

HORTICULTURAL REPORT

2016 WEED CONTROL RESEARCH ON FRUIT & VEGETABLE CROPS

NUMBER 80

NOVEMBER 2016

By

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**WEED CONTROL IN HORTICULTURAL CROPS - 2016
FOREWORD**

This report summarizes the results of weed control experiments on horticultural crops in Michigan in 2016. It is intended to inform industry and university research and extension colleagues of our current results.

This project was supported by the USDA National Institute of Food and Agriculture (NIFA) Hatch project number MICL01325, and by MSU Extension.

We appreciate the support for our weed control research and extension program from the following companies and organizations that 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 still a 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 9.2014.7, 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.
CABG	Canada bluegrass	<i>Poa compressa</i> L.
CABR	California brome	<i>Bromus carinatus</i> L.
CAGE	Carolina geranium	<i>Geranium carolinianum</i> L.
CATH	Canada thistle	<i>Cirsium arvense</i> (L.) Scop.
CAWE	carpetweed	<i>Mollugo verticillata</i> L.
CEPR	common evening primrose	<i>Oenothera biennis</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 mullein	<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	<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
FIVI	field violet	<i>Viola arvensis</i> Murray
GALI	galinsoga	<i>Galinsoga quadriradiata</i> Ruiz & Pav.

WEED LIST

<u>Abbr.</u>	<u>Common Name</u>	<u>Botanical Name</u>
GIRW	giant ragweed	<i>Ambrosia trifida</i> L.
GAGR	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.
HAFE	hard fescue	<i>Festuca brevipila</i> Tracey
HANS	hairy nightshade	<i>Solanum sarrachoides</i> Sendtner
HAVE	hairy vetch	<i>Vicia villosa</i> Roth
HENB	henbit	<i>Lamium amplexicaule</i> L.
HEMU	hedge mustard	<i>Sisymbrium officinale</i> (L.) Scop.
HOAL	hoary alyssum	<i>Berteroa incana</i> (L.) DC.
HONE	horsenettle	<i>Solanum carolinense</i> L.
HOWE	horseweed (marestail)	<i>Conyza canadensis</i> (L.) Scop.
IRFB	Irish fleabane	<i>Inula salicina</i> L.
JABR	Japanese brome	<i>Bromus japonicas</i> L.
JIWE	jimsonweed	<i>Datura stramonium</i> L.
LACG	large crabgrass	<i>Digitaria sanguinalis</i> (L.) Scop
LATH	ladysthumb	<i>Polygonum persicaria</i> L.
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.
NIMB	nimblewill	<i>Muhlenbergia schreberi</i> J.F. Gmel.
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
PEST	perennial sowthistle	<i>Sonchus arvensis</i> L.
PESW	Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i> L.
PERG	perennial ryegrass	<i>Lolium perenne</i> L.
POAM	Powell amaranth	<i>Amaranthus powellii</i> S. Wats
POIV	poison ivy	<i>Rhus radicans</i> L.
PRKW	prostrate knotweed	<i>Polygonum aviculare</i> L.
PRLE	prickly lettuce	<i>Lactuca serriola</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.
ROCI	rough cinquefoil	<i>Potentilla norvegica</i> L.
ROFB	rough fleabane	<i>Erigeron asper</i> Nutt.
RRPW	redroot pigweed	<i>Amaranthus retroflexus</i> L.
RSFI	redstem filaree	<i>Erodium cicutarium</i> (L.) L'Hér. ex Ait.

WEED LIST

<u>Abbr.</u>	<u>Common Name</u>	<u>Botanical Name</u>
RUTH	Russian thistle	<i>Salsola iberica</i> L.
SFGE	smallflower geranium	<i>Geranium pusillum</i> L.
SHPU	shepherdspurse	<i>Capsella bursa-pastoris</i> (L.) Medic.
SLSW	slender speedwell	<i>Veronica filiformis</i> Sm.
SMGC	smooth groundcherry	<i>Physalis subglabrata</i> Mackenzit Bush
SPKW	spotted knapweed	<i>Centaurea biebersteinii</i> DC.
SPSP	spotted spurge	<i>Euphorbia maculata</i> L.
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.
TRCV	trailing crownvetch	<i>Coronilla caria</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.
WHHA	white heath aster	<i>Symphotrichum ericoides</i> L.
WIBW	wild buckwheat	<i>Polygonum convolvulus</i> L.
WICA	wild carrot	<i>Daucus carota</i> L.
WICH	wild chamomile	<i>Matricaria chamomilla</i> L.
WIGA	wild garlic	<i>Allium vineale</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	Breakfree	6.4 EC	DuPont
acetochlor	Harness	7.0 E	Monsanto
acetochlor	Surpass	6.4 E	Dow Agrosciences
acetochlor	Warrant	3 EC	Monsanto
acifluorfen	Ultra Blazer	2 L	UPI
ammonium soap of fatty acid	Finalsan	22.1% L	Neudorff
atrazine	AAtrex	4 L	Syngenta
atrazine 4.006 lb ai + pyroxasulfone 0.485 lb ai + fluthiacet-methyl 0.014 lb ai	Anthem ATZ	4.5 SE	FMC
bensulide	Prefar	4 EC	Gowan
bentazon	Basagran	4 L	Arysta
bicyclopyrone	A 16003E	1.67 SL	Syngenta
bicyclopyrone 0.06 lb ai + mesotrione 0.24 lb ai + S-metolachlor 2.14 lb ai + atrazine 1 lb ai + benoxacor 0.107 lb ai	Acuron	3.547 CS	Syngenta
bromoxynil	Buctril	4 EC	Bayer CropScience
carfentrazone	Aim	2 EC	FMC
chlorimuron-ethyl	Classic	25 WDG	DuPont
clethodim	Intensity One	0.97 EC	CPS
clethodim	Select Max	0.97 EC	Valent
clethodim	WE1557	2 EC	Wilbur Ellis
clomazone	Command	3 ME	FMC
clopyralid	Spur	3 EC	Albaugh
clopyralid	Stinger	3 EC	Dow Agrosciences
cloransulam-methyl	Firstrate	84 WDG	Dow Agrosciences
cycloate	Ro-Neet	6 EC	Helm Agro
DCPA	Dacthal	75 WP	AMVAC
dicamba	Clarity	4 L	BASF
diclobenil	Casoron G	4 G	Chemtura
diclobenil	Casoron L	1.4 CS	Chemtura
diflufenzopyr 21.4% + dicamba 55%	Distinct	76.4 WG	BASF
dimethenamid-P	Outlook	6 EC	BASF
dimethenamid-P	Tower	6 EC	BASF
diquat	Reglone	2 EC	Syngenta
diuron	Karmex	80 DF	Adama
EPTC	Eptam	7 EC	Gowan
ethalfluralin	Curbit	3 EC	CPS
ethalfluralin 1.6 lb ai + clomazone 0.5 lb ai	Strategy	2.1 EC	CPS
ethofumesate	Nortron SC	4 SC	Bayer CropScience
FeHEDTA	Fiesta	4.43% L	Neudorff
flazasulfuron	Mission	25 WG	ISK Bioscience
fluazifop-P	Fusilade DX	2 EC	Syngenta
flucarbazone	Everest	70 WDG	Arysta
flufenacet	Define	60 DF	Bayer CropScience
flufenacet 54.5% + metribuzin 13.6 %	Axiom	68 DF	Bayer CropScience
flumetsulam	Python	80 WDG	Dow Agrosciences
flumioxazin	Chateau SW	51 WG	Valent

CHEMICAL LIST

<u>COMMON NAME</u>	<u>TRADE NAME</u>	<u>FORMULATION</u>	<u>MANUFACTURER</u>
flumioxazin	Sureguard	51 WDG	Valent
fluthiacet	Cadet	0.91 EC	FMC
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 EG	Bayer CropScience
glufosinate	Rely 280, Liberty 280	2.34 L	Bayer CropScience
glufosinate-ammonium	Lifeline	2.34 L	UPI
glufosinate-ammonium	Reckon 280	2.34 L	Solera
glyphosate	Durango	5.4 L	Dow Agrosciences
glyphosate	Roundup Original	4 L	Monsanto
glyphosate	Roundup PowerMax	5.5 L	Monsanto
glyphosate	Roundup Ultra	4 L	Monsanto
glyphosate	Roundup UltraMax	5 L	Monsanto
glyphosate	Roundup WeatherMax	5.5 L	Monsanto
glyphosate	Touchdown Total	4.17 L	Syngenta
halosulfuron	Permit	75 WG	Gowan
halosulfuron	Sandea	75 WG	Gowan
hexazinone	Velpar	2 L	DuPont
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	League	75 WDG	Valent
indaziflam	Alion 200	1.67 SC	Bayer CropScience
indaziflam	Alion 500	4.17 SC	Bayer CropScience
isoxaben	Trellis	75 DF	Dow Agrosciences
linuron	Lorox	50 DF	TKI NovaSource
mesotrione	Callisto	4 SC	Syngenta
metribuzin	Tricor	75 DF	UPI
napropamide	Devrinol DF-XT	50 DF	UPI
nicosulfuron	Accent	75 WDG	DuPont
nicosulfuron + mesotrione + isoxadifen-ethyl	Revulin Q	51.2 WDG	DuPont
norflurazon	Solicam	80 DF	TKI NovaSource
oryzalin	KFD-163-01	3.2 SC	UPI
oryzalin	Surflan	4 AS	UPI
oxyfluorfen	Goal 2XL	2 EC	Dow Agrosciences
oxyfluorfen	GoalTender	4 SC	Dow Agrosciences
oxyfluorfen	KFD-155-01	2 L	UPI
paraquat	Firestorm	3 L	Chemtura
paraquat	Gramoxone SL	2 L	Syngenta
pelargonic acid	Scythe	4.2 EC	Gowan
pendimethalin	Prowl	3.3 EC	BASF
pendimethalin	Prowl H2O	3.8 ACS	BASF
penoxsulam 0.083 lb ai + oxyfluorfen 3.93 lb ai	Pindar GT	4.013	Dow Agrosciences
phenmedipham	Spin-Aid	1.3 L	Bayer CropScience
phenmedipham 0.6 lb ai + desmedipham 0.6 lb ai	Betamix	1.3 L	Bayer CropScience

CHEMICAL LIST

<u>COMMON NAME</u>	<u>TRADE NAME</u>	<u>FORMULATION</u>	<u>MANUFACTURER</u>
prometryn	Caparol	4 L	Syngenta
pronamide	Kerb	3.3 SC	Dow Agrosciences
pyraflufen-ethyl	Venue	0.17 SC	Nichino
pyrazon	Pyramin	68 DF	Arysta
pyroxasulfone	Zidua	85 WDG	BASF
pyroxasulfone 2.087 lb ai + fluthiacet-methyl 0.063 lb ai	Anthem	2.15 SE	FMC
pyroxasulfone 4.174 lb ai + fluthiacet-methyl 0.126 lb ai	Anthem MAXX	4.35 SC	FMC
quinclorac	Quinstar	3.8 L	Albaugh
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	Adama
saflufenacil	Sharpen	2.85 SC	BASF
saflufenacil	Treevix	70 WG	BASF
sethoxydim	Poast	1.53 EC	BASF
simazine	Princep	90 DF	Syngenta
S-metolachlor	Cinch	7.64 EC	DuPont
S-metolachlor	Dual Magnum	7.62 EC	Syngenta
S-metolachlor 3.34 lb ai + mesotrione 0.33 lb ai	Camix	3.67 L	Syngenta
S-metolachlor 2.68 lb ai + mesotrione 0.268 lb ai + atrazine 1.0 lb ai	Lumax	3.948 L	Syngenta
S-metolachlor II	Dual II Magnum	7.64 EC	Syngenta
sodium soap of asulam	Asulox	3.34 L	UPI
sulfentrazone	Spartan, Zeus	4 F	FMC
sulfentrazone 3.15 lb ai + carfentrazone 0.35 lb ai	Spartan Charge, Zeus Prime XC	3.5 SE	FMC
sulfentrazone 0.18 lb ai + metribuzin 0.27 lb ai	Authority MTZ	45 DF	FMC
sulfometuron	Oust XP	75 WDG	Bayer CropScience
sulfosulfuron	Maverick	75 WG	Monsanto
tembotrione	Laudis	3.5 SC	Bayer CropScience
terbacil	Sinbar	80 WDG	TKI NovaSource
tolpyralate		3.34 L	ISK Bioscience
topramezone	Impact	2.8 L	Amvac
triclopyr	Garlon	3 SC	Dow Agrosciences
trifloxysulfuron	Envoke	75 WG	Syngenta
trifluralin	Treflan	4 EC	Helena
triflusulfuron	Upbeet	50 WDG	DuPont

ADJUVANTS

<u>TRADE NAME</u>	<u>ABBREVIATION</u>	<u>DESCRIPTION</u>	<u>MANUFACTURER</u>
Activator 90	NIS	nonionic surfactant	Loveland
Agri-dex	COC	heavy range paraffinic oil	Helena
ammonium nitrate	AN	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	Helena
28% Nitrogen	UAN	28% urea ammonium nitrate solution	
N-Pak	AMS	34% ammonium sulfate liquid	Winfield Solution
Silwet L-77		organosilicone surfactant	Loveland
Sylgard 309		organosilicone surfactant	Dow Corning

ABBREVIATIONS USED IN THE REPORT

A =	Acre	No. =	Number
a.i. / ai =	Active Ingredient	OM =	Organic Matter
Amt =	Amount	oz =	Ounce
ACS =	Aqueous Capsule Suspension	P =	Probability
AMS =	Ammonium Sulfate	POH =	Post Harvest
AS =	Aqueous Solution	PO1 =	Postemergence 1
ASPA =	Asparagus	PO2 =	Postemergence 2
CEC =	Cation Exchange Capacity	POST =	Postemergence
CRC =	Clarksville Research Center	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
EPRE =	Early PRE	PT PR =	Pint Product
EPOS =	Early POST	QT =	Quart
F =	Flowable	QT PR =	Quart Product
FALL =	Fall Application	RCB / RCBD =	Randomized Complete Block Design
FORM =	Formulation	RH =	Relative Humidity
FM =	Formulation	REPS =	Replication
FT =	Distance in FT	SC =	Suspension Concentrate
g / gr =	Gram	SE =	Suspoemulsion
GAL =	Gallon	SNBE =	Snapbean
GPA =	Gallon per acre	SP =	Soluble Powder
GROW STG =	Growth Stage at time of Application	SPRING =	Spring Application
HTRC =	Horticulture Teaching and Research Center	STBE =	Strawberry
IN =	Inch	SURF =	Surface
KG =	Kilogram	SWMREC =	Southwest Michigan Research and Extension Center
L =	Liquid	T =	Temperature
LPRE =	Late PRE	TNRC =	Trevor Nichols Research Complex
LPOS =	Late POST	TRT =	Treatment
LO =	Low Odor	UNMKTBL =	Unmarketable
LSD =	Least Significant Difference	WDG =	Water Dispersible Granule
LB =	Pounds	WSG =	Water Soluble Granule
ME =	Microencapsulated	WP =	Wettable Powder
MKTBL =	Marketable	WT =	Weight
MPH =	Mile(s) per hour	` =	Feet
MSU =	Michigan State University	" =	Inches
N =	No	Y =	Yes
N/A =	Not Applicable/ Not Available		

TEMPERATURE AND PRECIPITATION DATA

MSU Horticulture Teaching and Research Center

Recorded at
MSU Horticulture Teaching and Research Center (HTRC)
East Lansing, Michigan
2016

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	49.9	38		1	51.7	44.1	0.12	1	80.7	58.1	
2	38.3	25.2	0.09	2	54.3	42.3	0.31	2	80.7	55.1	
3	52.9	18.1	0.03	3	66.2	36.6		3	82.5	49.3	
4	42.7	24.6		4	55.4	46.1	0.31	4	83.7	55.3	0.21
5	43.1	17.6		5	66.7	45		5	72.2	60.1	0.1
6	48.1	31.9	0.45	6	74.2	39.9		6	81.8	55.2	
7	41.5	32.3	0.14	7	72.2	49.4		7	63.2	51.1	
8	40.8	25.4		8	67.6	36.7		8	69.7	45.3	
9	35.1	22.8	0.04	9	68.3	36.9		9	73.2	41.6	
10	38.6	26.8	0.56	10	53.9	47	0.36	10	86.6	52.5	
11	55.3	35.3	0.06	11	68.4	50.2		11	91.5	70.9	
12	47.9	30.5		12	74.6	54.2	0.27	12	80.2	56.5	
13	54.6	29.2		13	65	49.5	0.03	13	74.5	46.2	0.01
14	61.6	29.2		14	51.6	40	0.49	14	76.4	59.6	0.01
15	70.7	31.9		15	47.9	33.2	0.01	15	87.6	60.3	0.06
16	76.7	39.6		16	69.6	37.7		16	71	63.7	0.3
17	79.6	38.1		17	66.5	47.2		17	88.3	53.1	
18	81.3	44.5		18	66.1	35		18	89.7	53.9	
19	61.8	44.4		19	73	36.8		19	91	57	
20	68	46.8		20	71.6	41.1		20	91	65.2	
21	62.6	47.5	0.2	21	74.8	50.8		21	81.8	52.8	
22	58.9	44.9		22	71.3	46.7		22	84.5	54.1	
23	60	34.6		23	79.1	38.1		23	77.4	62	0.01
24	68.5	38.9		24	84.2	43.5		24	85.7	51.4	
25	77.8	46.8	0.53	25	85.5	59.3		25	89.4	54	
26	54.5	40.1	0.18	26	84.3	63.2	0.14	26	88.4	65.5	0.01
27	61.1	35.4		27	85.4	60.3		27	91.1	65.9	
28	48.3	37.1	0.28	28	85.5	63.1	0.02	28	69.6	51.9	
29	52.9	40.8		29	85.6	60.9		29	80.8	44.7	
30	56.5	36.9	0.38	30	83.2	56.8		30	84.2	48.3	
				31	84.5	50.8					

TEMPERATURE AND PRECIPITATION DATA

MSU Horticulture Teaching and Research Center

Recorded at
MSU Horticulture Teaching and Research Center (HTRC)
East Lansing, Michigan
2016

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	74.7	51.7	0.41	1	84.6	58.9		1	73.5	57	
2	80.1	46.8		2	87.6	61.6		2	74	50.7	
3	81.7	50		3	90.4	62		3	78.3	47.5	
4	82.8	48.8		4	93.1	63.1		4	80.4	47.9	
5	87	62.9		5	88.6	68.3		5	85.9	53.9	
6	88.9	62		6	85.2	58		6	89.5	68.5	
7	89.7	61.8		7	82.1	58.7		7	86.1	69.7	0.68
8	91.5	65.6	0.01	8	83.9	52.7		8	79.4	68.1	0.16
9	80.3	62.9		9	89.3	54.4		9	80.1	64.4	0.04
10	86.1	54.7		10	90.9	61		10	72.8	60.3	0.57
11	86.6	62		11	92.7	67.2	0.01	11	74.5	51.3	
12	95	63.6	0.82	12	90.9	74.2	0.36	12	76.4	50.3	
13	89.5	69.3	0.36	13	86.3	72.1	1.06	13	82	53.4	
14	87	67		14	83.4	64.3		14	73.8	54.4	0.35
15	75.1	62.2	0.02	15	81.4	61.9	0.64	15	74.3	48	
16	78.4	55.5		16	83.9	67.6	2.12	16	79.1	51.1	
17	87.2	51.3		17	84.1	63	0.5	17	78.2	61.8	0.67
18	87.2	64.5		18	84.3	60.5		18	78.6	57.3	
19	85.2	60.2		19	83.1	67.1		19	83.3	51.7	
20	91.4	57.1		20	82	65.1	0.18	20	78.8	50.4	
21	89.1	63.6	0.45	21	74.4	59.2	0.21	21	80.3	19.5	0.01
22	92.3	73.8		22	77	52.1		22	82.5	54.5	
23	93.4	64.1		23	80.4	53.3		23	68.8	46.7	
24	87.5	70.2	0.8	24	81.3	57.8	0.16	24	68.8	47.5	
25	88.8	68.3		25	83.7	64.5	0.06	25	73.4	37.1	
26	88.2	59.6		26	82.7	58.5		26	67.2	35.2	0.05
27	90	61.4		27	77.4	61.6	0.94	27	65.9	36.4	
28	86.9	61.8	0.01	28	85.4	65		28	63.4	36.7	0.04
29	80	64.5		29	86.9	59.9		29	60.3	47.7	1.37
30	73.3	63.3	0.9	30	82.6	64.8	0.01	30	59.6	54.2	0.24
31	80.1	65.5		31	77.6	60.8	0.15				

TEMPERATURE AND PRECIPITATION DATA

MSU Clarksville Research Center

Recorded at
MSU Clarksville Research Center (Clarksville)
Clarksville, Michigan
2016

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	46.9	34.4	0.09	1	49	41.3	0.06	1	76.5	58	0.01
2	35.3	22.7	0.06	2	56.5	38.6	0.34	2	75.8	55.8	
3	50.4	15.1	0.15	3	64.1	37		3	79.4	48	
4	31.6	23.8		4	53.8	40.4	0.78	4	80.1	57	0.26
5	41.1	13.9	0.02	5	68.2	41.4		5	67.7	58	0.19
6	44.6	31.7	0.4	6	71.8	37.7		6	74.7	52.4	0.01
7	37.9	29.5	0.03	7	71.6	46		7	59.3	46	
8	34	22.9	0.02	8	64.5	37.9		8	66.7	43.3	
9	34.6	17	0.13	9	66.5	38.4		9	69	42	
10	40.5	25.1	0.87	10	53.6	43.8	0.91	10	86.1	54.7	
11	47.8	31.6	0.03	11	67.7	47.1		11	86.8	66	
12	46.8	25.5		12	66.1	53.8	0.58	12	78	51.3	
13	51.7	29.5		13	60.9	47	0.14	13	74.9	49.3	
14	59.4	29		14	47.8	37.9	0.41	14	78.3	58.2	0.01
15	68.6	32.6		15	47	30.8	0.01	15	83.5	58.6	0.15
16	75.1	39.8		16	65	37.5	0.01	16	73.7	60.4	0.07
17	80	43.6		17	66.2	44		17	87.1	53.9	
18	79	49		18	66.1	37.9		18	88.8	58	
19	61.3	43		19	70.2	39		19	87.4	60.8	
20	66.4	44		20	71.1	45.2		20	85.1	61.7	0.01
21	62.4	45	0.12	21	76.1	48		21	77	53.8	
22	58.4	44.6		22	75	50.1		22	82.2	53.7	
23	57.2	32.7		23	78.7	42.5		23	80	58	
24	68.2	38		24	83.1	52.6		24	84.6	51.1	
25	74	44.5	0.57	25	84.7	63.3		25	86.1	54.4	
26	45.2	35.3	0.03	26	82.1	60.2	0.36	26	83.9	68.6	0.06
27	63.7	30.8		27	82.8	61.2		27	85.2	63.1	
28	46.3	33.6	0.6	28	81.9	64.3	0.01	28	72.4	52.7	
29	49.6	36.6	0.06	29	80.9	63.4		29	77.3	44.1	
30	53.1	34.5	0.37	30	79.9	56.4		30	79.6	47.7	
				31	83	51.4					

TEMPERATURE AND PRECIPITATION DATA

MSU Clarksville Research Center

Recorded at
MSU Clarksville Research Center (Clarksville)
Clarksville, Michigan
2016

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	72.6	53.1	0.3	1	83.4	57.5		1	74.5	54	
2	76.6	48.4		2	87.6	59		2	75	48.2	
3	80.5	49.2		3	90.2	61		3	76	46.8	
4	80	51.4		4	90.4	63.6		4	78.3	52.3	
5	81.5	61.4		5	83.5	62.5		5	83.8	53.9	
6	86	63.6		6	81.8	57.5		6	87.5	68.9	
7	86	60.6		7	79.8	55.8		7	84.8	69	
8	87.1	61.7	0.23	8	84.6	53.5		8	76.7	66	
9	78.4	60		9	87.2	53.6		9	80.5	63.4	
10	83.3	53.3		10	90.4	60.2		10	71.9	56.6	
11	85.7	60.2	0.24	11	89	67.1		11	72.2	49.2	
12	89.2	66.2	1.68	12	84.8	70.6	1.55	12	75.2	51.2	
13	85	66	0.06	13	82	66.7	0.52	13	78.7	54.7	
14	80.6	65.6		14	81.2	64.7		14	75.8	52.7	
15	71.3	59.9		15	81.6	59.5	0.51	15	74	48.5	
16	76.9	53.8		16	82.5	65.5	1.76	16	79.5	49.9	
17	83.8	53.1		17	80.9	64.4		17	77.8	62.5	
18	82.3	64.1		18	83.7	58.9		18	74.4	53.9	
19	85.3	57.4		19	79.4	66.1		19	81.8	52.1	
20	88.9	60.3		20	76.8	63.7	1.5	20	81.8	56.6	
21	84.2	68.2		21	71.6	58		21	78.5	55.5	
22	85.9	68.5		22	75.4	51.6		22	81.5	59.2	
23	92.1	62.7		23	79.1	54.2		23	69.2	54.8	
24	85.5	66.9		24	80.2	61.6		24	70.6	49.3	
25	84.6	66.3		25	80.3	60.5		25	75.2	47.7	
26	85.1	60.1		26	79.7	59.3		26	66	50.4	
27	85.3	60.5		27	455.5	58.8		27	64.3	47.2	
28	84.6	61.7		28				28	66.2	48	
29	75	61.3		29		178.7		29	59.2	53.9	
30	69.2	58.4		30	202.5	66		30	60.1	55.7	
31	79.4	62.2		31	78.4	58.8					

TEMPERATURE AND PRECIPITATION DATA

MSU Southwest Michigan Research and Extension Center

Recorded at
MSU Southwest Michigan Research and Extension Center (Benton Harbor)
Benton Harbor, Michigan
2016

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	50	39.1	0.04	1	55.8	47.1	0.32	1	79.5	66.2	0.01
2	40.4	26.4	0.08	2	57.6	44	0.09	2	79.1	57.3	
3	63.6	28.9		3	68.1	37.5		3	80.3	51.8	
4	44.8	28.8		4	59.7	38.1	0.83	4	80.7	62.7	0.01
5	44.6	20.4	0.01	5	54.5	40.5		5	76	58.9	0.17
6	49	37.3	0.76	6	75.7	35.1		6	83.2	55.7	0.01
7	41.5	33.1	0.15	7	67.5	47.1		7	61.6	50.4	
8	39.6	29.3	0.03	8	68.4	37.1		8	66.9	46.6	
9	34.8	24.9	0.07	9	59.4	44.4	0.04	9	77.8	43	
10	50.5	28.9	0.46	10	60.9	50.1	0.42	10	91.7	66.9	
11	51.2	35	0.05	11	74.4	53.6		11	90.3	70.1	
12	43.5	30.1		12	67.9	57.1	0.31	12	78.2	51.1	
13	58.1	29.3		13	65.8	49.8	0.2	13	86.6	48.8	
14	66.6	36.2		14	53.3	40.9	0.58	14	84.6	64.2	
15	74	40.3		15	51.2	38.4		15	87.9	66	0.57
16	79.4	47.2		16	70.1	39		16	82.3	57.4	0.03
17	80.4	54.6		17	61	49.2	0.01	17	88.6	55.5	
18	81.3	51.4		18	66.3	45.4		18	89.8	58.1	
19	69.5	51.1		19	68.6	37.3		19	91.7	65.2	
20	73.8	51.6		20	71.4	52		20	88.5	67.4	0.01
21	66.3	52.7	0.16	21	72.9	51.6		21	81.5	57.3	
22	56.9	40.8		22	74.2	44.6		22	83.9	60.7	0.71
23	63.9	40.9		23	81.7	45.4		23	83.1	68.5	0.04
24	75.8	44.6		24	86.2	58		24	86.1	63.5	
25	81.9	59.1	0.3	25	88.2	63.4	0.7	25	89.2	62.7	
26	65.4	42.6	0.01	26	85.3	63.9	0.09	26	83.7	70.7	0.17
27	61.3	42.9		27	83	65.8	0.08	27	87.9	68.3	
28	53.1	40.9	0.21	28	83.5	69.6		28	69	53.2	
29	51	45.1	0.01	29	82.3	63.6		29	78.3	48.6	
30	51.1	43.5	0.39	30	82.9	60.2		30	83.9	51.4	
				31	86.7	62.5					

TEMPERATURE AND PRECIPITATION DATA

MSU Southwest Michigan Research and Extension Center

Recorded at
MSU Southwest Michigan Research and Extension Center (Benton Harbor)
Benton Harbor, Michigan
2016

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	72.6	54.6	0.23	1	84	61.2		1	76.4	58.7	
2	79.5	50.3		2	88.8	64.8		2	78.2	56.7	
3	82.7	51.9		3	91.6	64.8		3	78.2	53.5	
4	81.8	62.1	0.02	4	94	67.9		4	83.9	59.4	
5	87	63.9		5	82	64.7		5	90.8	64.4	
6	87.9	69.1	0.15	6	84.2	60.8		6	91.7	73.6	
7	88.3	67.5		7	85.6	57.1		7	91.8	74.9	
8	88.8	65.9		8	87.5	63.6		8	80.7	69.2	0.16
9	73.4	60.2		9	89.3	62.3		9	80.9	62.6	0.25
10	85	54.2		10	91.9	67.5		10	72	62.9	0.34
11	91.5	67.2		11	93.5	72.8		11	73.9	52.8	
12	93.3	71.2		12	92.2	73.3	0.29	12	79.8	57.3	
13	90.1	68.3	0.1	13	84.4	68.6	0.46	13	85.3	60.8	
14	88.1	69.5		14	84.4	67.8		14	75.9	62.4	0.01
15	76.7	64.2		15	81	65.3	2.12	15	77.6	60.1	
16	78.2	53.8		16	82	67.8	0.12	16	85.7	61.2	
17	87.9	52.2	0.03	17	87	66.6		17	79.6	66.9	0.25
18	82.6	65.4	0.48	18	86.8	65.3		18	76.8	60.5	0.01
19	88.4	61.1		19	81.2	67.8	0.5	19	88.2	59.2	
20	92.4	64.1		20	80.5	68.4	1.9	20	86.4	65.9	
21	88.9	69.6	0.68	21	72.9	58.3		21	86.7	66.7	
22	86	69.5	0.02	22	78	55.6		22	88.2	65.3	
23	92.7	67.9	0.09	23	82.9	59.6		23	81.8	65	0.34
24	91.3	70.6	0.86	24	85	67		24	77.1	59.4	
25	83.3	67.7		25	80	66.2	0.13	25	85.2	60	0.13
26	86.2	62.2		26	82.3	63		26	73.3	60.3	0.09
27	88.4	60.5		27	87.6	67.8	0.83	27	69.8	52.3	
28	89.1	66.2		28	86.5	70.6		28	65.1	52.1	0.02
29	86.2	66.7	0.1	29	88.1	67.5	0.24	29	68.3	55.2	0.54
30	81.7	65.4	0.02	30	85.8	68.7	2.26	30	68.9	58.6	0.02
31	80.7	64.9		31	81.8	66.1					

TEMPERATURE AND PRECIPITATION DATA

Fremont

Recorded at
City of Fremont
Fremont, Michigan
2016

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	46.8	31.4	0.09	1	53.6	41.4	0.04	1	72.2	60.2	0.04
2	34.8	22.5	0.02	2	61.9	39.8		2	73.1	53.3	
3	43.9	16.9	0.03	3	63	35		3	77.8	48	
4	35.3	23.5		4	52	39.6	0.98	4	81.9	58	0.1
5	40.5	15.3	0.04	5	67.2	37.4		5	70.4	55	0.17
6	42.2	32.5	0.45	6	71.9	34.9		6	73.9	52.2	
7	37.5	29.8	0.01	7	67.2	44.3		7	57	45.5	
8	39.3	25.5		8	65.4	35.1		8	65.3	41.5	0.01
9	37.3	22.4		9	68.3	39.2		9	71.5	42	
10	42.9	27.3	0.05	10	55.7	45.6	0.29	10	83.9	54.6	0.04
11	45.9	33.9	0.02	11	72.7	48.5		11	85.6	62.8	0.02
12	47.4	26.9		12	69.8	54.8	0.01	12	78.5	49.3	
13	53.3	30.3		13	61.7	44.9	0.35	13	68.9	50.6	0.04
14	60.5	35.5		14	45.5	38.3	0.13	14	79.3	58.9	
15	68.1	35		15	49.4	31.4	0.03	15	79.8	58.9	0.29
16	75.9	42.7		16	66.6	32.5		16	76.7	58.3	0.15
17	79.8	45.1		17	67.1	44.2		17	89.7	55.3	0.02
18	79.7	44.1		18	66.7	37.3		18	89.5	55.8	
19	62.1	46	0.02	19	69.2	34.2		19	85.3	59.1	
20	66.9	47.3		20	74.9	41.8		20	84.8	61.4	
21	59.2	48.5	0.25	21	78.3	49.2		21	77.4	51.5	
22	64.6	43.6	0.02	22	79.4	46.8		22	81	52	
23	62.4	32.9		23	78.8	46		23	79	57.6	0.02
24	61.1	39.8		24	81.4	48.8		24	84.2	50.9	
25	74.6	45.6	0.25	25	83.4	57.3	0.05	25	86.2	55.7	
26	48.8	39.6		26	79	61.4	0.36	26	78.9	67.8	1.37
27	60.2	29.4		27	81.3	58.5	0.33	27	79.5	59.1	
28	48.5	37	0.29	28	80.4	65	0.21	28	73.9	54.9	
29	57.5	37.4	0.03	29	76.3	61.8		29	77.9	47	
30	55.5	34.5	0.34	30	81.2	53.8		30	76.6	48.8	
				31	82.7	51.5					

TEMPERATURE AND PRECIPITATION DATA

Fremont

Recorded at
City of Fremont
Fremont, Michigan
2016

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	70.6	51.7	0.13	1	85.3	57.8	0.01	1	77	56.4	
2	76	47.1		2	88	60.9		2	79.1	45.9	
3	79.8	47		3	88.8	60.3	0.01	3	79	49	
4	78	50.2		4	87.7	64.2		4	79.7	52	
5	79.8	60.5		5	82.6	63.4		5	83.8	57.3	
6	82.4	64.3		6	82.7	60.1		6	86.7	69	0.08
7	84.4	61.1		7	80.5	56		7	79	68.2	0.1
8	82.9	64.1		8	84.1	53.9		8	77.9	67.6	0.04
9	79	60.9		9	85	57.3		9	81.3	59.3	
10	80.5	50.6		10	87.9	60.5		10	72.7	58	0.01
11	84.4	61.2		11	86.5	66.2	0.09	11	70.4	47.9	
12	86	70.8	0.03	12	76.3	70.6	0.01	12	75.2	50.8	
13	84.1	66.3		13	80.3	67	0.01	13	74.3	60.7	0.01
14	81.3	67.6		14	82.3	62.6		14	76	53.8	
15	70	54	0.01	15	80.7	60.4		15	75.5	50	
16	79.2	48.8		16	84.6	67.6	0.01	16	78.2	52.4	
17	80.6	51.4		17	81.2	64.1		17	75.1	61.9	0.14
18	84.4	67		18	84.9	57.1		18	74.8	54.3	
19	87.4	59.8		19	80.1	67.4		19	79.6	53.6	
20	87	58.2		20	74.6	65.5		20	83.2	55.5	
21	81.6	65	0.15	21	73.4	56.9		21	75.7	56.1	0.46
22	87.4	67.4		22	74.5	51.1		22	78.5	61.6	
23	96	62.5		23	77.4	55.4		23	70.1	59.5	
24	84.7	67.9	1.88	24	78.7	62.7		24	70	48.7	
25	85.2	67.3		25	80.2	61.9		25	73.9	50	
26	86.3	60.8		26	76.8	59.4		26	65.4	54.9	0.65
27	85.5	61.2		27	77.2	57.5		27	57.6	46.5	0.06
28	83.8	64.2	0.32	28	84.4	65		28	68	49.8	0.13
29	77.9	61.1	0.08	29	84.1	60.7		29	66.5	54.4	
30	74.7	60.6	0.01	30	81.5	65.8		30	60.7	56.7	0.3
31	81.4	62.5	0.01	31	78.1	58.8					

TEMPERATURE AND PRECIPITATION DATA

Grand Junction

Recorded at
 MBG Marketing
 Grand Junction, Michigan
 2016

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	51.5	37.9	0.14	1	54	45.9	0.26	1	79.2	61.1	0.03
2	39	26.5	0.29	2	59.4	41.2	0.09	2	79.8	52.3	
3	63	25.5	0.05	3	69	33.7		3	82.7	48.6	
4	52	25.2		4	57.5	39.6	0.72	4	81.3	57.1	0.26
5	45.3	16.1	0.02	5	64.9	40.4		5	74.7	60.2	0.16
6	48.9	37.1	0.77	6	76.8	33.7		6	83.8	51.8	0.01
7	40.6	31.6	0.09	7	67	43.7		7	63.3	48	
8	40.9	27.2	0.1	8	70.5	38.5		8	66.8	44.3	0.11
9	38.4	18.7	0.1	9	63.5	38.2	0.01	9	77.8	40.7	
10	50.4	28.7	0.46	10	55.9	49.7	0.39	10	92.4	61.6	
11	50.6	32	0.07	11	75.6	52.4		11	89.8	66.1	
12	46.5	27		12	66.7	56.4	0.33	12	77.6	50.9	
13	54	26.1		13	66.9	49.8	0.13	13	81.8	47.7	
14	66.4	32.1		14	52	41.4	0.51	14	79.7	61.1	0.05
15	74.1	38.7		15	51.9	33	0.01	15	86.6	62.8	0.43
16	80.9	40.9		16	73.1	35.6		16	76.8	56.1	0.61
17	83.1	44.7		17	65.7	47.3	0.03	17	87.6	52.7	
18	84.3	44		18	69.1	42.5		18	90.1	54.8	
19	63.5	53.3		19	72.9	34.7		19	91.7	59.7	
20	73.7	53		20	73.7	39.6		20	89.2	60.7	0.01
21	67.1	50	0.18	21	79.6	46.7		21	80.6	52.9	
22	57	38.4		22	79.8	42.5		22	83.8	58	0.8
23	64.9	40.6		23	82.7	42.4		23	82.7	66.5	0.01
24	75.9	37.3		24	88.7	49.5		24	86.3	57.3	
25	84.5	55.2	0.5	25	89.3	61	0.5	25	89.2	56.5	
26	62.7	42.5		26	86.8	63.5	0.33	26	85.6	70	0.18
27	62.6	40.1		27	83.8	64.2	0.02	27	85.7	62.1	
28	54.6	39.4	0.19	28	85.4	67.8		28	70.7	51.5	
29	53.9	42.5	0.01	29	85.7	62.7		29	78	43.9	
30	54.2	38.7	0.42	30	84.9	57.3		30	82.3	48.5	0.03
				31	86.5	53.2					

TEMPERATURE AND PRECIPITATION DATA

Grand Junction

Recorded at
MBG Marketing
Grand Junction, Michigan
2016

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	70.8	52.2	0.07	1	85.7	60.5		1	77.2	55.4	
2	79.9	47.7		2	89.6	59.1		2	77.6	50.4	
3	79.8	47.7		3	92.5	60.9		3	79.3	48.8	
4	80.8	54.4	0.01	4	93.9	65.5		4	83.2	54.1	
5	86.1	62.2		5	85.2	64.4		5	89.7	60.2	
6	89.7	66.7	0.04	6	84.6	59.9		6	92.7	71.8	
7	87.3	64.9	1.16	7	84.1	54.9		7	90.4	70.9	0.3
8	88.4	65.1		8	85.8	56.7		8	79.3	67.4	0.89
9	76.4	59.9		9	89.9	55.7		9	81.6	62.5	0.04
10	82.7	52.8		10	93.9	63		10	75.8	58.2	0.18
11	90.6	63.1		11	92.8	69.5		11	77.1	49.6	
12	93.1	69.5		12	91.3	73.1	0.54	12	79.5	52.9	
13	91.7	65.9		13	85.8	67.6	0.83	13	84.3	57.1	
14	87.4	69.9		14	85.5	65.6		14	76.8	56.3	0.01
15	81.3	60.7		15	82.9	62.7	1.29	15	77.1	51.5	
16	80	54.9		16	85.4	66.8	0.3	16	84	55.7	
17	89.4	50.4		17	85.1	65.2		17	79.2	61.9	0.3
18	86.7	63.1	0.14	18	86.1	61.1	0.01	18	78.6	55.4	
19	91.6	58.3		19	84.2	68.2		19	87.2	52.4	
20	94	60.1		20	79.6	68.3	1.28	20	83.5	59	
21	88.9	69	0.14	21	75.9	57.4		21	81.1	57	0.01
22	87.9	67.9		22	79.8	53.1		22	85.5	61.9	
23	95.7	61.9	0.08	23	83.6	56		23	75.5	60.7	0.01
24	90.8	70.1	1.91	24	82.1	64.6		24	76.2	53.9	
25	87.4	65.4		25	83.5	63.7	0.1	25	80	57.6	0.28
26	89.4	61.3		26	85.1	60.4		26	69.6	58.7	0.15
27	90.8	59.1		27	85.3	63.5	0.93	27	69.9	51.3	
28	87.7	63.3	0.76	28	88.4	67.2		28	63.9	51.5	0.07
29	80.9	66.7	0.05	29	88.5	64.3		29	64.6	56.3	0.26
30	76.3	64.6	0.33	30	86.5	68.8	0.14	30	66	59.1	0.05
31	82.2	63.8		31	81.3	62					

TEMPERATURE AND PRECIPITATION DATA

Hart

Recorded at
Asparagus Research Farm
Hart, Michigan
2016

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	47.4	32	0.12	1	54.3	42.4	0.06	1	77	60	0.08
2	36.7	21	0.16	2	62.3	34.3		2	72.1	50.2	
3	42.1	24.6	0.02	3	65.6	31.6	0.03	3	78.2	43.9	
4	37.4	21.9		4	49	39.9	0.29	4	83.4	57.9	0.1
5	42.3	15.6		5	57	37.1		5	71.5	52.9	0.1
6	42.9	33.4	0.31	6	73.2	34.6		6	71.9	52.4	0.05
7	39.2	30.1	0.01	7	63.2	42.6		7	57.7	42.8	0.07
8	39	23.7		8	65	32.3		8	64.7	40.1	0.01
9	34.9	21.7		9	69.7	37.9		9	75	40.8	
10	43.1	27.2	0.01	10	60	48.6	0.09	10	86.4	54	0.3
11	44.9	35.2		11	75	50.1		11	86.9	59.7	
12	41.6	27.9		12	67.6	55.4		12	73.3	50.6	
13	49.8	31.3		13	61.8	42.6	0.38	13	70.3	47.8	0.08
14	62.5	35.2		14	44.1	36.9	0.06	14	79.3	60.2	
15	67.1	37.5		15	49.8	33.2	0.03	15	81.1	59.7	0.45
16	75.4	44		16	67	40.4		16	77.7	55	
17	77.4	49.1		17	60.9	41.2		17	86.5	53.6	
18	80	41.6		18	62.5	34.5		18	87.1	52.9	
19	62	48.7		19	68.8	30.2		19	88.1	56.1	
20	69.5	48.3		20	72.5	38.6		20	86.9	59.3	
21	62.1	49.6	0.07	21	77.8	44.1		21	77.9	49.4	
22	57.2	40	0.06	22	76.4	41.7		22	81.8	52.3	
23	55.5	31.2		23	78.5	45.7		23	76.3	54.3	
24	61.1	37	0.05	24	82.6	58.2	0.05	24	81.7	50.8	
25	75.7	48.2	0.3	25	83.2	54.9	0.01	25	87.2	54.5	
26	50.3	37		26	79	61.7	0.01	26	80.6	67.4	0.7
27	63	30.8		27	81.2	58.4	0.04	27	77.1	62.4	
28	50.3	40.4	0.1	28	79.9	66.7		28	70.2	48.6	
29	55.2	34.9	0.04	29	77	57.9	0.04	29	74.4	44	
30	58	33.3	0.09	30	80	51.6		30	78.8	48.5	0.14
				31	85.4	50.7					

TEMPERATURE AND PRECIPITATION DATA

Hart

Recorded at
Asparagus Research Farm
Hart, Michigan
2016

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	70.2	51.1	0.03	1	80.9	58.3		1	78.3	50.6	
2	76.1	47.9		2	84.3	60.8		2	76.9	44.5	
3	79.8	48.6		3	87.2	61.1		3	79	52.8	
4	79.8	51.4		4	88.6	66.5		4	81.4	52.2	
5	82.3	63.7		5	79.6	63.7		5	86.3	59.5	
6	80.3	67.3		6	76.9	59.3		6	89.1	69.3	0.3
7	86.7	62.8	0.67	7	79.6	56.2		7	79.2	68.7	2.79
8	82.8	61.7	0.01	8	82.7	53.4		8	79.1	66.3	0.01
9	78.2	61.4		9	86.4	60		9	80.8	56.7	
10	80.9	50.2		10	87.8	63		10	74.7	61.4	0.53
11	85.7	64.5	0.32	11	87.8	67.4	0.14	11	72.9	47.2	
12	85.4	71.2		12	78.7	71.3	0.1	12	76.4	54.2	
13	85.5	68.4		13	78.2	65.6	0.05	13	75.1	60	0.15
14	80.8	68.8		14	81.3	61.1		14	74	53.6	0.01
15	69.2	51.9	0.02	15	82.4	61.1		15	75.1	51.1	
16	76.3	45.9		16	83.6	67.1		16	78.4	55.8	0.02
17	80.1	56.3	0.03	17	77.8	60.4	0.04	17	77.4	59.1	0.08
18	82.5	62.4		18	87	56.4		18	74.3	55.2	
19	85.7	60.4		19	79.9	69.3		19	81.2	55.6	0.02
20	89.4	58.1		20	75.5	65.3	0.55	20	81.8	52	0.01
21	81.7	69	0.21	21	71.9	54.1	0.04	21	78.9	58.6	0.31
22	87.6	65.9		22	75.9	49.9		22	78.2	63.6	0.04
23	94.7	64.2		23	80	57.5		23	70.4	58.7	
24	86.5	69.4	1.41	24	80.9	63.8	0.1	24	70.9	49.7	
25	82.6	65.6		25	77.8	61.2		25	75.5	53.4	0.35
26	85.9	61.1		26	74.8	56.2		26	67.6	56.6	0.19
27	84.4	65.6		27	78.3	58.6	0.31	27	61.1	51	0.23
28	82.6	65	1.3	28	77.8	61.8		28	69.6	50	0.12
29	79.2	63.8	0.34	29	84.3	60		29	73.8	53.4	
30	78.5	60.3		30	83	62.7		30	64.3	58	0.38
31	80	61.3	0.05	31	78.4	55.5					

TEMPERATURE AND PRECIPITATION DATA

Hudsonville

Recorded at
Michigan Celery Cooperative
Hudsonville, Michigan
2016

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	47.9	35.9	0.15	1	53.3	44.5	0.02	1	76.2	63	0.03
2	36.8	22.5	0.16	2	59.1	41.1	0.26	2	74.2	54.7	
3	61.5	17.7	0.03	3	65.6	35.8		3	79.4	50.6	
4	36.7	27.1	0.01	4	56.5	41	0.65	4	81.3	58.4	0.17
5	43.6	19.1		5	67.2	39		5	70.5	58.6	0.24
6	45.9	35.1	0.42	6	72.8	36.5		6	75.7	55.2	0.01
7	40.3	30.6		7	71.1	48.1		7	63.2	48.3	
8	38	26.2	0.06	8	64.9	39.1		8	66.2	44.8	
9	36.5	21.9	0.06	9	67.2	41.3		9	73.6	43.4	
10	47.4	29.2	0.65	10	55.7	48.7	0.39	10	88.2	59.1	
11	48.4	35.2	0.01	11	73	50.7		11	85	65.7	
12	46.1	29.2		12	64.6	55.1	0.18	12	79.3	53.9	
13	51.6	30.8		13	62.4	49.2	0.12	13	78.3	49.6	0.03
14	62.6	33.1		14	49.2	40.8	0.29	14	80.3	58.5	0.24
15	71.2	38.7		15	49.1	32		15	83	62.1	0.91
16	79.2	44.1		16	67.5	39.8	0.02	16	70	59	0.04
17	80.8	45.3		17	66.3	47.4		17	88.9	54.7	
18	79.8	45.4		18	68	43.7		18	88.5	56.5	
19	62	48.6		19	70.8	36.6		19	87.7	60.3	
20	70	49.7		20	73	41.9		20	85.6	64.9	0.06
21	62.3	48.3	0.14	21	77.3	48.4		21	77.2	56	
22	62	48		22	78	44.5		22	81.7	56.4	
23	63.3	38.8		23	80.5	44.4		23	80.5	61.6	
24	71.1	44.4		24	83.2	51.9		24	85.2	54.4	
25	79.9	52.7	0.06	25	85.9	63.6	0.05	25	87.1	55.7	
26	54.1	41.7	0.02	26	83.3	64	0.19	26	82.4	69.7	0.3
27	60.4	36.8		27	82.8			27	82.6	64.5	
28	51.4	37.5	0.2	28	82.6	69.7		28	72.7	56.6	
29	54.2	40		29	80.9	63.9		29	76.8	46	
30	53.9	38.4	0.31	30	81.4	56.6		30	79.5	50.4	
				31	85.3	52.7					

TEMPERATURE AND PRECIPITATION DATA

Hudsonville

Recorded at
Michigan Celery Cooperative
Hudsonville, Michigan
2016

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	54	0.45	1	87	60.4		1	78.7	58	
2	75.9	50.1		2	87.3	60.7		2	76.7	50.4	
3	79.5	49.6		3	90.5	60.7		3	79.5	49	
4	80.7	53.5		4	90.9	65.3		4	80.8	52.9	
5	82.5	62.5		5	84.8	64.5		5	86.5	60.7	
6	86	67.3		6	81.9	60.5		6	89.4	71	0.1
7	85.5	63.2		7	82.6	55		7	86.1	69.4	0.06
8	87	65.6	0.22	8	87.9	54.9		8	77.6	69	0.02
9	80.6	62.2		9	89.1	57.2		9	83.3	62.9	
10	82.1	53.2		10	91.5	62.3		10	75.9	59.3	0.43
11	87.2	64.6	0.55	11	90.2	69.3		11	74.5	50.2	
12	89.6	71.7		12	85	74.1	1.47	12	78.1	54.4	
13	87.2	68.9		13	82.8	68.4	0.49	13	80.9	57.6	
14	83.7	69		14	82.9	65.4		14	79.6	56.6	
15	72.2	61.3		15	82.2	62.9	0.11	15	74.7	52	
16	77.6	53.4		16	84	67.7	0.52	16	82.8	55.6	0.15
17	84.9	52.4		17	82.7	65.8		17	78.3	62.5	0.31
18	84.5	64.6		18	85.4	61.2		18	76.6	56.2	
19	87.7	60.2		19	84.4	68.3		19	83.6	55.2	
20	89.7	59.9		20	78.1	68.2	1.42	20	86	59.7	
21	84.7	70.1	0.43	21	73.3	58.4		21	78.2	55.6	0.29
22	84.4	67.6		22	77.6	53.2		22	84.3	61.2	
23	93.1	62.6		23	81.5	58.9		23	70.5	60	
24	89.3	68.5	1.05	24	82.9	64.8	0.02	24	71.2	54.6	
25	85.4	66.4		25	81.4	62.9	0.23	25	77.6	53.5	
26	86.8	61.7		26	80.5	60.6		26	70.8	57.8	0.21
27	86.8	61		27	81.6	60.7	0.52	27	66.3	51.3	0.02
28	86.7	64.2		28	85.9	66.5	0.02	28	66.7	51.5	0.42
29	79.9	67.5		29	87	63.3		29	64.1	57.7	0.04
30	73.7	61.7	0.59	30	83.9	68.5		30	63.8	58.9	0.17
31	82.3	66.6		31	81	62.7					

TEMPERATURE AND PRECIPITATION DATA

Imlay City

Recorded at
Lapeer USDA/NRCS Office
Lapeer, Michigan
2016

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	51.5	36.3	0.01	1	48.7	42.7	0.21	1	81.3	52.7	
2	40.3	21.4	0.14	2	59.2	37.6	0.19	2	83.6	54.5	
3	37.1	16.1	0.1	3	69.2	30.8		3	82.5	47	
4	32.9	17.9	0.04	4	65.7	44	0.08	4	84	51.9	0.46
5	43.5	14.7	0.03	5	66.9	38.8	0.01	5	73	58.5	0.34
6	44.6	29.6	0.19	6	75.4	35.7		6	78.6	55	
7	42.1	27.6	0.01	7	69.4	38.8		7	66.6	49	
8	46.5	21	0.08	8	68.9	35.3		8	69	43	
9	34.1	22.9		9	66.2	32.3		9	76.2	38.3	
10	35.2	22.5	0.28	10	59.5	38.3	0.04	10	82.2	45.4	
11	59.6	34.6	0.28	11	73.6	47.8	0.01	11	91.3	67.2	
12	50.2	28.5		12	82.5	52	0.51	12	76.2	47.8	
13	51.1	27.2		13	69.7	49.4	0.02	13	70.8	43.2	
14	55.1	25.6		14	49.7	38	0.75	14	75.7	52.7	
15	69	25.5		15	47.4	33.6		15	80.3	57.9	0.08
16	74.9	33.4		16	68.6	31.1	0.13	16	71.5	57.5	0.86
17	79.8	34.2		17	64.4	37.3	0.01	17	86.8	51.4	
18	83.9	39.1		18	65.1	30.6		18	90.4	50.4	
19	61.6	38.6		19	70.7	35		19	89.1	56.6	
20	67.2	34.2		20	72.1	37.7		20	88.8	64.4	
21	60.3	48.6	0.13	21	75.3	48.6		21	80.7	48	
22	55	36.6		22	69.5	41.8		22	81.6	51.1	
23	56.6	29.7		23	82	33.9		23	77.1	51.1	
24	63	28.5		24	88.2	41		24	83.9	44.4	
25	70.8	46.1	0.35	25	90.7	54		25	87	48.8	
26	47.9	33	0.17	26	88	63.8	0.15	26	86.8	63.6	
27	57.4	26.2		27	87.9	58.4	0.01	27	89.8	63.6	
28	48.2	35.7		28	91.5	61.5		28	67.1	47.4	
29	51.9	37.1	0.02	29	87.3	61.9	0.11	29	79.8	39.2	
30	58.9	32.5	0.16	30	85.5	57.7		30	82.7	44.5	
				31	81.2	49.7					

TEMPERATURE AND PRECIPITATION DATA

Imlay City

Recorded at
Lapeer USDA/NRCS Office
Lapeer, Michigan
2016

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	73.2	49.8	0.35	1	87.6	58.5		1	73.2	50.6	0.02
2	79.3	44.5		2	87	56.2		2	72.5	47.9	
3	83.6	47		3	90.4	54.8		3	79.1	42.7	
4	81.7	46.5		4	94	56.7		4	80.7	44.1	
5	86.4	63.2		5	90.5	68.6		5	84.7	48.2	
6	87	58.9		6	85.4	55.1		6	91.9	63.1	
7	90.8	63.6	0.94	7	83.7	54.3		7	89.4	65.7	
8	85.4	62.7	0.55	8	85	48.4		8	82.1	67.1	0.29
9	78.1	58.9		9	90	51.4		9	83.4	63.7	
10	85.5	54		10	94.5	58.1		10	72.4	58.5	0.36
11	85	61.8		11	92.7	63.7	0.02	11	74.5	48.4	0.01
12	88.5	62.6	0.59	12	96.1	73	0.1	12	77.5	43.5	
13	87.4	66.1	0.63	13	86	71.2	0.7	13	81.5	46.9	0.02
14	84.2	61.6	0.01	14	84	66.1	0.02	14	74.6	47	
15	76.2	60.8		15	84.5	60.4		15	76.3	40.7	
16	79	55.5	0.03	16	82	64.1	1.55	16	78.3	43.4	
17	80.5	51		17	86.3	59.5	0.53	17	75.8	62.8	1.29
18	83.6	59.1		18	86.4	57.9		18	79	53.7	
19	81.1	55.1	0.01	19	87.5	62.1		19	84.3	48.2	
20	88.2	49.5		20	84.5	62.6	0.01	20	83.1	51.1	0.47
21	86.5	65		21	75.8	55.2	0.02	21	80.2	46.7	0.01
22	93.4	72.2		22	77.5	50.3		22	84.7	54.9	
23	93.4	60.7		23	82.7	49.3		23	69.1	56.3	
24	84.3	64.1	0.1	24	81.9	57.8	0.03	24	68.6	43.5	
25	87.6	64.1		25	82.5	64.1	0.33	25	72.3	39.3	
26	89.4	54.6		26	83.8	56.2	0.01	26	68.6	49.4	0.08
27	91.1	57.9		27	79.5	58	0.36	27	67.2	47.4	
28	84.4	57.6		28	86.1	61.3		28	65.5	43.3	0.01
29	80.2	62.4		29	86.7	58.4		29	62.5	57.3	0.29
30	75.3	62.3	0.07	30	82.3	58.7		30	58.9	54.9	0.55
31	80.2	60.7	0.03	31	78.1	53.9					

TEMPERATURE AND PRECIPITATION DATA

Momence

Recorded at
Stelle, Illinois Climate Network Station
Stelle, Illinois
2016

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	49.3	33.5	0	1	56.3	46.9	0.03	1	81.3	62.7	0.11
2	44.8	26.3	0	2	59.6	42	0	2	81.8	57.3	0
3	69.6	22.7	0	3	67.3	40.8	0	3	84.9	56.6	0
4	56.5	29.6	0	4	56.1	41.8	0.17	4	74.9	60.2	0.05
5	48.6	23.5	0	5	65.8	40.7	0	5	81.2	60.1	0
6	50.6	44	0.5	6	82.5	42.3	0	6	86.7	59.5	0
7	44.5	31.7	0.01	7	69.3	42.5	0.02	7	73	49.6	0
8	45.5	30.2	0.07	8	67.4	39.4	0	8	78.9	48	0
9	40.7	23	0.01	9	60	50.5	0.68	9	83.5	54	0.01
10	50.1	33.6	0.49	10	72.7	55.4	0.61	10	94.9	70.2	0
11	49.9	32.2	0.01	11	75.2	52.8	0.04	11	94.2	70.1	0
12	52.6	28.4	0	12	68.5	51.2	0	12	79.8	55.9	0
13	60.5	31.4	0	13	69	45.3	0.42	13	93.2	52.3	0
14	65.5	34.9	0	14	50.9	38.7	0	14	85.7	69.4	0.3
15	74.8	38.3	0	15	56.2	33.7	0	15	90	68.1	0.65
16	80.4	47.8	0	16	68.6	37.9	0	16	78.5	64.8	0
17	81.6	46.2	0	17	61.8	41.7	0.02	17	87.2	60.1	0
18	83.5	52.7	0	18	68.1	39.8	0	18	88.6	59.8	0
19	79.3	55.7	0	19	73.3	43.2	0	19	90.8	62.4	0
20	72.4	48.4	0.31	20	69.8	52.2	0	20	91.4	69.8	0.01
21	69.9	50.7	0.01	21	75.5	49.6	0	21	84.4	61.8	0
22	59.6	38.8	0	22	81.9	46.9	0	22	83.5	61.5	3.09
23	66.8	34.7	0	23	83.4	47.6	0	23	83.8	64.2	0.46
24	79.6	43.1	0	24	87.5	51.9	0	24	84.4	60.7	0
25	83.1	56.2	0	25	88.4	59.7	0	25	89.3	63.7	0
26	67.7	46.5	0	26	86.1	64	0.13	26	88.3	69.3	0
27	54.7	46.3	0.27	27	82.4	64.6	0.11	27	88.4	62.6	0
28	61.6	46.4	0.07	28	81.6	64.2	0	28	74.5	50.4	0
29	53.3	43.2	0	29	85.1	61.3	0	29	79.3	49.7	0
30	50.5	43.6	0.63	30	90.1	57	0	30	75.7	53.4	0.13
				31	87.2	61	0.4				

