A/A	PRE	4.3	1.08	5.0	1.94	6.7
5	fomesafen	2	EC	0.75	LB A/A	PRE	8.0	1.03	6.3	2.97	9.0
6	fomesafen	2	EC	1	LB A/A	PRE	3.3	1.20	5.7	2.23	6.3
7	fomesafen	2	EC	0.375	LB A/A	POSDIR	1.3	0.61	3.7	1.15	4.3
8	fomesafen	2	EC	0.75	LB A/A	POSDIR	6.0	0.82	4.0	1.59	6.0
9	ethalfuralin	3	EC	1.13	LB A/A	PRE	8.3	1.28	7.0	2.86	9.7
	clomazone	3	ME	0.25	LB A/A	PRE					
10	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	8.7	1.22	6.7	3.89	9.0
LSD (P=.05)							5.08	1.004	4.34	1.849	4.69
Standard Deviation							2.94	0.585	2.53	1.078	2.74
CV							58.33	56.81	46.55	50.8	41.67

Pest Code							Zucchini	Zucchini	Zucchini	Zucchini	Zucchini
Crop Name							28/Jul/10	28/Jul/10	30/Jul/10	30/Jul/10	2/Aug/10
Rating Date							Harvest	Harvest	Harvest	Harvest	Harvest
Rating Data Type							KG/PLOT	#	KG/PLOT	#	KG/PLOT
Rating Unit							KG/PLOT	#	KG/PLOT	#	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated Handweeded					PRE	0.44	3.1	0.25	1.3	0.15
2	fomesafen	2	EC	0.25	LB A/A	PRE	0.62	3.7	0.54	2.5	0.50
3	fomesafen	2	EC	0.375	LB A/A	PRE	0.75	3.3	0.42	2.0	0.85
4	fomesafen	2	EC	0.5	LB A/A	PRE	1.20	5.7	0.44	1.7	1.19
5	fomesafen	2	EC	0.75	LB A/A	PRE	0.79	3.3	1.16	3.0	1.91
6	fomesafen	2	EC	1	LB A/A	PRE	1.31	5.3	0.42	2.0	1.72
7	fomesafen	2	EC	0.375	LB A/A	POSDIR	0.59	3.0	0.00	0.0	0.64
8	fomesafen	2	EC	0.75	LB A/A	POSDIR	0.84	4.3	0.31	1.5	0.76
9	ethalfuralin	3	EC	1.13	LB A/A	PRE	1.79	8.7	0.34	1.7	0.74
	clomazone	3	ME	0.25	LB A/A	PRE					
10	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	0.53	3.0	0.30	1.3	0.70
LSD (P=.05)							1.002	3.78	0.551	2.00	1.280
Standard Deviation							0.579	2.18	0.313	1.13	0.740
CV							65.3	50.15	74.67	66.7	80.8

Weed Control in Seeded Summer Squash - HTRC 2010

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Pest Code							Zucchini	Zucchini	Zucchini	Zucchini	Zucchini
Crop Name							2/Aug/10	4/Aug/10	4/Aug/10	6/Aug/10	6/Aug/10
Rating Date							Harvest	Harvest	Harvest	Harvest	Harvest
Rating Data Type							#	KG/PLOT	#	KG/PLOT	#
Rating Unit							#	KG/PLOT	#	KG/PLOT	#
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated Handweeded					PRE	1.2	0.89	4.5	0.54	3.0
2	fomesafen	2	EC	0.25	LB A/A	PRE	2.0	1.09	4.8	0.17	1.0
3	fomesafen	2	EC	0.375	LB A/A	PRE	3.0	0.78	3.0	0.20	1.0
4	fomesafen	2	EC	0.5	LB A/A	PRE	5.0	1.00	5.0	0.27	1.7
5	fomesafen	2	EC	0.75	LB A/A	PRE	7.3	2.10	11.0	0.89	2.3
6	fomesafen	2	EC	1	LB A/A	PRE	8.0	1.05	5.3	0.52	1.7
7	fomesafen	2	EC	0.375	LB A/A	POSDIR	3.0	0.82	3.3	0.00	0.0
8	fomesafen	2	EC	0.75	LB A/A	POSDIR	2.7	1.71	9.0	1.20	5.0
9	ethalfuralin	3	EC	1.13	LB A/A	PRE	3.0	0.87	4.3	0.70	2.7
	clomazone	3	ME	0.25	LB A/A	PRE					
10	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	2.7	0.93	4.3	0.57	1.5
LSD (P=.05)							4.93	0.869	4.73	0.885	2.23
Standard Deviation							2.85	0.502	2.74	0.502	1.26
CV							75.38	44.62	49.99	99.3	63.7

Pest Code							Zucchini	Zucchini	Zucchini	Zucchini	Zucchini
Crop Name							9/Aug/10	9/Aug/10	11/Aug/10	11/Aug/10	13/Aug/10
Rating Date							Harvest	Harvest	Harvest	Harvest	Harvest
Rating Data Type							KG/PLOT	#	KG/PLOT	#	KG/PLOT
Rating Unit							KG/PLOT	#	KG/PLOT	#	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Untreated Handweeded					PRE	0.89	3.4	0.39	2.0	0.15
2	fomesafen	2	EC	0.25	LB A/A	PRE	1.13	4.0	0.66	3.3	0.50
3	fomesafen	2	EC	0.375	LB A/A	PRE	1.18	4.0	0.85	3.3	0.72
4	fomesafen	2	EC	0.5	LB A/A	PRE	2.01	8.3	0.75	3.7	0.58
5	fomesafen	2	EC	0.75	LB A/A	PRE	1.63	6.7	0.61	2.3	0.87
6	fomesafen	2	EC	1	LB A/A	PRE	1.14	5.0	1.64	6.7	0.69
7	fomesafen	2	EC	0.375	LB A/A	POSDIR	0.88	3.0	0.90	4.0	0.65
8	fomesafen	2	EC	0.75	LB A/A	POSDIR	1.87	7.0	0.77	3.3	1.31
9	ethalfuralin	3	EC	1.13	LB A/A	PRE	0.90	2.7	0.92	4.7	1.39
	clomazone	3	ME	0.25	LB A/A	PRE					
10	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	1.44	5.0	1.09	4.3	0.37
LSD (P=.05)							1.326	4.37	0.756	3.01	0.805
Standard Deviation							0.770	2.53	0.437	1.74	0.452
CV							58.92	51.65	50.9	46.11	62.6

Weed Control in Seeded Summer Squash - HTRC 2010

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Pest Code							Zucchini	Zucchini	Zucchini
Crop Name							13/Aug/10		
Rating Date							Harvest	TOTAL	TOTAL
Rating Data Type							#	KG/PLOT	#
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	Untreated Handweeded					PRE	1.6	9.40	36.3
2	fomesafen	2	EC	0.25	LB A/A	PRE	3.2	17.61	61.7
3	fomesafen	2	EC	0.375	LB A/A	PRE	3.3	17.92	60.3
4	fomesafen	2	EC	0.5	LB A/A	PRE	3.0	17.96	70.0
5	fomesafen	2	EC	0.75	LB A/A	PRE	3.3	29.38	97.7
6	fomesafen	2	EC	1	LB A/A	PRE	3.2	19.40	67.3
7	fomesafen	2	EC	0.375	LB A/A	POSDIR	2.2	12.17	39.3
8	fomesafen	2	EC	0.75	LB A/A	POSDIR	6.1	19.74	72.0
9	ethalfluralin	3	EC	1.13	LB A/A	PRE	7.0	24.94	87.3
	clomazone	3	ME	0.25	LB A/A	PRE			
10	s-metolachlor	7.62	EC	1.26	LB A/A	PRE	2.7	22.59	70.3
LSD (P=.05)							4.19	8.796	25.54
Standard Deviation							2.36	5.128	14.89
CV							66.11	26.83	22.48

Weed Control in Everbearing Strawberry - HTRC 2010

Project Code: 126-10-02

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Strawberry Variety: Seascape
 Planting Method: Transplant Planting Date: 4/28/2010
 Spacing: 2 feet Row Spacing: 6 feet
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Sandy Loam OM: 1.4% pH: 6.8
 Sand: 56.4% Silt: 25.2% Clay: 18.4% CEC: 5.8

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
POT/POSDIR	5/3/10	10:30 AM	71/64	F	Wet	1-3 W	48	4% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/3	Strawberry	1-2", 1-2"	Transplanted	1-2 LF
5/3	CUDO = curly dock	1-3"		Few
5/3	QUGR = quackgrass	2-5"		Few

Notes and Comments

- 1.
- 2.

Weed Control in Everbearing Strawberry - HTRC 2010

Weed Control in Annual Strawberry - HTRC 2010

Trial ID: 126-10-02
Location: East Lansing, MI

Protocol ID: 126-10-02
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

							LACG	COLQ	CORW		
Pest Code											
Crop Name							Strawberry				
Rating Date							23/Jun/10	23/Jun/10	23/Jun/10	23/Jun/10	23/Jun/10
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	napropamide	50	DF	4	LB A/A	POT	1.3	10.0	9.7	8.7	
2	DCPA	75	WP	8	LB A/A	POT	1.0	10.0	10.0	8.3	
3	terbacil	80	WDG	0.25	LB A/A	POT	1.0	8.7	6.7	10.0	
4	acifluorfen	2	L	0.375	LB A/A	POT	1.0	9.3	7.0	10.0	
5	sulfentrazone	4	F	0.375	LB A/A	POT	1.3	10.0	10.0	8.7	
6	pendimethalin	3.8	CS	1.4	LB A/A	POT	1.0	10.0	10.0	8.0	
7	s-metolachlor	7.62	EC	1.3	LB A/A	POT	2.0	10.0	5.7	6.3	
8	oxyfluorfen	4	SC	0.5	LB A/A	POT	2.0	10.0	8.3	10.0	
9	flumioxazin	51	WDG	0.064	LB A/A	POTDIR	2.0	9.7	10.0	10.0	
10	Untreated					POT	1.0	7.0	5.3	4.7	
	Handweeded					PO1,2					
LSD (P=.05)							0.93	3.08	4.10	3.97	
Standard Deviation							0.54	1.79	2.39	2.31	
CV							39.58	18.95	28.92	27.31	
							EBNS	LATH	RRPW	YERO	
Pest Code											
Crop Name											
Rating Date							23/Jun/10	23/Jun/10	23/Jun/10	23/Jun/10	23/Jun/10
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	napropamide	50	DF	4	LB A/A	POT	1.3	8.3	9.7	3.7	
2	DCPA	75	WP	8	LB A/A	POT	9.0	8.7	7.0	1.0	
3	terbacil	80	WDG	0.25	LB A/A	POT	4.7	7.3	2.3	8.7	
4	acifluorfen	2	L	0.375	LB A/A	POT	9.3	6.7	8.0	5.7	
5	sulfentrazone	4	F	0.375	LB A/A	POT	10.0	9.7	10.0	6.0	
6	pendimethalin	3.8	CS	1.4	LB A/A	POT	7.3	9.3	5.3	2.3	
7	s-metolachlor	7.62	EC	1.3	LB A/A	POT	10.0	6.0	7.3	5.0	
8	oxyfluorfen	4	SC	0.5	LB A/A	POT	10.0	9.3	8.7	5.7	
9	flumioxazin	51	WDG	0.064	LB A/A	POTDIR	10.0	10.0	9.7	9.7	
10	Untreated					POT	6.7	4.3	5.3	1.3	
	Handweeded					PO1,2					
LSD (P=.05)							4.09	3.26	3.49	3.38	
Standard Deviation							2.38	1.90	2.04	1.97	
CV							30.43	23.83	27.76	40.21	

Weed Control in Everbearing Strawberry - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							Strawberry	Strawberry	Strawberry	Strawberry
Crop Name							14/Jun/10	18/Jun/10	22/Jun/10	14/Jul/10
Rating Date							Harvest	Harvest	Harvest	Harvest
Rating Data Type							KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	napropamide	50	DF	4	LB A/A	POT	0.24	0.49	0.18	0.08
2	DCPA	75	WP	8	LB A/A	POT	0.22	0.34	0.22	0.06
3	terbacil	80	WDG	0.25	LB A/A	POT	0.29	0.34	0.23	0.08
4	acifluorfen	2	L	0.375	LB A/A	POT	0.28	0.37	0.23	0.31
5	sulfentrazone	4	F	0.375	LB A/A	POT	0.20	0.30	0.18	0.07
6	pendimethalin	3.8	CS	1.4	LB A/A	POT	0.28	0.37	0.21	0.11
7	s-metolachlor	7.62	EC	1.3	LB A/A	POT	0.16	0.29	0.16	0.01
8	oxyfluorfen	4	SC	0.5	LB A/A	POT	0.08	0.10	0.13	0.13
9	flumioxazin	51	WDG	0.064	LB A/A	POTDIR	0.14	0.20	0.11	0.06
10	Untreated					POT	0.35	0.36	0.23	0.19
	Handweeded					PO1,2				
LSD (P=.05)							0.140	0.104	0.097	0.312
Standard Deviation							0.082	0.060	0.056	0.179
CV							36.26	19.15	29.99	164.3

Pest Code							Strawberry	Strawberry	Strawberry	Strawberry
Crop Name							19/Jul/10	23/Jul/10	27/Jul/10	2/Aug/10
Rating Date							Harvest	Harvest	Harvest	Harvest
Rating Data Type							KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	napropamide	50	DF	4	LB A/A	POT	0.10	0.20	0.19	0.24
2	DCPA	75	WP	8	LB A/A	POT	0.12	0.06	0.13	0.19
3	terbacil	80	WDG	0.25	LB A/A	POT	0.16	0.15	0.19	0.29
4	acifluorfen	2	L	0.375	LB A/A	POT	0.18	0.17	0.24	0.26
5	sulfentrazone	4	F	0.375	LB A/A	POT	0.16	0.12	0.19	0.34
6	pendimethalin	3.8	CS	1.4	LB A/A	POT	0.11	0.12	0.18	0.35
7	s-metolachlor	7.62	EC	1.3	LB A/A	POT	0.04	0.07	0.11	0.16
8	oxyfluorfen	4	SC	0.5	LB A/A	POT	0.03	0.05	0.05	0.11
9	flumioxazin	51	WDG	0.064	LB A/A	POTDIR	0.09	0.09	0.11	0.28
10	Untreated					POT	0.25	0.19	0.16	0.25
	Handweeded					PO1,2				
LSD (P=.05)							0.140	0.098	0.129	0.198
Standard Deviation							0.081	0.056	0.075	0.115
CV							64.89	45.48	48.89	46.85

Weed Control in Everbearing Strawberry - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							Strawberry	Strawberry	Strawberry	Strawberry
Crop Name							6/Aug/10	9/Aug/10	13/Aug/10	
Rating Date							Harvest	Harvest	Harvest	TOTAL
Rating Data Type							KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	napropamide	50	DF	4	LB A/A	POT	0.50	0.24	0.28	2.65
2	DCPA	75	WP	8	LB A/A	POT	0.59	0.30	0.48	2.69
3	terbacil	80	WDG	0.25	LB A/A	POT	0.74	0.45	0.63	3.54
4	acifluorfen	2	L	0.375	LB A/A	POT	0.81	0.33	0.47	3.64
5	sulfentrazone	4	F	0.375	LB A/A	POT	0.64	0.27	0.54	2.97
6	pendimethalin	3.8	CS	1.4	LB A/A	POT	0.82	0.48	0.54	3.56
7	s-metolachlor	7.62	EC	1.3	LB A/A	POT	0.29	0.18	0.22	1.70
8	oxyfluorfen	4	SC	0.5	LB A/A	POT	0.36	0.20	0.23	1.44
9	flumioxazin	51	WDG	0.064	LB A/A	POTDIR	0.58	0.22	0.42	2.30
10	Untreated					POT	0.52	0.40	0.42	3.34
	Handweeded					PO1,2				
LSD (P=.05)							0.319	0.167	0.264	1.245
Standard Deviation							0.186	0.097	0.154	0.726
CV							31.9	31.74	36.46	26.09

Fall Weed Control in Apple - CHES 2009-2010

Project Code: 128-10-01

Location: Clarksville, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Apple Variety: See notes

Planting Method: Transplant Planting Date: 2005

Spacing: 4 ft Row Spacing: 15 ft

Tillage Type: Conventional Study Design: RCB

Replications: 3

Plot Size: 11 ft wide x 40 ft long

Soil Type: Lapeer sandy loam

OM: 2.2%

pH: 6.8

Sand: 44%

Silt: 44%

Clay: 12%

CEC: 6.7

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
FALL09	10/29/09	10:00 AM	47/48	F	Damp	3 NE	92	100% Cloudy	Y
				F				% Cloudy	
				F				% Cloudy	
				F				% Cloudy	

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
10/29	APPLE	6-8'		
10/29	COCW = common chickweed	3-6", 2-3"		Many
10/29	DAND = dandelion	3-4"		Many
10/29	SHPU = shepherds purse	12-16"		Many

Notes and Comments

1. Varieties: Schet Spur, Gala Fuji.

2.

Fall Weed Control in Apple - CHES 2009-2010

Dept. of Horticulture, MSU

Trial ID: 128-10-01
Location: Clarksville, MI

Protocol ID: 128-10-01
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

							PERG	DAND	HOWE	MECR	
							Apple				
							12/Apr/10	12/Apr/10	12/Apr/10	12/Apr/10	12/Apr/10
							RATING	RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	glyphosate	5.5	L	0.43	LB A/A	FALL 09	1.0	4.3	7.0	10.0	4.3
2	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	1.0	2.3	5.0	1.7	9.0
	COC	100	SL	1	% V/V	FALL 09					
3	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	1.0	6.0	5.7	10.0	8.3
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
4	saflufenacil	70	WG	0.045	LB A/A	FALL 09	1.0	4.0	7.3	10.0	4.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
5	saflufenacil	70	WG	0.045	LB A/A	FALL 09	1.0	3.0	6.0	10.0	5.3
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
6	saflufenacil	70	WG	0.09	LB A/A	FALL 09	1.0	4.0	8.7	10.0	5.7
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
7	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	1.0	6.3	9.3	10.0	10.0
	glufosinate	1.67	L	1	LB A/A	FALL 09					
8	terbacil	80	WDG	2.4	LB A/A	FALL 09	1.0	8.3	6.7	10.0	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
9	terbacil	80	WP	2.4	LB A/A	FALL 09	1.0	8.0	9.0	10.0	9.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
10	terbacil	80	WDG	1.5	LB A/A	FALL 09	1.0	7.0	6.7	10.0	10.0
	diuron	80	DF	1.5	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
11	rimsulfuron (M)	25	DF	0.063	LB A/A	FALL 09	1.0	8.3	10.0	10.0	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
12	mesotrione	4	SC	0.188	LB A/A	FALL 09	1.0	8.7	10.0	10.0	10.0
	simazine	90	WDG	4	LB A/A	FALL 09					
	glyphosate	4.17	EC	0.5	LB A/A	FALL 09					
	COC	100	SL	1	% V/V	FALL 09					
LSD (P=.05)							0.00	3.37	2.74	0.56	3.49
Standard Deviation							0.00	1.99	1.62	0.33	2.06
CV							0.0	33.98	21.26	3.58	25.5

Fall Weed Control in Apple - CHES 2009-2010

Dept. of Horticulture, MSU

Pest Code							ANBG	PERG	DAND	HOWE	
Crop Name							Apple				
Rating Date							22/Apr/10	22/Apr/10	22/Apr/10	22/Apr/10	22/Apr/10
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	glyphosate	5.5	L	0.43	LB A/A	FALL 09	1.0	5.3	6.7	2.0	10.0
2	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	1.0	7.3	7.3	3.3	1.3
	COC	100	SL	1	% V/V	FALL 09					
3	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	1.0	7.3	8.0	4.0	9.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
4	saflufenacil	70	WG	0.045	LB A/A	FALL 09	1.0	6.0	6.3	4.0	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
5	saflufenacil	70	WG	0.045	LB A/A	FALL 09	1.3	4.3	6.0	3.3	10.0
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
6	saflufenacil	70	WG	0.09	LB A/A	FALL 09	1.0	4.7	5.0	4.3	10.0
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
7	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	1.0	8.0	9.0	9.3	10.0
	glufosinate	1.67	L	1	LB A/A	FALL 09					
8	terbacil	80	WDG	2.4	LB A/A	FALL 09	1.0	9.7	9.0	7.7	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
9	terbacil	80	WP	2.4	LB A/A	FALL 09	1.0	9.7	9.0	9.0	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
10	terbacil	80	WDG	1.5	LB A/A	FALL 09	1.0	9.0	8.7	8.0	10.0
	diuron	80	DF	1.5	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
11	rimsulfuron (M)	25	DF	0.063	LB A/A	FALL 09	1.3	9.7	9.3	9.7	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
12	mesotrione	4	SC	0.188	LB A/A	FALL 09	1.0	9.7	9.3	9.7	10.0
	simazine	90	WDG	4	LB A/A	FALL 09					
	glyphosate	4.17	EC	0.5	LB A/A	FALL 09					
	COC	100	SL	1	% V/V	FALL 09					
LSD (P=.05)							0.41	2.16	2.22	2.85	0.42
Standard Deviation							0.24	1.28	1.31	1.68	0.25
CV							22.83	16.92	16.79	27.16	2.66

Fall Weed Control in Apple - CHES 2009-2010

Dept. of Horticulture, MSU

Pest Code							RSFI	SHPU	ANBG		DAND
Crop Name									Apple		
Rating Date							22/Apr/10	22/Apr/10	5/May/10	5/May/10	5/May/10
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	glyphosate	5.5	L	0.43	LB A/A	FALL 09	7.0	1.3	1.0	5.3	1.0
2	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	9.3	9.0	1.0	7.3	1.7
	COC	100	SL	1	% V/V	FALL 09					
3	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	10.0	9.3	1.0	10.0	3.3
4	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
	saflufenacil	70	WG	0.045	LB A/A	FALL 09	10.0	4.0	1.0	9.7	2.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
5	saflufenacil	70	WG	0.045	LB A/A	FALL 09	10.0	5.0	1.0	9.7	1.0
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
6	saflufenacil	70	WG	0.09	LB A/A	FALL 09	10.0	5.0	1.0	9.0	1.3
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
7	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	10.0	10.0	1.0	9.0	9.3
	glufosinate	1.67	L	1	LB A/A	FALL 09					
8	terbacil	80	WDG	2.4	LB A/A	FALL 09	10.0	10.0	1.0	9.3	8.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
9	terbacil	80	WP	2.4	LB A/A	FALL 09	10.0	10.0	1.0	9.3	8.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
10	terbacil	80	WDG	1.5	LB A/A	FALL 09	10.0	10.0	1.0	9.0	8.3
	diuron	80	DF	1.5	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
11	rimsulfuron (M)	25	DF	0.063	LB A/A	FALL 09	10.0	10.0	1.0	6.7	9.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
12	mesotrione	4	SC	0.188	LB A/A	FALL 09	10.0	10.0	1.0	9.7	9.3
	simazine	90	WDG	4	LB A/A	FALL 09					
	glyphosate	4.17	EC	0.5	LB A/A	FALL 09					
	COC	100	SL	1	% V/V	FALL 09					
LSD (P=.05)							2.55	2.58	0.00	1.86	1.57
Standard Deviation							1.51	1.52	0.00	1.10	0.93
CV							15.54	19.53	0.0	12.7	17.49

Fall Weed Control in Apple - CHES 2009-2010

Dept. of Horticulture, MSU

Pest Code							DOBR	HOWE	PUDN	RSFI	SHPU
Crop Name							5/May/10	5/May/10	5/May/10	5/May/10	5/May/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Rate	Growth Unit Stage					
1	glyphosate	5.5	L	0.43	LB A/A	FALL 09	10.0	10.0	9.7	8.7	1.0
2	flumioxazin COC	51 100	WDG SL	0.383 1	LB A/A % V/V	FALL 09 FALL 09	8.3	1.0	10.0	10.0	9.3
3	flumioxazin glyphosate	51 5.5	WDG L	0.383 0.43	LB A/A LB A/A	FALL 09 FALL 09	10.0	9.7	10.0	10.0	8.3
4	saflufenacil glyphosate	70 5.5	WG L	0.045 0.43	LB A/A LB A/A	FALL 09 FALL 09	10.0	10.0	10.0	10.0	2.3
5	saflufenacil pendimethalin glyphosate	70 3.8 5.5	WG CS L	0.045 3.8 0.43	LB A/A LB A/A LB A/A	FALL 09 FALL 09 FALL 09	9.7	10.0	10.0	10.0	3.3
6	saflufenacil pendimethalin glyphosate	70 3.8 5.5	WG CS L	0.09 3.8 0.43	LB A/A LB A/A LB A/A	FALL 09 FALL 09 FALL 09	10.0	10.0	10.0	10.0	4.3
7	indaziflam glufosinate	1.67 1.67	SC L	0.067 1	LB A/A LB A/A	FALL 09 FALL 09	10.0	10.0	9.7	10.0	9.7
8	terbacil glyphosate	80 5.5	WDG L	2.4 0.43	LB A/A LB A/A	FALL 09 FALL 09	10.0	9.7	10.0	10.0	10.0
9	terbacil glyphosate	80 5.5	WP L	2.4 0.43	LB A/A LB A/A	FALL 09 FALL 09	10.0	10.0	10.0	10.0	9.3
10	terbacil diuron glyphosate	80 80 5.5	WDG DF L	1.5 1.5 0.43	LB A/A LB A/A LB A/A	FALL 09 FALL 09 FALL 09	10.0	9.7	10.0	10.0	10.0
11	rimsulfuron (M) glyphosate	25 5.5	DF L	0.063 0.43	LB A/A LB A/A	FALL 09 FALL 09	10.0	10.0	10.0	10.0	8.0
12	mesotrione simazine glyphosate COC	4 90 4.17 100	SC WDG EC SL	0.188 4 0.5 1	LB A/A LB A/A LB A/A % V/V	FALL 09 FALL 09 FALL 09 FALL 09	10.0	10.0	10.0	10.0	10.0
LSD (P=.05)							0.79	0.49	0.38	1.13	3.19
Standard Deviation							0.47	0.29	0.22	0.67	1.88
CV							4.77	3.15	2.26	6.74	26.37

Fall Weed Control in Apple - CHES 2009-2010

Dept. of Horticulture, MSU

Pest Code							PERG	WHCL	Apple		PERG	COGR	
Crop Name													
Rating Date							5/May/10	5/May/10	11/Jun/10	11/Jun/10	11/Jun/10		
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	glyphosate	5.5	L	0.43	LB A/A	FALL 09	2.3	8.0	1.0	3.3	9.3		
2	flumioxazin COC	51 100	WDG SL	0.383 1	LB A/A % V/V	FALL 09 FALL 09	1.3	8.7	1.0	5.7	10.0		
3	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	2.7	9.3	1.0	6.0	10.0		
4	glyphosate saflufenacil	5.5 70	L WG	0.43 0.045	LB A/A	FALL 09 FALL 09	1.7	9.0	1.0	4.3	8.0		
5	glyphosate saflufenacil	5.5 70	L WG	0.43 0.045	LB A/A	FALL 09 FALL 09	1.7	7.7	1.3	5.0	8.7		
	pendimethalin glyphosate	3.8 5.5	CS L	3.8 0.43	LB A/A	FALL 09 FALL 09							
6	saflufenacil pendimethalin	70 3.8	WG CS	0.09 3.8	LB A/A	FALL 09 FALL 09	1.0	8.0	1.0	3.3	7.3		
	glyphosate	5.5	L	0.43	LB A/A	FALL 09							
7	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	2.3	8.7	1.0	6.7	10.0		
	glufosinate	1.67	L	1	LB A/A	FALL 09							
8	terbacil	80	WDG	2.4	LB A/A	FALL 09	9.3	10.0	1.0	10.0	1.0		
	glyphosate	5.5	L	0.43	LB A/A	FALL 09							
9	terbacil	80	WP	2.4	LB A/A	FALL 09	9.0	9.3	1.0	9.7	1.0		
	glyphosate	5.5	L	0.43	LB A/A	FALL 09							
10	terbacil	80	WDG	1.5	LB A/A	FALL 09	8.7	10.0	1.0	9.0	1.7		
	diuron	80	DF	1.5	LB A/A	FALL 09							
	glyphosate	5.5	L	0.43	LB A/A	FALL 09							
11	rimsulfuron (M)	25	DF	0.063	LB A/A	FALL 09	7.3	5.3	1.7	6.0	8.3		
	glyphosate	5.5	L	0.43	LB A/A	FALL 09							
12	mesotrione	4	SC	0.188	LB A/A	FALL 09	9.0	10.0	1.0	7.3	4.3		
	simazine	90	WDG	4	LB A/A	FALL 09							
	glyphosate	4.17	EC	0.5	LB A/A	FALL 09							
	COC	100	SL	1	% V/V	FALL 09							
LSD (P=.05)							1.58	2.17	0.64	2.62	2.83		
Standard Deviation							0.93	1.28	0.38	1.55	1.67		
CV							19.85	14.76	35.02	24.31	25.14		