TEMPERATURE AND PRECIPITATION DATA

Momence

Recorded at
Stelle, Illinois Climate Network Station
Stelle, Illinois
2016

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	76.6	52.9	0.21	1	85.1	62.6	0	1	75.6	56.7	0
2	68	51	0	2	86.5	65.2	0	2	77.4	55.6	0
3	65	56.6	0	3	89	67.1	0	3	79.6	54	0
4	75.3	61.1	0	4	88.8	62.9	0	4	80.2	55	0
5	85.5	61.2	0	5	82.4	66.2	0	5	88.6	60	0
6	84.7	66.9	0.98	6	81.9	63.1	0	6	91.6	67.7	0
7	83.8	63.7	0.04	7	82.2	60.1	0	7	91.7	72.7	0.39
8	85	64.1	0	8	84.7	66.8	0	8	81.5	67.6	1.8
9	80.5	59.9	0	9	87.6	63.8	0	9	74.5	64.9	1.01
10	81.3	56.1	0	10	89.9	63.7	0	10	74.3	55.4	0.09
11	87.8	65.2	0	11	90.3	66.8	0	11	78.4	51.1	0
12	87.5	68	0	12	85.7	71.1	1.46	12	80	51.2	0
13	86.7	63.5	1.36	13	81.5	68.4	0.07	13	85.6	55	0
14	84.4	62	0	14	80.4	63.1	0	14	77.7	61.7	0.03
15	75.6	59.8	0	15	71.6	62.8	2.67	15	82.3	59.8	0
16	78.8	58.2	0	16	83.8	65	0.15	16	80.2	61.4	0.4
17	85.1	59.7	1.11	17	85	63.2	0	17	81.4	59.9	0.6
18	85.9	68.8	2.48	18	85.7	64.5	0.92	18	83.5	57.8	0
19	87.3	68	0	19	84.1	64.2	0.02	19	87.1	53.4	0
20	85	66.8	0	20	79	61.4	0.7	20	89	60.4	0
21	90.3	68.6	0.46	21	74.5	56.1	0	21	83.6	62	0
22	86.2	70.2	0.08	22	77.7	53.3	0	22	86.3	60.5	0
23	89.3	70.5	0	23	79.9	55.1	0	23	85.4	64.6	0
24	89.7	68.3	1.02	24	83.7	66.3	0.72	24	84.8	66.5	0
25	84.6	68.2	0	25	82.7	67.4	1.75	25	88.3	61.7	0
26	85.9	64.4	0	26	81.6	65.9	0.05	26	72.3	48.8	0.13
27	87	62.3	0	27	85.9	68.5	1.28	27	74.3	45.7	0
28	85.5	65.6	0	28	84	69.1	0.04	28	63.3	50.7	0.11
29	83.3	64	0	29	89.7	66.2	0	29	68.9	54.8	0.35
30	80.2	62.6	0.01	30	83.3	68.4	0.13	30	66.8	58.8	1.01
31	82.9	61.4	0	31	81.2	57.4	0				

Weed Control in Asparagus - Hart - 2016

Project Code: 120-16-1

Location: Hart, MI

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Asparagus Variety: Jersey Supreme

Planting Method: Crowns Planting Date: 2011 Harvest Dates: See notes

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% pH: 5.2

Sand: 86% Silt: 8% Clay: 6% CEC: 4

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/3/16	10:30 am	58/50	F	Damp	6-7 SW	39	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/3	ASPARAGUS	1-4"	Veg	Good
5/3	DAND = dandelion	4-8"	Veg	Mod
5/3	HAVE = hairy vetch	2-4"	Veg	Few
5/3	LACG = large crabgrass	4-6"	Veg	Many
5/3	MECW = mouseear chickweed	1"	Veg	Mod
5/3	SFGE = smallflower geranium	1-3"	Veg	Mod
	COLQ = common lambsquarters			
	DOBG = downy bromegrass			
	FIPA = field pansy			
	FISB = field sandbur			
	POAM = Powell amaranth			
	RUTH = Russian thistle			

Notes and Comments

1. Spray 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. 22 harvests from 5/7/16 to 6/16/16.
-

Weed Control in Asparagus - Hart - 2016

Weed Control in Asparagus - Hart - 2016			
Trial ID:	120-16-1	Location:	Hart, MI
Protocol ID:	120-16-1	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	DOBG		FIPA	HAVE	POAM	RUTH	SFGE		
					ASP	ASP	ASP	ASP	ASP	ASP			
					02Jun16	02Jun16	02Jun16	02Jun16	02Jun16	02Jun16	02Jun16		
					RATING	RATING	RATING	RATING	RATING	RATING	RATING		
					1-10	1-10	1-10	1-10	1-10	1-10	1-10		
Trt	Treatment	Form	Form	Rate	Growth								
No.	Name	Conc	Type	Rate	Unit	Stage							
1	Sinbar	80	WDG	1 lb ai/a	PRE		1.7	10.0	8.7	9.3	7.0	10.0	9.7
2	Karmex	80	DF	1.6 lb ai/a	PRE		1.0	10.0	10.0	10.0	7.3	10.0	10.0
	Sencor	75	DF	1.6 lb ai/a	PRE								
3	Alion 200	1.67	SC	0.085 lb ai/a	PRE		1.7	10.0	10.0	9.7	10.0	10.0	10.0
4	Command	3	ME	2 lb ai/a	PRE		1.0	10.0	8.0	7.0	7.7	8.3	8.3
5	Matrix	25	DF	0.063 lb ai/a	PRE		1.3	10.0	10.0	10.0	10.0	9.3	8.3
6	Trellis	75	DF	1.5 lb ai/a	PRE		1.0	9.3	10.0	4.3	9.0	7.0	6.0
	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE								
7	Zidua	85	WDG	0.267 lb ai/a	PRE		1.0	7.7	8.0	8.3	10.0	10.0	3.7
8	A 16003E	1.67	SL	0.045 lb ai/a	PRE		1.3	5.3	9.0	9.0	10.0	10.0	3.3
9	Callisto	4	SC	0.241 lb ai/a	PRE		1.0	9.7	10.0	10.0	10.0	6.7	5.7
	Prowl H2O	3.8	CS	1.9 lb ai/a	PRE								
10	Untreated						1.3	10.0	7.7	9.0	3.3	4.0	3.7
LSD P=.05							0.73	2.77	3.10	2.70	4.44	4.13	3.78
Standard Deviation							0.43	1.61	1.81	1.57	2.59	2.41	2.20
CV							34.54	17.54	19.8	18.16	30.71	28.24	32.05

Weed Control in Asparagus - Hart - 2016

Pest Code						DOBG	FISB	COLQ	FIPA	HAVE	POAM
Crop Code						ASPA					
Rating Date						16Jun16	16Jun16	16Jun16	16Jun16	16Jun16	16Jun16
Rating 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	Growth Stage						
1	Sinbar	80	WDG	1 lb ai/a	PRE	1.7	10.0	10.0	10.0	9.3	4.7
2	Karmex	80	DF	1.6 lb ai/a	PRE	1.3	10.0	9.3	10.0	10.0	3.3
	Sencor	75	DF	1.6 lb ai/a	PRE						
3	Alion 200	1.67	SC	0.085 lb ai/a	PRE	2.0	10.0	10.0	9.0	10.0	10.0
4	Command	3	ME	2 lb ai/a	PRE	1.3	10.0	10.0	9.0	9.0	3.3
5	Matrix	25	DF	0.063 lb ai/a	PRE	1.7	10.0	10.0	5.3	10.0	9.0
6	Trellis	75	DF	1.5 lb ai/a	PRE	1.0	10.0	8.3	7.7	10.0	4.7
	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE						
7	Zidua	85	WDG	0.267 lb ai/a	PRE	1.3	8.7	9.0	5.7	6.7	8.3
8	A 16003E	1.67	SL	0.045 lb ai/a	PRE	1.0	5.7	8.0	8.0	8.7	5.3
9	Callisto	4	SC	0.241 lb ai/a	PRE	1.0	9.0	7.3	10.0	10.0	9.3
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE						
10	Untreated					1.3	7.7	2.3	1.0	7.0	1.0
LSD P=.05						0.78	3.08	1.94	3.28	3.50	3.17
Standard Deviation						0.46	1.80	1.13	1.91	2.04	1.85
CV						33.32	19.73	13.4	25.29	22.53	31.32

Pest Code						RUTH	SFGE					
Crop Code								ASPA	ASPA	ASPA	ASPA	ASPA
Rating Date						16Jun16	16Jun16	13Sep16	2013	2014	2015	2016
Rating Type						RATING	RATING	RATING	TOTAL	TOTAL	TOTAL	TOTAL
Rating Unit						1-10	1-10	1-10	KG/PLT	KG/PLT	KG/PLT	KG/PLT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Stage							
1	Sinbar	80	WDG	1 lb ai/a	PRE	10.0	10.0	1.7	3.71	6.21	7.10	6.20
2	Karmex	80	DF	1.6 lb ai/a	PRE	10.0	10.0	1.3	3.76	7.42	8.72	7.60
	Sencor	75	DF	1.6 lb ai/a	PRE							
3	Alion 200	1.67	SC	0.085 lb ai/a	PRE	10.0	10.0	2.0	3.94	8.15	8.54	8.10
4	Command	3	ME	2 lb ai/a	PRE	5.3	8.0	1.7	3.59	7.49	8.88	7.74
5	Matrix	25	DF	0.063 lb ai/a	PRE	7.0	7.3	1.3	3.32	7.92	8.63	7.77
6	Trellis	75	DF	1.5 lb ai/a	PRE	4.7	3.7	1.7	3.33	6.75	8.21	7.40
	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE							
7	Zidua	85	WDG	0.267 lb ai/a	PRE	8.0	3.0	1.3	3.46	7.76	8.25	7.39
8	A 16003E	1.67	SL	0.045 lb ai/a	PRE	9.7	2.3	2.3	3.37	6.77	6.95	5.82
9	Callisto	4	SC	0.241 lb ai/a	PRE	7.3	5.0	1.7	3.42	7.16	6.99	6.32
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE							
10	Untreated					4.0	1.0	1.3	4.07	7.36	7.92	6.61
LSD P=.05						3.95	3.55	1.40	0.897	1.312	1.901	1.531
Standard Deviation						2.30	2.07	0.81	0.523	0.765	1.108	0.893
CV						30.3	34.31	49.85	14.54	10.48	13.82	12.58

Weed Control in Asparagus - HTRC - 2016

Project Code: 120-16-2

Location: East Lansing, MI
Block: 115/116

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Asparagus Variety: Millennium
 Planting Method: Transplant Planting Date: 2009 Harvest Date: See notes
 Spacing: 1 ft Row Spacing: 6 ft
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 5.5 ft wide x 50 ft long

Soil Type: Capac loam OM: 2.1% pH: 5.6
 Sand: 58% Silt: 26% Clay: 16% CEC: 5.9

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/23/16	1:30 pm	61/54	F	Wet	2-5 NE	62	100% Cloudy	N
PO1	6/1/16	10:30 am	65/60	F	Dry	5 SE	63	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/23	ASPARAGUS	0-6"	Veg	Good
4/23	COLQ = common lambsquarters	<1-1"	Veg	Few
4/23	DAND = dandelion	3-6"	Veg	Few
4/23	ORGR = orchardgrass	2-4"	Veg	Mod.
4/23	QUGR = quackgrass	2-4"	Veg	Few
4/23	WICA = wild carrot	<1-1"	Seedling	Many
4/23	YERO = yellow rocket	1"	Seedling	Few
6/1	Asparagus	1-6"	Veg	Good
6/1	BRPL = broadleaf plantain	3-5"	Veg	Few
6/1	DOBG = downy brome grass	<1-2"	Veg	Few
6/1	WICA = wild carrot	1-6"	Veg	Few
6/1	WIRA = wild radish	4-12"	Flower	Few
	HOWE = horseweed			
	YEFT = fellow foxtail			

Notes and Comments

1. Spray 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. 25 harvests from 4/26/16 to 6/14/16.

Weed Control in Asparagus - HTRC - 2016

Weed Control in Asparagus – HTRC – 2016			
Trial ID:	120-16-2	Location:	East Lansing MI,
Protocol ID:	120-16-2	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	ASP A		WICA	ASP A		YEFT	BRPL
					13May16	24May16	24May16	06Jun16	06Jun16	06Jun16	
					RATING	RATING	RATING	RATING	RATING	RATING	RATING
					1-10	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	Sinbar	80	WDG	1 lb ai/a	PRE	2.0	2.0	10.0	1.3	10.0	10.0
	Spartan	4	F	0.375 lb ai/a	PRE						
2	Karmex	80	DF	3 lb ai/a	PRE	1.3	1.0	9.3	1.3	10.0	10.0
	Prowl H20	3.8	CS	3 lb ai/a	PRE						
3	Command	3	ME	2 lb ai/a	PRE	2.7	2.0	10.0	1.3	9.0	10.0
	Trellis	75	DF	2 lb ai/a	PRE						
4	Solicam	80	DF	4 lb ai/a	PRE	2.3	2.0	10.0	1.3	10.0	10.0
	Tricor	75	DF	1 lb ai/a	PRE						
5	Karmex	80	DF	3.2 lb ai/a	PRE	1.0	1.0	9.3	1.3	8.7	10.0
	Trellis SC	4.17	SC	2 lb ai/a	PRE						
6	Callisto	4	SC	0.241 lb ai/a	PRE	1.3	1.7	9.7	1.3	10.0	8.3
	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE						
7	Karmex	80	DF	3 lb ai/a	PRE	2.3	1.7	9.0	1.7	9.7	10.0
	Sandea	75	WG	0.023 lb ai/a	PO1						
	Spur	3	L	0.188 lb ai/a	PO1						
	Poast	1.53	EC	0.19 lb ai/a	PO1						
8	Karmex	80	DF	3 lb ai/a	PRE	1.3	1.3	8.3	1.0	10.0	10.0
	Sandea	75	WG	0.023 lb ai/a	PO1						
	Clarity	4	L	0.25 lb ai/a	PO1						
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
9	Authority MTZ	45	DF	0.255 lb ai/a	PRE	2.3	2.0	9.3	1.3	10.0	9.0
10	Karmex	80	DF	3 lb ai/a	PRE	2.0	2.0	10.0	1.3	9.3	6.7
	A 16003E	1.67	SL	0.045 lb ai/a	PRE						
11	Untreated					1.7	1.0	3.3	1.0	5.7	9.0
LSD P=.05						1.15	1.14	2.32	0.93	2.91	3.02
Standard Deviation						0.67	0.67	1.36	0.54	1.71	1.77
CV						36.47	41.84	15.22	41.82	18.37	18.95

Weed Control in Asparagus - HTRC - 2016

Pest Code		COLQ		HOWE	WICA	WIRA	ASPA				
Crop Code		06Jun16		06Jun16	06Jun16	06Jun16	TOTAL	TOTAL			
Rating Date		RATING		RATING	RATING	RATING	#/PLOT	KG/PLOT			
Rating Type		1-10		1-10	1-10	1-10					
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage						
1	Sinbar	80	WDG	1 lb ai/a	PRE	10.0	10.0	10.0	10.0	384.0	9.21
	Spartan	4	F	0.375 lb ai/a	PRE						
2	Karmex	80	DF	3 lb ai/a	PRE	10.0	10.0	8.0	10.0	428.3	9.60
	Prowl H20	3.8	CS	3 lb ai/a	PRE						
3	Command	3	ME	2 lb ai/a	PRE	10.0	9.0	7.3	10.0	359.0	8.68
	Trellis	75	DF	2 lb ai/a	PRE						
4	Solicam	80	DF	4 lb ai/a	PRE	10.0	10.0	9.0	10.0	356.3	8.09
	Tricor	75	DF	1 lb ai/a	PRE						
5	Karmex	80	DF	3.2 lb ai/a	PRE	9.3	10.0	4.7	7.0	431.7	9.40
	Trellis SC	4.17	SC	2 lb ai/a	PRE						
6	Callisto	4	SC	0.241 lb ai/a	PRE	10.0	10.0	8.0	10.0	432.0	9.58
	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE						
7	Karmex	80	DF	3 lb ai/a	PRE	10.0	10.0	8.3	10.0	401.7	9.66
	Sandea	75	WG	0.023 lb ai/a	PO1						
	Spur	3	L	0.188 lb ai/a	PO1						
	Poast	1.53	EC	0.19 lb ai/a	PO1						
8	Karmex	80	DF	3 lb ai/a	PRE	10.0	10.0	7.7	10.0	481.7	11.00
	Sandea	75	WG	0.023 lb ai/a	PO1						
	Clarity	4	L	0.25 lb ai/a	PO1						
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
9	Authority MTZ	45	DF	0.255 lb ai/a	PRE	10.0	10.0	6.3	9.7	397.3	9.27
10	Karmex	80	DF	3 lb ai/a	PRE	10.0	10.0	6.7	10.0	430.3	10.25
	A 16003E	1.67	SL	0.045 lb ai/a	PRE						
11	Untreated					7.0	4.0	1.0	3.3	386.3	8.93
LSD P=.05						2.76	2.77	3.77	2.97	180.51	3.942
Standard Deviation						1.62	1.63	2.21	1.74	105.98	2.314
CV						16.78	17.37	31.59	19.18	25.97	24.55

Powell Amaranth Control in Asparagus - Malburg - 2016

Project Code: 120-16-4

Location: Hart, MI

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Asparagus Variety: Millennium
Planting Method: Crowns Planting Date: 2011 Harvest Date: see notes
Spacing: 1 ft Row Spacing: 4.5 ft
Tillage Type: Conventional Study Design: RCB Replications: 3
Plot Size: 5.5 ft wide x 25 ft long

Soil Type: Spinks loamy fine sand OM: 1.4% pH: 5.3
Sand: 79% Silt: 13% Clay: 8% CEC: 3.8

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/3/16	12:15 pm	61/49	F	Damp	6-7 SW	35	0% Cloudy	N
PO1	6/2/16	10:15 am	71/61	F	Dry	4-6 SW	46	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/3	ASPARAGUS	2-5" spears	Veg	Good
5/3	DAND = dandelion	4-6"	Veg	Mod.
5/3	HAVE = hairy vetch	3-5"	Veg	Few
5/3	HOWE = horseweed	1-2"	Veg	Many
5/3	LACG = large crabgrass	4-6"	Veg	Many
5/3	MECW = mouseear chickweed	1-3"	Veg	Many
5/3	SFGE = smallflower geranium	1-3"	Veg	Many
5/3	WHCA = white campion	2-4"	Veg	Mod.
6/2	ASPARAGUS	6-12"	Spear	Good
6/2	HAVE = hairy vetch	3-6"	Foliar	Few
6/2	POAM = Powell amaranth	1-3"	4-6 leaves	Few
6/2	SFGE = smallflower geranium	2-10"	Foliar	Many
6/2	WHCA = white campion	4-6"	Foliar	Few
	FIPA = field pansy			

Notes and Comments

1. Spray 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. 23 harvests from 5/7/16 to 6/16/16.
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Powell Amaranth Control in Asparagus - Malburg - 2016

Powell Amaranth Control in Asparagus - Hart - 2016

Trial ID:	120-16-4	Location:	Hart, MI
Protocol ID:	120-16-4	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	ASPA	HAVE	POAM	SFGE	WHCA	ASPA	
						02Jun16	02Jun16	02Jun16	02Jun16	16Jun16	
					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	Growth Unit	ASPA	HAVE	POAM	SFGE	WHCA	ASPA
1	Lorox	50 DF		1 lb ai/a	PRE, PO1	1.0	10.0	7.0	1.3	6.3	1.3
2	Sinbar	80 WDG		0.8 lb ai/a	PRE	1.0	9.0	9.0	7.0	6.3	1.0
3	Tricor	75 DF		1 lb ai/a	PRE	1.3	10.0	10.0	7.7	5.7	1.7
4	Authority MTZ	45 DF		0.281 lb ai/a	PRE	1.0	6.3	10.0	3.3	7.0	1.0
5	Karmex	80 DF		2 lb ai/a	PRE	1.7	10.0	10.0	1.0	4.0	1.0
	Sandea	75 WG		0.023 lb ai/a	PO1						
6	Dual Magnum	7.62 EC		1.9 lb ai/a	PRE	1.0	6.7	10.0	2.3	3.7	1.3
7	Prowl H20	3.8 CS		3.8 lb ai/a	PRE	1.3	8.7	7.0	4.7	9.3	1.0
8	Karmex	80 DF		2 lb ai/a	PRE	1.7	10.0	4.0	1.3	7.7	1.3
	Quinstar	3.8 L		0.25 lb ai/a	PO1						
9	Chateau SW	51 WDG		0.192 lb ai/a	PRE	1.0	10.0	10.0	3.0	6.3	1.0
10	Callisto	4 SC		0.241 lb ai/a	PRE	1.3	10.0	10.0	2.7	7.0	1.3
LSD P=.05						1.03	3.28	5.17	2.47	7.19	0.72
Standard Deviation						0.60	1.91	3.02	1.44	4.19	0.42
CV						48.6	21.08	34.67	41.98	66.2	34.77

Powell Amaranth Control in Asparagus - Malburg - 2016

Pest Code	FIPA	HAVE	POAM	SFGE	WHCA	ASPA						
Crop Code	16Jun16	16Jun16	16Jun16	16Jun16	16Jun16	13Sep16						
Rating Date	RATING	RATING	RATING	RATING	RATING	RATING						
Rating Type	1-10	1-10	1-10	1-10	1-10	1-10						
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage						
1	Lorox	50	DF	1 lb ai/a	PRE, PO1		10.0	10.0	8.7	4.0	9.3	1.0
2	Sinbar	80	WDG	0.8 lb ai/a	PRE		5.3	9.0	5.0	5.3	4.7	1.0
3	Tricor	75	DF	1 lb ai/a	PRE		3.7	10.0	9.3	7.7	6.7	1.0
4	Authority MTZ	45	DF	0.281 lb ai/a	PRE		1.7	7.0	6.3	1.3	5.7	1.0
5	Karmex	80	DF	2 lb ai/a	PRE		10.0	10.0	9.7	1.7	4.7	2.0
	Sandea	75	WG	0.023 lb ai/a	PO1							
6	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE		1.7	1.7	1.3	2.3	6.0	2.0
7	Prowl H20	3.8	CS	3.8 lb ai/a	PRE		1.7	7.0	4.7	3.7	9.0	1.0
8	Karmex	80	DF	2 lb ai/a	PRE		3.7	10.0	4.0	1.3	5.0	1.0
	Quinstar	3.8	L	0.25 lb ai/a	PO1							
9	Chateau SW	51	WDG	0.192 lb ai/a	PRE		3.3	10.0	6.0	1.7	4.3	1.3
10	Callisto	4	SC	0.241 lb ai/a	PRE		7.7	10.0	10.0	2.7	7.3	1.0
LSD P=.05							4.25	3.81	5.49	3.15	6.10	0.65
Standard Deviation							2.48	2.22	3.20	1.84	3.56	0.38
CV							50.9	26.2	49.21	58.01	56.74	30.82

Pest Code	POAM	ASPA						
Crop Code	13Sep16							
Rating Date	RATING	TOTAL						
Rating Type	1-10	KG/PLOT						
Rating Unit								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage		
1	Lorox	50	DF	1 lb ai/a	PRE, PO1		3.7	4.65
2	Sinbar	80	WDG	0.8 lb ai/a	PRE		7.7	4.51
3	Tricor	75	DF	1 lb ai/a	PRE		8.7	4.99
4	Authority MTZ	45	DF	0.281 lb ai/a	PRE		6.7	4.91
5	Karmex	80	DF	2 lb ai/a	PRE		7.7	4.48
	Sandea	75	WG	0.023 lb ai/a	PO1			
6	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE		3.3	4.65
7	Prowl H20	3.8	CS	3.8 lb ai/a	PRE		3.0	5.03
8	Karmex	80	DF	2 lb ai/a	PRE		6.0	5.49
	Quinstar	3.8	L	0.25 lb ai/a	PO1			
9	Chateau SW	51	WDG	0.192 lb ai/a	PRE		6.0	4.61
10	Callisto	4	SC	0.241 lb ai/a	PRE		9.0	4.97
LSD P=.05							4.36	0.940
Standard Deviation							2.54	0.548
CV							41.19	11.35

Powell Amaranth Control in Asparagus - Malburg - 2016

Powell Amaranth Control in Asparagus - Hart - 2016

Trial ID: 120-16-4	Location: Hart, MI
Protocol ID: 120-16-4	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	HAVE					ASPA		
					ASPA	POAM	SFGE	WHCA	ASPA			
					02Jun16	02Jun16	02Jun16	02Jun16	02Jun16	16Jun16		
					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	Lorox	50	DF	1	lb ai/a	PRE, PO1	1.0	10.0	7.0	1.3	6.3	1.3
2	Sinbar	80	WDG	0.8	lb ai/a	PRE	1.0	9.0	9.0	7.0	6.3	1.0
3	Tricor	75	DF	1	lb ai/a	PRE	1.3	10.0	10.0	7.7	5.7	1.7
4	Authority MTZ	45	DF	0.281	lb ai/a	PRE	1.0	6.3	10.0	3.3	7.0	1.0
5	Karmex	80	DF	2	lb ai/a	PRE	1.7	10.0	10.0	1.0	4.0	1.0
	Sandea	75	WG	0.023	lb ai/a	PO1						
6	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	1.0	6.7	10.0	2.3	3.7	1.3
7	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	1.3	8.7	7.0	4.7	9.3	1.0
8	Karmex	80	DF	2	lb ai/a	PRE	1.7	10.0	4.0	1.3	7.7	1.3
	Quinstar	3.8	L	0.25	lb ai/a	PO1						
9	Chateau SW	51	WDG	0.192	lb ai/a	PRE	1.0	10.0	10.0	3.0	6.3	1.0
10	Callisto	4	SC	0.241	lb ai/a	PRE	1.3	10.0	10.0	2.7	7.0	1.3
LSD P=.05							1.03	3.28	5.17	2.47	7.19	0.72
Standard Deviation							0.60	1.91	3.02	1.44	4.19	0.42
CV							48.6	21.08	34.67	41.98	66.2	34.77

Powell Amaranth Control in Asparagus - Malburg - 2016

Pest Code	FIPA	HAVE	POAM	SFGE	WHCA	ASPA						
Crop Code	16Jun16	16Jun16	16Jun16	16Jun16	16Jun16	13Sep16						
Rating Date	RATING	RATING	RATING	RATING	RATING	RATING						
Rating 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	Rate Unit	Growth Stage						
1	Lorox	50	DF	1	lb ai/a	PRE, PO1	10.0	10.0	8.7	4.0	9.3	1.0
2	Sinbar	80	WDG	0.8	lb ai/a	PRE	5.3	9.0	5.0	5.3	4.7	1.0
3	Tricor	75	DF	1	lb ai/a	PRE	3.7	10.0	9.3	7.7	6.7	1.0
4	Authority MTZ	45	DF	0.281	lb ai/a	PRE	1.7	7.0	6.3	1.3	5.7	1.0
5	Karmex	80	DF	2	lb ai/a	PRE	10.0	10.0	9.7	1.7	4.7	2.0
	Sandea	75	WG	0.023	lb ai/a	PO1						
6	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	1.7	1.7	1.3	2.3	6.0	2.0
7	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	1.7	7.0	4.7	3.7	9.0	1.0
8	Karmex	80	DF	2	lb ai/a	PRE	3.7	10.0	4.0	1.3	5.0	1.0
	Quinstar	3.8	L	0.25	lb ai/a	PO1						
9	Chateau SW	51	WDG	0.192	lb ai/a	PRE	3.3	10.0	6.0	1.7	4.3	1.3
10	Callisto	4	SC	0.241	lb ai/a	PRE	7.7	10.0	10.0	2.7	7.3	1.0
LSD P=.05							4.25	3.81	5.49	3.15	6.10	0.65
Standard Deviation							2.48	2.22	3.20	1.84	3.56	0.38
CV							50.9	26.2	49.21	58.01	56.74	30.82

Pest Code	POAM	ASPA						
Crop Code	13Sep16							
Rating Date	RATING	TOTAL						
Rating Type	1-10	KG/PLOT						
Rating Unit								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Growth Stage		
1	Lorox	50	DF	1	lb ai/a	PRE, PO1	3.7	4.65
2	Sinbar	80	WDG	0.8	lb ai/a	PRE	7.7	4.51
3	Tricor	75	DF	1	lb ai/a	PRE	8.7	4.99
4	Authority MTZ	45	DF	0.281	lb ai/a	PRE	6.7	4.91
5	Karmex	80	DF	2	lb ai/a	PRE	7.7	4.48
	Sandea	75	WG	0.023	lb ai/a	PO1		
6	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	3.3	4.65
7	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	3.0	5.03
8	Karmex	80	DF	2	lb ai/a	PRE	6.0	5.49
	Quinstar	3.8	L	0.25	lb ai/a	PO1		
9	Chateau SW	51	WDG	0.192	lb ai/a	PRE	6.0	4.61
10	Callisto	4	SC	0.241	lb ai/a	PRE	9.0	4.97
LSD P=.05							4.36	0.940
Standard Deviation							2.54	0.548
CV							41.19	11.35

Weed Control in Snapbean - HTRC - 2016

Project Code: 123-16-1

Location: East Lansing, MI
Block 85

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Snapbean Variety: Sparticus 2009

Planting Method: Transplant Planting Date: 6/14/2016 Harvest Date: 8/10/2016

Spacing: 3 in Row Spacing: 14 in; 3 rows/plot

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: 1.6% pH: 5.8
Sand: 58% Silt: 28% Clay: 15% CEC: 7

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	6/16/16	11:00 am	68/70	F	Moist	7-10 SW	90	100% Cloudy	Y
PO1	7/8/16	2:00 pm	87/81	F	Moist	3-6 SW	42	75% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/16	SNAPBEAN		Preemergence	
6/16	No weeds			
7/8	SNAPBEAN	3-5"	Veg	Good
7/8	COLQ = common lambsquarters	1-3"	Veg	Many
7/8	COPU = common purslane	2-6"	Veg	Few
7/8	CORW = common ragweed	3-6"	Veg	Few
7/8	LACG = large crabgrass	2-3"	Veg	Mod
7/8	RRPW = redroot pigweed	3-6"	Veg	Few
7/8	YEFT = yellow foxtail	2-4"	Veg	Many
	WIRA = wild radish			

Notes and Comments

1. Spray 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. Trial started 6/14 due to poor emergence in first planting.
 4. PO1 treatment applied after 2 trifoliate leaves present.
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Weed Control in Snapbean - HTRC - 2016

Weed Control in Snapbean - HTRC - 2016			
Trial ID:	123-16-1	Location:	East Lansing, MI
Protocol ID:	123-16-1	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	YEFT		COLQ		CORW		YEFT		COLQ	
					SNBE	SNBE	SNBE	SNBE	SNBE	SNBE	SNBE	SNBE		
					05Jul16	05Jul16	05Jul16	05Jul16	14Jul16	14Jul16	14Jul16	14Jul16	14Jul16	14Jul16
					RATING	RATING	RATING	RATING	RATING	RATING	RATING	RATING	RATING	RATING
					1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Unit	Growth Stage								
1	Dual Magnum	7.62	EC	1.6 lb ai/a	ai/a	PRE	1.7	10.0	10.0	10.0	1.0	10.0	10.0	
2	Prowl H2O	3.8	CS	1.3 lb ai/a	ai/a	PRE	1.0	9.3	10.0	7.7	1.7	8.7	9.3	
3	Command	3	ME	0.25 lb ai/a	ai/a	PRE	2.3	9.3	10.0	9.3	2.0	5.7	6.7	
4	Reflex	2	SL	0.25 lb ai/a	ai/a	PRE	1.7	9.0	10.0	10.0	2.0	6.7	8.0	
5	Pursuit	2	EC	0.031 lb ai/a	ai/a	PRE	2.0	2.7	9.3	10.0	1.7	1.0	9.0	
6	Prowl H2O	3.8	CS	0.95 lb ai/a	ai/a	PRE	2.7	9.3	10.0	9.0	2.0	7.7	10.0	
	Reflex	2	SL	0.25 lb ai/a	ai/a	PO1								
7	Prowl H2O	3.8	CS	0.95 lb ai/a	ai/a	PRE	2.3	8.7	10.0	9.7	2.7	9.3	10.0	
	Sandea	75	WG	0.023 lb ai/a	ai/a	PO1								
	Select Max	0.97	EC	0.12 lb ai/a	ai/a	PO1								
	NIS	100	SL	0.25 % v/v	v/v	PO1								
8	Dual Magnum	7.62	EC	1.6 lb ai/a	ai/a	PRE	2.3	10.0	10.0	10.0	1.3	10.0	10.0	
	Basagran	4	L	1 lb ai/a	ai/a	PO1								
	Raptor 1AS	1	AS	0.031 lb ai/a	ai/a	PO1								
	NIS	100	SL	0.25 % v/v	v/v	PO1								
9	Dual Magnum	7.62	EC	1.9 lb ai/a	ai/a	PRE	2.0	10.0	10.0	10.0	2.0	10.0	10.0	
	Basagran	4	L	1 lb ai/a	ai/a	PO1								
	Assure II	0.88	EC	0.08 lb ai/a	ai/a	PO1								
	COC	100	SL	1 % v/v	v/v	PO1								
10	Untreated						1.0	1.0	1.0	1.0	1.0	1.0	1.0	
LSD P=.05							1.97	1.31	0.63	1.18	1.38	1.96	1.37	
Standard Deviation							1.15	0.76	0.37	0.69	0.80	1.14	0.80	
CV							60.52	9.61	4.04	7.94	46.31	16.33	9.53	

Weed Control in Snapbean - HTRC - 2016

Pest Code				CORW	RRPW	WIRA			
Crop Code							SNBE	SNBE	
Rating Date				14Jul16	14Jul16	14Jul16	10Aug16	10Aug16	
Rating Type				RATING	RATING	RATING	HVRT-PLANT	HVRT-BEAN	
Rating Unit				1-10	1-10	1-10	KG/PLOT	KG/PLOT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
1	Dual Magnum	7.62	EC	1.6	lb ai/a	PRE	7.7	9.3	
2	Prowl H2O	3.8	CS	1.3	lb ai/a	PRE	3.7	9.0	
3	Command	3	ME	0.25	lb ai/a	PRE	6.3	4.3	
4	Reflex	2	SL	0.25	lb ai/a	PRE	10.0	10.0	
5	Pursuit	2	EC	0.031	lb ai/a	PRE	9.3	9.3	
6	Prowl H2O	3.8	CS	0.95	lb ai/a	PRE	10.0	10.0	
	Reflex	2	SL	0.25	lb ai/a	PO1			
7	Prowl H2O	3.8	CS	0.95	lb ai/a	PRE	10.0	10.0	
	Sandea	75	WG	0.023	lb ai/a	PO1			
	Select Max	0.97	EC	0.12	lb ai/a	PO1			
	NIS	100	SL	0.25	% v/v	PO1			
8	Dual Magnum	7.62	EC	1.6	lb ai/a	PRE	10.0	10.0	
	Basagran	4	L	1	lb ai/a	PO1			
	Raptor 1AS	1	AS	0.031	lb ai/a	PO1			
	NIS	100	SL	0.25	% v/v	PO1			
9	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	10.0	10.0	
	Basagran	4	L	1	lb ai/a	PO1			
	Assure II	0.88	EC	0.08	lb ai/a	PO1			
	COC	100	SL	1	% v/v	PO1			
10	Untreated						1.0	1.0	
LSD P=.05							3.16	2.28	1.07
Standard Deviation							1.84	1.33	0.62
CV							23.65	16.01	6.98
							12.98	9.16	
							4.373	2.662	
							2.549	1.552	
							18.95	15.87	

Weed Control in Red Beet, Sugar Beet, and Swiss Chard - HTRC - 2016

Project Code: 109-16-1

Location: East Lansing, MI
Block 109/110

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Red Beet, Sugar Beet, Variety: Ruby Queen), HM173RR, Silverado (resp.)
Swiss Chard

Planting Method: Seeded Planting Date: 5/9/2016 Harvest Date: See data
Spacing: 3 in Row Spacing: 14 in; 2 rows Red Beet; 2 rows Sugar Beet; 1 row Swiss Chard

Tillage Type: Conventional Study Design: RCB Replications: 3
Plot Size: 5.3 ft wide x 35 ft long

Soil Type: Marlette fine sandy loam OM: 1.5% pH: 5.1
Sand: 62% Silt: 25% Clay: 13% CEC: 4.8

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PPI	5/6/16	3:15 pm	75/60	F	Dry	2-4 SW	22	0% Cloudy	N
PRE	5/9/16	1:00 pm	64/56	F	Dry	2-4 SE	31	80% Cloudy	N
PO1	6/9/16	3:30 pm	70/69	F	Dry	2-3 SW	42	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/6	No Crop			
5/6	No Weeds			
5/9	RED BEET		Preemergence	
5/9	SUGAR BEET		Preemergence	
5/9	SWISS CHARD		Preemergence	
5/9	No weeds			
6/9	RED BEET	2-4"	Veg	Good
6/9	SUGAR BEET	4-6"	Veg	Good
6/9	SWISS CHARD	2-4"	Veg	Good
6/9	COLQ = common lambsquarters	4-6"	Veg	Many
6/9	LACG = large crabgrass	2-3"	Veg	Few
6/9	RRPW = redroot pigweed	3-5"	Veg	Mod.
6/9	WIRA = wild radish	8-12"	Flower	Many
6/9	YEFT = yellow foxtail	3-5"	Veg	Mod.
	CORW = common ragweed			

Notes and Comments

1. Spray 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. Incorporate Ro-Neet into the soil pre-seeding (trt. 10)

Weed Control in Red Beet, Sugar Beet, and Swiss Chard - HTRC - 2016

Weed Control in Red Beet, Sugar Beet, and Swiss Chard - HTRC - 2016

Trial ID: 109-16-1	Location: East Lansing, MI
Protocol ID: 109-16-1	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	REDBEET			SUGBEET			SWCHARD		
					06Jun16	06Jun16	06Jun16	06Jun16	06Jun16	06Jun16	06Jun16	06Jun16	06Jun16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	RATING	RATING	RATING	RATING	RATING	RATING	
							1-10	1-10	1-10	1-10	1-10	1-10	
1	Dual Magnum	7.62	EC	1.3 lb ai/a	PRE		4.0	1.7	4.3	10.0	6.7	10.0	
2	Pyramin	68	DF	2 lb ai/a	PRE		2.0	1.0	1.7	9.3	9.0	10.0	
3	Outlook	6	EC	0.5 lb ai/a	PRE		4.7	2.3	5.0	10.0	5.7	10.0	
4	Nortron	4	SC	2 lb ai/a	PRE		2.0	1.0	1.7	4.7	4.0	9.0	
5	Dual Magnum	7.62	EC	1 lb ai/a	PRE		3.3	2.0	3.0	10.0	5.7	7.7	
	Betamix	1.3	EC	0.244 lb ai/a	PO1								
	Stinger	3	L	0.188 lb ai/a	PO1								
	Upbeet	50	WDG	0.0156 lb ai/a	PO1								
	Select Max	0.97	EC	0.12 lb ai/a	PO1								
6	Dual Magnum	7.62	EC	1 lb ai/a	PRE		3.3	2.0	3.7	10.0	9.3	10.0	
	Nortron	4	SC	1 lb ai/a	PRE								
	Betamix	1.3	EC	0.488 lb ai/a	PO1								
	Stinger	3	L	0.188 lb ai/a	PO1								
	Upbeet	50	WDG	0.0156 lb ai/a	PO1								
	Select Max	0.97	EC	0.12 lb ai/a	PO1								
7	Untreated				PRE		1.0	1.0	1.0	4.0	1.0	9.0	
	Nortron	4	SC	1 lb ai/a	PO1								
	Betamix	1.3	EC	0.488 lb ai/a	PO1								
	Stinger	3	L	0.188 lb ai/a	PO1								
	Upbeet	50	WDG	0.0156 lb ai/a	PO1								
	Select Max	0.97	EC	0.12 lb ai/a	PO1								
8	Nortron	4	SC	1 lb ai/a	PRE		2.3	1.7	2.0	10.0	3.3	9.0	
	Spin-Aid	1.3	L	0.488 lb ai/a	PO1								
	Nortron	4	SC	0.33 lb ai/a	PO1								
	Upbeet	50	WDG	0.0156 lb ai/a	PO1								
	Stinger	3	L	0.188 lb ai/a	PO1								
	Select Max	0.97	EC	0.12 lb ai/a	PO1								
9	Dual Magnum	7.62	EC	1 lb ai/a	PRE		4.7	2.0	3.3	10.0	9.0	10.0	
	Nortron	4	SC	1.9 lb ai/a	PRE								
	Betamix	1.3	EC	0.488 lb ai/a	PO1								
	Nortron	4	SC	0.33 lb ai/a	PO1								
	Upbeet	50	WDG	0.0156 lb ai/a	PO1								
	Stinger	3	L	0.188 lb ai/a	PO1								
	Select Max	0.97	EC	0.12 lb ai/a	PO1								
10	Ro-Neet	6	EC	1.25 lb ai/a	PPI		4.0	3.0	3.7	10.0	9.7	10.0	
	Nortron	4	SC	1.9 lb ai/a	PRE								
	LSD P=.05						1.72	0.95	1.45	4.02	4.48	2.34	
	Standard Deviation						1.00	0.55	0.85	2.34	2.61	1.37	
	CV						31.97	31.38	28.9	26.61	41.2	14.43	

Weed Control in Red Beet, Sugar Beet, and Swiss Chard - HTRC - 2016

Pest Code					RRPW	WIRA				WIRA	
Crop Code							REDBEET	SWCHARD	SUGBEET		
Rating Date					06Jun16	06Jun16	14Jun16	14Jun16	14Jun16	14Jun16	
Rating 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	Growth Stage						
1	Dual Magnum	7.62	EC	1.3 lb ai/a	PRE	10.0	5.3	3.0	3.7	2.0	10.0
2	Pyramin	68	DF	2 lb ai/a	PRE	10.0	8.0	1.7	1.0	1.0	9.7
3	Outlook	6	EC	0.5 lb ai/a	PRE	10.0	7.3	3.7	4.3	2.7	10.0
4	Nortron	4	SC	2 lb ai/a	PRE	4.0	4.0	1.7	2.3	1.3	10.0
5	Dual Magnum	7.62	EC	1 lb ai/a	PRE	10.0	6.3	2.3	3.3	2.7	6.7
	Betamix	1.3	EC	0.244 lb ai/a	PO1						
	Stinger	3	L	0.188 lb ai/a	PO1						
	Upbeet	50	WDG	0.0156 lb ai/a	PO1						
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
6	Dual Magnum	7.62	EC	1 lb ai/a	PRE	10.0	6.7	4.0	4.0	2.3	7.3
	Nortron	4	SC	1 lb ai/a	PRE						
	Betamix	1.3	EC	0.488 lb ai/a	PO1						
	Stinger	3	L	0.188 lb ai/a	PO1						
	Upbeet	50	WDG	0.0156 lb ai/a	PO1						
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
7	Untreated				PRE	1.7	3.0	2.3	2.7	2.0	5.3
	Nortron	4	SC	1 lb ai/a	PO1						
	Betamix	1.3	EC	0.488 lb ai/a	PO1						
	Stinger	3	L	0.188 lb ai/a	PO1						
	Upbeet	50	WDG	0.0156 lb ai/a	PO1						
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
8	Nortron	4	SC	1 lb ai/a	PRE	10.0	6.3	2.7	2.3	2.3	6.7
	Spin-Aid	1.3	L	0.488 lb ai/a	PO1						
	Nortron	4	SC	0.33 lb ai/a	PO1						
	Upbeet	50	WDG	0.0156 lb ai/a	PO1						
	Stinger	3	L	0.188 lb ai/a	PO1						
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
9	Dual Magnum	7.62	EC	1 lb ai/a	PRE	10.0	7.7	5.3	4.3	2.7	7.7
	Nortron	4	SC	1.9 lb ai/a	PRE						
	Betamix	1.3	EC	0.488 lb ai/a	PO1						
	Nortron	4	SC	0.33 lb ai/a	PO1						
	Upbeet	50	WDG	0.0156 lb ai/a	PO1						
	Stinger	3	L	0.188 lb ai/a	PO1						
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
10	Ro-Neet	6	EC	1.25 lb ai/a	PPI	10.0	9.3	3.7	3.3	1.3	10.0
	Nortron	4	SC	1.9 lb ai/a	PRE						
LSD P=.05						2.82	3.15	1.28	1.62	0.83	1.05
Standard Deviation						1.64	1.84	0.75	0.94	0.48	0.61
CV						19.18	28.73	24.65	30.15	23.76	7.34

Weed Control in Red Beet, Sugar Beet, and Swiss Chard - HTRC - 2016

Pest Code											
Crop Code											
Rating Date		REDBEET		SWCHARD		SUBBEET		SWCHARD		REDBEET	
Rating Type		24Jun16		24Jun16		24Jun16		01Aug16		04Aug16	
Rating Unit		RATING		RATING		RATING		HARVEST		HARVEST	
		1-10		1-10		1-10		KG/PLOT		#/PLOT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	1.7	2.0	1.3	17.96	114.0
2	Pyramin	68	DF	2	lb ai/a	PRE	1.7	1.0	1.3	21.33	142.7
3	Outlook	6	EC	0.5	lb ai/a	PRE	2.7	3.7	1.0	13.22	98.3
4	Nortron	4	SC	2	lb ai/a	PRE	2.0	2.7	1.3	14.78	130.7
5	Dual Magnum	7.62	EC	1	lb ai/a	PRE	2.7	2.7	2.0	12.46	110.0
	Betamix	1.3	EC	0.244	lb ai/a	PO1					
	Stinger	3	L	0.188	lb ai/a	PO1					
	Upbeet	50	WDG	0.0156	lb ai/a	PO1					
	Select Max	0.97	EC	0.12	lb ai/a	PO1					
6	Dual Magnum	7.62	EC	1	lb ai/a	PRE	2.7	2.7	1.3	13.70	109.3
	Nortron	4	SC	1	lb ai/a	PRE					
	Betamix	1.3	EC	0.488	lb ai/a	PO1					
	Stinger	3	L	0.188	lb ai/a	PO1					
	Upbeet	50	WDG	0.0156	lb ai/a	PO1					
	Select Max	0.97	EC	0.12	lb ai/a	PO1					
7	Untreated					PRE	4.0	4.0	3.0	14.40	146.3
	Nortron	4	SC	1	lb ai/a	PO1					
	Betamix	1.3	EC	0.488	lb ai/a	PO1					
	Stinger	3	L	0.188	lb ai/a	PO1					
	Upbeet	50	WDG	0.0156	lb ai/a	PO1					
	Select Max	0.97	EC	0.12	lb ai/a	PO1					
8	Nortron	4	SC	1	lb ai/a	PRE	2.0	2.0	1.3	17.68	138.3
	Spin-Aid	1.3	L	0.488	lb ai/a	PO1					
	Nortron	4	SC	0.33	lb ai/a	PO1					
	Upbeet	50	WDG	0.0156	lb ai/a	PO1					
	Stinger	3	L	0.188	lb ai/a	PO1					
	Select Max	0.97	EC	0.12	lb ai/a	PO1					
9	Dual Magnum	7.62	EC	1	lb ai/a	PRE	3.7	3.0	1.7	19.94	99.7
	Nortron	4	SC	1.9	lb ai/a	PRE					
	Betamix	1.3	EC	0.488	lb ai/a	PO1					
	Nortron	4	SC	0.33	lb ai/a	PO1					
	Upbeet	50	WDG	0.0156	lb ai/a	PO1					
	Stinger	3	L	0.188	lb ai/a	PO1					
	Select Max	0.97	EC	0.12	lb ai/a	PO1					
10	Ro-Neet	6	EC	1.25	lb ai/a	PPI	2.3	1.0	1.0	21.47	120.3
	Nortron	4	SC	1.9	lb ai/a	PRE					
LSD P=.05							1.10	1.44	0.95	6.173	23.99
Standard Deviation							0.64	0.84	0.55	3.598	13.98
CV							25.31	33.92	36.16	21.56	11.56

Weed Control in Red Beet, Sugar Beet, and Swiss Chard - HTRC - 2016

Pest Code					REDBEET	REDBEET	SUBBEET	SUBBEET		
Crop Code					04Aug16	04Aug16	17Oct16	17Oct16		
Rating Date					HVRT-LEAF	HVRT-ROOT	HARVEST	HARVEST		
Rating Type					KG/PLOT	KG/PLOT	#/PLOT	KG/PLOT		
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage				
1	Dual Magnum	7.62	EC	1.3 lb ai/a	PRE		13.28	24.39	122.0	115.78
2	Pyramin	68	DF	2 lb ai/a	PRE		15.25	27.82	123.0	110.83
3	Outlook	6	EC	0.5 lb ai/a	PRE		10.51	19.44	111.7	105.63
4	Nortron	4	SC	2 lb ai/a	PRE		11.68	20.89	131.3	93.53
5	Dual Magnum	7.62	EC	1 lb ai/a	PRE		10.41	21.86	118.3	111.59
	Betamix	1.3	EC	0.244 lb ai/a	PO1					
	Stinger	3	L	0.188 lb ai/a	PO1					
	Upbeet	50	WDG	0.0156 lb ai/a	PO1					
	Select Max	0.97	EC	0.12 lb ai/a	PO1					
6	Dual Magnum	7.62	EC	1 lb ai/a	PRE		10.09	22.18	121.7	117.89
	Nortron	4	SC	1 lb ai/a	PRE					
	Betamix	1.3	EC	0.488 lb ai/a	PO1					
	Stinger	3	L	0.188 lb ai/a	PO1					
	Upbeet	50	WDG	0.0156 lb ai/a	PO1					
	Select Max	0.97	EC	0.12 lb ai/a	PO1					
7	Untreated				PRE		12.08	20.09	118.7	85.27
	Nortron	4	SC	1 lb ai/a	PO1					
	Betamix	1.3	EC	0.488 lb ai/a	PO1					
	Stinger	3	L	0.188 lb ai/a	PO1					
	Upbeet	50	WDG	0.0156 lb ai/a	PO1					
	Select Max	0.97	EC	0.12 lb ai/a	PO1					
8	Nortron	4	SC	1 lb ai/a	PRE		10.95	22.76	134.3	118.39
	Spin-Aid	1.3	L	0.488 lb ai/a	PO1					
	Nortron	4	SC	0.33 lb ai/a	PO1					
	Upbeet	50	WDG	0.0156 lb ai/a	PO1					
	Stinger	3	L	0.188 lb ai/a	PO1					
	Select Max	0.97	EC	0.12 lb ai/a	PO1					
9	Dual Magnum	7.62	EC	1 lb ai/a	PRE		9.98	20.51	115.7	118.86
	Nortron	4	SC	1.9 lb ai/a	PRE					
	Betamix	1.3	EC	0.488 lb ai/a	PO1					
	Nortron	4	SC	0.33 lb ai/a	PO1					
	Upbeet	50	WDG	0.0156 lb ai/a	PO1					
	Stinger	3	L	0.188 lb ai/a	PO1					
	Select Max	0.97	EC	0.12 lb ai/a	PO1					
10	Ro-Neet	6	EC	1.25 lb ai/a	PPI		12.40	24.16	144.0	109.75
	Nortron	4	SC	1.9 lb ai/a	PRE					
LSD P=.05							2.898	4.760	19.65	17.309
Standard Deviation							1.689	2.774	11.45	10.090
CV							14.48	12.38	9.23	9.28

Weed Control in Brassica Forages - MSU Sheep Farm - 2016

Project Code:114-16-2

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Radish Variety: Dwarf Essex rape; Raphanus sativus x R. marimus x Brassica oleracea

Planting Method: Seeded Planting Date: 7/13/16

Spacing: Solid stand Row Spacing: Solid stand

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: %

pH:

Sand: % Silt: % Clay: %

CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	7/27/16	10:30 am	82/76	F	Dry	1-3 SW	57	50% Cloudy	Y

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
7/27	RADISH	2-3"	2-3 LS	Many
7/27	JIWE = jimsonweed	2-3"	2 LS	Many
7/27	LACG = large crabgrass	2-3"	2-3 LS	Many
7/27	RRPW = redroot pigweed	2-4"	4-6 LS	Many

Notes and Comments

1. Spray 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.

Weed Control in Brassica Forages - MSU Sheep Farm - 2016

Post-emergence Weed Control in Brassica Forages - 2016

Trial ID: 114-16-2	Location: East Lansing, MI
Protocol ID: 114-16-2	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code			LACG		JIWE		RRPW		LACG				
	Crop Code	BRASSICA	04Aug16	04Aug16	04Aug16	04Aug16	04Aug16	04Aug16	08Aug16	08Aug16			
Rating Date			RATING	RATING	RATING	RATING	RATING	RATING	RATING	RATING			
Rating Type			1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10			
Rating Unit													
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage							
1	Goal 2XL	2 EC		0.125 lb ai/a	PO1		1.7	1.7	10.0	10.0	1.3	1.0	
2	Goal 2XL	2 EC		0.25 lb ai/a	PO1		2.7	3.3	10.0	10.0	3.3	4.0	
3	GoalTender	4 SC		0.25 lb ai/a	PO1		4.3	10.0	10.0	10.0	4.3	10.0	
	Stinger	3 L		0.125 lb ai/a	PO1								
	Select Max	0.97 EC		0.12 lb ai/a	PO1								
	COC	100 SL		1 % v/v	PO1								
4	Cadet	0.91 EC		0.006 lb ai/a	PO1		3.3	4.0	10.0	9.7	4.0	1.0	
	COC	100 SL		1 % v/v	PO1								
5	Untreated						2.0	1.0	1.0	1.3	4.7	6.7	
LSD P=.05							2.94	4.90	0.00	0.64	1.29	2.99	
Standard Deviation							1.56	2.60	0.00	0.34	0.68	1.59	
CV							55.71	65.03	0.0	4.17	19.33	34.99	

Pest Code			JIWE		RRPW		LACG		JIWE		RRPW		
	Crop Code	BRASSICA	08Aug16	08Aug16	16Aug16	16Aug16	16Aug16	16Aug16	16Aug16	16Aug16	16Aug16	16Aug16	
Rating Date			RATING	RATING	RATING	RATING	RATING	RATING	RATING	RATING	RATING	RATING	
Rating Type			1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	
Rating Unit													
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage							
1	Goal 2XL	2 EC		0.125 lb ai/a	PO1		10.0	10.0	1.0	2.7	10.0	10.0	
2	Goal 2XL	2 EC		0.25 lb ai/a	PO1		10.0	10.0	2.3	4.0	10.0	10.0	
3	GoalTender	4 SC		0.25 lb ai/a	PO1		10.0	10.0	2.7	10.0	10.0	10.0	
	Stinger	3 L		0.125 lb ai/a	PO1								
	Select Max	0.97 EC		0.12 lb ai/a	PO1								
	COC	100 SL		1 % v/v	PO1								
4	Cadet	0.91 EC		0.006 lb ai/a	PO1		10.0	9.7	3.7	1.0	10.0	10.0	
	COC	100 SL		1 % v/v	PO1								
5	Untreated						1.0	1.0	7.3	5.0	3.3	1.0	
LSD P=.05							0.00	0.49	1.38	3.56	3.40	0.00	
Standard Deviation							0.00	0.26	0.73	1.89	1.81	0.00	
CV							0.0	3.17	21.48	41.66	20.85	0.0	

Weed Control in Cabbage and Cauliflower - HTRC - 2016

Project Code: 114-16-1

Location: East Lansing, MI
Block 69/78

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Cabbage, Cauliflower Variety: Morris, Candid Charm (resp.)

Planting Method: Transplant Planting Date: 5/31/2016 Harvest Date: See notes

Spacing: 22 in Row Spacing: 3 ft; 1 row of each crop/plot

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: 2.1% pH: 6.8
Sand: 54% Silt: 29% Clay: 18% CEC: 9.4

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	5/31/16	2:16 pm	81/75	F	Dry	4 SE	26	60% Cloudy	N
POT	6/1/16	3:00 pm	80/70	F	Dry	3-4 SW	46	100% Cloudy	N
PO1	6/22/16	10:15 am	78/67	F	Wet	1-2 SE	42	70% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/31	No Crop			
5/31	No Weeds			
6/22	CABBAGE	6-8" diam.	Veg	Good
6/22	CAULIFLOWER	4-8" diam.	Veg	Good
6/22	COLQ = common lambsquarters	2-3"	Veg	Many
6/22	COPU = common purslane	1-2"	Veg	Many
6/22	CORW = common ragweed	2-4"	Veg	Mod.
6/22	LACG = large crabgrass	3-5"	Veg	Mod.
6/22	RRPW = redroot pigweed	2-3"	Veg	Many
6/22	YEFT = yellow foxtail	3-5"	Veg	Many
	BYGR = barnyardgrass			
	EBNS = eastern black nightshade			
	VELE = velvetleaf			

Notes and Comments

1. Spray 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. PO1 applied 22 days after transplant.
-

Weed Control in Cabbage and Cauliflower - HTRC - 2016

Weed Control in Cabbage and Cauliflower - HTRC - 2016			
Trial ID:	114-16-1	Location:	East Lansing, MI
Protocol ID:	114-16-1	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	CABBAGE		CAUL		BYGR	YEFT	COLQ	EBNS
					20Jun16	20Jun16	20Jun16	20Jun16	20Jun16	20Jun16		
					RATING	RATING	RATING	RATING	RATING	RATING	RATING	
					1-10	1-10	1-10	1-10	1-10	1-10	1-10	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Unit	Growth Stage						
1	Prowl H2O	3.8	CS	1 lb ai/a	PRT		1.3	1.3	10.0	10.0	9.7	10.0
2	Prowl H2O	3.8	CS	1 lb ai/a	POT		2.7	3.0	10.0	10.0	10.0	10.0
3	Lentagran	45	WP	0.9 lb ai/a	PO1		1.3	1.3	1.0	1.0	1.0	1.0
	Select Max	0.97	EC	0.12 lb ai/a	PO1							
4	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		2.0	2.0	9.7	9.7	8.3	10.0
	tolpyralate	3.34	L	0.027 lb ai/a	PO1							
5	Zidua	85	WDG	0.133 lb ai/a	PRT		2.7	2.7	9.7	10.0	9.3	10.0
6	Command	3	ME	0.5 lb ai/a	PRT		3.0	3.0	10.0	10.0	9.3	10.0
7	GoalTender	4	SC	0.5 lb ai/a	PRT		1.3	1.7	10.0	10.0	9.3	10.0
8	A 16003E	1.67	SL	0.033 lb ai/a	PRT		2.0	3.0	10.0	10.0	9.7	10.0
9	A 16003E	1.67	SL	0.045 lb ai/a	PRT		2.7	3.0	9.7	9.7	9.3	10.0
10	A 16003E	1.67	SL	0.033 lb ai/a	POT		3.3	4.0	10.0	10.0	9.7	10.0
11	A 16003E	1.67	SL	0.045 lb ai/a	POT		4.3	5.3	10.0	10.0	9.3	10.0
12	A 16003E	1.67	SL	0.033 lb ai/a	PO1		1.3	1.7	1.0	1.0	1.0	1.0
13	A 16003E	1.67	SL	0.045 lb ai/a	PO1		1.0	1.0	1.0	1.0	1.0	1.0
14	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		2.0	2.3	10.0	10.0	8.7	10.0
	A 16003E	1.67	SL	0.033 lb ai/a	PO1							
	NIS	100	SL	0.25 % v/v	PO1							
15	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		1.7	2.0	10.0	10.0	8.7	10.0
	A 16003E	1.67	SL	0.045 lb ai/a	PO1							
	NIS	100	SL	0.25 % v/v	PO1							
16	Command	3	ME	0.5 lb ai/a	PRT		2.7	3.0	10.0	10.0	9.7	10.0
	GoalTender	4	SC	0.5 lb ai/a	PRT							
17	Chateau SW	51	WDG	0.064 lb ai/a	PRT		2.0	3.0	8.3	9.0	9.3	10.0
18	Spartan	4	F	0.188 lb ai/a	PRT		1.3	1.7	8.0	8.0	9.7	10.0
19	Spartan	4	F	0.188 lb ai/a	PRT		1.7	2.7	9.7	10.0	9.7	10.0
	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT							
20	Untreated						1.3	2.0	1.0	1.0	1.0	1.0
LSD P=.05							1.15	1.18	1.21	1.15	0.91	0.00
Standard Deviation							0.70	0.71	0.74	0.69	0.55	0.00
CV							33.49	28.75	9.25	8.66	7.18	0.0

Weed Control in Cabbage and Cauliflower - HTRC - 2016

Pest Code				RRPW	VELE	CABBAGE		CAUL			
Crop Code				20Jun16	20Jun16	22Jun16	22Jun16	05Jul16	05Jul16		
Rating Date				RATING	RATING	STAND	STAND	RATING	RATING		
Rating Type				1-10	1-10	#/PLOT	#/PLOT	1-10	1-10		
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Stage						
1	Prowl H20	3.8 CS		1 lb ai/a	PRT	9.7	10.0	17.3	16.7	1.7	1.3
2	Prowl H20	3.8 CS		1 lb ai/a	POT	10.0	10.0	18.3	16.7	1.7	1.7
3	Lentagran	45 WP		0.9 lb ai/a	PO1	1.0	7.0	18.0	17.0	1.3	1.3
	Select Max	0.97 EC		0.12 lb ai/a	PO1						
4	Dual Magnum	7.62 EC		1.3 lb ai/a	PRT	9.7	10.0	16.7	17.0	2.7	2.3
	tolpyralate	3.34 L		0.027 lb ai/a	PO1						
5	Zidua	85 WDG		0.133 lb ai/a	PRT	10.0	10.0	17.3	16.7	2.3	2.7
6	Command	3 ME		0.5 lb ai/a	PRT	9.0	10.0	18.0	16.7	2.0	2.7
7	GoalTender	4 SC		0.5 lb ai/a	PRT	9.7	10.0	18.0	18.0	1.3	1.3
8	A 16003E	1.67 SL		0.033 lb ai/a	PRT	8.7	10.0	16.3	17.3	1.3	2.7
9	A 16003E	1.67 SL		0.045 lb ai/a	PRT	9.0	10.0	17.3	17.7	2.0	2.7
10	A 16003E	1.67 SL		0.033 lb ai/a	POT	9.7	10.0	17.3	16.7	3.0	3.7
11	A 16003E	1.67 SL		0.045 lb ai/a	POT	10.0	9.7	15.3	17.0	4.7	6.3
12	A 16003E	1.67 SL		0.033 lb ai/a	PO1	1.0	9.7	17.7	17.3	2.7	3.3
13	A 16003E	1.67 SL		0.045 lb ai/a	PO1	1.0	9.7	17.0	17.3	2.0	2.3
14	Dual Magnum	7.62 EC		1.3 lb ai/a	PRT	10.0	9.7	17.0	17.3	4.3	4.3
	A 16003E	1.67 SL		0.033 lb ai/a	PO1						
	NIS	100 SL		0.25 % v/v	PO1						
15	Dual Magnum	7.62 EC		1.3 lb ai/a	PRT	10.0	9.7	17.0	17.3	4.3	4.3
	A 16003E	1.67 SL		0.045 lb ai/a	PO1						
	NIS	100 SL		0.25 % v/v	PO1						
16	Command	3 ME		0.5 lb ai/a	PRT	10.0	9.7	18.0	16.7	1.7	2.3
	GoalTender	4 SC		0.5 lb ai/a	PRT						
17	Chateau SW	51 WDG		0.064 lb ai/a	PRT	9.3	9.2	16.7	14.3	1.7	2.0
18	Spartan	4 F		0.188 lb ai/a	PRT	9.7	9.7	18.0	17.7	1.0	1.0
19	Spartan	4 F		0.188 lb ai/a	PRT	10.0	7.0	17.7	17.0	1.3	1.3
	Dual Magnum	7.62 EC		1.33 lb ai/a	PRT						
20	Untreated					1.0	4.0	17.7	16.3	2.0	2.3
LSD P=.05						0.91	3.72	1.73	2.23	1.22	1.48
Standard Deviation						0.55	2.23	1.05	1.35	0.74	0.90
CV						6.93	24.03	6.03	7.98	32.75	34.57

Weed Control in Cabbage and Cauliflower - HTRC - 2016

Pest Code	LACG						YEFT	COLQ	CORW	RRPW	VELE	CABBAGE	
Crop Code	05Jul16						05Jul16	05Jul16	05Jul16	05Jul16	05Jul16	25Jul16	
Rating Date	RATING						RATING	RATING	RATING	RATING	RATING	HARVEST	
Rating Type	1-10						1-10	1-10	1-10	1-10	1-10	#/PLOT	
Rating Unit	1-10						1-10	1-10	1-10	1-10	1-10	#/PLOT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Unit	Growth Stage							
1	Prowl H20	3.8	CS	1 lb ai/a	PRT		10.0	8.7	6.3	10.0	4.3	10.0	1.3
2	Prowl H20	3.8	CS	1 lb ai/a	POT		10.0	10.0	10.0	8.7	9.7	10.0	4.0
3	Lentagran	45	WP	0.9 lb ai/a	PO1		9.0	9.0	3.7	9.3	1.7	9.0	1.3
	Select Max	0.97	EC	0.12 lb ai/a	PO1								
4	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		10.0	10.0	5.7	10.0	9.3	10.0	3.0
	tolpyralate	3.34	L	0.027 lb ai/a	PO1								
5	Zidua	85	WDG	0.133 lb ai/a	PRT		10.0	9.7	7.0	9.0	9.0	10.0	3.7
6	Command	3	ME	0.5 lb ai/a	PRT		9.7	9.7	10.0	10.0	7.3	10.0	6.0
7	GoalTender	4	SC	0.5 lb ai/a	PRT		9.7	10.0	9.3	8.7	9.7	10.0	8.3
8	A 16003E	1.67	SL	0.033 lb ai/a	PRT		10.0	7.3	7.7	10.0	5.7	10.0	3.3
9	A 16003E	1.67	SL	0.045 lb ai/a	PRT		7.7	8.7	7.7	10.0	6.7	10.0	5.3
10	A 16003E	1.67	SL	0.033 lb ai/a	POT		9.3	8.3	7.3	10.0	8.7	10.0	3.3
11	A 16003E	1.67	SL	0.045 lb ai/a	POT		9.0	9.3	8.0	10.0	8.7	10.0	2.0
12	A 16003E	1.67	SL	0.033 lb ai/a	PO1		3.0	2.0	3.3	10.0	4.0	10.0	0.3
13	A 16003E	1.67	SL	0.045 lb ai/a	PO1		7.3	8.7	4.3	10.0	7.3	10.0	1.7
14	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		10.0	10.0	8.0	10.0	9.7	10.0	2.3
	A 16003E	1.67	SL	0.033 lb ai/a	PO1								
	NIS	100	SL	0.25 % v/v	PO1								
15	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		10.0	9.7	8.0	10.0	10.0	10.0	3.0
	A 16003E	1.67	SL	0.045 lb ai/a	PO1								
	NIS	100	SL	0.25 % v/v	PO1								
16	Command	3	ME	0.5 lb ai/a	PRT		9.0	10.0	7.3	10.0	9.7	10.0	8.7
	GoalTender	4	SC	0.5 lb ai/a	PRT								
17	Chateau SW	51	WDG	0.064 lb ai/a	PRT		5.7	6.3	7.0	7.7	7.7	8.7	5.0
18	Spartan	4	F	0.188 lb ai/a	PRT		4.0	6.3	9.0	3.3	9.0	7.0	3.0
19	Spartan	4	F	0.188 lb ai/a	PRT		8.7	9.3	9.3	7.3	9.3	7.0	2.0
	Dual Magnum	7.62	EC	1.33 lb ai/a	PRT								
20	Untreated						8.7	9.7	8.0	10.0	9.0	10.0	4.7
LSD P=.05							2.38	3.18	3.35	2.69	1.99	2.76	3.79
Standard Deviation							1.44	1.93	2.03	1.63	1.21	1.67	2.30
CV							16.92	22.3	27.61	17.75	15.46	17.45	63.59

Weed Control in Cabbage and Cauliflower - HTRC - 2016

Pest Code		CABBAGE CABBAGE CABBAGE CABBAGE CABBAGE									
Crop Code		25Jul16	29Jul16	29Jul16	01Aug16	01Aug16					
Rating Date		HARVEST	HARVEST	HARVEST	HARVEST	HARVEST					
Rating Type		KG/PLOT	#/PLOT	KG/PLOT	#/PLOT	KG/PLOT					
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage					
1	Prowl H20	3.8	CS	1 lb ai/a	PRT		1.53	6.7	8.99	4.3	5.16
2	Prowl H20	3.8	CS	1 lb ai/a	POT		6.34	6.0	8.50	2.0	2.60
3	Lentagran	45	WP	0.9 lb ai/a	PO1		2.32	5.0	6.24	3.0	2.17
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
4	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		4.88	4.7	7.67	1.3	1.66
	tolpyralate	3.34	L	0.027 lb ai/a	PO1						
5	Zidua	85	WDG	0.133 lb ai/a	PRT		5.35	5.3	7.38	2.0	1.47
6	Command	3	ME	0.5 lb ai/a	PRT		10.08	6.7	8.94	1.0	0.83
7	GoalTender	4	SC	0.5 lb ai/a	PRT		13.14	5.3	8.32	2.3	3.48
8	A 16003E	1.67	SL	0.033 lb ai/a	PRT		5.29	6.7	10.59	2.7	3.64
9	A 16003E	1.67	SL	0.045 lb ai/a	PRT		8.65	6.3	9.94	1.0	0.37
10	A 16003E	1.67	SL	0.033 lb ai/a	POT		5.83	4.0	5.91	2.0	3.04
11	A 16003E	1.67	SL	0.045 lb ai/a	POT		3.24	2.7	3.89	1.0	0.91
12	A 16003E	1.67	SL	0.033 lb ai/a	PO1		0.43	4.7	5.44	2.0	1.32
13	A 16003E	1.67	SL	0.045 lb ai/a	PO1		2.14	8.3	11.39	2.0	2.74
14	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		3.49	6.7	8.68	1.3	1.62
	A 16003E	1.67	SL	0.033 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
15	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		4.32	3.0	3.81	3.5	2.57
	A 16003E	1.67	SL	0.045 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
16	Command	3	ME	0.5 lb ai/a	PRT		15.50	4.7	8.40	2.5	3.50
	GoalTender	4	SC	0.5 lb ai/a	PRT						
17	Chateau SW	51	WDG	0.064 lb ai/a	PRT		9.30	5.3	7.86		0.00
18	Spartan	4	F	0.188 lb ai/a	PRT		5.21	8.7	13.06	2.3	3.21
19	Spartan	4	F	0.188 lb ai/a	PRT		3.24	5.0	6.59	1.7	1.81
	Dual Magnum	7.62	EC	1.33 lb ai/a	PRT						
20	Untreated						7.87	4.7	6.24	2.5	2.09
LSD P=.05							6.077	4.11	6.321	2.34	3.233
Standard Deviation							3.683	2.49	3.831	1.40	1.959
CV							62.34	45.17	48.54	65.49	88.64

Weed Control in Cabbage and Cauliflower - HTRC - 2016

Pest Code		CABBAGE CABBAGE CABBAGE CABBAGE CABBAGE									
Crop Code		05Aug16	05Aug16	08Aug16	08Aug16	15Aug16					
Rating Date		HARVEST	HARVEST	HARVEST	HARVEST	HARVEST					
Rating Type		#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	#/PLOT					
Rating Unit		#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	#/PLOT					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Growth Stage					
1	Prowl H20	3.8	CS	1 lb ai/a	PRT		2.0	2.26	1.7	0.74	0.0
2	Prowl H20	3.8	CS	1 lb ai/a	POT		2.0	2.72	3.0	2.35	0.7
3	Lentagran	45	WP	0.9 lb ai/a	PO1		5.7	5.45	1.3	0.72	0.0
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
4	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		5.3	6.31	1.3	1.15	0.0
	tolpyralate	3.34	L	0.027 lb ai/a	PO1						
5	Zidua	85	WDG	0.133 lb ai/a	PRT		2.7	2.68	2.7	2.91	0.0
6	Command	3	ME	0.5 lb ai/a	PRT		3.0	3.35	0.7	0.63	0.0
7	GoalTender	4	SC	0.5 lb ai/a	PRT		0.3	0.46	1.0	0.85	0.0
8	A 16003E	1.67	SL	0.033 lb ai/a	PRT		1.7	2.55	1.3	1.15	0.0
9	A 16003E	1.67	SL	0.045 lb ai/a	PRT		1.3	1.75	3.0	3.01	0.0
10	A 16003E	1.67	SL	0.033 lb ai/a	POT		5.0	6.88	2.7	2.45	0.0
11	A 16003E	1.67	SL	0.045 lb ai/a	POT		3.0	3.75	3.0	2.55	1.7
12	A 16003E	1.67	SL	0.033 lb ai/a	PO1		7.3	8.08	2.7	1.60	0.0
13	A 16003E	1.67	SL	0.045 lb ai/a	PO1		4.3	4.81	1.0	0.87	0.3
14	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		3.0	3.77	0.7	0.31	1.7
	A 16003E	1.67	SL	0.033 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
15	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		4.7	6.02	2.7	3.51	0.0
	A 16003E	1.67	SL	0.045 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
16	Command	3	ME	0.5 lb ai/a	PRT		1.3	2.24	1.3	0.97	0.0
	GoalTender	4	SC	0.5 lb ai/a	PRT						
17	Chateau SW	51	WDG	0.064 lb ai/a	PRT		3.0	4.32	1.3	1.30	0.0
18	Spartan	4	F	0.188 lb ai/a	PRT		2.3	2.57	0.7	0.73	0.0
19	Spartan	4	F	0.188 lb ai/a	PRT		7.0	6.73	1.0	0.48	0.0
	Dual Magnum	7.62	EC	1.33 lb ai/a	PRT						
20	Untreated						3.7	4.79	1.7	1.18	0.0
LSD P=.05							3.94	5.034	2.70	2.965	1.43
Standard Deviation							2.39	3.051	1.64	1.797	0.87
CV							69.48	74.89	94.38	121.99	399.24

Weed Control in Cabbage and Cauliflower - HTRC - 2016

Pest Code						CABBAGE	CABBAGE	CAUL	CAUL		
Crop Code						15Aug16		08Aug16	08Aug16		
Rating Date						HARVEST	TOTAL	HARVEST	HARVEST		
Rating Type						KG/PLOT	#/PLOT	KG/PLOT	KG/PLOT		
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage					
1	Prowl H2O	3.8	CS	1 lb ai/a	PRT		0.00	16.0	18.69	0.3	0.26
2	Prowl H2O	3.8	CS	1 lb ai/a	POT		0.36	17.7	22.85	3.3	2.93
3	Lentagran	45	WP	0.9 lb ai/a	PO1		0.00	15.3	16.90	2.0	1.30
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
4	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		0.00	15.7	21.67	1.3	1.42
	tolpyralate	3.34	L	0.027 lb ai/a	PO1						
5	Zidua	85	WDG	0.133 lb ai/a	PRT		0.00	15.7	19.80	1.7	1.42
6	Command	3	ME	0.5 lb ai/a	PRT		0.00	17.0	23.83	1.7	1.48
7	GoalTender	4	SC	0.5 lb ai/a	PRT		0.00	17.3	26.26	5.0	5.24
8	A 16003E	1.67	SL	0.033 lb ai/a	PRT		0.00	15.7	23.21	1.7	1.38
9	A 16003E	1.67	SL	0.045 lb ai/a	PRT		0.00	16.3	23.73	2.3	2.17
10	A 16003E	1.67	SL	0.033 lb ai/a	POT		0.00	17.0	24.12	0.7	0.67
11	A 16003E	1.67	SL	0.045 lb ai/a	POT		1.85	13.0	16.19	0.7	0.64
12	A 16003E	1.67	SL	0.033 lb ai/a	PO1		0.00	16.3	16.87	0.0	0.00
13	A 16003E	1.67	SL	0.045 lb ai/a	PO1		0.29	17.7	22.23	0.7	0.36
14	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		1.86	15.7	19.72	0.7	0.48
	A 16003E	1.67	SL	0.033 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
15	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		0.00	15.7	20.23	1.0	0.79
	A 16003E	1.67	SL	0.045 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
16	Command	3	ME	0.5 lb ai/a	PRT		0.00	17.7	30.60	2.3	2.03
	GoalTender	4	SC	0.5 lb ai/a	PRT						
17	Chateau SW	51	WDG	0.064 lb ai/a	PRT		0.00	14.7	22.79	2.3	2.59
18	Spartan	4	F	0.188 lb ai/a	PRT		0.00	17.0	24.78	3.7	3.24
19	Spartan	4	F	0.188 lb ai/a	PRT		0.00	16.7	18.85	0.3	0.27
	Dual Magnum	7.62	EC	1.33 lb ai/a	PRT						
20	Untreated						0.00	16.3	22.16	3.3	3.10
LSD P=.05							1.537	2.28	5.688	3.21	2.921
Standard Deviation							0.931	1.38	3.447	1.95	1.770
CV							427.73	8.5	15.83	111.3	111.53

Weed Control in Cabbage and Cauliflower - HTRC - 2016

Pest Code											
Crop Code											
Rating Date											
Rating Type											
Rating Unit											
		CAUL	CAUL	CAUL	CAUL	CAUL					
		11Aug16	11Aug16	19Aug16	19Aug16	15Aug16					
		HARVEST	HARVEST	HARVEST	HARVEST	HARVEST					
		#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	#/PLOT					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Growth Stage					
1	Prowl H20	3.8	CS	1 lb ai/a	PRT		6.3	3.70	1.3	0.59	5.3
2	Prowl H20	3.8	CS	1 lb ai/a	POT		7.3	4.86	1.7	1.25	2.3
3	Lentagran	45	WP	0.9 lb ai/a	PO1		5.7	3.39	1.0	0.54	3.3
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
4	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		5.7	3.40	2.3	1.59	4.0
	tolpyralate	3.34	L	0.027 lb ai/a	PO1						
5	Zidua	85	WDG	0.133 lb ai/a	PRT		6.3	4.68	1.0	0.63	2.7
6	Command	3	ME	0.5 lb ai/a	PRT		5.3	4.62	2.7	1.41	4.0
7	GoalTender	4	SC	0.5 lb ai/a	PRT		8.7	7.60	0.3	0.18	2.3
8	A 16003E	1.67	SL	0.033 lb ai/a	PRT		4.7	4.15	1.0	0.69	2.7
9	A 16003E	1.67	SL	0.045 lb ai/a	PRT		5.0	3.67	0.3	0.23	3.0
10	A 16003E	1.67	SL	0.033 lb ai/a	POT		3.7	3.11	0.3	0.44	3.0
11	A 16003E	1.67	SL	0.045 lb ai/a	POT		1.3	0.56	1.0	0.91	0.0
12	A 16003E	1.67	SL	0.033 lb ai/a	PO1		5.0	2.83	4.0	1.90	4.0
13	A 16003E	1.67	SL	0.045 lb ai/a	PO1		8.7	5.03	1.7	0.83	4.3
14	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		3.7	2.76	3.0	2.11	3.3
	A 16003E	1.67	SL	0.033 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
15	Dual Magnum	7.62	EC	1.3 lb ai/a	PRT		3.3	2.10	2.7	1.74	3.7
	A 16003E	1.67	SL	0.045 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
16	Command	3	ME	0.5 lb ai/a	PRT		9.7	7.48	1.0	0.50	2.3
	GoalTender	4	SC	0.5 lb ai/a	PRT						
17	Chateau SW	51	WDG	0.064 lb ai/a	PRT		7.3	4.92	1.7	0.82	1.3
18	Spartan	4	F	0.188 lb ai/a	PRT		8.7	5.41	2.0	1.11	1.0
19	Spartan	4	F	0.188 lb ai/a	PRT		3.3	2.66	2.3	1.45	3.3
	Dual Magnum	7.62	EC	1.33 lb ai/a	PRT						
20	Untreated						3.7	3.55	2.0	1.47	1.0
LSD P=.05							4.91	4.346	2.26	1.353	3.33
Standard Deviation							2.98	2.634	1.37	0.820	2.02
CV							52.5	65.48	82.07	80.57	70.73

Weed Control in Cabbage and Cauliflower - HTRC - 2016

Pest Code						CAUL	CAUL	CAUL	CAUL	CAUL	
Crop Code						15Aug16	22Aug16	22Aug16			
Rating Date						HARVEST	HARVEST	HARVEST	TOTAL	TOTAL	
Rating Type						KG/PLOT	#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Growth Stage					
1	Prowl H20	3.8	CS	1 lb ai/a		PRT	3.59	1.0	0.41	14.3	8.54
2	Prowl H20	3.8	CS	1 lb ai/a		POT	1.60	0.3	0.17	15.0	10.81
3	Lentagran	45	WP	0.9 lb ai/a		PO1	1.74	1.3	0.54	13.3	7.50
	Select Max	0.97	EC	0.12 lb ai/a		PO1					
4	Dual Magnum	7.62	EC	1.3 lb ai/a		PRT	2.38	0.3	0.13	13.7	8.92
	tolpyralate	3.34	L	0.027 lb ai/a		PO1					
5	Zidua	85	WDG	0.133 lb ai/a		PRT	1.54	1.3	0.61	13.0	8.88
6	Command	3	ME	0.5 lb ai/a		PRT	2.52	1.0	0.40	14.7	10.42
7	GoalTender	4	SC	0.5 lb ai/a		PRT	1.65	0.0	0.00	16.3	14.66
8	A 16003E	1.67	SL	0.033 lb ai/a		PRT	1.80	1.3	0.65	11.3	8.67
9	A 16003E	1.67	SL	0.045 lb ai/a		PRT	2.14	2.0	0.68	12.7	8.89
10	A 16003E	1.67	SL	0.033 lb ai/a		POT	2.42	1.3	0.95	9.0	7.58
11	A 16003E	1.67	SL	0.045 lb ai/a		POT	0.00	1.3	0.77	4.3	2.88
12	A 16003E	1.67	SL	0.033 lb ai/a		PO1	2.33	2.3	0.99	15.3	8.04
13	A 16003E	1.67	SL	0.045 lb ai/a		PO1	2.49	1.7	0.53	17.0	9.24
14	Dual Magnum	7.62	EC	1.3 lb ai/a		PRT	2.05	2.0	0.88	12.7	8.27
	A 16003E	1.67	SL	0.033 lb ai/a		PO1					
	NIS	100	SL	0.25 % v/v		PO1					
15	Dual Magnum	7.62	EC	1.3 lb ai/a		PRT	3.01	1.3	0.78	12.0	8.42
	A 16003E	1.67	SL	0.045 lb ai/a		PO1					
	NIS	100	SL	0.25 % v/v		PO1					
16	Command	3	ME	0.5 lb ai/a		PRT	1.50	0.0	0.00	15.3	11.51
	GoalTender	4	SC	0.5 lb ai/a		PRT					
17	Chateau SW	51	WDG	0.064 lb ai/a		PRT	1.04	1.0	0.35	13.7	9.72
18	Spartan	4	F	0.188 lb ai/a		PRT	0.49	1.0	0.53	16.3	10.78
19	Spartan	4	F	0.188 lb ai/a		PRT	1.96	2.3	1.06	11.7	7.39
	Dual Magnum	7.62	EC	1.3 lb ai/a		PRT					
20	Untreated						0.27	0.3	0.17	10.3	8.55
LSD P=.05							2.563	2.09	1.108	5.08	5.033
Standard Deviation							1.553	1.26	0.672	3.08	3.050
CV							85.1	108.39	126.63	23.5	33.95

PRE and POST Weed Control in Carrot - Keilen - 2016

Project Code: 107-16-1

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Carrot

Variety: Belgrado

Planting Method: Seeded

Planting Date: 5/6/16

Harvest Date: 9/12/16

Spacing: 1 in

Row Spacing: 10 in; 2 rows/plot

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 2.7 ft wide x 30 ft long

Soil Type: Houghton muck

OM: 55%

pH: 6.9

Sand: 26%

Silt: 18%

Clay: 1%

CEC: -

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/9/2016	3:13 pm	74/53	F	Dry	5-7 SE	29	90% Cloudy	N
PO1	6/9/2016	11:40 am	66/60	F	Dry	3-5 SW	38	95% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/9	CARROT		Preemergence	
5/9	No Weeds			
6/9	CARROT	3-4"	2-3 lf	good
6/9	LATH = Ladysthumb	3-5"	Veg	many
6/9	RRPW = Redroot pigweed	3-6"	Veg	many
	COPU = common purslane			

Notes and Comments

1. Spray applied with 2 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. Harvested 10 ft. of 2 rows.

PRE and POST Weed Control in Carrot - Keilen - 2016

PRE and POST Weed Control in Carrot - Muck Soil - Keilen - 2016

Trial ID: 107-16-1 Location: East Lansing, MI
 Protocol ID: 107-16-1 Investigator: Dr. Bernard Zandstra
 Study Director: Colin Phillippo

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	Growth Stage	COPU		LATH	RRPW	LATH	
						CARROT	CARROT	CARROT	CARROT	LATH	LATH
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	07Jun16 RATING	07Jun16 RATING	07Jun16 RATING	07Jun16 RATING	13Jun16 RATING	13Jun16 RATING
1	Prowl H20	3.8 CS		1.9 lb ai/a	PRE	1.3	3.3	5.0	3.0	1.3	7.0
	Lorox	50 DF		1 lb ai/a	PO1						
2	A 16003E	1.67 SL		0.033 lb ai/a	PRE	1.0	4.3	3.7	5.7	1.7	5.0
	Lorox	50 DF		1 lb ai/a	PO1						
3	A 16003E	1.67 SL		0.045 lb ai/a	PRE	1.3	7.7	3.3	3.7	2.3	5.7
	Lorox	50 DF		1 lb ai/a	PO1						
4	Lorox	50 DF		1 lb ai/a	PRE, PO1	2.0	8.3	3.7	5.7	1.7	5.3
	Zidua	85 WDG		0.133 lb ai/a	PRE						
5	Lorox	50 DF		1 lb ai/a	PRE, PO1	2.3	10.0	5.0	7.7	2.3	5.7
	Zidua	85 WDG		0.198 lb ai/a	PRE						
6	Lorox	50 DF		1 lb ai/a	PRE, PO1	1.0	4.0	1.0	1.0	2.0	2.7
	Zidua	85 WDG		0.133 lb ai/a	PO1						
7	Prowl H20	3.8 CS		1.9 lb ai/a	PRE	1.7	4.3	4.3	1.7	2.0	3.7
	Zidua	85 WDG		0.133 lb ai/a	PO1						
	A 16003E	1.67 SL		0.033 lb ai/a	PO1						
8	A 16003E	1.67 SL		0.09 lb ai/a	PRE	4.7	10.0	5.7	7.7	5.7	8.0
	Lorox	50 DF		1 lb ai/a	PO1						
9	Dual Magnum	7.62 EC		1.9 lb ai/a	PRE	1.3	10.0	5.0	7.7	2.7	7.7
	A 16003E	1.67 SL		0.033 lb ai/a	PRE						
	Lorox	50 DF		1 lb ai/a	PO1						
10	Dual Magnum	7.62 EC		1.9 lb ai/a	PRE	2.3	9.3	4.7	7.3	3.3	6.7
	A 16003E	1.67 SL		0.045 lb ai/a	PRE						
	Tricor	75 DF		0.25 lb ai/a	PO1						
11	Zidua	85 WDG		0.133 lb ai/a	PRE	1.0	4.3	2.3	1.0	3.0	8.0
12	Zidua	85 WDG		0.198 lb ai/a	PRE	2.0	9.3	3.7	4.7	3.0	9.0
13	Zidua	85 WDG		0.267 lb ai/a	PRE	1.7	9.7	2.3	5.3	3.3	8.0
14	Untreated					1.0	4.3	1.3	1.3	3.3	9.3
LSD P=.05						1.52	5.90	3.43	3.17	2.53	2.47
Standard Deviation						0.90	3.52	2.04	1.89	1.51	1.47
CV						51.35	49.74	56.08	41.81	56.08	22.44

PRE and POST Weed Control in Carrot - Keilen - 2016

Pest Code				RRPW		LATH		RRPW				
Crop Code				CARROT		CARROT		CARROT		CARROT		
Rating Date				13Jun16	24Jun16	24Jun16	24Jun16	06Jul16	09Sep16			
Rating Type				RATING	RATING	RATING	RATING	RATING	HARVEST			
Rating Unit				1-10	1-10	1-10	1-10	1-10	1-10	KG/10FT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	Prowl H20	3.8 CS		1.9 lb ai/a		PRE	8.3	1.3	8.7	10.0	2.3	22.47
	Lorox	50 DF		1 lb ai/a		PO1						
2	A 16003E	1.67 SL		0.033 lb ai/a		PRE	10.0	2.3	8.3	9.3	3.3	23.75
	Lorox	50 DF		1 lb ai/a		PO1						
3	A 16003E	1.67 SL		0.045 lb ai/a		PRE	9.3	1.7	8.3	10.0	2.3	25.60
	Lorox	50 DF		1 lb ai/a		PO1						
4	Lorox	50 DF		1 lb ai/a		PRE, PO1	10.0	2.7	10.0	10.0	2.7	24.81
	Zidua	85 WDG		0.133 lb ai/a		PRE						
5	Lorox	50 DF		1 lb ai/a		PRE, PO1	9.3	3.0	10.0	10.0	3.0	26.38
	Zidua	85 WDG		0.198 lb ai/a		PRE						
6	Lorox	50 DF		1 lb ai/a		PRE, PO1	7.7	4.3	9.0	10.0	5.0	14.07
	Zidua	85 WDG		0.133 lb ai/a		PO1						
7	Prowl H20	3.8 CS		1.9 lb ai/a		PRE	1.3	3.0	3.0	4.0	5.3	17.87
	Zidua	85 WDG		0.133 lb ai/a		PO1						
	A 16003E	1.67 SL		0.033 lb ai/a		PO1						
8	A 16003E	1.67 SL		0.09 lb ai/a		PRE	9.3	5.3	9.0	10.0	5.0	18.75
	Lorox	50 DF		1 lb ai/a		PO1						
9	Dual Magnum	7.62 EC		1.9 lb ai/a		PRE	10.0	1.7	9.3	10.0	2.0	23.74
	A 16003E	1.67 SL		0.033 lb ai/a		PRE						
	Lorox	50 DF		1 lb ai/a		PO1						
10	Dual Magnum	7.62 EC		1.9 lb ai/a		PRE	8.7	2.0	5.0	8.0	4.0	21.41
	A 16003E	1.67 SL		0.045 lb ai/a		PRE						
	Tricor	75 DF		0.25 lb ai/a		PO1						
11	Zidua	85 WDG		0.133 lb ai/a		PRE	7.7	2.3	7.3	7.0	2.7	25.10
12	Zidua	85 WDG		0.198 lb ai/a		PRE	9.7	2.3	8.3	8.3	3.0	17.71
13	Zidua	85 WDG		0.267 lb ai/a		PRE	8.7	2.3	7.3	7.3	3.0	22.45
14	Untreated						9.3	2.7	8.7	6.0	3.0	22.55
LSD P=.05							2.09	2.11	2.24	1.70	2.13	7.471
Standard Deviation							1.24	1.25	1.34	1.01	1.27	4.423
CV							14.6	47.46	16.65	11.83	37.98	20.19

**Performance of Bicyclopyrone on Carrot Grown in
Mineral Soil - IR4 - HTRC - 2016**

Project Code: IR4-107-16-2

Location: East Lansing, MI
Block 132

Personnel: Bernard H. Zandstra, Nicole Soldan
Crop: Carrot Variety: Sugarsnax 54
Planting Method: Seeded Planting Date: 5/17/16 Harvest Date: 8/18/16
Spacing: 1 in. Row Spacing: 14 in; 3 rows/plot
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: 1.8% pH: 5.7
Sand: 65% Silt: 15% Clay: 20% CEC: 6.1

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/18/16	10:00 am	55/49	F	Dry	6-7 NE	42	0% Cloudy	N
EPOS	6/17/16	9:30 am	75/64	F	Moist	5-7 NE	59	0% Cloudy	N
PO1	6/24/16	1:00 pm							

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/1	CARROT			
6/1	BYGR = barnyardgrass			
6/1	COLQ = common lambquarters			
6/1	RRPW = redroot pigweed			
	CABR = California brome			
	COPU = common purslane			
	FAPA = fall panicum			
	LATH = ladythumb			
	YEFT = yellow foxtail			

Notes and Comments

1. Spray 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. Harvested 10 ft. of three rows per plot.
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Performance of Bicyclopyrone on Carrot Grown in Mineral Soil - IR4 - HTRC - 2016

Performance of Bicyclopyrone on Carrot Grown in Mineral Soil - IR4 - HTRC - 2016

Trial ID: IR4-107-16-2	Location: East Lansing, MI
Protocol ID: IR4-107-16-2	Investigator: Dr. Bernard Zandstra
Study Director: Nicole Soldan	

						BYGR	COLQ	RRPW			
Pest Code	Pest Name					CARROT		CARROT			
Crop Code	Rating Date					01Jun16	01Jun16	01Jun16	01Jun16	20Jun16	
Rating Type	Rating Unit					RATING	RATING	RATING	RATING	RATING	
						1-10	1-10	1-10	1-10	1-10	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage					
1	Untreated - Weed Free						1.0	4.3	1.3	2.7	1.0
	Lorox	50 DF		0.5 lb ai/a	PO1						
2	A 16003E	1.67 SL		0.01125 lb ai/a	PRE		2.7	5.7	6.7	8.0	2.7
	Lorox	50 DF		0.5 lb ai/a	PO1						
3	A 16003E	1.67 SL		0.0225 lb ai/a	PRE		3.7	7.3	8.3	9.0	6.3
	Lorox	50 DF		0.5 lb ai/a	PO1						
4	A 16003E	1.67 SL		0.045 lb ai/a	PRE		6.3	6.0	9.3	10.0	8.3
	Lorox	50 DF		0.5 lb ai/a	PO1						
5	A 16003E	1.67 SL		0.01125 lb ai/a	EPOS		1.3	3.3	1.3	4.0	2.3
	Lorox	50 DF		0.5 lb ai/a	PO1						
6	A 16003E	1.67 SL		0.0225 lb ai/a	EPOS		2.0	4.3	1.7	4.3	2.7
	Lorox	50 DF		0.5 lb ai/a	PO1						
7	A 16003E	1.67 SL		0.045 lb ai/a	EPOS		1.0	3.3	1.7	4.7	2.7
	Lorox	50 DF		0.5 lb ai/a	PO1						
8	Dual Magnum	7.62 EC		0.95 lb ai/a	PO1		1.7	5.3	1.7	4.0	1.0
	Lorox	50 DF		0.5 lb ai/a	PO1						
LSD P=.05							1.77	3.66	0.97	2.69	1.77
Standard Deviation							1.01	2.09	0.56	1.53	1.01
CV							41.04	42.13	13.91	26.29	29.89

Performance of Bicyclopyrone on Carrot Grown in Mineral Soil - IR4 - HTRC - 2016

Pest Code					BYGR	YEFT	COLQ	COPU	LATH		
Pest Name											
Crop Code											
Rating Date					20Jun16	20Jun16	20Jun16	20Jun16	20Jun16		
Rating 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 - Weed Free						5.7	5.0	2.7	2.3	4.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
2	A 16003E	1.67	SL	0.01125	lb ai/a	PRE	3.7	4.3	5.3	2.3	3.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
3	A 16003E	1.67	SL	0.0225	lb ai/a	PRE	6.3	8.0	7.3	6.3	6.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
4	A 16003E	1.67	SL	0.045	lb ai/a	PRE	6.3	9.3	7.7	7.7	4.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
5	A 16003E	1.67	SL	0.01125	lb ai/a	EPOS	4.3	4.3	3.0	3.0	7.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
6	A 16003E	1.67	SL	0.0225	lb ai/a	EPOS	4.3	5.3	4.0	3.7	7.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
7	A 16003E	1.67	SL	0.045	lb ai/a	EPOS	5.7	6.0	5.0	3.7	7.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PO1	4.0	4.7	4.0	2.0	5.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
LSD P=.05							4.32	3.15	2.45	3.60	4.20
Standard Deviation							2.47	1.80	1.40	2.06	2.40
CV							48.9	30.63	28.71	53.09	40.79

Pest Code					RRPW	BYGR	YEFT	COLQ			
Pest Name											
Crop Code											
Rating Date					20Jun16	24Jun16	24Jun16	24Jun16			
Rating 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 - Weed Free						4.0	2.0	6.3	6.3	3.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
2	A 16003E	1.67	SL	0.01125	lb ai/a	PRE	4.0	2.7	4.0	6.3	6.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
3	A 16003E	1.67	SL	0.0225	lb ai/a	PRE	6.7	6.3	6.7	7.7	7.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
4	A 16003E	1.67	SL	0.045	lb ai/a	PRE	8.7	8.7	6.3	9.3	7.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
5	A 16003E	1.67	SL	0.01125	lb ai/a	EPOS	5.0	3.3	5.3	4.7	2.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
6	A 16003E	1.67	SL	0.0225	lb ai/a	EPOS	5.7	4.0	4.7	5.0	3.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
7	A 16003E	1.67	SL	0.045	lb ai/a	EPOS	6.3	4.3	6.0	5.0	5.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PO1	5.0	1.3	4.7	4.7	4.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
LSD P=.05							3.66	2.09	3.45	1.86	3.14
Standard Deviation							2.09	1.19	1.97	1.06	1.79
CV							36.86	29.21	35.79	17.32	36.16

Performance of Bicyclopyrone on Carrot Grown in Mineral Soil - IR4 - HTRC - 2016

Pest Code				COPU		RRPW		LATH			
Pest Name											
Crop Code								CARROT CARROT			
Rating Date				24Jun16		24Jun16		24Jun16			
Rating 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 - Weed Free						2.3	4.0	5.0	1.3	1.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
2	A 16003E	1.67	SL	0.01125	lb ai/a	PRE	2.3	5.0	3.3	2.3	2.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
3	A 16003E	1.67	SL	0.0225	lb ai/a	PRE	6.7	5.7	4.7	5.3	5.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
4	A 16003E	1.67	SL	0.045	lb ai/a	PRE	7.7	6.7	5.0	7.7	8.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
5	A 16003E	1.67	SL	0.01125	lb ai/a	EPOS	4.7	5.3	7.7	2.0	2.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
6	A 16003E	1.67	SL	0.0225	lb ai/a	EPOS	4.3	6.7	7.7	2.7	2.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
7	A 16003E	1.67	SL	0.045	lb ai/a	EPOS	4.3	7.0	8.0	3.3	2.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PO1	3.0	4.3	6.0	1.3	1.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
LSD P=.05							4.04	3.40	3.81	1.71	1.91
Standard Deviation							2.30	1.94	2.18	0.98	1.09
CV							52.17	34.77	36.79	30.12	33.06

Pest Code				CABG		COLQ		LATH		BYGR	
Pest Name											
Crop Code										CARROT	
Rating Date				15Jul16		15Jul16		15Jul16		18Aug16	
Rating 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 - Weed Free						7.3	10.0	8.0	2.3	10.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
2	A 16003E	1.67	SL	0.01125	lb ai/a	PRE	8.0	10.0	6.0	4.0	10.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
3	A 16003E	1.67	SL	0.0225	lb ai/a	PRE	9.3	10.0	9.7	5.3	9.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
4	A 16003E	1.67	SL	0.045	lb ai/a	PRE	10.0	10.0	7.7	8.7	9.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
5	A 16003E	1.67	SL	0.01125	lb ai/a	EPOS	5.0	6.0	10.0	4.7	10.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
6	A 16003E	1.67	SL	0.0225	lb ai/a	EPOS	5.7	6.7	10.0	4.0	9.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
7	A 16003E	1.67	SL	0.045	lb ai/a	EPOS	6.0	8.7	10.0	3.7	10.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PO1	6.3	8.3	9.0	2.3	10.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
LSD P=.05							4.12	1.84	4.26	2.26	1.35
Standard Deviation							2.35	1.05	2.43	1.29	0.77
CV							32.66	12.05	27.7	29.46	7.91

Performance of Bicyclopyrone on Carrot Grown in Mineral Soil - IR4 - HTRC - 2016

Pest Code						CABR	FAPA	LACG	COLQ	LATH	
Pest Name											
Crop Code											
Rating Date						18Aug16	18Aug16	18Aug16	18Aug16	18Aug16	
Rating 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 - Weed Free						7.0	9.0	8.0	9.7	9.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
2	A 16003E	1.67	SL	0.01125	lb ai/a	PRE	7.3	8.3	7.3	8.7	7.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
3	A 16003E	1.67	SL	0.0225	lb ai/a	PRE	9.0	9.0	8.7	9.0	7.0
	Lorox	50	DF	0.5	lb ai/a	PO1					
4	A 16003E	1.67	SL	0.045	lb ai/a	PRE	9.7	9.3	9.3	9.3	7.7
	Lorox	50	DF	0.5	lb ai/a	PO1					
5	A 16003E	1.67	SL	0.01125	lb ai/a	EPOS	6.3	9.3	8.7	7.0	8.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
6	A 16003E	1.67	SL	0.0225	lb ai/a	EPOS	7.0	10.0	8.3	7.7	9.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
7	A 16003E	1.67	SL	0.045	lb ai/a	EPOS	7.7	10.0	9.3	8.3	9.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PO1	7.0	10.0	8.7	9.0	8.3
	Lorox	50	DF	0.5	lb ai/a	PO1					
LSD P=.05							1.79	2.04	2.65	2.35	2.60
Standard Deviation							1.02	1.16	1.51	1.34	1.49
CV							13.42	12.43	17.72	15.65	17.83

Pest Code										
Pest Name										
Crop Code						CARROT				
Rating Date						18Aug16				
Rating Type						HARVEST				
Rating Unit						KG/10FT				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage				
1	Untreated - Weed Free						6.92			
	Lorox	50	DF	0.5	lb ai/a	PO1				
2	A 16003E	1.67	SL	0.01125	lb ai/a	PRE	4.48			
	Lorox	50	DF	0.5	lb ai/a	PO1				
3	A 16003E	1.67	SL	0.0225	lb ai/a	PRE	3.28			
	Lorox	50	DF	0.5	lb ai/a	PO1				
4	A 16003E	1.67	SL	0.045	lb ai/a	PRE	0.72			
	Lorox	50	DF	0.5	lb ai/a	PO1				
5	A 16003E	1.67	SL	0.01125	lb ai/a	EPOS	4.23			
	Lorox	50	DF	0.5	lb ai/a	PO1				
6	A 16003E	1.67	SL	0.0225	lb ai/a	EPOS	3.90			
	Lorox	50	DF	0.5	lb ai/a	PO1				
7	A 16003E	1.67	SL	0.045	lb ai/a	EPOS	4.86			
	Lorox	50	DF	0.5	lb ai/a	PO1				
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PO1	5.94			
	Lorox	50	DF	0.5	lb ai/a	PO1				
LSD P=.05							1.856			
Standard Deviation							1.060			
CV							24.71			

Weed Control in Celery - Cnossen - 2016

Project Code: 113-16-1

Location: Wayland, MI

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Celery Variety: CR-1

Planting Method: Transplant Planting Date: 7/5/16

Spacing: 8 in Row Spacing: 15 in; 2 rows/plot

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 2.7 ft wide x 30 ft long

Soil Type: Houghton Muck

OM: 61%

pH: 6.6

Sand: 19% Silt: 19%

Clay: 1%

CEC: -

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
POT	7/5/16	12:30 pm	78/69	F	Moist	5-7 W	64	90% Cloudy	N
PO1	7/27/16	10:30 am	79/74	F	Moist	3 SW	55	10% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
7/5	CELERY	4-6"	Veg	Good
7/5	No weeds			
7/27	CELERY	6-8", 5-6 lf	Veg	Many
7/27	BYGR = barnyardgrass	6-8"	Veg	Many
7/27	COPU = common purslane	2-4"	Veg	Many
7/27	LATH = ladythumb	3-6"	Veg	Mod
7/27	RRPW = redroot pigweed	6-10"	Veg	Many

Notes and Comments

1. Spray applied with 2 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.

Weed Control in Celery - Cnossen - 2016

Weed Control in Celery - Cnossen - 2016			
Trial ID:	113-16-1	Location:	Wayland, MI
Protocol ID:	113-16-1	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	BYGR COPU RRPW LATH					CELERY		
					CELERY	CELERY	CELERY	CELERY	CELERY		CELERY	
Trt	Treatment	Form	Form	Rate	Growth	26Jul16	26Jul16	26Jul16	26Jul16	26Jul16	17Aug16	
No.	Name	Conc	Type	Rate	Unit	Stage	RATING	RATING	RATING	RATING	RATING	
							1-10	1-10	1-10	1-10	1-10	
1	Caparol	4 L		2 lb ai/a	POT, PO1		1.3	10.0	3.3	9.0	10.0	1.3
2	Prowl H2O	3.8 CS		1.9 lb ai/a	POT		1.0	5.7	8.3	6.7	9.0	1.7
	Caparol	4 L		2 lb ai/a	PO1							
3	Dual Magnum	7.62 EC		1.9 lb ai/a	POT		2.3	9.7	9.7	9.7	10.0	2.0
	Chateau SW	51 WDG		0.096 lb ai/a	POT							
4	Zidua	85 WDG		0.133 lb ai/a	POT		1.3	10.0	9.3	9.7	8.3	2.0
	Caparol	4 L		2 lb ai/a	PO1							
5	Untreated				POT		1.0	1.0	1.0	1.0	1.0	1.7
	Caparol	4 L		2 lb ai/a	PO1							
6	Zidua	85 WDG		0.267 lb ai/a	POT		2.0	10.0	10.0	10.0	9.3	2.0
	Caparol	4 L		2 lb ai/a	PO1							
7	Dual Magnum	7.62 EC		1.9 lb ai/a	POT		1.0	9.7	6.7	9.3	8.7	2.0
	Zidua	85 WDG		0.267 lb ai/a	PO1							
	Caparol	4 L		2 lb ai/a	PO1							
8	Dual Magnum	7.62 EC		1.9 lb ai/a	POT		1.7	8.3	9.0	9.3	8.3	4.3
	A 16003E	1.67 SL		0.033 lb ai/a	PO1							
9	A 16003E	1.67 SL		0.033 lb ai/a	POT		3.3	8.0	8.0	8.3	7.7	4.7
	Caparol	4 L		2 lb ai/a	PO1							
10	Dual Magnum	7.62 EC		1.9 lb ai/a	POT		1.3	8.7	9.3	9.0	8.7	1.7
	Lorox	50 DF		1 lb ai/a	PO1							
11	Prowl H2O	3.8 CS		1.9 lb ai/a	POT		1.3	7.7	10.0	7.0	8.7	6.3
	tolpyralate	3.34 L		0.036 lb ai/a	PO1							
12	Untreated, Handweed						1.0	1.0	1.0	1.0	1.0	1.0
LSD P=.05							0.90	1.57	2.38	1.47	1.41	1.44
Standard Deviation							0.53	0.93	1.40	0.87	0.83	0.85
CV							34.34	12.42	19.65	11.55	11.03	33.31

Weed Control in Celery - Cnossen - 2016

Pest Code					BYGR	COPU	RRPW	CELERY	CELERY	
Crop Code					17Aug16	17Aug16	17Aug16	05Oct16	05Oct16	
Rating Date					RATING	RATING	RATING	HARVEST	HARVEST	
Rating Type					1-10	1-10	1-10	#/10 FT	KG/10 FT	
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Growth Stage					
1	Caparol	4 L		2 lb ai/a	POT, PO1	9.7	4.0	10.0	33.0	25.24
2	Prowl H2O	3.8 CS		1.9 lb ai/a	POT	4.7	8.3	8.0	32.7	25.49
	Caparol	4 L		2 lb ai/a	PO1					
3	Dual Magnum	7.62 EC		1.9 lb ai/a	POT	9.7	9.0	9.7	34.3	23.68
	Chateau SW	51 WDG		0.096 lb ai/a	POT					
4	Zidua	85 WDG		0.133 lb ai/a	POT	9.3	9.3	10.0	32.7	26.30
	Caparol	4 L		2 lb ai/a	PO1					
5	Untreated				POT	9.7	8.3	6.0	32.3	20.25
	Caparol	4 L		2 lb ai/a	PO1					
6	Zidua	85 WDG		0.267 lb ai/a	POT	10.0	10.0	10.0	32.7	21.29
	Caparol	4 L		2 lb ai/a	PO1					
7	Dual Magnum	7.62 EC		1.9 lb ai/a	POT	9.7	9.0	9.7	33.3	24.23
	Zidua	85 WDG		0.267 lb ai/a	PO1					
	Caparol	4 L		2 lb ai/a	PO1					
8	Dual Magnum	7.62 EC		1.9 lb ai/a	POT	8.3	8.7	9.7	32.7	22.57
	A 16003E	1.67 SL		0.033 lb ai/a	PO1					
9	A 16003E	1.67 SL		0.033 lb ai/a	POT	8.7	8.3	10.0	30.0	20.07
	Caparol	4 L		2 lb ai/a	PO1					
10	Dual Magnum	7.62 EC		1.9 lb ai/a	POT	9.3	8.7	10.0	33.0	25.29
	Lorox	50 DF		1 lb ai/a	PO1					
11	Prowl H2O	3.8 CS		1.9 lb ai/a	POT	3.0	8.3	7.3	31.0	17.09
	tolpyralate	3.34 L		0.036 lb ai/a	PO1					
12	Untreated, Handweeded					2.3	5.0	1.0	34.3	26.07
LSD P=.05						2.05	1.33	2.24	4.64	6.048
Standard Deviation						1.21	0.78	1.32	2.74	3.572
CV						15.41	9.69	15.65	8.39	15.44

Weed Control in Celery - Schreur - 2016

Project Code: 113-16-2

Location: Hudsonville, MI

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Celery

Variety: CR-1

Planting Method: Transplant

Planting Date: 5/11/16

Harvest Date: 7/28/16

Spacing: 6 in

Row Spacing: 18 in; 2 rows/plot

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 2.7 ft wide x 30 ft long

Soil Type: Carlisle Muck

OM: 58.3%

pH: 5.3

Sand: 26%

Silt: 16%

Clay: 0.1%

CEC: -

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	5/11/16	11:00 am	61/52	F	Moist	7-8 SE	70	99% Cloudy	N
POT	5/12/16	11:00 am	69/59	F	Moist	3-5 SW	87	100% Cloudy	Y
P01	6/9/16	2:45 pm	71/60	F	Dry	2 SE	42	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/11	No Crop			
5/11	No Weeds			
5/12	CELERY	3-6"		
5/12	No weeds			
6/9	CELERY	6-8"	4-6 Leaves	Good
6/9	COPU = common purslane	1-6"	Foliar	Mod
6/9	LATH = ladythumb	1-4"	2-6 Leaves	Many
6/9	RRPW = Redroot pigweed	1-4"	2-5 leaves	Few
	COGR = common groundsel			
	MAYC = marsh yellowcress			
	PAWE = pineappleweed			

Notes and Comments

1. Spray applied with 2 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 ft of each plot was harvested.

Weed Control in Celery - Schreur - 2016

Weed Control in Celery - Schreur - 2016				
Trial ID:	113-16-2	Location:	Hudsonville, MI	
Protocol ID:	113-16-2	Investigator:	Dr. Bernard Zandstra	
Study Director:	Colin Phillippo			

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	COPU		LATH	RRPW	CELERY 23Jun16 RATING		
					CELERY 09Jun16 RATING	CELERY 09Jun16 RATING	CELERY 09Jun16 RATING	CELERY 09Jun16 RATING			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage					
1	Untreated, Handweeded						1.0	4.0	2.7	3.3	1.0
2	Zidua	85 WDG		0.027 lb ai/a	POT		1.0	6.7	4.7	8.0	1.3
3	Zidua	85 WDG		0.053 lb ai/a	POT		1.0	8.3	6.0	9.3	1.3
4	Zidua	85 WDG		0.106 lb ai/a	POT		1.7	8.7	5.0	9.0	1.0
5	Zidua	85 WDG		0.133 lb ai/a	POT		1.0	9.3	7.0	8.7	1.3
6	Zidua	85 WDG		0.133 lb ai/a	POT		1.0	9.0	6.0	8.7	1.0
	Caparol	4 L		2 lb ai/a	PO1						
7	Dual Magnum	7.62 EC		1.9 lb ai/a	PRT		1.0	9.7	5.3	9.7	1.3
	Chateau SW	51 WDG		0.096 lb ai/a	PRT						
	Caparol	4 L		2 lb ai/a	PO1						
8	Dual Magnum	7.62 EC		1.9 lb ai/a	POT		1.3	8.3	6.3	9.3	1.0
	Caparol	4 L		2 lb ai/a	PO1						
9	Zidua	85 WDG		0.133 lb ai/a	PRT		1.0	9.0	6.7	9.3	1.0
	Caparol	4 L		2 lb ai/a	PO1						
10	Dual Magnum	7.62 EC		1.9 lb ai/a	PRT		1.0	9.3	6.0	9.0	3.3
	tolpyralate	3.34 L		0.027 lb ai/a	PO1						
11	Zidua	85 WDG		0.267 lb ai/a	PRT		1.3	6.3	4.7	8.3	1.0
	Caparol	4 L		2 lb ai/a	PO1						
12	Caparol	4 L		2 lb ai/a	POT		1.0	7.7	4.3	6.7	1.0
	Lorox	50 DF		1 lb ai/a	PO1						
LSD P=.05							0.50	4.04	3.45	3.08	0.65
Standard Deviation							0.30	2.39	2.04	1.82	0.39
CV							26.76	29.73	37.76	21.95	29.57

Weed Control in Celery - Schreur - 2016

Pest Code					COGR	COPU	LATH	MAYC	PAWE	RRPW		
Crop Code					23Jun16	23Jun16	23Jun16	23Jun16	23Jun16	23Jun16		
Rating Date					RATING	RATING	RATING	RATING	RATING	RATING		
Rating 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	Growth Unit	Stage						
1	Untreated, Handweeded						7.7	4.0	1.3	4.0	7.0	2.3
2	Zidua	85	WDG	0.027	lb ai/a	POT	7.7	8.3	4.0	9.3	10.0	7.7
3	Zidua	85	WDG	0.053	lb ai/a	POT	8.7	10.0	2.7	7.3	7.7	9.3
4	Zidua	85	WDG	0.106	lb ai/a	POT	9.0	10.0	4.3	8.0	10.0	8.0
5	Zidua	85	WDG	0.133	lb ai/a	POT	8.7	10.0	4.7	8.7	10.0	6.7
6	Zidua	85	WDG	0.133	lb ai/a	POT	6.0	10.0	3.0	7.3	10.0	10.0
	Caparol	4	L	2	lb ai/a	PO1						
7	Dual Magnum	7.62	EC	1.9	lb ai/a	PRT	7.7	10.0	3.0	6.3	10.0	8.7
	Chateau SW	51	WDG	0.096	lb ai/a	PRT						
	Caparol	4	L	2	lb ai/a	PO1						
8	Dual Magnum	7.62	EC	1.9	lb ai/a	POT	7.3	9.3	4.3	8.3	10.0	10.0
	Caparol	4	L	2	lb ai/a	PO1						
9	Zidua	85	WDG	0.133	lb ai/a	PRT	6.7	10.0	2.7	8.0	10.0	7.0
	Caparol	4	L	2	lb ai/a	PO1						
10	Dual Magnum	7.62	EC	1.9	lb ai/a	PRT	8.3	6.0	1.0	8.0	7.0	10.0
	tolpyralate	3.34	L	0.027	lb ai/a	PO1						
11	Zidua	85	WDG	0.267	lb ai/a	PRT	7.3	7.0	2.3	3.0	10.0	5.3
	Caparol	4	L	2	lb ai/a	PO1						
12	Caparol	4	L	2	lb ai/a	POT	8.0	9.7	4.7	8.7	10.0	10.0
	Lorox	50	DF	1	lb ai/a	PO1						
LSD P=.05							5.23	3.95	3.48	3.45	3.94	3.82
Standard Deviation							3.09	2.33	2.05	2.04	2.33	2.26
CV							39.85	26.86	64.81	28.13	25.0	28.5

Weed Control in Celery - Schreur - 2016

Pest Code				CELERY CELERY			
Crop Code				28Jul16 28Jul16			
Rating Date				HARVEST HARVEST			
Rating Type				#/PLOT KG/10FT			
Rating Unit							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage		
1	Untreated, Handweeded					36.3	43.35
2	Zidua	85	WDG	0.027 lb ai/a	POT	34.7	41.96
3	Zidua	85	WDG	0.053 lb ai/a	POT	36.3	41.36
4	Zidua	85	WDG	0.106 lb ai/a	POT	34.7	40.82
5	Zidua	85	WDG	0.133 lb ai/a	POT	35.3	41.79
6	Zidua	85	WDG	0.133 lb ai/a	POT	35.3	42.24
	Caparol	4	L	2 lb ai/a	PO1		
7	Dual Magnum	7.62	EC	1.9 lb ai/a	PRT	36.3	41.72
	Chateau SW	51	WDG	0.096 lb ai/a	PRT		
	Caparol	4	L	2 lb ai/a	PO1		
8	Dual Magnum	7.62	EC	1.9 lb ai/a	POT	35.0	42.88
	Caparol	4	L	2 lb ai/a	PO1		
9	Zidua	85	WDG	0.133 lb ai/a	PRT	38.0	42.20
	Caparol	4	L	2 lb ai/a	PO1		
10	Dual Magnum	7.62	EC	1.9 lb ai/a	PRT	36.0	38.83
	tolpyralate	3.34	L	0.027 lb ai/a	PO1		
11	Zidua	85	WDG	0.267 lb ai/a	PRT	36.0	42.55
	Caparol	4	L	2 lb ai/a	PO1		
12	Caparol	4	L	2 lb ai/a	POT	35.3	43.41
	Lorox	50	DF	1 lb ai/a	PO1		
LSD P=.05						3.56	4.585
Standard Deviation						2.10	2.707
CV						5.88	6.46

Weed Control in Sweet Corn with Anthem MAXX - HTRC - 2016

Project Code: 106-16-1

Location: East Lansing, MI
Block 69

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Sweet Corn

Variety: See notes

Planting Method: Seeded

Planting Date: 5/18/16

Harvest Date: See Data

Spacing: 6 in, in row

Row Spacing: 28 in, 1 row each hybrid/plot

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 16 ft wide x 40 ft long

Soil Type: Marlette fine sandy loam OM: 2.2%

pH: 6.2

Sand: 54%

Silt: 30%

Clay: 16%

CEC:7.7

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/19/16	10:00am	65/52	F	Dry	6 N	31	0% Cloudy	N
PO1	5/31/16	1:30 pm	82/72	F	V. Dry	4-5 SE	29	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/19	SWEET CORN		Preemergence	
5/19	No weeds			
5/31	SWEET CORN	3-4"	V2	Good
5/31	COLQ = common lambsquarters	0.25-1"	2 lf	Many
5/31	CORW = common ragweed	0.25-0.5"	1 lf	Many
5/31	RRPW = redroot pigweed	0.25-0.5"	1-2 lf	Many
5/31	YEFT = yellow foxtail	0.5-1"	1-2 lf	Many

Notes and Comments

1. Spray applied with 12 nozzle, 16 ft. boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 tractor sprayer.
 2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
 3. Varieties: Battalion, EX08767143, Iochief, NK199, Temptation, Argent, GH9597, GSS0966, Jubilee, Overland, Protégé, Silverking
-

Weed Control in Sweet Corn with Anthem MAXX - HTRC - 2016

Sweet Corn Weed Control with Anthem MAXX - HTRC - 2016

Trial ID: 106-16-1	Location: East Lansing, MI
Protocol ID: 106-16-1	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code				BATTALIO	EX087671	IOCHIEF	NK199	TEMPTATI	ARGENT			
Crop Code				31May16	31May16	31May16	31May16	31May16	31May16			
Rating Date				RATING	RATING	RATING	RATING	RATING	RATING			
Rating Type				1-10	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	Bicep II Magnum	3.5 F		1.3 qt/a		PRE	3.3	3.7	3.7	2.7	1.0	2.3
2	Anthem MAXX	4.3 SC		3 oz/a		PRE	3.3	3.7	5.0	3.3	2.3	1.7
3	Bicep II Magnum	3.5 F		1.3 qt/a		EPOS	2.0	1.3	1.3	1.0	1.3	1.3
4	Anthem MAXX	4.3 SC		3 oz/a		EPOS	1.0	1.7	1.0	1.7	1.3	2.0
LSD P=.05				4.66			2.77	3.35	3.14	2.58		2.68
Standard Deviation				2.33			1.38	1.67	1.57	1.29		1.34
CV				96.55			53.59	60.91	72.57	86.07		73.29

Pest Code				GH9597	GSS0966	JUBILEE	OVERLAND	PROTEGE	SILVERKI			
Crop Code				31May16	31May16	31May16	31May16	31May16	31May16			
Rating Date				RATING	RATING	RATING	RATING	RATING	RATING			
Rating Type				1-10	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	Bicep II Magnum	3.5 F		1.3 qt/a		PRE	4.3	10.0	3.0	1.0	2.0	2.3
2	Anthem MAXX	4.3 SC		3 oz/a		PRE	2.0	10.0	2.3	2.0	2.0	2.0
3	Bicep II Magnum	3.5 F		1.3 qt/a		EPOS	2.3	10.0	2.3	1.3	1.7	2.0
4	Anthem MAXX	4.3 SC		3 oz/a		EPOS	2.0	10.0	2.3	1.0	2.3	1.3
LSD P=.05				4.33			0.00	4.35	1.91	3.44		2.33
Standard Deviation				2.17			0.00	2.18	0.96	1.72		1.17
CV				81.25			0.0	87.18	71.81	86.2		60.87