Fall Weed Control in Apple - CHES 2009-2010

Dept. of Horticulture, MSU

Pest Code							DAND	HOWE	SHPU	WHCL	Apple
Crop Name							11/Jun/10	11/Jun/10	11/Jun/10	11/Jun/10	6/Jul/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	glyphosate	5.5	L	0.43	LB A/A	FALL 09	5.0	10.0	5.0	2.3	1.0
2	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	6.7	1.7	10.0	2.0	1.0
	COC	100	SL	1	% V/V	FALL 09					
3	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	4.7	9.7	9.7	3.3	1.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
4	saflufenacil	70	WG	0.045	LB A/A	FALL 09	6.3	10.0	4.7	2.0	1.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
5	saflufenacil	70	WG	0.045	LB A/A	FALL 09	5.3	10.0	7.0	2.0	1.0
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
6	saflufenacil	70	WG	0.09	LB A/A	FALL 09	4.3	10.0	4.7	2.0	1.0
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
7	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	7.3	9.7	10.0	7.0	1.0
	glufosinate	1.67	L	1	LB A/A	FALL 09					
8	terbacil	80	WDG	2.4	LB A/A	FALL 09	8.7	10.0	10.0	9.3	1.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
9	terbacil	80	WP	2.4	LB A/A	FALL 09	9.3	10.0	10.0	9.7	1.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
10	terbacil	80	WDG	1.5	LB A/A	FALL 09	8.3	10.0	10.0	9.3	1.0
	diuron	80	DF	1.5	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
11	rimsulfuron (M)	25	DF	0.063	LB A/A	FALL 09	4.7	10.0	9.3	2.7	1.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
12	mesotrione	4	SC	0.188	LB A/A	FALL 09	5.3	10.0	10.0	7.7	1.0
	simazine	90	WDG	4	LB A/A	FALL 09					
	glyphosate	4.17	EC	0.5	LB A/A	FALL 09					
	COC	100	SL	1	% V/V	FALL 09					
LSD (P=.05)							2.68	0.49	2.66	2.72	0.00
Standard Deviation							1.58	0.29	1.57	1.60	0.00
CV							25.0	3.12	18.79	32.44	0.0

Fall Weed Control in Apple - CHES 2009-2010

Dept. of Horticulture, MSU

Pest Code							PERG	COGR	DAND	HOWE	ROFB
Crop Name							6/Jul/10	6/Jul/10	6/Jul/10	6/Jul/10	6/Jul/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	glyphosate	5.5	L	0.43	LB A/A	FALL 09	1.0	9.7	1.0	10.0	10.0
2	flumioxazin COC	51 100	WDG SL	0.383 1	LB A/A % V/V	FALL 09 FALL 09	1.0	10.0	1.7	1.0	8.0
3	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	1.0	9.7	1.7	9.0	9.7
4	glyphosate saflufenacil	5.5 70	L WG	0.43 0.045	LB A/A LB A/A	FALL 09 FALL 09	1.0	9.7	5.0	9.7	10.0
5	glyphosate saflufenacil	5.5 70	L WG	0.43 0.045	LB A/A LB A/A	FALL 09 FALL 09	1.3	8.3	3.0	9.7	9.7
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
6	saflufenacil	70	WG	0.09	LB A/A	FALL 09	1.0	9.3	1.7	8.3	10.0
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
7	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	1.7	10.0	6.3	10.0	9.3
	glufosinate	1.67	L	1	LB A/A	FALL 09					
8	terbacil	80	WDG	2.4	LB A/A	FALL 09	10.0	1.0	9.3	9.3	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
9	terbacil	80	WP	2.4	LB A/A	FALL 09	10.0	1.3	9.3	10.0	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
10	terbacil	80	WDG	1.5	LB A/A	FALL 09	9.7	1.0	9.7	10.0	10.0
	diuron	80	DF	1.5	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
11	rimsulfuron (M)	25	DF	0.063	LB A/A	FALL 09	1.0	3.3	1.7	8.3	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
12	mesotrione	4	SC	0.188	LB A/A	FALL 09	1.0	4.3	4.7	10.0	10.0
	simazine	90	WDG	4	LB A/A	FALL 09					
	glyphosate	4.17	EC	0.5	LB A/A	FALL 09					
	COC	100	SL	1	% V/V	FALL 09					
LSD (P=.05)							0.48	1.91	2.83	1.20	0.90
Standard Deviation							0.28	1.13	1.67	0.71	0.53
CV							8.6	17.41	36.43	8.1	5.49

Fall Weed Control in Apple - CHES 2009-2010

Dept. of Horticulture, MSU

Pest Code							RRPW	WHCL
Crop Name							6/Jul/10	6/Jul/10
Rating Date							RATING	RATING
Rating Data Type							1-10	1-10
Rating Unit								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		
1	glyphosate	5.5	L	0.43	LB A/A	FALL 09	10.0	3.0
2	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	10.0	2.7
	COC	100	SL	1	% V/V	FALL 09		
3	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	10.0	2.7
4	glyphosate	5.5	L	0.43	LB A/A	FALL 09		
	saflufenacil	70	WG	0.045	LB A/A	FALL 09	10.0	2.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09		
5	saflufenacil	70	WG	0.045	LB A/A	FALL 09	10.0	1.7
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09		
	glyphosate	5.5	L	0.43	LB A/A	FALL 09		
6	saflufenacil	70	WG	0.09	LB A/A	FALL 09	10.0	2.3
	pendimethalin	3.8	CS	3.8	LB A/A	FALL 09		
	glyphosate	5.5	L	0.43	LB A/A	FALL 09		
7	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	9.3	6.0
	glufosinate	1.67	L	1	LB A/A	FALL 09		
8	terbacil	80	WDG	2.4	LB A/A	FALL 09	5.7	9.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09		
9	terbacil	80	WP	2.4	LB A/A	FALL 09	1.7	9.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09		
10	terbacil	80	WDG	1.5	LB A/A	FALL 09	1.7	10.0
	diuron	80	DF	1.5	LB A/A	FALL 09		
	glyphosate	5.5	L	0.43	LB A/A	FALL 09		
11	rimsulfuron (M)	25	DF	0.063	LB A/A	FALL 09	10.0	4.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09		
12	mesotrione	4	SC	0.188	LB A/A	FALL 09	2.3	10.0
	simazine	90	WDG	4	LB A/A	FALL 09		
	glyphosate	4.17	EC	0.5	LB A/A	FALL 09		
	COC	100	SL	1	% V/V	FALL 09		
LSD (P=.05)							1.69	2.33
Standard Deviation							1.00	1.38
CV							13.22	25.97

Spring 2010 Weed Control in Apple - CHES

Project Code: 128-10-03

Location: Clarksville, MI

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Apple Variety: See notes
 Planting Method: Transplant Planting Date: 2005
 Spacing: 4 ft Row Spacing: 15 ft
 Tillage Type: Conventional Study Design: RCB
 Plot Size: 11 ft wide x 40 ft long

Replications: 3

Soil Type: Lapeer sandy loam OM: 2.2% pH: 6.8
 Sand: 44% Silt: 44% Clay: 12% CEC: 6.7

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPRE	4/1/10	8:30 AM	58/48	F	Good	6-7 SE	59	70%Cloudy	N
LPRE	4/29/10	1:45 PM	65/56	F	Dry	6-8 S	36	100%Cloudy	N
				F				% Cloudy	
				F				% Cloudy	

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/1	APPLE	6-7'	Budding	
4/1	ANBG = annual bluegrass	5-7"		Many
4/1	COCW = common chickweed	4-6"		Moderate
4/1	DAND = dandelion	2-4"		Moderate
4/1	HOWE = horseweed	1-2"		Moderate
4/1	MECR = mouseear cress	1-4"		Moderate
4/1	PUDN = purple deadnettle	2-4"		Few
4/1	SHPU = sheperdspurse	2-8"		Moderate
4/1	WHCL = white clover	3-4"		Moderate
4/29	APPLE	7'	Blossom	
4/29	ANBG = annual bluegrass	5-8"		Many
4/29	BLPL = broadleaf plantain			
4/29	COCW = common chickweed	5-6"		Few
4/29	COGR = common groundsel	2-4", 4-5"		Few
4/29	DAND = dandelion	1-2', 4-6"		Many
4/29	HOWE = horseweed	1-3", 2-4"		Moderate
4/29	MECR = mouseear cress	8-12", 2-4"		Few
4/29	PUDN = purple deadnettle	4-7"		Moderate
4/29	SHPU = sheperdspurse	3-8", 12-18"		Many
4/29	WHCL = white clover	1', 6-8"		Few

Notes and Comments

- Varieties: Schet Spur, Gala Fuji.
- 5.3 ft band on both sides of row.

Spring 2010 Weed Control in Apple - CHES

Spring Weed Control in Apple - CHES 2010

Trial ID: 128-10-03
Location: Clarksville, MI

Protocol ID: 128-10-03
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

							PERG	COCW	DAND	MECR	
							Apple				
							12/Apr/10	12/Apr/10	12/Apr/10	12/Apr/10	12/Apr/10
							RATING	RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	glyphosate	5.5	L	0.75	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
2	flumioxazin	51	WDG	0.383	LB A/A	EPRE	1.0	6.0	10.0	8.7	9.7
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
3	terbacil	80	WDG	2.4	LB A/A	EPRE	1.0	5.7	9.0	7.0	9.0
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
4	saflufenacil	70	WG	0.045	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0
	pendimethalin	3.8	CS	2.85	LB A/A	LPRE					
	diuron	80	DF	2.5	LB A/A	LPRE					
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
6	saflufenacil	70	WG	0.09	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
7	rimsulfuron (M)	25	DF	0.063	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	2, 4-D	3.8	L	1	LB A/A	LPRE					
	NIS	100	SL	0.25	% V/V	LPRE					
8	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	5.3	10.0	8.7	9.3
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
9	halosulfuron	75	WG	0.047	LB A/A	ALL	1.0	6.7	9.7	7.3	8.3
	paraquat	2	L	0.5	LB A/A	ALL					
	pendimethalin	3.8	CS	3.8	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
10	halosulfuron	75	WG	0.047	LB A/A	ALL	1.0	7.0	10.0	6.7	9.7
	paraquat	2	L	0.5	LB A/A	ALL					
	diuron	80	DF	3.2	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
11	halosulfuron	75	WG	0.047	LB A/A	ALL	1.0	7.0	10.0	8.3	8.3
	paraquat	2	L	0.5	LB A/A	ALL					
	simazine	90	WDG	4	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
12	Untreated					ALL	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							0.00	1.70	0.58	1.73	1.47
Standard Deviation							0.00	1.01	0.34	1.02	0.87
CV							0.0	27.65	6.39	23.27	17.28

Spring 2010 Weed Control in Apple - CHES

Dept. of Horticulture, MSU

Pest Code							ANBG	PERG	COCW	DAND	
Crop Name	Apple										
Rating Date	22/Apr/10	22/Apr/10	22/Apr/10	22/Apr/10	22/Apr/10	22/Apr/10					
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	Form Unit	Growth Stage					
1	glyphosate	5.5	L	0.75	LB A/A	LPRE	1.0	1.0	1.7	1.7	1.0
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
2	flumioxazin	51	WDG	0.383	LB A/A	EPRE	1.0	8.3	9.0	10.0	8.3
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
3	terbacil	80	WDG	2.4	LB A/A	EPRE	1.0	9.3	9.3	10.0	7.7
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
4	saflufenacil	70	WG	0.045	LB A/A	LPRE	1.0	1.0	1.7	3.0	1.0
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	1.0	1.0	1.7	3.3	1.0
	pendimethalin	3.8	CS	2.85	LB A/A	LPRE					
	diuron	80	DF	2.5	LB A/A	LPRE					
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
6	saflufenacil	70	WG	0.09	LB A/A	LPRE	1.0	1.3	2.0	4.0	1.3
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
7	rimsulfuron (M)	25	DF	0.063	LB A/A	LPRE	1.3	1.3	3.3	4.0	1.7
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	2, 4-D	3.8	L	1	LB A/A	LPRE					
	NIS	100	SL	0.25	% V/V	LPRE					
8	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	8.0	9.3	10.0	9.3
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
9	halosulfuron	75	WG	0.047	LB A/A	ALL	1.3	7.0	8.0	10.0	5.7
	paraquat	2	L	0.5	LB A/A	ALL					
	pendimethalin	3.8	CS	3.8	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
10	halosulfuron	75	WG	0.047	LB A/A	ALL	1.0	9.3	10.0	10.0	6.3
	paraquat	2	L	0.5	LB A/A	ALL					
	diuron	80	DF	3.2	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
11	halosulfuron	75	WG	0.047	LB A/A	ALL	1.0	7.3	9.3	10.0	5.7
	paraquat	2	L	0.5	LB A/A	ALL					
	simazine	90	WDG	4	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
12	Untreated					ALL	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							0.41	0.98	2.26	3.73	2.17
Standard Deviation							0.24	0.58	1.34	2.20	1.28
CV							22.83	12.37	24.17	34.34	30.77

Spring 2010 Weed Control in Apple - CHES

Dept. of Horticulture, MSU

Pest Code							HOWE	SHPU	Apple		ANBG	PERG
Crop Name							22/Apr/10	22/Apr/10	5/May/10	5/May/10	5/May/10	5/May/10
Rating Date							RATING	RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10	1-10
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	glyphosate	5.5	L	0.75	LB A/A	LPRE	1.7	1.0	1.0	7.3	6.0	
	MSO	100	SL	1	% V/V	LPRE						
	AMS	100	DF	3.4	LB A/A	LPRE						
2	flumioxazin	51	WDG	0.383	LB A/A	EPRE	9.3	10.0	1.0	7.7	7.0	
	glyphosate	5.5	L	0.75	LB A/A	EPRE						
3	terbacil	80	WDG	2.4	LB A/A	EPRE	10.0	10.0	1.0	9.3	9.7	
	glyphosate	5.5	L	0.75	LB A/A	EPRE						
4	saflufenacil	70	WG	0.045	LB A/A	LPRE	1.3	2.0	1.0	7.7	6.0	
	glyphosate	5.5	L	0.75	LB A/A	LPRE						
	MSO	100	SL	1	% V/V	LPRE						
	AMS	100	DF	3.4	LB A/A	LPRE						
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	1.7	1.0	1.0	7.7	6.0	
	pendimethalin	3.8	CS	2.85	LB A/A	LPRE						
	diuron	80	DF	2.5	LB A/A	LPRE						
	glyphosate	5.5	L	0.75	LB A/A	LPRE						
	MSO	100	SL	1	% V/V	LPRE						
	AMS	100	DF	3.4	LB A/A	LPRE						
6	saflufenacil	70	WG	0.09	LB A/A	LPRE	5.7	3.3	1.0	6.7	6.3	
	glyphosate	5.5	L	0.75	LB A/A	LPRE						
	MSO	100	SL	1	% V/V	LPRE						
	AMS	100	DF	3.4	LB A/A	LPRE						
7	rimsulfuron (M)	25	DF	0.063	LB A/A	LPRE	1.7	1.0	1.0	6.7	6.3	
	glyphosate	5.5	L	0.75	LB A/A	LPRE						
	2, 4-D	3.8	L	1	LB A/A	LPRE						
	NIS	100	SL	0.25	% V/V	LPRE						
8	indaziflam	1.67	SC	0.065	LB A/A	EPRE	10.0	10.0	1.0	8.0	7.7	
	glyphosate	5.5	L	0.75	LB A/A	EPRE						
9	halosulfuron	75	WG	0.047	LB A/A	ALL	10.0	10.0	1.3	7.7	8.3	
	paraquat	2	L	0.5	LB A/A	ALL						
	pendimethalin	3.8	CS	3.8	LB A/A	EPRE						
	NIS	100	SL	0.25	% V/V	ALL						
10	halosulfuron	75	WG	0.047	LB A/A	ALL	8.7	10.0	1.0	10.0	9.7	
	paraquat	2	L	0.5	LB A/A	ALL						
	diuron	80	DF	3.2	LB A/A	EPRE						
	NIS	100	SL	0.25	% V/V	ALL						
11	halosulfuron	75	WG	0.047	LB A/A	ALL	10.0	9.7	1.0	9.7	9.3	
	paraquat	2	L	0.5	LB A/A	ALL						
	simazine	90	WDG	4	LB A/A	EPRE						
	NIS	100	SL	0.25	% V/V	ALL						
12	Untreated					ALL	1.0	1.0	1.0	1.0	1.0	
LSD (P=.05)							2.51	2.13	0.28	2.07	1.04	
Standard Deviation							1.48	1.26	0.17	1.22	0.61	
CV							25.01	21.88	16.22	16.44	8.83	

Spring 2010 Weed Control in Apple - CHES

Dept. of Horticulture, MSU

Pest Code							DAND	COCW	HOWE	SHPU	WHCL
Crop Name											
Rating Date							5/May/10	5/May/10	5/May/10	5/May/10	5/May/10
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	glyphosate	5.5	L	0.75	LB A/A	LPRE	4.0	8.0	10.0	5.0	5.3
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
2	flumioxazin	51	WDG	0.383	LB A/A	EPRE	5.7	10.0	9.7	10.0	7.0
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
3	terbacil	80	WDG	2.4	LB A/A	EPRE	8.7	10.0	10.0	10.0	10.0
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
4	saflufenacil	70	WG	0.045	LB A/A	LPRE	8.7	10.0	10.0	9.0	9.0
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	9.3	9.7	10.0	7.7	9.3
	pendimethalin	3.8	CS	2.85	LB A/A	LPRE					
	diuron	80	DF	2.5	LB A/A	LPRE					
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
6	saflufenacil	70	WG	0.09	LB A/A	LPRE	9.3	10.0	10.0	8.7	9.3
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
7	rimsulfuron (M)	25	DF	0.063	LB A/A	LPRE	7.7	8.7	10.0	4.7	7.7
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	2, 4-D	3.8	L	1	LB A/A	LPRE					
	NIS	100	SL	0.25	% V/V	LPRE					
8	indaziflam	1.67	SC	0.065	LB A/A	EPRE	8.7	10.0	10.0	10.0	8.3
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
9	halosulfuron	75	WG	0.047	LB A/A	ALL	7.7	10.0	10.0	10.0	7.3
	paraquat	2	L	0.5	LB A/A	ALL					
	pendimethalin	3.8	CS	3.8	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
10	halosulfuron	75	WG	0.047	LB A/A	ALL	9.0	10.0	10.0	10.0	10.0
	paraquat	2	L	0.5	LB A/A	ALL					
	diuron	80	DF	3.2	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
11	halosulfuron	75	WG	0.047	LB A/A	ALL	9.0	10.0	10.0	10.0	10.0
	paraquat	2	L	0.5	LB A/A	ALL					
	simazine	90	WDG	4	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
12	Untreated					ALL	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.47	1.32	0.28	2.54	1.33
Standard Deviation							0.87	0.78	0.17	1.50	0.79
CV							11.76	8.69	1.81	18.75	10.01

Spring 2010 Weed Control in Apple - CHES

Dept. of Horticulture, MSU

Pest Code							PERG	BLPL	COGR	DAND	
Crop Name							Apple				
Rating Date							11/Jun/10	11/Jun/10	11/Jun/10	11/Jun/10	
Rating Data Type							RATING	RATING	RATING	RATING	
Rating Unit							1-10	1-10	1-10	1-10	
Trt	Treatment	Form	Form	Rate	Rate	Growth					
No.	Name	Conc	Type	Rate	Unit	Stage					
1	glyphosate	5.5	L	0.75	LB A/A	LPRE	1.3	6.3	10.0	10.0	3.7
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
2	flumioxazin	51	WDG	0.383	LB A/A	EPRE	1.0	3.7	10.0	10.0	2.0
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
3	terbacil	80	WDG	2.4	LB A/A	EPRE	1.0	9.7	10.0	3.7	9.3
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
4	saflufenacil	70	WG	0.045	LB A/A	LPRE	1.3	5.7	10.0	10.0	3.0
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	1.3	7.3	10.0	10.0	5.0
	pendimethalin	3.8	CS	2.85	LB A/A	LPRE					
	diuron	80	DF	2.5	LB A/A	LPRE					
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
6	saflufenacil	70	WG	0.09	LB A/A	LPRE	1.0	5.7	10.0	10.0	4.0
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
7	rimsulfuron (M)	25	DF	0.063	LB A/A	LPRE	1.3	7.7	10.0	10.0	7.0
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	2, 4-D	3.8	L	1	LB A/A	LPRE					
	NIS	100	SL	0.25	% V/V	LPRE					
8	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	6.0	10.0	10.0	4.0
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
9	halosulfuron	75	WG	0.047	LB A/A	ALL	1.7	6.0	10.0	10.0	5.0
	paraquat	2	L	0.5	LB A/A	ALL					
	pendimethalin	3.8	CS	3.8	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
10	halosulfuron	75	WG	0.047	LB A/A	ALL	1.0	9.0	4.0	10.0	7.0
	paraquat	2	L	0.5	LB A/A	ALL					
	diuron	80	DF	3.2	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
11	halosulfuron	75	WG	0.047	LB A/A	ALL	1.0	8.7	10.0	10.0	7.7
	paraquat	2	L	0.5	LB A/A	ALL					
	simazine	90	WDG	4	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
12	Untreated					ALL	1.0	1.0	10.0	10.0	1.0
LSD (P=.05)							0.82	1.50	2.54	1.13	2.42
Standard Deviation							0.48	0.89	1.50	0.67	1.43
CV							41.54	13.87	15.79	7.04	29.29

Spring 2010 Weed Control in Apple - CHES

Dept. of Horticulture, MSU

Pest Code							HOWE	SHPU	WHCL	BYGR	
Crop Name							Apple				
Rating Date							11/Jun/10	11/Jun/10	11/Jun/10	6/Jul/10	6/Jul/10
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	glyphosate	5.5	L	0.75	LB A/A	LPRE	10.0	4.0	2.3	1.0	6.7
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
2	flumioxazin	51	WDG	0.383	LB A/A	EPRE	8.0	10.0	2.0	1.0	10.0
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
3	terbacil	80	WDG	2.4	LB A/A	EPRE	10.0	10.0	8.7	1.0	10.0
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
4	saflufenacil	70	WG	0.045	LB A/A	LPRE	9.3	7.0	6.3	1.0	3.3
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	10.0	6.3	10.0	1.0	10.0
	pendimethalin	3.8	CS	2.85	LB A/A	LPRE					
	diuron	80	DF	2.5	LB A/A	LPRE					
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
6	saflufenacil	70	WG	0.09	LB A/A	LPRE	10.0	7.7	5.3	1.0	5.0
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
7	rimsulfuron (M)	25	DF	0.063	LB A/A	LPRE	10.0	7.3	7.7	1.3	9.3
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	2, 4-D	3.8	L	1	LB A/A	LPRE					
	NIS	100	SL	0.25	% V/V	LPRE					
8	indaziflam	1.67	SC	0.065	LB A/A	EPRE	8.0	10.0	4.0	1.0	10.0
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
9	halosulfuron	75	WG	0.047	LB A/A	ALL	5.7	10.0	2.7	1.7	10.0
	paraquat	2	L	0.5	LB A/A	ALL					
	pendimethalin	3.8	CS	3.8	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
10	halosulfuron	75	WG	0.047	LB A/A	ALL	5.0	10.0	10.0	1.0	3.0
	paraquat	2	L	0.5	LB A/A	ALL					
	diuron	80	DF	3.2	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
11	halosulfuron	75	WG	0.047	LB A/A	ALL	5.3	9.7	10.0	1.0	1.0
	paraquat	2	L	0.5	LB A/A	ALL					
	simazine	90	WDG	4	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
12	Untreated					ALL	3.7	3.7	1.0	1.0	7.3
LSD (P=.05)							2.85	2.15	2.31	0.64	4.38
Standard Deviation							1.69	1.27	1.36	0.38	2.59
CV							21.29	15.96	23.35	35.02	36.22

Spring 2010 Weed Control in Apple - CHES

Dept. of Horticulture, MSU

Pest Code							LACG	PERG	BLPL	COGR	DAND
Crop Name											
Rating Date							6/Jul/10	6/Jul/10	6/Jul/10	6/Jul/10	6/Jul/10
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	glyphosate	5.5	L	0.75	LB A/A	LPRE	3.7	6.7	10.0	8.0	3.7
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
2	flumioxazin	51	WDG	0.383	LB A/A	EPRE	10.0	4.3	10.0	6.7	3.0
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
3	terbacil	80	WDG	2.4	LB A/A	EPRE	10.0	9.3	10.0	1.7	8.0
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
4	saflufenacil	70	WG	0.045	LB A/A	LPRE	4.3	5.3	10.0	8.3	2.7
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	10.0	6.3	9.3	9.0	3.0
	pendimethalin	3.8	CS	2.85	LB A/A	LPRE					
	diuron	80	DF	2.5	LB A/A	LPRE					
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
6	saflufenacil	70	WG	0.09	LB A/A	LPRE	5.0	3.7	10.0	8.3	5.3
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	MSO	100	SL	1	% V/V	LPRE					
	AMS	100	DF	3.4	LB A/A	LPRE					
7	rimsulfuron (M)	25	DF	0.063	LB A/A	LPRE	10.0	7.7	10.0	10.0	6.7
	glyphosate	5.5	L	0.75	LB A/A	LPRE					
	2, 4-D	3.8	L	1	LB A/A	LPRE					
	NIS	100	SL	0.25	% V/V	LPRE					
8	indaziflam	1.67	SC	0.065	LB A/A	EPRE	10.0	5.7	10.0	6.7	4.7
	glyphosate	5.5	L	0.75	LB A/A	EPRE					
9	halosulfuron	75	WG	0.047	LB A/A	ALL	10.0	4.3	10.0	10.0	6.7
	paraquat	2	L	0.5	LB A/A	ALL					
	pendimethalin	3.8	CS	3.8	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
10	halosulfuron	75	WG	0.047	LB A/A	ALL	2.7	7.3	4.0	10.0	5.7
	paraquat	2	L	0.5	LB A/A	ALL					
	diuron	80	DF	3.2	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
11	halosulfuron	75	WG	0.047	LB A/A	ALL	1.0	7.7	7.7	10.0	6.7
	paraquat	2	L	0.5	LB A/A	ALL					
	simazine	90	WDG	4	LB A/A	EPRE					
	NIS	100	SL	0.25	% V/V	ALL					
12	Untreated					ALL	7.3	1.3	10.0	9.0	3.3
LSD (P=.05)							3.94	2.14	3.25	3.09	2.67
Standard Deviation							2.33	1.26	1.92	1.82	1.58
CV							33.25	21.76	20.77	22.4	31.86

Spring 2010 Weed Control in Apple - CHES

Dept. of Horticulture, MSU

Pest Code							HOWE	RRPW	ROFB	WHCL
Crop Name							6/Jul/10	6/Jul/10	6/Jul/10	6/Jul/10
Rating Date							RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	glyphosate	5.5	L	0.75	LB A/A	LPRE	8.7	9.0	10.0	2.0
	MSO	100	SL	1	% V/V	LPRE				
	AMS	100	DF	3.4	LB A/A	LPRE				
2	flumioxazin	51	WDG	0.383	LB A/A	EPRE	3.7	10.0	7.7	3.3
	glyphosate	5.5	L	0.75	LB A/A	EPRE				
3	terbacil	80	WDG	2.4	LB A/A	EPRE	9.7	6.3	10.0	9.7
	glyphosate	5.5	L	0.75	LB A/A	EPRE				
4	saflufenacil	70	WG	0.045	LB A/A	LPRE	10.0	10.0	8.3	3.0
	glyphosate	5.5	L	0.75	LB A/A	LPRE				
	MSO	100	SL	1	% V/V	LPRE				
	AMS	100	DF	3.4	LB A/A	LPRE				
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	10.0	8.7	10.0	8.7
	pendimethalin	3.8	CS	2.85	LB A/A	LPRE				
	diuron	80	DF	2.5	LB A/A	LPRE				
	glyphosate	5.5	L	0.75	LB A/A	LPRE				
	MSO	100	SL	1	% V/V	LPRE				
	AMS	100	DF	3.4	LB A/A	LPRE				
6	saflufenacil	70	WG	0.09	LB A/A	LPRE	10.0	10.0	10.0	3.3
	glyphosate	5.5	L	0.75	LB A/A	LPRE				
	MSO	100	SL	1	% V/V	LPRE				
	AMS	100	DF	3.4	LB A/A	LPRE				
7	rimsulfuron (M)	25	DF	0.063	LB A/A	LPRE	10.0	10.0	10.0	4.3
	glyphosate	5.5	L	0.75	LB A/A	LPRE				
	2, 4-D	3.8	L	1	LB A/A	LPRE				
	NIS	100	SL	0.25	% V/V	LPRE				
8	indaziflam	1.67	SC	0.065	LB A/A	EPRE	6.0	10.0	4.3	2.3
	glyphosate	5.5	L	0.75	LB A/A	EPRE				
9	halosulfuron	75	WG	0.047	LB A/A	ALL	3.7	10.0	10.0	1.0
	paraquat	2	L	0.5	LB A/A	ALL				
	pendimethalin	3.8	CS	3.8	LB A/A	EPRE				
	NIS	100	SL	0.25	% V/V	ALL				
10	halosulfuron	75	WG	0.047	LB A/A	ALL	1.3	10.0	10.0	8.7
	paraquat	2	L	0.5	LB A/A	ALL				
	diuron	80	DF	3.2	LB A/A	EPRE				
	NIS	100	SL	0.25	% V/V	ALL				
11	halosulfuron	75	WG	0.047	LB A/A	ALL	2.0	10.0	10.0	8.7
	paraquat	2	L	0.5	LB A/A	ALL				
	simazine	90	WDG	4	LB A/A	EPRE				
	NIS	100	SL	0.25	% V/V	ALL				
12	Untreated					ALL	1.0	10.0	10.0	1.0
LSD (P=.05)							2.26	2.02	3.42	3.27
Standard Deviation							1.33	1.19	2.01	1.93
CV							21.07	12.53	21.88	41.41

Weed Control in Apple with Rely and Alion - HTRC 2010

Project Code: 128-10-04

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Apple Variety: See notes

Planting Method: Transplant Planting Date: 2006

Spacing: 12 ft Row Spacing: 18 ft

Tillage Type: Conventional Study Design: RCB

Replications: 3

Plot Size: 11 ft wide x 48 ft long

Soil Type: Marlette fine sandy loam OM: 2.1%
Sand: 59.8% Silt: 24.8% Clay: 15.4%

pH: 6.8
CEC: 6.3

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPRE	3/26/10	1:30 PM	39/47	F	Good	1-2 NW	36	0% Cloudy	N
LPRE	4/29/10	11:00 AM	63/52	F	Dry	4-6 S	27	10% Cloudy	N
				F				% Cloudy	
				F				% Cloudy	