Weed Control in Sweet Corn with Anthem MAXX - HTRC - 2016

Pest Code			YEFT	COLQ	CORW	RRPW	BATTALIO EX087671					
Crop Code			31May16	31May16	31May16	31May16	06Jun16	06Jun16				
Rating Date			RATING	RATING	RATING	RATING	RATING	RATING				
Rating Type			1-10	1-10	1-10	1-10	1-10	1-10				
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage						
1	Bicep II Magnum	3.5 F		1.3 qt/a	PRE		8.7	10.0	10.0	10.0	3.0	1.7
2	Anthem MAXX	4.3 SC		3 oz/a	PRE		5.0	5.0	9.7	9.3	3.3	3.3
3	Bicep II Magnum	3.5 F		1.3 qt/a	EPOS		1.7	3.3	7.0	5.7	1.0	1.0
4	Anthem MAXX	4.3 SC		3 oz/a	EPOS		1.0	4.0	7.0	4.0	1.0	1.3
LSD P=.05							3.28	6.70	6.19	5.70	4.35	2.56
Standard Deviation							1.64	3.35	3.10	2.85	2.18	1.28
CV							40.2	60.07	36.78	39.35	104.61	69.83

Pest Code			IOCHIEF	NK199	TEMPTATI	ARGENT	GH9597	GSS0966				
Crop Code			06Jun16	06Jun16	06Jun16	06Jun16	06Jun16	06Jun16				
Rating Date			RATING	RATING	RATING	RATING	RATING	RATING				
Rating Type			1-10	1-10	1-10	1-10	1-10	1-10				
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage						
1	Bicep II Magnum	3.5 F		1.3 qt/a	PRE		2.7	2.0	1.3	2.0	3.7	10.0
2	Anthem MAXX	4.3 SC		3 oz/a	PRE		3.0	3.0	1.0	1.3	1.3	10.0
3	Bicep II Magnum	3.5 F		1.3 qt/a	EPOS		1.0	1.3	1.0	1.3	1.7	10.0
4	Anthem MAXX	4.3 SC		3 oz/a	EPOS		1.3	1.0	1.0	1.3	1.7	10.0
LSD P=.05							3.14	3.51	0.58	2.08	3.41	0.00
Standard Deviation							1.57	1.76	0.29	1.04	1.71	0.00
CV							78.62	95.78	26.65	69.39	81.98	0.0

Pest Code			JUBILEE	OVERLAND	PROTEGE	SILVERKI	LACG	YEFT				
Crop Code			06Jun16	06Jun16	06Jun16	06Jun16	06Jun16	06Jun16				
Rating Date			RATING	RATING	RATING	RATING	RATING	RATING				
Rating Type			1-10	1-10	1-10	1-10	1-10	1-10				
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage						
1	Bicep II Magnum	3.5 F		1.3 qt/a	PRE		2.3	1.0	1.0	2.3	8.3	7.3
2	Anthem MAXX	4.3 SC		3 oz/a	PRE		1.0	1.0	1.3	1.0	5.7	1.7
3	Bicep II Magnum	3.5 F		1.3 qt/a	EPOS		1.0	1.0	1.7	1.7	8.3	7.3
4	Anthem MAXX	4.3 SC		3 oz/a	EPOS		1.7	1.0	2.0	2.3	6.0	1.7
LSD P=.05							2.75	0.00	1.49	3.59	5.52	2.18
Standard Deviation							1.37	0.00	0.75	1.80	2.76	1.09
CV							91.62	0.0	49.69	97.91	39.02	24.29

Weed Control in Sweet Corn with Anthem MAXX - HTRC - 2016

Pest Code	COLQ			CORW			RRPW					
Crop Code							BATTALIO	EX087671	IOCHIEF			
Rating Date	06Jun16			06Jun16			10Jun16	10Jun16	10Jun16			
Rating 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	Growth Unit	Stage						
1	Bicep II Magnum	3.5 F		1.3 qt/a	PRE		10.0	9.3	10.0	2.3	2.0	2.3
2	Anthem MAXX	4.3 SC		3 oz/a	PRE		2.3	7.0	3.3	3.0	3.7	3.3
3	Bicep II Magnum	3.5 F		1.3 qt/a	EPOS		10.0	10.0	10.0	1.0	1.3	1.3
4	Anthem MAXX	4.3 SC		3 oz/a	EPOS		4.7	10.0	9.0	1.3	1.0	1.0
LSD P=.05							3.44	4.93	3.46	3.66	3.35	3.00
Standard Deviation							1.72	2.47	1.73	1.83	1.67	1.50
CV							25.54	27.15	21.43	95.65	83.75	75.0

Pest Code	NK199			TEMPTATI			ARGENT			GH9597			GSS0966			JUBILEE		
Crop Code																		
Rating Date	10Jun16			10Jun16			10Jun16			10Jun16			10Jun16			10Jun16		
Rating 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	Growth Unit	Stage												
1	Bicep II Magnum	3.5 F		1.3 qt/a	PRE		2.0	1.0	2.0	3.3	10.0	2.3						
2	Anthem MAXX	4.3 SC		3 oz/a	PRE		3.0	2.0	1.7	2.7	10.0	2.0						
3	Bicep II Magnum	3.5 F		1.3 qt/a	EPOS		1.7	1.3	2.3	2.7	9.7	2.0						
4	Anthem MAXX	4.3 SC		3 oz/a	EPOS		1.3	1.3	1.7	2.7	10.0	2.3						
LSD P=.05							3.03	2.03	1.97	4.20	0.58	2.96						
Standard Deviation							1.52	1.01	0.99	2.10	0.29	1.48						
CV							75.92	71.56	51.44	74.17	2.91	68.37						

Pest Code	OVERLAND			PROTEGE			SILVERKI			BYGR			LACG			YEFT		
Crop Code																		
Rating Date	10Jun16			10Jun16			10Jun16			10Jun16			10Jun16			10Jun16		
Rating 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	Growth Unit	Stage												
1	Bicep II Magnum	3.5 F		1.3 qt/a	PRE		1.0	1.0	1.3	6.0	6.0	6.3						
2	Anthem MAXX	4.3 SC		3 oz/a	PRE		1.3	1.3	1.3	3.3	5.7	1.7						
3	Bicep II Magnum	3.5 F		1.3 qt/a	EPOS		1.0	1.3	3.0	9.3	7.3	9.0						
4	Anthem MAXX	4.3 SC		3 oz/a	EPOS		1.3	2.3	2.0	5.3	8.0	3.0						
LSD P=.05							0.88	2.00	3.33	6.99	4.30	4.60						
Standard Deviation							0.44	1.00	1.67	3.50	2.15	2.30						
CV							37.8	66.67	86.96	58.33	31.91	46.07						

Weed Control in Sweet Corn with Anthem MAXX - HTRC - 2016

Pest Code	YENS			COLQ	RRPW	BATTALIO			EX087671	IOCHIEF		
Crop Code	10Jun16			10Jun16	10Jun16	06Jul16			06Jul16	06Jul16		
Rating Date	RATING			RATING	RATING	RATING			RATING	RATING		
Rating Type	1-10			1-10	1-10	1-10			1-10	1-10		
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage						
1	Bicep II Magnum	3.5 F		1.3 qt/a	PRE		6.3	9.7	9.7	3.7	3.0	3.7
2	Anthem MAXX	4.3 SC		3 oz/a	PRE		4.0	2.7	6.0	5.3	5.0	6.0
3	Bicep II Magnum	3.5 F		1.3 qt/a	EPOS		8.3	10.0	10.0	1.7	1.3	2.7
4	Anthem MAXX	4.3 SC		3 oz/a	EPOS		6.3	4.0	10.0	3.7	3.3	3.7
LSD P=.05							7.04	4.25	4.65	3.60	3.66	4.32
Standard Deviation							3.52	2.13	2.33	1.80	1.83	2.16
CV							56.38	32.32	26.1	50.31	57.89	54.01

Pest Code	NK199			TEMPTATI	ARGENT	GH9597	GSS0966	JUBILEE				
Crop Code	06Jul16			06Jul16	06Jul16	06Jul16	06Jul16	06Jul16				
Rating Date	RATING			RATING	RATING	RATING	RATING	RATING				
Rating Type	1-10			1-10	1-10	1-10	1-10	1-10				
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage						
1	Bicep II Magnum	3.5 F		1.3 qt/a	PRE		2.7	1.7	2.3	3.0	9.3	2.3
2	Anthem MAXX	4.3 SC		3 oz/a	PRE		5.0	3.3	3.7	4.3	10.0	3.0
3	Bicep II Magnum	3.5 F		1.3 qt/a	EPOS		1.7	1.0	2.3	2.3	9.0	2.7
4	Anthem MAXX	4.3 SC		3 oz/a	EPOS		3.0	3.3	3.7	5.0	9.7	3.3
LSD P=.05							4.17	2.68	2.03	2.33	1.37	3.19
Standard Deviation							2.09	1.34	1.01	1.17	0.69	1.60
CV							67.73	57.59	33.79	31.82	7.23	56.42

Pest Code	OVERLAND			PROTEGE	SILVERKI	LACG	YEFT	YENS				
Crop Code	06Jul16			06Jul16	06Jul16	06Jul16	06Jul16	06Jul16				
Rating Date	RATING			RATING	RATING	RATING	RATING	RATING				
Rating Type	1-10			1-10	1-10	1-10	1-10	1-10				
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage						
1	Bicep II Magnum	3.5 F		1.3 qt/a	PRE		1.7	2.3	2.0	1.3	3.7	8.3
2	Anthem MAXX	4.3 SC		3 oz/a	PRE		3.0	3.7	3.0	9.0	1.0	3.0
3	Bicep II Magnum	3.5 F		1.3 qt/a	EPOS		1.0	1.3	2.3	4.0	3.3	6.3
4	Anthem MAXX	4.3 SC		3 oz/a	EPOS		2.7	3.0	3.3	7.0	1.7	4.7
LSD P=.05							1.45	1.37	2.60	7.74	4.23	4.39
Standard Deviation							0.73	0.69	1.30	3.87	2.11	2.09
CV							34.87	26.6	48.81	72.62	87.51	37.43

Weed Control in Sweet Corn with Anthem MAXX - HTRC - 2016

Pest Code		COLQ										
Crop Code		ARGENT ARGENT BATTALIO BATTALIO EX087671										
Rating Date		06Jul16 09Aug16 09Aug16 09Aug16 09Aug16 09Aug16										
Rating Type		RATING HARVEST HARVEST HARVEST HARVEST HARVEST HARVEST										
Rating Unit		1-10 #/PLOT KG/PLOT #/PLOT KG/PLOT #/PLOT										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage						
1	Bicep II Magnum	3.5	F	1.3	qt/a	PRE	7.7	3.67	0.88	19.00	4.81	12.67
2	Anthem MAXX	4.3	SC	3	oz/a	PRE	1.0	1.00	0.15	6.33	1.16	2.33
3	Bicep II Magnum	3.5	F	1.3	qt/a	EPOS	10.0	6.67	1.98	28.67	6.79	24.33
4	Anthem MAXX	4.3	SC	3	oz/a	EPOS	1.7	1.00	0.24	13.00	2.86	9.00
LSD P=.05							0.67	9.306	2.756	20.681	6.249	15.430
Standard Deviation							0.33	4.658	1.379	10.351	3.128	7.723
CV							6.56	151.06	169.4	61.8	80.12	63.91

Pest Code		EX087671 GH9597 GH9597 GSS0966 GSS0966									
Crop Code		09Aug16 09Aug16 09Aug16 09Aug16 09Aug16									
Rating Date		HARVEST HARVEST HARVEST HARVEST HARVEST									
Rating Type		KG/PLOT #/PLOT KG/PLOT #/PLOT KG/PLOT									
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage					
1	Bicep II Magnum	3.5	F	1.3	qt/a	PRE	3.21	10.00	2.27	0.00	0.00
2	Anthem MAXX	4.3	SC	3	oz/a	PRE	0.33	3.00	0.48	0.00	0.00
3	Bicep II Magnum	3.5	F	1.3	qt/a	EPOS	5.36	12.67	2.97	0.67	0.16
4	Anthem MAXX	4.3	SC	3	oz/a	EPOS	1.58	2.00	0.44	0.00	0.00
LSD P=.05							4.240	7.542	1.610	1.154	0.280
Standard Deviation							2.122	3.775	0.806	0.577	0.140
CV							81.01	54.58	52.31	346.41	346.41

Pest Code		IOCHIEF IOCHIEF JUBILEE JUBILEE NK199									
Crop Code		09Aug16 09Aug16 09Aug16 09Aug16 09Aug16									
Rating Date		HARVEST HARVEST HARVEST HARVEST HARVEST									
Rating Type		#/PLOT KG/PLOT #/PLOT KG/PLOT #/PLOT									
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage					
1	Bicep II Magnum	3.5	F	1.3	qt/a	PRE	6.68	2.65	10.33	2.44	11.67
2	Anthem MAXX	4.3	SC	3	oz/a	PRE	1.13	0.19	6.67	1.13	4.33
3	Bicep II Magnum	3.5	F	1.3	qt/a	EPOS	5.83	3.30	12.33	3.19	16.33
4	Anthem MAXX	4.3	SC	3	oz/a	EPOS	4.11	1.39	8.33	1.59	10.00
LSD P=.05							8.320	2.031	11.535	2.852	14.124
Standard Deviation							4.164	1.017	5.774	1.427	7.069
CV							93.85	54.05	61.31	68.36	66.79

Weed Control in Sweet Corn with Anthem MAXX - HTRC - 2016

Pest Code		NK199 OVERLAND OVERLAND PROTEGE PROTEGE									
Crop Code		09Aug16 09Aug16 09Aug16 09Aug16 09Aug16									
Rating Date		HARVEST HARVEST HARVEST HARVEST HARVEST									
Rating Type		KG/PLOT #/PLOT KG/PLOT #/PLOT KG/PLOT									
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage					
1	Bicep II Magnum	3.5 F		1.3 qt/a	PRE		3.19	17.00	4.25	19.33	4.71
2	Anthem MAXX	4.3 SC		3 oz/a	PRE		0.70	3.67	0.62	4.00	0.51
3	Bicep II Magnum	3.5 F		1.3 qt/a	EPOS		4.18	20.00	5.22	19.33	4.74
4	Anthem MAXX	4.3 SC		3 oz/a	EPOS		1.81	8.67	1.37	3.33	0.71
LSD P=.05							3.901	8.810	2.318	7.040	1.742
Standard Deviation							1.952	4.410	1.160	3.524	0.872
CV							79.07	35.75	40.5	30.64	32.71

Pest Code		SILVERKI SILVERKI TEMPTATI TEMPTATI								
Crop Code		09Aug16 09Aug16 09Aug16 09Aug16								
Rating Date		HARVEST HARVEST HARVEST HARVEST								
Rating Type		#/PLOT KG/PLOT #/PLOT KG/PLOT								
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage				
1	Bicep II Magnum	3.5 F		1.3 qt/a	PRE		20.33	5.65	8.67	1.22
2	Anthem MAXX	4.3 SC		3 oz/a	PRE		8.67	1.84	4.33	0.59
3	Bicep II Magnum	3.5 F		1.3 qt/a	EPOS		15.33	4.22	10.33	1.94
4	Anthem MAXX	4.3 SC		3 oz/a	EPOS		9.67	1.99	4.00	0.34
LSD P=.05							11.129	3.656	6.816	1.480
Standard Deviation							5.570	1.830	3.412	0.741
CV							41.26	53.46	49.93	72.52

Weed Control in Sweet Corn - HTRC - 2016

Project Code: 106-16-2

Location: East Lansing, MI
Block 69

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Sweet Corn Varieties: BC0805, GSS0966

Planting Method: Seeded Planting Date: 6/6/16 Harvest Date: see notes

Spacing: 6 in Row Spacing: 28 in; 1 row each hybrid/plot

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: 2.2% pH: 6.7
Sand: 54% Silt: 28% Clay: 18% CEC: 9.9

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	6/9/16	2:20 pm	76/70	F	Dry	4-7 SW	36	100% Cloudy	N
PO1	6/29/16	9:20 am	65/64	F	Moist	4 NW	50	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/9	SWEET CORN		Preemergence	
6/9	No Weeds			
6/29	SWEET CORN	6-8"	V2	Good
6/29	COLQ = common lambsquarters	2-3"	Veg	Many
6/29	RRPW = redroot pigweed	2-5"	Veg	Many
6/29	YEFT = yellow foxtail	6-8"	Veg	Few
	CORW = common ragweed			
	EBNS = eastern black nightshade			
	LACG = large crabgrass			

Notes and Comments

1. Spray 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. GSS0966 harvested on 8/23/16. BC0805 harvested on 8/26/16.
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Weed Control in Sweet Corn - HTRC - 2016

Weed Control in Sweet Corn - HTRC - 2016					
Trial ID:	106-16-2	Location:	East Lansing, MI		
Protocol ID:	106-16-2	Investigator:	Dr. Bernard Zandstra		
Study Director:	Colin Phillippo				

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	BC0805		GSS0966		YEFT	COLQ	EBNS	RRPW
					24Jun16	24Jun16	24Jun16	24Jun16	24Jun16	24Jun16	24Jun16	
					RATING	RATING	RATING	RATING	RATING	RATING	RATING	
					1-10	1-10	1-10	1-10	1-10	1-10	1-10	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage						
1	Prowl H20	3.8	CS	1.9 lb ai/a	PRE		2.0	1.7	7.3	10.0	8.3	8.3
2	Zidua	85	WDG	0.21 lb ai/a	PRE		1.0	1.0	10.0	7.3	10.0	10.0
3	Acuron	3.547	CS	2.58 lb ai/a	PRE		1.0	1.7	10.0	10.0	10.0	10.0
4	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE		1.0	1.3	7.0	4.3	9.0	9.3
5	Surpass	6.4	EC	2 lb ai/a	PRE		1.0	1.7	10.0	4.3	10.0	10.0
6	Outlook	6	EC	0.98 lb ai/a	PRE		1.3	1.7	10.0	4.7	7.0	8.7
7	Anthem ATZ	4.5	SE	1.4 lb ai/a	PRE		1.3	1.0	10.0	10.0	10.0	10.0
8	Anthem MAXX	4.3	SC	3 oz/a	PRE		2.3	3.0	10.0	7.3	9.7	9.7
9	Lumax	3.948	L	1.23 lb ai/a	PRE		1.0	1.3	10.0	10.0	10.0	10.0
10	Callisto	4	SC	0.09 lb ai/a	PO1		2.3	2.3	4.0	2.7	3.0	3.3
	Accent	75	WDG	0.031 lb ai/a	PO1							
	COC	100	SL	1 % v/v	PO1							
11	Impact	2.8	SC	0.022 lb ai/a	PO1		1.0	1.0	1.0	2.0	1.0	1.0
	MSO	100	SL	0.5 % v/v	PO1							
	N Pak (AMS)	100	L	3 % v/v	PO1							
12	Laudis	3.5	SC	0.082 lb ai/a	PO1		2.3	2.0	4.3	4.0	3.3	4.0
	COC	100	SL	1 % v/v	PO1							
	N Pak (AMS)	100	L	3 % v/v	PO1							
13	Dual Magnum	7.62	EC	1.3 lb ai/a	PRE		2.0	1.7	10.0	5.0	8.7	9.3
	tolpyralate	3.34	L	0.27 lb ai/a	PO1							
	AAtrex	4	L	1 lb ai/a	PO1							
	MSO	100	SL	0.5 % v/v	PO1							
	UAN	28	L	2.5 % v/v	PO1							
14	tolpyralate	3.34	L	0.036 lb ai/a	PO1		1.0	1.0	1.0	1.0	1.0	1.0
	AAtrex	4	L	1 lb ai/a	PO1							
	MSO	100	SL	0.5 % v/v	PO1							
	UAN	28	L	2.5 % v/v	PO1							
15	tolpyralate	3.34	L	0.036 lb ai/a	PO1		1.7	2.0	4.0	3.3	3.0	4.0
	AAtrex	4	L	1 lb ai/a	PO1							
16	Liberty 280	2.34	L	0.37 lb ai/a	PO1		1.0	1.3	5.3	3.3	3.0	3.0
LSD P=.05							1.74	1.75	4.25	4.40	3.89	3.46
Standard Deviation							1.05	1.05	2.55	2.64	2.33	2.08
CV							71.74	65.59	35.79	47.28	34.86	29.75

Weed Control in Sweet Corn - HTRC - 2016

Pest Code		LACG			YEFT	COLQ	CORW	RRPW				
Crop Code		BC0805 GSS0966										
Rating Date		24Jun16	05Jul16	05Jul16	05Jul16	05Jul16	05Jul16	05Jul16				
Rating 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	Growth Stage							
1	Prowl H20	3.8	CS	1.9 lb ai/a	PRE	7.7	2.0	1.7	7.3	10.0	10.0	7.3
2	Zidua	85	WDG	0.21 lb ai/a	PRE	9.7	1.0	1.3	9.7	5.0	10.0	7.7
3	Acuron	3.547	CS	2.58 lb ai/a	PRE	10.0	1.3	1.3	10.0	10.0	10.0	10.0
4	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE	10.0	1.7	1.7	10.0	4.0	8.7	6.0
5	Surpass	6.4	EC	2 lb ai/a	PRE	10.0	1.7	1.7	10.0	4.3	10.0	8.0
6	Outlook	6	EC	0.98 lb ai/a	PRE	10.0	1.3	1.3	10.0	6.0	10.0	7.0
7	Anthem ATZ	4.5	SE	1.4 lb ai/a	PRE	10.0	2.0	1.3	9.3	10.0	10.0	10.0
8	Anthem MAXX	4.3	SC	3 oz/a	PRE	10.0	1.7	2.3	9.0	6.3	10.0	7.0
9	Lumax	3.948	L	1.23 lb ai/a	PRE	10.0	1.7	1.7	10.0	10.0	10.0	9.7
10	Callisto	4	SC	0.09 lb ai/a	PO1	4.0	2.3	2.3	9.0	7.3	10.0	8.3
	Accent	75	WDG	0.031 lb ai/a	PO1							
	COC	100	SL	1 % v/v	PO1							
11	Impact	2.8	SC	0.022 lb ai/a	PO1	1.0	1.7	1.3	9.7	7.7	10.0	8.3
	MSO	100	SL	0.5 % v/v	PO1							
	N Pak (AMS)	100	L	3 % v/v	PO1							
12	Laudis	3.5	SC	0.082 lb ai/a	PO1	4.7	2.7	2.0	10.0	8.7	10.0	8.3
	COC	100	SL	1 % v/v	PO1							
	N Pak (AMS)	100	L	3 % v/v	PO1							
13	Dual Magnum	7.62	EC	1.3 lb ai/a	PRE	10.0	2.0	2.0	10.0	10.0	10.0	10.0
	tolpyralate	3.34	L	0.27 lb ai/a	PO1							
	AAtrex	4	L	1 lb ai/a	PO1							
	MSO	100	SL	0.5 % v/v	PO1							
	UAN	28	L	2.5 % v/v	PO1							
14	tolpyralate	3.34	L	0.036 lb ai/a	PO1	1.0	1.3	1.3	10.0	9.3	10.0	9.3
	AAtrex	4	L	1 lb ai/a	PO1							
	MSO	100	SL	0.5 % v/v	PO1							
	UAN	28	L	2.5 % v/v	PO1							
15	tolpyralate	3.34	L	0.036 lb ai/a	PO1	4.0	1.7	1.7	8.7	8.3	10.0	8.7
	AAtrex	4	L	1 lb ai/a	PO1							
16	Liberty 280	2.34	L	0.37 lb ai/a	PO1	4.3	1.7	2.3	9.7	9.7	10.0	10.0
LSD P=.05						3.55	1.22	1.27	1.77	3.00	0.96	2.95
Standard Deviation						2.13	0.73	0.76	1.06	1.80	0.58	1.77
CV						29.28	42.18	44.76	11.13	22.72	5.82	20.89

Weed Control in Sweet Corn - HTRC - 2016

Pest Code						GSS0966	GSS0966	BC0805	BC0805	
Crop Code						23Aug16	23Aug16	26Aug16	26Aug16	
Rating Date						HARVEST	HARVEST	HARVEST	HARVEST	
Rating Type						#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	
Rating Unit						#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage				
1	Prowl H20	3.8	CS	1.9 lb ai/a	PRE		54.67	13.81	52.33	19.91
2	Zidua	85	WDG	0.21 lb ai/a	PRE		62.67	15.28	65.00	23.98
3	Acuron	3.547	CS	2.58 lb ai/a	PRE		76.33	19.91	71.67	28.53
4	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE		55.33	12.41	60.00	20.58
5	Surpass	6.4	EC	2 lb ai/a	PRE		52.00	12.68	57.33	19.13
6	Outlook	6	EC	0.98 lb ai/a	PRE		52.67	12.45	59.33	20.82
7	Anthem ATZ	4.5	SE	1.4 lb ai/a	PRE		71.00	18.14	66.00	26.68
8	Anthem MAXX	4.3	SC	3 oz/a	PRE		55.00	13.20	57.67	20.34
9	Lumax	3.948	L	1.23 lb ai/a	PRE		72.00	17.96	63.67	26.59
10	Callisto	4	SC	0.09 lb ai/a	PO1		66.33	16.89	68.00	26.06
	Accent	75	WDG	0.031 lb ai/a	PO1					
	COC	100	SL	1 % v/v	PO1					
11	Impact	2.8	SC	0.022 lb ai/a	PO1		69.33	17.84	68.67	26.56
	MSO	100	SL	0.5 % v/v	PO1					
	N Pak (AMS)	100	L	3 % v/v	PO1					
12	Laudis	3.5	SC	0.082 lb ai/a	PO1		66.67	17.08	63.67	24.60
	COC	100	SL	1 % v/v	PO1					
	N Pak (AMS)	100	L	3 % v/v	PO1					
13	Dual Magnum	7.62	EC	1.3 lb ai/a	PRE		80.00	20.18	63.00	26.14
	tolpyralate	3.34	L	0.27 lb ai/a	PO1					
	AAtrex	4	L	1 lb ai/a	PO1					
	MSO	100	SL	0.5 % v/v	PO1					
	UAN	28	L	2.5 % v/v	PO1					
14	tolpyralate	3.34	L	0.036 lb ai/a	PO1		87.00	22.60	69.33	27.14
	AAtrex	4	L	1 lb ai/a	PO1					
	MSO	100	SL	0.5 % v/v	PO1					
	UAN	28	L	2.5 % v/v	PO1					
15	tolpyralate	3.34	L	0.036 lb ai/a	PO1		68.00	17.07	66.33	25.68
	AAtrex	4	L	1 lb ai/a	PO1					
16	Liberty 280	2.34	L	0.37 lb ai/a	PO1		59.67	14.89	64.67	24.46
LSD P=.05							11.768	3.194	10.978	4.384
Standard Deviation							7.058	1.916	6.584	2.630
CV							10.77	11.68	10.36	10.87

Weed Control in Cucumber - HTRC - 2016

Project Code: 108-16-1

Location: East Lansing, MI
Block 87/88

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Cucumber, pickling Variety: Expedition
 Planting Method: Seeded Planting Date: 5/25/16 Harvest Date: 7/11/16
 Spacing: 3 in Row Spacing: 14 in; 3 rows/plot
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 16 ft wide x 50 ft long

Soil Type: Marlette fine sandy loam OM: 2.1% pH: 6.3
 Sand: 58% Silt: 24% Clay: 18% CEC: 11

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/25/16	3:45 pm	86/75	F	Dry	4-6 SW	40	80% Cloudy	N
PO1	6/13/16	10:00am	68/68	F	Dry	4 SE	46	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/25	CUCUMBER		Preemergence	
5/25	no weeds			
6/13	CUCUMBER	2-3"	2 lf	Good
6/13	WIRA = wild radish	1-3"	2-4 lf	Many
6/13	YEFT = yellow foxtail	2-4"	2 lf	Mod
6/13	YENS = yellow nutsedge	3-6"	3-6 lf	Mod
	COLQ = common lambsquarters			
	CORW = common ragweed			
	EBNS = eastern black nightshade			
	RRPW = redroot pigweed			

Notes and Comments

1. Spray applied with 12 nozzle, 16 ft. boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 tractor sprayer.
 2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
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Weed Control in Cucumber - HTRC - 2016

Weed Control in Cucumber - HTRC - 2016

Trial ID: 108-16-1	Location: East Lansing, MI
Protocol ID: 108-16-1	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	YEFT		YENS		WIRA		YEFT		YENS	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Stage	CUKE		CUKE		CUKE		CUKE		
						13Jun16	13Jun16	13Jun16	13Jun16	17Jun16	17Jun16	17Jun16	17Jun16	
						RATING	RATING	RATING	RATING	RATING	RATING	RATING	RATING	
						1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	
1	Curbit	3	EC	1.13 lb ai/a	PRE	1.0	9.7	4.7	7.3	1.3	9.7	1.0		
2	Curbit	3	EC	0.75 lb ai/a	PRE	2.3	10.0	5.3	8.7	2.3	10.0	2.3		
	Command	3	ME	0.375 lb ai/a	PRE									
3	Strategy	2.1	SE	6 pt/a	PRE	1.0	9.7	6.3	7.3	1.7	10.0	1.0		
4	Curbit	3	EC	0.75 lb ai/a	PRE	1.7	10.0	6.7	9.3	1.3	10.0	5.0		
	Reflex	2	SL	0.125 lb ai/a	PRE									
5	Command	3	ME	0.375 lb ai/a	PRE	3.7	10.0	7.3	8.0	4.0	10.0	3.0		
	Dual Magnum	7.62	EC	0.4 lb ai/a	PRE									
6	Curbit	3	EC	0.75 lb ai/a	PRE	6.3	10.0	7.7	8.0	6.0	9.3	3.0		
	Command	3	ME	0.25 lb ai/a	PRE									
	Treevix	70	WG	0.044 lb ai/a	PRE									
7	Curbit	3	EC	0.75 lb ai/a	PRE	2.0	10.0	6.7	7.3	2.3	9.7	2.0		
	Command	3	ME	0.25 lb ai/a	PRE									
	A 16003E	1.67	SL	0.033 lb ai/a	PRE									
8	Curbit	3	EC	0.75 lb ai/a	PRE	1.7	10.0	6.0	7.7	2.7	9.7	3.3		
	Command	3	ME	0.25 lb ai/a	PRE									
	A 16003E	1.67	SL	0.033 lb ai/a	PO1									
9	Curbit	3	EC	0.75 lb ai/a	PRE	1.7	10.0	6.0	7.7	8.0	9.3	3.7		
	Command	3	ME	0.25 lb ai/a	PRE									
	Treevix	70	WG	0.045 lb ai/a	PO1									
10	Curbit	3	EC	0.75 lb ai/a	PRE	1.7	10.0	8.0	7.7	2.3	9.7	6.7		
	Command	3	ME	0.25 lb ai/a	PRE									
	Sandea	75	WG	0.023 lb ai/a	PO1									
11	Curbit	3	EC	0.75 lb ai/a	PRE	1.3	9.7	7.3	8.0	2.7	9.3	6.3		
	Command	3	ME	0.25 lb ai/a	PRE									
	tolpyralate	3.34	L	0.027 lb ai/a	PO1									
12	Untreated					1.3	6.7	8.7	7.0	1.3	6.0	2.7		
LSD P=.05						1.13	2.42	4.04	2.62	1.10	2.03	4.36		
Standard Deviation						0.67	1.43	2.38	1.55	0.65	1.20	2.57		
CV						31.17	14.86	35.48	19.78	21.71	12.77	77.24		

Weed Control in Cucumber - HTRC - 2016

Pest Code					CORW	RRPW	WIRA	CUKE	YEFT	YENS	COLQ		
Crop Code					17Jun16	17Jun16	17Jun16	24Jun16	24Jun16	24Jun16	24Jun16		
Rating Date					RATING	RATING	RATING	RATING	RATING	RATING	RATING		
Rating Type					1-10	1-10	1-10	1-10	1-10	1-10	1-10		
Rating Unit													
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage							
1	Curbit	3	EC	1.13 lb ai/a	PRE		3.0	9.3	4.0	1.7	9.3	1.0	10.0
2	Curbit	3	EC	0.75 lb ai/a	PRE		9.0	10.0	7.0	1.7	10.0	2.7	10.0
	Command	3	ME	0.375 lb ai/a	PRE								
3	Strategy	2.1	SE	6 pt/a	PRE		9.0	10.0	6.3	1.7	10.0	1.3	10.0
4	Curbit	3	EC	0.75 lb ai/a	PRE		7.3	9.3	7.3	1.3	9.0	3.0	4.7
	Reflex	2	SL	0.125 lb ai/a	PRE								
5	Command	3	ME	0.375 lb ai/a	PRE		8.3	9.7	7.7	2.3	10.0	3.7	9.0
	Dual Magnum	7.62	EC	0.4 lb ai/a	PRE								
6	Curbit	3	EC	0.75 lb ai/a	PRE		9.3	10.0	5.3	6.3	9.3	2.0	10.0
	Command	3	ME	0.25 lb ai/a	PRE								
	Treevix	70	WG	0.044 lb ai/a	PRE								
7	Curbit	3	EC	0.75 lb ai/a	PRE		9.7	9.0	5.3	1.7	8.7	1.7	10.0
	Command	3	ME	0.25 lb ai/a	PRE								
	A 16003E	1.67	SL	0.033 lb ai/a	PRE								
8	Curbit	3	EC	0.75 lb ai/a	PRE		9.3	10.0	6.3	3.3	9.0	3.3	9.3
	Command	3	ME	0.25 lb ai/a	PRE								
	A 16003E	1.67	SL	0.033 lb ai/a	PO1								
9	Curbit	3	EC	0.75 lb ai/a	PRE	10.0	10.0	10.0	8.3	6.3	2.3	9.3	
	Command	3	ME	0.25 lb ai/a	PRE								
	Treevix	70	WG	0.045 lb ai/a	PO1								
10	Curbit	3	EC	0.75 lb ai/a	PRE	9.7	10.0	8.0	1.7	9.3	8.3	8.7	
	Command	3	ME	0.25 lb ai/a	PRE								
	Sandea	75	WG	0.023 lb ai/a	PO1								
11	Curbit	3	EC	0.75 lb ai/a	PRE	8.7	10.0	6.7	5.3	9.0	6.3	10.0	
	Command	3	ME	0.25 lb ai/a	PRE								
	tolpyralate	3.34	L	0.027 lb ai/a	PO1								
12	Untreated						1.3	1.7	3.0	1.7	2.3	2.0	1.0
	LSD P=.05						2.83	1.14	3.03	1.86	3.06	3.30	1.63
	Standard Deviation						1.67	0.67	1.79	1.10	1.81	1.95	0.97
	CV						21.21	7.42	27.9	35.6	21.21	62.11	11.36

Weed Control in Cucumber - HTRC - 2016

Pest Code				CORW	EBNS	RRPW	WIRA					
Crop Code				24Jun16	24Jun16	24Jun16	24Jun16	CUKE	CUKE			
Rating Date				RATING	RATING	RATING	RATING	11Jul16	11Jul16			
Rating Type				1-10	1-10	1-10	1-10	HVRT-FRUIT	HVRT-PLANT			
Rating Unit								KG/PLOT	KG/PLOT			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Rate	Growth Stage						
1	Curbit	3	EC	1.13 lb ai/a		PRE	1.0	10.0	9.3	3.3	29.14	35.47
2	Curbit	3	EC	0.75 lb ai/a		PRE	7.7	7.7	8.7	6.7	39.99	40.08
	Command	3	ME	0.375 lb ai/a		PRE						
3	Strategy	2.1	SE	6 pt/a		PRE	5.3	9.3	9.0	5.3	43.33	41.89
4	Curbit	3	EC	0.75 lb ai/a		PRE	6.0	9.0	8.7	6.0	41.77	39.85
	Reflex	2	SL	0.125 lb ai/a		PRE						
5	Command	3	ME	0.375 lb ai/a		PRE	5.0	10.0	8.7	5.7	28.57	40.39
	Dual Magnum	7.62	EC	0.4 lb ai/a		PRE						
6	Curbit	3	EC	0.75 lb ai/a		PRE	9.3	9.7	9.0	3.3	13.09	14.53
	Command	3	ME	0.25 lb ai/a		PRE						
	Treevix	70	WG	0.044 lb ai/a		PRE						
7	Curbit	3	EC	0.75 lb ai/a		PRE	9.3	9.3	8.0	3.7	36.67	38.48
	Command	3	ME	0.25 lb ai/a		PRE						
	A 16003E	1.67	SL	0.033 lb ai/a		PRE						
8	Curbit	3	EC	0.75 lb ai/a		PRE	10.0	10.0	9.3	6.3	32.55	35.56
	Command	3	ME	0.25 lb ai/a		PRE						
	A 16003E	1.67	SL	0.033 lb ai/a		PO1						
9	Curbit	3	EC	0.75 lb ai/a		PRE	10.0	9.7	10.0	10.0	1.15	5.90
	Command	3	ME	0.25 lb ai/a		PRE						
	Treevix	70	WG	0.045 lb ai/a		PO1						
10	Curbit	3	EC	0.75 lb ai/a		PRE	9.7	8.0	10.0	10.0	41.81	43.07
	Command	3	ME	0.25 lb ai/a		PRE						
	Sandea	75	WG	0.023 lb ai/a		PO1						
11	Curbit	3	EC	0.75 lb ai/a		PRE	9.7	9.7	10.0	8.0	14.59	24.30
	Command	3	ME	0.25 lb ai/a		PRE						
	tolpyralate	3.34	L	0.027 lb ai/a		PO1						
12	Untreated						1.0	1.0	1.0	2.7	30.89	33.25
LSD P=.05							4.38	2.01	2.26	4.07	12.672	14.365
Standard Deviation							2.59	1.19	1.34	2.40	7.483	8.483
CV							36.99	13.77	15.77	40.63	25.4	25.92

Weed Control in Cucumber - HTRC - 2016

Pest Code						CUKE	CUKE	CUKE	CUKE	
Crop Code						11Jul16	11Jul16	11Jul16	11Jul16	
Rating Date						GRADE1	GRADE2	GRADE3	GRADE4	
Rating Type						KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	
Rating Unit						KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage				
1	Curbit	3	EC	1.13 lb ai/a	PRE		3.35	14.59	10.32	0.00
2	Curbit	3	EC	0.75 lb ai/a	PRE		3.17	18.23	17.11	0.28
	Command	3	ME	0.375 lb ai/a	PRE					
3	Strategy	2.1	SE	6 pt/a	PRE		2.99	16.48	22.52	0.05
4	Curbit	3	EC	0.75 lb ai/a	PRE		2.87	17.66	19.75	0.22
	Reflex	2	SL	0.125 lb ai/a	PRE					
5	Command	3	ME	0.375 lb ai/a	PRE		3.99	18.24	5.48	0.00
	Dual Magnum	7.62	EC	0.4 lb ai/a	PRE					
6	Curbit	3	EC	0.75 lb ai/a	PRE		1.77	7.17	3.53	0.23
	Command	3	ME	0.25 lb ai/a	PRE					
	Treevix	70	WG	0.044 lb ai/a	PRE					
7	Curbit	3	EC	0.75 lb ai/a	PRE		2.63	17.75	15.05	0.14
	Command	3	ME	0.25 lb ai/a	PRE					
	A 16003E	1.67	SL	0.033 lb ai/a	PRE					
8	Curbit	3	EC	0.75 lb ai/a	PRE		3.04	15.49	13.04	0.00
	Command	3	ME	0.25 lb ai/a	PRE					
	A 16003E	1.67	SL	0.033 lb ai/a	PO1					
9	Curbit	3	EC	0.75 lb ai/a	PRE		0.33	0.69	0.10	0.00
	Command	3	ME	0.25 lb ai/a	PRE					
	Treevix	70	WG	0.045 lb ai/a	PO1					
10	Curbit	3	EC	0.75 lb ai/a	PRE		2.95	18.30	18.70	0.60
	Command	3	ME	0.25 lb ai/a	PRE					
	Sandea	75	WG	0.023 lb ai/a	PO1					
11	Curbit	3	EC	0.75 lb ai/a	PRE		3.01	9.01	2.14	0.00
	Command	3	ME	0.25 lb ai/a	PRE					
	tolpyralate	3.34	L	0.027 lb ai/a	PO1					
12	Untreated						3.18	13.89	12.82	0.06
LSD P=.05							1.115	5.223	8.238	0.439
Standard Deviation							0.658	3.084	4.865	0.259
CV							23.74	22.1	41.53	196.4

Weed Control in Basil - Van Drunen - 2016

Project Code: 117-16-3

Location: Momence, IL

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Basil

Variety: Genovese, Nufar, Aroma, Elenora

Planting Method: Seeded

Planting Date: 5/19/16

Harvest Date: 7/22/16

Spacing: 1 in

Row Spacing: 10 in; 1 row of each variety/plot

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Jasper loam

OM: 7.7%

pH: 6.6

Sand: 30%

Silt: 35%

Clay: 35%

CEC: 27.0

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/23/16	11:30 am	78/60	F	Dry	3-4 SW	31	0% Cloudy	N

Crop and Weed Information at Application

	Height or Diameter	Growth Stage	Density
5/23	BASIL	Preemergence	
5/23	No Weeds		

COLQ = common lambsquarters
COPU = common purslane
LACG = large crabgrass
RRPW = redroot pigweed

Notes and Comments

1. Spray 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. Yield was reduced by weed pressure.
-

Weed Control in Basil - Van Drunen - 2016

Weed Control in Basil - Van Drunen - 2016			
Trial ID:	117-16-3	Location:	Momence, IL
Protocol ID:	117-16-3	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

						COLQ	COPU				
						BASIL	BASIL	BASIL	BASIL		
						ELENORA	AROMA	NUFAR	GENOVESE		
						07Jun16	07Jun16	07Jun16	07Jun16		
						RATING	RATING	RATING	RATING		
						1-10	1-10	1-10	1-10		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage						
1	Devrinol DF-XT	50 DF		1 lb ai/a	PRE	2.3	3.7	2.7	1.7	4.7	1.7
2	Lorox	50 DF		0.25 lb ai/a	PRE	1.3	3.7	1.0	1.0	5.3	3.7
3	Lorox	50 DF		0.5 lb ai/a	PRE	2.3	3.3	3.0	1.7	7.3	5.3
4	Kerb	3.3 SC		1 lb ai/a	PRE	2.3	2.7	2.3	1.7	6.7	7.7
5	A 16003E	1.67 SL		0.016 lb ai/a	PRE	6.3	7.7	6.3	6.7	9.0	8.0
6	Spartan	4 F		0.125 lb ai/a	PRE	1.3	2.0	2.0	2.0	10.0	8.7
7	Aim	2 EC		0.031 lb ai/a	PRE	1.7	2.7	3.0	2.3	9.0	6.0
8	Sinbar	80 WDG		0.2 lb ai/a	PRE	8.3	9.7	8.7	6.3	8.3	8.7
9	Prowl H2O	3.8 CS		0.25 lb ai/a	PRE	4.3	7.3	6.7	4.7	7.3	6.7
10	Untreated					5.0	4.7	5.3	3.7	1.0	2.3
LSD P=.05						3.54	3.91	4.24	3.55	3.51	2.19
Standard Deviation						2.06	2.28	2.47	2.07	2.05	1.28
CV						58.43	48.21	60.35	65.34	29.83	21.73

						LACG	COPU				
						BASIL	BASIL	BASIL	BASIL		
						ELENORA	AROMA	NUFAR	GENOVESE		
						22Jun16	22Jun16	22Jun16	22Jun16		
						RATING	RATING	RATING	RATING		
						1-10	1-10	1-10	1-10		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage						
1	Devrinol DF-XT	50 DF		1 lb ai/a	PRE	4.0	5.0	2.0	2.0	7.0	1.0
2	Lorox	50 DF		0.25 lb ai/a	PRE	2.7	5.3	1.7	2.3	7.0	1.0
3	Lorox	50 DF		0.5 lb ai/a	PRE	2.7	2.3	2.0	1.7	6.7	1.0
4	Kerb	3.3 SC		1 lb ai/a	PRE	4.7	4.7	3.0	1.7	1.0	4.7
5	A 16003E	1.67 SL		0.016 lb ai/a	PRE	9.7	10.0	7.0	7.7	4.0	3.7
6	Spartan	4 F		0.125 lb ai/a	PRE	1.7	3.0	2.0	1.3	3.0	5.7
7	Aim	2 EC		0.031 lb ai/a	PRE	6.3	5.0	2.0	1.7	4.0	2.0
8	Sinbar	80 WDG		0.2 lb ai/a	PRE	8.3	9.7	7.0	5.3	1.0	5.7
9	Prowl H2O	3.8 CS		0.25 lb ai/a	PRE	9.7	8.7	5.0	5.0	7.0	1.0
10	Untreated					4.3	4.0	5.3	4.3	8.0	1.0
LSD P=.05						4.10	4.26	3.38	3.34	6.18	2.43
Standard Deviation						2.39	2.48	1.97	1.95	3.60	1.42
CV						44.21	43.04	53.27	58.96	73.99	53.18

Weed Control in Basil - Van Drunen - 2016

Pest Code		COLQ		RRPW		BASIL	BASIL	BASIL	BASIL		
Crop Code						ELENORA	AROMA	NUFAR	GENOVESE		
Crop Name						12Jul16	12Jul16	12Jul16	12Jul16		
Rating Date						RATING	RATING	RATING	RATING		
Rating 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	Growth Stage						
1	Devrinol DF-XT	50 DF		1 lb ai/a	PRE	1.3	4.0	5.7	6.3	5.7	5.3
2	Lorox	50 DF		0.25 lb ai/a	PRE	1.0	5.3	3.7	4.7	4.0	4.3
3	Lorox	50 DF		0.5 lb ai/a	PRE	1.0	4.0	3.7	3.7	3.3	4.0
4	Kerb	3.3 SC		1 lb ai/a	PRE	1.0	1.0	3.7	2.7	2.3	2.7
5	A 16003E	1.67 SL		0.016 lb ai/a	PRE	3.0	6.7	8.7	9.3	5.3	6.3
6	Spartan	4 F		0.125 lb ai/a	PRE	10.0	5.7	1.3	1.0	1.0	1.3
7	Aim	2 EC		0.031 lb ai/a	PRE	3.0	4.0	4.3	4.3	4.0	4.3
8	Sinbar	80 WDG		0.2 lb ai/a	PRE	6.0	3.0	4.3	8.7	3.3	3.7
9	Prowl H20	3.8 CS		0.25 lb ai/a	PRE	1.0	1.0	7.7	7.7	5.0	6.3
10	Untreated					1.0	1.0	6.0	5.7	5.3	6.0
LSD P=.05						3.54	6.54	2.62	2.45	2.75	2.66
Standard Deviation						2.07	3.81	1.53	1.43	1.60	1.55
CV						72.9	106.95	31.17	26.41	40.7	34.97

Pest Code		BASIL		BASIL		BASIL		BASIL		
Crop Code		ELENORA		AROMA		NUFAR		GENOVESE		
Crop Name										
Rating Date		22Jul16		22Jul16		22Jul16		22Jul16		
Rating Type		HARVEST		HARVEST		HARVEST		HARVEST		
Rating Unit		KG/PLOT		KG/PLOT		KG/PLOT		KG/PLOT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Stage					
1	Devrinol DF-XT	50 DF		1 lb ai/a	PRE	1.89	0.49	0.94	3.97	7.28
2	Lorox	50 DF		0.25 lb ai/a	PRE	3.77	1.03	1.99	1.56	8.34
3	Lorox	50 DF		0.5 lb ai/a	PRE	4.19	1.68	1.95	2.19	10.01
4	Kerb	3.3 SC		1 lb ai/a	PRE	3.69	2.16	3.93	4.59	14.37
5	A 16003E	1.67 SL		0.016 lb ai/a	PRE	0.64	0.08	2.31	1.13	4.15
6	Spartan	4 F		0.125 lb ai/a	PRE	7.66	5.41	7.33	3.87	24.26
7	Aim	2 EC		0.031 lb ai/a	PRE	4.86	2.21	2.58	2.12	11.77
8	Sinbar	80 WDG		0.2 lb ai/a	PRE	2.92	0.19	3.32	3.25	9.68
9	Prowl H20	3.8 CS		0.25 lb ai/a	PRE	1.05	0.55	1.18	0.72	3.50
10	Untreated					2.04	1.02	1.20	0.86	5.11
LSD P=.05						3.225	1.397	2.123	3.475	7.121
Standard Deviation						1.880	0.814	1.238	2.026	4.151
CV						57.51	55.0	46.34	83.55	42.16

Weed Control in Cilantro, Dill, Fennel, and Parsley - Van Drunen - 2016

Project Code: 117-16-4

Location: Momence, IL

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Cilantro, Dill, Fennel, Parsley Variety: Slow Bolt, Hera, Zefa Fino, Laica

Planting Method: seeded Planting Date: 5/19/16 Harvest Date: See Data

Spacing: See notes Row Spacing: 10 in

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Jasper loam

OM: 7.7%

pH: 6.6

Sand: 30%

Silt: 36%

Clay: 34%

CEC: 27.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/23/16	2:00 pm	83/67	F	Dry	5-7 SE	18	0% Cloudy	N
PO1	6/23/16	1:05 pm	80/75	F	Wet	3-4 NW	70	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/23	CILANTRO		Preemergence	
5/23	DILL		Preemergence	
5/23	FENNEL		Preemergence	
5/23	PARSLEY		Preemergence	
5/23	No weeds			
6/23	CILANTRO	2-3"	Veg	Good
6/23	DILL	3-6"	Veg	Good
6/23	FENNEL	3-4"	3-4 lf	Few
6/23	PARSLEY	1-2"	2-3 lf	Few
6/23	BYGR = barnyardgrass	6-18"	Veg	V. Few
6/23	COLQ = common lambsquarters	4-13"	Veg	Mod
6/23	COPU = common purslane	3-18"	Veg	Many
6/23	LACG = large crabgrass	3-8"	Veg	V. Few
6/23	RRPW = redroot pigweed	3-18"	Veg	Mod-Few

Notes and Comments

1. Spray 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. Seeds/foot of row: Cilantro-25; Dill-100; Fennel-6; Parsley-40

4. Fennel and Parsley were lost to wet soil and weed pressure.

Weed Control in Cilantro, Dill, Fennel, and Parsley - Van Drunen - 2016

Weed Control in Cilantro, Dill, Fennel, and Parsley - Van Drunen - 2016					
Trial ID:	117-16-4	Location:	Momence, IL		
Protocol ID:	117-16-4	Investigator:	Dr. Bernard Zandstra		
Study Director:	Colin Phillippo				

Pest Code	Crop Code	Crop Name	Rating Date	Rating Type	Rating Unit	CILANTRO		DILL		LACG	COLQ	COPU	CILANTRO	
						SLOW BOLT	HERA	07Jun16	07Jun16	07Jun16	07Jun16	07Jun16	23Jun16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10
1	Lorox	50	DF	0.75	lb ai/a	PRE	2.0	1.7	9.7	9.3	9.0	1.7		
2	Caparol	4	L	1	lb ai/a	PRE	1.7	1.7	9.7	9.3	9.3	1.7		
3	Zidua	85	WDG	0.09	lb ai/a	PRE	2.7	4.7	10.0	9.7	9.7	1.7		
4	Dual Magnum	7.62	EC	0.67	lb ai/a	PRE	2.0	2.0	10.0	8.3	9.0	1.0		
5	Lorox	50	DF	0.5	lb ai/a	PRE	1.7	2.3	9.0	8.3	6.7	3.0		
	A 16003E	1.67	SL	0.033	lb ai/a	PO1								
6	Lorox	50	DF	0.5	lb ai/a	PRE	1.7	1.3	10.0	9.0	8.0	2.3		
	A 16003E	1.67	SL	0.045	lb ai/a	PO1								
7	Command	3	ME	0.5	lb ai/a	PRE	2.0	3.0	10.0	10.0	9.7	1.0		
8	Lorox	50	DF	0.5	lb ai/a	PRE	2.0	2.7	10.0	9.3	9.0	2.0		
	tolpyralate	3.34	L	0.027	lb ai/a	PO1								
9	Lorox	50	DF	0.5	lb ai/a	PRE	2.3	2.7	10.0	7.0	6.3	2.3		
	Spin-Aid	1.3	L	0.49	lb ai/a	PO1								
10	Untreated					PRE	2.0	1.7	4.7	3.7	3.7	3.3		
	Lorox	50	DF	1	lb ai/a	PO1								
	Select Max	0.97	EC	0.12	lb ai/a	PO1								
LSD P=.05							1.06	1.82	2.68	2.75	2.79	1.71		
Standard Deviation							0.62	1.06	1.56	1.60	1.63	0.99		
CV							31.03	44.84	16.77	19.09	20.23	49.72		

Weed Control in Cilantro, Dill, Fennel, and Parsley - Van Drunen - 2016

Pest Code				BYGR		LACG	COLQ	COPU	RRPW			
Crop Code				DILL		HERA						
Crop Name				23Jun16		23Jun16	23Jun16	23Jun16	23Jun16			
Rating Date				RATING		RATING	RATING	RATING	RATING			
Rating 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	Rate Unit	Growth Stage						
1	Lorox	50 DF		0.75 lb ai/a		PRE	1.7	8.7	7.3	5.3	3.3	7.0
2	Caparol	4 L		1 lb ai/a		PRE	1.3	8.3	6.3	7.7	8.0	9.0
3	Zidua	85 WDG		0.09 lb ai/a		PRE	2.0	10.0	10.0	8.7	8.7	10.0
4	Dual Magnum	7.62 EC		0.67 lb ai/a		PRE	1.3	10.0	10.0	3.3	3.3	9.0
5	Lorox	50 DF		0.5 lb ai/a		PRE	2.3	9.7	8.0	6.7	3.0	6.7
	A 16003E	1.67 SL		0.033 lb ai/a		PO1						
6	Lorox	50 DF		0.5 lb ai/a		PRE	2.3	10.0	10.0	5.7	1.3	7.0
	A 16003E	1.67 SL		0.045 lb ai/a		PO1						
7	Command	3 ME		0.5 lb ai/a		PRE	1.3	10.0	10.0	7.7	7.3	7.0
8	Lorox	50 DF		0.5 lb ai/a		PRE	2.0	9.3	7.0	4.0	2.7	5.3
	tolpyralate	3.34 L		0.027 lb ai/a		PO1						
9	Lorox	50 DF		0.5 lb ai/a		PRE	2.0	9.0	5.7	2.7	1.0	6.3
	Spin-Aid	1.3 L		0.49 lb ai/a		PO1						
10	Untreated					PRE	3.0	10.0	7.0	3.7	2.0	5.0
	Lorox	50 DF		1 lb ai/a		PO1						
	Select Max	0.97 EC		0.12 lb ai/a		PO1						
LSD P=.05							1.65	2.32	3.65	2.58	2.89	3.55
Standard Deviation							0.96	1.35	2.13	1.50	1.69	2.07
CV							49.87	14.22	26.14	27.19	41.45	28.62

Pest Code				COLQ		COPU						
Crop Code				CILANTRO		DILL						
Crop Name				SLOW BOLT		HERA		CILANTRO				
Rating Date				12Jul16		12Jul16		22Jul16				
Rating Type				RATING		RATING		RATING				
Rating Unit				1-10		1-10		1-10				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Growth Stage						
1	Lorox	50 DF		0.75 lb ai/a		PRE	6.3	9.0	9.7	8.3	7.0	9.0
2	Caparol	4 L		1 lb ai/a		PRE	5.7	9.7	10.0	7.7	6.7	9.3
3	Zidua	85 WDG		0.09 lb ai/a		PRE	7.7	9.7	10.0	9.7	7.3	9.0
4	Dual Magnum	7.62 EC		0.67 lb ai/a		PRE	7.7	9.7	10.0	8.0	8.0	9.7
5	Lorox	50 DF		0.5 lb ai/a		PRE	10.0	10.0	3.3	2.7	9.3	9.3
	A 16003E	1.67 SL		0.033 lb ai/a		PO1						
6	Lorox	50 DF		0.5 lb ai/a		PRE	10.0	10.0	1.7	2.7	10.0	10.0
	A 16003E	1.67 SL		0.045 lb ai/a		PO1						
7	Command	3 ME		0.5 lb ai/a		PRE	6.7	8.3	10.0	8.7	8.3	8.0
8	Lorox	50 DF		0.5 lb ai/a		PRE	10.0	10.0	1.0	2.7	9.7	10.0
	tolpyralate	3.34 L		0.027 lb ai/a		PO1						
9	Lorox	50 DF		0.5 lb ai/a		PRE	10.0	10.0	2.7	2.0	9.0	9.3
	Spin-Aid	1.3 L		0.49 lb ai/a		PO1						
10	Untreated					PRE	9.0	9.7	9.3	8.7	8.7	9.7
	Lorox	50 DF		1 lb ai/a		PO1						
	Select Max	0.97 EC		0.12 lb ai/a		PO1						
LSD P=.05							3.47	0.86	2.84	1.84	2.72	1.56
Standard Deviation							2.02	0.50	1.65	1.07	1.59	0.91
CV							24.35	5.23	24.45	17.59	18.91	9.74

Weed Control in Cilantro, Dill, Fennel, and Parsley - Van Drunen - 2016

Pest Code				CILANTRO		DILL	
Crop Code				SLOW BOLT		HERA	
Crop Name				22Jul16		22Jul16	
Rating Date				HARVEST		HARVEST	
Rating Type				KG/PLOT		KG/PLOT	
Rating Unit							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Growth Stage	
1	Lorox	50	DF	0.75	lb ai/a	PRE	7.45
2	Caparol	4	L	1	lb ai/a	PRE	10.47
3	Zidua	85	WDG	0.09	lb ai/a	PRE	8.16
4	Dual Magnum	7.62	EC	0.67	lb ai/a	PRE	8.46
5	Lorox	50	DF	0.5	lb ai/a	PRE	3.79
	A 16003E	1.67	SL	0.033	lb ai/a	PO1	1.86
6	Lorox	50	DF	0.5	lb ai/a	PRE	1.92
	A 16003E	1.67	SL	0.045	lb ai/a	PO1	1.29
7	Command	3	ME	0.5	lb ai/a	PRE	9.49
8	Lorox	50	DF	0.5	lb ai/a	PRE	11.99
	tolpyralate	3.34	L	0.027	lb ai/a	PO1	0.08
9	Lorox	50	DF	0.5	lb ai/a	PRE	0.01
	Spin-Aid	1.3	L	0.49	lb ai/a	PO1	4.52
10	Untreated					PRE	3.19
	Lorox	50	DF	1	lb ai/a	PO1	2.56
	Select Max	0.97	EC	0.12	lb ai/a	PO1	
LSD P=.05							5.177
Standard Deviation							3.676
CV							3.018
							52.45
							39.48

Weed Control in Spearmint - Irrer - 2016

Project Code:121-16-1

Location: St. Johns, MI

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Mint Variety: Native Spearmint
Planting Method: Roots Planting Date: 2014
Spacing: Meadow Row Spacing: solid
Tillage Type: Conventional Study Design: RCB Replications: 3
Plot Size: 6 ft wide x 50 ft long

Soil Type: Capac loam OM: 2.6% pH: 6.5
Sand: 81% Silt: 11% Clay: 8% CEC: 5.4

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/18/16	1:10pm	78/60	F	Moist	5-7 W	28	70% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/18	MINT	½-1"	Veg	Good
4/18	no weeds			

Notes and Comments

1. Spray 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.
-

Weed Control in Spearmint - Irrer - 2016

Weed Control in Spearmint - Irrer - 2016			
Trial ID:	121-16-1	Location:	St. Johns, MI
Protocol ID:	121-16-1	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

				MINT		MINT		
				26May16		14Jun16		
				RATING		RATING		
				1-10		1-10		
Crop Code	Rating Date							
Rating Type								
Rating Unit								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Growth Stage		
1	Zidua	85	WDG	0.21	lb ai/a	PRE	2.0	2.0
2	Zidua	85	WDG	0.42	lb ai/a	PRE	1.7	2.3
3	Lorox	50	DF	1	lb ai/a	PRE	2.0	3.0
4	Lorox	50	DF	2	lb ai/a	PRE	3.7	3.3
5	AAtrex	4	L	0.5	lb ai/a	PRE	1.0	1.7
6	AAtrex	4	L	1	lb ai/a	PRE	1.7	2.0
7	Zidua	85	WDG	0.21	lb ai/a	PRE	4.0	3.7
	Gramoxone SL	2	SL	0.375	lb ai/a	PRE		
	NIS	100	SL	0.25	% v/v	PRE		
8	Zidua	85	WDG	0.21	lb ai/a	PRE	1.7	2.7
	Command	3	ME	0.5	lb ai/a	PRE		
9	Zidua	85	WDG	0.21	lb ai/a	PRE	3.3	3.7
	Goal 2XL	2	EC	0.31	lb ai/a	PRE		
10	Zidua	85	WDG	0.21	lb ai/a	PRE	5.0	4.3
	Goal 2XL	2	EC	0.31	lb ai/a	PRE		
	Gramoxone SL	2	SL	0.375	lb ai/a	PRE		
	Command	3	ME	0.5	lb ai/a	PRE		
	NIS	100	SL	0.25	% v/v	PRE		
11	Zidua	85	WDG	0.11	lb ai/a	PRE	1.7	2.0
	Sinbar	80	WDG	0.32	lb ai/a	PRE		
12	Zidua	85	WDG	0.11	lb ai/a	PRE	6.0	5.7
	Chateau SW	51	WDG	0.064	lb ai/a	PRE		
LSD P=.05							1.02	1.14
Standard Deviation							0.60	0.67
CV							21.42	22.21

Preemergence Weed Control in Onion - Muck Soil - Keilen - 2016

Project Code:112-16-1

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Onion Variety: LaSalle
 Planting Method: Seeded Planting Date: 4/21/2016 Harvest Date: 8/29/2016
 Spacing: 1 in Row Spacing: 10 in; 2 rows/plot
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 2.7 ft wide x 30 ft long

Soil Type: Houghton Muck OM: 71% pH: 6.3
 Sand: 13% Silt: 16% Clay: 0.4% CEC: -

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/29/2016	1:45pm	50/48	F	Damp	3-4 S	63	100% Cloudy	N
PO1	6/3/2016	11:20am	71/68	F	Dry	2 NW	28	15% Cloudy	N
PO2	6/15/2016	1:20pm	79/71	F	Dry	2-5 SE	59	60% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/29	ONION		Preemergence	
4/29	No Weeds			
6/3	ONION	2-6"	4 leaf	Good
6/15	ONION	6-12"	Veg	Good
6/15	LATH = ladythumb	2-4"	Veg	Many
6/15	RRPW = redroot pigweed	3-12"	Veg	Many

Notes and Comments

1. Spray applied with 2 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.

Preemergence Weed Control in Onion - Muck Soil - Keilen - 2016

Preemergence Weed Control in Onion - Muck Soil - Keilen - 2016

Trial ID: 112-16-1	Location: East Lansing, MI
Protocol ID: 112-16-1	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	LATH		RRPW		LATH	
					ONION	ONION	ONION	ONION	ONION	ONION
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Stage	03Jun16 RATING 1-10	03Jun16 RATING 1-10	03Jun16 RATING 1-10	13Jun16 RATING 1-10	13Jun16 RATING 1-10
1	Zidua	85	WDG	0.1 lb ai/a	PRE	1.0	3.0	7.3	1.7	7.0
	Prowl H20	3.8	CS	1.9 lb ai/a	PO1, PO2					
	Buctril	2	EC	0.187 lb ai/a	PRE					
2	Zidua	85	WDG	0.133 lb ai/a	PRE	1.0	4.3	10.0	2.0	6.0
	Prowl H20	3.8	CS	1.9 lb ai/a	PO1, PO2					
	Buctril	2	EC	0.187 lb ai/a	PRE					
3	Zidua	85	WDG	0.198 lb ai/a	PRE	1.0	4.7	9.3	1.7	8.7
	Prowl H20	3.8	CS	1.9 lb ai/a	PO1, PO2					
	Buctril	2	EC	0.187 lb ai/a	PRE					
4	Zidua	85	WDG	0.267 lb ai/a	PRE	1.0	4.0	8.7	2.7	5.7
	Prowl H20	3.8	CS	1.9 lb ai/a	PO1, PO2					
	Buctril	2	EC	0.187 lb ai/a	PRE					
5	Zidua	85	WDG	0.1 lb ai/a	PRE	1.0	3.3	9.7	2.0	5.0
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2					
	Buctril	2	EC	0.187 lb ai/a	PRE					
6	Zidua	85	WDG	0.133 lb ai/a	PRE	1.3	6.7	9.7	1.7	8.0
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2					
	Buctril	2	EC	0.187 lb ai/a	PRE					
7	Zidua	85	WDG	0.198 lb ai/a	PRE	1.3	7.0	9.7	2.0	5.7
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2					
	Buctril	2	EC	0.187 lb ai/a	PRE					
8	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO2	1.0	3.0	3.3	2.0	6.7
	Buctril	2	EC	0.187 lb ai/a	PRE					
	Zidua	85	WDG	0.133 lb ai/a	PO1					
9	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2	1.0	5.7	4.0	1.7	9.7
	Buctril	2	EC	0.187 lb ai/a	PRE					
10	A 16003E	1.67	SL	0.033 lb ai/a	PRE	1.0	3.3	3.3	2.7	7.7
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1, 2					
11	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2	1.0	3.3	2.7	2.0	9.0
	Buctril	2	EC	0.187 lb ai/a	PRE					
	A 16003E	1.67	SL	0.033 lb ai/a	PO1, PO2					
12	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2	1.0	5.7	3.3	2.0	9.7
	Buctril	2	EC	0.187 lb ai/a	PRE					
	A 16003E	1.67	SL	0.045 lb ai/a	PO1					
	Chateau SW	51	WDG	0.032 lb ai/a	PO1, PO2					
13	Chateau SW	51	WDG	0.032 lb ai/a	PRE, PO1,2	1.0	6.7	5.3	1.7	7.3
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2					
	Buctril	2	EC	0.187 lb ai/a	PRE					
14	Untreated, Handweeded					1.0	1.7	3.3	3.3	9.0
LSD P=.05						0.35	2.38	2.66	1.60	5.10
Standard Deviation						0.21	1.41	1.58	0.95	3.04
CV						20.01	31.78	24.73	45.87	40.54

Preemergence Weed Control in Onion - Muck Soil - Keilen - 2016

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	RRPW		LATH		RRPW		
					13Jun16	24Jun16	24Jun16	24Jun16	30Jun16		
					ONION		ONION		ONION		
					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	Zidua	85	WDG	0.1	lb ai/a	PRE	7.0	2.3	8.3	8.7	1.3
	Prowl H20	3.8	CS	1.9	lb ai/a	PO1, PO2					
	Buctril	2	EC	0.187	lb ai/a	PRE					
2	Zidua	85	WDG	0.133	lb ai/a	PRE	7.3	2.0	7.7	8.3	2.0
	Prowl H20	3.8	CS	1.9	lb ai/a	PO1, PO2					
	Buctril	2	EC	0.187	lb ai/a	PRE					
3	Zidua	85	WDG	0.198	lb ai/a	PRE	9.0	1.7	8.3	9.3	1.3
	Prowl H20	3.8	CS	1.9	lb ai/a	PO1, PO2					
	Buctril	2	EC	0.187	lb ai/a	PRE					
4	Zidua	85	WDG	0.267	lb ai/a	PRE	9.3	2.3	8.3	9.3	1.3
	Prowl H20	3.8	CS	1.9	lb ai/a	PO1, PO2					
	Buctril	2	EC	0.187	lb ai/a	PRE					
5	Zidua	85	WDG	0.1	lb ai/a	PRE	8.7	2.0	8.0	9.3	1.0
	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1,2					
	Buctril	2	EC	0.187	lb ai/a	PRE					
6	Zidua	85	WDG	0.133	lb ai/a	PRE	8.7	1.0	9.3	9.3	1.3
	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1,2					
	Buctril	2	EC	0.187	lb ai/a	PRE					
7	Zidua	85	WDG	0.198	lb ai/a	PRE	9.3	2.0	8.3	9.0	1.0
	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1,2					
	Buctril	2	EC	0.187	lb ai/a	PRE					
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO2	6.7	2.3	8.0	7.7	1.3
	Buctril	2	EC	0.187	lb ai/a	PRE					
	Zidua	85	WDG	0.133	lb ai/a	PO1					
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1,2	7.3	1.7	9.7	9.3	1.0
	Buctril	2	EC	0.187	lb ai/a	PRE					
10	A 16003E	1.67	SL	0.033	lb ai/a	PRE	6.7	2.0	8.7	9.3	1.3
	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2					
11	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1,2	5.0	1.3	9.3	8.3	1.0
	Buctril	2	EC	0.187	lb ai/a	PRE					
	A 16003E	1.67	SL	0.033	lb ai/a	PO1, PO2					
12	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1,2	9.7	1.7	10.0	10.0	1.0
	Buctril	2	EC	0.187	lb ai/a	PRE					
	A 16003E	1.67	SL	0.045	lb ai/a	PO1					
	Chateau SW	51	WDG	0.032	lb ai/a	PO1, PO2					
13	Chateau SW	51	WDG	0.032	lb ai/a	PRE, PO1,2	9.3	1.7	10.0	10.0	1.0
	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1,2					
	Buctril	2	EC	0.187	lb ai/a	PRE					
14	Untreated, Handweeded						6.7	2.3	6.7	5.0	1.7
LSD P=.05							5.26	1.33	1.40	1.66	0.95
Standard Deviation							3.13	0.79	0.83	0.99	0.57
CV							39.64	42.01	9.67	11.25	44.86

Preemergence Weed Control in Onion - Muck Soil - Keilen - 2016

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	ONION 06Jul16	ONION 29Aug16
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage
1	Zidua	85	WDG	0.1 lb ai/a	PRE	1.3 31.42
	Prowl H20	3.8	CS	1.9 lb ai/a	PO1, PO2	
	Buctril	2	EC	0.187 lb ai/a	PRE	
2	Zidua	85	WDG	0.133 lb ai/a	PRE	2.7 28.21
	Prowl H20	3.8	CS	1.9 lb ai/a	PO1, PO2	
	Buctril	2	EC	0.187 lb ai/a	PRE	
3	Zidua	85	WDG	0.198 lb ai/a	PRE	1.7 35.65
	Prowl H20	3.8	CS	1.9 lb ai/a	PO1, PO2	
	Buctril	2	EC	0.187 lb ai/a	PRE	
4	Zidua	85	WDG	0.267 lb ai/a	PRE	2.3 35.09
	Prowl H20	3.8	CS	1.9 lb ai/a	PO1, PO2	
	Buctril	2	EC	0.187 lb ai/a	PRE	
5	Zidua	85	WDG	0.1 lb ai/a	PRE	1.7 34.46
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2	
	Buctril	2	EC	0.187 lb ai/a	PRE	
6	Zidua	85	WDG	0.133 lb ai/a	PRE	1.7 38.71
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2	
	Buctril	2	EC	0.187 lb ai/a	PRE	
7	Zidua	85	WDG	0.198 lb ai/a	PRE	2.0 29.88
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2	
	Buctril	2	EC	0.187 lb ai/a	PRE	
8	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO2	2.3 30.32
	Buctril	2	EC	0.187 lb ai/a	PRE	
	Zidua	85	WDG	0.133 lb ai/a	PO1	
9	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2	1.7 34.43
	Buctril	2	EC	0.187 lb ai/a	PRE	
10	A 16003E	1.67	SL	0.033 lb ai/a	PRE	1.7 30.66
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1, 2	
11	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2	1.0 35.07
	Buctril	2	EC	0.187 lb ai/a	PRE	
	A 16003E	1.67	SL	0.033 lb ai/a	PO1, PO2	
12	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2	1.0 38.13
	Buctril	2	EC	0.187 lb ai/a	PRE	
	A 16003E	1.67	SL	0.045 lb ai/a	PO1	
	Chateau SW	51	WDG	0.032 lb ai/a	PO1, PO2	
13	Chateau SW	51	WDG	0.032 lb ai/a	PRE, PO1,2	1.3 36.74
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE, PO1,2	
	Buctril	2	EC	0.187 lb ai/a	PRE	
14	Untreated, Handweeded					2.0 28.13
LSD P=.05						1.33 11.962
Standard Deviation						0.79 7.126
CV						45.6 21.37

Postemergence Weed Control in Onion - Muck Soil - Keilen - 2016

Project Code: 112-16-2

Location: East Lansing, MI

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Onion

Variety: LaSalle

Planting Method: Seeded

Planting Date: 4/21/16

Harvest Date: 8/30/16

Spacing: 1 in

Row Spacing: 10 in, 2 rows per plot

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 2.7 ft wide x 30 ft long

Soil Type: Houghton Muck

OM: 71%

pH: 6.3

Sand: 13%

Silt: 16%

Clay: 0.4%

CEC:

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	5/24/16	1:00 pm	87/63	F	Dry	6-8 W	21	10% Cloudy	N
PO2	6/3/16	10:20 am	72/65	F	Dry	1-2 N	47	0% Cloudy	N
PO3	6/14/16	9:40 am	68/67	F	Dry	6-8 ESE	56	75% Cloudy	N
PO4	6/22/16	2:30 pm	84/71	F	Dry	4-5 SE	30	90% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/24	ONION	1-4"	1 leaf	Good
5/24	LATH = ladythumb	1-2"	Veg	Many
5/24	RRPW = redroot pigweed	1-2"	Veg	Many
6/3	ONION	2-6"	2 leaf	Good
6/3	LATH = ladythumb	2-3"	Veg	Many
6/3	RRPW = redroot pigweed	1-2"	Veg	Many
6/14	ONION	6-12"	4 leaf	Good
6/14	LATH = ladythumb	2-4"	Veg	Many
6/14	RRPW = redroot pigweed	3-12"	Veg	Many
6/22	ONION	10-14"	4-5 leaf	Good
6/22	LATH = ladythumb	6-24"	Veg	Many
6/22	RRPW = redroot pigweed	6-36"	Veg	Many
	COPU = common purslane			

Notes and Comments

1. Spray applied with 2 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.

Postemergence Weed Control in Onion - Muck Soil - Keilen - 2016

Postemergence Weed Control in Onion - Muck Soil - Keilen - 2016

Trial ID: 112-16-2	Location: East Lansing, MI
Protocol ID: 112-16-2	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	LATH			RRPW			
					ONION	ONION	ONION	ONION	ONION	ONION	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Stage	03Jun16 RATING	03Jun16 RATING	03Jun16 RATING	13Jun16 RATING	13Jun16 RATING	13Jun16 RATING
1	GoalTender	4	SC	0.063 lb ai/a	PO1,2,3,4	1.3	6.0	6.0	2.7	6.7	9.0
2	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3,4	2.0	6.0	6.7	2.7	7.0	8.7
3	GoalTender	4	SC	0.25 lb ai/a	PO1,2,3,4	2.0	8.7	8.3	3.0	9.0	10.0
4	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3,4	1.0	8.0	5.3	2.7	9.0	10.0
	Chateau SW	51	WDG	0.032 lb ai/a	PO1,2,3						
5	GoalTender	4	SC	0.125 lb ai/a	PO1	1.3	7.7	4.7	2.0	9.0	6.0
	Reflex	2	SL	0.125 lb ai/a	PO2,3						
6	GoalTender	4	SC	0.125 lb ai/a	PO1	1.7	8.3	4.7	1.3	7.3	2.3
	Stinger	3	L	0.188 lb ai/a	PO3						
	Stinger	3	L	0.094 lb ai/a	PO4						
7	GoalTender	4	SC	0.125 lb ai/a	PO1	1.3	7.7	5.0	1.3	6.7	2.7
	Stinger	3	L	0.375 lb ai/a	PO3						
	Stinger	3	L	0.188 lb ai/a	PO4						
8	GoalTender	4	SC	0.125 lb ai/a	PO1	1.3	8.0	4.0	1.7	6.7	5.3
	A 16003E	1.67	SL	0.033 lb ai/a	PO2,3						
9	GoalTender	4	SC	0.125 lb ai/a	PO1	1.3	6.3	5.3	2.0	6.0	5.0
	A 16003E	1.67	SL	0.045 lb ai/a	PO2,3						
10	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3	1.7	7.7	6.0	2.0	9.3	10.0
	A 16003E	1.67	SL	0.033 lb ai/a	PO1,2,3						
11	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3	2.0	9.0	5.7	2.7	10.0	10.0
	A 16003E	1.67	SL	0.045 lb ai/a	PO1,2,3						
12	Lentagran	45	WP	0.9 lb ai/a	PO2,3	1.0	3.3	3.3	2.7	3.7	3.3
13	GoalTender	4	SC	0.125 lb ai/a	PO1,3	1.0	3.7	5.3	1.3	5.0	5.3
	tolpyralate	3.34	L	0.036 lb ai/a	PO2						
14	Untreated				PO1	1.0	4.0	1.7	2.7	4.7	8.7
	GoalTender	4	SC	0.125 lb ai/a	PO2,3						
	Chateau SW	51	WDG	0.032 lb ai/a	PO2,3						
LSD P=.05						1.14	3.98	3.90	1.04	3.43	2.84
Standard Deviation						0.68	2.37	2.32	0.62	2.04	1.69
CV						47.46	35.22	45.16	28.38	28.6	24.55

Postemergence Weed Control in Onion - Muck Soil - Keilen - 2016

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	LATH		RRPW		LATH			
					ONION	ONION	ONION	ONION	ONION	ONION	ONION	ONION
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	24Jun16 RATING	24Jun16 RATING	24Jun16 RATING	30Jun16 RATING	06Jul16 RATING	12Jul16 RATING	12Jul16 RATING
1	GoalTender	4	SC	0.063 lb ai/a	PO1,2,3,4	2.3	8.3	10.0	2.0	2.7	1.7	3.7
2	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3,4	2.3	8.7	10.0	3.3	2.0	2.3	4.3
3	GoalTender	4	SC	0.25 lb ai/a	PO1,2,3,4	2.0	10.0	10.0	2.0	1.7	2.0	8.0
4	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3,4	2.7	10.0	10.0	2.0	2.0	1.3	6.3
	Chateau SW	51	WDG	0.032 lb ai/a	PO1,2,3							
5	GoalTender	4	SC	0.125 lb ai/a	PO1	2.3	8.7	7.0	1.7	2.0	1.7	5.3
	Reflex	2	SL	0.125 lb ai/a	PO2,3							
6	GoalTender	4	SC	0.125 lb ai/a	PO1	2.7	6.0	2.0	2.3	2.7	2.3	7.3
	Stinger	3	L	0.188 lb ai/a	PO3							
	Stinger	3	L	0.094 lb ai/a	PO4							
7	GoalTender	4	SC	0.125 lb ai/a	PO1	2.0	6.0	3.0	2.3	3.0	2.0	7.0
	Stinger	3	L	0.375 lb ai/a	PO3							
	Stinger	3	L	0.188 lb ai/a	PO4							
8	GoalTender	4	SC	0.125 lb ai/a	PO1	1.7	7.3	5.3	1.0	1.7	1.0	4.3
	A 16003E	1.67	SL	0.033 lb ai/a	PO2,3							
9	GoalTender	4	SC	0.125 lb ai/a	PO1	2.0	8.7	5.7	1.0	2.7	1.3	4.7
	A 16003E	1.67	SL	0.045 lb ai/a	PO2,3							
10	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3	2.3	10.0	10.0	1.0	1.3	1.3	7.7
	A 16003E	1.67	SL	0.033 lb ai/a	PO1,2,3							
11	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3	2.3	10.0	9.7	1.0	2.0	1.0	7.0
	A 16003E	1.67	SL	0.045 lb ai/a	PO1,2,3							
12	Lentagran	45	WP	0.9 lb ai/a	PO2,3	4.0	2.7	2.3	4.3	5.0	5.3	7.3
13	GoalTender	4	SC	0.125 lb ai/a	PO1,3	2.0	6.0	7.7	2.0	1.7	1.7	3.3
	tolpyralate	3.34	L	0.036 lb ai/a	PO2							
14	Untreated				PO1	3.0	7.0	8.7	2.3	2.7	1.7	4.7
	GoalTender	4	SC	0.125 lb ai/a	PO2,3							
	Chateau SW	51	WDG	0.032 lb ai/a	PO2,3							
LSD P=.05						1.73	2.14	1.58	1.78	2.25	2.22	2.92
Standard Deviation						1.03	1.27	0.94	1.06	1.34	1.32	1.74
CV						42.82	16.32	13.02	52.53	56.98	69.54	30.11

Postemergence Weed Control in Onion - Muck Soil - Keilen - 2016

Pest Code				RRPW	COPU			
Crop Code				12Jul16	12Jul16	ONION		
Rating Date				RATING	RATING	HARVEST		
Rating Type				1-10	1-10	KG/PLOT		
Rating Unit								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage			
1	GoalTender	4	SC	0.063 lb ai/a	PO1,2,3,4	2.3	8.0	35.87
2	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3,4	4.0	9.0	32.81
3	GoalTender	4	SC	0.25 lb ai/a	PO1,2,3,4	7.7	10.0	41.51
4	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3,4	6.7	8.7	43.63
	Chateau SW	51	WDG	0.032 lb ai/a	PO1,2,3			
5	GoalTender	4	SC	0.125 lb ai/a	PO1	1.3	6.0	39.67
	Reflex	2	SL	0.125 lb ai/a	PO2,3			
6	GoalTender	4	SC	0.125 lb ai/a	PO1	3.7	7.3	32.15
	Stinger	3	L	0.188 lb ai/a	PO3			
	Stinger	3	L	0.094 lb ai/a	PO4			
7	GoalTender	4	SC	0.125 lb ai/a	PO1	5.0	9.3	31.60
	Stinger	3	L	0.375 lb ai/a	PO3			
	Stinger	3	L	0.188 lb ai/a	PO4			
8	GoalTender	4	SC	0.125 lb ai/a	PO1	2.7	6.0	39.11
	A 16003E	1.67	SL	0.033 lb ai/a	PO2,3			
9	GoalTender	4	SC	0.125 lb ai/a	PO1	2.3	6.0	31.97
	A 16003E	1.67	SL	0.045 lb ai/a	PO2,3			
10	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3	6.3	9.3	40.99
	A 16003E	1.67	SL	0.033 lb ai/a	PO1,2,3			
11	GoalTender	4	SC	0.125 lb ai/a	PO1,2,3	5.3	9.3	35.78
	A 16003E	1.67	SL	0.045 lb ai/a	PO1,2,3			
12	Lentagran	45	WP	0.9 lb ai/a	PO2,3	7.0	8.3	18.47
13	GoalTender	4	SC	0.125 lb ai/a	PO1,3	4.7	9.7	34.15
	tolpyralate	3.34	L	0.036 lb ai/a	PO2			
14	Untreated				PO1	7.0	9.0	32.34
	GoalTender	4	SC	0.125 lb ai/a	PO2,3			
	Chateau SW	51	WDG	0.032 lb ai/a	PO2,3			
LSD P=.05						2.19	2.53	16.247
Standard Deviation						1.31	1.51	9.678
CV						27.71	18.17	27.65

Preemergence Weed Control in Onion - Mineral Soil - Vogel - 2016

Project Code: 112-16-3

Location: Fremont, MI

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Onion Variety: Highlander
 Planting Method: Seeded Planting Date: 4/12/16 Harvest Date: 8/24/16
 Spacing: 1 in Row Spacing: 12 in; 3 rows/plot
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Pipestone sand OM: 2.9% pH: 6.6
 Sand: 86% Silt: 6% Clay: 8% CEC: 6.8

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/21/16	11:30 am	55/53	F	Wet	1-2 SW	90	100% Cloudy	N
PO1	5/27/16	10:30 am	76/69	F	Moist	2 SW	69	100% Cloudy	N
PO2	6/17/16	12:20 pm	82/74	F	Damp	4 SE	37	5% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/21	ONION	2-3"	1 lf	Good
4/21	COLQ = common lambsquarters	1-3"	Veg	Many
4/21	CORW = common ragweed	1-3"	Veg	Few
4/21	RRPW = redroot pigweed	1-2"	Veg	Many
4/21	WIRA = wild radish	1-2"	Veg	Many
6/17	ONION	5-7"	Veg	Good
6/17	COLQ = common lambsquarters	4-6"	Veg	Many
6/17	CORW = common ragweed	3-5"	Veg	Few
6/17	RRPW = redroot pigweed	4-6"	Veg	Many
	LATH = ladythumb			
	HANS = hairy nightshade			

Notes and Comments

1. Spray 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. 6-3-16 Goaltender 0.188 lb ai/a applied to the entire experiment to control emerged broadleaf weeds.

Preemergence Weed Control in Onion - Mineral Soil - Vogel - 2016

Preemergence Weed Control in Onion - Mineral Soil - Vogel - 2016

Trial ID: 112-16-3	Location: Fremont, MI
Protocol ID: 112-16-3	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	COLQ		HANS		LATH		RRPW	
					ONION	ONION	ONION	ONION	ONION	ONION		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Stage	20May16 RATING 1-10	20May16 RATING 1-10	20May16 RATING 1-10	20May16 RATING 1-10	20May16 RATING 1-10	02Jun16 RATING 1-10	
1	Prowl H20	3.8 CS		0.95 lb ai/a	PRE, PO1,2	3.0	5.7	5.0	3.3	6.3	1.0	
2	Prowl H20	3.8 CS		0.75 lb ai/a	PRE, PO1,2	8.0	10.0	10.0	10.0	10.0	8.3	
	Chateau SW	51 WDG		0.016 lb ai/a	PRE, PO1,2							
3	Zidua	85 WDG		0.067 lb ai/a	PRE, PO1,2	7.3	8.3	10.0	10.0	10.0	7.7	
4	Prowl H20	3.8 CS		0.75 lb ai/a	PRE, PO1,2	8.0	10.0	10.0	10.0	10.0	7.3	
	Zidua	85 WDG		0.067 lb ai/a	PRE, PO1,2							
5	Prowl H20	3.8 CS		0.75 lb ai/a	PRE	4.7	6.7	4.0	5.7	8.0	1.0	
	Zidua	85 WDG		0.133 lb ai/a	PO1,2							
6	Prowl H20	3.8 CS		0.75 lb ai/a	PRE	4.0	7.7	6.3	4.7	8.0	2.0	
	Zidua	85 WDG		0.267 lb ai/a	PO1							
7	Prowl H20	3.8 CS		0.75 lb ai/a	PRE, PO1,2	4.3	10.0	10.0	7.7	10.0	3.3	
	A 16003E	1.67 SL		0.033 lb ai/a	PRE, PO1,2							
8	Prowl H20	3.8 CS		0.75 lb ai/a	PRE, PO1,2	4.0	6.0	4.0	4.3	6.7	1.3	
	A 16003E	1.67 SL		0.033 lb ai/a	PO1,2							
9	tolpyralate	3.34 L		0.036 lb ai/a	PRE	8.3	10.0	10.0	10.0	10.0	10.0	
	Prowl H20	3.8 CS		0.75 lb ai/a	PRE, PO1,2							
10	Prowl H20	3.8 CS		0.75 lb ai/a	PRE, PO1,2	5.0	10.0	10.0	8.7	10.0	7.7	
	A 16003E	1.67 SL		0.045 lb ai/a	PRE, PO1,2							
11	Prowl H20	3.8 CS		0.75 lb ai/a	PRE	3.0	5.7	2.3	3.3	4.7	2.3	
	A 16003E	1.67 SL		0.033 lb ai/a	PO1,2							
	Goaltender	4 SC		0.063 lb ai/a	PO1,2							
12	Untreated				PRE	4.3	1.0	1.7	2.7	4.3	4.3	
	Goaltender	4 SC		0.063 lb ai/a	PO1,2							
	Chateau SW	51 WDG		0.032 lb ai/a	PO1,2							
LSD P=.05						1.45	2.40	2.67	2.25	2.44	1.54	
Standard Deviation						0.86	1.42	1.58	1.33	1.44	0.91	
CV						16.07	18.68	22.69	19.87	17.61	19.42	

Preemergence Weed Control in Onion - Mineral Soil - Vogel - 2016

Pest Code				COLQ	HANS	LATH	RRPW	ONION		COLQ		
Crop Code				02Jun16	02Jun16	02Jun16	02Jun16	16Jun16	16Jun16			
Rating Date				RATING	RATING	RATING	RATING	RATING	RATING			
Rating Type				1-10	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	Prowl H20	3.8	CS	0.95	lb ai/a	PRE, PO1,2	10.0	8.0	7.0	4.0	1.7	8.3
2	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2	10.0	10.0	10.0	10.0	7.7	9.3
	Chateau SW	51	WDG	0.016	lb ai/a	PRE, PO1,2						
3	Zidua	85	WDG	0.067	lb ai/a	PRE, PO1,2	7.0	9.0	10.0	10.0	7.0	5.7
4	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2	10.0	10.0	9.3	9.7	7.7	9.0
	Zidua	85	WDG	0.067	lb ai/a	PRE, PO1,2						
5	Prowl H20	3.8	CS	0.75	lb ai/a	PRE	8.0	3.7	9.3	5.3	3.0	5.7
	Zidua	85	WDG	0.133	lb ai/a	PO1,2						
6	Prowl H20	3.8	CS	0.75	lb ai/a	PRE	7.3	6.0	10.0	3.3	3.0	3.7
	Zidua	85	WDG	0.267	lb ai/a	PO1						
7	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2	10.0	10.0	10.0	4.7	8.3	10.0
	A 16003E	1.67	SL	0.033	lb ai/a	PRE, PO1,2						
8	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2	7.0	5.0	9.3	3.3	5.0	8.0
	A 16003E	1.67	SL	0.033	lb ai/a	PO1,2						
9	tolpyralate	3.34	L	0.036	lb ai/a	PRE	10.0	9.7	10.0	7.3	9.7	10.0
	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2						
10	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2	10.0	10.0	10.0	5.7	9.7	9.0
	A 16003E	1.67	SL	0.045	lb ai/a	PRE, PO1,2						
11	Prowl H20	3.8	CS	0.75	lb ai/a	PRE	9.3	9.0	9.7	9.0	5.0	6.0
	A 16003E	1.67	SL	0.033	lb ai/a	PO1,2						
	Goaltender	4	SC	0.063	lb ai/a	PO1,2						
12	Untreated					PRE	8.7	10.0	10.0	9.7	3.3	4.3
	Goaltender	4	SC	0.063	lb ai/a	PO1,2						
	Chateau SW	51	WDG	0.032	lb ai/a	PO1,2						
LSD P=.05							3.38	3.03	2.81	2.96	2.23	3.19
Standard Deviation							2.00	1.79	1.66	1.75	1.31	1.88
CV							22.33	21.43	17.37	25.57	22.21	25.36

Preemergence Weed Control in Onion - Mineral Soil - Vogel - 2016

Pest Code				HANS	RRPW	ONION		COLQ	HANS	LATH		
Crop Code												
Rating Date				16Jun16	16Jun16	23Jun16	23Jun16	23Jun16	23Jun16	23Jun16		
Rating 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	Unit	Growth Stage						
1	Prowl H20	3.8	CS	0.95	lb ai/a	PRE, PO1,2	6.7	3.7	1.3	10.0	6.0	9.0
2	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2	10.0	9.7	7.0	9.3	10.0	9.7
	Chateau SW	51	WDG	0.016	lb ai/a	PRE, PO1,2						
3	Zidua	85	WDG	0.067	lb ai/a	PRE, PO1,2	9.7	9.7	6.0	7.7	8.7	10.0
4	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2	8.7	9.7	6.7	9.3	9.0	7.0
	Zidua	85	WDG	0.067	lb ai/a	PRE, PO1,2						
5	Prowl H20	3.8	CS	0.75	lb ai/a	PRE	7.0	5.7	3.0	6.7	7.3	9.0
	Zidua	85	WDG	0.133	lb ai/a	PO1,2						
6	Prowl H20	3.8	CS	0.75	lb ai/a	PRE	5.7	1.3	3.0	4.3	5.0	10.0
	Zidua	85	WDG	0.267	lb ai/a	PO1						
7	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2	10.0	3.0	8.3	9.7	10.0	10.0
	A 16003E	1.67	SL	0.033	lb ai/a	PRE, PO1,2						
8	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2	7.0	4.3	4.3	7.7	7.3	10.0
	A 16003E	1.67	SL	0.033	lb ai/a	PO1,2						
9	tolpyralate	3.34	L	0.036	lb ai/a	PRE	10.0	7.3	8.7	10.0	9.7	9.0
	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2						
10	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1,2	10.0	5.3	9.7	10.0	10.0	8.7
	A 16003E	1.67	SL	0.045	lb ai/a	PRE, PO1,2						
11	Prowl H20	3.8	CS	0.75	lb ai/a	PRE	8.3	6.7	4.3	7.7	9.3	9.7
	A 16003E	1.67	SL	0.033	lb ai/a	PO1,2						
	Goaltender	4	SC	0.063	lb ai/a	PO1,2						
12	Untreated					PRE	9.3	8.3	3.0	6.3	10.0	10.0
	Goaltender	4	SC	0.063	lb ai/a	PO1,2						
	Chateau SW	51	WDG	0.032	lb ai/a	PO1,2						
LSD P=.05							4.70	3.50	1.93	2.61	4.61	2.39
Standard Deviation							2.77	2.07	1.14	1.54	2.71	1.41
CV							32.51	33.21	20.88	18.75	31.82	15.12

Preemergence Weed Control in Onion - Mineral Soil - Vogel - 2016

Pest Code		RRPW				
Crop Code		ONION				
Rating Date		23Jun16		24Aug16		
Rating Type		RATING		HARVEST		
Rating Unit		1-10		KG/PLOT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage	
1	Prowl H20	3.8	CS	0.95 lb ai/a	PRE, PO1,2	5.7 81.85
2	Prowl H20	3.8	CS	0.75 lb ai/a	PRE, PO1,2	9.0 35.84
	Chateau SW	51	WDG	0.016 lb ai/a	PRE, PO1,2	
3	Zidua	85	WDG	0.067 lb ai/a	PRE, PO1,2	10.0 30.85
4	Prowl H20	3.8	CS	0.75 lb ai/a	PRE, PO1,2	10.0 24.97
	Zidua	85	WDG	0.067 lb ai/a	PRE, PO1,2	
5	Prowl H20	3.8	CS	0.75 lb ai/a	PRE	7.0 52.53
	Zidua	85	WDG	0.133 lb ai/a	PO1,2	
6	Prowl H20	3.8	CS	0.75 lb ai/a	PRE	3.0 45.48
	Zidua	85	WDG	0.267 lb ai/a	PO1	
7	Prowl H20	3.8	CS	0.75 lb ai/a	PRE, PO1,2	3.7 0.21
	A 16003E	1.67	SL	0.033 lb ai/a	PRE, PO1,2	
8	Prowl H20	3.8	CS	0.75 lb ai/a	PRE, PO1,2	2.0 9.54
	A 16003E	1.67	SL	0.033 lb ai/a	PO1,2	
9	tolpyralate	3.34	L	0.036 lb ai/a	PRE	6.3 5.35
	Prowl H20	3.8	CS	0.75 lb ai/a	PRE, PO1,2	
10	Prowl H20	3.8	CS	0.75 lb ai/a	PRE, PO1,2	5.0 0.10
	A 16003E	1.67	SL	0.045 lb ai/a	PRE, PO1,2	
11	Prowl H20	3.8	CS	0.75 lb ai/a	PRE	10.0 30.63
	A 16003E	1.67	SL	0.033 lb ai/a	PO1,2	
	Goaltender	4	SC	0.063 lb ai/a	PO1,2	
12	Untreated				PRE	10.0 59.88
	Goaltender	4	SC	0.063 lb ai/a	PO1,2	
	Chateau SW	51	WDG	0.032 lb ai/a	PO1,2	
LSD P=.05						3.85 21.473
Standard Deviation						2.27 12.680
CV						33.39 40.34

Weed Control in Established Chives - Van Drunen - 2016

Project Code: 117-16-1

Location: Momence, IL

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Chives

Variety: Purly

Planting Method: Seeded

Planting Date: 2011

Harvest Date: See Notes

Spacing: 1 in

Row Spacing: 10 in; 4 rows/plot

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Jasper loam

OM: 7.7%

pH: 6.6

Sand: 30%

Silt: 36%

Clay: 34%

CEC: 27.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/23/16	10:45	78/60	F	Dry	3-4 SW	70	0% Cloudy	N
PO1-IR4	5/23/16	10:45	78/60	F	Dry	3-4 SW	70	0% Cloudy	N
PO2-IR4	6/7/16	12:00 pm	83/73	F	Dry	7-8 NW	37	65% Cloudy	N
PO1	6/23/16	12:55 pm	80/75	F	Wet	3-4 NW	70	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/23	CHIVES	7-8"	Veg	Good
6/7	CHIVES	8-12"	Veg	Good
6/7	BUTH = bull thistle	3-6"	Veg	Few
6/7	DAND = dandelion	2-6"	Veg	Mod
6/7	PAWE = pineapple weed	1-2"	Flower	Few
6/7	QUGR = quackgrass	5-7"	Veg	Few
6/23	CHIVES	2-3"	just harv.	Many
6/23	DAND = dandelion	6-8"	Veg	Few
6/23	CATH = Canada thistle	6-8"	Veg	Few
	COLQ = common lambsquarters			
	LACG = large crabgrass			

Notes and Comments

- Spray applied with 4 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer.
- Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
- Treatments 1-7 were applied (PRE) on 5/23; treatments 8-10 were applied (PO1) on 5/23. Treatments 8-10 were applied (PO2) on 6/7. Treatments 1-7 were applied (PO1) on 6/23.
- Chives were harvested on 6/23/16, 7/22/16, and 8/26/16.

Weed Control in Established Chives - Van Drunen - 2016

Weed Control in Established Chives - IR4 - Van Drunen - 2016

Trial ID: 117-16-1	Location: Momence, IL
Protocol ID: 117-16-1	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code						QUGR	DAND
Crop Code		CHIVES					
Rating Date		23May16	27May16	03Jun16	07Jun16	07Jun16	07Jun16
Rating 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	Growth Unit	Stage	
1	Untreated				PRE		
	Lentagran	45	WP	0.47 lb ai/a	PO1		
2	Prowl H20	3.8	CS	0.95 lb ai/a	PRE	2.0	3.7
3	Prowl H20	3.8	CS	0.95 lb ai/a	PRE	5.0	3.7
	A 16003E	1.67	SL	0.033 lb ai/a	PRE		
4	Prowl H20	3.8	CS	0.95 lb ai/a	PRE	1.7	2.7
	A 16003E	1.67	SL	0.045 lb ai/a	PRE	4.0	2.7
5	Prowl H20	3.8	CS	0.95 lb ai/a	PRE	2.0	4.3
	A 16003E	1.67	SL	0.033 lb ai/a	PO1	4.3	3.0
	NIS	100	SL	0.25 % v/v	PO1	10.0	10.0
6	Prowl H20	3.8	CS	0.95 lb ai/a	PRE	1.3	3.7
	A 16003E	1.67	SL	0.045 lb ai/a	PRE	3.7	2.3
	NIS	100	SL	0.25 % v/v	PO1	10.0	10.0
7	Zidua	85	WDG	0.133 lb ai/a	PRE	1.3	3.3
	A 16003E	1.67	SL	0.033 lb ai/a	PO1	3.3	2.7
	NIS	100	SL	0.25 % v/v	PO1	10.0	10.0
8	Prowl H20	3.8	CS	0.95 lb ai/a	PRE	2.0	3.3
	Select Max	0.97	EC	0.12 lb ai/a	PO1	4.0	1.7
	NIS	100	SL	0.25 % v/v	PO1	10.0	10.0
9	Fusilade DX	2	EC	0.375 lb ai/a	PO1, PO2	1.7	4.0
	NIS	100	SL	0.25 % v/v	PO1, PO2	4.7	3.3
10	Fusilade DX	2	EC	0.75 lb ai/a	PO1, PO2	3.3	2.3
	NIS	100	SL	0.25 % v/v	PO1, PO2	4.3	2.3
LSD P=.05						1.08	2.47
Standard Deviation						2.13	1.61
CV						1.91	2.30

Weed Control in Established Chives - Van Drunen - 2016

Pest Code		PAWE					LACG	COLQ				
Crop Code		CHIVES										
Rating Date		07Jun16	10Jun16	16Jun16	23Jun16	12Jul16	12Jul16					
Rating 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	Growth Stage							
1	Untreated				PRE	8.7	6.0	4.7	1.3	2.3	6.3	9.0
	Lentagran	45	WP	0.47 lb ai/a	PO1							
2	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	10.0	5.3	4.7	2.0	1.7	10.0	10.0
3	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	8.0	7.0	5.3	2.0	2.7	10.0	10.0
	A 16003E	1.67	SL	0.033 lb ai/a	PRE							
4	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	7.3	4.7	5.7	1.3	2.0	10.0	7.7
	A 16003E	1.67	SL	0.045 lb ai/a	PRE							
5	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	10.0	5.7	4.7	1.3	2.0	10.0	10.0
	A 16003E	1.67	SL	0.033 lb ai/a	PO1							
	NIS	100	SL	0.25 % v/v	PO1							
6	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	6.7	5.0	3.7	1.7	2.7	9.7	8.7
	A 16003E	1.67	SL	0.045 lb ai/a	PO1							
	NIS	100	SL	0.25 % v/v	PO1							
7	Zidua	85	WDG	0.133 lb ai/a	PRE	7.7	6.0	4.3	1.7	3.3	10.0	10.0
8	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	8.0	5.3	4.0	1.3	2.3	10.0	10.0
	Select Max	0.97	EC	0.12 lb ai/a	PO1							
	NIS	100	SL	0.25 % v/v	PO1							
9	Fusilade DX	2	EC	0.375 lb ai/a	PO1, PO2	7.3	4.7	3.7	2.0	2.0	10.0	9.7
	NIS	100	SL	0.25 % v/v	PO1, PO2							
10	Fusilade DX	2	EC	0.75 lb ai/a	PO1, PO2	7.3	5.0	5.0	1.3	2.3	10.0	9.0
	NIS	100	SL	0.25 % v/v	PO1, PO2							
LSD P=.05						4.56	3.80	2.87	1.18	1.57	1.65	1.69
Standard Deviation						2.66	2.21	1.67	0.69	0.91	0.96	0.98
CV						32.84	40.51	36.67	42.86	39.12	10.04	10.46

Weed Control in Established Chives - Van Drunen - 2016

Pest Code						DAND					
Crop Code						CHIVES		CHIVES		CHIVES	
Rating Date						12Jul16	22Jul16	23Jun16	22Jul16	26Aug16	CHIVES
Rating Type						RATING	RATING	HARV1	HARV2	HARV3	TOTAL
Rating Unit						1-10	1-10	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit Growth Stage						
1	Untreated				PRE	1.7	1.7	5.85	6.15	6.84	18.84
	Lentagran	45	WP	0.47 lb ai/a	PO1						
2	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	3.3	1.3	8.16	9.13	11.29	28.59
3	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	3.0	1.7	7.05	7.24	8.24	22.53
	A 16003E	1.67	SL	0.033 lb ai/a	PRE						
4	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	2.3	1.7	8.84	8.04	7.76	24.63
	A 16003E	1.67	SL	0.045 lb ai/a	PRE						
5	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	10.0	1.0	9.44	8.98	10.36	28.78
	A 16003E	1.67	SL	0.033 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
6	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	7.7	1.7	8.88	7.69	7.50	24.07
	A 16003E	1.67	SL	0.045 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
7	Zidua	85	WDG	0.133 lb ai/a	PRE	5.3	1.0	8.04	7.80	11.28	27.12
8	Prowl H2O	3.8	CS	0.95 lb ai/a	PRE	5.3	1.0	9.12	9.36	12.21	30.69
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
9	Fusilade DX	2	EC	0.375 lb ai/a	PO1, PO2	4.3	1.3	6.60	7.44	9.83	23.87
	NIS	100	SL	0.25 % v/v	PO1, PO2						
10	Fusilade DX	2	EC	0.75 lb ai/a	PO1, PO2	2.7	1.0	8.11	8.20	10.23	26.54
	NIS	100	SL	0.25 % v/v	PO1, PO2						
LSD P=.05						5.37	0.97	4.157	3.273	3.102	8.883
Standard Deviation						3.13	0.56	2.423	1.908	1.808	5.178
CV						68.6	42.33	30.25	23.84	18.92	20.25

Weed Control in Chives and Green Onion - Van Drunen - 2016

Project Code: 117-16-2

Location: Momence, IL

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Chives, Green Onion Variety: Biggy, Tokyo Long White

Planting Method: Seeded Planting Date: 5/19/16 Harvest Date: 8/26/16

Spacing: 100 seeds/ft Row Spacing: 10 in; 2 rows of each crop per plot

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Jasper Loam

OM: 7.7%

pH: 6.6

Sand: 30% Silt: 36%

Clay: 35%

CEC: 27.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/23/16	1:00pm	83/67	F	Dry	5-7 SE	18	0% Cloudy	N
POL	6/23/16	1:15pm	81/75	F	Wet	3-4 NW	70	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/23	GREEN ONION		Preemergence	
5/23	No weeds			
6/23	GREEN ONION	3-5"	Veg	Many
6/23	COLQ = common lambsquarters	4-18"	Veg	Few
6/23	COPU = common purslane	4-18"	Veg	Many
6/23	RRPW = redroot pigweed	6-18"	Veg	Few

Notes and Comments

1. Spray 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. Seeded chives were lost due to very wet field conditions and weed pressure.

Weed Control in Chives and Green Onion - Van Drunen - 2016

Weed Control in Seeded Chives and Green Onion - Van Drunen - 2016						
Trial ID:	117-16-2	Location:	Momence, IL			
Protocol ID:	117-16-2	Investigator:	Dr. Bernard Zandstra			
Study Director:	Colin Phillippo					

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	Growth Stage	COLQ		COPU		GRONION		
						07Jun16	07Jun16	07Jun16	23Jun16	23Jun16	12Jul16	
						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	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	1.7	7.0	6.3	1.7	5.0	3.3
2	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	1.3	10.0	9.0	1.3	6.3	2.3
	Chateau SW	51	WDG	0.016	lb ai/a	PRE						
3	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	1.7	10.0	10.0	2.3	9.3	3.0
	A 16003E	1.67	SL	0.033	lb ai/a	PRE						
4	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	2.0	10.0	10.0	3.0	10.0	3.3
	A 16003E	1.67	SL	0.045	lb ai/a	PRE						
5	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	1.0	10.0	9.7	1.0	6.7	4.7
	A 16003E	1.67	SL	0.045	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
6	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	2.7	10.0	10.0	1.7	7.7	2.7
	Zidua	85	WDG	0.133	lb ai/a	PO1						
7	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	1.0	10.0	10.0	1.7	8.7	3.0
	Chateau SW	51	WDG	0.032	lb ai/a	PO1						
	GoalTender	4	SC	0.032	lb ai/a	PO1						
	Select Max	0.97	EC	0.068	lb ai/a	PO1						
8	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	1.0	10.0	9.0	1.0	7.7	3.3
	A 16003E	1.67	SL	0.033	lb ai/a	PO1						
	GoalTender	4	SC	0.032	lb ai/a	PO1						
9	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	1.7	10.0	9.7	1.7	8.0	3.3
	Prowl H20	3.8	CS	0.95	lb ai/a	PO1						
	A 16003E	1.67	SL	0.033	lb ai/a	PO1						
	GoalTender	4	SC	0.032	lb ai/a	PO1						
	Select Max	0.97	EC	0.068	lb ai/a	PO1						
10	Untreated					PRE	5.3	1.0	1.0	2.3	1.0	3.0
	GoalTender	4	SC	0.064	lb ai/a	PO1						
	Select Max	0.97	EC	0.12	lb ai/a	PO1						
LSD P=.05							3.04	2.82	2.80	1.13	2.77	2.16
Standard Deviation							1.77	1.64	1.63	0.66	1.61	1.26
CV							91.67	18.67	19.27	37.26	22.96	39.44

Weed Control in Chives and Green Onion - Van Drunen - 2016

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	COPU					
					12Jul16 RATING 1-10	22Jul16 RATING 1-10	26Aug16 RATING 1-10	26Aug16 HARVEST KG/PLOT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage				
1	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	5.7	2.3	2.3	46.21
2	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	7.7	1.0	1.7	58.50
	Chateau SW	51	WDG	0.016	lb ai/a	PRE				
3	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	7.3	1.3	2.0	48.65
	A 16003E	1.67	SL	0.033	lb ai/a	PRE				
4	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	8.7	1.3	1.7	46.72
	A 16003E	1.67	SL	0.045	lb ai/a	PRE				
5	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	7.3	1.7	2.3	39.89
	A 16003E	1.67	SL	0.045	lb ai/a	PO1				
	NIS	100	SL	0.25	% v/v	PO1				
6	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	5.3	1.3	2.0	48.61
	Zidua	85	WDG	0.133	lb ai/a	PO1				
7	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	9.0	1.0	1.0	62.65
	Chateau SW	51	WDG	0.032	lb ai/a	PO1				
	GoalTender	4	SC	0.032	lb ai/a	PO1				
	Select Max	0.97	EC	0.068	lb ai/a	PO1				
8	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	6.3	1.0	1.7	50.55
	A 16003E	1.67	SL	0.033	lb ai/a	PO1				
	GoalTender	4	SC	0.032	lb ai/a	PO1				
9	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	6.3	1.3	1.0	51.33
	Prowl H20	3.8	CS	0.95	lb ai/a	PO1				
	A 16003E	1.67	SL	0.033	lb ai/a	PO1				
	GoalTender	4	SC	0.032	lb ai/a	PO1				
	Select Max	0.97	EC	0.068	lb ai/a	PO1				
10	Untreated					PRE	2.0	4.0	4.7	17.00
	GoalTender	4	SC	0.064	lb ai/a	PO1				
	Select Max	0.97	EC	0.12	lb ai/a	PO1				
LSD P=.05							3.08	1.51	1.51	20.116
Standard Deviation							1.80	0.88	0.88	11.727
CV							27.35	53.87	43.27	24.94

Weed Control in Parsnip - Bouwkamp - 2016

Project Code: 118-16-1

Location: Grant, MI

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Parsnip

Variety: Palace

Planting Method: Seeded

Planting Date: 5/19/16

Harvest Date: 9/14/16

Spacing: 1 in

Row Spacing: 2 double 6" rows at 34" middles

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Carlisle Muck

OM: 40.5%

pH: 7.4

Sand: 24%

Silt: 35%

Clay: 0.2%

CEC: -

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/20/16	11:00 am	71/50	F	Dry	4-6 SE	27	50% Cloudy	N
PO1	6/17/16	1:30 pm	85/66	F	Damp	1-3 SE	32	15% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/20	PARSNIP		Preemergence	
5/20	No weeds			
6/17	PARSNIP	2-3"	2-3 lf	Good
6/17	COLQ = common lambsquarters	4-6"	Veg	Many
6/17	COPU = common purslane	8-10"	Veg	Many
6/17	CORW = common ragweed	3-5"	Veg	Few
6/17	LATH = ladythumb	3-5"	Veg	Mod
6/17	RRPW = redroot pigweed	4-6"	Veg	Many
	BYGR = barnyardgrass			

Notes and Comments

1. Spray 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. Plots were handweeded after final ratings.
 4. Harvested 10 ft of 2 double rows.
-

Weed Control in Parsnip - Bouwkamp - 2016

Weed Control in Parsnip - Grant - 2016			
Trial ID:	118-16-1	Location:	Grant, MI
Protocol ID:	118-16-1	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	BYGR COLQ LATH RRPW					COLQ			
					PARSNIP	PARSNIP	PARSNIP	PARSNIP	PARSNIP	PARSNIP	PARSNIP	PARSNIP	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage	16Jun16	16Jun16	16Jun16	16Jun16	16Jun16	23Jun16	23Jun16
							1-10	1-10	1-10	1-10	1-10	1-10	1-10
1	Lorox	50	DF	1 lb ai/a		PRE	3.7	8.7	3.7	6.0	3.3	1.0	3.0
2	Dual Magnum	7.62	EC	1.3 lb ai/a		PRE	3.3	9.7	5.7	8.7	7.7	2.3	4.7
3	Prowl H20	3.8	CS	1.9 lb ai/a		PRE	2.0	9.7	8.7	8.7	6.0	1.3	9.3
4	Caparol	4	L	1 lb ai/a		PRE	2.3	9.0	8.3	9.7	5.3	3.0	8.0
5	Lorox	50	DF	1 lb ai/a		PO1	2.3	6.7	2.3	4.3	1.7	3.0	10.0
6	Caparol	4	L	1 lb ai/a		PO1	2.3	6.3	1.0	2.3	1.0	3.7	10.0
7	Tricor	75	DF	0.25 lb ai/a		PO1	4.3	7.3	2.0	5.7	2.3	8.7	10.0
8	Untreated						2.3	7.7	3.3	4.3	2.3	1.7	1.3
LSD P=.05							4.89	4.51	3.66	4.07	3.44	2.80	2.75
Standard Deviation							2.79	2.57	2.09	2.32	1.96	1.60	1.57
CV							98.52	31.66	47.81	37.43	52.92	51.83	22.27

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	COPU CORW LATH RRPW				PARSNIP		
					23Jun16	23Jun16	23Jun16	23Jun16	14Sep16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Growth Stage	1-10	1-10	1-10	1-10	KG/10 FT
1	Lorox	50	DF	1 lb ai/a		PRE	4.0	7.0	4.8	1.7	11.53
2	Dual Magnum	7.62	EC	1.3 lb ai/a		PRE	2.7	7.0	3.0	4.7	13.76
3	Prowl H20	3.8	CS	1.9 lb ai/a		PRE	6.0	7.0	5.7	4.0	14.52
4	Caparol	4	L	1 lb ai/a		PRE	3.7	9.0	3.3	4.3	13.38
5	Lorox	50	DF	1 lb ai/a		PO1	10.0	10.0	10.0	9.0	13.45
6	Caparol	4	L	1 lb ai/a		PO1	10.0	10.0	10.0	9.0	10.40
7	Tricor	75	DF	0.25 lb ai/a		PO1	10.0	10.0	10.0	8.3	7.00
8	Untreated						1.0	4.0	3.3	1.3	12.83
LSD P=.05							3.68	5.08	5.17	2.61	3.013
Standard Deviation							2.10	2.90	2.93	1.49	1.720
CV							35.5	36.25	46.79	28.12	14.21

Weed Control in Processing Peppers - HTRC - 2016

Project Code:101-16-01

Location: East Lansing, MI
Block 85-87

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Banana Pepper, Cherry Variety: Hungarian Hot Wax, Hot Cherry Pepper

Planting Method: Transplant Planting Date: 6/2/2016 Harvest Date: See Data

Spacing: 22 in Row Spacing: 3 ft; 1 row each crop/plot

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: 1.5% pH: 5.9
Sand: 62% Silt: 24% Clay: 15% CEC: 6.3

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	6/2/16	9:06 am	72/69	F	Dry	4-6 NW	49	30% Cloudy	N
POT	6/2/16	10:45 am	74/70	F	Dry	5 NW	34	25% Cloudy	N
PO1	6/22/16	11:22 am	78/75	F	Dry	2 E	34	40% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/2	No Crop			
6/2	No Weeds			
6/22	CHERRY PEPPER	4-6"	Veg	Good
6/22	BANANA PEPPER	4-6"	Veg	Good
6/22	COLQ = common lambsquarters	3-5"	Veg	Many
6/22	COPU = common purslane	2-3"	Veg	Moderate
6/22	GIFT = giant foxtail	8-10"	Veg	Few
6/22	RRPW = redroot pigweed	2-4"	Veg	Many
6/22	YEFT = yellow foxtail	4-6"	Veg	Many
	BYGR = barnyardgrass			
	CORW = common ragweed			
	EBNS = eastern black nightshade			
	WIRA = wild radish			

Notes and Comments

1. Spray 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.

Weed Control in Processing Peppers - HTRC - 2016

Weed Control in Processing Pepper - HTRC - 2016					
Trial ID:	101-16-1	Location:	East Lansing, MI		
Protocol ID:	101-16-1	Investigator:	Dr. Bernard Zandstra		
Study Director:	Colin Phillippo				

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	CHERRY		BANANA		BYGR	YEFT	
					21Jun16	21Jun16	20Jun16	20Jun16	20Jun16	20Jun16	
					STAND	STAND	RATING	RATING	RATING	RATING	
					#/PLOT	#/PLOT	1-10	1-10	1-10	1-10	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Rate	Growth Stage				
1	Dual Magnum A 16003E	7.62	EC	0.95 lb ai/a	PRT	17.7	17.0	1.3	1.7	8.7	8.3
2	Prowl H2O	3.8	CS	1.4 lb ai/a	PRT	18.3	17.7	1.0	1.0	9.3	8.7
3	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT	16.7	18.7	1.0	1.0	10.0	9.3
4	Reflex Command	2	SL	0.125 lb ai/a	PRT	18.3	17.3	1.0	1.3	10.0	9.7
		3	ME	1 lb ai/a	PRT						
5	Reflex	2	SL	0.25 lb ai/a	PRT	17.3	18.0	1.0	1.3	5.7	5.0
6	A 16003E	1.67	SL	0.033 lb ai/a	PRT	16.7	15.3	2.0	2.7	5.3	6.0
7	Command	3	ME	1 lb ai/a	PRT	17.0	18.0	1.0	1.0	8.3	8.7
8	Command	3	ME	1 lb ai/a	PRT	18.3	16.7	1.0	1.7	10.0	10.0
	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT						
9	Dual Magnum Sandea	7.62	EC	0.95 lb ai/a	POT	17.3	18.7	1.0	1.7	8.3	8.3
		75	WG	0.023 lb ai/a	PO1						
	Poast	1.53	EC	0.19 lb ai/a	PO1						
10	Command tolpyralate	3	ME	1 lb ai/a	PRT	14.3	11.3	2.3	2.3	9.7	9.0
		3.34	L	0.037 lb ai/a	PRT						
11	Zeus Prime XC	3.5	EC	0.25 lb ai/a	PRT	17.0	18.0	2.0	2.3	10.0	9.0
12	Untreated					18.3	17.3	1.0	1.0	1.7	3.7
LSD P=.05						2.17	2.58	0.87	1.07	3.72	3.62
Standard Deviation						1.28	1.53	0.51	0.63	2.20	2.13
CV						7.43	8.97	39.25	40.02	27.18	26.78

Weed Control in Processing Peppers - HTRC - 2016

Pest Code					COLQ	CORW	EBNS	RRPW	WIRA			
Crop Code					20Jun16	20Jun16	20Jun16	20Jun16	20Jun16	CHERRY		
Rating Date					RATING	RATING	RATING	RATING	RATING	05Jul16		
Rating Type					1-10	1-10	1-10	1-10	1-10	RATING		
Rating Unit					1-10	1-10	1-10	1-10	1-10	1-10		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage						
1	Dual Magnum A 16003E	7.62	EC	0.95 lb ai/a	PRT		4.7	5.7	9.3	7.7	6.3	1.3
2	Prowl H2O	3.8	CS	1.4 lb ai/a	PRT		10.0	5.3	9.3	9.7	8.3	1.0
3	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT		5.0	4.3	10.0	6.7	7.0	1.0
4	Reflex Command	2	SL	0.125 lb ai/a	PRT		8.3	8.7	9.7	9.0	10.0	1.0
5	Reflex	2	SL	0.25 lb ai/a	PRT		6.3	9.3	9.3	9.0	9.7	1.0
6	A 16003E	1.67	SL	0.033 lb ai/a	PRT		6.3	10.0	9.7	9.0	9.0	3.0
7	Command	3	ME	1 lb ai/a	PRT		8.0	8.0	8.7	6.3	7.7	1.0
8	Command	3	ME	1 lb ai/a	PRT		9.7	9.3	10.0	9.7	8.3	1.0
9	Dual Magnum Sandea Poast	7.62	EC	0.95 lb ai/a	PRT		4.3	3.7	10.0	8.3	7.0	1.7
10	Command tolpyralate	3.34	L	0.037 lb ai/a	PRT		8.3	9.3	9.0	9.7	8.7	2.3
11	Zeus Prime XC	3.5	EC	0.25 lb ai/a	PRT		9.7	8.0	9.3	9.7	9.3	2.0
12	Untreated						1.0	2.0	1.7	1.0	2.3	2.0
LSD P=.05							2.98	3.85	1.74	3.00	3.03	1.75
Standard Deviation							1.76	2.27	1.03	1.77	1.79	1.04
CV							25.89	32.59	11.62	22.23	22.95	67.81