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
3/26	APPLE		Dormant	
3/26	ALFA = alfalfa	6", 2-3"		Moderate
3/26	BHPL = buckhorn plantain	4-6"		Many
3/26	DAND = dandelion	1-3"		Many
3/26	HAFE = hard fescue	1-2"		Moderate
3/26	WHCA = white campion	2-3"		Moderate
3/26	WHCL = white clover	2-4"		Moderate
3/26	YERO = yellow rocket	2-4"		Moderate
4/29	APPLE		Blossom	
4/29	ALFA = alfalfa	1-2', 6-8"		Moderate
4/29	BHPL = buckhorn plantain	6-8"		Moderate
4/29	DAND = dandelion	6-10", 4-12"		Many
4/29	HAFE = hard fescue	6-8"		Many
4/29	WHCA = white campion	6-8"		Moderate
4/29	WHCL = white clover	1', 4-6"		Moderate
4/29	YERO = yellow rocket	6-12"		Few

Notes and Comments

- Varieties: Luckyjon, Spartan, Gala, Honeycrisp, Fuji.
-

Weed Control in Apple with Rely and Alion - HTRC 2010

Weed Control in Apple with Rely and Alion - HTRC 2010

Trial ID: 128-10-04
Location: East Lansing, MI

Protocol ID: 128-10-04
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

							HAFE	ALFA	BHPL	DAND	WHCA	
							Apple					
							2/Apr/10	2/Apr/10	2/Apr/10	2/Apr/10	2/Apr/10	2/Apr/10
							RATING	RATING	RATING	RATING	RATING	RATING
							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	Untreated						1.0	1.0	1.0	1.0	1.0	
2	glyphosate	5.5	L	1.4	LB A/A	EPRE	1.0	6.0	4.0	7.0	4.3	7.0
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	7.0	7.0	7.0	7.0	8.0
	glyphosate	5.5	L	1	LB A/A	EPRE						
4	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	4.3	5.0	7.0	7.7	7.3
	glufosinate	1.67	L	1.02	LB A/A	EPRE						
5	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	4.3	6.7	7.7	6.7	6.7
	glufosinate	2.34	L	1.02	LB A/A	EPRE						
	clopyralid	3	L	0.25	LB A/A	EPRE						
6	glufosinate	2.34	L	1.02	LB A/A	EPRE	1.0	4.7	6.7	7.0	6.0	6.7
	clopyralid	3	L	0.25	LB A/A	EPRE						
7	glufosinate	2.34	L	0.88	LB A/A	LPRE	1.0	1.7	1.7	2.3	1.7	3.0
8	glufosinate	2.34	L	1.02	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0	1.0
	indaziflam	1.67	SC	0.065	LB A/A	LPRE						
9	terbacil	80	WDG	2	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0	1.0
	glyphosate	5.5	L	1	LB A/A	LPRE						
LSD (P=.05)							0.00	2.32	1.69	1.74	2.12	2.58
Standard Deviation							0.00	1.33	0.97	0.99	1.21	1.47
CV							0.0	38.54	25.62	21.78	30.04	31.81
							DAND	WHCA	WHCL	YERO	HAFE	
							Apple					
							8/Apr/10	8/Apr/10	8/Apr/10	8/Apr/10	16/Apr/10	16/Apr/10
							RATING	RATING	RATING	RATING	RATING	RATING
							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	Untreated						1.0	1.0	1.0	1.0	1.0	
2	glyphosate	5.5	L	1.4	LB A/A	EPRE	4.3	7.3	5.3	9.0	1.0	8.7
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	6.3	7.3	7.3	10.0	1.0	9.0
	glyphosate	5.5	L	1	LB A/A	EPRE						
4	indaziflam	1.67	SC	0.065	LB A/A	EPRE	4.3	7.0	6.0	9.7	1.0	6.7
	glufosinate	1.67	L	1.02	LB A/A	EPRE						
5	indaziflam	1.67	SC	0.065	LB A/A	EPRE	5.0	6.0	7.0	9.7	1.0	8.0
	glufosinate	2.34	L	1.02	LB A/A	EPRE						
	clopyralid	3	L	0.25	LB A/A	EPRE						
6	glufosinate	2.34	L	1.02	LB A/A	EPRE	4.3	7.0	8.3	9.7	1.0	8.0
	clopyralid	3	L	0.25	LB A/A	EPRE						
7	glufosinate	2.34	L	0.88	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0	3.0
8	glufosinate	2.34	L	1.02	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0	1.0
	indaziflam	1.67	SC	0.065	LB A/A	LPRE						
9	terbacil	80	WDG	2	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0	1.0
	glyphosate	5.5	L	1	LB A/A	LPRE						
LSD (P=.05)							1.71	1.71	2.17	0.84	0.00	2.27
Standard Deviation							0.99	0.99	1.25	0.49	0.00	1.31
CV							31.47	23.06	29.67	8.41	0.0	25.46

Weed Control in Apple with Rely and Alion - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							WHCL	YERO	Apple		HAFE	ALFA	BHPL
Crop Name													
Rating Date							2/Apr/10	2/Apr/10	8/Apr/10	8/Apr/10	8/Apr/10	8/Apr/10	8/Apr/10
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	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	Untreated						1.0	1.0	1.0	1.0	1.0	1.0	1.0
2	glyphosate	5.5	L	1.4	LB A/A	EPRE	3.0	6.3	1.0	8.7	5.3	7.3	7.3
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	2.0	10.0	1.0	8.3	6.7	7.7	7.7
4	glyphosate	5.5	L	1	LB A/A	EPRE							
4	indaziflam	1.67	SC	0.065	LB A/A	EPRE	7.0	9.7	1.0	6.7	2.3	7.3	7.3
5	glufosinate	1.67	L	1.02	LB A/A	EPRE							
5	indaziflam	1.67	SC	0.065	LB A/A	EPRE	7.0	9.7	1.0	6.3	5.0	7.3	7.3
6	glufosinate	2.34	L	1.02	LB A/A	EPRE							
6	glyphosate	5.5	L	1.4	LB A/A	EPRE	6.7	10.0	1.0	7.0	7.7	7.7	7.7
7	glufosinate	2.34	L	0.88	LB A/A	LPRE	1.7	3.3	1.0	1.0	1.0	1.0	1.0
8	glufosinate	2.34	L	1.02	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0	1.0	1.0
9	indaziflam	1.67	SC	0.065	LB A/A	LPRE							
9	terbacil	80	WDG	2	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0	1.0	1.0
9	glyphosate	5.5	L	1	LB A/A	LPRE							
LSD (P=.05)							1.03	4.13	0.00	1.50	2.14	0.86	0.86
Standard Deviation							0.59	2.36	0.00	0.87	1.24	0.50	0.50
CV							17.4	40.85	0.0	19.01	35.88	10.79	10.79
Pest Code							ALFA	DAND	WHCA	WHCL	WICA		
Crop Name													
Rating Date							16/Apr/10	16/Apr/10	16/Apr/10	16/Apr/10	16/Apr/10	16/Apr/10	16/Apr/10
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	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	Untreated						1.0	1.0	1.0	1.0	1.0	1.0	1.0
2	glyphosate	5.5	L	1.4	LB A/A	EPRE	6.0	7.3	8.3	6.3	9.7	9.7	9.7
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	5.3	8.3	9.0	6.7	9.7	9.7	9.7
4	glyphosate	5.5	L	1	LB A/A	EPRE							
4	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.3	5.0	6.7	4.3	7.7	7.7	7.7
5	glufosinate	1.67	L	1.02	LB A/A	EPRE							
5	indaziflam	1.67	SC	0.065	LB A/A	EPRE	7.3	6.3	8.0	8.0	9.0	9.0	9.0
6	glufosinate	2.34	L	1.02	LB A/A	EPRE							
6	glyphosate	5.5	L	1.4	LB A/A	EPRE	8.3	5.3	7.7	8.3	9.7	9.7	9.7
7	glufosinate	2.34	L	0.88	LB A/A	LPRE	1.0	1.0	1.0	1.0	3.0	3.0	3.0
8	glufosinate	2.34	L	1.02	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0	1.0	1.0
9	indaziflam	1.67	SC	0.065	LB A/A	LPRE							
9	terbacil	80	WDG	2	LB A/A	LPRE	1.0	1.0	1.0	1.0	1.0	1.0	1.0
9	glyphosate	5.5	L	1	LB A/A	LPRE							
LSD (P=.05)							2.10	1.64	1.13	1.61	2.54	2.54	2.54
Standard Deviation							1.21	0.95	0.65	0.93	1.47	1.47	1.47
CV							33.72	23.48	13.45	22.29	25.53	25.53	25.53

Weed Control in Apple with Rely and Alion - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							HAFE	QUGR	ALFA	BHPL	
Crop Name							Apple				
Rating Date							29/Apr/10	29/Apr/10	29/Apr/10	29/Apr/10	
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	Untreated						1.0	1.0	1.0	1.0	
2	glyphosate	5.5	L	1.4	LB A/A	EPRE	1.0	9.7	9.7	6.0	
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	10.0	9.7	5.7	
4	glyphosate	5.5	L	1	LB A/A	EPRE					
4	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	5.3	8.0	1.0	
5	glufosinate	1.67	L	1.02	LB A/A	EPRE					
5	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	7.3	8.0	8.3	
6	glufosinate	2.34	L	1.02	LB A/A	EPRE					
6	glyphosate	5.5	L	1	LB A/A	EPRE					
6	glufosinate	2.34	L	1.02	LB A/A	EPRE	1.0	6.7	8.0	9.3	
7	glyphosate	5.5	L	1	LB A/A	EPRE					
7	glufosinate	2.34	L	0.88	LB A/A	LPRE	1.0	1.3	1.0	1.3	
8	glufosinate	2.34	L	1.02	LB A/A	LPRE	1.0	2.7	1.3	1.0	
9	indaziflam	1.67	SC	0.065	LB A/A	LPRE					
9	terbacil	80	WDG	2	LB A/A	LPRE	1.0	2.7	2.0	1.0	
9	glyphosate	5.5	L	1	LB A/A	LPRE					
LSD (P=.05)							0.00	2.73	1.85	2.35	3.74
Standard Deviation							0.00	1.58	1.07	1.36	2.16
CV							0.0	30.38	19.82	35.24	44.19

Pest Code							DAND	WHCA	WHCL	WICA	
Crop Name							Apple				
Rating Date							29/Apr/10	29/Apr/10	29/Apr/10	29/Apr/10	24/May/10
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	Untreated						1.0	1.0	1.0	1.0	1.0
2	glyphosate	5.5	L	1.4	LB A/A	EPRE	8.3	9.0	7.7	9.0	1.0
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	8.0	9.3	8.7	9.3	1.0
4	glyphosate	5.5	L	1	LB A/A	EPRE					
4	indaziflam	1.67	SC	0.065	LB A/A	EPRE	3.0	4.0	6.3	2.7	1.0
5	glufosinate	1.67	L	1.02	LB A/A	EPRE					
5	indaziflam	1.67	SC	0.065	LB A/A	EPRE	4.7	5.7	10.0	8.0	1.0
6	glufosinate	2.34	L	1.02	LB A/A	EPRE					
6	glyphosate	5.5	L	1	LB A/A	EPRE					
6	glufosinate	2.34	L	1.02	LB A/A	EPRE	3.7	5.7	9.7	6.0	1.0
7	glyphosate	5.5	L	1	LB A/A	EPRE					
7	glufosinate	2.34	L	0.88	LB A/A	LPRE	1.7	1.0	1.0	1.0	1.0
8	glufosinate	2.34	L	1.02	LB A/A	LPRE	1.3	1.0	1.0	1.0	1.0
9	indaziflam	1.67	SC	0.065	LB A/A	LPRE					
9	terbacil	80	WDG	2	LB A/A	LPRE	1.7	1.0	1.3	1.3	1.0
9	glyphosate	5.5	L	1	LB A/A	LPRE					
LSD (P=.05)							2.16	3.51	2.85	3.25	0.00
Standard Deviation							1.25	2.03	1.64	1.88	0.00
CV							33.62	48.42	31.71	42.95	0.0

Weed Control in Apple with Rely and Alion - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							HAFE	ALFA	BFTF	BHPL	DAND
Crop Name											
Rating Date							24/May/10	24/May/10	24/May/10	24/May/10	24/May/10
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	Untreated						1.0	1.0	1.0	1.0	1.0
2	glyphosate	5.5 L	L	1.4	LB A/A	EPRE	7.7	4.7	3.7	4.3	6.7
3	indaziflam	1.67 SC	SC	0.065	LB A/A	EPRE	10.0	3.3	4.7	10.0	6.3
4	glyphosate	5.5 L	L	1	LB A/A	EPRE					
	indaziflam	1.67 SC	SC	0.065	LB A/A	EPRE	4.3	2.0	3.7	10.0	2.7
5	glufosinate	1.67 L	L	1.02	LB A/A	EPRE					
	indaziflam	1.67 SC	SC	0.065	LB A/A	EPRE	3.3	9.7	8.7	10.0	7.0
6	glufosinate	2.34 L	L	1.02	LB A/A	EPRE					
	clopyralid	3 L	L	0.25	LB A/A	EPRE					
7	glufosinate	2.34 L	L	1.02	LB A/A	EPRE	3.7	8.7	8.7	9.0	4.3
	clopyralid	3 L	L	0.25	LB A/A	EPRE					
8	glufosinate	2.34 L	L	0.88	LB A/A	LPRE	6.3	4.0	5.7	1.7	8.0
9	glufosinate	2.34 L	L	1.02	LB A/A	LPRE	8.0	5.7	9.3	9.7	8.7
	indaziflam	1.67 SC	SC	0.065	LB A/A	LPRE					
9	terbacil	80 WDG	WDG	2	LB A/A	LPRE	8.7	7.0	7.7	9.3	8.0
	glyphosate	5.5 L	L	1	LB A/A	LPRE					
LSD (P=.05)							3.60	3.21	3.72	2.39	1.85
Standard Deviation							2.08	1.86	2.15	1.38	1.07
CV							35.35	36.31	36.46	19.1	18.31

Pest Code							RECL	WHCA	WHCL	WICA	Apple
Crop Name											
Rating Date							24/May/10	24/May/10	24/May/10	24/May/10	25/Jun/10
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	Untreated						1.0	1.0	1.7	1.0	1.0
2	glyphosate	5.5 L	L	1.4	LB A/A	EPRE	9.3	9.0	4.7	3.3	1.0
3	indaziflam	1.67 SC	SC	0.065	LB A/A	EPRE	8.3	6.0	9.0	2.3	1.0
	glyphosate	5.5 L	L	1	LB A/A	EPRE					
4	indaziflam	1.67 SC	SC	0.065	LB A/A	EPRE	4.7	7.7	6.0	2.0	1.0
	glufosinate	1.67 L	L	1.02	LB A/A	EPRE					
5	indaziflam	1.67 SC	SC	0.065	LB A/A	EPRE	10.0	4.3	10.0	4.7	1.0
	glufosinate	2.34 L	L	1.02	LB A/A	EPRE					
6	clopyralid	3 L	L	0.25	LB A/A	EPRE					
	glufosinate	2.34 L	L	1.02	LB A/A	EPRE	9.3	4.7	10.0	7.0	1.0
7	clopyralid	3 L	L	0.25	LB A/A	EPRE					
	glufosinate	2.34 L	L	0.88	LB A/A	LPRE	10.0	8.0	10.0	7.0	1.0
8	glufosinate	2.34 L	L	1.02	LB A/A	LPRE	9.3	8.7	10.0	8.3	1.0
	indaziflam	1.67 SC	SC	0.065	LB A/A	LPRE					
9	terbacil	80 WDG	WDG	2	LB A/A	LPRE	10.0	9.0	10.0	10.0	1.0
	glyphosate	5.5 L	L	1	LB A/A	LPRE					
LSD (P=.05)							3.31	5.35	4.13	3.69	0.00
Standard Deviation							1.91	3.09	2.39	2.13	0.00
CV							23.89	47.65	30.1	42.04	0.0

Weed Control in Apple with Rely and Alion - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							HAFE	ALFA	BFTF	BHPL	DAND
Crop Name											
Rating Date							25/Jun/10	25/Jun/10	25/Jun/10	25/Jun/10	25/Jun/10
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	Untreated						2.7	5.3	1.3	6.3	1.3
2	glyphosate	5.5	L	1.4	LB A/A	EPRE	6.3	3.7	3.0	4.0	3.0
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	7.0	5.0	1.7	10.0	2.0
4	glyphosate	5.5	L	1	LB A/A	EPRE					
4	indaziflam	1.67	SC	0.065	LB A/A	EPRE	2.3	1.0	3.3	10.0	1.0
	glufosinate	1.67	L	1.02	LB A/A	EPRE					
5	indaziflam	1.67	SC	0.065	LB A/A	EPRE	3.3	7.7	6.0	8.3	2.7
	glufosinate	2.34	L	1.02	LB A/A	EPRE					
	copyralid	3	L	0.25	LB A/A	EPRE					
6	glufosinate	2.34	L	1.02	LB A/A	EPRE	5.0	8.7	3.7	4.7	3.0
	copyralid	3	L	0.25	LB A/A	EPRE					
7	glufosinate	2.34	L	0.88	LB A/A	LPRE	3.3	3.3	4.0	1.0	3.3
8	glufosinate	2.34	L	1.02	LB A/A	LPRE	7.7	5.0	4.3	9.0	4.7
	indaziflam	1.67	SC	0.065	LB A/A	LPRE					
9	terbacil	80	WDG	2	LB A/A	LPRE	9.7	6.7	5.0	10.0	3.3
	glyphosate	5.5	L	1	LB A/A	LPRE					
LSD (P=.05)							2.33	4.36	6.20	4.05	2.90
Standard Deviation							1.35	2.52	3.58	2.34	1.68
CV							25.61	48.92	99.75	33.27	62.05
Pest Code							WICA		HAFE	ALFA	BFTF
Crop Name								Apple			
Rating Date							25/Jun/10	28/Jul/10	28/Jul/10	28/Jul/10	28/Jul/10
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	Untreated						1.7	1.3	2.0	1.7	1.0
2	glyphosate	5.5	L	1.4	LB A/A	EPRE	2.3	1.0	8.0	4.7	2.0
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	1.0	9.0	3.3	4.7
	glyphosate	5.5	L	1	LB A/A	EPRE					
4	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	1.0	4.3	2.0	3.3
	glufosinate	1.67	L	1.02	LB A/A	EPRE					
5	indaziflam	1.67	SC	0.065	LB A/A	EPRE	2.3	1.0	4.7	8.3	5.7
	glufosinate	2.34	L	1.02	LB A/A	EPRE					
	copyralid	3	L	0.25	LB A/A	EPRE					
6	glufosinate	2.34	L	1.02	LB A/A	EPRE	4.7	1.0	7.7	7.3	3.0
	copyralid	3	L	0.25	LB A/A	EPRE					
7	glufosinate	2.34	L	0.88	LB A/A	LPRE	4.7	1.0	6.0	4.3	4.0
8	glufosinate	2.34	L	1.02	LB A/A	LPRE	4.7	1.0	5.7	4.3	6.0
	indaziflam	1.67	SC	0.065	LB A/A	LPRE					
9	terbacil	80	WDG	2	LB A/A	LPRE	9.0	1.0	9.3	4.7	2.7
	glyphosate	5.5	L	1	LB A/A	LPRE					
LSD (P=.05)							4.23	0.33	4.67	6.56	5.28
Standard Deviation							2.44	0.19	2.70	3.79	3.05
CV							70.17	18.56	42.83	83.94	84.83

Weed Control in Apple with Rely and Alion - HTRC 2010

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Pest Code							BHPL	RECL	WICA
Crop Name									
Rating Date							28/Jul/10	28/Jul/10	28/Jul/10
Rating Data Type							RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	Untreated						5.3	1.0	2.7
2	glyphosate	5.5	L	1.4	LB A/A	EPRE	2.0	1.3	3.3
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	8.3	8.3	1.0
4	glyphosate	5.5	L	1	LB A/A	EPRE			
	indaziflam	1.67	SC	0.065	LB A/A	EPRE	10.0	7.7	2.0
5	glufosinate	1.67	L	1.02	LB A/A	EPRE			
	indaziflam	1.67	SC	0.065	LB A/A	EPRE	9.3	10.0	3.3
6	glufosinate	2.34	L	1.02	LB A/A	EPRE			
	clopyralid	3	L	0.25	LB A/A	EPRE	4.0	9.0	5.0
7	glufosinate	2.34	L	1.02	LB A/A	EPRE			
	clopyralid	3	L	0.25	LB A/A	EPRE			
8	glufosinate	2.34	L	0.88	LB A/A	LPRE	1.3	7.0	4.7
9	glufosinate	2.34	L	1.02	LB A/A	LPRE	9.0	10.0	4.7
	indaziflam	1.67	SC	0.065	LB A/A	LPRE			
9	terbacil	80	WDG	2	LB A/A	LPRE	9.3	10.0	10.0
	glyphosate	5.5	L	1	LB A/A	LPRE			
LSD (P=.05)							4.73	3.93	3.27
Standard Deviation							2.74	2.27	1.89
CV							41.96	31.74	46.43

Dandelion Control in Apple - Fall 2009 & Spring 2010 HTRC

Project Code: 128-10-02

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Apple Variety: See notes
 Planting Method: Planting Date: 4/19/06
 Spacing: 12 ft Row Spacing: 18 ft
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 11 ft wide x 48 ft long

Soil Type: Marlette fine sandy loam OM: 2.1% pH: 6.8
 Sand: 55% Silt: 35% Clay: 10% CEC: 6.35

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
FALL09	11/25/09	1:00 PM	48/46	F	Wet	4-7 SW	78	100%Cloudy	N
SPRING10	3/31/10	11:30 AM	63/49	F	Good	5-8 S	46	15%Cloudy	N

Crop and Weed Information at Application

	Height or Diameter	Growth Stage	Density
11/25 APPLE	8-10'	Dormant	
11/25 BFTF = birdsfoot trefoil			Many
11/25 BHPL = buckhorn plantain			Few
11/25 DAND = dandelion			Moderate
11/25 WHCL = white clover			Many
11/25 = thistle			Few
3/31 APPLE	8-10'	Small Bud	
3/31 ANBG = annual bluegrass	2-3"		Few
3/31 BHPL = buckhorn plantain	4-5", 0.5"		Few
3/31 DAND = dandelion	3-6", 1-2"		Moderate/Many
3/31 RESO = red sorrel	1-2", 0.5"		Few
3/31 HAFE = hard fescue			Few
3/31 WHCL = white clover	2-4", 1-2"		Many
3/31 YERO = yellow rocket	2-4", < 0.5"		Moderate

Notes and Comments

1. Varieties: Luckyjon, Spartan, Gala, Honeycrisp, Fuji.
- 2.

Dandelion Control in Apple - Fall 2009 & Spring 2010 HTRC

Dandelion Control in Apple - Fall 2009 & Spring 2010 HTRC

Trial ID: 128-10-02
Location: East Lansing, MI

Protocol ID: 128-10-02
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

							HAFE	BHPL	DAND	WHCA	
							Apple				
							12/Apr/10	12/Apr/10	12/Apr/10	12/Apr/10	
							RATING	RATING	RATING	RATING	
							1-10	1-10	1-10	1-10	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Rate	Growth Stage					
1	glyphosate	5.5	L	1.12	LB A/A	Spring10	1.0	5.3	5.0	3.0	6.7
2	indaziflam	1.67	SC	0.065	LB A/A	FALL09	1.0	9.0	9.7	8.3	9.0
	glyphosate	5.5	L	1.12	LB A/A	FALL09					
3	glyphosate	5.5	L	1.12	LB A/A	FALL09	1.0	9.3	10.0	9.0	10.0
	indaziflam	1.67	SC	0.065	LB A/A	Spring10					
	glyphosate	5.5	L	1.12	LB A/A	Spring10					
4	indaziflam	1.67	SC	0.065	LB A/A	FALL09	1.0	10.0	10.0	9.7	10.0
	glyphosate	5.5	L	1.12	LB A/A	FALL09					
	indaziflam	1.67	SC	0.046	LB A/A	Spring10					
	glyphosate	5.5	L	1.12	LB A/A	Spring10					
5	indaziflam	1.67	SC	0.065	LB A/A	FALL09	1.0	9.7	10.0	9.0	10.0
	glyphosate	5.5	L	1.12	LB A/A	FALL09					
	indaziflam	1.67	SC	0.065	LB A/A	Spring10					
	glyphosate	5.5	L	1.12	LB A/A	Spring10					
6	indaziflam	1.67	SC	0.065	LB A/A	FALL09	1.0	7.0	9.3	9.7	9.7
	2, 4-D	3.8	L	0.5	LB A/A	FALL09					
	indaziflam	1.67	SC	0.065	LB A/A	Spring10					
	glyphosate	5.5	L	1.12	LB A/A	Spring10					
7	indaziflam	1.67	SC	0.065	LB A/A	FALL09	1.0	3.7	6.0	3.7	6.0
	clopyralid	3	L	0.188	LB A/A	FALL09					
8	indaziflam	1.67	SC	0.065	LB A/A	Spring10	1.0	1.0	7.3	6.0	8.3
	clopyralid	3	L	0.188	LB A/A	Spring10					
LSD (P=.05)							0.00	2.24	3.36	2.37	2.98
Standard Deviation							0.00	1.28	1.92	1.35	1.70
CV							0.0	18.61	22.77	18.54	19.51

Dandelion Control in Apple - Fall 2009 & Spring 2010 HTRC

Dept. of Horticulture, MSU

Pest Code							WHCL	YERO	Apple		QUGR	
Crop Name												
Rating Date							12/Apr/10	12/Apr/10	29/Apr/10	29/Apr/10	29/Apr/10	
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	Form Rate	Growth Stage						
1	glyphosate	5.5	L	1.12	LB A/A	Spring10	6.7	8.3	1.0	8.3	10.0	
2	indaziflam	1.67	SC	0.065	LB A/A	FALL09	8.7	10.0	1.0	8.3	9.0	
3	glyphosate	5.5	L	1.12	LB A/A	FALL09	9.0	10.0	1.0	9.3	9.7	
		indaziflam	1.67	SC	0.065	LB A/A						Spring10
4	glyphosate	5.5	L	1.12	LB A/A	Spring10	9.7	10.0	1.0	10.0	10.0	
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
5	glyphosate	5.5	L	1.12	LB A/A	Spring10	10.0	10.0	1.0	9.0	9.3	
		indaziflam	1.67	SC	0.046	LB A/A						Spring10
		glyphosate	5.5	L	1.12	LB A/A						FALL09
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
6	glyphosate	5.5	L	1.12	LB A/A	Spring10	9.3	10.0	4.3	10.0	10.0	
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
		2, 4-D	3.8	L	0.5	LB A/A						FALL09
		indaziflam	1.67	SC	0.065	LB A/A						Spring10
7	glyphosate	5.5	L	1.12	LB A/A	Spring10	10.0	9.3	1.0	4.0	10.0	
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
8	clopyralid	3	L	0.188	LB A/A	FALL09	9.3	9.7	1.0	3.3	6.7	
		indaziflam	1.67	SC	0.065	LB A/A						Spring10
	clopyralid	3	L	0.188	LB A/A	Spring10						
LSD (P=.05)							0.94	1.11	3.58	3.05	3.36	
Standard Deviation							0.53	0.64	2.04	1.74	1.92	
CV							5.88	6.58	144.09	22.38	20.58	

Dandelion Control in Apple - Fall 2009 & Spring 2010 HTRC

Dept. of Horticulture, MSU

Pest Code							BFTF	BHPL	DAND	WHCA	WHCL
Crop Name							29/Apr/10	29/Apr/10	29/Apr/10	29/Apr/10	29/Apr/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	glyphosate	5.5	L	1.12	LB A/A	Spring10	1.0	9.7	8.7	9.7	8.3
2	indaziflam	1.67	SC	0.065	LB A/A	FALL09	5.3	10.0	7.3	10.0	9.7
	glyphosate	5.5	L	1.12	LB A/A	FALL09					
3	glyphosate	5.5	L	1.12	LB A/A	FALL09	7.0	10.0	8.7	10.0	9.0
	indaziflam	1.67	SC	0.065	LB A/A	Spring10					
	glyphosate	5.5	L	1.12	LB A/A	Spring10					
4	indaziflam	1.67	SC	0.065	LB A/A	FALL09	10.0	10.0	9.0	10.0	10.0
	glyphosate	5.5	L	1.12	LB A/A	FALL09					
	indaziflam	1.67	SC	0.046	LB A/A	Spring10					
	glyphosate	5.5	L	1.12	LB A/A	Spring10					
5	indaziflam	1.67	SC	0.065	LB A/A	FALL09	8.7	10.0	9.0	10.0	10.0
	glyphosate	5.5	L	1.12	LB A/A	FALL09					
	indaziflam	1.67	SC	0.065	LB A/A	Spring10					
	glyphosate	5.5	L	1.12	LB A/A	Spring10					
6	indaziflam	1.67	SC	0.065	LB A/A	FALL09	9.0	10.0	9.0	10.0	9.7
	2, 4-D	3.8	L	0.5	LB A/A	FALL09					
	indaziflam	1.67	SC	0.065	LB A/A	Spring10					
	glyphosate	5.5	L	1.12	LB A/A	Spring10					
7	indaziflam	1.67	SC	0.065	LB A/A	FALL09	9.3	10.0	3.0	7.0	10.0
	clopyralid	3	L	0.188	LB A/A	FALL09					
8	indaziflam	1.67	SC	0.065	LB A/A	Spring10	10.0	9.3	3.7	10.0	10.0
	clopyralid	3	L	0.188	LB A/A	Spring10					
LSD (P=.05)							4.34	0.75	2.16	3.26	1.46
Standard Deviation							2.48	0.43	1.23	1.86	0.83
CV							32.85	4.35	16.93	19.44	8.67

Dandelion Control in Apple - Fall 2009 & Spring 2010 HTRC

Dept. of Horticulture, MSU

Pest Code		WICA					HAFE	ALFA	BFTF		
Crop Name		Apple									
Rating Date		29/Apr/10	24/May/10	24/May/10	24/May/10	24/May/10					
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	glyphosate	5.5 L	L	1.12	LB A/A	Spring10	10.0	1.0	7.3	4.0	1.0
2	indaziflam	1.67 SC	SC	0.065	LB A/A	FALL09	10.0	1.0	7.7	6.7	5.3
3	glyphosate	5.5 L	L	1.12	LB A/A	FALL09	9.3	1.0	8.3	6.0	5.0
	indaziflam	1.67 SC	SC	0.065	LB A/A	Spring10					
4	glyphosate	5.5 L	L	1.12	LB A/A	Spring10	10.0	1.0	10.0	9.0	9.7
	indaziflam	1.67 SC	SC	0.065	LB A/A	FALL09					
	glyphosate	5.5 L	L	1.12	LB A/A	FALL09					
5	indaziflam	1.67 SC	SC	0.065	LB A/A	Spring10	10.0	1.0	8.7	5.7	6.7
	glyphosate	5.5 L	L	1.12	LB A/A	FALL09					
	indaziflam	1.67 SC	SC	0.065	LB A/A	Spring10					
6	glyphosate	5.5 L	L	1.12	LB A/A	Spring10	9.7	1.0	9.7	9.7	9.0
	indaziflam	1.67 SC	SC	0.065	LB A/A	FALL09					
	2, 4-D	3.8 L	L	0.5	LB A/A	FALL09					
7	indaziflam	1.67 SC	SC	0.065	LB A/A	Spring10	6.3	1.0	3.3	8.0	7.7
	glyphosate	5.5 L	L	1.12	LB A/A	FALL09					
	clopyralid	3 L	L	0.188	LB A/A	FALL09					
8	indaziflam	1.67 SC	SC	0.065	LB A/A	Spring10	4.7	1.0	3.7	8.7	8.3
	clopyralid	3 L	L	0.188	LB A/A	Spring10					
LSD (P=.05)							3.45	0.00	3.04	3.66	3.28
Standard Deviation							1.97	0.00	1.73	2.09	1.88
CV							22.53	0.0	23.64	28.98	28.49

Dandelion Control in Apple - Fall 2009 & Spring 2010 HTRC

Dept. of Horticulture, MSU

Pest Code							BHPL	DAND	WHCA	WHCL	WICA	
Crop Name												
Rating Date							24/May/10	24/May/10	24/May/10	24/May/10	24/May/10	24/May/10
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	glyphosate	5.5	L	1.12	LB A/A	Spring10	8.3	7.3	10.0	9.3	6.0	
2	indaziflam	1.67	SC	0.065	LB A/A	FALL09	9.3	2.3	10.0	6.7	10.0	
3	glyphosate	5.5	L	1.12	LB A/A	FALL09	10.0	4.7	10.0	7.7	9.0	
		indaziflam	1.67	SC	0.065	LB A/A						Spring10
4	glyphosate	5.5	L	1.12	LB A/A	Spring10	10.0	7.3	10.0	10.0	10.0	
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
		glyphosate	5.5	L	1.12	LB A/A						FALL09
		indaziflam	1.67	SC	0.046	LB A/A						Spring10
5	glyphosate	5.5	L	1.12	LB A/A	Spring10	10.0	5.3	10.0	10.0	10.0	
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
		glyphosate	5.5	L	1.12	LB A/A						FALL09
		indaziflam	1.67	SC	0.065	LB A/A						Spring10
6	glyphosate	5.5	L	1.12	LB A/A	Spring10	10.0	7.3	10.0	9.7	7.0	
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
		2, 4-D	3.8	L	0.5	LB A/A						FALL09
		indaziflam	1.67	SC	0.065	LB A/A						Spring10
7	glyphosate	5.5	L	1.12	LB A/A	Spring10	10.0	3.7	7.0	10.0	3.3	
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
		clopyralid	3	L	0.188	LB A/A						FALL09
8	indaziflam	1.67	SC	0.065	LB A/A	Spring10	9.0	3.7	10.0	10.0	4.7	
		clopyralid	3	L	0.188	LB A/A						Spring10
LSD (P=.05)							1.93	3.30	3.22	3.57	5.47	
Standard Deviation							1.10	1.89	1.84	2.04	3.12	
CV							11.5	36.19	19.09	22.22	41.61	

Dandelion Control in Apple - Fall 2009 & Spring 2010 HTRC

Dept. of Horticulture, MSU

Pest Code							HAFE	ALFA	BFTF	DAND		
Crop Name							Apple					
Rating Date							25/Jun/10	25/Jun/10	25/Jun/10	25/Jun/10		
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	glyphosate	5.5	L	1.12	LB A/A	Spring10	1.0	6.7	9.3	1.0	4.7	
2	indaziflam	1.67	SC	0.065	LB A/A	FALL09	1.0	7.0	5.0	3.0	2.0	
3	glyphosate	5.5	L	1.12	LB A/A	FALL09	1.0	6.7	10.0	2.0	3.3	
		indaziflam	1.67	SC	0.065	LB A/A						Spring10
4	glyphosate	5.5	L	1.12	LB A/A	Spring10	1.0	10.0	9.3	6.7	4.0	
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
		glyphosate	5.5	L	1.12	LB A/A						FALL09
		indaziflam	1.67	SC	0.046	LB A/A						Spring10
5	glyphosate	5.5	L	1.12	LB A/A	Spring10	1.0	7.0	7.3	2.0	3.0	
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
		glyphosate	5.5	L	1.12	LB A/A						FALL09
		indaziflam	1.67	SC	0.065	LB A/A						Spring10
6	glyphosate	5.5	L	1.12	LB A/A	Spring10	1.0	7.3	10.0	3.7	3.0	
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
		2, 4-D	3.8	L	0.5	LB A/A						FALL09
		indaziflam	1.67	SC	0.065	LB A/A						Spring10
7	glyphosate	5.5	L	1.12	LB A/A	Spring10	1.0	2.0	10.0	5.3	2.0	
		indaziflam	1.67	SC	0.065	LB A/A						FALL09
		clopyralid	3	L	0.188	LB A/A						FALL09
8	indaziflam	1.67	SC	0.065	LB A/A	Spring10	1.0	2.7	10.0	6.7	2.7	
		clopyralid	3	L	0.188	LB A/A						Spring10
LSD (P=.05)							0.00	2.73	3.92	3.97	1.78	
Standard Deviation							0.00	1.56	2.24	2.27	1.01	
CV							0.0	25.3	25.24	59.84	32.91	

Dandelion Control in Apple - Fall 2009 & Spring 2010 HTRC

Dept. of Horticulture, MSU

Pest Code							WICA	Apple		HAFE	BFTF	BHPL
Crop Name							25/Jun/10	28/Jul/10	28/Jul/10	28/Jul/10	28/Jul/10	28/Jul/10
Rating Date							RATING	RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10	1-10
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	glyphosate	5.5	L	1.12	LB A/A	Spring10	5.0	1.0	8.0	1.0	5.3	
2	indaziflam	1.67	SC	0.065	LB A/A	FALL09	6.3	1.0	9.7	3.3	10.0	
	glyphosate	5.5	L	1.12	LB A/A	FALL09						
3	glyphosate	5.5	L	1.12	LB A/A	FALL09	5.7	1.0	8.3	1.7	10.0	
	indaziflam	1.67	SC	0.065	LB A/A	Spring10						
	glyphosate	5.5	L	1.12	LB A/A	Spring10						
4	indaziflam	1.67	SC	0.065	LB A/A	FALL09	8.7	1.0	10.0	7.0	10.0	
	glyphosate	5.5	L	1.12	LB A/A	FALL09						
	indaziflam	1.67	SC	0.046	LB A/A	Spring10						
	glyphosate	5.5	L	1.12	LB A/A	Spring10						
5	indaziflam	1.67	SC	0.065	LB A/A	FALL09	4.7	1.0	9.3	3.0	10.0	
	glyphosate	5.5	L	1.12	LB A/A	FALL09						
	indaziflam	1.67	SC	0.065	LB A/A	Spring10						
	glyphosate	5.5	L	1.12	LB A/A	Spring10						
6	indaziflam	1.67	SC	0.065	LB A/A	FALL09	4.3	1.0	10.0	4.0	10.0	
	2, 4-D	3.8	L	0.5	LB A/A	FALL09						
	indaziflam	1.67	SC	0.065	LB A/A	Spring10						
	glyphosate	5.5	L	1.12	LB A/A	Spring10						
7	indaziflam	1.67	SC	0.065	LB A/A	FALL09	2.3	1.0	5.7	5.3	10.0	
	clopyralid	3	L	0.188	LB A/A	FALL09						
8	indaziflam	1.67	SC	0.065	LB A/A	Spring10	2.7	1.0	6.0	3.3	10.0	
	clopyralid	3	L	0.188	LB A/A	Spring10						
LSD (P=.05)							4.21	0.00	4.04	3.85	2.79	
Standard Deviation							2.41	0.00	2.31	2.20	1.59	
CV							48.54	0.0	27.53	61.32	16.93	

Dandelion Control in Apple - Fall 2009 & Spring 2010 HTRC

Dept. of Horticulture, MSU

Pest Code							DAND	WICA
Crop Name								
Rating Date							28/Jul/10	28/Jul/10
Rating Data Type							RATING	RATING
Rating Unit							1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		
1	glyphosate	5.5	L	1.12	LB A/A	Spring10	4.3	4.0
2	indaziflam	1.67	SC	0.065	LB A/A	FALL09	1.7	5.7
3	glyphosate	5.5	L	1.12	LB A/A	FALL09	3.3	4.0
	indaziflam	1.67	SC	0.065	LB A/A	Spring10		
4	glyphosate	5.5	L	1.12	LB A/A	Spring10	2.7	6.3
	indaziflam	1.67	SC	0.065	LB A/A	FALL09		
	glyphosate	5.5	L	1.12	LB A/A	FALL09		
	indaziflam	1.67	SC	0.046	LB A/A	Spring10		
5	glyphosate	5.5	L	1.12	LB A/A	Spring10	2.3	5.7
	indaziflam	1.67	SC	0.065	LB A/A	FALL09		
	glyphosate	5.5	L	1.12	LB A/A	FALL09		
	indaziflam	1.67	SC	0.065	LB A/A	Spring10		
6	glyphosate	5.5	L	1.12	LB A/A	Spring10	2.0	2.0
	indaziflam	1.67	SC	0.065	LB A/A	FALL09		
	2, 4-D	3.8	L	0.5	LB A/A	FALL09		
	indaziflam	1.67	SC	0.065	LB A/A	Spring10		
7	glyphosate	5.5	L	1.12	LB A/A	Spring10	1.7	2.0
	indaziflam	1.67	SC	0.065	LB A/A	FALL09		
	clopyralid	3	L	0.188	LB A/A	FALL09		
8	indaziflam	1.67	SC	0.065	LB A/A	Spring10	2.0	1.7
	clopyralid	3	L	0.188	LB A/A	Spring10		
LSD (P=.05)							2.85	3.51
Standard Deviation							1.63	2.01
CV							65.03	51.22

Fall Weed Control in Blueberry - Getzoff Farms 2009-2010

Project Code: 127-10-01

Location: Fennville, MI

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Blueberry Variety: Jersey
 Planting Method: Transplant Planting Date:
 Spacing: 4-5 FT Row Spacing: 10 FT
 Tillage Type: Conventional Study Design: RCB
 Plot Size: 6 ft wide x 40 ft long

Replications: 3

Soil Type: Loamy sand OM: 5.2% pH: 4.6
 Sand: 82.6% Silt: 7.4% Clay: 10.1% CEC: 17.7

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
Dormant	10/29/09	1:30 PM	59/55	F	Damp	3 SW	69	100%Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
10/29	BLBE = blueberry	6'	Dormant	
10/29	COMU = common mullien	8-12", 4-6"		Few
10/29	GORO = goldenrod	2-3'		Moderate
10/29	HEBI = henbit	0.5-1"		Many
10/29	QUGR = quackgrass	3-4"		Many
10/29	WILRASP = wild raspberry	6-10"		Moderate

Notes and Comments

- 1.
- 2.

Fall Weed Control in Blueberry - Getzoff Farms 2009-2010

Fall Weed Control in Blueberry - Getzoff Farms 2009-10

Trial ID: 127-10-01
Location: Glenn, MI

Protocol ID: 127-10-01
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

Pest Code							ANBG	ORGR	HAFE	MECR	
Crop Name							Blueberry				
Rating Date							26/May/10	26/May/10	26/May/10	26/May/10	26/May/10
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	FALL 09	1.0	10.0	9.3	10.0	9.7
	terbacil	80	WDG	1.6	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
2	diuron	80	DF	1.6	LB A/A	FALL 09	1.0	10.0	9.7	10.0	8.7
	terbacil	80	WP	1.6	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
3	mesotrione	4	SC	0.188	LB A/A	FALL 09	1.0	10.0	9.3	10.0	10.0
	simazine	90	WDG	4	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
4	pronamide	50	WP	2	LB A/A	FALL 09	1.0	10.0	8.0	10.0	4.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
5	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	1.0	10.0	10.0	10.0	9.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
6	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	1.0	10.0	8.0	9.0	9.7
	glufosinate	1.67	L	1	LB A/A	FALL 09					
7	saflufenacil	70	WG	0.09	LB A/A	FALL 09	1.0	10.0	8.0	9.7	3.3
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
8	norflurazon	80	DF	4	LB A/A	FALL 09	1.0	10.0	10.0	9.0	9.3
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
9	diuron	80	DF	3	LB A/A	FALL 09	1.0	10.0	8.3	10.0	9.7
	oryzalin	4	F	4	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
10	Untreated					FALL 09	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							0.00	0.00	1.82	0.96	2.65
Standard Deviation							0.00	0.00	1.06	0.56	1.54
CV							0.0	0.0	12.97	6.29	20.39

Fall Weed Control in Blueberry - Getzoff Farms 2009-2010

Dept. of Horticulture, MSU

Pest Code							CAWE	COMU	GORO	LATH	RESO
Crop Name											
Rating Date							26/May/10	26/May/10	26/May/10	26/May/10	26/May/10
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	FALL 09	7.0	9.3	9.7	9.0	9.7
	terbacil	80	WDG	1.6	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
2	diuron	80	DF	1.6	LB A/A	FALL 09	8.3	8.3	8.7	9.3	10.0
	terbacil	80	WP	1.6	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
3	mesotrione	4	SC	0.188	LB A/A	FALL 09	9.3	10.0	9.0	9.3	9.3
	simazine	90	WDG	4	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
4	pronamide	50	WP	2	LB A/A	FALL 09	7.7	10.0	10.0	10.0	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
5	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	10.0	10.0	10.0	9.0	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
6	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	8.7	10.0	10.0	9.0	8.7
	glufosinate	1.67	L	1	LB A/A	FALL 09					
7	saflufenacil	70	WG	0.09	LB A/A	FALL 09	6.7	9.3	10.0	8.7	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
8	norflurazon	80	DF	4	LB A/A	FALL 09	5.3	10.0	9.0	7.7	8.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
9	diuron	80	DF	3	LB A/A	FALL 09	9.7	10.0	9.0	9.0	8.7
	oryzalin	4	F	4	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
10	Untreated					FALL 09	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							3.30	1.87	1.01	1.72	2.00
Standard Deviation							1.92	1.09	0.59	1.00	1.17
CV							26.11	12.39	6.83	12.22	13.58

Fall Weed Control in Blueberry - Getzoff Farms 2009-2010

Dept. of Horticulture, MSU

Pest Code							PUDN	ORGR	CAWE	COPW	
Crop Name							Blueberry				
Rating Date							26/May/10	24/Jun/10	24/Jun/10	24/Jun/10	
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	diuron	80	DF	1.6	LB A/A	FALL 09	10.0	1.0	9.0	10.0	8.3
	terbacil	80	WDG	1.6	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
2	diuron	80	DF	1.6	LB A/A	FALL 09	9.3	1.0	10.0	10.0	10.0
	terbacil	80	WP	1.6	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
3	mesotrione	4	SC	0.188	LB A/A	FALL 09	9.7	1.0	9.3	9.7	6.7
	simazine	90	WDG	4	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
4	pronamide	50	WP	2	LB A/A	FALL 09	3.7	1.0	7.3	9.3	9.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
5	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	8.7	1.0	9.3	9.3	7.3
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
6	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	9.7	1.0	9.0	9.3	10.0
	glufosinate	1.67	L	1	LB A/A	FALL 09					
7	safllufenacil	70	WG	0.09	LB A/A	FALL 09	9.3	1.0	5.0	7.3	8.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
8	norflurazon	80	DF	4	LB A/A	FALL 09	5.0	1.0	10.0	8.7	9.7
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
9	diuron	80	DF	3	LB A/A	FALL 09	9.7	1.0	9.7	9.7	10.0
	oryzalin	4	F	4	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
10	Untreated					FALL 09	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							2.06	0.00	1.78	2.09	2.04
Standard Deviation							1.20	0.00	1.04	1.22	1.19
CV							15.83	0.0	13.03	14.41	14.64

Fall Weed Control in Blueberry - Getzoff Farms 2009-2010

Dept. of Horticulture, MSU

Pest Code							GORO	LATH	BEGR	CRWS	PESW
Crop Name											
Rating Date							24/Jun/10	24/Jun/10	24/Jun/10	24/Jun/10	24/Jun/10
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	FALL 09	9.3	8.3	9.0	10.0	10.0
	terbacil	80	WDG	1.6	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
2	diuron	80	DF	1.6	LB A/A	FALL 09	9.0	8.3	9.7	10.0	9.7
	terbacil	80	WP	1.6	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
3	mesotrione	4	SC	0.188	LB A/A	FALL 09	10.0	8.7	6.3	6.3	8.7
	simazine	90	WDG	4	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
4	pronamide	50	WP	2	LB A/A	FALL 09	8.7	9.3	8.0	3.7	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
5	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	10.0	8.3	9.7	8.3	9.3
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
6	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	10.0	9.7	9.0	9.3	7.7
	glufosinate	1.67	L	1	LB A/A	FALL 09					
7	safinacil	70	WG	0.09	LB A/A	FALL 09	9.3	7.7	8.0	5.7	8.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
8	norflurazon	80	DF	4	LB A/A	FALL 09	8.7	7.0	8.0	8.0	9.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
9	diuron	80	DF	3	LB A/A	FALL 09	9.7	9.7	10.0	9.3	9.7
	oryzalin	4	F	4	LB A/A	FALL 09					
	glyphosate	5.5	L	0.43	LB A/A	FALL 09					
10	Untreated					FALL 09	1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							1.82	3.16	3.25	3.70	2.52
Standard Deviation							1.06	1.84	1.90	2.16	1.47
CV							12.39	23.63	24.11	30.13	17.67

Fall Weed Control in Blueberry - Getzoff Farms 2009-2010

Dept. of Horticulture, MSU

Pest Code							LACG	COPW	PESW	POIV	VICR	
Crop Name							Blueberry					
Rating Date							29/Jul/10	29/Jul/10	29/Jul/10	29/Jul/10	29/Jul/10	29/Jul/10
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	1.6	LB A/A	FALL 09	1.0	8.7	8.7	7.7	9.7	10.0
	terbacil	80	WDG	1.6	LB A/A	FALL 09						
	glyphosate	5.5	L	0.43	LB A/A	FALL 09						
2	diuron	80	DF	1.6	LB A/A	FALL 09	1.0	7.7	9.3	8.7	10.0	8.7
	terbacil	80	WP	1.6	LB A/A	FALL 09						
	glyphosate	5.5	L	0.43	LB A/A	FALL 09						
3	mesotrione	4	SC	0.188	LB A/A	FALL 09	1.0	4.3	4.7	8.0	9.7	7.7
	simazine	90	WDG	4	LB A/A	FALL 09						
	glyphosate	5.5	L	0.43	LB A/A	FALL 09						
4	pronamide	50	WP	2	LB A/A	FALL 09	1.0	6.0	6.7	8.7	10.0	9.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09						
5	flumioxazin	51	WDG	0.383	LB A/A	FALL 09	1.0	9.7	4.0	8.0	10.0	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09						
6	indaziflam	1.67	SC	0.067	LB A/A	FALL 09	1.0	9.0	9.3	7.3	10.0	9.0
	glufosinate	1.67	L	1	LB A/A	FALL 09						
7	saflufenacil	70	WG	0.09	LB A/A	FALL 09	1.0	3.7	7.0	6.0	10.0	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09						
8	norflurazon	80	DF	4	LB A/A	FALL 09	1.0	8.7	6.0	6.0	10.0	10.0
	glyphosate	5.5	L	0.43	LB A/A	FALL 09						
9	diuron	80	DF	3	LB A/A	FALL 09	1.0	9.0	7.0	8.7	10.0	8.7
	oryzalin	4	F	4	LB A/A	FALL 09						
	glyphosate	5.5	L	0.43	LB A/A	FALL 09						
10	Untreated					FALL 09	1.0	3.0	7.7	6.0	7.0	9.7
LSD (P=.05)							0.00	3.58	3.84	5.29	2.89	2.97
Standard Deviation							0.00	2.09	2.24	3.08	1.68	1.73
CV							0.0	29.98	31.82	41.11	17.48	18.66

Spring 200 Weed Control in Blueberry - Getzoff Farms

Project Code: 127-10-02

Location: Fennville, MI

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Blueberry Variety: Jersey
 Planting Method: Transplant Planting Date:
 Spacing: 4-5 ft Row Spacing: 10 ft
 Tillage Type: Conventional Study Design: RCB
 Plot Size: 6 ft wide x 40 ft long

Replications: 3

Soil Type: Loamy sand OM: 5.4% pH: 4.3
 Sand: 81.4% Silt: 8.5% Clay: 10.1% CEC: 20.9

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/1/10	10:45 AM	71/	F	Good	3-4 SW	42	5% Cloudy	N
PO1/EPOS	5/26/10	1:30 PM	77/74	F	Dry	1-3 W	76	2% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/1	BLBE = blueberry	6-8'		
4/1	BLDO = broadleaf dock	2-3"		Few
4/1	COMU = common mullein	4-6"		Few
4/1	MECR = mouseear cress	1-2"		Few
4/1	HEBI = henbit	2-3"		Moderate
4/1	TAFE = tall fescue	3-4"		Moderate
5/26	BLBE = blueberry	3-5', 6-8'	Broom	
5/26	ANBG = annual bluegrass	4-6"		Few
5/26	GORO = golden rod	4-6", 4-8"		Moderate
5/26	CABS = catchweed bedstraw	12-14", 6-10"		Many
5/26	HOWE = horseweed	4-8"		Moderate
5/26	HAFE = hard fescue	4-6"		Few
5/26	LATH = ladythumb	3-5"		Moderate
5/26	ORGR = orchardgrass	2-3'		Moderate
5/26	PERG = perennial ryegrass	6-18"		Moderate
5/26	PUDN = purple deadnettle	4-6"		Moderate
5/26	WIBW = wild buckwheat	4-10"		Moderate

Notes and Comments

- 1.
- 2.

Spring 200 Weed Control in Blueberry - Getzoff Farms

Spring Weed Control in Blueberry - Getzoff Farm 2010

Trial ID: 127-10-02
Location: Glenn, MI

Protocol ID: 127-10-02
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

Pest Code							ANBG	HAFE	ORGR	PERG	
Crop Name							Blueberry				
Rating Date							26/May/10	26/May/10	26/May/10	26/May/10	26/May/10
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	EPRE	1.0	10.0	8.7	9.0	7.0
	terbacil	80	WDG	1.6	LB A/A	EPRE					
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
2	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	9.7	6.0	6.0	7.0
	glufosinate	2.34	L	1.02	LB A/A	EPRE					
3	mesotrione	4	SC	0.188	LB A/A	EPRE	1.0	4.7	5.3	7.7	5.7
	NIS	100	SL	0.25	% V/V	EPRE					
4	flumioxazin	51	WDG	0.383	LB A/A	EPRE	1.0	10.0	6.7	6.3	6.7
	NIS	100	SL	0.25	% V/V	EPRE					
5	saflufenacil	70	WG	0.045	LB A/A	EPRE	1.0	9.0	7.7	6.7	6.7
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
6	rimsulfuron (M)	25	DF	0.064	LB A/A	EPRE	1.0	10.0	8.7	7.3	7.3
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
7	sulfentrazone	4	F	0.375	LB A/A	EPRE	1.0	9.0	7.0	6.7	6.3
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
8	halosulfuron	75	WG	0.047	LB A/A	EPRE	1.0	10.0	9.0	7.3	9.3
	oryzalin	4	F	4	LB A/A	EPRE					
	paraquat	2	L	1	LB A/A	EPRE					
9	halosulfuron	75	WG	0.047	LB A/A	EPRE	1.0	10.0	7.3	8.3	7.3
	diuron	80	DF	2	LB A/A	EPRE					
	paraquat	2	L	1	LB A/A	EPRE					
10	halosulfuron	75	WG	0.047	LB A/A	EPRE	1.0	10.0	9.0	9.0	9.3
	simazine	90	WDG	2	LB A/A	EPRE					
	paraquat	2	L	1	LB A/A	EPRE					
11	isoxaben	75	DF	1	LB A/A	EPRE	1.0	10.0	9.3	7.7	7.7
	paraquat	2	L	1	LB A/A	EPRE					
12	Untreated					EPRE	1.0	1.7	4.0	4.7	3.7
	clopyralid	3	L	0.188	LB A/A	EPOS					
	sethoxydim	1.53	EC	0.19	LB A/A	EPOS					
	NIS	100	SL	0.25	% V/V	EPOS					
LSD (P=.05)							0.00	2.75	3.59	3.69	4.29
Standard Deviation							0.00	1.62	2.12	2.18	2.54
CV							0.0	18.73	28.7	30.19	36.23

Spring 200 Weed Control in Blueberry - Getzoff Farms

Dept. of Horticulture, MSU

Pest Code							CAWE	COPW	GORO	LATH	PUDN
Crop Name							26/May/10	26/May/10	26/May/10	26/May/10	26/May/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	diuron	80	DF	1.6	LB A/A	EPRE	7.7	5.0	4.0	10.0	10.0
	terbacil	80	WDG	1.6	LB A/A	EPRE					
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
2	indaziflam	1.67	SC	0.065	LB A/A	EPRE	6.3	4.0	3.0	5.7	5.3
	glufosinate	2.34	L	1.02	LB A/A	EPRE					
3	mesotrione	4	SC	0.188	LB A/A	EPRE	3.7	7.7	5.7	10.0	7.0
	NIS	100	SL	0.25	% V/V	EPRE					
4	flumioxazin	51	WDG	0.383	LB A/A	EPRE	8.3	4.7	5.7	10.0	9.0
	NIS	100	SL	0.25	% V/V	EPRE					
5	saflufenacil	70	WG	0.045	LB A/A	EPRE	5.0	5.3	4.7	4.7	9.0
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
6	rimsulfuron (M)	25	DF	0.064	LB A/A	EPRE	9.3	8.3	2.3	9.0	7.3
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
7	sulfentrazone	4	F	0.375	LB A/A	EPRE	9.0	9.3	2.0	8.3	7.7
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
8	halosulfuron	75	WG	0.047	LB A/A	EPRE	7.7	10.0	3.3	9.0	10.0
	oryzalin	4	F	4	LB A/A	EPRE					
	paraquat	2	L	1	LB A/A	EPRE					
9	halosulfuron	75	WG	0.047	LB A/A	EPRE	6.7	4.3	2.3	7.7	10.0
	diuron	80	DF	2	LB A/A	EPRE					
	paraquat	2	L	1	LB A/A	EPRE					
10	halosulfuron	75	WG	0.047	LB A/A	EPRE	10.0	4.7	5.7	10.0	9.3
	simazine	90	WDG	2	LB A/A	EPRE					
	paraquat	2	L	1	LB A/A	EPRE					
11	isoxaben	75	DF	1	LB A/A	EPRE	8.7	6.3	5.0	6.0	10.0
	paraquat	2	L	1	LB A/A	EPRE					
12	Untreated					EPRE	1.0	3.0	1.0	2.0	1.0
	clopyralid	3	L	0.188	LB A/A	EPOS					
	sethoxydim	1.53	EC	0.19	LB A/A	EPOS					
	NIS	100	SL	0.25	% V/V	EPOS					
LSD (P=.05)							4.78	6.78	4.77	4.44	2.48
Standard Deviation							2.82	4.00	2.81	2.62	1.47
CV							40.61	66.08	75.61	34.04	18.39

Spring 200 Weed Control in Blueberry - Getzoff Farms

Dept. of Horticulture, MSU

Pest Code							WIBW		ORGR	COPW
Crop Name								Blueberry		
Rating Date							26/May/10	24/Jun/10	24/Jun/10	24/Jun/10
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	diuron	80	DF	1.6	LB A/A	EPRE	10.0	1.0	10.0	10.0
	terbacil	80	WDG	1.6	LB A/A	EPRE				
	glyphosate	5.5	L	0.43	LB A/A	EPRE				
2	indaziflam	1.67	SC	0.065	LB A/A	EPRE	10.0	1.0	8.0	10.0
	glufosinate	2.34	L	1.02	LB A/A	EPRE				
3	mesotrione	4	SC	0.188	LB A/A	EPRE	7.0	1.0	7.2	10.0
	NIS	100	SL	0.25	% V/V	EPRE				
4	flumioxazin	51	WDG	0.383	LB A/A	EPRE	10.0	1.0	9.3	10.0
	NIS	100	SL	0.25	% V/V	EPRE				
5	saflufenacil	70	WG	0.045	LB A/A	EPRE	10.0	1.0	4.7	10.0
	glyphosate	5.5	L	0.43	LB A/A	EPRE				
6	rimsulfuron (M)	25	DF	0.064	LB A/A	EPRE	10.0	1.0	9.0	9.7
	glyphosate	5.5	L	0.43	LB A/A	EPRE				
7	sulfentrazone	4	F	0.375	LB A/A	EPRE	10.0	1.0	8.2	10.0
	glyphosate	5.5	L	0.43	LB A/A	EPRE				
8	halosulfuron	75	WG	0.047	LB A/A	EPRE	10.0	1.0	9.2	10.0
	oryzalin	4	F	4	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
9	halosulfuron	75	WG	0.047	LB A/A	EPRE	10.0	1.0	7.0	10.0
	diuron	80	DF	2	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
10	halosulfuron	75	WG	0.047	LB A/A	EPRE	10.0	1.0	9.7	9.7
	simazine	90	WDG	2	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
11	isoxaben	75	DF	1	LB A/A	EPRE	10.0	1.0	8.0	8.3
	paraquat	2	L	1	LB A/A	EPRE				
12	Untreated					EPRE	6.3	1.0	7.7	10.0
	clopyralid	3	L	0.188	LB A/A	EPOS				
	sethoxydim	1.53	EC	0.19	LB A/A	EPOS				
	NIS	100	SL	0.25	% V/V	EPOS				
LSD (P=.05)							3.28	0.00	3.96	1.67
Standard Deviation							1.94	0.00	2.31	0.97
CV							20.5	0.0	28.31	9.82