Weed Control in Processing Peppers - HTRC - 2016

Pest Code		YEFT COLQ CORW EBNS RRPW WIRA											
Crop Code		BANANA											
Rating Date		05Jul16 05Jul16 05Jul16 05Jul16 05Jul16 05Jul16 05Jul16											
Rating 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	Growth Unit	Stage	YEFT	COLQ	CORW	EBNS	RRPW	WIRA	
1	Dual Magnum A 16003E	7.62	EC	0.95 lb ai/a	PRT		1.3	7.7	3.0	5.0	10.0	7.0	6.0
2	Prowl H20	3.8	CS	1.4 lb ai/a	PRT		1.3	7.7	10.0	2.0	10.0	9.3	6.7
3	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT		1.3	6.7	1.0	2.3	10.0	7.3	6.3
4	Reflex Command	2	SL	0.125 lb ai/a	PRT		1.7	6.0	5.7	6.7	1.7	4.0	9.7
5	Reflex	2	SL	0.25 lb ai/a	PRT		1.0	2.0	2.7	7.3	1.0	8.0	9.7
6	A 16003E	1.67	SL	0.033 lb ai/a	PRT		2.7	3.0	3.7	7.3	7.0	5.0	6.0
7	Command	3	ME	1 lb ai/a	PRT		1.0	8.0	3.0	5.0	1.7	1.3	2.3
8	Command	3	ME	1 lb ai/a	PRT		1.7	9.3	7.7	5.7	7.7	5.7	4.3
9	Dual Magnum Sandea Poast	7.62	EC	0.95 lb ai/a	PRT		2.7	9.0	3.0	4.0	6.0	9.3	10.0
10	Command tolpyralate	3.34	L	0.037 lb ai/a	PRT		4.3	5.7	5.3	6.7	5.3	7.7	8.3
11	Zeus Prime XC	3.5	EC	0.25 lb ai/a	PRT		2.3	4.7	10.0	5.7	9.3	9.3	8.7
12	Untreated						2.0	9.0	10.0	10.0	9.3	10.0	10.0
LSD P=.05							1.63	3.76	3.70	3.71	3.92	3.91	2.94
Standard Deviation							0.96	2.22	2.19	2.19	2.32	2.31	1.73
CV							49.37	33.84	40.36	38.86	35.18	33.01	23.65

Weed Control in Processing Peppers - HTRC - 2016

Pest Code												
Crop Code		CHERRY BANANA CHERRY CHERRY CHERRY CHERRY										
Rating Date		21Jul16 21Jul16 15Aug16 09Sep16 10Oct16										
Rating Type		STAND STAND HARVEST HARVEST HARVEST TOTAL										
Rating Unit		#/PLOT #/PLOT KG/PLOT KG/PLOT KG/PLOT KG/PLOT										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit Stage							
1	Dual Magnum A 16003E	7.62	EC	0.95	lb ai/a	PRT	16.3	15.0	5.54	12.96	7.20	25.69
2	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	17.7	16.0	7.77	15.34	8.74	31.84
3	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	16.3	14.0	5.05	14.98	6.22	26.25
4	Reflex Command	2	SL	0.125	lb ai/a	PRT	18.3	15.3	8.45	19.45	8.94	36.84
5	Reflex	2	SL	0.25	lb ai/a	PRT	16.7	14.7	6.04	14.40	7.94	28.38
6	A 16003E	1.67	SL	0.033	lb ai/a	PRT	14.0	10.7	5.52	11.51	6.63	23.66
7	Command	3	ME	1	lb ai/a	PRT	17.0	14.7	7.64	13.79	8.02	29.46
8	Command	3	ME	1	lb ai/a	PRT	18.0	15.3	8.99	13.95	8.72	31.66
9	Dual Magnum Sandea Poast	7.62	EC	0.95	lb ai/a	PRT	17.3	15.7	5.92	14.64	6.09	26.65
		75	WG	0.023	lb ai/a	PO1						
		1.53	EC	0.19	lb ai/a	PO1						
10	Command tolpyralate	3	ME	1	lb ai/a	PRT	14.0	9.7	5.49	15.72	6.47	27.68
		3.34	L	0.037	lb ai/a	PRT						
11	Zeus Prime XC	3.5	EC	0.25	lb ai/a	PRT	14.0	13.3	5.23	10.87	5.05	21.15
12	Untreated						16.3	15.3	6.93	11.80	4.60	23.32
LSD P=.05							3.55	3.79	3.342	3.684	3.589	7.213
Standard Deviation							2.10	2.24	1.974	2.175	2.119	4.259
CV							12.83	15.81	30.15	15.41	30.06	15.37

Weed Control in Processing Peppers - HTRC - 2016

Pest Code						BANANA	BANANA	BANANA	BANANA
Crop Code						17Aug16	01Sep16	03Oct16	
Rating Date						HARVEST	HARVEST	HARVEST	TOTAL
Rating Type						KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit Stage				
1	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT	6.87	7.16	12.30	26.33
	A 16003E	1.67	SL	0.033 lb ai/a	PO1				
2	Prowl H20	3.8	CS	1.4 lb ai/a	PRT	8.80	8.58	14.77	32.15
3	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT	6.62	7.82	13.82	28.26
4	Reflex	2	SL	0.125 lb ai/a	PRT	9.13	9.71	12.87	31.72
	Command	3	ME	1 lb ai/a	PRT				
5	Reflex	2	SL	0.25 lb ai/a	PRT	6.76	6.87	11.10	24.72
6	A 16003E	1.67	SL	0.033 lb ai/a	PRT	5.10	6.11	11.30	22.51
7	Command	3	ME	1 lb ai/a	PRT	8.74	5.85	13.41	28.01
8	Command	3	ME	1 lb ai/a	PRT	9.05	9.81	15.64	34.50
	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT				
9	Dual Magnum	7.62	EC	0.95 lb ai/a	POT	5.72	7.89	11.76	25.38
	Sandea	75	WG	0.023 lb ai/a	PO1				
	Poast	1.53	EC	0.19 lb ai/a	PO1				
10	Command	3	ME	1 lb ai/a	PRT	6.49	5.11	10.85	22.45
	tolpyralate	3.34	L	0.037 lb ai/a	PRT				
11	Zeus Prime XC	3.5	EC	0.25 lb ai/a	PRT	6.28	5.94	9.90	22.11
12	Untreated					8.01	7.02	10.79	25.82
LSD P=.05						4.474	2.397	4.252	9.882
Standard Deviation						2.642	1.416	2.511	5.836
CV						36.21	19.33	20.29	21.62

Weed Control in Bell Pepper and Tomato - HTRC - 2016

Project Code: 101-16-2

Location: East Lansing, MI
Block 85-87

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Bell Pepper, Tomato Variety: Aristotle, Sunbrite

Planting Method: Transplant Planting Date: 6/1/2016 Harvest Date: See data

Spacing: 22 in Row Spacing: 3 ft; 1 row each crop/plot

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: 1.5%

pH: 5.5

Sand: 60% Silt: 21% Clay: 19%

CEC: 6.8

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	6/1/16	2:40 pm	87/76	F	Dry	4-6 E	38	100% Cloudy	N
POT	6/2/16	8:52 am	72/69	F	Dry	4-6 NW	49	30% Cloudy	N
PO1	6/22/16	11:40 am	78/75	F	Dry	2 E	34	40% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/1	No Crop			
6/1	No Weeds			
6/22	PEPPER	4-6"	Veg	Good
6/22	TOMATO	5-7"	Veg	Good
6/22	COLQ = common lambsquarters	3-5"	Veg	Many
6/22	COPU = common purslane	2-3"	Veg	Mod
6/22	GIFT = giant foxtail	8-10"	Veg	Many
6/22	RRPW = redroot pigweed	2-4"	Veg	Mod
6/22	YEFT = yellow foxtail	4-6"	Veg	Many

Notes and Comments

1. Spray 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. Six harvests of pepper and tomato.
-

Weed Control in Bell Pepper and Tomato - HTRC - 2016

Weed Control in Bell Pepper and Tomato - HTRC - 2016			
Trial ID:	101-16-2	Location:	East Lansing, MI
Protocol ID:	101-16-2	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Pest Code	Crop Code			PEPPER		TOMATO		COLQ	CORW	EBNS	LACG	WIRA	
		Rating Date	Rating Type	Rating	Rating	Rating	Rating	Rating	Rating	Rating	Rating		
Rating Unit				1-10	1-10	1-10	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	Prowl H2O	3.8	CS	1.4	lb ai/a	PRT	1.3	1.0	10.0	1.7	10.0	10.0	6.3
2	Command	3	ME	1	lb ai/a	PRT	1.0	2.7	9.0	10.0	9.7	8.7	
3	Dual Magnum	7.62	EC	0.95	lb ai/a	POT	1.3	1.7	7.0	2.3	10.0	10.0	5.7
4	Reflex	2	SL	0.125	lb ai/a	PRT	1.3	1.0	7.3	7.7	10.0	8.7	9.7
5	Authority MTZ	45	DF	0.338	lb ai/a	PRT	3.0	1.3	10.0	10.0	10.0	10.0	10.0
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT							
	Tricor	75	DF	0.93	lb ai/a	PO1							
	Salida	25	SG	0.016	lb ai/a	PO1							
	NIS	100	SL	0.25	% v/v	PO1							
6	Authority MTZ	45	DF	0.338	lb ai/a	PRT	2.3	1.7	10.0	9.0	10.0	9.7	10.0
	Tricor	75	DF	0.93	lb ai/a	PO1							
	Sandea	75	WG	0.023	lb ai/a	PO1							
	Select Max	0.97	EC	0.12	lb ai/a	PO1							
7	Spartan	4	F	0.25	lb ai/a	PRT	2.3	1.0	10.0	3.3	10.0	10.0	5.3
	Prowl H2O	3.8	CS	0.95	lb ai/a	PRT							
8	Dual Magnum	7.62	EC	1.4	lb ai/a	PRT	2.0	1.3	10.0	9.7	10.0	10.0	9.7
	Tricor	75	DF	0.25	lb ai/a	PRT							
9	Dual Magnum	7.62	EC	1.4	lb ai/a	PRT	4.7	1.7	10.0	9.7	10.0	10.0	9.7
	Tricor	75	DF	0.25	lb ai/a	PRT							
	Sandea	75	WG	0.023	lb ai/a	PO1							
	WE1577	2	EC	0.12	lb ai/a	PO1							
	COC	100	SL	1	% v/v	PO1							
10	Prowl H2O	3.8	CS	1.4	lb ai/a	PRT	1.3	3.3	10.0	6.7	10.0	10.0	9.7
	Command	3	ME	0.5	lb ai/a	PRT							
	Matrix	25	SG	0.031	lb ai/a	PO1							
	WE1557	2	EC	0.12	lb ai/a	PO1							
	COC	100	SL	1	% v/v	PO1							
11	Dual Magnum	7.62	EC	1.4	lb ai/a	PRT	1.0	1.0	10.0	9.0	10.0	10.0	9.3
	Reflex	2	SL	0.125	lb ai/a	PRT							
12	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	3.3	5.7	10.0	10.0	10.0	10.0	8.7
	A 16003E	1.67	SL	0.033	lb ai/a	PRT							
13	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	1.7	1.0	8.0	1.7	10.0	10.0	4.0
	A 16003E	1.67	SL	0.033	lb ai/a	PO1							
14	Untreated						1.0	1.7	3.0	1.0	3.7	3.7	3.0
	Lentagran	45	WP	0.47	lb ai/a	PO1							
LSD P=.05							1.44	1.02	2.20	2.38	2.07	2.14	3.69
Standard Deviation							0.86	0.61	1.31	1.42	1.23	1.28	2.20
CV							43.37	32.67	14.73	21.63	12.93	13.57	28.08

Weed Control in Bell Pepper and Tomato - HTRC - 2016

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	YEFT					COLQ		
					20Jun16	21Jun16	21Jun16	05Jul16	05Jul16	05Jul16		
					RATING	STAND	STAND	RATING	RATING	RATING		
					1-10	#/PLOT	#/PLOT	1-10	1-10	1-10		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage						
1	Prowl H20	3.8 CS		1.4 lb ai/a	PRT		9.3	18.7	17.3	1.0	1.0	10.0
2	Command	3 ME		1 lb ai/a	PRT		9.7	19.0	17.3	1.0	2.7	9.3
3	Dual Magnum	7.62 EC		0.95 lb ai/a	POT		9.7	17.7	18.7	1.3	1.3	1.3
4	Reflex	2 SL		0.125 lb ai/a	PRT		8.3	17.7	18.0	1.3	1.0	3.0
5	Authority MTZ	45 DF		0.338 lb ai/a	PRT		10.0	15.7	17.7	8.7	1.3	10.0
	Dual Magnum	7.62 EC		0.72 lb ai/a	PRT							
	Tricor	75 DF		0.93 lb ai/a	PO1							
	Salida	25 SG		0.016 lb ai/a	PO1							
	NIS	100 SL		0.25 % v/v	PO1							
6	Authority MTZ	45 DF		0.338 lb ai/a	PRT		9.7	17.3	17.0	9.0	1.3	10.0
	Tricor	75 DF		0.93 lb ai/a	PO1							
	Sandea	75 WG		0.023 lb ai/a	PO1							
	Select Max	0.97 EC		0.12 lb ai/a	PO1							
7	Spartan	4 F		0.25 lb ai/a	PRT		10.0	16.7	15.7	2.3	1.7	10.0
	Prowl H20	3.8 CS		0.95 lb ai/a	PRT							
8	Dual Magnum	7.62 EC		1.4 lb ai/a	PRT		10.0	15.7	17.0	2.3	1.7	10.0
	Tricor	75 DF		0.25 lb ai/a	PRT							
9	Dual Magnum	7.62 EC		1.4 lb ai/a	PRT		10.0	12.3	17.3	5.7	1.7	9.3
	Tricor	75 DF		0.25 lb ai/a	PRT							
	Sandea	75 WG		0.023 lb ai/a	PO1							
	WE1577	2 EC		0.12 lb ai/a	PO1							
	COC	100 SL		1 % v/v	PO1							
10	Prowl H20	3.8 CS		1.4 lb ai/a	PRT		10.0	18.0	18.0	3.7	2.0	9.7
	Command	3 ME		0.5 lb ai/a	PRT							
	Matrix	25 SG		0.031 lb ai/a	PO1							
	WE1557	2 EC		0.12 lb ai/a	PO1							
	COC	100 SL		1 % v/v	PO1							
11	Dual Magnum	7.62 EC		1.4 lb ai/a	PRT		10.0	17.7	18.3	1.7	1.0	6.7
	Reflex	2 SL		0.125 lb ai/a	PRT							
12	Dual Magnum	7.62 EC		0.95 lb ai/a	PRT		10.0	12.7	6.3	5.0	6.0	9.3
	A 16003E	1.67 SL		0.033 lb ai/a	PRT							
13	Dual Magnum	7.62 EC		0.95 lb ai/a	PRT		10.0	17.3	18.3	2.7	2.0	3.0
	A 16003E	1.67 SL		0.033 lb ai/a	PO1							
14	Untreated						3.7	18.3	17.0	1.7	2.3	7.3
	Lentagran	45 WP		0.47 lb ai/a	PO1							
LSD P=.05							2.15	2.52	1.98	1.07	1.20	2.66
Standard Deviation							1.28	1.50	1.18	0.63	0.71	1.59
CV							13.76	8.97	7.07	18.77	36.93	20.37

Weed Control in Bell Pepper and Tomato - HTRC - 2016

Pest Code				CORW	RRPW	WIRA	YEFT	PEPPER TOMATO			
Crop Code				05Jul16	05Jul16	05Jul16	05Jul16	21Jul16	21Jul16		
Rating Date				RATING	RATING	RATING	RATING	STAND	STAND		
Rating Type				1-10	1-10	1-10	1-10	#/PLOT	#/PLOT		
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage						
1	Prowl H20	3.8	CS	1.4 lb ai/a	PRT	1.7	9.0	5.7	9.0	18.7	17.3
2	Command	3	ME	1 lb ai/a	PRT	7.0	8.3	8.0	9.7	18.3	17.7
3	Dual Magnum	7.62	EC	0.95 lb ai/a	POT	1.0	8.0	3.0	8.7	16.7	18.3
4	Reflex	2	SL	0.125 lb ai/a	PRT	4.3	10.0	8.0	2.3	17.3	17.0
5	Authority MTZ	45	DF	0.338 lb ai/a	PRT	10.0	10.0	10.0	9.7	5.0	17.7
	Dual Magnum	7.62	EC	0.72 lb ai/a	PRT						
	Tricor	75	DF	0.93 lb ai/a	PO1						
	Salida	25	SG	0.016 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
6	Authority MTZ	45	DF	0.338 lb ai/a	PRT	10.0	10.0	10.0	10.0	5.0	17.7
	Tricor	75	DF	0.93 lb ai/a	PO1						
	Sandea	75	WG	0.023 lb ai/a	PO1						
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
7	Spartan	4	F	0.25 lb ai/a	PRT	2.3	9.3	4.7	9.3	15.7	15.3
	Prowl H20	3.8	CS	0.95 lb ai/a	PRT						
8	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT	8.3	10.0	9.0	10.0	15.3	17.3
	Tricor	75	DF	0.25 lb ai/a	PRT						
9	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT	9.3	10.0	10.0	10.0	10.7	17.3
	Tricor	75	DF	0.25 lb ai/a	PRT						
	Sandea	75	WG	0.023 lb ai/a	PO1						
	WE1577	2	EC	0.12 lb ai/a	PO1						
	COC	100	SL	1 % v/v	PO1						
10	Prowl H20	3.8	CS	1.4 lb ai/a	PRT	5.3	10.0	10.0	10.0	18.0	17.7
	Command	3	ME	0.5 lb ai/a	PRT						
	Matrix	25	SG	0.031 lb ai/a	PO1						
	WE1557	2	EC	0.12 lb ai/a	PO1						
	COC	100	SL	1 % v/v	PO1						
11	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT	7.3	10.0	9.3	9.3	17.7	17.7
	Reflex	2	SL	0.125 lb ai/a	PRT						
12	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT	8.7	8.7	6.7	10.0	10.3	8.0
	A 16003E	1.67	SL	0.033 lb ai/a	PRT						
13	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT	3.0	10.0	3.7	10.0	15.7	18.0
	A 16003E	1.67	SL	0.033 lb ai/a	PO1						
14	Untreated					7.0	9.0	10.0	8.0	17.7	16.3
	Lentagran	45	WP	0.47 lb ai/a	PO1						
LSD P=.05						2.87	1.60	2.72	1.72	3.15	2.40
Standard Deviation						1.71	0.95	1.62	1.02	1.87	1.43
CV						28.02	10.06	20.99	11.35	12.99	8.57
Treatment Prob(F)						0.0001	0.1124	0.0001	0.0001	0.0001	0.0001

Weed Control in Bell Pepper and Tomato - HTRC - 2016

Pest Code											
Crop Code											
Rating Date											
Rating Type											
Rating Unit											
		PEPPER	PEPPER	PEPPER	PEPPER	PEPPER					
		09Aug16	09Aug16	16Aug16	16Aug16	23Aug16					
		HARVEST	HARVEST	HARVEST	HARVEST	HARVEST					
		#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	#/PLOT					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage					
1	Prowl H20	3.8	CS	1.4 lb ai/a	PRT		15.7	2.89	38.3	6.93	16.7
2	Command	3	ME	1 lb ai/a	PRT		21.3	3.94	38.7	6.97	40.7
3	Dual Magnum	7.62	EC	0.95 lb ai/a	POT		13.3	2.33	23.3	4.09	22.3
4	Reflex	2	SL	0.125 lb ai/a	PRT		18.7	3.34	35.3	6.63	25.7
5	Authority MTZ	45	DF	0.338 lb ai/a	PRT		0.0	0.00	0.0	0.00	1.3
	Dual Magnum	7.62	EC	0.72 lb ai/a	PRT						
	Tricor	75	DF	0.93 lb ai/a	PO1						
	Salida	25	SG	0.016 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
6	Authority MTZ	45	DF	0.338 lb ai/a	PRT		0.0	0.00	0.0	0.00	0.3
	Tricor	75	DF	0.93 lb ai/a	PO1						
	Sandea	75	WG	0.023 lb ai/a	PO1						
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
7	Spartan	4	F	0.25 lb ai/a	PRT		12.0	2.15	24.3	4.53	17.3
	Prowl H20	3.8	CS	0.95 lb ai/a	PRT						
8	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT		16.3	2.49	27.3	4.28	28.3
	Tricor	75	DF	0.25 lb ai/a	PRT						
9	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT		0.3	0.06	17.0	2.46	13.3
	Tricor	75	DF	0.25 lb ai/a	PRT						
	Sandea	75	WG	0.023 lb ai/a	PO1						
	WE1577	2	EC	0.12 lb ai/a	PO1						
	COC	100	SL	1 % v/v	PO1						
10	Prowl H20	3.8	CS	1.4 lb ai/a	PRT		1.3	0.17	26.0	4.42	43.0
	Command	3	ME	0.5 lb ai/a	PRT						
	Matrix	25	SG	0.031 lb ai/a	PO1						
	WE1557	2	EC	0.12 lb ai/a	PO1						
	COC	100	SL	1 % v/v	PO1						
11	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT		15.0	2.73	35.3	6.53	29.3
	Reflex	2	SL	0.125 lb ai/a	PRT						
12	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT		8.3	1.54	28.3	5.04	16.0
	A 16003E	1.67	SL	0.033 lb ai/a	PRT						
13	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT		7.3	1.19	24.0	3.98	10.3
	A 16003E	1.67	SL	0.033 lb ai/a	PO1						
14	Untreated						15.7	2.70	33.7	5.81	26.7
	Lentagran	45	WP	0.47 lb ai/a	PO1						
LSD P=.05							10.21	1.806	11.76	2.136	16.08
Standard Deviation							6.08	1.076	7.01	1.272	9.58
CV							58.61	59.05	27.9	28.89	46.04

Weed Control in Bell Pepper and Tomato - HTRC - 2016

Pest Code											
Crop Code											
Rating Date		PEPPER	PEPPER	PEPPER	PEPPER	PEPPER					
Rating Type		23Aug16	01Sep16	01Sep16	15Sep16	15Sep16					
Rating Unit		HARVEST	HARVEST	HARVEST	HARVEST	HARVEST					
		KG/PLOT	#/PLOT	KG/PLOT	#/PLOT	KG/PLOT					
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage					
1	Prowl H20	3.8	CS	1.4 lb ai/a	PRT		2.83	17.0	3.36	51.7	8.87
2	Command	3	ME	1 lb ai/a	PRT		6.73	35.7	5.96	33.7	5.79
3	Dual Magnum	7.62	EC	0.95 lb ai/a	POT		3.79	27.7	5.39	49.3	7.75
4	Reflex	2	SL	0.125 lb ai/a	PRT		4.39	15.3	2.83	36.3	5.71
5	Authority MTZ	45	DF	0.338 lb ai/a	PRT		0.22	6.0	0.87	7.7	1.40
	Dual Magnum	7.62	EC	0.72 lb ai/a	PRT						
	Tricor	75	DF	0.93 lb ai/a	PO1						
	Salida	25	SG	0.016 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
6	Authority MTZ	45	DF	0.338 lb ai/a	PRT		0.05	3.7	0.61	5.3	0.84
	Tricor	75	DF	0.93 lb ai/a	PO1						
	Sandea	75	WG	0.023 lb ai/a	PO1						
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
7	Spartan	4	F	0.25 lb ai/a	PRT		3.13	29.7	5.31	29.3	5.36
	Prowl H20	3.8	CS	0.95 lb ai/a	PRT						
8	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT		4.94	33.0	5.77	23.3	3.79
	Tricor	75	DF	0.25 lb ai/a	PRT						
9	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT		2.06	15.7	2.72	12.0	2.05
	Tricor	75	DF	0.25 lb ai/a	PRT						
	Sandea	75	WG	0.023 lb ai/a	PO1						
	WE1577	2	EC	0.12 lb ai/a	PO1						
	COC	100	SL	1 % v/v	PO1						
10	Prowl H20	3.8	CS	1.4 lb ai/a	PRT		7.11	59.7	10.45	31.0	4.89
	Command	3	ME	0.5 lb ai/a	PRT						
	Matrix	25	SG	0.031 lb ai/a	PO1						
	WE1557	2	EC	0.12 lb ai/a	PO1						
	COC	100	SL	1 % v/v	PO1						
11	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT		4.95	20.0	3.50	34.3	5.83
	Reflex	2	SL	0.125 lb ai/a	PRT						
12	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT		2.57	20.0	3.51	28.7	4.97
	A 16003E	1.67	SL	0.033 lb ai/a	PRT						
13	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT		1.74	23.3	4.09	19.7	3.44
	A 16003E	1.67	SL	0.033 lb ai/a	PO1						
14	Untreated						4.55	28.0	4.43	19.3	3.21
	Lentagran	45	WP	0.47 lb ai/a	PO1						
LSD P=.05							2.560	18.47	3.219	22.95	3.947
Standard Deviation							1.525	11.00	1.917	13.67	2.351
CV							43.5	46.03	45.65	50.16	51.52

Weed Control in Bell Pepper and Tomato - HTRC - 2016

Pest Code				PEPPER		PEPPER		TOMATO		TOMATO		
Crop Code				28Sep16	28Sep16	28Sep16	28Sep16	22Aug16	29Aug16	22Aug16	29Aug16	
Rating Date				HARVEST	HARVEST	TOTAL	TOTAL	HARVEST	HARVEST	HARVEST	HARVEST	
Rating Type				#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	
Rating Unit				#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Growth Stage						
1	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	45.0	5.89	184.3	30.77	9.95	21.19
2	Command	3	ME	1	lb ai/a	PRT	47.7	6.96	217.7	36.35	8.60	26.69
3	Dual Magnum	7.62	EC	0.95	lb ai/a	POT	27.0	3.33	163.0	26.67	11.66	28.91
4	Reflex	2	SL	0.125	lb ai/a	PRT	33.7	4.60	165.0	27.49	10.11	25.91
5	Authority MTZ	45	DF	0.338	lb ai/a	PRT	4.7	0.59	19.7	3.08	11.31	26.92
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT						
	Tricor	75	DF	0.93	lb ai/a	PO1						
	Salida	25	SG	0.016	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
6	Authority MTZ	45	DF	0.338	lb ai/a	PRT	8.0	0.91	17.3	2.42	12.89	34.41
	Tricor	75	DF	0.93	lb ai/a	PO1						
	Sandea	75	WG	0.023	lb ai/a	PO1						
	Select Max	0.97	EC	0.12	lb ai/a	PO1						
7	Spartan	4	F	0.25	lb ai/a	PRT	33.7	4.82	146.3	25.31	10.19	27.53
	Prowl H20	3.8	CS	0.95	lb ai/a	PRT						
8	Dual Magnum	7.62	EC	1.4	lb ai/a	PRT	38.0	4.59	166.3	25.87	7.62	17.67
	Tricor	75	DF	0.25	lb ai/a	PRT						
9	Dual Magnum	7.62	EC	1.4	lb ai/a	PRT	19.0	3.03	77.3	12.38	9.11	15.57
	Tricor	75	DF	0.25	lb ai/a	PRT						
	Sandea	75	WG	0.023	lb ai/a	PO1						
	WE1577	2	EC	0.12	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
10	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	55.7	8.02	216.7	35.06	9.67	30.90
	Command	3	ME	0.5	lb ai/a	PRT						
	Matrix	25	SG	0.031	lb ai/a	PO1						
	WE1557	2	EC	0.12	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
11	Dual Magnum	7.62	EC	1.4	lb ai/a	PRT	49.3	7.10	183.3	30.64	11.74	27.95
	Reflex	2	SL	0.125	lb ai/a	PRT						
12	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	26.3	3.65	127.7	21.28	3.33	11.52
	A 16003E	1.67	SL	0.033	lb ai/a	PRT						
13	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	38.7	5.57	123.3	20.00	8.11	21.04
	A 16003E	1.67	SL	0.033	lb ai/a	PO1						
14	Untreated						21.0	3.05	144.3	23.76	7.81	18.95
	Lentagran	45	WP	0.47	lb ai/a	PO1						
LSD P=.05							16.02	2.125	42.46	7.282	5.659	11.877
Standard Deviation							9.54	1.266	25.29	4.338	3.371	7.075
CV							29.84	28.53	18.14	18.92	35.72	29.55

Weed Control in Bell Pepper and Tomato - HTRC - 2016

Pest Code							TOMATO	TOMATO	TOMATO	TOMATO	TOMATO
Crop Code							02Sep16	08Sep16	16Sep16	23Sep16	
Rating Date							HARVEST	HARVEST	HARVEST	HARVEST	TOTAL
Rating Type							KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage					
1	Prowl H20	3.8	CS	1.4 lb ai/a	PRT		11.71	14.69	12.39	3.68	73.62
2	Command	3	ME	1 lb ai/a	PRT		13.27	12.99	12.35	3.17	77.06
3	Dual Magnum	7.62	EC	0.95 lb ai/a	POT		9.98	9.37	12.09	2.46	74.47
4	Reflex	2	SL	0.125 lb ai/a	PRT		19.43	14.52	21.05	5.51	96.53
5	Authority MTZ	45	DF	0.338 lb ai/a	PRT		21.60	15.93	17.33	8.44	101.53
	Dual Magnum	7.62	EC	0.72 lb ai/a	PRT						
	Tricor	75	DF	0.93 lb ai/a	PO1						
	Salida	25	SG	0.016 lb ai/a	PO1						
	NIS	100	SL	0.25 % v/v	PO1						
6	Authority MTZ	45	DF	0.338 lb ai/a	PRT		19.07	15.05	16.21	6.39	104.01
	Tricor	75	DF	0.93 lb ai/a	PO1						
	Sandea	75	WG	0.023 lb ai/a	PO1						
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
7	Spartan	4	F	0.25 lb ai/a	PRT		10.67	15.95	12.61	3.45	80.40
	Prowl H20	3.8	CS	0.95 lb ai/a	PRT						
8	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT		16.31	15.43	19.77	6.72	83.52
	Tricor	75	DF	0.25 lb ai/a	PRT						
9	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT		15.90	12.73	27.79	9.70	90.80
	Tricor	75	DF	0.25 lb ai/a	PRT						
	Sandea	75	WG	0.023 lb ai/a	PO1						
	WE1577	2	EC	0.12 lb ai/a	PO1						
	COC	100	SL	1 % v/v	PO1						
10	Prowl H20	3.8	CS	1.4 lb ai/a	PRT		18.98	14.38	15.63	5.88	95.44
	Command	3	ME	0.5 lb ai/a	PRT						
	Matrix	25	SG	0.031 lb ai/a	PO1						
	WE1557	2	EC	0.12 lb ai/a	PO1						
	COC	100	SL	1 % v/v	PO1						
11	Dual Magnum	7.62	EC	1.4 lb ai/a	PRT		20.27	12.74	14.57	5.38	92.64
	Reflex	2	SL	0.125 lb ai/a	PRT						
12	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT		7.47	9.63	17.52	6.23	55.70
	A 16003E	1.67	SL	0.033 lb ai/a	PRT						
13	Dual Magnum	7.62	EC	0.95 lb ai/a	PRT		7.99	13.10	19.43	5.73	75.40
	A 16003E	1.67	SL	0.033 lb ai/a	PO1						
14	Untreated						20.63	16.09	19.07	6.24	88.79
	Lentagran	45	WP	0.47 lb ai/a	PO1						
LSD P=.05							6.614	6.805	9.564	6.088	16.514
Standard Deviation							3.940	4.054	5.697	3.626	9.837
CV							25.86	29.47	33.54	64.29	11.57

Postemergence Weed Control in Eggplant and Hot Cherry Pepper - HTRC - 2016

Project Code: 101-16-3

Location: East Lansing, MI
Block 68

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Eggplant, Cherry Pepper Variety: Classic, Hot Cherry
 Planting Method: Transplant Planting Date: 6/2/16 Harvest Date: See data
 Spacing: 22 in Row Spacing: 3 ft; 1 row each crop/plot
 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: 2.5% pH: 5.8
 Sand: 50% Silt: 32% Clay: 18% CEC: 10.2

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	6/2/16	2:00 pm	82/76	F	Dry	6-8 E	29	45% Cloudy	N
POSTDIR/PO1	6/22/16	9:20 am	70/72	F	Dry	1 E	53	90% Cloudy	N
PO2	6/27/16	9:30 am	78/73	F	Dry	5 SW	53	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/2	No Crop			
6/2	No Weeds			
6/22	EGGPLANT	4-6"	Veg	Good
6/22	HOT CHERRY PEPPER	4-6"	Veg	Good
6/22	COPU = common purslane	1-3"	Veg	Many
6/22	COLQ = common lambsquarters	1-2"	Veg	Many
6/22	RRPW = redroot pigweed	2-3"	Veg	Many
6/22	YEFT = yellow foxtail	1-3"	Veg	Many
6/22	YENS = yellow nutsedge	3-5"	Veg	Many
6/27	EGGPLANT	6-8"	4-6 lf	Good
6/27	HOT CHERRY PEPPER	6-8"	6-10 lf	Good
6/27	COLQ	2-4"	4-10 lf	Many
6/27	COPU	4-8"	Foliar	Many
6/27	RRPW	2-4"	5-6 lf	Many
6/27	YEFT	4-6"	4-7 lf	Mod
6/27	YENS	2-6"	6-10 lf	Many

EBNS = eastern black nightshade

Notes and Comments

1. Pretransplant spray applied with 4 nozzle boom, FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer broadcast over plots prior to transplanting. POSTDIR applied with 2 11002FF nozzle boom, one pass on each side of plot. Five days later, POSTDIR plots were sprayed between pepper and eggplant rows using a shielded one nozzle boom (PO2).
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
3. There were 7 eggplant harvests and 3 cherry pepper harvests.

Postemergence Weed Control in Eggplant and Hot Cherry Pepper – HTRC – 2016

Postemergence Weed Control in Eggplant and Hot Cherry Pepper – HTRC - 2016

Trial ID: 101-16-3	Location: East Lansing, MI
Protocol ID: 101-16-3	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	EGGPLANT		CHERRY		YEFT	YENS	EBNS
					20Jun16	20Jun16	20Jun16	20Jun16	20Jun16	20Jun16	
					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	5.7	7.0	6.7
2	Rely 280	2.34 L		0.58 lb ai/a		PRETP	1.0	1.0	8.3	5.7	8.3
	Rely 280	2.34 L		0.58 lb ai/a		POSTDIR					
	Ammonium Sulfate	100 SG		3.4 lb/a		POSTDIR					
3	Rely 280	2.34 L		0.87 lb ai/a		PRETP	1.0	1.0	8.0	5.3	8.0
	Rely 280	2.34 L		0.87 lb ai/a		POSTDIR					
	Ammonium Sulfate	100 SG		3.4 lb/a		POSTDIR					
4	Rely 280	2.34 L		0.87 lb ai/a		PRETP	1.0	1.0	8.3	5.7	3.7
	Gramoxone SL	2 SL		1 lb ai/a		POSTDIR					
5	Roundup PowerMax	5.5 L		1.4 lb ai/a		PRETP	1.0	1.0	9.3	6.7	5.3
	Roundup PowerMax	5.5 L		0.5 lb ai/a		POSTDIR					
6	Reflex	2 SL		0.25 lb ai/a		PRETP	1.0	1.0	10.0	4.3	9.0
7	Lentagran	45 WP		0.47 lb ai/a		PO1	1.0	1.0	8.7	6.0	5.7
8	Spin-Aid	1.3 L		0.488 lb ai/a		POSTDIR	1.0	1.0	6.7	6.7	5.3
LSD P=.05							0.00	0.00	3.42	2.87	3.22
Standard Deviation							0.00	0.00	1.95	1.64	1.84
CV							0.0	0.0	24.0	27.72	28.26

Postemergence Weed Control in Eggplant and Hot Cherry Pepper - HTRC - 2016

Pest Code						COLQ	COPU	RRPW	EGGPLANT CHERRY	
Crop Code						20Jun16	20Jun16	20Jun16	21Jun16	21Jun16
Rating Date						RATING	RATING	RATING	STAND	STAND
Rating Type						1-10	1-10	1-10	#/PLOT	#/PLOT
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit Stage					
1	Untreated					4.0	7.0	5.7	17.0	15.3
2	Rely 280	2.34 L		0.58 lb ai/a	PRETP	5.7	7.7	8.3	17.0	16.7
	Rely 280	2.34 L		0.58 lb ai/a	POSTDIR					
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR					
3	Rely 280	2.34 L		0.87 lb ai/a	PRETP	5.7	8.3	8.3	16.7	17.0
	Rely 280	2.34 L		0.87 lb ai/a	POSTDIR					
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR					
4	Rely 280	2.34 L		0.87 lb ai/a	PRETP	5.3	8.3	6.3	16.7	16.7
	Gramoxone SL	2 SL		1 lb ai/a	POSTDIR					
5	Roundup PowerMax	5.5 L		1.4 lb ai/a	PRETP	5.3	9.0	7.0	16.7	17.0
	Roundup PowerMax	5.5 L		0.5 lb ai/a	POSTDIR					
6	Reflex	2 SL		0.25 lb ai/a	PRETP	9.3	10.0	10.0	16.7	17.0
7	Lentagran	45 WP		0.47 lb ai/a	PO1	7.0	9.7	7.7	17.0	15.7
8	Spin-Aid	1.3 L		0.488 lb ai/a	POSTDIR	3.7	10.0	6.0	16.3	17.3
LSD P=.05						2.84	3.59	2.55	2.12	1.80
Standard Deviation						1.62	2.05	1.46	1.21	1.03
CV						28.18	23.44	19.65	7.24	6.19

Pest Code						YEFT		YENS	COLQ	
Crop Code						EGGPLANT CHERRY				
Rating Date						30Jun16	30Jun16	30Jun16	30Jun16	
Rating 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	Growth Unit Stage					
1	Untreated					1.0	1.7	10.0	10.0	10.0
2	Rely 280	2.34 L		0.58 lb ai/a	PRETP	1.3	2.7	7.7	5.0	9.0
	Rely 280	2.34 L		0.58 lb ai/a	POSTDIR					
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR					
3	Rely 280	2.34 L		0.87 lb ai/a	PRETP	1.3	4.7	9.3	4.7	8.7
	Rely 280	2.34 L		0.87 lb ai/a	POSTDIR					
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR					
4	Rely 280	2.34 L		0.87 lb ai/a	PRETP	2.3	3.3	9.3	8.3	9.3
	Gramoxone SL	2 SL		1 lb ai/a	POSTDIR					
5	Roundup PowerMax	5.5 L		1.4 lb ai/a	PRETP	1.7	1.3	6.0	2.7	7.0
	Roundup PowerMax	5.5 L		0.5 lb ai/a	POSTDIR					
6	Reflex	2 SL		0.25 lb ai/a	PRETP	1.7	1.0	9.3	1.7	8.0
7	Lentagran	45 WP		0.47 lb ai/a	PO1	3.0	2.0	1.0	1.7	1.3
8	Spin-Aid	1.3 L		0.488 lb ai/a	POSTDIR	2.0	1.3	2.0	1.7	7.0
LSD P=.05						1.07	1.30	2.04	1.62	1.09
Standard Deviation						0.61	0.74	1.17	0.92	0.62
CV						34.18	33.07	17.09	20.69	8.25

Postemergence Weed Control in Eggplant and Hot Cherry Pepper - HTRC - 2016

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	RRPW						
					30Jun16	07Jul16	07Jul16	21Jul16	21Jul16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage	EGGPLANT RATING	CHERRY RATING	EGGPLANT STAND #/PLOT	CHERRY STAND #/PLOT	
1	Untreated						10.0	1.0	2.0	17.0	14.3
2	Rely 280	2.34	L	0.58	lb ai/a	PRETP	8.0	2.0	2.7	16.7	16.0
	Rely 280	2.34	L	0.58	lb ai/a	POSTDIR					
	Ammonium Sulfate	100	SG	3.4	lb/a	POSTDIR					
3	Rely 280	2.34	L	0.87	lb ai/a	PRETP	9.3	2.3	3.7	16.3	15.3
	Rely 280	2.34	L	0.87	lb ai/a	POSTDIR					
	Ammonium Sulfate	100	SG	3.4	lb/a	POSTDIR					
4	Rely 280	2.34	L	0.87	lb ai/a	PRETP	10.0	1.7	2.3	16.7	15.3
	Gramoxone SL	2	SL	1	lb ai/a	POSTDIR					
5	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRETP	6.7	2.7	2.3	15.7	17.0
	Roundup PowerMax	5.5	L	0.5	lb ai/a	POSTDIR					
6	Reflex	2	SL	0.25	lb ai/a	PRETP	9.3	1.0	1.0	16.7	16.3
7	Lentagran	45	WP	0.47	lb ai/a	PO1	3.0	1.7	2.0	17.0	14.3
8	Spin-Aid	1.3	L	0.488	lb ai/a	POSTDIR	3.3	2.3	1.7	16.3	15.0
LSD P=.05							2.17	1.26	1.22	2.29	2.64
Standard Deviation							1.24	0.72	0.69	1.31	1.51
CV							16.65	39.25	31.44	7.9	9.74

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	EGGPLANT					
					08Aug16	08Aug16	11Aug16	11Aug16		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage	HARVEST #/PLOT	HARVEST KG/PLOT	HARVEST #/PLOT	HARVEST KG/PLOT
1	Untreated						2.3	1.42	1.0	0.36
2	Rely 280	2.34	L	0.58	lb ai/a	PRETP	2.7	1.31	1.0	0.59
	Rely 280	2.34	L	0.58	lb ai/a	POSTDIR				
	Ammonium Sulfate	100	SG	3.4	lb/a	POSTDIR				
3	Rely 280	2.34	L	0.87	lb ai/a	PRETP	1.7	0.82	1.0	0.44
	Rely 280	2.34	L	0.87	lb ai/a	POSTDIR				
	Ammonium Sulfate	100	SG	3.4	lb/a	POSTDIR				
4	Rely 280	2.34	L	0.87	lb ai/a	PRETP	1.7	0.79	1.7	0.74
	Gramoxone SL	2	SL	1	lb ai/a	POSTDIR				
5	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRETP	3.3	2.04	1.3	0.56
	Roundup PowerMax	5.5	L	0.5	lb ai/a	POSTDIR				
6	Reflex	2	SL	0.25	lb ai/a	PRETP	2.0	1.05	1.3	0.45
7	Lentagran	45	WP	0.47	lb ai/a	PO1	1.3	0.81	2.3	0.86
8	Spin-Aid	1.3	L	0.488	lb ai/a	POSTDIR	4.0	2.02	1.3	0.54
LSD P=.05							2.13	1.111	2.40	0.994
Standard Deviation							1.22	0.634	1.37	0.568
CV							51.26	49.49	99.74	100.07

Postemergence Weed Control in Eggplant and Hot Cherry Pepper - HTRC - 2016

Pest Code					EGGPLANT	EGGPLANT	EGGPLANT	EGGPLANT	
Crop Code					22Aug16	22Aug16	30Aug16	30Aug16	
Rating Date					HARVEST	HARVEST	HARVEST	HARVEST	
Rating Type					#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage				
1	Untreated					35.7	9.99	38.7	13.39
2	Rely 280	2.34 L		0.58 lb ai/a	PRETP	23.7	6.83	43.3	14.47
	Rely 280	2.34 L		0.58 lb ai/a	POSTDIR				
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR				
3	Rely 280	2.34 L		0.87 lb ai/a	PRETP	19.7	5.04	42.3	14.15
	Rely 280	2.34 L		0.87 lb ai/a	POSTDIR				
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR				
4	Rely 280	2.34 L		0.87 lb ai/a	PRETP	24.3	5.87	42.3	12.73
	Gramoxone SL	2 SL		1 lb ai/a	POSTDIR				
5	Roundup PowerMax	5.5 L		1.4 lb ai/a	PRETP	31.7	8.60	36.7	12.77
	Roundup PowerMax	5.5 L		0.5 lb ai/a	POSTDIR				
6	Reflex	2 SL		0.25 lb ai/a	PRETP	30.3	8.56	39.0	12.78
7	Lentagran	45 WP		0.47 lb ai/a	PO1	31.3	8.27	46.3	15.17
8	Spin-Aid	1.3 L		0.488 lb ai/a	POSTDIR	32.3	9.86	32.3	11.97
LSD P=.05						13.28	3.218	13.00	4.136
Standard Deviation						7.58	1.838	7.42	2.361
CV						26.5	23.33	18.5	17.58

Pest Code					EGGPLANT	EGGPLANT	EGGPLANT	EGGPLANT	
Crop Code					06Sep16	06Sep16	15Sep16	15Sep16	
Rating Date					HARVEST	HARVEST	HARVEST	HARVEST	
Rating Type					#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage				
1	Untreated					66.3	17.68	53.7	14.43
2	Rely 280	2.34 L		0.58 lb ai/a	PRETP	64.0	16.52	45.0	12.01
	Rely 280	2.34 L		0.58 lb ai/a	POSTDIR				
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR				
3	Rely 280	2.34 L		0.87 lb ai/a	PRETP	64.3	17.33	41.3	10.93
	Rely 280	2.34 L		0.87 lb ai/a	POSTDIR				
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR				
4	Rely 280	2.34 L		0.87 lb ai/a	PRETP	64.7	16.75	60.3	15.91
	Gramoxone SL	2 SL		1 lb ai/a	POSTDIR				
5	Roundup PowerMax	5.5 L		1.4 lb ai/a	PRETP	82.0	23.73	49.7	13.63
	Roundup PowerMax	5.5 L		0.5 lb ai/a	POSTDIR				
6	Reflex	2 SL		0.25 lb ai/a	PRETP	80.0	22.82	59.0	16.30
7	Lentagran	45 WP		0.47 lb ai/a	PO1	53.0	13.29	53.7	15.88
8	Spin-Aid	1.3 L		0.488 lb ai/a	POSTDIR	65.7	18.60	49.0	14.67
LSD P=.05						29.77	7.011	22.34	5.570
Standard Deviation						17.00	4.003	12.76	3.181
CV						25.18	21.83	24.79	22.37

Postemergence Weed Control in Eggplant and Hot Cherry Pepper - HTRC - 2016

Pest Code					EGGPLANT	EGGPLANT	EGGPLANT	EGGPLANT	
Crop Code					23Sep16	23Sep16			
Rating Date					HARVEST	HARVEST	TOTAL	TOTAL	
Rating Type					#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage				
1	Untreated					49.3	12.23	247.0	69.50
2	Rely 280	2.34 L		0.58 lb ai/a	PRETP	53.3	14.29	233.0	66.01
	Rely 280	2.34 L		0.58 lb ai/a	POSTDIR				
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR				
3	Rely 280	2.34 L		0.87 lb ai/a	PRETP	58.0	14.84	228.3	63.55
	Rely 280	2.34 L		0.87 lb ai/a	POSTDIR				
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR				
4	Rely 280	2.34 L		0.87 lb ai/a	PRETP	48.7	11.82	243.7	64.61
	Gramoxone SL	2 SL		1 lb ai/a	POSTDIR				
5	Roundup PowerMax	5.5 L		1.4 lb ai/a	PRETP	53.7	12.37	258.3	73.70
	Roundup PowerMax	5.5 L		0.5 lb ai/a	POSTDIR				
6	Reflex	2 SL		0.25 lb ai/a	PRETP	55.3	14.67	267.0	76.63
7	Lentagran	45 WP		0.47 lb ai/a	PO1	41.3	10.65	229.3	64.93
8	Spin-Aid	1.3 L		0.488 lb ai/a	POSTDIR	50.7	13.24	235.3	70.89
LSD P=.05						24.63	5.296	63.48	13.316
Standard Deviation						14.07	3.024	36.25	7.603
CV						27.42	23.24	14.93	11.06

Pest Code					CHERRY	CHERRY	CHERRY	CHERRY	
Crop Code					12Aug16	07Sep16	07Oct16		
Rating Date					HARVEST	HARVEST	HARVEST	TOTAL	
Rating Type					KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage				
1	Untreated					5.13	6.78	5.25	17.17
2	Rely 280	2.34 L		0.58 lb ai/a	PRETP	4.31	8.18	6.03	18.53
	Rely 280	2.34 L		0.58 lb ai/a	POSTDIR				
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR				
3	Rely 280	2.34 L		0.87 lb ai/a	PRETP	3.58	8.07	4.53	16.18
	Rely 280	2.34 L		0.87 lb ai/a	POSTDIR				
	Ammonium Sulfate	100 SG		3.4 lb/a	POSTDIR				
4	Rely 280	2.34 L		0.87 lb ai/a	PRETP	4.53	8.99	6.32	19.84
	Gramoxone SL	2 SL		1 lb ai/a	POSTDIR				
5	Roundup PowerMax	5.5 L		1.4 lb ai/a	PRETP	4.32	7.99	4.04	16.35
	Roundup PowerMax	5.5 L		0.5 lb ai/a	POSTDIR				
6	Reflex	2 SL		0.25 lb ai/a	PRETP	6.70	11.94	7.63	26.27
7	Lentagran	45 WP		0.47 lb ai/a	PO1	4.00	6.68	5.22	15.90
8	Spin-Aid	1.3 L		0.488 lb ai/a	POSTDIR	5.15	8.11	4.80	18.06
LSD P=.05						2.023	3.953	3.679	7.889
Standard Deviation						1.155	2.257	2.101	4.504
CV						24.5	27.06	38.35	24.3

Bell Pepper and Hot Cherry Pepper Production with Organic Fertilizer - HTRC - 2016

Project Code: 101-16-4

Location: East Lansing, MI
Block

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Bell, Hot Cherry Peppers Varieties: Aristotle, Hot Cherry
 Planting Method: Transplant Planting Date: 6/2/16 Harvest Date: See Data
 Spacing: 22 in. Row Spacing: 3 ft; 1 row each crop/plot
 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: 2.2% pH: 6.6
 Sand: 52% Silt: 30% Clay: 19% CEC: 9.9

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/24	BELL PEPPER	6-10"	4-6 lf	Good
6/24	CHERRY PEPPER	6-8"	4-6 lf	Good

Notes and Comments

1. Spray 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. 300 lb 19-19-19 broadcast and tilled into soil before transplanting.
 4. Fertilized treatments were calculated to apply 50 lb N per acre as a sidedress application on 6/24/16. The field was irrigated after application.
 5. There were 6 bell pepper harvests and 3 cherry pepper harvests.
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Bell Pepper and Hot Cherry Pepper Production with Organic Fertilizer - HTRC - 2016

Bell Pepper and Cherry Pepper Production with Organic Fertilizer - HTRC - 2016

Trial ID: 101-16-4	Location: East Lansing, MI
Protocol ID: 101-16-4	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

					BELL CHERRY	BELL CHERRY					
					21Jun16	21Jun16	07Jul16	07Jul16	21Jul16		
					STAND	STAND	RATING	RATING	STAND		
					#/PLOT	#/PLOT	1-10	1-10	#/PLOT		
Trt	Treatment	Form	Form	Rate	Growth						
No.	Name	Conc	Type	Rate	Unit	Stage					
1	Ammonium nitrate 33-0-0	33.5	GR	50 lb ai/a	4-6	WATP	17.3	16.7	1.3	1.7	17.0
2	Nature's Supreme 4-3-2	4	GR	50 lb ai/a	4-6	WATP	16.7	17.0	1.7	2.0	16.3
3	McGeary Organics 8-1-1	8	GR	50 lb ai/a	4-6	WATP	17.3	16.3	1.7	2.0	17.3
4	No sidedress						16.3	17.3	1.0	1.3	16.3
LSD P=.05							2.08	2.13	1.10	0.74	2.64
Standard Deviation							1.04	1.07	0.55	0.37	1.32
CV							6.15	6.34	39.02	21.3	7.9

					CHERRY	BELL	BELL	BELL		
					21Jul16	08Aug16	08Aug16	16Aug16		
					STAND	HARVEST	HARVEST	HARVEST		
					#/PLOT	#/PLOT	KG/PLOT	#/PLOT		
Trt	Treatment	Form	Form	Rate	Growth					
No.	Name	Conc	Type	Rate	Unit	Stage				
1	Ammonium nitrate 33-0-0	33.5	GR	50 lb ai/a	4-6	WATP	16.3	23.3	4.39	43.7
2	Nature's Supreme 4-3-2	4	GR	50 lb ai/a	4-6	WATP	17.0	24.3	4.74	39.7
3	McGeary Organics 8-1-1	8	GR	50 lb ai/a	4-6	WATP	16.0	26.0	4.91	47.3
4	No sidedress						16.0	30.3	5.72	44.0
LSD P=.05							3.11	9.42	1.376	10.05
Standard Deviation							1.55	4.72	0.688	5.03
CV							9.52	18.14	13.94	11.52

					BELL	BELL	BELL	BELL		
					16Aug16	23Aug16	23Aug16	01Sep16		
					HARVEST	HARVEST	HARVEST	HARVEST		
					KG/PLOT	#/PLOT	KG/PLOT	#/PLOT		
Trt	Treatment	Form	Form	Rate	Growth					
No.	Name	Conc	Type	Rate	Unit	Stage				
1	Ammonium nitrate 33-0-0	33.5	GR	50 lb ai/a	4-6	WATP	8.57	25.7	4.51	30.3
2	Nature's Supreme 4-3-2	4	GR	50 lb ai/a	4-6	WATP	8.22	22.0	4.01	27.3
3	McGeary Organics 8-1-1	8	GR	50 lb ai/a	4-6	WATP	9.68	27.3	5.05	30.7
4	No sidedress						8.78	27.3	5.14	36.7
LSD P=.05							2.445	20.29	3.802	13.80
Standard Deviation							1.224	10.16	1.903	6.91
CV							13.89	39.7	40.66	22.1

Bell Pepper and Hot Cherry Pepper Production with Organic Fertilizer - HTRC - 2016

Crop Code					BELL	BELL	BELL	BELL
Rating Date					01Sep16	15Sep16	15Sep16	28Sep16
Rating Type					HARVEST	HARVEST	HARVEST	HARVEST
Rating Unit					KG/PLOT	#/PLOT	KG/PLOT	#/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage		
1	Ammonium nitrate 33-0-0	33.5 GR		50 lb ai/a	4-6 WATP		5.81	68.7
2	Nature's Supreme 4-3-2	4 GR		50 lb ai/a	4-6 WATP		5.23	74.0
3	McGeary Organics 8-1-1	8 GR		50 lb ai/a	4-6 WATP		5.76	76.3
4	No sidedress						7.14	70.0
LSD P=.05							2.025	21.97
Standard Deviation							1.013	10.99
CV							16.93	15.22

Crop Code					BELL	BELL	BELL	CHERRY	CHERRY
Rating Date					28Sep16			12Aug16	07Sep16
Rating Type					TOTAL	TOTAL	TOTAL	HARVEST	HARVEST
Rating Unit					KG/PLOT	#/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage			
1	Ammonium nitrate 33-0-0	33.5 GR		50 lb ai/a	4-6 WATP		7.95	243.0	44.07
2	Nature's Supreme 4-3-2	4 GR		50 lb ai/a	4-6 WATP		8.06	240.0	44.23
3	McGeary Organics 8-1-1	8 GR		50 lb ai/a	4-6 WATP		7.40	260.0	46.45
4	No sidedress						10.25	274.0	50.15
LSD P=.05							4.715	38.01	3.556
Standard Deviation							2.360	19.03	1.780
CV							28.05	7.48	3.85

Crop Code					CHERRY	CHERRY		
Rating Date					05Oct16			
Rating Type					HARVEST	TOTAL		
Rating Unit					KG/PLOT	KG/PLOT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Unit	Stage		
1	Ammonium nitrate 33-0-0	33.5 GR		50 lb ai/a	4-6 WATP		10.54	32.34
2	Nature's Supreme 4-3-2	4 GR		50 lb ai/a	4-6 WATP		8.63	29.80
3	McGeary Organics 8-1-1	8 GR		50 lb ai/a	4-6 WATP		9.17	31.55
4	No sidedress						8.01	32.98
LSD P=.05							3.610	6.667
Standard Deviation							1.807	3.337
CV							19.89	10.54

Weed Control in Pumpkin and Squash - HTRC - 2016

Project Code: 108-16-2

Location: East Lansing, MI
Block 137/143

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Pumpkin, Winter Variety: Ultra Butternut, Howden, Golden Hubbard
Squash

Planting Method: Seeded Planting Date: 5/26/16 Harvest Date: See Data

Spacing: 6 in Row Spacing: 5 ft

Tillage Type: Conventional Study Design: RCB Replications: 3

Plot Size: 16 ft wide x 50 ft long on 30 ft centers

Soil Type: Marlette fine sandy loam OM: 2.6% pH: 6.4
Sand: 55% Silt: 29% Clay: 16% CEC: 8.1

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/27/16	2:15 pm	85/78	F	Dry	4 S	36	75% Cloudy	N
PO1	6/21/16	9:20 am	73/68	F	Dry	0-2 SE	51	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/27	PUMPKIN AND SQUASH		Preemergence	
5/27	No weeds			
6/21	ULTRA BUTTERNUT	8-12"	4-6 leaves	Good
6/21	HOWDEN PUMPKIN	10-18"	8-10 leaves	Good
6/21	GOLDEN HUBBARD	12-18"	6-8 leaves	Good
6/21	BYGR = barnyardgrass	2-12"	Foliar	Mod
6/21	COLQ = common lambsquarters	2-6"	Foliar	Mod
6/21	CORW = common ragweed	1-4"	3-4 leaves	Mod
6/21	EBNS = eastern black nightshade	2-3"	3-4 leaves	Few
6/21	RRPW = redroot pigweed	2-6"	Foliar	Mod
	YEFT = yellow foxtail			

Notes and Comments

1. Spray applied with 12 nozzle, 16 ft. boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 tractor sprayer.
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.