Spring 200 Weed Control in Blueberry - Getzoff Farms

Dept. of Horticulture, MSU

Pest Code							GORO	LATH	PESW	LACG	
Crop Name							Blueberry				
Rating Date							24/Jun/10	24/Jun/10	24/Jun/10	29/Jul/10	29/Jul/10
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	EPRE	9.8	10.0	10.0	1.0	9.0
	terbacil	80	WDG	1.6	LB A/A	EPRE					
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
2	indaziflam	1.67	SC	0.065	LB A/A	EPRE	5.5	8.3	4.2	1.0	9.0
	glufosinate	2.34	L	1.02	LB A/A	EPRE					
3	mesotrione	4	SC	0.188	LB A/A	EPRE	10.0	10.0	9.3	1.0	6.0
	NIS	100	SL	0.25	% V/V	EPRE					
4	flumioxazin	51	WDG	0.383	LB A/A	EPRE	9.3	10.0	10.0	1.0	8.7
	NIS	100	SL	0.25	% V/V	EPRE					
5	saflufenacil	70	WG	0.045	LB A/A	EPRE	10.0	7.3	4.3	1.0	5.3
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
6	rimsulfuron (M)	25	DF	0.064	LB A/A	EPRE	8.7	9.7	4.7	1.0	8.7
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
7	sulfentrazone	4	F	0.375	LB A/A	EPRE	9.8	9.3	10.0	1.0	7.3
	glyphosate	5.5	L	0.43	LB A/A	EPRE					
8	halosulfuron	75	WG	0.047	LB A/A	EPRE	9.8	7.8	7.3	1.0	8.7
	oryzalin	4	F	4	LB A/A	EPRE					
	paraquat	2	L	1	LB A/A	EPRE					
9	halosulfuron	75	WG	0.047	LB A/A	EPRE	9.7	9.0	6.7	1.0	6.7
	diuron	80	DF	2	LB A/A	EPRE					
	paraquat	2	L	1	LB A/A	EPRE					
10	halosulfuron	75	WG	0.047	LB A/A	EPRE	10.0	9.3	9.3	1.0	5.3
	simazine	90	WDG	2	LB A/A	EPRE					
	paraquat	2	L	1	LB A/A	EPRE					
11	isoxaben	75	DF	1	LB A/A	EPRE	10.0	7.0	6.0	1.0	8.7
	paraquat	2	L	1	LB A/A	EPRE					
12	Untreated					EPRE	9.3	10.0	9.3	1.0	6.0
	clopyralid	3	L	0.188	LB A/A	EPOS					
	sethoxydim	1.53	EC	0.19	LB A/A	EPOS					
	NIS	100	SL	0.25	% V/V	EPOS					
LSD (P=.05)							2.68	4.29	4.80	0.00	3.90
Standard Deviation							1.56	2.49	2.79	0.00	2.31
CV							16.63	27.56	36.34	0.0	30.97

Spring 200 Weed Control in Blueberry - Getzoff Farms

Dept. of Horticulture, MSU

Pest Code							COPW	PESW	POIV	VICR
Crop Name										
Rating Date							29/Jul/10	29/Jul/10	29/Jul/10	29/Jul/10
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	diuron	80	DF	1.6	LB A/A	EPRE	3.0	10.0	7.0	8.7
	terbacil	80	WDG	1.6	LB A/A	EPRE				
	glyphosate	5.5	L	0.43	LB A/A	EPRE				
2	indaziflam	1.67	SC	0.065	LB A/A	EPRE	5.7	3.0	9.3	10.0
	glufosinate	2.34	L	1.02	LB A/A	EPRE				
3	mesotrione	4	SC	0.188	LB A/A	EPRE	5.3	4.0	10.0	10.0
	NIS	100	SL	0.25	% V/V	EPRE				
4	flumioxazin	51	WDG	0.383	LB A/A	EPRE	2.3	8.3	10.0	10.0
	NIS	100	SL	0.25	% V/V	EPRE				
5	saflufenacil	70	WG	0.045	LB A/A	EPRE	5.3	2.0	7.7	7.0
	glyphosate	5.5	L	0.43	LB A/A	EPRE				
6	rimsulfuron (M)	25	DF	0.064	LB A/A	EPRE	5.7	3.7	7.0	7.7
	glyphosate	5.5	L	0.43	LB A/A	EPRE				
7	sulfentrazone	4	F	0.375	LB A/A	EPRE	7.3	5.3	9.7	8.3
	glyphosate	5.5	L	0.43	LB A/A	EPRE				
8	halosulfuron	75	WG	0.047	LB A/A	EPRE	7.3	5.0	10.0	10.0
	oryzalin	4	F	4	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
9	halosulfuron	75	WG	0.047	LB A/A	EPRE	3.7	4.7	6.0	9.3
	diuron	80	DF	2	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
10	halosulfuron	75	WG	0.047	LB A/A	EPRE	1.3	8.3	7.7	8.7
	simazine	90	WDG	2	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
11	isoxaben	75	DF	1	LB A/A	EPRE	5.7	6.0	7.3	8.7
	paraquat	2	L	1	LB A/A	EPRE				
12	Untreated					EPRE	6.7	9.0	10.0	9.3
	clopyralid	3	L	0.188	LB A/A	EPOS				
	sethoxydim	1.53	EC	0.19	LB A/A	EPOS				
	NIS	100	SL	0.25	% V/V	EPOS				
LSD (P=.05)							5.18	4.79	4.73	3.33
Standard Deviation							3.06	2.83	2.79	1.97
CV							61.85	48.99	32.98	21.94

Weed Control in Blueberry with Matrix - HTRC 2010

Project Code: 127-10-04

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Blueberry Variety: Several
 Planting Method: Transplant Planting Date: 1971
 Spacing: 4 ft Row Spacing: 10 ft
 Tillage Type: Conventional Study Design: RCB
 Plot Size: 6 ft wide x 35 ft long

Replications: 3

Soil Type: Loamy sand OM: 5.6% pH: 5.5
 Sand: 80.4% Silt: 18.2% Clay: 1.4% CEC: 14.8

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
Dormant	3/31/10	Dormant	71/45	F	Good	5-8 S	24	5% Cloudy	N
	6/1/10		77/71	F	Moist	2 SW	64	50% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
3/31	BLBE = blueberry	3-4', 6'	Dormant	
3/31	ANBG = annual bluegrass	2-3"		Moderate
3/31	BHPL = buckhorn plantain	4-5", 1-2"		Many
3/31	DAND = dandelion	4-6", 2-3"		Moderate
3/31	MECR = mouseear cress	2", 2-3"		Many
3/31	HAFE = hard fescue	4-6"		Moderate
3/31	MECW = mouseear chickweed	1-2", 1"		Few
3/31	POIV = poison ivy	1-2'		Few
3/31	QUGR = quackgrass	4-6"		Moderate
3/31	WICA = wild carrot	1-2", 2-3"		Moderate
6/1	BLBE = blueberry	4-5, 6-8'	Fruit 0.5-1cm	
6/1	BHPL = buckhorn plantain	6-12"		Moderate
6/1	QUGR = quackgrass	2-4'		Moderate
6/1	VICR = Virginia creeper	4-8"		Many
6/1	WICA = wild carrot	8-10"		Many
6/1	WLDGRP = wild grape	1-3'		Moderate

Notes and Comments

- 1.
- 2.

Weed Control in Blueberry with Matrix - HTRC 2010

Weed Control in Blueberry with Matrix - HTRC 2010

Trial ID: 127-10-04
 Location: East Lansing, MI

Protocol ID: 127-10-4
 Study Director: Rodney Tocco
 Investigator: Dr. Bernard Zandstra

Pest Code							HAFE	QUGR	BHPL	
Crop Name							Blueberry			
Rating Date							14/May/10	14/May/10	14/May/10	
Rating Data Type							RATING	RATING	RATING	
Rating Unit							1-10	1-10	1-10	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Rate	Growth Stage				
1	rimsulfuron (M)	25	DF	0.063	LB A/A	EPRE	1.0	8.3	8.7	6.0
	COC	100	SL	1	% V/V	EPRE				
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS				
	COC	100	SL	1	% V/V	EPOS				
2	diuron	80	DF	1.6	LB A/A	EPRE	1.0	3.7	2.3	5.7
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS				
	COC	100	SL	1	% V/V	EPOS				
3	hexazinone	2	L	1	LB A/A	EPRE	1.0	9.7	9.0	10.0
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS				
	COC	100	SL	1	% V/V	EPOS				
4	hexazinone	2	L	1	LB A/A	EPRE	1.0	9.7	8.7	10.0
5	diuron	80	DF	1.6	LB A/A	EPRE	1.0	7.0	3.3	5.0
6	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS	1.0	1.0	1.0	1.0
	COC	100	SL	1	% V/V	EPOS				
7	Untreated - mowed						1.0	1.0	1.0	1.0
LSD (P=.05)							0.00	2.04	1.33	3.46
Standard Deviation							0.00	1.14	0.75	1.95
CV							0.0	19.86	15.35	35.22

Weed Control in Blueberry with Matrix - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							DAND	WICA	Blueberry	
Crop Name										
Rating Date							14/May/10	14/May/10	25/May/10	25/May/10
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	rimsulfuron (M)	25	DF	0.063	LB A/A	EPRE	9.3	5.3	1.0	10.0
	COC	100	SL	1	% V/V	EPRE				
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS				
	COC	100	SL	1	% V/V	EPOS				
2	diuron	80	DF	1.6	LB A/A	EPRE	4.3	2.3	1.0	9.7
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS				
	COC	100	SL	1	% V/V	EPOS				
3	hexazinone	2	L	1	LB A/A	EPRE	9.0	7.3	1.0	10.0
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS				
	COC	100	SL	1	% V/V	EPOS				
4	hexazinone	2	L	1	LB A/A	EPRE	9.3	9.3	1.0	10.0
5	diuron	80	DF	1.6	LB A/A	EPRE	6.3	4.3	1.0	9.0
6	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS	1.0	1.0	1.0	5.0
	COC	100	SL	1	% V/V	EPOS				
7	Untreated - mowed						1.0	1.0	1.0	1.0
LSD (P=.05)							1.88	4.09	0.00	2.52
Standard Deviation							1.06	2.30	0.00	1.41
CV							18.36	52.52	0.0	18.11
Pest Code							QUGR	BHPL	DAND	WICA
Crop Name										
Rating Date							25/May/10	25/May/10	25/May/10	25/May/10
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	rimsulfuron (M)	25	DF	0.063	LB A/A	EPRE	6.0	4.7	8.0	1.7
	COC	100	SL	1	% V/V	EPRE				
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS				
	COC	100	SL	1	% V/V	EPOS				
2	diuron	80	DF	1.6	LB A/A	EPRE	3.3	8.3	7.7	1.3
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS				
	COC	100	SL	1	% V/V	EPOS				
3	hexazinone	2	L	1	LB A/A	EPRE	8.7	10.0	9.3	7.0
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS				
	COC	100	SL	1	% V/V	EPOS				
4	hexazinone	2	L	1	LB A/A	EPRE	9.3	10.0	10.0	10.0
5	diuron	80	DF	1.6	LB A/A	EPRE	4.3	5.7	9.0	2.3
6	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS	1.7	1.7	3.7	1.0
	COC	100	SL	1	% V/V	EPOS				
7	Untreated - mowed						1.0	1.0	1.0	1.0
LSD (P=.05)							2.55	3.91	3.65	3.84
Standard Deviation							1.43	2.20	2.05	2.16
CV							29.23	37.23	29.5	62.09

Weed Control in Blueberry with Matrix - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							QUGR	BHPL	VICR	WICA	
Crop Name							Blueberry				
Rating Date							25/Jun/10	25/Jun/10	25/Jun/10	25/Jun/10	25/Jun/10
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	rimsulfuron (M)	25	DF	0.063	LB A/A	EPRE	1.0	5.7	2.3	1.7	7.7
	COC	100	SL	1	% V/V	EPRE					
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS					
	COC	100	SL	1	% V/V	EPOS					
2	diuron	80	DF	1.6	LB A/A	EPRE	1.0	7.3	8.3	4.0	8.0
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS					
	COC	100	SL	1	% V/V	EPOS					
3	hexazinone	2	L	1	LB A/A	EPRE	1.0	9.7	9.0	4.3	8.7
	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS					
	COC	100	SL	1	% V/V	EPOS					
4	hexazinone	2	L	1	LB A/A	EPRE	1.0	9.0	9.0	3.7	9.3
5	diuron	80	DF	1.6	LB A/A	EPRE	1.0	4.0	9.0	3.7	1.0
6	rimsulfuron (M)	25	DF	0.063	LB A/A	EPOS	1.0	2.3	4.7	3.7	4.7
	COC	100	SL	1	% V/V	EPOS					
7	Untreated - mowed						1.0	2.7	7.0	4.3	1.0
LSD (P=.05)							0.00	4.14	4.41	5.25	3.96
Standard Deviation							0.00	2.33	2.48	2.95	2.23
CV							0.0	40.05	35.14	81.53	38.62

Weed Control in Blueberry - TNRC 2010

Project Code: 127-10-03

Location: Fennville, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Blueberry Variety: Jersey

Planting Method: Planting Date:

Spacing: 4 ft Row Spacing: 10 ft

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 6 ft wide x 35 ft long

Soil Type: Loamy sand OM: 9.6% pH: 4.0
 Sand: 81.1% Silt: 18.5% Clay: 0.4% CEC: 22.9

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/1/10	1:00 PM	73/60	F	Dry	5-7 SW	34	8%Cloudy	N
LPRE	5/5/10	1:30 PM	58/60	F	Damp	1 SW	70	100%Cloudy	N
EPOS	5/26/10	12:00 PM	85/74	F	Dry	1-2 SW	71	40%Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/1	BLBE = blueberry		Dormant/Budding	
4/1	HEBI = henbit	1-2"		Few
4/1	QUGR = quackgrass	1-2"		Few
4/1	YENS = yellow nutsedge	2-3"		Few
5/5	BLBE = blueberry		Flowering	
5/5	CUDO = curly dock	2-10"		Moderate
5/5	ORGR = orchardgrass	6-24"		Moderate
5/5	QUGR = quackgrass	6-12"		Moderate
5/26	BLBE = blueberry		Late Blossom	

Notes and Comments

- 1.
- 2.

Weed Control in Blueberry - TNRC 2010

Weed Control in Blueberry - TNRC 2010									
Trial ID: 127-10-03					Protocol ID: 127-10-03				
Location: Fennville, MI					Study Director: Rodney Tocco				
					Investigator: Dr. Bernard Zandstra				

							ORGR	QUGR	WIBW	
Pest Code							Blueberry			
Crop Name							26/May/10	26/May/10	26/May/10	26/May/10
Rating Date							RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10
Rating Unit							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	EPRE	1.0	10.0	10.0	9.9
	terbacil	80	WDG	1.6	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
2	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	9.3	9.3	1.9
	glufosinate	2.34	L	1.02	LB A/A	EPRE				
3	mesotrione	4	SC	0.188	LB A/A	EPRE	1.0	7.7	7.7	3.9
	NIS	100	SL	0.25	% V/V	EPRE				
4	flumioxazin	51	WDG	0.383	LB A/A	EPRE	1.0	10.0	9.7	9.9
	NIS	100	SL	0.25	% V/V	EPRE				
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	1.0	10.0	9.7	8.9
	MSO	100	SL	1	% V/V	LPRE				
	AMS	100	DF	3.4	LB A/A	LPRE				
6	sulfentrazone	4	F	0.375	LB A/A	EPRE	1.0	10.0	10.0	9.9
	carfentrazone	2	EC	0.031	% V/V	EPRE				
7	halosulfuron	75	WG	0.047	LB A/A	EPRE	1.0	7.7	8.0	8.9
	diuron	80	DF	2	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
8	diuron	80	DF	2	LB A/A	EPRE	1.3	9.7	9.7	9.3
	s-metolachlor	7.62	EC	1.9	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
9	rimsulfuron (M)	25	DF	0.064	LB A/A	EPRE	1.0	9.3	10.0	6.7
	paraquat	2	L	1	LB A/A	EPRE				
10	isoxaben	75	DF	1	LB A/A	EPRE	1.0	8.7	8.0	4.7
	paraquat	2	L	1	LB A/A	EPRE				
11	glyphosate	5.5	L	1	LB A/A	EPRE	1.3	9.0	7.0	4.7
12	glyphosate	5.5	L	1	LB A/A	EPOS	1.0	6.0	6.0	1.0
13	glyphosate	5.5	L	1	LB A/A	EPOS	1.3	7.0	6.7	4.7
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
14	paraquat	2	L	0.625	LB A/A	EPOS	1.0	6.3	6.3	1.7
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
15	glufosinate	2.34	L	0.75	LB A/A	EPOS	1.0	3.7	3.3	1.7
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
16	Untreated					E,LPRE	1.3	4.0	6.7	1.7
	clopyralid	3	L	0.188	LB A/A	EPOS				
	sethoxydim	1.53	EC	0.19	LB A/A	EPOS				
	NIS	100	SL	0.25	% V/V	EPOS				
LSD (P=.05)							0.43	4.54	4.30	4.45
Standard Deviation							0.26	2.72	2.58	2.63
CV							23.83	33.94	32.2	47.04

Weed Control in Blueberry - TNRC 2010

Dept. of Horticulture, MSU

Pest Code							Blueberry	QUGR	ORGR	POIV
Crop Name							24/Jun/10	24/Jun/10	24/Jun/10	24/Jun/10
Rating Date							RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	diuron	80	DF	1.6	LB A/A	EPRE	1.0	10.0	10.0	9.7
	terbacil	80	WDG	1.6	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
2	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	7.7	7.7	10.0
	glufosinate	2.34	L	1.02	LB A/A	EPRE				
3	mesotrione	4	SC	0.188	LB A/A	EPRE	1.0	7.3	7.7	10.0
	NIS	100	SL	0.25	% V/V	EPRE				
4	flumioxazin	51	WDG	0.383	LB A/A	EPRE	4.3	8.7	9.0	10.0
	NIS	100	SL	0.25	% V/V	EPRE				
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	1.0	8.7	7.3	9.7
	MSO	100	SL	1	% V/V	LPRE				
	AMS	100	DF	3.4	LB A/A	LPRE				
6	sulfentrazone	4	F	0.375	LB A/A	EPRE	1.0	8.3	8.3	10.0
	carfentrazone	2	EC	0.031	% V/V	EPRE				
7	halosulfuron	75	WG	0.047	LB A/A	EPRE	1.0	8.3	9.0	7.0
	diuron	80	DF	2	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
8	diuron	80	DF	2	LB A/A	EPRE	1.0	8.0	6.0	7.3
	s-metolachlor	7.62	EC	1.9	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
9	rimsulfuron (M)	25	DF	0.064	LB A/A	EPRE	1.0	6.7	7.0	10.0
	paraquat	2	L	1	LB A/A	EPRE				
10	isoxaben	75	DF	1	LB A/A	EPRE	1.0	7.0	6.7	10.0
	paraquat	2	L	1	LB A/A	EPRE				
11	glyphosate	5.5	L	1	LB A/A	EPRE	1.3	6.3	6.0	8.3
12	glyphosate	5.5	L	1	LB A/A	EPOS	1.0	9.3	9.7	7.0
13	glyphosate	5.5	L	1	LB A/A	EPOS	1.7	9.7	10.0	7.0
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
14	paraquat	2	L	0.625	LB A/A	EPOS	1.0	7.7	9.0	7.0
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
15	glufosinate	2.34	L	0.75	LB A/A	EPOS	1.0	7.7	9.3	9.3
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
16	Untreated					E,LPRE	1.7	6.7	9.7	9.7
	clopyralid	3	L	0.188	LB A/A	EPOS				
	sethoxydim	1.53	EC	0.19	LB A/A	EPOS				
	NIS	100	SL	0.25	% V/V	EPOS				
LSD (P=.05)							2.42	3.64	4.16	4.80
Standard Deviation							1.45	2.18	2.49	2.88
CV							110.45	27.27	30.16	32.47

Weed Control in Blueberry - TNRC 2010

Dept. of Horticulture, MSU

Pest Code							VICR		LACG	QUGR
Crop Name							24/Jun/10	Blueberry	29/Jul/10	29/Jul/10
Rating Date							RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	diuron	80	DF	1.6	LB A/A	EPRE	6.3	1.0	9.3	7.7
	terbacil	80	WDG	1.6	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
2	indaziflam	1.67	SC	0.065	LB A/A	EPRE	4.7	1.0	7.0	7.0
	glufosinate	2.34	L	1.02	LB A/A	EPRE				
3	mesotrione	4	SC	0.188	LB A/A	EPRE	7.7	1.0	6.0	6.3
	NIS	100	SL	0.25	% V/V	EPRE				
4	flumioxazin	51	WDG	0.383	LB A/A	EPRE	7.0	1.0	9.7	5.7
	NIS	100	SL	0.25	% V/V	EPRE				
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	4.3	1.0	2.3	1.0
	MSO	100	SL	1	% V/V	LPRE				
	AMS	100	DF	3.4	LB A/A	LPRE				
6	sulfentrazone	4	F	0.375	LB A/A	EPRE	8.7	1.0	7.0	6.3
	carfentrazone	2	EC	0.031	% V/V	EPRE				
7	halosulfuron	75	WG	0.047	LB A/A	EPRE	5.7	1.0	8.7	8.7
	diuron	80	DF	2	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
8	diuron	80	DF	2	LB A/A	EPRE	1.3	1.0	9.3	6.7
	s-metolachlor	7.62	EC	1.9	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
9	rimsulfuron (M)	25	DF	0.064	LB A/A	EPRE	8.0	1.0	3.0	3.0
	paraquat	2	L	1	LB A/A	EPRE				
10	isoxaben	75	DF	1	LB A/A	EPRE	2.7	1.0	3.3	5.0
	paraquat	2	L	1	LB A/A	EPRE				
11	glyphosate	5.5	L	1	LB A/A	EPRE	5.3	1.0	3.3	3.3
12	glyphosate	5.5	L	1	LB A/A	EPOS	4.0	1.0	5.0	7.0
13	glyphosate	5.5	L	1	LB A/A	EPOS	7.0	1.0	6.0	6.3
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
14	paraquat	2	L	0.625	LB A/A	EPOS	2.0	1.0	6.0	5.7
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
15	glufosinate	2.34	L	0.75	LB A/A	EPOS	6.3	1.0	7.7	7.7
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
16	Untreated					E,LPRE	3.3	1.0	3.7	4.0
	clopyralid	3	L	0.188	LB A/A	EPOS				
	sethoxydim	1.53	EC	0.19	LB A/A	EPOS				
	NIS	100	SL	0.25	% V/V	EPOS				
LSD (P=.05)							5.87	0.00	4.43	4.60
Standard Deviation							3.52	0.00	2.66	2.76
CV							66.83	0.0	43.72	48.31

Weed Control in Blueberry - TNRC 2010

Dept. of Horticulture, MSU

							STGR	COPW	POIV	VICR
Pest Code							29/Jul/10	29/Jul/10	29/Jul/10	29/Jul/10
Crop Name							RATING	RATING	RATING	RATING
Rating Date							1-10	1-10	1-10	1-10
Rating Data Type										
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	diuron	80	DF	1.6	LB A/A	EPRE	8.5	7.0	8.3	5.3
	terbacil	80	WDG	1.6	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
2	indaziflam	1.67	SC	0.065	LB A/A	EPRE	9.0	8.7	9.3	7.0
	glufosinate	2.34	L	1.02	LB A/A	EPRE				
3	mesotrione	4	SC	0.188	LB A/A	EPRE	4.0	8.3	9.3	9.0
	NIS	100	SL	0.25	% V/V	EPRE				
4	flumioxazin	51	WDG	0.383	LB A/A	EPRE	9.0	8.7	10.0	6.3
	NIS	100	SL	0.25	% V/V	EPRE				
5	saflufenacil	70	WG	0.045	LB A/A	LPRE	1.0	6.3	9.0	8.7
	MSO	100	SL	1	% V/V	LPRE				
	AMS	100	DF	3.4	LB A/A	LPRE				
6	sulfentrazone	4	F	0.375	LB A/A	EPRE	8.0	7.7	10.0	8.3
	carfentrazone	2	EC	0.031	% V/V	EPRE				
7	halosulfuron	75	WG	0.047	LB A/A	EPRE	9.0	9.7	7.0	7.0
	diuron	80	DF	2	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
8	diuron	80	DF	2	LB A/A	EPRE	8.5	4.7	7.3	1.7
	s-metolachlor	7.62	EC	1.9	LB A/A	EPRE				
	paraquat	2	L	1	LB A/A	EPRE				
9	rimsulfuron (M)	25	DF	0.064	LB A/A	EPRE	4.5	5.7	4.3	4.3
	paraquat	2	L	1	LB A/A	EPRE				
10	isoxaben	75	DF	1	LB A/A	EPRE	3.0	7.3	10.0	5.0
	paraquat	2	L	1	LB A/A	EPRE				
11	glyphosate	5.5	L	1	LB A/A	EPRE	4.5	6.7	7.0	4.3
12	glyphosate	5.5	L	1	LB A/A	EPOS	1.0	7.0	6.0	4.7
13	glyphosate	5.5	L	1	LB A/A	EPOS	5.0	6.3	7.0	4.3
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
14	paraquat	2	L	0.625	LB A/A	EPOS	7.0	6.7	7.0	3.0
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
15	glufosinate	2.34	L	0.75	LB A/A	EPOS	8.0	5.3	7.0	3.3
	pyraflufen	0.17	SC	0.004	LB A/A	EPOS				
16	Untreated					E,LPRE	4.0	7.0	7.0	4.0
	clopyralid	3	L	0.188	LB A/A	EPOS				
	sethoxydim	1.53	EC	0.19	LB A/A	EPOS				
	NIS	100	SL	0.25	% V/V	EPOS				
LSD (P=.05)							7.03	5.94	5.96	4.91
Standard Deviation							2.97	3.56	3.57	2.94
CV							50.61	50.44	45.51	54.57

Weed Control in Cherry with Pruvan - CHES 2010

Project Code: 128-10-05

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco
 Crop: Tart Cherry Variety: Montmorency
 Planting Method: Transplant Planting Date: 2007
 Spacing: 15 ft Row Spacing: 20 ft; 2 trees/plot
 Tillage Type: Conventional Study Design: RCB Replications: 4
 Plot Size: 11 ft wide x 30 ft long

Soil Type: Marlette Sandy Loam OM: 2.5% pH: 6.2
 Sand: 51.4% Silt: 23.4% Clay: 25.2% CEC: 9.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/15/10	10:00 AM	70/53	F	Dry	4 SW	48	10% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/15	CHERRY		Pre-Bud	
4/15	ALFA = alfalfa	2-4"		Moderate
4/15	DAND = dandelion	5-8", 3-5"		Moderate
4/15	HOWE = horseweed	1-3"		Few
4/15	MECR = mouseear cress	5-10"		Moderate
4/15	PUDN = purple deadnettle	2-4"		Moderate
4/15	QUGR = quackgrass	6-10"		Many
4/15	WHCL = white clover	3-8"		Few
4/15	WICA = white campion	2-4", 2-3"		Moderate
4/15	YERO = yellow rocket	2-4"		Moderate

Notes and Comments

1. 5.3 foot band on both sides of row.
2. rimsulfuron (P) = Pruvan; rimsulfuron (M) = Matrix.

Weed Control in Cherry with Pruvan - CHES 2010

Weed Control in Cherry with Pruvan					
Trial ID: 128-10-05			Protocol ID: 128-10-05		
Location: East Lansing, MI			Study Director: Rodney Tocco		
			Investigator: Dr. Bernard Zandstra		

Pest Code				QUGR		ALFA		BHPL		DAND	
Crop Name				Cherry							
Rating Date				3/May/10		3/May/10		3/May/10		3/May/10	
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	rimsulfuron (P)	25	DF	0.031	LB A/A	PRE	1.0	8.5	8.5	8.0	9.0
	glyphosate	5.5	L	2	LB A/A	PRE					
2	rimsulfuron (P)	25	DF	0.063	LB A/A	PRE	1.0	8.5	9.8	8.0	9.3
	glyphosate	5.5	L	2	LB A/A	PRE					
3	rimsulfuron (M)	25	DF	0.031	LB A/A	PRE	1.0	8.5	9.0	8.3	8.3
	glyphosate	5.5	L	2	LB A/A	PRE					
4	rimsulfuron (M)	25	DF	0.063	LB A/A	PRE	1.0	8.5	10.0	7.8	8.3
	glyphosate	5.5	L	2	LB A/A	PRE					
5	pendimethalin	3.8	CS	3.8	LB A/A	PRE	1.0	7.8	7.0	7.5	8.3
	glyphosate	5.5	L	2	LB A/A	PRE					
6	flumioxazin	51	WDG	0.383	LB A/A	PRE	1.0	8.8	8.3	8.8	9.5
	glyphosate	5.5	L	2	LB A/A	PRE					
7	oxyfluorfen	2	EC	2	LB A/A	PRE	1.0	9.0	8.8	8.5	8.8
	oryzalin	4	AS	4.0	LB A/A	PRE					
	glyphosate	5.5	L	2	LB A/A	PRE					
8	Untreated					PRE	1.0	8.8	8.3	7.3	8.3
	glyphosate	5.5	L	2	LB A/A	PRE					
LSD (P=.05)							0.00	1.25	1.75	1.19	1.15
Standard Deviation							0.00	0.85	1.19	0.81	0.78
CV							0.0	9.96	13.73	10.11	9.01

Weed Control in Cherry with Pruvan - CHES 2010

Dept. of Horticulture, MSU

Pest Code							WHCL	WICA	Cherry		PERG	QUGR	
Crop Name													
Rating Date							3/May/10	3/May/10	14/May/10	14/May/10	14/May/10	14/May/10	14/May/10
Rating Data Type							RATING	RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	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	rimsulfuron (P)	25	DF	0.031	LB A/A	PRE	8.8	9.3	1.0	9.5	9.8		
	glyphosate	5.5	L	2	LB A/A	PRE							
2	rimsulfuron (P)	25	DF	0.063	LB A/A	PRE	8.3	8.5	1.0	9.0	9.5		
	glyphosate	5.5	L	2	LB A/A	PRE							
3	rimsulfuron (M)	25	DF	0.031	LB A/A	PRE	9.0	9.8	1.0	9.8	10.0		
	glyphosate	5.5	L	2	LB A/A	PRE							
4	rimsulfuron (M)	25	DF	0.063	LB A/A	PRE	8.8	9.3	1.0	9.5	9.8		
	glyphosate	5.5	L	2	LB A/A	PRE							
5	pendimethalin	3.8	CS	3.8	LB A/A	PRE	9.0	9.5	1.0	9.3	8.8		
	glyphosate	5.5	L	2	LB A/A	PRE							
6	flumioxazin	51	WDG	0.383	LB A/A	PRE	8.3	8.8	1.0	10.0	9.8		
	glyphosate	5.5	L	2	LB A/A	PRE							
7	oxyfluorfen	2	EC	2	LB A/A	PRE	9.3	9.5	1.0	9.5	9.3		
	oryzalin	4	AS	4.0	LB A/A	PRE							
	glyphosate	5.5	L	2	LB A/A	PRE							
8	Untreated					PRE	8.5	9.5	1.0	9.8	10.0		
	glyphosate	5.5	L	2	LB A/A	PRE							
LSD (P=.05)							1.81	1.61	0.00	0.89	0.67		
Standard Deviation							1.23	1.10	0.00	0.60	0.46		
CV							14.08	11.85	0.0	6.34	4.77		

Pest Code							ALFA	BHPL	DAND	WHCL	WICA
Crop Name											
Rating Date							14/May/10	14/May/10	14/May/10	14/May/10	14/May/10
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	rimsulfuron (P)	25	DF	0.031	LB A/A	PRE	8.3	10.0	9.5	9.5	9.8
	glyphosate	5.5	L	2	LB A/A	PRE					
2	rimsulfuron (P)	25	DF	0.063	LB A/A	PRE	9.3	9.0	9.8	9.8	9.5
	glyphosate	5.5	L	2	LB A/A	PRE					
3	rimsulfuron (M)	25	DF	0.031	LB A/A	PRE	8.5	9.8	10.0	9.5	10.0
	glyphosate	5.5	L	2	LB A/A	PRE					
4	rimsulfuron (M)	25	DF	0.063	LB A/A	PRE	10.0	9.5	9.8	9.8	9.8
	glyphosate	5.5	L	2	LB A/A	PRE					
5	pendimethalin	3.8	CS	3.8	LB A/A	PRE	6.3	9.3	10.0	9.3	10.0
	glyphosate	5.5	L	2	LB A/A	PRE					
6	flumioxazin	51	WDG	0.383	LB A/A	PRE	7.3	9.8	10.0	8.0	9.5
	glyphosate	5.5	L	2	LB A/A	PRE					
7	oxyfluorfen	2	EC	2	LB A/A	PRE	8.5	9.8	10.0	9.8	10.0
	oryzalin	4	AS	4.0	LB A/A	PRE					
	glyphosate	5.5	L	2	LB A/A	PRE					
8	Untreated					PRE	8.0	9.5	9.8	8.8	10.0
	glyphosate	5.5	L	2	LB A/A	PRE					
LSD (P=.05)							2.05	0.76	0.55	1.35	0.79
Standard Deviation							1.39	0.52	0.37	0.92	0.54
CV							16.88	5.41	3.78	9.88	5.5

Weed Control in Cherry with Pruvan - CHES 2010

Dept. of Horticulture, MSU

							FAPA	ALFA	BHPL	COLQ	
							Cherry				
Pest Code	Crop Name						15/Jun/10	15/Jun/10	15/Jun/10	15/Jun/10	15/Jun/10
Rating Date	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	rimsulfuron (P)	25	DF	0.031	LB A/A	PRE	1.0	7.8	4.5	3.0	9.5
	glyphosate	5.5	L	2	LB A/A	PRE					
2	rimsulfuron (P)	25	DF	0.063	LB A/A	PRE	1.0	9.5	8.5	4.0	8.0
	glyphosate	5.5	L	2	LB A/A	PRE					
3	rimsulfuron (M)	25	DF	0.031	LB A/A	PRE	1.0	5.5	8.3	5.8	8.0
	glyphosate	5.5	L	2	LB A/A	PRE					
4	rimsulfuron (M)	25	DF	0.063	LB A/A	PRE	1.0	7.5	9.3	6.8	10.0
	glyphosate	5.5	L	2	LB A/A	PRE					
5	pendimethalin	3.8	CS	3.8	LB A/A	PRE	1.0	9.3	4.5	8.5	10.0
	glyphosate	5.5	L	2	LB A/A	PRE					
6	flumioxazin	51	WDG	0.383	LB A/A	PRE	1.0	10.0	5.0	9.3	10.0
	glyphosate	5.5	L	2	LB A/A	PRE					
7	oxyfluorfen	2	EC	2	LB A/A	PRE	1.0	10.0	7.3	8.0	10.0
	oryzalin	4	AS	4.0	LB A/A	PRE					
	glyphosate	5.5	L	2	LB A/A	PRE					
8	Untreated					PRE	1.0	1.0	6.8	4.5	1.0
	glyphosate	5.5	L	2	LB A/A	PRE					
LSD (P=.05)							0.00	3.36	4.40	2.40	2.60
Standard Deviation							0.00	2.29	2.99	1.63	1.77
CV							0.0	30.25	44.3	26.24	21.31

							WICA	COGR		QUGR	ALFA
							Cherry				
Pest Code	Crop Name						15/Jun/10	14/Jul/10	14/Jul/10	14/Jul/10	14/Jul/10
Rating Date	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	rimsulfuron (P)	25	DF	0.031	LB A/A	PRE	7.0	1.0	8.8	8.5	2.8
	glyphosate	5.5	L	2	LB A/A	PRE					
2	rimsulfuron (P)	25	DF	0.063	LB A/A	PRE	7.8	1.0	10.0	8.5	7.0
	glyphosate	5.5	L	2	LB A/A	PRE					
3	rimsulfuron (M)	25	DF	0.031	LB A/A	PRE	9.3	1.3	10.0	7.5	6.8
	glyphosate	5.5	L	2	LB A/A	PRE					
4	rimsulfuron (M)	25	DF	0.063	LB A/A	PRE	9.0	1.0	10.0	7.8	7.8
	glyphosate	5.5	L	2	LB A/A	PRE					
5	pendimethalin	3.8	CS	3.8	LB A/A	PRE	6.0	1.3	6.0	7.8	3.0
	glyphosate	5.5	L	2	LB A/A	PRE					
6	flumioxazin	51	WDG	0.383	LB A/A	PRE	9.0	1.0	10.0	7.5	6.0
	glyphosate	5.5	L	2	LB A/A	PRE					
7	oxyfluorfen	2	EC	2	LB A/A	PRE	6.5	1.0	10.0	7.8	6.3
	oryzalin	4	AS	4.0	LB A/A	PRE					
	glyphosate	5.5	L	2	LB A/A	PRE					
8	Untreated					PRE	1.8	1.0	6.5	5.3	4.3
	glyphosate	5.5	L	2	LB A/A	PRE					
LSD (P=.05)							3.31	0.38	3.67	3.38	5.69
Standard Deviation							2.25	0.26	2.49	2.30	3.87
CV							32.01	24.08	27.98	30.35	70.73

Weed Control in Cherry with Pruvan - CHES 2010

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Pest Code							BHPL	DAND	FAPA	WHCA	WICA
Crop Name							14/Jul/10	14/Jul/10	14/Jul/10	14/Jul/10	14/Jul/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	rimsulfuron (P)	25	DF	0.031	LB A/A	PRE	3.8	9.8	7.5	10.0	8.0
	glyphosate	5.5	L	2	LB A/A	PRE					
2	rimsulfuron (P)	25	DF	0.063	LB A/A	PRE	5.0	8.3	8.8	10.0	6.8
	glyphosate	5.5	L	2	LB A/A	PRE					
3	rimsulfuron (M)	25	DF	0.031	LB A/A	PRE	5.0	9.0	8.0	9.0	9.5
	glyphosate	5.5	L	2	LB A/A	PRE					
4	rimsulfuron (M)	25	DF	0.063	LB A/A	PRE	5.0	9.5	7.3	10.0	8.8
	glyphosate	5.5	L	2	LB A/A	PRE					
5	pendimethalin	3.8	CS	3.8	LB A/A	PRE	9.0	9.5	7.8	9.5	5.8
	glyphosate	5.5	L	2	LB A/A	PRE					
6	flumioxazin	51	WDG	0.383	LB A/A	PRE	9.5	7.5	8.5	7.3	9.3
	glyphosate	5.5	L	2	LB A/A	PRE					
7	oxyfluorfen	2	EC	2	LB A/A	PRE	6.8	9.0	8.8	10.0	6.0
	oryzalin	4	AS	4.0	LB A/A	PRE					
	glyphosate	5.5	L	2	LB A/A	PRE					
8	Untreated					PRE	3.3	7.0	1.8	6.5	5.8
	glyphosate	5.5	L	2	LB A/A	PRE					
LSD (P=.05)							2.24	1.71	2.37	2.58	3.77
Standard Deviation							1.52	1.16	1.61	1.75	2.56
CV							25.77	13.38	22.16	19.43	34.31

Pest Code								FAPA	LACG	YEFT	WICA
Crop Name							Cherry				
Rating Date							17/Aug/10	17/Aug/10	17/Aug/10	17/Aug/10	17/Aug/10
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	rimsulfuron (P)	25	DF	0.031	LB A/A	PRE	1.0	7.8	7.8	6.0	9.0
	glyphosate	5.5	L	2	LB A/A	PRE					
2	rimsulfuron (P)	25	DF	0.063	LB A/A	PRE	1.5	8.3	10.0	6.8	7.0
	glyphosate	5.5	L	2	LB A/A	PRE					
3	rimsulfuron (M)	25	DF	0.031	LB A/A	PRE	1.0	8.3	5.3	5.8	6.3
	glyphosate	5.5	L	2	LB A/A	PRE					
4	rimsulfuron (M)	25	DF	0.063	LB A/A	PRE	1.5	9.0	8.3	4.0	7.8
	glyphosate	5.5	L	2	LB A/A	PRE					
5	pendimethalin	3.8	CS	3.8	LB A/A	PRE	1.3	6.8	7.0	9.3	4.5
	glyphosate	5.5	L	2	LB A/A	PRE					
6	flumioxazin	51	WDG	0.383	LB A/A	PRE	1.0	8.5	9.5	10.0	7.8
	glyphosate	5.5	L	2	LB A/A	PRE					
7	oxyfluorfen	2	EC	2	LB A/A	PRE	1.8	9.5	8.0	8.0	6.3
	oryzalin	4	AS	4.0	LB A/A	PRE					
	glyphosate	5.5	L	2	LB A/A	PRE					
8	Untreated					PRE	1.3	3.3	7.0	6.0	4.0
	glyphosate	5.5	L	2	LB A/A	PRE					
LSD (P=.05)							0.73	3.91	5.26	4.71	4.50
Standard Deviation							0.50	2.66	3.58	3.20	3.06
CV							38.67	34.75	45.58	45.99	46.66

Weed Control in Grape - HTRC 2010

Project Code: 132-10-01

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Grape Variety: See notes.

Planting Method: Transplant Planting Date: 1996

Spacing: 7 ft Row Spacing: 10 ft

Tillage Type: Conventional Study Design: RCB

Replications: 3

Plot Size: 6 ft wide x 30 ft long

Soil Type: Capac loam

OM: 2.2%

pH: 6.7

Sand: 53.5%

Silt: 31.1%

Clay: 15.4%

CEC: 6.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPRE	4/12/10	12:00 PM	63/53	F	Good	1-2 NE	16	10% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/12	GRAPE		Dormant	
4/12	ANBG = annual bluegrass	1-3"		Moderate
4/12	DAND = dandelion	3-5", 2-3"		Many
4/12	QUGR = quackgrass	4-6"		Moderate
4/12	WHCL = white clover	2-3"		Moderate
4/12	WICA = wild carrot	2-3"		Moderate

Notes and Comments

1. Varieties: Vidal, Marechal Foch, Frontenac

2.

Weed Control in Grape - HTRC 2010

Weed Control in Grape - HTRC 2010

Trial ID: 132-10-01	Protocol ID: 132-10-01
Location: East Lansing, MI	Study Director: Rodney Tocco
	Investigator: Dr. Bernard Zandstra

Pest Code							ANBG	HAFE	QUGR	DAND	
Crop Name							Grape				
Rating Date							10/May/10	10/May/10	10/May/10	10/May/10	10/May/10
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	3	LB A/A	EPRE	1.0	10.0	9.3	6.0	7.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
2	saflufenacil	70	WG	0.045	LB A/A	EPRE	1.0	5.0	6.0	4.7	8.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	6.7	7.0	4.3	8.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
4	mesotrione	4	SC	0.188	LB A/A	EPRE	1.0	6.7	7.0	7.3	8.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
5	pendimethalin	3.8	CS	1.9	LB A/A	EPRE	1.0	7.0	7.0	4.3	7.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
6	halosulfuron	75	WG	0.047	LB A/A	EPRE	1.0	6.7	8.3	6.0	5.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
7	rimsulfuron (M)	25	DF	0.063	LB A/A	EPRE	1.0	8.3	9.3	8.7	8.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
8	flumioxazin	51	WDG	0.192	LB A/A	EPRE	1.0	10.0	9.0	6.0	6.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
9	glufosinate	2.34	L	0.88	LB A/A	EPRE	1.0	2.7	6.3	4.0	5.3
10	glufosinate	2.34	L	1.02	LB A/A	EPRE	1.0	4.7	7.7	5.0	7.3
11	glyphosate	5.5	L	1	LB A/A	EPRE	1.0	9.7	9.7	6.7	8.3
12	Untreated					EPRE	1.0	1.0	3.7	3.0	1.3
LSD (P=.05)							0.00	3.82	3.55	3.56	2.47
Standard Deviation							0.00	2.25	2.09	2.11	1.46
CV							0.0	34.53	27.81	38.28	21.62

Weed Control in Grape - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							WHCA	WHCL	WICA	ANBG	
Crop Name										Grape	
Rating Date							10/May/10	10/May/10	10/May/10	25/May/10	25/May/10
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	3	LB A/A	EPRE	10.0	10.0	7.0	1.7	10.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
2	saflufenacil	70	WG	0.045	LB A/A	EPRE	10.0	10.0	6.7	1.0	3.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	10.0	10.0	4.0	1.7	8.7
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
4	mesotrione	4	SC	0.188	LB A/A	EPRE	7.0	10.0	10.0	2.3	2.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
5	pendimethalin	3.8	CS	1.9	LB A/A	EPRE	10.0	9.3	2.0	1.0	6.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
6	halosulfuron	75	WG	0.047	LB A/A	EPRE	6.0	10.0	7.0	1.7	4.7
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
7	rimsulfuron (M)	25	DF	0.063	LB A/A	EPRE	10.0	9.3	10.0	2.0	10.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
8	flumioxazin	51	WDG	0.192	LB A/A	EPRE	10.0	7.3	5.0	1.7	8.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
9	glufosinate	2.34	L	0.88	LB A/A	EPRE	9.3	10.0	1.0	2.0	5.0
10	glufosinate	2.34	L	1.02	LB A/A	EPRE	10.0	9.7	5.0	1.7	3.3
11	glyphosate	5.5	L	1	LB A/A	EPRE	10.0	6.0	8.7	1.3	9.3
12	Untreated					EPRE	4.0	2.3	4.0	2.3	3.0
LSD (P=.05)							4.38	2.78	6.41	1.23	4.85
Standard Deviation							2.59	1.64	3.79	0.73	2.86
CV							29.2	18.95	64.62	42.87	46.84

Weed Control in Grape - HTRC 2010

Dept. of Horticulture, MSU

Pest Code							HAFE	QUGR	CABR	DAND	WICA
Crop Name							25/May/10	25/May/10	25/May/10	25/May/10	25/May/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	diuron	80	DF	3	LB A/A	EPRE	9.7	5.7	9.7	5.7	7.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
2	saflufenacil	70	WG	0.045	LB A/A	EPRE	7.3	2.0	4.7	6.0	4.7
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	9.7	3.0	6.7	6.3	1.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
4	mesotrione	4	SC	0.188	LB A/A	EPRE	6.0	3.0	7.7	7.0	10.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
5	pendimethalin	3.8	CS	1.9	LB A/A	EPRE	6.0	1.7	5.0	6.3	1.7
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
6	halosulfuron	75	WG	0.047	LB A/A	EPRE	9.0	2.7	4.3	4.3	7.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
7	rimsulfuron (M)	25	DF	0.063	LB A/A	EPRE	10.0	9.3	9.0	9.3	9.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
8	flumioxazin	51	WDG	0.192	LB A/A	EPRE	9.7	3.7	7.0	6.0	3.7
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
9	glufosinate	2.34	L	0.88	LB A/A	EPRE	8.7	2.3	1.3	4.3	1.0
10	glufosinate	2.34	L	1.02	LB A/A	EPRE	9.3	2.7	3.7	6.7	5.7
11	glyphosate	5.5	L	1	LB A/A	EPRE	10.0	6.3	9.7	9.0	6.3
12	Untreated					EPRE	7.0	4.0	2.0	2.0	1.7
LSD (P=.05)							3.53	3.77	4.79	3.32	5.49
Standard Deviation							2.08	2.23	2.83	1.96	3.24
CV							24.45	57.72	48.0	32.22	65.62

Weed Control in Grape - HTRC 2010

Dept. of Horticulture, MSU

Pest Code	Crop Name	Rating Date	Rating Data Type	Rating Unit	Grape		QUGR	CABR	COMA	DAND	
					15/Jun/10	15/Jun/10	15/Jun/10	15/Jun/10	15/Jun/10	15/Jun/10	
							RATING	RATING	RATING	RATING	
							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	3	LB A/A	EPRE	1.0	5.7	10.0	2.0	6.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
2	saflufenacil	70	WG	0.045	LB A/A	EPRE	1.0	3.0	2.7	2.7	5.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.0	3.3	4.3	6.3	6.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
4	mesotrione	4	SC	0.188	LB A/A	EPRE	1.0	3.0	5.3	7.0	6.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
5	pendimethalin	3.8	CS	1.9	LB A/A	EPRE	1.0	5.0	6.3	6.0	6.7
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
6	halosulfuron	75	WG	0.047	LB A/A	EPRE	1.0	3.7	6.0	5.7	5.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
7	rimsulfuron (M)	25	DF	0.063	LB A/A	EPRE	1.0	9.0	9.0	6.0	6.7
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
8	flumioxazin	51	WDG	0.192	LB A/A	EPRE	1.0	4.0	4.7	4.0	5.7
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
9	glufosinate	2.34	L	0.88	LB A/A	EPRE	1.0	2.7	3.7	6.0	3.0
10	glufosinate	2.34	L	1.02	LB A/A	EPRE	1.0	4.0	1.7	4.3	2.7
11	glyphosate	5.5	L	1	LB A/A	EPRE	1.0	5.0	7.0	5.0	3.0
12	Untreated					EPRE	1.0	5.7	3.3	4.3	2.7
LSD (P=.05)							0.00	3.36	4.20	6.79	2.48
Standard Deviation							0.00	1.98	2.48	4.01	1.46
CV							0.0	44.11	46.48	81.05	29.78

Weed Control in Grape - HTRC 2010

Dept. of Horticulture, MSU

Pest Code						WICA	WHCL	Grape		QUGR	YEFT
Crop Name						15/Jun/10	15/Jun/10	14/Jul/10	14/Jul/10	14/Jul/10	14/Jul/10
Rating Date						RATING	RATING	RATING	RATING	RATING	RATING
Rating Data Type						1-10	1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	diuron	80	DF	3	LB A/A	EPRE	4.7	10.0	1.0	4.7	8.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
2	safflufenacil	70	WG	0.045	LB A/A	EPRE	2.0	9.3	2.0	2.7	7.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	1.7	8.7	1.0	5.3	7.7
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
4	mesotrione	4	SC	0.188	LB A/A	EPRE	10.0	10.0	1.0	7.0	7.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
5	pendimethalin	3.8	CS	1.9	LB A/A	EPRE	1.3	6.3	1.3	6.7	8.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
6	halosulfuron	75	WG	0.047	LB A/A	EPRE	7.0	9.3	1.0	1.7	8.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
7	rimsulfuron (M)	25	DF	0.063	LB A/A	EPRE	7.3	7.7	1.0	7.7	7.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
8	flumioxazin	51	WDG	0.192	LB A/A	EPRE	2.0	9.0	1.0	5.0	8.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE					
9	glufosinate	2.34	L	0.88	LB A/A	EPRE	2.0	9.7	1.3	7.0	9.0
10	glufosinate	2.34	L	1.02	LB A/A	EPRE	1.0	9.0	1.0	7.3	7.7
11	glyphosate	5.5	L	1	LB A/A	EPRE	1.0	1.7	1.3	6.3	5.7
12	Untreated					EPRE	2.7	4.0	1.7	5.0	7.3
LSD (P=.05)							4.30	4.00	0.90	3.96	3.04
Standard Deviation							2.54	2.36	0.53	2.34	1.80
CV							71.36	29.97	43.71	42.33	23.51

Weed Control in Grape - HTRC 2010

Dept. of Horticulture, MSU

Pest Code				COMA	DAND	WHCL	WICA			
Crop Name										
Rating Date				14/Jul/10	14/Jul/10	14/Jul/10	14/Jul/10			
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	diuron	80	DF	3	LB A/A	EPRE	5.7	5.3	10.0	6.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE				
2	saflufenacil	70	WG	0.045	LB A/A	EPRE	9.0	7.7	10.0	4.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE				
3	indaziflam	1.67	SC	0.065	LB A/A	EPRE	10.0	5.3	9.3	2.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE				
4	mesotrione	4	SC	0.188	LB A/A	EPRE	9.0	6.7	10.0	8.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE				
5	pendimethalin	3.8	CS	1.9	LB A/A	EPRE	6.0	5.0	4.7	1.7
	glufosinate	2.34	L	0.88	LB A/A	EPRE				
6	halosulfuron	75	WG	0.047	LB A/A	EPRE	7.0	7.7	10.0	7.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE				
7	rimsulfuron (M)	25	DF	0.063	LB A/A	EPRE	7.0	7.7	6.7	8.3
	glufosinate	2.34	L	0.88	LB A/A	EPRE				
8	flumioxazin	51	WDG	0.192	LB A/A	EPRE	6.7	7.0	10.0	6.0
	glufosinate	2.34	L	0.88	LB A/A	EPRE				
9	glufosinate	2.34	L	0.88	LB A/A	EPRE	10.0	6.0	8.3	3.0
10	glufosinate	2.34	L	1.02	LB A/A	EPRE	7.0	7.3	8.7	7.3
11	glyphosate	5.5	L	1	LB A/A	EPRE	10.0	6.0	1.3	4.0
12	Untreated					EPRE	10.0	3.3	3.3	3.7
LSD (P=.05)							5.51	4.15	4.18	6.01
Standard Deviation							3.26	2.45	2.47	3.55
CV							40.15	39.22	32.07	68.35

Postemergence Weed Control in Raspberry - CHES 2010

Project Code: 131-10-01

Location: Clarksville, MI

Personnel: Bernard H. Zandstra, Rodney Tocco

Crop: Raspberry Variety: Heritage

Planting Method: Transplant Planting Date: 2002

Spacing: Solid row Row Spacing: 10 ft

Tillage Type: Conventional Study Design: RCB

Replications: 3

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Lapeer sandy loam

OM: 1.9%

pH: 6.4

Sand: 49.4%

Silt: 41.2%

Clay: 9.4%

CEC: 4.7

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/28/10	11:00 AM	77/74	F	Damp	6 NW	62	5% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/28	RASPBERRY	24-30"	Foliar	
6/28	BYGR = barnyardgrass	4-10"	Foliar	Moderate
6/28	ROFB = rough fleabane	24"		Moderate
6/28	QUGR = quackgrass	12-15"		Moderate

Notes and Comments

1. PO1 = over the top with 4-nozzle boom.
2. POSDIR = 32 inch band on each side of row with 2-nozzle boom.

Postemergence Weed Control in Raspberry - CHES 2010

Postemergence Weed Control in Raspberry - CHES 2010

Trial ID: 131-10-01
Location: Clarksville, MI

Protocol ID:
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

Pest Code							BYGR		ROFB		
Crop Name							Raspberry	Raspberry			Raspberry
Rating Date							6/Jul/10	20/Jul/10	20/Jul/10	20/Jul/10	24/Aug/10
Rating Data Type							RATING	RATING	RATING	RATING	HARVEST
Rating Unit							1-10	1-10	1-10	1-10	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	clethodim	0.97	EC	0.12	LB A/A	PO1	1.0	1.0	9.7	4.7	0.90
	NIS	100	SL	0.25	% V/V	PO1					
2	clopyralid	3	L	0.188	LB A/A	PO1	3.3	2.0	1.7	10.0	1.01
3	clopyralid	3	L	0.188	LB A/A	PO1	4.0	2.3	9.0	10.0	1.12
	clethodim	0.97	EC	0.12	LB A/A	PO1					
	NIS	100	SL	0.25	% V/V	PO1					
4	clopyralid	3	L	0.188	LB A/A	POSDIR	1.3	1.3	10.0	7.3	1.34
	clethodim	0.97	EC	0.12	LB A/A	POSDIR					
	NIS	100	SL	0.25	% V/V	POSDIR					
5	clopyralid	3	L	0.25	LB A/A	PO1	3.7	2.3	1.0	9.7	1.30
6	clopyralid	3	L	0.25	LB A/A	POSDIR	1.0	1.0	3.7	7.3	1.56
	clethodim	0.97	EC	0.12	LB A/A	POSDIR					
	NIS	100	SL	0.25	% V/V	POSDIR					
7	Untreated						1.0	1.0	1.0	1.0	1.58
LSD (P=.05)							0.59	0.73	2.41	4.68	1.056
Standard Deviation							0.33	0.41	1.35	2.63	0.594
CV							15.22	25.98	26.33	36.81	47.19

Pest Code							Raspberry	Raspberry	Raspberry	Raspberry	Raspberry	Raspberry
Crop Name							30/Aug/10	9/Sep/10	13/Sep/10	17/Sep/10	23/Sep/10	
Rating Date							HARVEST	HARVEST	HARVEST	HARVEST	HARVEST	TOTAL
Rating Data Type							KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	clethodim	0.97	EC	0.12	LB A/A	PO1	2.35	2.50	3.92	4.25	2.89	12.66
	NIS	100	SL	0.25	% V/V	PO1						
2	clopyralid	3	L	0.188	LB A/A	PO1	2.54	2.88	4.02	5.90	2.92	13.99
3	clopyralid	3	L	0.188	LB A/A	PO1	2.54	2.55		5.15	2.14	13.50
	clethodim	0.97	EC	0.12	LB A/A	PO1						
	NIS	100	SL	0.25	% V/V	PO1						
4	clopyralid	3	L	0.188	LB A/A	POSDIR	3.78	3.54		5.72	2.46	16.83
	clethodim	0.97	EC	0.12	LB A/A	POSDIR						
	NIS	100	SL	0.25	% V/V	POSDIR						
5	clopyralid	3	L	0.25	LB A/A	PO1	3.59	3.87	6.76	5.84	2.34	17.25
6	clopyralid	3	L	0.25	LB A/A	POSDIR	3.11	2.35	4.42	4.98	2.26	14.07
	clethodim	0.97	EC	0.12	LB A/A	POSDIR						
	NIS	100	SL	0.25	% V/V	POSDIR						
7	Untreated						5.39	2.95	3.98	5.55	2.50	17.44
LSD (P=.05)							2.470	1.575	.	2.521	1.182	3.729
Standard Deviation							1.388	0.885	.	1.201	0.665	2.096
CV							41.73	30.02	.	22.5	26.57	13.87

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Project Code: XMAS 2008-01 Westar I

Location: Gobles, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Laura Wei

Crop: XMAS Tree Variety: Fraser Fir

Planting Method: Transplant Planting Date: 4/18/08

Spacing: 5 ft Row Spacing: 6 ft

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 18 ft wide x 40 ft long

Soil Type: Sandy Loam

OM: 1.2%

pH: 5.5

Sand: 73.9% Silt: 15.2%

Clay: 10.9%

CEC: 7.4

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/20/10	1:00 PM	65/68	°F	Good	1-3 NE	21	5% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N
				F				% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/20	XMAS		Pre-Bud Opening	
4/20	COCW = common chickweed	3-4", 1-2"		Few
4/20	DAND = dandelion	6-10", 1-3"		Few
4/20	HOWE = horseweed	1-2"		Many
4/20	MECR = mouseear cress	6-16"		Many
4/20	PEST = perennial sowthistle	3-5", 1-2"		Few
4/20	PUDN = purple deadnettle	3-6"		Moderate
4/20	WHCA = white campion	6-10", 4-6"		Moderate
4/20	WIGA = wild garlic	6-10"		Few