Weed Control in Pumpkin and Squash - HTRC - 2016

Weed Control in Pumpkin and Squash - HTRC - 2016

Trial ID: 108-16-2	Location: East Lansing, MI
Protocol ID: 108-16-2	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

					BUTNUT	HOWDEN	GLDHUB	BYGR	COLQ	CORW		
					17Jun16	17Jun16	17Jun16	17Jun16	17Jun16	17Jun16		
					RATING	RATING	RATING	RATING	RATING	RATING		
					1-10	1-10	1-10	1-10	1-10	1-10		
Trt	Treatment	Form	Form	Rate	Growth							
No.	Name	Conc	Type	Rate	Unit	Stage						
1	Curbit	3	EC	1.13	lb ai/a	PRE	1.0	4.3	1.0	9.3	10.0	10.0
	Command	3	ME	0.375	lb ai/a	PRE						
2	Strategy	2.1	SE	6	pt/a	PRE	1.0	3.7	1.7	9.0	9.0	10.0
3	Curbit	3	EC	0.75	lb ai/a	PRE	1.7	5.0	1.7	6.7	8.7	9.7
	Command	3	ME	0.25	lb ai/a	PRE						
	Reflex	2	SL	0.25	lb ai/a	PRE						
4	Dual Magnum	7.62	EC	1.26	lb ai/a	PRE	2.3	5.0	2.0	8.3	6.0	10.0
	Reflex	2	SL	0.25	lb ai/a	PRE						
5	Dual Magnum	7.62	EC	1.26	lb ai/a	PRE	1.7	4.0	1.7	9.3	9.7	9.7
	Reflex	2	SL	0.125	lb ai/a	PRE						
	Command	3	ME	0.375	lb ai/a	PRE						
6	Curbit	3	EC	1.13	lb ai/a	PRE	1.3	3.0	1.3	9.3	9.3	10.0
	Command	3	ME	0.375	lb ai/a	PRE						
	Treevix	70	WG	0.044	lb ai/a	PRE						
7	Curbit	3	EC	1.13	lb ai/a	PRE	1.3	4.0	1.7	7.3	8.7	10.0
	Command	3	ME	0.375	lb ai/a	PRE						
	Sandea	75	WG	0.023	lb ai/a	PRE						
8	Curbit	3	EC	1.13	lb ai/a	PRE	2.0	5.3	2.0	8.7	9.7	9.7
	Command	3	ME	0.375	lb ai/a	PRE						
	tolpyralate	3.34	L	0.036	lb ai/a	PRE						
9	Curbit	3	EC	1.13	lb ai/a	PRE	2.0	3.3	1.7	7.7	9.7	10.0
	Command	3	ME	0.375	lb ai/a	PRE						
	A 16003E	1.67	SL	0.033	lb ai/a	PRE						
10	Untreated					PRE	1.7	2.7	1.3	1.0	1.0	7.0
	Treevix	70	WG	0.044	lb ai/a	PO1						
LSD P=.05							1.04	2.70	1.20	3.00	1.71	2.75
Standard Deviation							0.61	1.57	0.70	1.75	1.00	1.61
CV							37.85	38.97	43.87	22.77	12.22	16.72

Weed Control in Pumpkin and Squash - HTRC - 2016

Pest Code					BYGR	YEFT	COLQ				
Crop Code					BUTNUT	HOWDEN	GLDHUB				
Rating Date					27Jun16	27Jun16	27Jun16				
Rating Type					RATING	RATING	RATING				
Rating Unit					1-10	1-10	1-10				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Stage						
1	Curbit Command	3	EC	1.13 lb ai/a	PRE	1.3	1.3	1.3	9.3	9.3	8.3
2	Strategy	2.1	SE	6 pt/a	PRE	1.0	2.3	2.0	6.7	7.3	7.7
3	Curbit Command	3	EC	0.75 lb ai/a	PRE	2.0	3.3	1.3	6.3	6.7	6.3
	Reflex	2	SL	0.25 lb ai/a	PRE						
4	Dual Magnum	7.62	EC	1.26 lb ai/a	PRE	2.0	5.3	3.0	6.0	7.3	5.3
	Reflex	2	SL	0.25 lb ai/a	PRE						
5	Dual Magnum	7.62	EC	1.26 lb ai/a	PRE	1.0	4.0	2.3	8.3	9.0	7.7
	Reflex	2	SL	0.125 lb ai/a	PRE						
	Command	3	ME	0.375 lb ai/a	PRE						
6	Curbit Command	3	EC	1.13 lb ai/a	PRE	1.7	1.0	1.0	9.0	9.3	7.7
	Treevix	70	WG	0.044 lb ai/a	PRE						
7	Curbit Command	3	EC	1.13 lb ai/a	PRE	2.1	4.3	1.2	5.4	5.5	7.9
	Sandea	75	WG	0.023 lb ai/a	PRE						
8	Curbit Command	3	EC	1.13 lb ai/a	PRE	1.0	4.0	1.7	7.3	8.0	8.7
	tolpyralate	3.34	L	0.036 lb ai/a	PRE						
9	Curbit Command	3	EC	1.13 lb ai/a	PRE	2.3	2.3	1.7	7.3	7.3	8.7
	A 16003E	1.67	SL	0.033 lb ai/a	PRE						
10	Untreated				PRE	5.0	5.3	3.7	2.7	5.3	4.7
	Treevix	70	WG	0.044 lb ai/a	PO1						
LSD P=.05						1.14	2.57	1.40	4.29	4.15	1.95
Standard Deviation						0.66	1.49	0.81	2.49	2.41	1.13
CV						34.16	44.73	42.44	36.35	32.06	15.52

Weed Control in Pumpkin and Squash - HTRC - 2016

Pest Code		CORW		RRPW		BUTNUT	BUTNUT	HOWDEN	HOWDEN			
Crop Code		27Jun16		27Jun16		28Sep16	28Sep16	23Sep16	23Sep16			
Rating Date		RATING		RATING		HARVEST	HARVEST	HARVEST	HARVEST			
Rating Type								ORANGE	ORANGE			
Rating Unit		1-10		1-10		#/PLOT	KG/PLOT	#/PLOT	KG/PLOT			
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
1	Curbit Command	3 EC		1.13 lb ai/a		PRE	10.0	9.0	115.7	249.07	24.7	206.69
2	Strategy	2.1 SE		6 pt/a		PRE	10.0	8.0	132.3	303.65	23.0	171.14
3	Curbit Command	3 EC		0.75 lb ai/a		PRE	9.3	6.7	118.7	255.10	20.7	151.85
	Reflex	3 ME		0.25 lb ai/a		PRE						
4	Dual Magnum	2 SL		0.25 lb ai/a		PRE						
	Reflex	7.62 EC		1.26 lb ai/a		PRE	10.0	9.0	96.0	201.70	18.7	133.40
5	Dual Magnum	2 SL		0.25 lb ai/a		PRE						
	Reflex	7.62 EC		1.26 lb ai/a		PRE	9.3	9.7	125.0	281.19	26.3	196.00
	Command	2 SL		0.125 lb ai/a		PRE						
6	Curbit Command	3 EC		1.13 lb ai/a		PRE	10.0	9.3	123.7	265.40	24.3	197.11
	Command	3 ME		0.375 lb ai/a		PRE						
	Treevix	70 WG		0.044 lb ai/a		PRE						
7	Curbit Command	3 EC		1.13 lb ai/a		PRE	10.0	9.7	127.8	254.97	20.3	150.16
	Command	3 ME		0.375 lb ai/a		PRE						
	Sandea	75 WG		0.023 lb ai/a		PRE						
8	Curbit Command	3 EC		1.13 lb ai/a		PRE	9.3	9.3	116.7	268.37	25.3	182.83
	Command	3 ME		0.375 lb ai/a		PRE						
	tolpyralate	3.34 L		0.036 lb ai/a		PRE						
9	Curbit Command	3 EC		1.13 lb ai/a		PRE	10.0	8.7	123.0	251.31	23.3	169.38
	Command	3 ME		0.375 lb ai/a		PRE						
	A 16003E	1.67 SL		0.033 lb ai/a		PRE						
10	Untreated					PRE	9.7	10.0	82.7	160.86	20.0	145.56
	Treevix	70 WG		0.044 lb ai/a		PO1						
LSD P=.05							0.90	1.77	24.98	63.862	7.38	44.035
Standard Deviation							0.52	1.03	14.50	37.069	4.30	25.669
CV							5.33	11.49	12.49	14.88	18.97	15.06

Weed Control in Pumpkin and Squash - HTRC - 2016

Pest Code				HOWDEN		GLDHUB	GLDHUB
Crop Code				23Sep16	23Sep16	28Sep16	28Sep16
Rating Date				HARVEST	HARVEST	HARVEST	HARVEST
Rating Type				GREEN	GREEN		
Rating Unit				#/PLOT	KG/PLOT	#/PLOT	KG/PLOT
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage		
1	Curbit Command	3 EC		1.13 lb ai/a	PRE	5.3	21.00
		3 ME		0.375 lb ai/a	PRE		
2	Strategy	2.1 SE		6 pt/a	PRE	4.3	22.65
3	Curbit Command	3 EC		0.75 lb ai/a	PRE	3.3	22.92
		3 ME		0.25 lb ai/a	PRE		
	Reflex	2 SL		0.25 lb ai/a	PRE		
4	Dual Magnum	7.62 EC		1.26 lb ai/a	PRE	5.0	31.28
	Reflex	2 SL		0.25 lb ai/a	PRE		
5	Dual Magnum	7.62 EC		1.26 lb ai/a	PRE	3.3	15.61
	Reflex	2 SL		0.125 lb ai/a	PRE		
	Command	3 ME		0.375 lb ai/a	PRE		
6	Curbit Command	3 EC		1.13 lb ai/a	PRE	3.0	22.99
		3 ME		0.375 lb ai/a	PRE		
	Treevix	70 WG		0.044 lb ai/a	PRE		
7	Curbit Command	3 EC		1.13 lb ai/a	PRE	3.7	18.31
		3 ME		0.375 lb ai/a	PRE		
	Sandea	75 WG		0.023 lb ai/a	PRE		
8	Curbit Command	3 EC		1.13 lb ai/a	PRE	4.3	23.02
		3 ME		0.375 lb ai/a	PRE		
	tolpyralate	3.34 L		0.036 lb ai/a	PRE		
9	Curbit Command	3 EC		1.13 lb ai/a	PRE	3.0	19.26
		3 ME		0.375 lb ai/a	PRE		
	A 16003E	1.67 SL		0.033 lb ai/a	PRE		
10	Untreated				PRE	4.7	24.03
	Treevix	70 WG		0.044 lb ai/a	PO1		
LSD P=.05						4.99	24.545
Standard Deviation						2.91	14.308
CV						72.76	64.72

Weed Control in Rhubarb - HTRC - 2016

Project Code: 102-16-1

Location: East Lansing, MI
Block 125

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Rhubarb Variety: German Wine
 Planting Method: Root divsn. Planting Date: 5/1/07 Harvest Date: 6/20/16
 Spacing: 4 ft; 6 plants/plot Row Spacing: 6 ft
 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: 3.6% pH: 4.9
 Sand: 70% Silt: 21% Clay: 9% CEC: 9.1

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/13/16	1:13 pm	49/42	F	Damp	1-3 SW	50	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/13	RHUBARB	4-6"	1 lf/stem	Good
4/13	SFGE = smallflower geranium	3"	Veg	Few
	COLQ = common lambsquarters			
	CORW = common ragweed			
	NIMB = nimblewill			
	QUGR = quackgrass			
	RRPW = redroot pigweed			
	WICA = wild carrot			
	WIRA = wild radish			

Notes and Comments

1. Spray 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. 5 plants per plot were harvested.
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Weed Control in Rhubarb - HTRC - 2016

Weed Control in Rhubarb - HTRC - 2016					
Trial ID:	102-16-1	Location:	East Lansing, MI		
Protocol ID:	102-16-1	Investigator:	Dr. Bernard Zandstra		
Study Director:	Colin Phillippo				

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	WICA		QUGR		CORW		
					RHUB 11May16	11May16 Rating	RHUB 26May16	26May16 Rating	26May16 Rating	RHUB 14Jun16	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Stage						
1	Kerb	3.3	SC	2 lb ai/a	PRE	1.7	4.7	1.7	8.0	4.0	2.7
2	Caparol	4	L	2 lb ai/a	PRE	3.0	9.3	2.7	6.0	7.3	2.0
3	Command	3	ME	1 lb ai/a	PRE	5.3	10.0	4.7	6.7	10.0	3.3
4	Callisto	4	SC	0.188 lb ai/a	PRE	2.7	10.0	2.0	4.0	9.3	1.0
5	Lorox	50	DF	1.5 lb ai/a	PRE	2.0	10.0	2.3	7.0	9.0	2.7
6	A 16003E	1.67	SL	0.045 lb ai/a	PRE	2.7	9.3	1.7	1.3	6.3	1.3
7	Sandea	75	WG	0.047 lb ai/a	PRE	3.3	9.0	3.0	2.7	9.0	2.7
8	Zeus Prime XC	3.5	EC	1 lb ai/a	PRE	4.7	10.0	5.0	8.3	10.0	3.7
LSD P=.05						2.72	2.96	2.55	4.22	4.32	2.01
Standard Deviation						1.55	1.69	1.45	2.41	2.47	1.15
CV						48.97	18.68	50.56	43.85	30.37	47.46

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	Growth Stage <th>NIMB</th> <th>COLQ</th> <th>CORW</th> <th>RRPW</th> <th>WIRA</th> <th>RHUB</th>	NIMB	COLQ	CORW	RRPW	WIRA	RHUB
						14Jun16	14Jun16	14Jun16	14Jun16	14Jun16	20Jun16
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Stage						
1	Kerb	3.3	SC	2 lb ai/a	PRE	7.0	1.7	4.0	10.0	7.0	1.61
2	Caparol	4	L	2 lb ai/a	PRE	6.3	4.0	4.7	5.3	4.7	1.44
3	Command	3	ME	1 lb ai/a	PRE	6.7	10.0	8.7	3.3	7.0	1.16
4	Callisto	4	SC	0.188 lb ai/a	PRE	3.3	10.0	6.3	8.0	9.3	2.81
5	Lorox	50	DF	1.5 lb ai/a	PRE	5.3	6.3	7.0	7.3	10.0	2.48
6	A 16003E	1.67	SL	0.045 lb ai/a	PRE	1.3	1.0	5.3	7.7	5.3	2.98
7	Sandea	75	WG	0.047 lb ai/a	PRE	3.3	7.7	7.0	10.0	10.0	1.26
8	Zeus Prime XC	3.5	EC	1 lb ai/a	PRE	6.3	10.0	9.0	10.0	10.0	1.29
LSD P=.05						6.58	4.06	5.97	4.71	5.97	1.868
Standard Deviation						3.76	2.32	3.41	2.69	3.41	1.066
CV						75.77	36.65	52.4	34.86	43.02	56.8

Spring Weed Control in Strawberry - HTRC - 2016

Project Code: 124-16-1

Location: East Lansing, MI
Block SH4/5

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Strawberry

Variety: Jewel

Planting Method: Transplant Planting Date: 5/6/2014

Harvest Dates: 6/6 - 6/20/16

Spacing: Solid row

Row Spacing: 6 ft

Tillage Type: Conventional Study Design: RCB

Replications: 3

Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Riddles sandy loam

OM: 1.4%

pH: 5.3

Sand: 85%

Silt: 9%

Clay: 6%

CEC: 2.9

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/13/16	2:15 pm	53/42	F	Damp	1-3 SW	50	40% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/13	STRAWBERRY	3-6"	Veg	Good
4/13	HAVE = hairy vetch	4-6"	Veg	Moderate
4/13	HOWE = horseweed	1-3"	Veg	Many
4/13	QUGR = quackgrass	4-6"	Veg	Few

Notes and Comments

1. Spray 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. Harvest dates: 6/6, 6/10, 6/13, 6/16, and 6/20.

Spring Weed Control in Strawberry - HTRC - 2016

Spring Weed Control in Strawberry - HTRC - 2016

Trial ID: 124-16-1	Location: East Lansing, MI
Protocol ID: 124-16-1	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	QUGR		HAVE		HOWE		DOBG	
					STBE	STBE	STBE	STBE	STBE	STBE		
					11May16	11May16	11May16	11May16	24May16	24May16	24May16	24May16
					RATING	RATING	RATING	RATING	RATING	RATING	RATING	RATING
					1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10
Trt	Treatment	Form	Form	Rate	Growth							
No.	Name	Conc	Type	Rate	Unit	Stage						
1	Sinbar	80	WDG	0.4	lb ai/a	PRE	1.0	3.7	5.7	4.3	1.7	7.3
2	Devrinol DF-XT	50	DF	4	lb ai/a	PRE	3.0	1.7	1.7	1.3	3.0	8.3
3	Spartan	4	F	0.25	lb ai/a	PRE	2.3	6.3	4.7	2.3	1.7	10.0
	Prowl H20	3.8	CS	1.4	lb ai/a	PRE						
4	Alion 500	4.17	SC	0.085	lb ai/a	PRE	2.3	7.0	4.3	4.3	2.0	10.0
5	Devrinol DF-XT	50	DF	4	lb ai/a	PRE	2.0	7.7	2.3	2.7	1.3	10.0
	Prowl H20	3.8	CS	1	lb ai/a	PRE						
6	Sinbar	80	WDG	0.2	lb ai/a	PRE	3.0	1.7	4.3	4.0	2.7	5.7
7	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	2.3	5.3	6.0	7.7	3.0	10.0
8	Untreated						1.7	6.7	1.0	1.7	2.0	9.3
9	A 16003E	1.67	SL	0.045	lb ai/a	PRE	5.7	6.3	6.3	1.0	3.7	7.7
10	Trellis SC	4.17	SC	1	lb ai/a	PRE	1.3	7.7	4.0	3.3	2.0	9.7
11	Ultra Blazer	2	L	0.375	lb ai/a	PRE	1.7	4.7	6.0	1.3	2.3	9.0
LSD P=.05							1.72	6.65	5.72	4.62	2.12	3.13
Standard Deviation							1.01	3.91	3.36	2.71	1.25	1.84
CV							42.21	73.24	79.72	87.79	54.09	20.85

Spring Weed Control in Strawberry - HTRC - 2016

Pest Code				QUGR	HAVE	HOWE					
Crop Code							STBE	STBE	STBE		
Rating Date				24May16	24May16	24May16	06Jun16	10Jun16	13Jun16		
Rating Type				RATING	RATING	RATING	HARVEST	HARVEST	HARVEST		
Rating Unit				1-10	1-10	1-10	KG/PLOT	KG/PLOT	KG/PLOT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage						
1	Sinbar	80	WDG	0.4 lb ai/a	PRE	5.3	6.0	6.3	0.83	1.59	2.94
2	Devrinol DF-XT	50	DF	4 lb ai/a	PRE	3.7	3.0	3.3	0.54	0.98	1.24
3	Spartan	4	F	0.25 lb ai/a	PRE	9.3	4.7	2.3	0.67	1.35	1.78
	Prowl H2O	3.8	CS	1.4 lb ai/a	PRE						
4	Alion 500	4.17	SC	0.085 lb ai/a	PRE	6.7	5.7	4.3	0.63	1.25	2.34
5	Devrinol DF-XT	50	DF	4 lb ai/a	PRE	7.7	1.7	4.0	0.91	1.81	2.06
	Prowl H2O	3.8	CS	1 lb ai/a	PRE						
6	Sinbar	80	WDG	0.2 lb ai/a	PRE	5.3	4.0	3.7	0.82	1.56	1.67
7	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE	7.3	6.7	7.3	0.80	1.38	1.69
8	Untreated					9.0	1.3	2.3	0.58	1.14	1.95
9	A 16003E	1.67	SL	0.045 lb ai/a	PRE	8.7	6.3	2.0	0.55	0.90	0.90
10	Trellis SC	4.17	SC	1 lb ai/a	PRE	9.7	3.7	4.0	0.96	1.45	1.75
11	Ultra Blazer	2	L	0.375 lb ai/a	PRE	10.0	5.7	2.3	0.86	1.36	1.69
LSD P=.05						4.52	4.48	4.01	0.922	1.096	1.266
Standard Deviation						2.66	2.63	2.35	0.541	0.643	0.743
CV						35.33	59.41	61.59	73.1	47.93	40.81

Pest Code							STBE	STBE	STBE
Crop Code									
Rating Date				16Jun16	20Jun16				
Rating Type				HARVEST	HARVEST	TOTAL			
Rating Unit				KG/PLOT	KG/PLOT	KG/PLOT			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Growth Stage				
1	Sinbar	80	WDG	0.4 lb ai/a	PRE	2.40	1.28	9.03	
2	Devrinol DF-XT	50	DF	4 lb ai/a	PRE	1.26	0.86	4.88	
3	Spartan	4	F	0.25 lb ai/a	PRE	1.66	1.47	6.94	
	Prowl H2O	3.8	CS	1.4 lb ai/a	PRE				
4	Alion 500	4.17	SC	0.085 lb ai/a	PRE	1.39	1.23	6.85	
5	Devrinol DF-XT	50	DF	4 lb ai/a	PRE	2.18	1.41	8.37	
	Prowl H2O	3.8	CS	1 lb ai/a	PRE				
6	Sinbar	80	WDG	0.2 lb ai/a	PRE	1.17	1.06	6.28	
7	Dual Magnum	7.62	EC	1.9 lb ai/a	PRE	1.81	0.81	6.50	
8	Untreated					1.15	1.32	6.14	
9	A 16003E	1.67	SL	0.045 lb ai/a	PRE	2.18	1.18	5.71	
10	Trellis SC	4.17	SC	1 lb ai/a	PRE	1.36	1.22	6.74	
11	Ultra Blazer	2	L	0.375 lb ai/a	PRE	1.70	1.19	6.81	
LSD P=.05						1.945	0.920	4.983	
Standard Deviation						1.142	0.540	2.926	
CV						68.75	45.58	43.34	

Fall and Spring Weed Control in Apple with Zeus Prime - HTRC - 2015-2016

Project Code:128-16-1

Location: East Lansing, MI
Block 154-160

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Apple Variety: See notes
 Planting Method: Transplant Planting Date: 2006
 Spacing: 12 ft; 3 trees/plot Row Spacing: 18 ft
 Tillage Type: No Till Study Design: RCB Replications: 3
 Plot Size: 11 ft wide x 50 ft long

Soil Type: Marlette Fine Sandy Loam OM: 3.3% pH: 6.1
 Sand: 66% Silt: 22% Clay: 12% CEC: 6.4

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
FALL15	11/4/15	1:30 pm	77/59	F	Damp	1-3 NW	46	5% Cloudy	N
SPRNG16	4/15/16	12:30 pm	70/44	F	Moist	1-5 NW	27	0% Cloudy	N

Crop and Weed Information at Application

	Height or Diameter	Growth Stage	Density
11/4 APPLE	10-12'	Mature fruit	Good
11/4 BHPL = buckhorn plantain	10-24"	Moderate	Mod
11/4 BYGR = barnyardgrass	1-3'	Senescence	Mod
11/4 CUDO = curly dock	12-24"	Rosette	Mod
11/4 DAND = dandelion	8-18"	Rosette	Mod
11/4 HABC = hairy bittercress	4-6"	Rosette	Mod
11/4 RECL = red clover	4-12"	Flower	Few
11/4 WICA = wild carrot	10-18"	Veg	Mod
11/4 YERO = yellow rocket	6-20"	Rosette	Mod
4/15 CUDO = curly dock	3-4"	Veg	Mod
4/15 DAND = dandelion	4-6"	Rosette	Mod
4/15 HOWE = horseweed	2-4"	Rosette	Mod
4/15 MECR = mouseear cress	2-4"	Flower	Mod
4/15 PUDN = purple deadnettle	3-4"	Flower	Mod
4/15 WHCA = white campion	2-3"	Veg	Few
4/15 WHCL = white clover	1-2"	Veg	Few
4/15 WICA = wild carrot	2-3"	Veg	Few
4/15 YERO = yellow rocket	2-3"	Veg	Few
ALFA = alfalfa			
ANBG = annual bluegrass			
BFTF = birdsfoot trefoil		QUCR = quackgrass	
CATH = Canada thistle		SHPU = shepperdspurse	
COLQ = common lambsquarters		WIBW = wild buckwheat	
CORW = common ragweed			
PEST = perennial sowthistle			
PRKW = prostrate knotweed			

Notes and Comments

1. Spray applied with 4 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer. One pass on each side of row.
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
3. Block 154-160, rows 8-20 on the east end.
4. Varieties: Fuji, Gala, Honeycrisp, Luckyjon, Spartan.

Fall and Spring Weed Control in Apple with Zeus Prime - HTRC - 2015-2016

Fall and Spring Weed Control in Apple with Zeus Prime XC - HTRC - 2015-2016

Trial ID:	128-16-1	Location:	East Lansing, MI
Protocol ID:	128-16-1	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

						APPLE		ANBG	QUGR	CUDO	DAND
						17May16	17May16	17May16	17May16	17May16	17May16
						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	Growth Unit Stage						
1	Zeus Prime XC	3.5	EC	0.21 lb ai/a	FAL15, SPR16	1.0	10.0	10.0	9.0	9.7	
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FAL15, SPR16						
	N Pak (AMS)	100	L	2.5 % v/v	FAL15, SPR16						
2	Alion	1.67	SC	0.065 lb ai/a	FALL15	1.0	10.0	10.0	10.0	9.7	
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
	Zeus Prime XC	3.5	EC	0.33 lb ai/a	SPRING16						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16						
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16						
3	Zeus Prime XC	3.5	EC	0.21 lb ai/a	FALL15	1.0	10.0	9.7	9.0	9.3	
	Alion	1.67	SC	0.065 lb ai/a	FALL15						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
4	Zeus Prime XC	3.5	EC	0.21 lb ai/a	SPRING16	1.0	10.0	10.0	9.3	9.7	
	Alion	1.67	SC	0.065 lb ai/a	SPRING16						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16						
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16						
5	Mission	25	WG	0.045 lb ai/a	FALL15	1.0	9.7	9.7	9.0	9.3	
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
6	Princep	90	WDG	4 lb ai/a	FALL15	1.0	9.7	10.0	9.7	9.0	
	Chateau SW	51	WDG	0.192 lb ai/a	FALL15						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
7	Princep	90	WDG	4 lb ai/a	SPRING16	1.0	10.0	10.0	9.0	9.7	
	Chateau SW	51	WDG	0.192 lb ai/a	SPRING16						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16						
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16						
8	Alion	1.67	SC	0.085 lb ai/a	FALL15	1.0	10.0	10.0	9.7	9.7	
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
	Karmex	80	DF	3 lb ai/a	SPRING16						
	Gramoxone SL	2	SL	1 lb ai/a	SPRING16						
	NIS	100	SL	0.25 % v/v	SPRING16						
9	Solicam	80	DF	4 lb ai/a	FALL15	1.0	9.7	9.7	8.3	8.3	
	Karmex	80	DF	3 lb ai/a	FALL15						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						

Fall and Spring Weed Control in Apple with Zeus Prime - HTRC - 2015-2016

Pest Code	APPLE										
Crop Code	APPLE										
Rating Date	17May16	17May16	17May16	17May16	17May16						
Rating 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	Growth Unit	Stage	ANBG	QUGR	CUDO	DAND	
10	Trellis SC	4.16	SC	1 lb ai/a	FALL15		1.0	9.0	9.7	9.3	9.0
	Karmex	80	DF	3 lb ai/a	FALL15						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
11	Pindar GT	4.013	SC	1.5 lb ai/a	FALL15		1.0	10.0	8.7	9.3	9.3
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
12	Sinbar	80	WDG	1.6 lb ai/a	SPRING16		1.0	10.0	10.0	9.0	9.0
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16						
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16						
13	Untreated						1.0	1.0	5.3	3.3	1.0
LSD P=.05							0.00	0.93	2.16	2.00	0.97
Standard Deviation							0.00	0.55	1.28	1.19	0.58
CV							0.0	6.06	13.59	13.52	6.64

Fall and Spring Weed Control in Apple with Zeus Prime - HTRC - 2015-2016

Pest Code						SHPU	WHCA	WICA	YERO	
Crop Code						APPLE				
Rating Date						17May16	17May16	17May16	17May16	06Jun16
Rating 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	Growth Unit Stage					
1	Zeus Prime XC	3.5	EC	0.21 lb ai/a	FAL15, SPR16	10.0	10.0	10.0	10.0	1.0
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FAL15, SPR16					
	N Pak (AMS)	100	L	2.5 % v/v	FAL15, SPR16					
2	Alion	1.67	SC	0.065 lb ai/a	FALL15	10.0	10.0	10.0	10.0	1.0
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
	Zeus Prime XC	3.5	EC	0.33 lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
3	Zeus Prime XC	3.5	EC	0.21 lb ai/a	FALL15	10.0	10.0	10.0	9.7	1.0
	Alion	1.67	SC	0.065 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
4	Zeus Prime XC	3.5	EC	0.21 lb ai/a	SPRING16	10.0	10.0	10.0	10.0	1.0
	Alion	1.67	SC	0.065 lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
5	Mission	25	WG	0.045 lb ai/a	FALL15	10.0	10.0	9.3	9.3	1.0
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
6	Princep	90	WDG	4 lb ai/a	FALL15	9.3	9.7	9.3	9.7	1.0
	Chateau SW	51	WDG	0.192 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
7	Princep	90	WDG	4 lb ai/a	SPRING16	10.0	9.7	10.0	10.0	1.0
	Chateau SW	51	WDG	0.192 lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
8	Alion	1.67	SC	0.085 lb ai/a	FALL15	10.0	9.7	10.0	9.7	1.0
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
	Karmex	80	DF	3 lb ai/a	SPRING16					
	Gramoxone SL	2	SL	1 lb ai/a	SPRING16					
	NIS	100	SL	0.25 % v/v	SPRING16					
9	Solicam	80	DF	4 lb ai/a	FALL15	9.7	9.7	10.0	8.3	1.0
	Karmex	80	DF	3 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
10	Trellis SC	4.16	SC	1 lb ai/a	FALL15	10.0	10.0	9.3	9.7	1.0
	Karmex	80	DF	3 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
11	Pindar GT	4.013	SC	1.5 lb ai/a	FALL15	10.0	10.0	10.0	10.0	1.0
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
12	Sinbar	80	WDG	1.6 lb ai/a	SPRING16	10.0	9.7	9.0	9.0	1.0
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
13	Untreated					7.0	1.0	4.0	1.3	1.0
LSD P=.05						2.46	0.61	2.69	0.99	0.00
Standard Deviation						1.46	0.36	1.59	0.59	0.00
CV						15.07	3.93	17.12	6.56	0.0

Fall and Spring Weed Control in Apple with Zeus Prime - HTRC - 2015-2016

Pest Code					YEFT	ALFA	BFTF	CUDO	CORW		
Crop Code					06Jun16	06Jun16	06Jun16	06Jun16	06Jun16		
Rating Date					RATING	RATING	RATING	RATING	RATING		
Rating Type					1-10	1-10	1-10	1-10	1-10		
Rating Unit											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage					
1	Zeus Prime XC	3.5	EC	0.21	lb ai/a	FALL15, SPR16	2.0	7.3	10.0	8.3	2.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15, SPR16					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15, SPR16					
2	Alion	1.67	SC	0.065	lb ai/a	FALL15	7.0	9.7	10.0	8.3	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
	Zeus Prime XC	3.5	EC	0.33	lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
3	Zeus Prime XC	3.5	EC	0.21	lb ai/a	FALL15	8.7	9.3	10.0	8.0	10.0
	Alion	1.67	SC	0.065	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
4	Zeus Prime XC	3.5	EC	0.21	lb ai/a	SPRING16	10.0	5.7	10.0	9.3	10.0
	Alion	1.67	SC	0.065	lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
5	Mission	25	WG	0.045	lb ai/a	FALL15	3.7	9.3	9.0	8.7	8.3
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
6	Princep	90	WDG	4	lb ai/a	FALL15	5.7	6.3	10.0	8.3	10.0
	Chateau SW	51	WDG	0.192	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
7	Princep	90	WDG	4	lb ai/a	SPRING16	9.0	7.7	10.0	8.3	10.0
	Chateau SW	51	WDG	0.192	lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
8	Alion	1.67	SC	0.085	lb ai/a	FALL15	10.0	9.7	10.0	9.0	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
	Karmex	80	DF	3	lb ai/a	SPRING16					
	Gramoxone SL	2	SL	1	lb ai/a	SPRING16					
	NIS	100	SL	0.25	% v/v	SPRING16					
9	Solicam	80	DF	4	lb ai/a	FALL15	10.0	8.3	10.0	6.7	10.0
	Karmex	80	DF	3	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
10	Trellis SC	4.16	SC	1	lb ai/a	FALL15	6.0	7.7	10.0	8.7	10.0
	Karmex	80	DF	3	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
11	Pindar GT	4.013	SC	1.5	lb ai/a	FALL15	6.3	7.7	10.0	9.3	7.3
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
12	Sinbar	80	WDG	1.6	lb ai/a	SPRING16	10.0	6.7	10.0	6.3	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
13	Untreated						1.0	6.3	10.0	4.0	7.0
LSD P=.05							4.54	4.49	0.81	3.57	3.09
Standard Deviation							2.69	2.66	0.48	2.12	1.83
CV							39.2	34.03	4.84	26.69	20.67

Fall and Spring Weed Control in Apple with Zeus Prime - HTRC - 2015-2016

Pest Code						DAND	HOWE	PEST	WIBW	WICA	
Crop Code						06Jun16	06Jun16	06Jun16	06Jun16	06Jun16	
Rating Date						RATING	RATING	RATING	RATING	RATING	
Rating 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	Zeus Prime XC	3.5	EC	0.21	lb ai/a	FAL15, SPR16	8.3	10.0	7.7	7.0	4.3
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FAL15, SPR16					
	N Pak (AMS)	100	L	2.5	% v/v	FAL15, SPR16					
2	Alion	1.67	SC	0.065	lb ai/a	FALL15	9.3	10.0	9.3	10.0	9.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
	Zeus Prime XC	3.5	EC	0.33	lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
3	Zeus Prime XC	3.5	EC	0.21	lb ai/a	FALL15	9.0	10.0	9.7	10.0	9.0
	Alion	1.67	SC	0.065	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
4	Zeus Prime XC	3.5	EC	0.21	lb ai/a	SPRING16	8.7	9.0	10.0	10.0	7.7
	Alion	1.67	SC	0.065	lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
5	Mission	25	WG	0.045	lb ai/a	FALL15	9.7	9.0	10.0	10.0	6.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
6	Princep	90	WDG	4	lb ai/a	FALL15	8.3	10.0	10.0	6.3	6.0
	Chateau SW	51	WDG	0.192	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
7	Princep	90	WDG	4	lb ai/a	SPRING16	9.3	10.0	10.0	10.0	7.0
	Chateau SW	51	WDG	0.192	lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
8	Alion	1.67	SC	0.085	lb ai/a	FALL15	9.0	9.7	10.0	10.0	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
	Karmex	80	DF	3	lb ai/a	SPRING16					
	Gramoxone SL	2	SL	1	lb ai/a	SPRING16					
	NIS	100	SL	0.25	% v/v	SPRING16					
9	Solicam	80	DF	4	lb ai/a	FALL15	8.3	10.0	10.0	10.0	5.7
	Karmex	80	DF	3	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
10	Trellis SC	4.16	SC	1	lb ai/a	FALL15	7.7	10.0	10.0	10.0	4.0
	Karmex	80	DF	3	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
11	Pindar GT	4.013	SC	1.5	lb ai/a	FALL15	8.3	10.0	10.0	10.0	8.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
12	Sinbar	80	WDG	1.6	lb ai/a	SPRING16	8.3	10.0	10.0	10.0	9.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
13	Untreated						1.0	4.0	8.7	10.0	1.0
LSD P=.05							2.22	2.79	1.96	3.32	3.87
Standard Deviation							1.32	1.66	1.16	1.97	2.29
CV							16.24	17.72	12.03	20.79	33.88

Fall and Spring Weed Control in Apple with Zeus Prime - HTRC - 2015-2016

Pest Code							QUGR	YEFT	ALFA	BFTF	
Crop Code							APPLE				
Rating Date							28Jun16	28Jun16	28Jun16	28Jun16	
Rating 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	Zeus Prime XC	3.5	EC	0.21	lb ai/a	FALL15, SPR16	1.0	9.3	1.7	7.7	7.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15, SPR16					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15, SPR16					
2	Alion	1.67	SC	0.065	lb ai/a	FALL15	1.3	9.7	9.3	10.0	9.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
	Zeus Prime XC	3.5	EC	0.33	lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
3	Zeus Prime XC	3.5	EC	0.21	lb ai/a	FALL15	1.0	10.0	6.3	9.7	8.0
	Alion	1.67	SC	0.065	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
4	Zeus Prime XC	3.5	EC	0.21	lb ai/a	SPRING16	1.0	10.0	10.0	4.3	4.0
	Alion	1.67	SC	0.065	lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
5	Mission	25	WG	0.045	lb ai/a	FALL15	1.3	9.3	2.3	9.3	5.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
6	Princep	90	WDG	4	lb ai/a	FALL15	1.3	10.0	6.7	5.0	10.0
	Chateau SW	51	WDG	0.192	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
7	Princep	90	WDG	4	lb ai/a	SPRING16	1.0	9.3	3.0	4.7	7.0
	Chateau SW	51	WDG	0.192	lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
8	Alion	1.67	SC	0.085	lb ai/a	FALL15	1.0	10.0	10.0	9.3	9.3
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
	Karmex	80	DF	3	lb ai/a	SPRING16					
	Gramoxone SL	2	SL	1	lb ai/a	SPRING16					
	NIS	100	SL	0.25	% v/v	SPRING16					
9	Solicam	80	DF	4	lb ai/a	FALL15	1.0	10.0	9.7	7.0	5.3
	Karmex	80	DF	3	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
10	Trellis SC	4.16	SC	1	lb ai/a	FALL15	1.0	7.3	5.0	6.0	5.3
	Karmex	80	DF	3	lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
11	Pindar GT	4.013	SC	1.5	lb ai/a	FALL15	1.0	7.0	4.3	7.0	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5	% v/v	FALL15					
12	Sinbar	80	WDG	1.6	lb ai/a	SPRING16	1.0	9.7	9.3	6.7	5.3
	Roundup PowerMax	5.5	L	1.4	lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5	% v/v	SPRING16					
13	Untreated						1.0	1.7	4.3	6.7	1.0
LSD P=.05							0.47	2.83	3.45	5.32	4.09
Standard Deviation							0.28	1.68	2.05	3.15	2.43
CV							25.75	19.29	32.46	43.94	35.99

Fall and Spring Weed Control in Apple with Zeus Prime - HTRC - 2015-2016

Pest Code		BHPL	CATH	CUDO	PEST	WHCA				
Crop Code										
Rating Date		28Jun16	28Jun16	28Jun16	28Jun16	28Jun16				
Rating 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	Zeus Prime XC	3.5	EC	0.21 lb ai/a	FALL15, SPR16	9.0	10.0	8.0	7.7	3.0
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15, SPR16					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15, SPR16					
2	Alion	1.67	SC	0.065 lb ai/a	FALL15	10.0	10.0	10.0	10.0	10.0
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
	Zeus Prime XC	3.5	EC	0.33 lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
3	Zeus Prime XC	3.5	EC	0.21 lb ai/a	FALL15	10.0	10.0	7.0	10.0	8.7
	Alion	1.67	SC	0.065 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
4	Zeus Prime XC	3.5	EC	0.21 lb ai/a	SPRING16	9.3	6.7	7.3	7.0	8.7
	Alion	1.67	SC	0.065 lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
5	Mission	25	WG	0.045 lb ai/a	FALL15	4.7	10.0	8.7	10.0	10.0
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
6	Princep	90	WDG	4 lb ai/a	FALL15	7.0	10.0	10.0	10.0	5.3
	Chateau SW	51	WDG	0.192 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
7	Princep	90	WDG	4 lb ai/a	SPRING16	10.0	9.0	6.3	10.0	7.0
	Chateau SW	51	WDG	0.192 lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
8	Alion	1.67	SC	0.085 lb ai/a	FALL15	10.0	10.0	8.7	10.0	9.3
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
	Karmex	80	DF	3 lb ai/a	SPRING16					
	Gramoxone SL	2	SL	1 lb ai/a	SPRING16					
	NIS	100	SL	0.25 % v/v	SPRING16					
9	Solicam	80	DF	4 lb ai/a	FALL15	10.0	10.0	6.3	10.0	9.0
	Karmex	80	DF	3 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
10	Trellis SC	4.16	SC	1 lb ai/a	FALL15	8.3	10.0	8.3	9.3	8.3
	Karmex	80	DF	3 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
11	Pindar GT	4.013	SC	1.5 lb ai/a	FALL15	7.3	10.0	8.3	10.0	7.7
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
12	Sinbar	80	WDG	1.6 lb ai/a	SPRING16	10.0	8.3	6.3	10.0	7.0
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
13	Untreated					4.7	10.0	1.0	10.0	1.0
LSD P=.05						3.96	2.26	3.71	3.16	4.82
Standard Deviation						2.35	1.34	2.20	1.88	2.86
CV						27.65	14.06	29.67	19.68	39.15

Fall and Spring Weed Control in Apple with Zeus Prime - HTRC - 2015-2016

Pest Code					WICA	YEFT	ALFA	BFTF			
Crop Code					APPLE						
Rating Date					28Jun16	14Jul16	14Jul16	14Jul16	14Jul16		
Rating 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	Growth Unit	Stage					
1	Zeus Prime XC	3.5	EC	0.21 lb ai/a	FAL15, SPR16		1.3	1.0	1.0	5.3	8.3
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FAL15, SPR16						
	N Pak (AMS)	100	L	2.5 % v/v	FAL15, SPR16						
2	Alion	1.67	SC	0.065 lb ai/a	FALL15		9.0	1.3	9.0	9.3	9.3
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
	Zeus Prime XC	3.5	EC	0.33 lb ai/a	SPRING16						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16						
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16						
3	Zeus Prime XC	3.5	EC	0.21 lb ai/a	FALL15		9.0	1.0	5.7	8.0	9.3
	Alion	1.67	SC	0.065 lb ai/a	FALL15						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
4	Zeus Prime XC	3.5	EC	0.21 lb ai/a	SPRING16		5.7	1.7	9.3	4.7	6.0
	Alion	1.67	SC	0.065 lb ai/a	SPRING16						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16						
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16						
5	Mission	25	WG	0.045 lb ai/a	FALL15		5.7	1.3	2.0	7.0	8.3
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
6	Princep	90	WDG	4 lb ai/a	FALL15		3.7	1.3	2.3	7.3	9.3
	Chateau SW	51	WDG	0.192 lb ai/a	FALL15						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
7	Princep	90	WDG	4 lb ai/a	SPRING16		6.0	1.0	2.3	4.3	7.3
	Chateau SW	51	WDG	0.192 lb ai/a	SPRING16						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16						
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16						
8	Alion	1.67	SC	0.085 lb ai/a	FALL15		8.7	1.3	9.7	9.3	9.3
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
	Karmex	80	DF	3 lb ai/a	SPRING16						
	Gramoxone SL	2	SL	1 lb ai/a	SPRING16						
	NIS	100	SL	0.25 % v/v	SPRING16						
9	Solicam	80	DF	4 lb ai/a	FALL15		4.3	1.0	10.0	7.7	8.3
	Karmex	80	DF	3 lb ai/a	FALL15						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
10	Trellis SC	4.16	SC	1 lb ai/a	FALL15		2.7	1.0	4.0	5.0	8.3
	Karmex	80	DF	3 lb ai/a	FALL15						
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
11	Pindar GT	4.013	SC	1.5 lb ai/a	FALL15		8.7	1.0	3.3	7.7	9.3
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15						
	N Pak (AMS)	100	L	2.5 % v/v	FALL15						
12	Sinbar	80	WDG	1.6 lb ai/a	SPRING16		7.7	1.7	7.7	6.0	7.3
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16						
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16						
13	Untreated						1.0	1.0	7.0	7.0	7.7
LSD P=.05							3.95	0.68	2.55	5.60	3.19
Standard Deviation							2.35	0.41	1.51	3.32	1.89
CV							41.59	33.66	26.82	48.69	22.73

Fall and Spring Weed Control in Apple with Zeus Prime - HTRC - 2015-2016

Pest Code					COLQ	CORW	PRKW	WICA		
Crop Code					14Jul16	14Jul16	14Jul16	14Jul16		
Rating Date					RATING	RATING	RATING	RATING		
Rating Type					1-10	1-10	1-10	1-10		
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage				
1	Zeus Prime XC	3.5	EC	0.21 lb ai/a	FAL15, SPR16		7.0	1.7	3.7	1.7
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FAL15, SPR16					
	N Pak (AMS)	100	L	2.5 % v/v	FAL15, SPR16					
2	Alion	1.67	SC	0.065 lb ai/a	FALL15		10.0	9.3	9.0	8.3
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
	Zeus Prime XC	3.5	EC	0.33 lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
3	Zeus Prime XC	3.5	EC	0.21 lb ai/a	FALL15		10.0	10.0	4.7	7.0
	Alion	1.67	SC	0.065 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
4	Zeus Prime XC	3.5	EC	0.21 lb ai/a	SPRING16		10.0	5.3	9.0	2.7
	Alion	1.67	SC	0.065 lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
5	Mission	25	WG	0.045 lb ai/a	FALL15		10.0	5.0	4.7	5.3
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
6	Princep	90	WDG	4 lb ai/a	FALL15		10.0	5.7	4.3	4.3
	Chateau SW	51	WDG	0.192 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
7	Princep	90	WDG	4 lb ai/a	SPRING16		10.0	9.0	10.0	3.3
	Chateau SW	51	WDG	0.192 lb ai/a	SPRING16					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
8	Alion	1.67	SC	0.085 lb ai/a	FALL15		10.0	10.0	10.0	8.7
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
	Karmex	80	DF	3 lb ai/a	SPRING16					
	Gramoxone SL	2	SL	1 lb ai/a	SPRING16					
	NIS	100	SL	0.25 % v/v	SPRING16					
9	Solicam	80	DF	4 lb ai/a	FALL15		10.0	10.0	7.0	1.7
	Karmex	80	DF	3 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
10	Trellis SC	4.16	SC	1 lb ai/a	FALL15		10.0	7.0	10.0	3.0
	Karmex	80	DF	3 lb ai/a	FALL15					
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
11	Pindar GT	4.013	SC	1.5 lb ai/a	FALL15		10.0	2.7	7.0	5.7
	Roundup PowerMax	5.5	L	1.4 lb ai/a	FALL15					
	N Pak (AMS)	100	L	2.5 % v/v	FALL15					
12	Sinbar	80	WDG	1.6 lb ai/a	SPRING16		10.0	10.0	10.0	6.3
	Roundup PowerMax	5.5	L	1.4 lb ai/a	SPRING16					
	N Pak (AMS)	100	L	2.5 % v/v	SPRING16					
13	Untreated						10.0	4.7	7.0	1.0
LSD P=.05							2.43	4.42	5.57	3.19
Standard Deviation							1.44	2.62	3.30	1.90
CV							14.75	37.75	44.59	41.76

Fall Application of Residual Herbicides on Apple - CRC - 2016

Project Code: 128-16-2

Location: Clarksville, MI
Tier 3, South end

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Apple Varieties: See notes
 Planting Method: Transplant Planting Date: 2003-2007
 Spacing: 4-6 ft Row Spacing: 15 ft
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 11 ft wide x 50 ft long; 8-13 trees/plot

Soil Type: Lapeer sandy loam OM: 2% pH: 6.7
 Sand: 39% Silt: 45% Clay: 16% CEC: 5.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
FALL	11/3/15	12:40 pm	77/54	F	Moist	1-3 SW	35	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
11/3/15	APPLE	15-20'	Dormant	Good
11/3/15	ANBG = annual bluegrass	2-4"	Flower	Many
11/3/15	BYGR = barnyardgrass	4-5'	Flower	Many
11/3/15	CATH = Canada thistle	12-24"	Veg	Mod
11/3/15	CUDO = curly dock	12-24"	Rosette	Mod
11/3/15	DAND = dandelion	4-6"	Rosette	Many
11/3/15	HOWE = horseweed	24-48"	Flower	Mod
11/3/15	WHCL = white clover	1-4"	Veg	Many

Notes and Comments

1. Spray applied with 4 nozzle boom; one pass on each side of row. 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. Karmex (3.2 lb ai/a) + Surflan (3 lb ai/a) + Roundup Powermax applied EPRE in 2015.
 4. Varieties: Dandee Red, Honeycrisp, Rising Sun Fuji, Ruby Jon, Schlect Spur.
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Fall Application of Residual Herbicides on Apple - CRC - 2016

Fall Application of Residual Herbicides on Apple - CRC - Fall 2015-2016

Trial ID:	128-16-2	Location:	Clarksville, MI
Protocol ID:	128-16-2	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	APPLE					
					20May16 RATING 1-10	20May16 RATING 1-10	20May16 RATING 1-10	20May16 RATING 1-10	20May16 RATING 1-10	
					DOBG	CATH	DAND	GORO		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Growth Stage					
1	Goaltender	4	SC	1.5 lb ai/a	FALL15	1.3	8.7	10.0	4.3	10.0
	Stinger	3	L	0.188 lb ai/a	FALL15					
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15					
2	Goaltender	4	SC	1.5 lb ai/a	FALL15	1.3	6.3	10.0	6.7	9.3
	Stinger	3	L	0.094 lb ai/a	FALL15					
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15					
3	Goaltender	4	SC	1.5 lb ai/a	FALL15	1.7	8.7	7.0	7.0	3.3
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15					
4	Pindar GT	4.013	SC	1.505 lb ai/a	FALL15	1.0	8.0	9.3	7.0	2.3
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15					
5	Alion	1.67	SC	0.065 lb ai/a	FALL15	1.3	10.0	7.0	5.7	4.7
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15					
6	Solicam	80	DF	4 lb ai/a	FALL15	1.0	10.0	8.7	1.7	6.7
	Gramoxone SL	2	SL	1 lb ai/a	FALL15					
7	Sinbar	80	WDG	1 lb ai/a	FALL15	1.0	10.0	7.7	1.3	4.7
	Solicam	80	DF	2 lb ai/a	FALL15					
	Gramoxone SL	2	SL	1 lb ai/a	FALL15					
8	Chateau SW	51	WDG	0.383 lb ai/a	FALL15	2.0	10.0	10.0	1.7	7.0
	Gramoxone SL	2	SL	1 lb ai/a	FALL15					
9	Matrix	25	DF	0.063 lb ai/a	FALL15	1.0	10.0	8.7	4.3	8.3
	Gramoxone SL	2	SL	1 lb ai/a	FALL15					
10	Casoron 170 CS	1.4	CS	4 lb ai/a	FALL15	1.7	9.0	8.7	8.3	10.0
	Gramoxone SL	2	SL	1 lb ai/a	FALL15					
11	Roundup PowerMax	5.5	L	2 lb ai/a	FALL15	1.0	10.0	8.0	8.3	5.0
12	Untreated					1.0	7.0	10.0	1.3	9.3
LSD P=.05						1.06	3.78	4.77	1.86	5.58
Standard Deviation						0.63	2.23	2.82	1.10	3.29
CV						48.96	24.88	32.2	22.81	48.99

Fall Application of Residual Herbicides on Apple - CRC - 2016

Pest Code				HOWE	POIV	PRKW	WICA	APPLE		FAPA		
Crop Code				20May16	20May16	20May16	20May16	21Jun16	21Jun16			
Rating Date				RATING	RATING	RATING	RATING	RATING	RATING			
Rating 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	Goaltender	4	SC	1.5 lb ai/a		FALL15	10.0	8.0	10.0	7.0	1.0	5.0
	Stinger	3	L	0.188 lb ai/a		FALL15						
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a		FALL15						
2	Goaltender	4	SC	1.5 lb ai/a		FALL15	10.0	8.3	10.0	9.7	1.0	3.0
	Stinger	3	L	0.094 lb ai/a		FALL15						
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a		FALL15						
3	Goaltender	4	SC	1.5 lb ai/a		FALL15	10.0	9.3	10.0	7.0	1.0	5.3
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a		FALL15						
4	Pindar GT	4.013	SC	1.505 lb ai/a		FALL15	10.0	10.0	10.0	9.3	1.0	5.3
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a		FALL15						
5	Alion	1.67	SC	0.065 lb ai/a		FALL15	10.0	10.0	9.3	7.7	1.3	10.0
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a		FALL15						
6	Solicam	80	DF	4 lb ai/a		FALL15	5.3	10.0	10.0	7.3	1.0	10.0
	Gramoxone SL	2	SL	1 lb ai/a		FALL15						
7	Sinbar	80	WDG	1 lb ai/a		FALL15	8.3	10.0	10.0	3.0	1.3	10.0
	Solicam	80	DF	2 lb ai/a		FALL15						
	Gramoxone SL	2	SL	1 lb ai/a		FALL15						
8	Chateau SW	51	WDG	0.383 lb ai/a		FALL15	6.0	8.7	10.0	7.0	1.3	10.0
	Gramoxone SL	2	SL	1 lb ai/a		FALL15						
9	Matrix	25	DF	0.063 lb ai/a		FALL15	10.0	10.0	10.0	3.0	1.0	4.7
	Gramoxone SL	2	SL	1 lb ai/a		FALL15						
10	Casoron 170 CS	1.4	CS	4 lb ai/a		FALL15	8.7	5.7	9.0	10.0	1.3	2.3
	Gramoxone SL	2	SL	1 lb ai/a		FALL15						
11	Roundup PowerMax	5.5	L	2 lb ai/a		FALL15	10.0	7.7	7.0	8.7	1.0	7.0
12	Untreated						7.0	7.0	6.7	4.7	1.0	9.7
LSD P=.05							3.67	4.56	3.16	5.64	0.58	4.06
Standard Deviation							2.16	2.69	1.87	3.33	0.34	2.40
CV							24.66	30.88	20.0	47.38	31.01	34.92

Fall Application of Residual Herbicides on Apple - CRC - 2016

Pest Code						CATH	COGR	COLQ	DAND	HOWE	POIV
Crop Code						21Jun16	21Jun16	21Jun16	21Jun16	21Jun16	21Jun16
Rating Date						RATING	RATING	RATING	RATING	RATING	RATING
Rating 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	Growth Unit Stage						
1	Goaltender	4	SC	1.5 lb ai/a	FALL15	5.3	10.0	10.0	3.3	10.0	4.0
	Stinger	3	L	0.188 lb ai/a	FALL15						
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15						
2	Goaltender	4	SC	1.5 lb ai/a	FALL15	10.0	10.0	4.0	3.0	10.0	5.3
	Stinger	3	L	0.094 lb ai/a	FALL15						
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15						
3	Goaltender	4	SC	1.5 lb ai/a	FALL15	7.0	10.0	9.0	4.0	10.0	4.7
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15						
4	Pindar GT	4.013	SC	1.505 lb ai/a	FALL15	8.7	10.0	10.0	5.0	10.0	10.0
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15						
5	Alion	1.67	SC	0.065 lb ai/a	FALL15	6.3	10.0	10.0	5.7	9.7	10.0
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15						
6	Solicam	80	DF	4 lb ai/a	FALL15	7.3	10.0	10.0	1.0	3.7	9.3
	Gramoxone SL	2	SL	1 lb ai/a	FALL15						
7	Sinbar	80	WDG	1 lb ai/a	FALL15	8.0	7.7	10.0	1.7	6.7	7.0
	Solicam	80	DF	2 lb ai/a	FALL15						
	Gramoxone SL	2	SL	1 lb ai/a	FALL15						
8	Chateau SW	51	WDG	0.383 lb ai/a	FALL15	7.0	10.0	10.0	1.0	6.3	10.0
	Gramoxone SL	2	SL	1 lb ai/a	FALL15						
9	Matrix	25	DF	0.063 lb ai/a	FALL15	9.3	10.0	10.0	1.3	9.3	10.0
	Gramoxone SL	2	SL	1 lb ai/a	FALL15						
10	Casoron 170 CS	1.4	CS	4 lb ai/a	FALL15	10.0	10.0	10.0	9.0	6.0	4.3
	Gramoxone SL	2	SL	1 lb ai/a	FALL15						
11	Roundup PowerMax	5.5	L	2 lb ai/a	FALL15	7.3	4.7	9.3	7.3	10.0	10.0
12	Untreated					7.0	10.0	10.0	2.3	5.0	7.0
LSD P=.05						6.86	3.17	2.68	2.66	3.47	6.12
Standard Deviation						4.05	1.87	1.59	1.57	2.05	3.62
CV						52.05	20.0	16.93	42.2	25.47	47.35

Fall Application of Residual Herbicides on Apple - CRC - 2016

Pest Code				PRKW	WHCL	WICA	APPLE		BYGR	FAPA		
Crop Code				21Jun16	21Jun16	21Jun16	18Jul16	18Jul16	18Jul16	18Jul16		
Rating Date				RATING	RATING	RATING	RATING	RATING	RATING	RATING		
Rating Type				1-10	1-10	1-10	1-10	1-10	1-10	1-10		
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage						
1	Goaltender	4	SC	1.5 lb ai/a	FALL15		10.0	10.0	6.0	1.3	5.0	6.0
	Stinger	3	L	0.188 lb ai/a	FALL15							
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15							
2	Goaltender	4	SC	1.5 lb ai/a	FALL15		10.0	5.3	5.3	1.0	2.7	2.7
	Stinger	3	L	0.094 lb ai/a	FALL15							
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15							
3	Goaltender	4	SC	1.5 lb ai/a	FALL15		10.0	7.7	2.3	1.0	5.3	5.0
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15							
4	Pindar GT	4.013	SC	1.505 lb ai/a	FALL15		9.0	9.3	5.7	1.0	2.3	2.0
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15							
5	Alion	1.67	SC	0.065 lb ai/a	FALL15		10.0	7.0	6.0	1.3	7.0	7.0
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15							
6	Solicam	80	DF	4 lb ai/a	FALL15		10.0	10.0	5.3	1.0	10.0	10.0
	Gramoxone SL	2	SL	1 lb ai/a	FALL15							
7	Sinbar	80	WDG	1 lb ai/a	FALL15		7.3	7.0	4.0	2.3	10.0	10.0
	Solicam	80	DF	2 lb ai/a	FALL15							
	Gramoxone SL	2	SL	1 lb ai/a	FALL15							
8	Chateau SW	51	WDG	0.383 lb ai/a	FALL15		10.0	6.7	6.3	1.3	8.7	8.7
	Gramoxone SL	2	SL	1 lb ai/a	FALL15							
9	Matrix	25	DF	0.063 lb ai/a	FALL15		9.3	7.0	3.0	1.0	4.0	4.3
	Gramoxone SL	2	SL	1 lb ai/a	FALL15							
10	Casoron 170 CS	1.4	CS	4 lb ai/a	FALL15		7.0	4.7	10.0	1.7	3.3	1.0
	Gramoxone SL	2	SL	1 lb ai/a	FALL15							
11	Roundup PowerMax	5.5	L	2 lb ai/a	FALL15		7.0	7.7	4.7	1.0	5.3	6.3
12	Untreated						5.0	1.7	6.0	1.0	10.0	9.7
LSD P=.05							4.98	6.26	6.62	0.98	4.44	3.90
Standard Deviation							2.94	3.70	3.91	0.58	2.62	2.30
CV							33.75	52.81	72.55	46.19	42.69	37.99

Fall Application of Residual Herbicides on Apple - CRC - 2016

Pest Code						YEFT	CATH	COLQ	CORW	DAND	HOWE
Crop Code						18Jul16	18Jul16	18Jul16	18Jul16	18Jul16	18Jul16
Rating Date						RATING	RATING	RATING	RATING	RATING	RATING
Rating 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	Growth Unit Stage						
1	Goaltender	4	SC	1.5 lb ai/a	FALL15	3.7	5.3	9.3	10.0	4.3	10.0
	Stinger	3	L	0.188 lb ai/a	FALL15						
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15						
2	Goaltender	4	SC	1.5 lb ai/a	FALL15	1.7	7.0	5.7	7.0	5.7	8.7
	Stinger	3	L	0.094 lb ai/a	FALL15						
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15						
3	Goaltender	4	SC	1.5 lb ai/a	FALL15	6.0	7.0	7.3	9.0	7.3	6.3
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15						
4	Pindar GT	4.013	SC	1.505 lb ai/a	FALL15	3.0	8.0	8.0	10.0	5.7	9.7
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15						
5	Alion	1.67	SC	0.065 lb ai/a	FALL15	7.0	5.7	8.3	10.0	5.0	8.0
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15						
6	Solicam	80	DF	4 lb ai/a	FALL15	10.0	7.7	10.0	10.0	1.0	2.3
	Gramoxone SL	2	SL	1 lb ai/a	FALL15						
7	Sinbar	80	WDG	1 lb ai/a	FALL15	10.0	8.0	7.7	10.0	1.7	6.0
	Solicam	80	DF	2 lb ai/a	FALL15						
	Gramoxone SL	2	SL	1 lb ai/a	FALL15						
8	Chateau SW	51	WDG	0.383 lb ai/a	FALL15	8.0	10.0	10.0	10.0	1.0	5.3
	Gramoxone SL	2	SL	1 lb ai/a	FALL15						
9	Matrix	25	DF	0.063 lb ai/a	FALL15	4.0	9.0	6.3	10.0	3.0	8.0
	Gramoxone SL	2	SL	1 lb ai/a	FALL15						
10	Casoron 170 CS	1.4	CS	4 lb ai/a	FALL15	2.3	10.0	8.3	10.0	8.3	4.3
	Gramoxone SL	2	SL	1 lb ai/a	FALL15						
11	Roundup PowerMax	5.5	L	2 lb ai/a	FALL15	4.3	8.3	7.3	10.0	7.3	8.3
12	Untreated					10.0	8.7	9.0	7.0	2.7	3.3
LSD P=.05						3.66	6.21	5.11	3.74	2.90	3.96
Standard Deviation						2.16	3.67	3.02	2.21	1.71	2.34
CV						37.0	46.49	37.21	23.47	38.82	34.95

Fall Application of Residual Herbicides on Apple - CRC - 2016

Pest Code						POIV	PRKW	WICA		
Crop Code						18Jul16	18Jul16	18Jul16	APPLE	APPLE
Rating Date						RATING	RATING	RATING	DIAMETER	DIAMETER
Rating Type						1-10	1-10	1-10	CM	CM
Rating Unit										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit Stage					
1	Goaltender	4	SC	1.5 lb ai/a	FALL15	7.0	10.0	5.3	7.23	7.96
	Stinger	3	L	0.188 lb ai/a	FALL15					
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15					
2	Goaltender	4	SC	1.5 lb ai/a	FALL15	7.0	10.0	7.0	7.03	7.65
	Stinger	3	L	0.094 lb ai/a	FALL15					
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15					
3	Goaltender	4	SC	1.5 lb ai/a	FALL15	7.0	8.0	5.3	6.89	7.44
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15					
4	Pindar GT	4.013	SC	1.505 lb ai/a	FALL15	10.0	7.7	3.3	7.44	8.18
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15					
5	Alion	1.67	SC	0.065 lb ai/a	FALL15	7.3	10.0	5.3	6.70	7.11
	2, 4-D (Weedar 64)	3.8	L	0.95 lb ai/a	FALL15					
6	Solicam	80	DF	4 lb ai/a	FALL15	10.0	10.0	9.0	7.43	7.90
	Gramoxone SL	2	SL	1 lb ai/a	FALL15					
7	Sinbar	80	WDG	1 lb ai/a	FALL15	7.0	7.0	3.3	6.21	6.59
	Solicam	80	DF	2 lb ai/a	FALL15					
	Gramoxone SL	2	SL	1 lb ai/a	FALL15					
8	Chateau SW	51	WDG	0.383 lb ai/a	FALL15	10.0	7.7	5.7	6.82	7.09
	Gramoxone SL	2	SL	1 lb ai/a	FALL15					
9	Matrix	25	DF	0.063 lb ai/a	FALL15	10.0	4.7	5.3	6.81	7.36
	Gramoxone SL	2	SL	1 lb ai/a	FALL15					
10	Casoron 170 CS	1.4	CS	4 lb ai/a	FALL15	7.0	7.0	10.0	6.50	6.94
	Gramoxone SL	2	SL	1 lb ai/a	FALL15					
11	Roundup PowerMax	5.5	L	2 lb ai/a	FALL15	7.0	7.0	5.0	7.11	7.85
12	Untreated					7.0	6.3	4.7	7.62	8.06
LSD P=.05						7.26	6.33	5.57	1.993	2.184
Standard Deviation						4.29	3.74	3.29	1.177	1.290
CV						53.42	47.04	56.92	16.85	17.18