Weed List:

GIFT = giant foxtail
 QUGR = quackgrass
 WIGR = witchgrass
 BLME = black medic
 COMU = common mullien
 COMW = common milkweed
 CORW = common ragweed
 EBNS = eastern black nightshade
 HOAL = hoary alyssum
 PEST = perennial sowthistle
 PRLE = prickly lettuce
 RESO = red sorrel
 RFCL = rabbitfoot clover
 VICR = Virginia creeper
 VIPW = Virginia pepperweed
 WHCL = white clover
 WICA = wild carrot
 YEHW = yellow hawkweed

Notes and Comments

1. Diameter, height, and leader length: mean of 12-24 trees/plot.
- 2.

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Evaluation of Westar in Christmas Tree Plantations I 2009
Wahmhoff Farms - Gobles, MI
 Trial ID: XMAS 2008-1 Westar I Protocol ID:
 Location: Gobles, MI Study Director: Rodney Tocco
 Investigator: Dr. Bernard Zandstra

Pest Code							GIFT	CORW	EBNS	HOAL	
Crop Code							TREE				
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
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			6	OZ/A	PRE	1.0	10.0	10.0	10.0	10.0
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	1.0	8.0	8.3	9.3	9.7
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	1.0	6.0	6.7	8.7	9.3
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	1.0	10.0	10.0	10.0	10.0
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	1.0	6.0	6.7	8.7	9.3
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	1.0	10.0	10.0	10.0	10.0
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	1.0	6.0	6.7	8.7	9.3
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						1.0	8.0	8.3	9.3	9.7
LSD (P=.05)							0.00	5.06	4.22	1.69	0.84
Standard Deviation							0.00	2.89	2.41	0.96	0.48
CV							0.0	36.14	28.91	10.32	4.98

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							HOWE	TREE		QUGR	COMW	CORW
Crop Code												
Rating Date							17/Jun/08	23/Jul/08	23/Jul/08	23/Jul/08	23/Jul/08	23/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	Westar			6	OZ/A	PRE	10.0	3.9	8.2	6.5	8.2	
	sulfometuron	75	DG	0.52	OZ/A	PRE						
	hexazinone	75	DF	5.49	OZ/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
2	Westar			8	OZ/A	PRE	9.7	4.4	7.7	6.5	7.2	
	sulfometuron	75	DG	0.69	OZ/A	PRE						
	hexazinone	75	DF	7.32	OZ/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
3	Westar			10	OZ/A	PRE	9.3	4.4	7.3	6.7	6.9	
	sulfometuron	75	DG	0.87	OZ/A	PRE						
	hexazinone	75	DF	9.15	OZ/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
4	Westar			12	OZ/A	PRE	10.0	3.9	8.2	6.5	8.2	
	sulfometuron	75	DG	1.04	OZ/A	PRE						
	hexazinone	75	DF	11	OZ/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	9.3	4.9	7.3	6.6	6.1	
	NIS	100	SL	0.25	% V/V	PRE						
6	simazine	90	WDG	4	LB A/A	PRE	10.0	3.9	8.2	6.5	8.2	
	oryzalin	4	L	3	LB A/A	PRE						
	paraquat	2	L	1	LB A/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
7	pronamide	50	WP	2	LB A/A	PRE	9.3	4.9	7.3	6.6	6.1	
	oxyfluorfen	2	L	1	LB A/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
8	Untreated						9.7	4.9	7.6	6.4	6.4	
LSD (P=.05)							0.84	1.27	1.03	0.45	2.27	
Standard Deviation							0.48	0.72	0.59	0.25	1.30	
CV							4.98	16.52	7.64	3.9	18.11	

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							HOWE	TREE		QUGR	COMW	CORW
Crop Code												
Rating Date							23/Jul/08	7/Aug/08	7/Aug/08	7/Aug/08	7/Aug/08	7/Aug/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	Westar			6	OZ/A	PRE	8.1	4.2	4.0	5.3	8.0	
	sulfometuron	75	DG	0.52	OZ/A	PRE						
	hexazinone	75	DF	5.49	OZ/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
2	Westar			8	OZ/A	PRE	8.0	4.5	3.9	5.5	7.5	
	sulfometuron	75	DG	0.69	OZ/A	PRE						
	hexazinone	75	DF	7.32	OZ/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
3	Westar			10	OZ/A	PRE	7.9	4.5	3.8	4.4	7.0	
	sulfometuron	75	DG	0.87	OZ/A	PRE						
	hexazinone	75	DF	9.15	OZ/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
4	Westar			12	OZ/A	PRE	8.1	4.2	4.0	5.3	8.0	
	sulfometuron	75	DG	1.04	OZ/A	PRE						
	hexazinone	75	DF	11	OZ/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	7.9	4.9	3.8	5.7	6.9	
	NIS	100	SL	0.25	% V/V	PRE						
6	simazine	90	WDG	4	LB A/A	PRE	8.1	4.2	4.0	5.3	8.0	
	oryzalin	4	L	3	LB A/A	PRE						
	paraquat	2	L	1	LB A/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
7	pronamide	50	WP	2	LB A/A	PRE	7.9	4.9	3.8	5.7	6.9	
	oxyfluorfen	2	L	1	LB A/A	PRE						
	NIS	100	SL	0.25	% V/V	PRE						
8	Untreated						8.0	4.9	3.9	6.7	7.3	
LSD (P=.05)							0.32	0.84	0.21	3.47	1.19	
Standard Deviation							0.18	0.48	0.12	1.98	0.68	
CV							2.26	10.61	3.08	36.31	9.09	

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code						EBNS	HOWE	TREE	COMW	COMU	
Crop Code											
Rating Date						7/Aug/08	7/Aug/08	19/May/09	19/May/09	19/May/09	
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	Westar			6	OZ/A	PRE	9.0	8.6	2.5	9.5	10.0
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	9.4	7.9	2.5	9.3	9.9
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	9.6	7.0	3.0	9.0	9.9
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	9.0	8.6	2.5	9.5	10.0
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	9.8	7.3	2.5	9.1	9.9
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	9.0	8.6	2.5	9.5	10.0
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	9.8	7.3	2.5	9.1	9.9
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						9.5	8.1	2.0	9.4	9.9
LSD (P=.05)							0.79	2.12	1.50	0.61	0.11
Standard Deviation							0.45	1.21	0.86	0.35	0.06
CV							4.79	15.29	34.33	3.72	0.61

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							DAND	HABC	HOAL	HOWE	VICR
Crop Code							19/May/09	19/May/09	19/May/09	19/May/09	19/May/09
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			6	OZ/A	PRE	10.0	6.0	9.7	8.0	9.5
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	10.0	5.0	9.6	8.1	9.5
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	10.0	5.0	9.6	8.0	9.7
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	10.0	6.0	9.7	8.0	9.5
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	10.0	4.0	9.5	8.2	9.4
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	10.0	6.0	9.7	8.0	9.5
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	10.0	4.0	9.5	8.2	9.4
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						9.9	4.0	9.6	8.3	9.2
LSD (P=.05)							0.13	2.53	0.17	0.43	0.69
Standard Deviation							0.07	1.45	0.10	0.24	0.40
CV							0.72	28.91	1.01	3.01	4.19

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							LACG	COMW	CORW	HOAL	
Crop Code							TREE				
Rating Date							21/Jul/09	21/Jul/09	21/Jul/09	21/Jul/09	
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	Westar			6	OZ/A	PRE	2.0	9.9	7.1	9.3	9.5
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	2.1	9.9	7.3	9.4	9.5
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	2.1	10.0	7.1	9.5	9.4
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	2.0	9.9	7.1	9.3	9.5
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	2.3	9.9	7.5	9.6	9.4
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	2.0	9.9	7.1	9.3	9.5
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	2.3	9.9	7.5	9.6	9.4
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						2.4	9.8	7.6	9.5	9.5
LSD (P=.05)							0.55	0.25	0.77	0.36	0.25
Standard Deviation							0.32	0.14	0.44	0.21	0.14
CV							14.75	1.44	6.01	2.19	1.53

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							HOWE	RESO	RFCL	VICR	WHCA
Crop Code							21/Jul/09	21/Jul/09	21/Jul/09	21/Jul/09	21/Jul/09
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			6	OZ/A	PRE	5.0	9.6	8.7	9.8	9.8
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	5.1	9.6	8.6	9.7	9.8
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	5.0	9.9	8.3	9.8	10.0
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	5.0	9.6	8.7	9.8	9.8
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	5.2	9.6	8.5	9.6	9.8
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	5.0	9.6	8.7	9.8	9.8
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	5.2	9.6	8.5	9.6	9.8
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						5.3	9.3	8.7	9.5	9.5
LSD (P=.05)							0.43	1.01	0.69	0.40	0.75
Standard Deviation							0.24	0.57	0.39	0.23	0.43
CV							4.77	5.98	4.61	2.37	4.4

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							WICA	TREE	BLME	COMW	CUDO
Crop Code							21/Jul/09	26/May/10	26/May/10	26/May/10	26/May/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			6	OZ/A	PRE	9.9	1.2	9.2	8.1	10.0
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	9.9	1.3	9.5	8.3	9.9
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	10.0	1.2	9.7	8.2	9.9
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	9.9	1.2	9.2	8.1	10.0
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	9.9	1.3	9.8	8.5	9.9
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	9.9	1.2	9.2	8.1	10.0
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	9.9	1.3	9.8	8.5	9.9
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						9.8	1.4	9.5	8.5	9.9
LSD (P=.05)							0.25	0.41	0.67	0.61	0.11
Standard Deviation							0.14	0.24	0.38	0.35	0.06
CV							1.44	18.84	4.05	4.17	0.61

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code						HOWE	PEST	RESO	RFCL	VICR	
Crop Code											
Rating Date						26/May/10	26/May/10	26/May/10	26/May/10	26/May/10	
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	Westar			6	OZ/A	PRE	6.2	9.4	9.6	8.3	9.3
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	6.1	9.4	9.5	8.3	9.2
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	6.1	9.5	9.8	8.2	9.2
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	6.2	9.4	9.6	8.3	9.3
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	6.0	9.5	9.5	8.4	9.0
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	6.2	9.4	9.6	8.3	9.3
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	6.0	9.5	9.5	8.4	9.0
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						5.9	9.4	9.2	8.5	9.0
LSD (P=.05)							0.40	0.11	1.02	0.45	0.42
Standard Deviation							0.23	0.06	0.58	0.25	0.24
CV							3.79	0.64	6.08	3.06	2.63

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							WHCA	WHCL	TREE	COMW	HOWE
Crop Code											
Rating Date							26/May/10	26/May/10	10/Jun/10	10/Jun/10	10/Jun/10
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	Westar			6	OZ/A	PRE	9.8	9.8	1.6	5.3	5.3
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	9.8	9.7	1.5	5.1	5.4
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	10.0	9.4	1.5	4.9	5.3
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	9.8	9.8	1.6	5.3	5.3
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	9.8	9.5	1.4	4.9	5.5
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	9.8	9.8	1.6	5.3	5.3
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	9.8	9.5	1.4	4.9	5.5
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						9.7	9.8	1.5	5.1	5.5
LSD (P=.05)							0.50	0.61	0.17	0.42	0.41
Standard Deviation							0.29	0.35	0.10	0.24	0.24
CV							2.91	3.57	6.46	4.74	4.38

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							RESO	RFCL	WHCL	QUGR	
Crop Code							TREE				
Rating Date							10/Jun/10	10/Jun/10	10/Jun/10	15/Jul/10	15/Jul/10
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	Westar			6	OZ/A	PRE	9.5	7.0	8.8	1.2	9.7
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	9.1	7.0	9.1	1.1	9.6
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	9.3	6.6	9.7	1.1	9.9
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	9.5	7.0	8.8	1.2	9.7
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	8.7	7.0	9.4	1.0	9.6
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	9.5	7.0	8.8	1.2	9.7
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	8.7	7.0	9.4	1.0	9.6
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						8.5	7.5	8.8	1.0	9.3
LSD (P=.05)							1.31	1.25	1.56	0.21	0.94
Standard Deviation							0.75	0.72	0.89	0.12	0.54
CV							8.24	10.16	9.79	11.12	5.6

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							COMW	CORW	HOAL	HOWE	PRLE
Crop Code							15/Jul/10	15/Jul/10	15/Jul/10	15/Jul/10	15/Jul/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			6	OZ/A	PRE	7.8	9.2	9.7	5.0	9.2
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	7.6	9.1	9.8	4.8	9.3
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	7.5	9.1	10.0	4.3	9.3
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	7.8	9.2	9.7	5.0	9.2
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	7.5	9.0	9.8	4.6	9.5
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	7.8	9.2	9.7	5.0	9.2
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	7.5	9.0	9.8	4.6	9.5
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						7.5	9.1	9.6	5.0	9.5
LSD (P=.05)							0.34	0.17	0.57	1.15	0.42
Standard Deviation							0.19	0.10	0.33	0.65	0.24
CV							2.54	1.06	3.34	13.66	2.58

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code		RESO					RFCL	WHCA	WICA	WIGA	
Crop Code		15/Jul/10					15/Jul/10	15/Jul/10	15/Jul/10	15/Jul/10	
Rating Date		RATING					RATING	RATING	RATING	RATING	
Rating Data Type		1-10					1-10	1-10	1-10	1-10	
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			6	OZ/A	PRE	9.9	8.2	9.4	9.3	9.5
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	9.6	8.2	9.5	9.5	9.1
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	9.4	8.0	9.8	9.4	9.2
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	9.9	8.2	9.4	9.3	9.5
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	9.3	8.1	9.7	9.6	8.7
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	9.9	8.2	9.4	9.3	9.5
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	9.3	8.1	9.7	9.6	8.7
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						9.5	8.3	9.4	9.7	8.7
LSD (P=.05)							0.60	0.32	0.71	0.51	1.13
Standard Deviation							0.34	0.19	0.41	0.29	0.65
CV							3.56	2.27	4.26	3.06	7.09

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							VIPW	YEHW	TREE	TREE	TREE
Crop Code							15/Jul/10	15/Jul/10	27/Jun/08	23/Oct/08	10/Oct/09
Rating Date							RATING	RATING	Height	Height	Height
Rating Data Type							1-10	1-10	cm	cm	cm
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			6	OZ/A	PRE	9.9	8.6	37.4	43.5	55.6
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	9.8	8.5	37.6	44.2	56.3
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	9.8	8.8	37.8	44.8	57.2
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	9.9	8.6	37.4	43.5	55.6
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	9.7	8.4	37.7	44.9	56.9
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	9.9	8.6	37.4	43.5	55.6
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	9.7	8.4	37.7	44.9	56.9
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						9.7	8.1	37.5	44.3	56.0
LSD (P=.05)							0.30	0.97	0.57	1.72	2.26
Standard Deviation							0.17	0.56	0.32	0.98	1.29
CV							1.76	6.54	0.86	2.22	2.29

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							TREE	TREE	TREE	TREE	TREE
Crop Code							9/Sep/10	2008	2009	2010	23/Oct/08
Rating Date							Height	Ht. Diff.	Ht. Diff.	Ht. Diff.	Ldr. Length
Rating Data Type							cm	cm	cm	cm	cm
Rating Unit							cm	cm	cm	cm	cm
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			6	OZ/A	PRE	83.6	6.1	12.2	27.9	8.1
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	84.1	6.6	12.1	27.8	8.4
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	87.1	7.0	12.4	29.9	8.7
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	83.6	6.1	12.2	27.9	8.1
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	84.7	7.2	12.0	27.7	8.7
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	83.6	6.1	12.2	27.9	8.1
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	84.7	7.2	12.0	27.7	8.7
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						81.7	6.8	11.7	25.7	8.5
LSD (P=.05)							8.21	1.22	1.03	6.31	0.65
Standard Deviation							4.69	0.70	0.59	3.60	0.37
CV							5.57	10.51	4.88	12.94	4.38

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							TREE	TREE	TREE	TREE	TREE
Crop Code							10/Oct/09	9/Sep/10	27/Jun/08	23/Oct/08	17/Oct/09
Rating Date							Ldr. Length	Ldr. Length	Diameter	Diameter	Diameter
Rating Data Type							cm	cm	mm	mm	mm
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			6	OZ/A	PRE	11.0	28.8	11.6	14.4	20.2
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	15.1	29.1	11.5	14.3	20.0
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	19.6	31.1	11.6	14.5	20.4
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	11.0	28.8	11.6	14.4	20.2
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	19.2	29.3	11.5	14.3	19.9
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	11.0	28.8	11.6	14.4	20.2
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	19.2	29.3	11.5	14.3	19.9
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						14.8	27.3	11.4	14.2	19.5
LSD (P=.05)							11.05	5.74	0.42	0.44	1.31
Standard Deviation							6.31	3.28	0.24	0.25	0.75
CV							41.75	11.28	2.06	1.76	3.75

Evaluation of Westar in Christmas Tree Plantations I - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							TREE	TREE	TREE	TREE	TREE
Crop Code							9/Sep/10	2008	2009	2010	9/Sep/10
Rating Date							Diameter	Dia. Diff.	Dia. Diff.	Dia. Diff.	Bud No.
Rating Data Type							mm	mm	mm	mm	
Rating Unit							mm	mm	mm	mm	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			6	OZ/A	PRE	27.1	2.8	5.8	6.9	17
	sulfometuron	75	DG	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.49	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			8	OZ/A	PRE	26.8	2.8	5.7	6.7	17
	sulfometuron	75	DG	0.69	OZ/A	PRE					
	hexazinone	75	DF	7.32	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			10	OZ/A	PRE	27.5	2.8	5.9	7.1	18
	sulfometuron	75	DG	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			12	OZ/A	PRE	27.1	2.8	5.8	6.9	17
	sulfometuron	75	DG	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	flumioxazin	51	WDG	0.255	LB A/A	PRE	26.5	2.8	5.6	6.6	17
	NIS	100	SL	0.25	% V/V	PRE					
6	simazine	90	WDG	4	LB A/A	PRE	27.1	2.8	5.8	6.9	17
	oryzalin	4	L	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
7	pronamide	50	WP	2	LB A/A	PRE	26.5	2.8	5.6	6.6	17
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	Untreated						25.7	2.8	5.3	6.2	16
LSD (P=.05)							2.69	0.03	0.87	1.37	2.4
Standard Deviation							1.54	0.02	0.50	0.78	1.4
CV							5.74	0.69	8.78	11.63	8.28

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Project Code: XMAS 2008-04

Location: Horton, MI

Personnel: Bernard H. Zandstra, Rodney Tocco, Laura Wei

Crop: XMAS Trees Variety: Fraser Fir

Planting Method: Transplant

Planting Date: 4/1/07

Spacing: 5.5 ft Row Spacing: 6 ft

Tillage Type: Conventional Study Design: RCB

Replications: 4

Plot Size: 18 ft wide x 40 ft long

Soil Type: Loamy sand

OM: 1.4%

pH: 5.8

Sand: 72.9%

Silt: 13.5%

Clay: 13.6%

CEC: 6.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/21/10	11:00 AM	64/56	°F	Good	3 W	24	0% Cloudy	N

Crop and Weed Information at Application

Date	Crop or Weed	Height or Diameter	Growth Stage	Density
4/21	XMAS	18-40"		
4/21	BHPL = buckhorn plantain	1-2"		Few
4/21	CATH = Canada thistle	1-2"		Few
4/21	COBU = common burdock	1-2"		Few
4/21	HOWE = horseweed	0.5-1"		Many
4/21	LACG = large crabgrass	1-2"		Few
4/21	MECR = mouseear cress	2-3"		Few
4/21	SPKW = spotted knapweed	1-2"		Few
4/21	YERO = yellow rocket	1-3"		Few
	DOBG = downy brome grass			
	GRFT = green foxtail			
	YEFT = yellow foxtail			
	ALFA = alfalfa			
	COMW = common milkweed			
	CORW = common ragweed			
	EBNS = eastern black nightshade			
	FIPC = field pennycress			
	GORO = goldenrod			
	HABC = hairy bittercress			
	HOAL = hoary alyssum			
	HONE = horsenettle			
	MECW = mouseear chickweed			
	MUTH = muck thistle			
	OEDA = oxeye daisy			
	POIV = poison ivy			
	RECL = red clover			
	VICR = Virginia creeper			
	VIPW = Virginia pepperweed			
	WICA = wild carrot			
	YEHW = yellow hawkweed			

Notes and Comments

1. Sprays applied with 4 nozzle boom FF8002, 20 gpa, 30 psi, 3.2 mph, CO₂ backpack.
2. Crop and weed injury ratings on scale of 1-10: 1 = no injury, 10 = complete kill.
3. Diameter, height, and leader length: means of 12-24 trees/plot.

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Evaluation of Westar in Christmas Tree Plantations II 2009
Horton, MI - Gwinn Farms
 Trial ID: XMAS 2008-4 Westar II Protocol ID:
 Location: Gwinn Farms, Horton Study Director: Rodney Tocco
 Investigator: Dr. Bernard Zandstra

							YEFT	ALFA	COMW	HOAL	
Pest Code							TREE				
Crop Code							11/Jul/08	11/Jul/08	11/Jul/08	11/Jul/08	11/Jul/08
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
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	Westar	4	OZ/A	PRE	1.6	9.0	8.1	9.4	7.8		
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar	6	OZ/A	PRE	1.7	8.6	7.8	9.4	7.2		
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
	hexazinone	2	L	0.257	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar	8	OZ/A	PRE	1.7	8.6	8.0	9.6	7.5		
	sulfometuron	75	DG	0.0323	LB A/A	PRE					
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar	10	OZ/A	PRE	1.6	8.2	7.4	9.4	7.1		
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar	12	OZ/A	PRE	1.6	8.6	7.7	9.5	8.1		
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
	hexazinone	2	L	0.516	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	1.5	8.7	7.6	9.1	6.8
	NIS	100	SL	0.25	% V/V	PRE					
7	simazine	90	WDG	4	LB A/A	PRE	1.7	8.8	7.8	9.7	7.3
	oryzalin	4	F	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	pronamide	50	WP	2	LB A/A	PRE	1.6	8.5	7.8	9.2	7.5
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
9	Untreated						1.4	8.0	6.6	10.0	7.3
LSD (P=.05)							0.25	1.24	0.94	0.67	1.67
Standard Deviation							0.17	0.85	0.64	0.46	1.15
CV							10.93	9.91	8.43	4.86	15.52

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code	HOWE	POIV	VICR	TREE		YEFT					
Crop Code	11/Jul/08	11/Jul/08	11/Jul/08	21/May/09	21/May/09						
Rating Date	RATING	RATING	RATING	RATING	RATING						
Rating Data Type	1-10	1-10	1-10	1-10	1-10						
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			4	OZ/A	PRE	4.8	5.5	6.6	2.2	9.8
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			6	OZ/A	PRE	4.7	5.2	6.0	2.0	9.7
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
	hexazinone	2	L	0.257	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			8	OZ/A	PRE	4.7	5.7	6.1	2.2	9.8
	sulfometuron	75	DG	0.0323	LB A/A	PRE					
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			10	OZ/A	PRE	4.3	5.4	5.3	1.8	9.6
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar			12	OZ/A	PRE	4.4	5.7	5.8	2.0	9.9
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
	hexazinone	2	L	0.516	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	4.3	5.3	5.8	1.7	9.6
	NIS	100	SL	0.25	% V/V	PRE					
7	simazine	90	WDG	4	LB A/A	PRE	4.5	5.2	6.3	2.2	9.8
	oryzalin	4	F	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	pronamide	50	WP	2	LB A/A	PRE	4.6	5.8	5.6	1.8	9.6
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
9	Untreated						3.9	6.6	4.6	2.0	9.5
LSD (P=.05)							0.94	1.59	1.51	0.46	0.39
Standard Deviation							0.64	1.09	1.03	0.31	0.27
CV							14.47	19.51	17.81	15.82	2.74

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code							HABC	HOAL	HOWE	MECW	YERO
Crop Code											
Rating Date							21/May/09	21/May/09	21/May/09	21/May/09	21/May/09
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	Westar			4	OZ/A	PRE	8.1	9.6	8.4	8.8	9.9
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			6	OZ/A	PRE	7.9	9.6	8.3	8.7	9.8
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
	hexazinone	2	L	0.257	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			8	OZ/A	PRE	8.3	9.2	8.4	8.9	9.8
	sulfometuron	75	DG	0.0323	LB A/A	PRE					
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			10	OZ/A	PRE	7.8	9.1	8.0	8.6	9.7
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar			12	OZ/A	PRE	7.8	9.1	8.1	8.7	9.8
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
	hexazinone	2	L	0.516	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	7.8	9.5	8.1	8.4	9.8
	NIS	100	SL	0.25	% V/V	PRE					
7	simazine	90	WDG	4	LB A/A	PRE	8.1	9.4	8.4	8.8	9.8
	oryzalin	4	F	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	pronamide	50	WP	2	LB A/A	PRE	7.8	9.3	8.0	8.6	9.8
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
9	Untreated						6.9	9.8	7.6	8.8	9.9
LSD (P=.05)							0.94	0.87	0.50	0.66	0.34
Standard Deviation							0.65	0.60	0.34	0.45	0.23
CV							8.29	6.38	4.23	5.21	2.34

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

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Pest Code	Crop Code	Rating Date	Rating Data Type	Rating Unit	GRFT	LACG	CATH	COMW			
					TREE						
					14/Sep/09	14/Sep/09	14/Sep/09	14/Sep/09			
					RATING	RATING	RATING	RATING			
					1-10	1-10	1-10	1-10			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			4	OZ/A	PRE	1.9	9.2	8.7	9.9	9.4
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			6	OZ/A	PRE	1.8	9.3	8.5	9.9	9.5
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
	hexazinone	2	L	0.257	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			8	OZ/A	PRE	1.8	8.9	9.2	9.8	9.5
	sulfometuron	75	DG	0.0323	LB A/A	PRE					
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			10	OZ/A	PRE	1.6	8.9	9.1	9.8	9.5
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar			12	OZ/A	PRE	1.6	8.8	9.1	9.7	9.4
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
	hexazinone	2	L	0.516	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	1.8	9.2	8.8	9.8	9.3
	NIS	100	SL	0.25	% V/V	PRE					
7	simazine	90	WDG	4	LB A/A	PRE	1.8	9.1	8.8	9.9	9.6
	oryzalin	4	F	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	pronamide	50	WP	2	LB A/A	PRE	1.7	9.0	9.0	9.8	9.3
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
9	Untreated						1.4	8.6	8.3	9.4	9.9
LSD (P=.05)							0.44	0.67	0.75	0.27	0.44
Standard Deviation							0.30	0.46	0.52	0.18	0.30
CV							17.33	5.1	5.84	1.86	3.2

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code							CORW	EBNS	HOAL	HONE	HOWE
Crop Code											
Rating Date							14/Sep/09	14/Sep/09	14/Sep/09	14/Sep/09	14/Sep/09
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	Westar			4	OZ/A	PRE	9.5	7.9	9.4	7.8	6.8
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			6	OZ/A	PRE	9.5	7.7	9.4	8.0	6.6
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
	hexazinone	2	L	0.257	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			8	OZ/A	PRE	9.5	8.3	9.3	8.1	6.6
	sulfometuron	75	DG	0.0323	LB A/A	PRE					
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			10	OZ/A	PRE	9.4	8.4	9.4	8.3	6.3
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar			12	OZ/A	PRE	9.5	8.5	9.5	8.2	6.6
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
	hexazinone	2	L	0.516	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	9.3	8.1	9.4	8.1	6.5
	NIS	100	SL	0.25	% V/V	PRE					
7	simazine	90	WDG	4	LB A/A	PRE	9.5	7.8	9.4	8.0	6.7
	oryzalin	4	F	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	pronamide	50	WP	2	LB A/A	PRE	9.4	8.4	9.4	8.1	6.4
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
9	Untreated						9.3	7.8	9.8	9.1	6.2
LSD (P=.05)							0.30	0.84	0.31	0.52	0.54
Standard Deviation							0.21	0.58	0.21	0.35	0.37
CV							2.19	7.1	2.28	4.31	5.64

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code							RECL	VICR	WICA	YEHW	TREE
Crop Code							14/Sep/09	14/Sep/09	14/Sep/09	14/Sep/09	11/Jun/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			4	OZ/A	PRE	9.8	9.2	9.6	9.3	1.9
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			6	OZ/A	PRE	9.7	9.1	9.6	9.3	1.8
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
	hexazinone	2	L	0.257	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			8	OZ/A	PRE	9.8	9.2	9.4	9.2	2.0
	sulfometuron	75	DG	0.0323	LB A/A	PRE					
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			10	OZ/A	PRE	9.7	9.1	9.3	9.4	1.7
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar			12	OZ/A	PRE	9.8	9.1	9.4	9.3	1.7
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
	hexazinone	2	L	0.516	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	9.6	9.2	9.6	9.5	1.8
	NIS	100	SL	0.25	% V/V	PRE					
7	simazine	90	WDG	4	LB A/A	PRE	9.7	9.2	9.4	9.0	1.9
	oryzalin	4	F	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	pronamide	50	WP	2	LB A/A	PRE	9.7	9.1	9.5	9.7	1.7
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
9	Untreated						9.8	8.9	9.8	9.8	2.3
LSD (P=.05)							0.31	0.28	0.60	0.63	0.40
Standard Deviation							0.22	0.19	0.41	0.43	0.27
CV							2.22	2.13	4.35	4.62	14.64

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code							COBD	COMW	DOBG	FIPC	GORO
Crop Code											
Rating Date							11/Jun/10	11/Jun/10	11/Jun/10	11/Jun/10	11/Jun/10
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	Westar			4	OZ/A	PRE	9.8	9.5	9.5	9.2	9.5
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
2	NIS	100	SL	0.25	% V/V	PRE	9.7	9.4	9.6	8.9	9.5
	Westar			6	OZ/A	PRE					
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
3	hexazinone	2	L	0.257	LB A/A	PRE	9.8	9.6	9.5	9.3	9.3
	NIS	100	SL	0.25	% V/V	PRE					
	Westar			8	OZ/A	PRE					
4	sulfometuron	75	DG	0.0323	LB A/A	PRE	9.8	9.3	9.4	9.1	9.4
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar			10	OZ/A	PRE	9.9	9.5	9.3	9.3	9.4
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
6	NIS	100	SL	0.25	% V/V	PRE	9.8	9.2	9.4	9.1	9.6
	Westar			12	OZ/A	PRE					
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
7	hexazinone	2	L	0.516	LB A/A	PRE	9.8	9.7	9.3	9.4	9.4
	NIS	100	SL	0.25	% V/V	PRE					
	flumioxazin	51	WDG	0.255	LB A/A	PRE					
8	NIS	100	SL	0.25	% V/V	PRE	9.8	9.2	9.7	8.9	9.5
	simazine	90	WDG	4	LB A/A	PRE					
	oryzalin	4	F	3	LB A/A	PRE					
9	paraquat	2	L	1	LB A/A	PRE	9.8	9.2	9.7	8.9	9.5
	NIS	100	SL	0.25	% V/V	PRE					
	pronamide	50	WP	2	LB A/A	PRE					
9	oxyfluorfen	2	L	1	LB A/A	PRE	9.3	9.6	9.1	8.5	9.6
	NIS	100	SL	0.25	LB A/A	PRE					
	Untreated										
LSD (P=.05)							0.44	0.42	0.65	0.68	0.47
Standard Deviation							0.30	0.29	0.45	0.47	0.32
CV							3.09	3.06	4.73	5.16	3.36

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code							HOAL	HONE	HOWE	MECW	MUTH
Crop Code											
Rating Date							11/Jun/10	11/Jun/10	11/Jun/10	11/Jun/10	11/Jun/10
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	Westar			4	OZ/A	PRE	8.6	9.5	5.3	9.8	9.5
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			6	OZ/A	PRE	8.8	9.6	5.4	9.7	9.5
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
	hexazinone	2	L	0.257	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			8	OZ/A	PRE	8.6	9.6	5.3	10.0	9.0
	sulfometuron	75	DG	0.0323	LB A/A	PRE					
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			10	OZ/A	PRE	8.8	9.7	4.9	9.7	9.0
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar			12	OZ/A	PRE	8.9	9.7	4.7	9.8	8.9
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
	hexazinone	2	L	0.516	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	8.5	9.5	5.0	9.5	9.5
	NIS	100	SL	0.25	% V/V	PRE					
7	simazine	90	WDG	4	LB A/A	PRE	8.3	9.6	5.4	10.0	9.4
	oryzalin	4	F	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	pronamide	50	WP	2	LB A/A	PRE	9.1	9.6	4.8	9.5	9.1
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
9	Untreated						8.8	9.5	5.9	9.4	8.9
LSD (P=.05)							1.10	0.43	0.95	0.48	1.06
Standard Deviation							0.75	0.29	0.65	0.33	0.73
CV							8.61	3.05	12.53	3.38	7.92

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code							VICR	TREE	YEFT	COMW	CORW
Crop Code											
Rating Date							11/Jun/10	16/Jul/10	16/Jul/10	16/Jul/10	16/Jul/10
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	Westar			4	OZ/A	PRE	9.4	1.0	9.5	9.2	9.9
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			6	OZ/A	PRE	9.3	1.0	9.6	9.2	9.8
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
	hexazinone	2	L	0.257	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			8	OZ/A	PRE	9.4	1.0	9.6	9.3	9.9
	sulfometuron	75	DG	0.0323	LB A/A	PRE					
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			10	OZ/A	PRE	9.4	1.0	10.0	9.3	9.8
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar			12	OZ/A	PRE	9.5	1.0	9.8	9.3	10.0
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
	hexazinone	2	L	0.516	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	9.3	1.0	10.0	9.2	9.8
	NIS	100	SL	0.25	% V/V	PRE					
7	simazine	90	WDG	4	LB A/A	PRE	9.4	1.0	9.5	9.4	9.9
	oryzalin	4	F	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	pronamide	50	WP	2	LB A/A	PRE	9.4	1.0	10.0	9.1	9.8
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
9	Untreated						8.6	1.0	10.0	9.4	9.8
LSD (P=.05)							0.33	0.00	0.48	0.44	0.25
Standard Deviation							0.23	0.00	0.33	0.30	0.17
CV							2.44	0.0	3.38	3.26	1.76

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code							GORO	HOAL	HONE	HOWE	MUTH
Crop Code											
Rating Date							16/Jul/10	16/Jul/10	16/Jul/10	16/Jul/10	16/Jul/10
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	Westar			4	OZ/A	PRE	9.3	9.8	8.5	4.2	9.6
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			6	OZ/A	PRE	9.3	9.8	8.5	4.4	9.4
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
	hexazinone	2	L	0.257	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			8	OZ/A	PRE	9.1	9.7	8.7	4.2	9.2
	sulfometuron	75	DG	0.0323	LB A/A	PRE					
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			10	OZ/A	PRE	9.2	9.8	8.7	4.0	8.8
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar			12	OZ/A	PRE	9.2	9.7	8.8	3.6	9.1
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
	hexazinone	2	L	0.516	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	9.3	9.8	8.3	4.1	9.1
	NIS	100	SL	0.25	% V/V	PRE					
7	simazine	90	WDG	4	LB A/A	PRE	9.2	9.7	8.7	4.3	9.5
	oryzalin	4	F	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	pronamide	50	WP	2	LB A/A	PRE	9.3	9.8	8.4	3.8	8.9
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
9	Untreated						9.0	10.0	9.4	4.1	8.6
LSD (P=.05)							0.35	0.31	0.80	0.91	0.86
Standard Deviation							0.24	0.21	0.55	0.62	0.59
CV							2.63	2.17	6.36	15.28	6.44

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code							OEDA	SPKW	VIPW	WICA	TREE
Crop Code							16/Jul/10	16/Jul/10	16/Jul/10	16/Jul/10	4/Jun/08
Rating Date							RATING	RATING	RATING	RATING	Height
Rating Data Type							1-10	1-10	1-10	1-10	cm
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			4	OZ/A	PRE	9.1	8.5	8.3	8.8	38.9
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			6	OZ/A	PRE	9.1	8.3	8.1	8.8	38.5
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
	hexazinone	2	L	0.257	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			8	OZ/A	PRE	9.0	8.8	8.6	8.8	38.9
	sulfometuron	75	DG	0.0323	LB A/A	PRE					
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			10	OZ/A	PRE	8.9	8.4	8.6	8.9	39.0
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar			12	OZ/A	PRE	9.0	8.6	8.9	8.7	39.1
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
	hexazinone	2	L	0.516	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	8.8	8.3	8.2	9.1	39.2
	NIS	100	SL	0.25	% V/V	PRE					
7	simazine	90	WDG	4	LB A/A	PRE	9.2	8.2	8.4	8.6	38.8
	oryzalin	4	F	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	pronamide	50	WP	2	LB A/A	PRE	8.8	8.8	8.5	9.2	39.1
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
9	Untreated						7.6	9.6	8.6	8.9	39.1
LSD (P=.05)							0.66	1.69	0.91	0.81	1.16
Standard Deviation							0.45	1.16	0.62	0.55	0.80
CV							5.09	13.44	7.37	6.23	2.05

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code								TREE	TREE	TREE	TREE	TREE	TREE
Crop Code								23/Oct/08	18/Sep/09	3/Sep/10	2008	2009	2010
Rating Date								Height	Height	Height	Ht. Diff.	Ht. Diff.	Ht. Diff.
Rating Data Type								cm	cm	cm	cm	cm	cm
Rating Unit													
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage							
1	Westar			4	OZ/A	PRE	45.1	64.0	95.5	5.7	18.8	31.6	
	sulfometuron	75	DG	0.0162	LB A/A	PRE							
	hexazinone	2	L	0.172	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
2	Westar			6	OZ/A	PRE	45.0	63.8	95.1	5.9	18.7	31.4	
	sulfometuron	75	DG	0.0244	LB A/A	PRE							
	hexazinone	2	L	0.257	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
3	Westar			8	OZ/A	PRE	45.5	64.9	96.7	5.7	19.4	31.8	
	sulfometuron	75	DG	0.0323	LB A/A	PRE							
	hexazinone	2	L	0.343	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
4	Westar			10	OZ/A	PRE	45.4	63.7	95.4	5.7	18.4	31.6	
	sulfometuron	75	DG	0.0408	LB A/A	PRE							
	hexazinone	2	L	0.43	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
5	Westar			12	OZ/A	PRE	45.3	63.4	95.5	5.6	18.1	32.1	
	sulfometuron	75	DG	0.0488	LB A/A	PRE							
	hexazinone	2	L	0.516	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	45.2	63.3	94.5	5.6	18.1	31.2	
	NIS	100	SL	0.25	% V/V	PRE							
7	simazine	90	WDG	4	LB A/A	PRE	45.4	65.4	97.4	6.0	20.0	32.0	
	oryzalin	4	F	3	LB A/A	PRE							
	paraquat	2	L	1	LB A/A	PRE							
	NIS	100	SL	0.25	% V/V	PRE							
8	pronamide	50	WP	2	LB A/A	PRE	45.1	62.3	93.5	5.4	17.2	31.2	
	oxyfluorfen	2	L	1	LB A/A	PRE							
	NIS	100	SL	0.25	LB A/A	PRE							
9	Untreated						45.5	63.4	92.7	6.3	17.9	29.3	
LSD (P=.05)							0.81	3.37	4.61	1.16	2.93	1.59	
Standard Deviation							0.55	2.31	3.16	0.79	2.00	1.09	
CV							1.22	3.62	3.32	13.8	10.83	3.48	

**Evaluation of Westar in Christmas Tree
Plantations II - Gwinn Farms 2010**

Pest Code	Crop Code	Rating Date	Rating Data Type	Rating Unit			TREE 23/Oct/08 Ldr. Length cm	TREE 18/Sep/09 Ldr. Length cm	TREE 3/Sep/10 Ldr. Length cm	TREE 4/Jun/08 Diameter mm
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Westar			4	OZ/A	PRE	7.5	19.1	29.7	13.6
	sulfometuron	75	DG	0.0162	LB A/A	PRE				
	hexazinone	2	L	0.172	LB A/A	PRE				
	NIS	100	SL	0.25	% V/V	PRE				
2	Westar			6	OZ/A	PRE	7.8	19.2	29.8	13.3
	sulfometuron	75	DG	0.0244	LB A/A	PRE				
	hexazinone	2	L	0.257	LB A/A	PRE				
	NIS	100	SL	0.25	% V/V	PRE				
3	Westar			8	OZ/A	PRE	7.6	19.5	30.0	13.5
	sulfometuron	75	DG	0.0323	LB A/A	PRE				
	hexazinone	2	L	0.343	LB A/A	PRE				
	NIS	100	SL	0.25	% V/V	PRE				
4	Westar			10	OZ/A	PRE	7.4	18.6	30.4	13.1
	sulfometuron	75	DG	0.0408	LB A/A	PRE				
	hexazinone	2	L	0.43	LB A/A	PRE				
	NIS	100	SL	0.25	% V/V	PRE				
5	Westar			12	OZ/A	PRE	7.4	18.2	29.9	13.3
	sulfometuron	75	DG	0.0488	LB A/A	PRE				
	hexazinone	2	L	0.516	LB A/A	PRE				
	NIS	100	SL	0.25	% V/V	PRE				
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	7.0	18.5	30.5	13.2
	NIS	100	SL	0.25	% V/V	PRE				
7	simazine	90	WDG	4	LB A/A	PRE	8.0	20.2	30.2	13.6
	oryzalin	4	F	3	LB A/A	PRE				
	paraquat	2	L	1	LB A/A	PRE				
	NIS	100	SL	0.25	% V/V	PRE				
8	pronamide	50	WP	2	LB A/A	PRE	7.0	17.5	29.9	13.1
	oxyfluorfen	2	L	1	LB A/A	PRE				
	NIS	100	SL	0.25	LB A/A	PRE				
9	Untreated						7.9	18.3	29.1	12.5
LSD (P=.05)							1.50	2.93	1.89	0.51
Standard Deviation							1.03	2.01	1.29	0.35
CV							13.7	10.68	4.32	2.64

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code							TREE	TREE	TREE	TREE	TREE
Crop Code							31/Oct/08	25/Sep/09	3/Sep/10	2008	2009
Rating Date							Diameter	Diameter	Diameter	Dia. Diff.	Dia. Diff.
Rating Data Type							mm	mm	mm	mm	mm
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			4	OZ/A	PRE	17.1	25.0	27.4	3.5	7.7
	sulfometuron	75	DG	0.0162	LB A/A	PRE					
	hexazinone	2	L	0.172	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
2	Westar			6	OZ/A	PRE	16.8	24.9	26.5	3.5	7.8
	sulfometuron	75	DG	0.0244	LB A/A	PRE					
	hexazinone	2	L	0.257	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
3	Westar			8	OZ/A	PRE	16.6	24.5	28.5	3.1	7.9
	sulfometuron	75	DG	0.0323	LB A/A	PRE					
	hexazinone	2	L	0.343	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
4	Westar			10	OZ/A	PRE	16.3	24.2	27.4	3.2	8.3
	sulfometuron	75	DG	0.0408	LB A/A	PRE					
	hexazinone	2	L	0.43	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
5	Westar			12	OZ/A	PRE	16.5	24.5	28.4	3.2	8.2
	sulfometuron	75	DG	0.0488	LB A/A	PRE					
	hexazinone	2	L	0.516	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	16.7	24.6	26.2	3.6	8.0
	NIS	100	SL	0.25	% V/V	PRE					
7	simazine	90	WDG	4	LB A/A	PRE	17.0	24.9	27.4	3.5	7.7
	oryzalin	4	F	3	LB A/A	PRE					
	paraquat	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	% V/V	PRE					
8	pronamide	50	WP	2	LB A/A	PRE	16.3	24.3	27.4	3.2	8.3
	oxyfluorfen	2	L	1	LB A/A	PRE					
	NIS	100	SL	0.25	LB A/A	PRE					
9	Untreated						15.2	24.6	26.4	2.8	9.1
LSD (P=.05)							1.11	0.81	2.89	1.06	0.63
Standard Deviation							0.76	0.55	1.98	0.73	0.43
CV							4.61	2.25	7.26	22.01	5.34

Evaluation of Westar in Christmas Tree Plantations II - Gwinn Farms 2010

Dept. of Horticulture, MSU

Pest Code	Crop Code	Rating Date	Rating Data Type	Rating Unit			TREE 2010 Dia. Diff. mm	TREE 3/Sep/10 Bud No.
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		
1	Westar			4	OZ/A	PRE	2.7	17
	sulfometuron	75	DG	0.0162	LB A/A	PRE		
	hexazinone	2	L	0.172	LB A/A	PRE		
	NIS	100	SL	0.25	% V/V	PRE		
2	Westar			6	OZ/A	PRE	1.9	17
	sulfometuron	75	DG	0.0244	LB A/A	PRE		
	hexazinone	2	L	0.257	LB A/A	PRE		
	NIS	100	SL	0.25	% V/V	PRE		
3	Westar			8	OZ/A	PRE	4.0	16
	sulfometuron	75	DG	0.0323	LB A/A	PRE		
	hexazinone	2	L	0.343	LB A/A	PRE		
	NIS	100	SL	0.25	% V/V	PRE		
4	Westar			10	OZ/A	PRE	2.9	17
	sulfometuron	75	DG	0.0408	LB A/A	PRE		
	hexazinone	2	L	0.43	LB A/A	PRE		
	NIS	100	SL	0.25	% V/V	PRE		
5	Westar			12	OZ/A	PRE	3.7	16
	sulfometuron	75	DG	0.0488	LB A/A	PRE		
	hexazinone	2	L	0.516	LB A/A	PRE		
	NIS	100	SL	0.25	% V/V	PRE		
6	flumioxazin	51	WDG	0.255	LB A/A	PRE	1.5	19
	NIS	100	SL	0.25	% V/V	PRE		
7	simazine	90	WDG	4	LB A/A	PRE	2.7	16
	oryzalin	4	F	3	LB A/A	PRE		
	paraquat	2	L	1	LB A/A	PRE		
	NIS	100	SL	0.25	% V/V	PRE		
8	pronamide	50	WP	2	LB A/A	PRE	2.8	18
	oxyfluorfen	2	L	1	LB A/A	PRE		
	NIS	100	SL	0.25	LB A/A	PRE		
9	Untreated						2.2	15
LSD (P=.05)							3.32	3.6
Standard Deviation							2.28	2.5
CV							84.2	14.96

Fall Herbicide Application in Korean Fir - Gobles 2009-2010 - Wahmhoff Farms

Fall Herbicide Application in Korean Fir - Gobles 2009-2010 - Wahmhoff Farms					
Trial ID: XMAS 2010-1			Protocol ID: XMAS 2010-1		
Location: Gobles, MI			Study Director: Rodney Tocco		
			Investigator: Dr. Bernard Zandstra		

							COMW	CORW	HOWE			
							TREE			TREE		
							26/May/10	26/May/10	26/May/10	26/May/10	10/Jun/10	
							RATING	RATING	RATING	RATING	RATING	
							1-10	1-10	1-10	1-10	1-10	
Trt	Treatment	Form	Form	Rate	Rate	Growth						
No.	Name	Conc	Type		Unit	Stage						
1	Westar			6	OZ/A	PRE	2.3	9.3	8.7	6.0	2.7	
	sulfometuron	75	DF	0.52	OZ/A	PRE						
	hexazinone	75	DF	5.5	OZ/A	PRE						
2	Westar			10	OZ/A	PRE	1.7	9.7	8.0	7.0	4.3	
	sulfometuron	75	DF	0.87	OZ/A	PRE						
	hexazinone	75	DF	9.15	OZ/A	PRE						
3	Westar			12	OZ/A	PRE	1.3	10.0	8.0	8.0	3.3	
	sulfometuron	75	DF	1.04	OZ/A	PRE						
	hexazinone	75	DF	11	OZ/A	PRE						
4	flumioxazin	51	WDG	0.383	LB A/A	PRE	2.0	7.7	10.0	4.0	2.3	
5	simazine	90	WDG	4	LB A/A	PRE	1.7	8.3	9.3	3.7	1.7	
	oryzalin	4	F	4	LB A/A	PRE						
6	atrazine	4	F	4	LB A/A	PRE	2.3	7.0	8.0	1.7	1.3	
	pendimethalin	3.8	CS	3.8	LB A/A	PRE						
7	indaziflam	1.67	SC	0.067	LB A/A	PRE	2.3	9.3	10.0	5.7	1.7	
8	Untreated						2.3	7.0	8.3	2.3	2.7	
LSD (P=.05)							0.98	2.24	1.87	3.39	2.00	
Standard Deviation							0.56	1.28	1.07	1.94	1.14	
CV							28.08	15.01	12.13	40.45	45.77	

							CORW	HOWE	WICA	TREE	COMW	CORW
							10/Jun/10	10/Jun/10	10/Jun/10	15/Jul/10	15/Jul/10	15/Jul/10
							RATING	RATING	RATING	RATING	RATING	RATING
							1-10	1-10	1-10	1-10	1-10	1-10
Trt	Treatment	Form	Form	Rate	Rate	Growth						
No.	Name	Conc	Type		Unit	Stage						
1	Westar			6	OZ/A	PRE	2.3	3.0	7.0	2.7	8.0	1.0
	sulfometuron	75	DF	0.52	OZ/A	PRE						
	hexazinone	75	DF	5.5	OZ/A	PRE						
2	Westar			10	OZ/A	PRE	2.0	4.3	7.7	2.0	6.0	2.3
	sulfometuron	75	DF	0.87	OZ/A	PRE						
	hexazinone	75	DF	9.15	OZ/A	PRE						
3	Westar			12	OZ/A	PRE	5.0	6.0	9.0	2.3	7.3	4.0
	sulfometuron	75	DF	1.04	OZ/A	PRE						
	hexazinone	75	DF	11	OZ/A	PRE						
4	flumioxazin	51	WDG	0.383	LB A/A	PRE	8.7	3.0	10.0	1.7	3.7	9.0
5	simazine	90	WDG	4	LB A/A	PRE	7.7	1.7	8.3	1.7	5.3	8.3
	oryzalin	4	F	4	LB A/A	PRE						
6	atrazine	4	F	4	LB A/A	PRE	2.0	2.0	7.3	1.7	3.0	2.0
	pendimethalin	3.8	CS	3.8	LB A/A	PRE						
7	indaziflam	1.67	SC	0.067	LB A/A	PRE	8.7	2.7	10.0	1.7	5.3	6.7
8	Untreated						3.3	1.0	7.7	1.7	1.3	4.0
LSD (P=.05)							2.89	2.06	4.11	2.04	4.71	2.77
Standard Deviation							1.65	1.18	2.34	1.17	2.69	1.58
CV							33.34	39.81	27.99	60.91	53.74	33.84

Fall Herbicide Application in Korean Fir - Gobles 2009-2010 - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code						HOWE	WICA				
Crop Code								TREE	TREE	TREE	
Rating Date						15/Jul/10	15/Jul/10	13/Oct/10	9/Sep/10	13/Oct/10	
Rating Data Type						RATING	RATING	Height	Ldr. Length	Diameter	
Rating Unit						1-10	1-10	cm	cm	mm	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			6	OZ/A	PRE	1.3	7.0	66.0	16.3	23.7
	sulfometuron	75	DF	0.52	OZ/A	PRE					
	hexazinone	75	DF	5.5	OZ/A	PRE					
2	Westar			10	OZ/A	PRE	1.3	7.0	52.1	11.4	20.2
	sulfometuron	75	DF	0.87	OZ/A	PRE					
	hexazinone	75	DF	9.15	OZ/A	PRE					
3	Westar			12	OZ/A	PRE	4.0	6.0	57.6	16.0	25.2
	sulfometuron	75	DF	1.04	OZ/A	PRE					
	hexazinone	75	DF	11	OZ/A	PRE					
4	flumioxazin	51	WDG	0.383	LB A/A	PRE	2.3	9.3	74.1	15.3	23.9
5	simazine	90	WDG	4	LB A/A	PRE	1.7	7.0	81.5	16.2	28.5
	oryzalin	4	F	4	LB A/A	PRE					
6	atrazine	4	F	4	LB A/A	PRE	2.0	7.7	74.3	18.2	25.8
	pendimethalin	3.8	CS	3.8	LB A/A	PRE					
7	indaziflam	1.67	SC	0.067	LB A/A	PRE	2.3	10.0	77.7	13.9	29.5
8	Untreated						1.7	7.0	63.4	13.1	21.6
LSD (P=.05)							1.84	3.72	23.24	6.13	8.65
Standard Deviation							1.05	2.12	13.27	3.50	4.94
CV							50.37	27.84	19.42	23.25	19.92

Spring Herbicide Application in Fraser Fir 2010 - Wahmhoff Farms

Spring Herbicide Application in Fraser Fir 2010 - Wahmhoff Farms

Trial ID: XMAS 2010-2
Location: Gobles, MI

Protocol ID: XMAS 2010-2
Study Director: Rodney Tocco
Investigator: Dr. Bernard Zandstra

							LACG	QUGR	COMW	CORW	
Pest Code							TREE				
Crop Code							26/May/10	26/May/10	26/May/10	26/May/10	26/May/10
Rating Date							RATING	RATING	RATING	RATING	RATING
Rating Data Type							1-10	1-10	1-10	1-10	1-10
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	Westar			10	OZ/A		1.0	10.0	10.0	8.0	10.0
	sulfometuron	75	DF	0.87	OZ/A	POT					
	hexazinone	75	DF	9.15	OZ/A	POT					
2	flumioxazin	51	WDG	0.383	LB A/A	POT	1.0	10.0	9.7	8.7	10.0
3	simazine	90	WDG	4	LB A/A	POT	1.0	10.0	9.3	5.3	10.0
	oryzalin	4	F	4	LB A/A	POT					
4	indaziflam	1.67	SC	0.067	LB A/A	POT	1.3	9.0	10.0	7.7	6.0
5	saflufenacil	70	WG	0.09	LB A/A	POT	1.0	10.0	10.0	8.0	9.0
	pendimethalin	3.8	CS	3.8	LB A/A	POT					
6	mesotrione	4	SC	0.25	LB A/A	POT	1.0	10.0	10.0	8.3	10.0
	s-metolachlor	7.62	EC	1.9	LB A/A	POT					
7	sulfentrazone	4	F	0.375	LB A/A	POT	1.3	10.0	9.3	6.7	8.0
8	Untreated						1.0	3.0	9.7	8.3	1.0
LSD (P=.05)							0.47	1.74	1.14	2.55	2.28
Standard Deviation							0.27	0.99	0.65	1.46	1.30
CV							24.67	11.01	6.67	19.12	16.28
							HOWE	TREE	COMW	CORW	FISB
Pest Code							26/May/10	10/Jun/10	10/Jun/10	10/Jun/10	10/Jun/10
Crop Code							RATING	RATING	RATING	RATING	RATING
Rating Date							1-10	1-10	1-10	1-10	1-10
Rating Data Type							1-10	1-10	1-10	1-10	1-10
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	6	7	8	9	10
1	Westar			10	OZ/A		10.0	2.0	7.3	10.0	10.0
	sulfometuron	75	DF	0.87	OZ/A	POT					
	hexazinone	75	DF	9.15	OZ/A	POT					
2	flumioxazin	51	WDG	0.383	LB A/A	POT	9.0	1.3	7.3	10.0	10.0
3	simazine	90	WDG	4	LB A/A	POT	10.0	2.3	3.0	9.7	8.0
	oryzalin	4	F	4	LB A/A	POT					
4	indaziflam	1.67	SC	0.067	LB A/A	POT	10.0	2.0	5.7	3.7	9.0
5	saflufenacil	70	WG	0.09	LB A/A	POT	10.0	2.0	6.3	8.7	8.0
	pendimethalin	3.8	CS	3.8	LB A/A	POT					
6	mesotrione	4	SC	0.25	LB A/A	POT	10.0	1.3	7.3	10.0	8.7
	s-metolachlor	7.62	EC	1.9	LB A/A	POT					
7	sulfentrazone	4	F	0.375	LB A/A	POT	10.0	1.7	4.0	6.0	9.7
8	Untreated						9.7	1.3	5.3	1.0	1.7
LSD (P=.05)							0.72	1.33	4.39	2.21	2.39
Standard Deviation							0.41	0.76	2.51	1.26	1.36
CV							4.15	43.42	43.27	17.09	16.77

Spring Herbicide Application in Fraser Fir 2010 - Wahmhoff Farms

Dept of Horticulture, MSU

Pest Code							FAPA	GRFT	COMW	CORW	
Crop Code							TREE				
Rating Date							15/Jul/10	15/Jul/10	15/Jul/10	15/Jul/10	
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	Westar			10	OZ/A		2.0	9.3	9.0	6.7	10.0
	sulfometuron	75	DF	0.87	OZ/A	POT					
	hexazinone	75	DF	9.15	OZ/A	POT					
2	flumioxazin	51	WDG	0.383	LB A/A	POT	1.0	9.3	9.0	2.0	10.0
3	simazine	90	WDG	4	LB A/A	POT	2.7	1.7	1.3	1.0	7.0
	oryzalin	4	F	4	LB A/A	POT					
4	indaziflam	1.67	SC	0.067	LB A/A	POT	2.0	8.3	8.7	7.7	1.0
5	saflufenacil	70	WG	0.09	LB A/A	POT	1.7	3.0	2.3	4.7	9.0
	pendimethalin	3.8	CS	3.8	LB A/A	POT					
6	mesotrione	4	SC	0.25	LB A/A	POT	1.0	9.3	7.3	4.0	9.0
	s-metolachlor	7.62	EC	1.9	LB A/A	POT					
7	sulfentrazone	4	F	0.375	LB A/A	POT	1.0	10.0	8.3	6.3	1.3
8	Untreated						1.0	1.0	1.0	1.0	1.0
LSD (P=.05)							0.52	1.88	2.20	2.90	0.95
Standard Deviation							0.30	1.07	1.26	1.65	0.54
CV							19.38	16.49	21.38	39.71	8.94
Pest Code							EBNS	HOWE	TREE	TREE	TREE
Crop Code											
Rating Date							15/Jul/10	15/Jul/10	18/Oct/10	9/Sep/10	18/Oct/10
Rating Data Type							RATING	RATING	Height	Ldr. Length	Diameter
Rating Unit							1-10	1-10	cm	cm	mm
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Westar			10	OZ/A		9.0	10.0	51.0	5.4	12.2
	sulfometuron	75	DF	0.87	OZ/A	POT					
	hexazinone	75	DF	9.15	OZ/A	POT					
2	flumioxazin	51	WDG	0.383	LB A/A	POT	10.0	7.0	62.5	6.9	13.8
3	simazine	90	WDG	4	LB A/A	POT	8.0	10.0	54.8	5.9	12.4
	oryzalin	4	F	4	LB A/A	POT					
4	indaziflam	1.67	SC	0.067	LB A/A	POT	10.0	8.0	57.1	6.8	11.8
5	saflufenacil	70	WG	0.09	LB A/A	POT	7.7	10.0	57.6	6.2	12.0
	pendimethalin	3.8	CS	3.8	LB A/A	POT					
6	mesotrione	4	SC	0.25	LB A/A	POT	9.0	10.0	58.4	7.2	13.5
	s-metolachlor	7.62	EC	1.9	LB A/A	POT					
7	sulfentrazone	4	F	0.375	LB A/A	POT	8.3	10.0	53.0	6.4	13.0
8	Untreated						1.0	1.0	59.6	5.5	11.9
LSD (P=.05)							2.25	2.61	4.24	2.02	2.26
Standard Deviation							1.28	1.49	2.42	1.16	1.29
CV							16.31	18.04	4.26	18.35	10.28