Apple Weed Control with Alion 500 and Rely 280 - CRC - 2016

Project Code:128-16-3

Location: Clarksville, MI
Tier 2, North end

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Apple Variety: See notes
 Planting Method: Transplant Planting Date: 2007
 Spacing: 4-6 ft Row Spacing: 15 ft
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 11 ft wide x 50 ft long

Soil Type: Lapeer Sandy Loam OM: 2.0% pH: 6.7
 Sand: 39% Silt: 45% Clay: 16% CEC: 5.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPRE	4/20/16	10:00 am	57/49	F	Dry	4-6 SE	43	70% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/20	APPLE	9-11'	Pre-blossom	Good
4/20	ANBG = annual bluegrass	1-3"	Flower	Many
4/20	CUDO = curly dock	6-8"	Veg	Many
4/20	DAND = dandelion	3-6"	Flower	Many
4/20	HOWE = horseweed	3-6"	Veg	Few
4/20	PUDN = purple deadnettle	3-4"	Flower	Few
4/20	ROCI = rough cinquefoil	4-6"	Veg	Mod
4/20	SHPU = shepardspurse	4-6"	Flower/Seed	Mod
4/20	WHCA = white campion	2-4"	Veg	Few
4/20	WHCL = white clover	1-2"	Veg	Many
4/20	YERO = yellow rocket	2-4"	Veg	Few
	BLPL = broadleaf plantain			
	COGR = common groundsel			
	COLQ = common lambsquarters			
	DOBG = downy brome grass			
	FAPA = fall panicum			
	LATH = ladythumb			
	PRKW = prostrate knotweed			
	VIPW = Virginia pepperweed			
	WICA = wild carrot			
	YEFT = yellow foxtail			

Notes and Comments

1. Spray applied with 4 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer. One pass on each side of row.
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
3. Varieties: Honeycrisp, Gala, Fuji, Schlet Spur

Apple Weed Control with Alion 500 and Rely 280 - CRC - 2016

Apple Weed Control with Alion 500 and Rely 280 - CRC - 2016					
Trial ID:	128-16-3	Location:	Clarksville, MI		
Protocol ID:	128-16-3	Investigator:	Dr. Bernard Zandstra		
Study Director:	Colin Phillippo				

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	APPLE							
					ANBG	DOBG	DAND	LATH	PRKW			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage	26May16 RATING	26May16 RATING	26May16 RATING	26May16 RATING	26May16 RATING	26May16 RATING
1	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE		1.0	8.0	8.3	9.0	6.7	7.0
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE							
2	Rely 280	2.34 L		1.2 lb ai/a	EPRE		1.0	6.0	3.7	8.0	3.7	9.3
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE							
3	Alion 200	1.67 SC		0.065 lb ai/a	EPRE		1.0	8.7	8.7	8.3	10.0	10.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE							
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE							
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE							
4	Alion 500	4.17 SC		0.065 lb ai/a	EPRE		1.0	9.0	8.3	9.0	10.0	10.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE							
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE							
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE							
5	Alion 500	4.17 SC		0.045 lb ai/a	EPRE		1.0	8.7	7.0	8.3	10.0	10.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE							
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE							
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE							
6	IAF + RIS-sodium	41 WG		0.077 lb ai/a	EPRE		1.0	9.3	9.0	10.0	10.0	10.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE							
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE							
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE							
7	Matrix	25 DF		0.031 lb ai/a	EPRE		1.0	8.0	8.3	9.7	10.0	10.0
	Alion 500	4.17 SC		0.045 lb ai/a	EPRE							
	Rely 280	2.34 L		1.2 lb ai/a	EPRE							
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE							
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE							
8	Zeus Prime XC	3.5 EC		0.16 lb ai/a	EPRE		1.0	7.7	7.0	6.0	10.0	10.0
	Karmex	80 DF		3 lb ai/a	EPRE							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE							
9	Zeus Prime XC	3.5 EC		0.16 lb ai/a	EPRE		1.0	8.7	8.3	7.7	10.0	10.0
	Alion 200	1.67 SC		0.065 lb ai/a	EPRE							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE							
10	Untreated						1.0	1.0	1.0	5.0	6.7	7.0
LSD P=.05							0.00	1.27	2.44	2.98	4.72	4.12
Standard Deviation							0.00	0.74	1.42	1.74	2.75	2.40
CV							0.0	9.9	20.45	21.48	31.62	25.73

Apple Weed Control with Alion 500 and Rely 280 - CRC - 2016

Pest Code		ROCI		FAPA	BLPL	COLQ	CUDO
Crop Code		APPLE					
Rating Date		26May16	21Jun16	21Jun16	21Jun16	21Jun16	21Jun16
Rating 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	Growth Unit	Stage	
1	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE		10.0
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE		1.0
2	Rely 280	2.34 L		1.2 lb ai/a	EPRE		1.3
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE		8.7
3	Alion 200	1.67 SC		0.065 lb ai/a	EPRE		1.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE		10.0
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE		10.0
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE		10.0
4	Alion 500	4.17 SC		0.065 lb ai/a	EPRE		10.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE		1.0
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE		8.7
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE		9.3
5	Alion 500	4.17 SC		0.045 lb ai/a	EPRE		10.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE		7.3
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE		8.7
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE		7.3
6	IAF + RIS-sodium	41 WG		0.077 lb ai/a	EPRE		2.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE		7.0
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE		1.0
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE		9.0
7	Matrix	25 DF		0.031 lb ai/a	EPRE		9.0
	Alion 500	4.17 SC		0.045 lb ai/a	EPRE		10.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE		10.0
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE		3.7
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE		8.3
8	Zeus Prime XC	3.5 EC		0.16 lb ai/a	EPRE		10.0
	Karmex	80 DF		3 lb ai/a	EPRE		1.0
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE		8.7
	N Pak (AMS)	100 L		2.5 % v/v	EPRE		5.7
9	Zeus Prime XC	3.5 EC		0.16 lb ai/a	EPRE		10.0
	Alion 200	1.67 SC		0.065 lb ai/a	EPRE		1.0
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE		10.0
	N Pak (AMS)	100 L		2.5 % v/v	EPRE		9.3
10	Untreated						3.3
LSD P=.05							1.0
Standard Deviation							4.93
CV							0.00
							2.87
							0.00
							1.93
							2.46
							2.32
							2.90
							35.91
							0.0
							23.39
							28.23
							28.14
							64.02

Apple Weed Control with Alion 500 and Rely 280 - CRC - 2016

Pest Code							DAND	HOWE	ROCI	VIPW	WICA	
Crop Code							21Jun16	21Jun16	21Jun16	21Jun16	21Jun16	APPLE
Rating Date							RATING	RATING	RATING	RATING	RATING	18Jul16
Rating Type							1-10	1-10	1-10	1-10	1-10	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	Roundup PowerMax	5.5 L		1.4 lb ai/a		EPRE	7.7	10.0	10.0	7.0	10.0	1.0
	Ammonium Sulfate	100 SG		3.4 lb/a		EPRE						
2	Rely 280	2.34 L		1.2 lb ai/a		EPRE	8.3	9.3	4.0	7.0	10.0	1.0
	Ammonium Sulfate	100 SG		3.4 lb/a		EPRE						
3	Alion 200	1.67 SC		0.065 lb ai/a		EPRE	7.7	9.0	8.3	5.7	10.0	1.0
	Rely 280	2.34 L		1.2 lb ai/a		EPRE						
	Roundup PowerMax	5.5 L		1.4 lb ai/a		EPRE						
	Ammonium Sulfate	100 SG		3.4 lb/a		EPRE						
4	Alion 500	4.17 SC		0.065 lb ai/a		EPRE	7.3	5.3	7.7	7.0	10.0	1.0
	Rely 280	2.34 L		1.2 lb ai/a		EPRE						
	Roundup PowerMax	5.5 L		1.4 lb ai/a		EPRE						
	Ammonium Sulfate	100 SG		3.4 lb/a		EPRE						
5	Alion 500	4.17 SC		0.045 lb ai/a		EPRE	7.3	5.3	5.0	6.7	10.0	1.0
	Rely 280	2.34 L		1.2 lb ai/a		EPRE						
	Roundup PowerMax	5.5 L		1.4 lb ai/a		EPRE						
	Ammonium Sulfate	100 SG		3.4 lb/a		EPRE						
6	IAF + RIS-sodium	41 WG		0.077 lb ai/a		EPRE	8.7	7.3	7.0	10.0	10.0	1.3
	Rely 280	2.34 L		1.2 lb ai/a		EPRE						
	Roundup PowerMax	5.5 L		1.4 lb ai/a		EPRE						
	Ammonium Sulfate	100 SG		3.4 lb/a		EPRE						
7	Matrix	25 DF		0.031 lb ai/a		EPRE	7.7	5.7	4.7	10.0	10.0	1.0
	Alion 500	4.17 SC		0.045 lb ai/a		EPRE						
	Rely 280	2.34 L		1.2 lb ai/a		EPRE						
	Roundup PowerMax	5.5 L		1.4 lb ai/a		EPRE						
	Ammonium Sulfate	100 SG		3.4 lb/a		EPRE						
8	Zeus Prime XC	3.5 EC		0.16 lb ai/a		EPRE	5.0	8.7	9.0	10.0	7.0	1.0
	Karmex	80 DF		3 lb ai/a		EPRE						
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE						
9	Zeus Prime XC	3.5 EC		0.16 lb ai/a		EPRE	3.7	7.3	7.7	10.0	8.3	1.0
	Alion 200	1.67 SC		0.065 lb ai/a		EPRE						
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE						
10	Untreated						4.7	5.7	10.0	9.0	7.0	1.7
	LSD P=.05						2.84	3.53	5.03	6.06	3.75	0.72
	Standard Deviation						1.65	2.06	2.93	3.53	2.18	0.42
	CV						24.31	27.91	39.96	42.89	23.65	37.93

Apple Weed Control with Alion 500 and Rely 280 - CRC - 2016

Pest Code					FAPA	YEFT	BLPL	COGR	COLQ	DAND	
Crop Code											
Rating Date					18Jul16	18Jul16	18Jul16	18Jul16	18Jul16	18Jul16	
Rating 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	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE	2.0	1.7	7.7	8.7	3.7	7.3
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE						
2	Rely 280	2.34 L		1.2 lb ai/a	EPRE	6.0	4.7	9.0	9.3	5.7	5.3
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE						
3	Alion 200	1.67 SC		0.065 lb ai/a	EPRE	8.7	7.0	10.0	8.0	7.7	7.3
	Rely 280	2.34 L		1.2 lb ai/a	EPRE						
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE						
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE						
4	Alion 500	4.17 SC		0.065 lb ai/a	EPRE	8.0	7.7	5.7	8.7	8.7	6.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE						
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE						
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE						
5	Alion 500	4.17 SC		0.045 lb ai/a	EPRE	7.7	7.7	7.7	6.7	8.7	5.3
	Rely 280	2.34 L		1.2 lb ai/a	EPRE						
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE						
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE						
6	IAF + RIS-sodium	41 WG		0.077 lb ai/a	EPRE	7.7	6.0	6.7	9.3	9.3	7.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE						
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE						
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE						
7	Matrix	25 DF		0.031 lb ai/a	EPRE	8.0	7.3	8.3	9.0	8.7	4.3
	Alion 500	4.17 SC		0.045 lb ai/a	EPRE						
	Rely 280	2.34 L		1.2 lb ai/a	EPRE						
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE						
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE						
8	Zeus Prime XC	3.5 EC		0.16 lb ai/a	EPRE	8.0	7.3	5.0	8.3	9.3	4.0
	Karmex	80 DF		3 lb ai/a	EPRE						
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE						
	N Pak (AMS)	100 L		2.5 % v/v	EPRE						
9	Zeus Prime XC	3.5 EC		0.16 lb ai/a	EPRE	9.3	7.3	8.7	3.0	10.0	4.3
	Alion 200	1.67 SC		0.065 lb ai/a	EPRE						
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE						
	N Pak (AMS)	100 L		2.5 % v/v	EPRE						
10	Untreated					8.0	8.3	7.0	4.0	9.0	1.3
LSD P=.05						2.75	3.82	6.13	3.27	3.39	3.39
Standard Deviation						1.61	2.23	3.57	1.91	1.98	1.97
CV						21.89	34.27	47.23	25.42	24.53	37.74

Apple Weed Control with Alion 500 and Rely 280 - CRC - 2016

Pest Code				HOWE	ROCI	WICA		
Crop Code				18Jul16	18Jul16	18Jul16		
Rating Date				RATING	RATING	RATING		
Rating Type				1-10	1-10	1-10		
Rating Unit								
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Growth Stage			
1	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE	9.3	8.7	7.7
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE			
2	Rely 280	2.34 L		1.2 lb ai/a	EPRE	6.7	4.7	8.7
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE			
3	Alion 200	1.67 SC		0.065 lb ai/a	EPRE	7.0	6.7	10.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE			
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE			
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE			
4	Alion 500	4.17 SC		0.065 lb ai/a	EPRE	5.0	6.7	7.7
	Rely 280	2.34 L		1.2 lb ai/a	EPRE			
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE			
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE			
5	Alion 500	4.17 SC		0.045 lb ai/a	EPRE	5.0	4.7	10.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE			
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE			
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE			
6	IAF + RIS-sodium	41 WG		0.077 lb ai/a	EPRE	5.7	7.0	10.0
	Rely 280	2.34 L		1.2 lb ai/a	EPRE			
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE			
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE			
7	Matrix	25 DF		0.031 lb ai/a	EPRE	4.0	3.7	9.0
	Alion 500	4.17 SC		0.045 lb ai/a	EPRE			
	Rely 280	2.34 L		1.2 lb ai/a	EPRE			
	Roundup PowerMax	5.5 L		1.4 lb ai/a	EPRE			
	Ammonium Sulfate	100 SG		3.4 lb/a	EPRE			
8	Zeus Prime XC	3.5 EC		0.16 lb ai/a	EPRE	5.3	9.3	5.7
	Karmex	80 DF		3 lb ai/a	EPRE			
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE			
	N Pak (AMS)	100 L		2.5 % v/v	EPRE			
9	Zeus Prime XC	3.5 EC		0.16 lb ai/a	EPRE	5.7	6.0	9.0
	Alion 200	1.67 SC		0.065 lb ai/a	EPRE			
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE			
	N Pak (AMS)	100 L		2.5 % v/v	EPRE			
10	Untreated					3.0	9.3	10.0
LSD P=.05						4.00	5.73	3.23
Standard Deviation						2.33	3.34	1.88
CV						41.19	50.13	21.48

Spring Weed Control in Apple - HTRC - 2016

Project Code: 128-16-4

Location: East Lansing, MI
Block 154/160

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Apple Varieties: see notes
 Planting Method: Transplant Planting Date: 2006
 Spacing: 12 ft; 3 trees/plot Row Spacing: 18 ft
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 11 ft wide x 50 ft long

Soil Type: Marlette fine sandy loam OM: 3.2% pH: 6.1
 Sand: 66% Silt: 22% Clay: 12% CEC: 6.4

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPRE	4/15/16	2:30 pm	72/48	F	Wet	3 NW	21	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/15	APPLE	10-12'	Early bud break	Good
4/15	ANBG = annual bluegrass	2-4"	Veg	Few
4/15	CUDO = curly dock	3-4"	Veg	Few
4/15	DAND = dandelion	4-6"	Rosette	Few
4/15	HOWE = horseweed	2-4"	Rosette	Many
4/15	LACG = large crabgrass	4-6"	Veg	Few
4/15	MECR = mouseear cress	2-4"	Flower	Mod
4/15	WHCA = white campion	2-3"	Veg	Many
4/15	WHCL = white clover	1-2"	Veg	Few
4/15	WICA = wild carrot	2-3"	Veg	Many
	ALFA = alfalfa			
	BFTF = birdsfoot trefoil			
	BHPL = buckhorn plantain			
	CATH = Canada thistle			
	DOBG = downy brome grass			
	PEST = perennial sowthistle			
	QUGR = quackgrass			
	YEFT = yellow foxtail			

Notes and Comments

1. Spray applied with 4 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer. One pass on each side of row.
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
3. Varieties: Fuji, Gala, Honeycrisp, Luckyjon, Spartan

Spring Weed Control in Apple - HTRC - 2016

Spring Weed Control in Apple - HTRC - 2016

Trial ID: 128-16-4	Location: East Lansing, MI
Protocol ID: 128-16-4	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code							DOBG	QUGR	BHPL	CATH	
Crop Code							APPLE				
Rating Date							17May16	17May16	17May16	17May16	
Rating 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	Rate Unit	Growth Stage					
1	Command	3	ME	1.25	lb ai/a	EPRE456	1.0	10.0	10.0	2.0	10.0
	Gramoxone SL	2	SL	1	lb ai/a	EPRE456					
2	Trellis SC	4.17	SC	0.75	lb ai/a	EPRE456	1.0	10.0	10.0	10.0	9.0
	Prowl H2O	3.8	CS	1.9	lb ai/a	EPRE456					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456					
3	Trellis SC	4.17	SC	1	lb ai/a	EPRE456	1.0	9.3	10.0	10.0	10.0
	Prowl H2O	3.8	CS	1.9	lb ai/a	EPRE456					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456					
4	Trellis SC	4.17	SC	2	lb ai/a	EPRE456	1.0	10.0	10.0	10.0	10.0
	Prowl H2O	3.8	CS	1.9	lb ai/a	EPRE456					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456					
5	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE456	1.0	9.3	10.0	10.0	7.0
	Karmex	80	DF	3	lb ai/a	EPRE456					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456					
6	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE456	1.0	9.0	10.0	10.0	10.0
	Alion	1.67	SC	0.065	lb ai/a	EPRE456					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456					
7	Chateau	51	WDG	0.383	lb ai/a	EPRE456	1.0	2.3	3.7	10.0	10.0
	Surflan	4	L	3	lb ai/a	EPRE456					
	Treevix	70	WG	0.044	lb ai/a	EPRE456					
8	Zeus Prime XC	3.5	EC	0.273	lb ai/a	EPRE456	1.0	10.0	9.7	10.0	10.0
	Sinbar	80	WDG	0.8	lb ai/a	EPRE456					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456					
9	Sinbar	80	WDG	1	lb ai/a	EPRE456	1.0	10.0	9.0	10.0	10.0
	Solicam	80	DF	2	lb ai/a	EPRE456					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456					
10	Pindar GT	4.013	SC	1.5	lb ai/a	EPRE456	1.0	10.0	10.0	10.0	10.0
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456					

Spring Weed Control in Apple - HTRC - 2016

Pest Code					DOBG	QUGR	BHPL	CATH
Crop Code					APPLE			
Rating Date					17May16	17May16	17May16	17May16
Rating 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		
11	Matrix	25	SG	0.063	lb ai/a	EPRE456	1.0	9.3
	Karmex	80	DF	3	lb ai/a	EPRE456		
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456		
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456		
12	Alion	1.67	SC	0.065	lb ai/a	EPRE456	1.0	10.0
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456		
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456		
13	Alion	1.67	SC	0.052	lb ai/a	EPRE456	1.0	10.0
	Matrix	25	SG	0.031	lb ai/a	EPRE456		
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456		
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456		
14	Untreated						1.0	1.0
							2.3	9.0
								7.7
	LSD P=.05						0.00	1.34
	Standard Deviation						0.00	0.80
	CV						0.0	9.3
								12.49
								7.46
								23.46

Spring Weed Control in Apple - HTRC - 2016

Pest Code	CUDO	DAND	PEST	WHCA	WICA						
Crop Code											
Rating Date	17May16	17May16	17May16	17May16	17May16						
Rating 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	Growth Unit	Stage					
1	Command	3	ME	1.25 lb ai/a	EPRE456		9.0	8.7	8.3	9.7	9.0
	Gramoxone SL	2	SL	1 lb ai/a	EPRE456						
2	Trellis SC	4.17	SC	0.75 lb ai/a	EPRE456		7.7	9.0	8.0	10.0	9.3
	Prowl H2O	3.8	CS	1.9 lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
3	Trellis SC	4.17	SC	1 lb ai/a	EPRE456		6.7	9.3	8.0	9.3	8.7
	Prowl H2O	3.8	CS	1.9 lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
4	Trellis SC	4.17	SC	2 lb ai/a	EPRE456		8.7	10.0	10.0	10.0	10.0
	Prowl H2O	3.8	CS	1.9 lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
5	Zeus Prime XC	3.5	EC	0.164 lb ai/a	EPRE456		8.3	8.7	9.0	9.7	9.7
	Karmex	80	DF	3 lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
6	Zeus Prime XC	3.5	EC	0.164 lb ai/a	EPRE456		9.3	9.7	10.0	10.0	9.3
	Alion	1.67	SC	0.065 lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
7	Chateau	51	WDG	0.383 lb ai/a	EPRE456		3.7	6.7	7.0	8.7	4.3
	Surflan	4	L	3 lb ai/a	EPRE456						
	Treevix	70	WG	0.044 lb ai/a	EPRE456						
8	Zeus Prime XC	3.5	EC	0.273 lb ai/a	EPRE456		7.3	9.7	6.3	9.7	9.7
	Sinbar	80	WDG	0.8 lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
9	Sinbar	80	WDG	1 lb ai/a	EPRE456		6.7	8.7	9.3	10.0	9.3
	Solicam	80	DF	2 lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE456						
10	Pindar GT	4.013	SC	1.5 lb ai/a	EPRE456		8.7	10.0	9.0	9.0	9.3
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
11	Matrix	25	SG	0.063 lb ai/a	EPRE456		7.3	8.7	6.7	10.0	8.3
	Karmex	80	DF	3 lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
12	Alion	1.67	SC	0.065 lb ai/a	EPRE456		5.7	10.0	8.7	10.0	9.3
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
13	Alion	1.67	SC	0.052 lb ai/a	EPRE456		6.3	9.3	8.7	9.0	9.7
	Matrix	25	SG	0.031 lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
14	Untreated						1.7	1.3	7.0	4.7	7.0
LSD P=.05							2.13	1.95	4.99	2.51	2.91
Standard Deviation							1.27	1.16	2.97	1.49	1.74
CV							18.33	13.61	35.84	16.14	19.76

Spring Weed Control in Apple - HTRC - 2016

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	APPLE							
					DOBR	QUGR	YEFT	BHPL	CUDO			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage	06Jun16 RATING 1-10	06Jun16 RATING 1-10	06Jun16 RATING 1-10	06Jun16 RATING 1-10	06Jun16 RATING 1-10	06Jun16 RATING 1-10
1	Command	3 ME		1.25 lb ai/a	EPRE456		1.0	10.0	6.0	7.3	1.0	4.7
	Gramoxone SL	2 SL		1 lb ai/a	EPRE456							
2	Trellis SC	4.17 SC		0.75 lb ai/a	EPRE456		1.0	10.0	10.0	10.0	10.0	7.7
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
3	Trellis SC	4.17 SC		1 lb ai/a	EPRE456		1.0	9.3	10.0	9.7	10.0	5.3
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
4	Trellis SC	4.17 SC		2 lb ai/a	EPRE456		1.0	10.0	10.0	10.0	9.3	7.3
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
5	Zeus Prime XC	3.5 EC		0.164 lb ai/a	EPRE456		1.0	9.3	10.0	10.0	10.0	7.0
	Karmex	80 DF		3 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
6	Zeus Prime XC	3.5 EC		0.164 lb ai/a	EPRE456		1.0	10.0	10.0	10.0	10.0	7.0
	Alion	1.67 SC		0.065 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
7	Chateau	51 WDG		0.383 lb ai/a	EPRE456		1.0	1.0	4.0	9.3	10.0	2.0
	Surflan	4 L		3 lb ai/a	EPRE456							
	Treevix	70 WG		0.044 lb ai/a	EPRE456							
8	Zeus Prime XC	3.5 EC		0.273 lb ai/a	EPRE456		1.0	10.0	9.3	10.0	10.0	5.0
	Sinbar	80 WDG		0.8 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
9	Sinbar	80 WDG		1 lb ai/a	EPRE456		1.0	10.0	10.0	10.0	10.0	4.3
	Solicam	80 DF		2 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
10	Pindar GT	4.013 SC		1.5 lb ai/a	EPRE456		1.0	9.0	9.3	9.3	10.0	7.3
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
11	Matrix	25 SG		0.063 lb ai/a	EPRE456		1.0	9.3	9.0	10.0	7.0	6.7
	Karmex	80 DF		3 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
12	Alion	1.67 SC		0.065 lb ai/a	EPRE456		1.0	10.0	10.0	10.0	10.0	5.7
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
13	Alion	1.67 SC		0.052 lb ai/a	EPRE456		1.0	10.0	10.0	10.0	10.0	7.7
	Matrix	25 SG		0.031 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
14	Untreated						1.0	1.0	10.0	10.0	5.7	1.0
LSD P=.05							0.00	1.21	3.36	2.10	2.19	3.03
Standard Deviation							0.00	0.72	2.00	1.25	1.31	1.80
CV							0.0	8.5	21.93	12.9	14.86	32.11

Spring Weed Control in Apple - HTRC - 2016

Pest Code					DAND	HOWE	PEST	WHCA	WICA			
Crop Code										APPLE		
Rating Date					06Jun16	06Jun16	06Jun16	06Jun16	06Jun16	28Jun16		
Rating 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	Command	3	ME	1.25	lb ai/a	EPRE456	7.7	10.0	5.3	8.7	4.0	1.0
	Gramoxone SL	2	SL	1	lb ai/a	EPRE456						
2	Trellis SC	4.17	SC	0.75	lb ai/a	EPRE456	9.7	10.0	6.7	10.0	7.3	1.3
	Prowl H20	3.8	CS	1.9	lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456						
3	Trellis SC	4.17	SC	1	lb ai/a	EPRE456	10.0	10.0	3.3	9.3	6.0	1.3
	Prowl H20	3.8	CS	1.9	lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456						
4	Trellis SC	4.17	SC	2	lb ai/a	EPRE456	10.0	10.0	7.7	10.0	8.0	1.0
	Prowl H20	3.8	CS	1.9	lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456						
5	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE456	9.7	9.7	3.0	10.0	6.3	1.3
	Karmex	80	DF	3	lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456						
6	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE456	9.3	10.0	9.3	9.3	7.7	1.0
	Alion	1.67	SC	0.065	lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456						
7	Chateau	51	WDG	0.383	lb ai/a	EPRE456	6.7	10.0	7.0	10.0	1.7	1.3
	Surflan	4	L	3	lb ai/a	EPRE456						
	Treevix	70	WG	0.044	lb ai/a	EPRE456						
8	Zeus Prime XC	3.5	EC	0.273	lb ai/a	EPRE456	8.3	10.0	5.0	8.3	7.3	1.3
	Sinbar	80	WDG	0.8	lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456						
9	Sinbar	80	WDG	1	lb ai/a	EPRE456	6.7	10.0	9.3	8.0	9.0	1.0
	Solicam	80	DF	2	lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456						
10	Pindar GT	4.013	SC	1.5	lb ai/a	EPRE456	9.3	10.0	5.3	9.3	7.0	1.3
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456						
11	Matrix	25	SG	0.063	lb ai/a	EPRE456	10.0	10.0	6.7	10.0	7.7	1.3
	Karmex	80	DF	3	lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456						
12	Alion	1.67	SC	0.065	lb ai/a	EPRE456	9.3	10.0	8.3	10.0	8.0	1.0
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456						
13	Alion	1.67	SC	0.052	lb ai/a	EPRE456	9.7	10.0	8.3	9.0	9.0	1.0
	Matrix	25	SG	0.031	lb ai/a	EPRE456						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE456						
14	Untreated						6.3	10.0	4.0	3.3	4.3	1.0
LSD P=.05							3.89	0.26	5.98	2.31	3.64	0.71
Standard Deviation							2.31	0.15	3.56	1.38	2.17	0.42
CV							26.42	1.55	55.86	15.39	32.56	36.13

Spring Weed Control in Apple - HTRC - 2016

Pest Code					QUGR	YEFT	ALFA	BFTF	BHPL	CATH		
Crop Code					28Jun16	28Jun16	28Jun16	28Jun16	28Jun16	28Jun16		
Rating Date					RATING	RATING	RATING	RATING	RATING	RATING		
Rating 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	Growth Unit	Stage						
1	Command	3 ME		1.25 lb ai/a	EPRE456		5.0	4.0	10.0	8.0	1.0	10.0
	Gramoxone SL	2 SL		1 lb ai/a	EPRE456							
2	Trellis SC	4.17 SC		0.75 lb ai/a	EPRE456		10.0	10.0	7.3	2.7	10.0	8.0
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
3	Trellis SC	4.17 SC		1 lb ai/a	EPRE456		9.7	6.7	5.3	2.7	10.0	10.0
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
4	Trellis SC	4.17 SC		2 lb ai/a	EPRE456		10.0	8.3	4.0	3.3	9.7	10.0
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
5	Zeus Prime XC	3.5 EC		0.164 lb ai/a	EPRE456		10.0	8.3	4.0	5.3	10.0	7.0
	Karmex	80 DF		3 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
6	Zeus Prime XC	3.5 EC		0.164 lb ai/a	EPRE456		10.0	10.0	5.0	3.7	10.0	10.0
	Alion	1.67 SC		0.065 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
7	Chateau	51 WDG		0.383 lb ai/a	EPRE456		6.7	7.0	2.0	7.0	10.0	10.0
	Surflan	4 L		3 lb ai/a	EPRE456							
	Treevix	70 WG		0.044 lb ai/a	EPRE456							
8	Zeus Prime XC	3.5 EC		0.273 lb ai/a	EPRE456		8.7	9.3	7.3	6.0	10.0	8.7
	Sinbar	80 WDG		0.8 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
9	Sinbar	80 WDG		1 lb ai/a	EPRE456		9.0	9.7	7.0	4.0	10.0	10.0
	Solicam	80 DF		2 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
10	Pindar GT	4.013 SC		1.5 lb ai/a	EPRE456		10.0	3.7	9.0	7.0	9.3	9.3
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
11	Matrix	25 SG		0.063 lb ai/a	EPRE456		6.3	5.3	7.0	6.3	4.7	7.7
	Karmex	80 DF		3 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
12	Alion	1.67 SC		0.065 lb ai/a	EPRE456		10.0	10.0	7.7	6.0	10.0	4.3
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
13	Alion	1.67 SC		0.052 lb ai/a	EPRE456		10.0	10.0	3.0	1.7	10.0	7.7
	Matrix	25 SG		0.031 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
14	Untreated						3.0	9.0	1.7	7.0	10.0	7.3
LSD P=.05							3.20	4.43	5.97	4.72	0.74	4.51
Standard Deviation							1.90	2.64	3.56	2.81	0.44	2.68
CV							22.54	33.21	61.98	55.67	4.97	31.32

Spring Weed Control in Apple - HTRC - 2016

Pest Code					CUDO	PEST	WHCA	WICA	APPLE			
Crop Code					28Jun16	28Jun16	28Jun16	28Jun16	14Jul16	14Jul16		
Rating Date					RATING	RATING	RATING	RATING	RATING	RATING		
Rating 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	Command	3 ME		1.25 lb ai/a		EPRE456	5.3	3.0	9.3	3.0	1.0	8.7
	Gramoxone SL	2 SL		1 lb ai/a		EPRE456						
2	Trellis SC	4.17 SC		0.75 lb ai/a		EPRE456	5.7	7.0	10.0	5.3	1.0	9.7
	Prowl H2O	3.8 CS		1.9 lb ai/a		EPRE456						
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE456						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE456						
3	Trellis SC	4.17 SC		1 lb ai/a		EPRE456	4.7	4.0	7.7	3.7	1.0	9.0
	Prowl H2O	3.8 CS		1.9 lb ai/a		EPRE456						
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE456						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE456						
4	Trellis SC	4.17 SC		2 lb ai/a		EPRE456	5.3	7.7	10.0	5.0	1.3	8.3
	Prowl H2O	3.8 CS		1.9 lb ai/a		EPRE456						
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE456						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE456						
5	Zeus Prime XC	3.5 EC		0.164 lb ai/a		EPRE456	6.0	2.3	7.0	5.3	1.3	9.0
	Karmex	80 DF		3 lb ai/a		EPRE456						
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE456						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE456						
6	Zeus Prime XC	3.5 EC		0.164 lb ai/a		EPRE456	7.0	9.3	10.0	4.3	1.0	10.0
	Alion	1.67 SC		0.065 lb ai/a		EPRE456						
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE456						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE456						
7	Chateau	51 WDG		0.383 lb ai/a		EPRE456	1.7	7.0	6.3	1.7	2.0	2.7
	Surflan	4 L		3 lb ai/a		EPRE456						
	Treex	70 WG		0.044 lb ai/a		EPRE456						
8	Zeus Prime XC	3.5 EC		0.273 lb ai/a		EPRE456	6.0	6.7	1.7	6.3	1.3	8.7
	Sinbar	80 WDG		0.8 lb ai/a		EPRE456						
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE456						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE456						
9	Sinbar	80 WDG		1 lb ai/a		EPRE456	3.3	9.0	10.0	9.3	1.0	9.3
	Solicam	80 DF		2 lb ai/a		EPRE456						
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE456						
10	Pindar GT	4.013 SC		1.5 lb ai/a		EPRE456	8.3	5.7	6.0	3.7	1.3	8.3
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE456						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE456						
11	Matrix	25 SG		0.063 lb ai/a		EPRE456	6.3	7.7	10.0	7.7	1.3	4.0
	Karmex	80 DF		3 lb ai/a		EPRE456						
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE456						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE456						
12	Alion	1.67 SC		0.065 lb ai/a		EPRE456	5.7	9.0	10.0	4.7	1.0	10.0
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE456						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE456						
13	Alion	1.67 SC		0.052 lb ai/a		EPRE456	7.3	6.7	10.0	7.3	1.0	10.0
	Matrix	25 SG		0.031 lb ai/a		EPRE456						
	Roundup PowerMax	5.5 L		1 lb ai/a		EPRE456						
	N Pak (AMS)	100 L		2.5 % v/v		EPRE456						
14	Untreated						1.0	7.0	4.7	3.0	1.3	4.3
LSD P=.05							2.70	6.22	4.23	4.22	0.65	3.65
Standard Deviation							1.61	3.70	2.52	2.52	0.39	2.17
CV							30.62	56.37	31.34	50.08	31.72	27.15

Spring Weed Control in Apple - HTRC - 2016

Pest Code					YENS	ALFA	BFTF	BHPL	PEST	WICA		
Crop Code					14Jul16	14Jul16	14Jul16	14Jul16	14Jul16	14Jul16		
Rating Date					RATING	RATING	RATING	RATING	RATING	RATING		
Rating 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	Growth Unit	Stage						
1	Command	3 ME		1.25 lb ai/a	EPRE456		10.0	10.0	9.7	1.0	4.3	3.7
	Gramoxone SL	2 SL		1 lb ai/a	EPRE456							
2	Trellis SC	4.17 SC		0.75 lb ai/a	EPRE456		10.0	7.3	3.0	10.0	7.0	4.0
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
3	Trellis SC	4.17 SC		1 lb ai/a	EPRE456		10.0	7.7	4.0	10.0	4.0	4.3
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
4	Trellis SC	4.17 SC		2 lb ai/a	EPRE456		7.3	5.0	5.3	10.0	7.7	3.7
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
5	Zeus Prime XC	3.5 EC		0.164 lb ai/a	EPRE456		7.7	8.3	10.0	10.0	2.3	1.3
	Karmex	80 DF		3 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
6	Zeus Prime XC	3.5 EC		0.164 lb ai/a	EPRE456		10.0	7.0	5.7	10.0	9.3	2.3
	Alion	1.67 SC		0.065 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
7	Chateau	51 WDG		0.383 lb ai/a	EPRE456		7.0	4.0	7.7	10.0	7.0	1.0
	Surflan	4 L		3 lb ai/a	EPRE456							
	Treevix	70 WG		0.044 lb ai/a	EPRE456							
8	Zeus Prime XC	3.5 EC		0.273 lb ai/a	EPRE456		6.3	8.0	7.7	10.0	6.0	5.3
	Sinbar	80 WDG		0.8 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
9	Sinbar	80 WDG		1 lb ai/a	EPRE456		7.0	7.0	6.3	10.0	9.7	8.3
	Solicam	80 DF		2 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
10	Pindar GT	4.013 SC		1.5 lb ai/a	EPRE456		7.0	9.3	10.0	10.0	8.0	1.3
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
11	Matrix	25 SG		0.063 lb ai/a	EPRE456		9.0	7.7	7.3	4.7	7.7	4.3
	Karmex	80 DF		3 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
12	Alion	1.67 SC		0.065 lb ai/a	EPRE456		10.0	7.7	6.7	10.0	10.0	3.3
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
13	Alion	1.67 SC		0.052 lb ai/a	EPRE456		10.0	4.7	4.7	10.0	6.7	2.3
	Matrix	25 SG		0.031 lb ai/a	EPRE456							
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456							
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456							
14	Untreated						7.7	4.7	6.3	10.0	6.3	3.0
LSD P=.05						4.67	6.24	4.68	2.12	5.97	4.15	
Standard Deviation						2.78	3.71	2.79	1.26	3.56	2.47	
CV						32.72	52.88	41.37	14.07	51.85	71.57	

Spring Weed Control in Apple - HTRC - 2016

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit		APPLE 30Oct15 DIAMETER CM	APPLE 20Sep16 DIAMETER CM
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit Stage		
1	Command	3 ME		1.25 lb ai/a	EPRE456	12.96	14.55
	Gramoxone SL	2 SL		1 lb ai/a	EPRE456		
2	Trellis SC	4.17 SC		0.75 lb ai/a	EPRE456	12.22	13.00
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456		
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456		
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456		
3	Trellis SC	4.17 SC		1 lb ai/a	EPRE456	10.88	11.68
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456		
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456		
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456		
4	Trellis SC	4.17 SC		2 lb ai/a	EPRE456	12.02	13.34
	Prowl H2O	3.8 CS		1.9 lb ai/a	EPRE456		
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456		
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456		
5	Zeus Prime XC	3.5 EC		0.164 lb ai/a	EPRE456	12.13	13.55
	Karmex	80 DF		3 lb ai/a	EPRE456		
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456		
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456		
6	Zeus Prime XC	3.5 EC		0.164 lb ai/a	EPRE456	13.24	13.87
	Alion	1.67 SC		0.065 lb ai/a	EPRE456		
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456		
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456		
7	Chateau	51 WDG		0.383 lb ai/a	EPRE456	11.30	12.59
	Surflan	4 L		3 lb ai/a	EPRE456		
	Treevix	70 WG		0.044 lb ai/a	EPRE456		
8	Zeus Prime XC	3.5 EC		0.273 lb ai/a	EPRE456	12.77	13.63
	Sinbar	80 WDG		0.8 lb ai/a	EPRE456		
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456		
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456		
9	Sinbar	80 WDG		1 lb ai/a	EPRE456	12.68	14.36
	Solicam	80 DF		2 lb ai/a	EPRE456		
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456		
10	Pindar GT	4.013 SC		1.5 lb ai/a	EPRE456	12.68	13.78
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456		
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456		
11	Matrix	25 SG		0.063 lb ai/a	EPRE456	11.93	12.51
	Karmex	80 DF		3 lb ai/a	EPRE456		
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456		
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456		
12	Alion	1.67 SC		0.065 lb ai/a	EPRE456	12.36	13.18
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456		
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456		
13	Alion	1.67 SC		0.052 lb ai/a	EPRE456	13.05	14.17
	Matrix	25 SG		0.031 lb ai/a	EPRE456		
	Roundup PowerMax	5.5 L		1 lb ai/a	EPRE456		
	N Pak (AMS)	100 L		2.5 % v/v	EPRE456		
14	Untreated					11.42	12.63
LSD P=,05						1.500	1.764
Standard Deviation						0.894	1.051
CV						7.29	7.87

Weed Control in Young Apple - Spicer - 2016

Project Code: 128-16-6

Location: Hartland, MI

Personnel: Bernard H. Zandstra, Colin Phillippo

Crop: Apple

Variety: Honeycrisp

Planting Method: Transplanted

Planting Date: May 2015

Spacing: 6 ft, 5 plants/plot

Row Spacing: 15 ft

Tillage Type: Conventional

Study Design: RCB

Replications: 3

Plot Size: 6 ft wide x 30 ft long

Soil Type: Sandy Loam

OM: 2.7%

pH: 5.3

Sand: 62%

Silt: 24%

Clay: 15%

CEC: 6.2

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
LPRE	5/5/16	10:00 am	53/42	F	Damp	6-7 NE	70	0% Cloudy	Y

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/5	APPLE	4-6'	Pink bud	Good
5/5	COBU = cocklebur	5-6"	Rosette	Mod
5/5	COCW = common chickweed	3-5"	Flower	Mod
5/5	COGR = common groundsel	4-6"	Flower	Mod
5/5	COMU = common mullein	4-6"	Rosette	Mod
5/5	DAND = dandelion	4-6"	Flower	Mod
5/5	QUGR = quackgrass	4-8"	Foliar	Many
5/5	RECL = Red clover	3-4"	Foliar	Mod
5/5	WHCL = white clover	4-6"	Rosette	Mod
	BLDO = broadleaf dock			
	COLQ = common lambsquarters			
	HOWE = horseweed			
	RRPW = redroot pigweed			
	WHCA = white campion			
	WICA = wild carrot			

Notes and Comments

- Spray applied with 2 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer. One pass on each side of the row.
 - Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
-

Weed Control in Young Apple - Spicer - 2016

Weed Control in Young Apple - Hartland - 2016

Trial ID: 128-16-6	Location: Hartland, MI
Protocol ID: 128-16-6	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

						QUGR	BLDO	COLQ	HOWE	RRPW	
						APPLE					
						07Jul16	07Jul16	07Jul16	07Jul16	07Jul16	
						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	Karmex	80	DF	3 lb ai/a	PRE	1.0	6.7	10.0	10.0	9.3	7.7
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE						
2	Princep	90	WDG	4 lb ai/a	PRE	1.3	5.0	10.0	10.0	9.3	8.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE						
3	Solicam	80	DF	4 lb ai/a	PRE	1.3	6.3	9.7	7.0	7.3	4.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE						
4	Sinbar	80	WDG	1.6 lb ai/a	PRE	1.0	5.7	4.3	10.0	10.0	9.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE						
5	Matrix	25	DF	0.063 lb ai/a	PRE	1.0	8.7	7.0	8.7	8.0	10.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE						
6	Chateau SW	51	WDG	0.383 lb ai/a	PRE	1.3	6.3	8.3	10.0	7.0	9.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE						
7	Alion 200	1.67	SC	0.085 lb ai/a	PRE	1.7	5.3	6.3	10.0	8.3	7.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE						
8	Pindar GT	4.013	SC	1.5 lb ai/a	PRE	1.3	5.0	8.3	10.0	9.3	10.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE						
9	Zeus Prime XC	3.5	EC	0.41 lb ai/a	PRE	1.0	6.0	7.7	10.0	7.7	10.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE						
10	Trellis SC	4.17	SC	1 lb ai/a	PRE	1.0	4.7	6.7	10.0	4.7	9.0
	Prowl H2O	3.8	CS	1.9 lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE						
LSD P=.05						0.67	3.35	5.65	2.95	3.22	4.28
Standard Deviation						0.39	1.95	3.29	1.72	1.87	2.49
CV						32.47	32.72	42.06	18.0	23.15	29.79

Weed Control in Young Apple - Spicer - 2016

Pest Code		WHCA			WHCL	WICA			
Crop Code		07Jul16			07Jul16	07Jul16			
Rating Date		RATING			RATING	RATING			
Rating Type		1-10			1-10	1-10			
Rating Unit									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage			
1	Karmex	80	DF	3 lb ai/a	PRE		4.0	10.0	7.7
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE				
2	Princep	90	WDG	4 lb ai/a	PRE		6.7	6.7	8.7
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE				
3	Solicam	80	DF	4 lb ai/a	PRE		9.3	6.3	6.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE				
4	Sinbar	80	WDG	1.6 lb ai/a	PRE		9.7	10.0	10.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE				
5	Matrix	25	DF	0.063 lb ai/a	PRE		9.3	6.7	10.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE				
6	Chateau SW	51	WDG	0.383 lb ai/a	PRE		10.0	6.7	10.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE				
7	Alion 200	1.67	SC	0.085 lb ai/a	PRE		5.7	5.3	6.7
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE				
8	Pindar GT	4.013	SC	1.5 lb ai/a	PRE		6.7	9.0	9.3
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE				
9	Zeus Prime XC	3.5	EC	0.41 lb ai/a	PRE		3.3	7.0	9.0
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE				
10	Trellis SC	4.17	SC	1 lb ai/a	PRE		7.0	4.7	7.0
	Prowl H20	3.8	CS	1.9 lb ai/a	PRE				
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE				
LSD P=.05							6.18	4.26	4.10
Standard Deviation							3.60	2.48	2.39
CV							50.29	34.35	28.31

Preemergence Weed Control in Blueberry - SWMREC - 2016

Project Code: 127-16-1

Location: Benton Harbor, MI

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Blueberry Variety: Bluecrop
 Planting Method: Transplant Planting Date: 1990
 Spacing: 4 ft Row Spacing: 10 ft
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 6 ft wide x 30 ft long

Soil Type: Spinks loamy fine sand OM: 2.6% pH: 4.6
 Sand: 80% Silt: 10% Clay: 10% CEC: 9.9

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/25/16	11:05 am	72/56	F	Moist	4-6 SW	51	60% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/25	BLUEBERRY	4'	Early flower bud	Good
4/25	BHPL = buckhorn plantain	4-6"	Veg	Many
4/25	DAND = dandelion	4-6"	Flower	Mod.
4/25	HAVE = hairy vetch	6-8"	Veg	Mod.
4/25	PERG = perennial ryegrass	4-6"	Flower	Many
4/25	PUDN = purple deadnettle	5-7"	Flower	Many
4/25	QUGR = quackgrass	2-4"	Veg	Few
4/25	RESO = red sorrel	3-5"	Flower	Many
4/25	WHCL = white clover	<1"	Veg	Many
4/25	WLDRASP = wild raspberry	3-4"	Veg	Many
4/25	YEHW = yellow hawkweed	4-6"	Veg	Many
	DOBG = downy brome grass			
	HONE = horsenettle			
	LACG = large crabgrass			

Notes and Comments

1. Spray applied with 2 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer. One pass on each side of the row.
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.

Preemergence Weed Control in Blueberry - SWMREC - 2016

Preemergence Weed Control in Blueberry - SWMREC - 2016					
Trial ID:	127-16-1	Location:	Benton Harbor, MI		
Protocol ID:	127-16-1	Investigator:	Dr. Bernard Zandstra		
Study Director:	Colin Phillippo				

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	BLBE							
					DOBG	QUGR	BHPL	HAVE	RESO			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Growth Unit	Stage	09Jun16 RATING	09Jun16 RATING	09Jun16 RATING	09Jun16 RATING	09Jun16 RATING	
1	Karmex	80	DF	2 lb ai/a	PRE	1.3	4.7	6.7	3.7	10.0	9.0	
	Prowl H2O	3.8	CS	3 lb ai/a	PRE							
	Rely 280	2.34	L	1 lb ai/a	PRE							
2	Princep	90	WDG	3 lb ai/a	PRE	1.0	9.0	7.3	8.0	8.0	7.3	
	Surflan	4	L	3 lb ai/a	PRE							
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE							
3	Sinbar	80	WDG	1.6 lb ai/a	PRE	1.3	9.0	9.0	9.3	7.3	6.0	
	Dual Magnum	7.62	EC	1.27 lb ai/a	PRE							
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE							
4	Zeus Prime XC	3.5	EC	0.41 lb ai/a	PRE	1.3	8.0	9.7	2.0	9.0	9.3	
	Matrix	25	DF	0.063 lb ai/a	PRE							
	COC	100	SL	1 % v/v	PRE							
5	Casoron 170 CS	1.4	CS	3 lb ai/a	PRE	1.0	3.3	9.7	10.0	5.7	9.0	
	Rely 280	2.34	L	1 lb ai/a	PRE							
6	Chateau SW	51	WDG	0.383 lb ai/a	PRE	1.0	5.0	8.3	7.3	9.3	6.0	
	Callisto	4	SC	0.188 lb ai/a	PRE							
	Rely 280	2.34	L	1 lb ai/a	PRE							
7	Karmex	80	DF	3.2 lb ai/a	PRE	1.3	8.7	9.0	2.7	10.0	10.0	
	Sandea	75	WG	0.047 lb ai/a	PRE							
	Stinger	3	L	0.125 lb ai/a	PRE							
	Select Max	0.97	EC	0.12 lb ai/a	PRE							
8	Velpar	2	L	2 lb ai/a	PRE	1.3	9.3	10.0	10.0	10.0	10.0	
	Gramoxone SL	2	SL	0.5 lb ai/a	PRE							
9	Princep	90	WDG	3 lb ai/a	PRE	1.0	7.7	8.3	8.7	6.3	9.0	
	Solicam	80	DF	3 lb ai/a	PRE							
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE							
10	Untreated					1.0	4.0	8.3	1.3	4.0	1.7	
LSD P=.05							0.68	4.02	2.90	2.95	4.25	3.80
Standard Deviation							0.40	2.35	1.69	1.72	2.48	2.22
CV							34.21	34.17	19.57	27.34	31.11	28.68

Preemergence Weed Control in Blueberry - SWMREC - 2016

Pest Code					YEHW		QUGR	BHPL	WLDRASP	HONE		
Crop Code						BLBE						
Rating Date					09Jun16	07Jul16	07Jul16	07Jul16	07Jul16	07Jul16		
Rating 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	Rate Unit	Growth Stage						
1	Karmex	80	DF	2 lb ai/a	PRE		9.3	1.0	6.7	3.0	5.3	7.3
	Prowl H20	3.8	CS	3 lb ai/a	PRE							
	Rely 280	2.34	L	1 lb ai/a	PRE							
2	Princep	90	WDG	3 lb ai/a	PRE		6.3	1.3	6.7	6.7	6.7	7.7
	Surflan	4	L	3 lb ai/a	PRE							
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE							
3	Sinbar	80	WDG	1.6 lb ai/a	PRE		10.0	1.3	9.0	8.3	7.0	10.0
	Dual Magnum	7.62	EC	1.27 lb ai/a	PRE							
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE							
4	Zeus Prime XC	3.5	EC	0.41 lb ai/a	PRE		9.0	1.3	10.0	1.0	1.7	9.7
	Matrix	25	DF	0.063 lb ai/a	PRE							
	COC	100	SL	1 % v/v	PRE							
5	Casoron 170 CS	1.4	CS	3 lb ai/a	PRE		9.3	1.0	5.3	7.0	9.3	7.7
	Rely 280	2.34	L	1 lb ai/a	PRE							
6	Chateau SW	51	WDG	0.383 lb ai/a	PRE		6.7	1.3	7.7	7.3	6.7	10.0
	Callisto	4	SC	0.188 lb ai/a	PRE							
	Rely 280	2.34	L	1 lb ai/a	PRE							
7	Karmex	80	DF	3.2 lb ai/a	PRE		9.0	1.0	9.3	1.0	9.7	10.0
	Sandea	75	WG	0.047 lb ai/a	PRE							
	Stinger	3	L	0.125 lb ai/a	PRE							
	Select Max	0.97	EC	0.12 lb ai/a	PRE							
8	Velpar	2	L	2 lb ai/a	PRE		8.3	1.0	10.0	10.0	10.0	10.0
	Gramoxone SL	2	SL	0.5 lb ai/a	PRE							
9	Princep	90	WDG	3 lb ai/a	PRE		9.0	1.0	10.0	8.3	7.7	7.0
	Solicam	80	DF	3 lb ai/a	PRE							
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE							
10	Untreated						3.7	1.7	10.0	2.7	7.0	10.0
LSD P=.05							2.61	0.72	3.75	4.45	6.50	4.66
Standard Deviation							1.52	0.42	2.18	2.59	3.79	2.71
CV							18.88	34.77	25.8	46.83	53.37	30.38

Preemergence Weed Control in Blueberry - SWMREC - 2016

Pest Code					RESO	YEHW		LACG	BHPL	YEHW		
Crop Code							BLBE					
Rating Date					07Jul16	07Jul16	10Aug16	10Aug16	10Aug16	10Aug16		
Rating 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	Growth Unit	Stage						
1	Karmex	80	DF	2 lb ai/a	PRE		10.0	6.7	1.0	8.7	4.0	8.7
	Prowl H20	3.8	CS	3 lb ai/a	PRE							
	Rely 280	2.34	L	1 lb ai/a	PRE							
2	Princep	90	WDG	3 lb ai/a	PRE		9.0	6.0	1.7	3.7	7.7	6.7
	Surflan	4	L	3 lb ai/a	PRE							
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE							
3	Sinbar	80	WDG	1.6 lb ai/a	PRE		9.7	4.3	1.0	8.0	8.0	5.7
	Dual Magnum	7.62	EC	1.27 lb ai/a	PRE							
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE							
4	Zeus Prime XC	3.5	EC	0.41 lb ai/a	PRE		10.0	4.0	1.7	5.7	4.0	2.0
	Matrix	25	DF	0.063 lb ai/a	PRE							
	COC	100	SL	1 % v/v	PRE							
5	Casoron 170 CS	1.4	CS	3 lb ai/a	PRE		10.0	9.3	1.0	1.7	10.0	9.7
	Rely 280	2.34	L	1 lb ai/a	PRE							
6	Chateau SW	51	WDG	0.383 lb ai/a	PRE		3.3	6.7	1.0	5.3	9.3	8.0
	Callisto	4	SC	0.188 lb ai/a	PRE							
	Rely 280	2.34	L	1 lb ai/a	PRE							
7	Karmex	80	DF	3.2 lb ai/a	PRE		10.0	6.3	1.0	6.0	1.7	5.7
	Sandea	75	WG	0.047 lb ai/a	PRE							
	Stinger	3	L	0.125 lb ai/a	PRE							
	Select Max	0.97	EC	0.12 lb ai/a	PRE							
8	Velpar	2	L	2 lb ai/a	PRE		10.0	9.7	1.0	9.3	10.0	8.7
	Gramoxone SL	2	SL	0.5 lb ai/a	PRE							
9	Princep	90	WDG	3 lb ai/a	PRE		5.0	8.7	1.3	6.7	8.0	7.0
	Solicam	80	DF	3 lb ai/a	PRE							
	Roundup PowerMax	5.5	L	1 lb ai/a	PRE							
10	Untreated						8.0	1.7	1.7	8.0	5.7	3.7
LSD P=.05							2.29	3.79	0.94	2.71	3.63	4.23
Standard Deviation							1.34	2.21	0.55	1.58	2.12	2.47
CV							15.72	34.93	44.41	25.06	30.97	37.54

Preemergence Weed Control in Cherry - CRC - 2016

Project Code: 128-16-5

Location: Clarksville, MI

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Cherry Variety: Ulster, Heidelfinger
 Planting Method: Transplant Planting Date: 1995
 Spacing: 8 ft Row Spacing: 16 ft
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 11 ft wide x 50 ft long; 5 trees/plot

Soil Type: Dryden sandy loam OM: 1.5% pH: 6.8
 Sand: 64% Silt: 22% Clay: 14% CEC: 5.5

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
FALL15	11/3/15	11:05 am	77/50	F	Moist	1-3 SW	42	0% Cloudy	N
EPRE16	4/20/16	11:30 am	61/50	F	Damp	5-6 SE	34	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
11/3/15	CHERRY	15-20'	Dormant	Good
11/3/15	COCW = common chickweed	4-6"	Flower	Many
11/3/15	CUDO = curly dock	24-48"	Rosette	Mod.
11/3/15	DAND = dandelion	12-18"	Veg	Many
11/3/15	HOWE = horseweed	24-48"	Flower	Many
11/3/15	WICA = wild carrot	4-6"	Veg	Few
11/3/15	YEFT = yellow foxtail	4-6"	Flower	Many
4/20/16	CHERRY	15-20'	Bud Break	Good
4/20/16	ANBG = annual bluegrass	2-3"	Flower	Mod.
4/20/16	COCW = common chickweed	2-4"	Flower	Many
4/20/16	CUDO = curly dock	5-8"	Veg	Few
4/20/16	DAND = dandelion	3-6"	Veg	Few
4/20/16	HOWE = horseweed	2-4"	Veg	Few
	LACG = large crabgrass			
	MECR = mouseear cress			
	PERG = perennial ryegrass			
	POIV = poison ivy			
	WHCL = white clover			
	GORO = goldenrod			

Notes and Comments

1. Spray applied with 4 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer. One pass on each side of row.
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
3. This is the third year of a three-year experiment on the same plots.

Preemergence Weed Control in Cherry - CRC - 2016

Preemergence Weed Control in Cherry - CRC - 2014-2016					
Trial ID:	128-16-5	Location:	Clarksville, MI		
Protocol ID:	128-16-5	Investigator:	Dr. Bernard Zandstra		
Study Director:	Colin Phillippo				

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	ANBG		COCW		POIV		PERG	
					CHERRY	CHERRY	CHERRY	CHERRY	CHERRY	CHERRY		
					27May16	27May16	27May16	27May16	21Jun16	21Jun16	21Jun16	21Jun16
					RATING	RATING	RATING	RATING	RATING	RATING	RATING	RATING
					1-10	1-10	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	Goaltender	4	SC	1.5 lb ai/a	EPRE456	1.0	9.0	8.7	5.0	1.0	10.0	
	Durango	5.4	L	1.35 lb ai/a	EPRE456							
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456							
2	Pindar GT	4.013	SC	1.5 lb ai/a	EPRE456	1.0	9.7	9.0	6.0	1.0	9.7	
	Durango	5.4	L	1.35 lb ai/a	EPRE456							
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456							
3	Pindar GT	4.013	SC	3.01 lb ai/a	EPRE456	1.0	10.0	9.3	9.7	1.0	9.3	
	Durango	5.4	L	1.35 lb ai/a	EPRE456							
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456							
4	Goaltender	4	SC	1.5 lb ai/a	FALL1345	1.0	10.0	4.3	7.3	1.0	10.0	
	Durango	5.4	L	1.35 lb ai/a	FALL1345							
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345							
5	Pindar GT	4.013	SC	1.5 lb ai/a	FALL1345	1.0	9.7	4.0	4.7	1.7	10.0	
	Durango	5.4	L	1.35 lb ai/a	FALL1345							
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345							
6	Pindar GT	4.013	SC	3.01 lb ai/a	FALL1345	1.0	10.0	4.0	4.0	1.0	10.0	
	Durango	5.4	L	1.35 lb ai/a	FALL1345							
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345							
7	Trellis SC	4.17	SC	0.75 lb ai/a	EPRE456	1.0	9.3	9.7	7.7	1.0	5.7	
	Durango	5.4	L	1.5 lb ai/a	EPRE456							
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456							
8	Trellis SC	4.17	SC	2 lb ai/a	EPRE456	1.0	10.0	10.0	7.3	1.0	9.0	
	Durango	5.4	L	1.5 lb ai/a	EPRE456							
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456							
9	Trellis SC	4.17	SC	0.75 lb ai/a	FALL1345	1.0	2.3	2.7	3.7	1.0	2.0	
	Durango	5.4	L	1.35 lb ai/a	FALL1345							
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345							
10	Trellis SC	4.17	SC	2 lb ai/a	FALL1345	1.0	4.3	4.0	4.3	1.0	5.3	
	Durango	5.4	L	1.35 lb ai/a	FALL1345							
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345							
11	Durango	5.4	L	1.35 lb ai/a	EPRE456	1.0	9.3	6.0	7.7	1.0	8.3	
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456							
12	Durango	5.4	L	1.35 lb ai/a	FALL1345	1.0	4.0	1.7	6.0	1.7	4.7	
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345							
LSD P=.05						0.00	2.08	4.65	5.23	0.62	3.42	
Standard Deviation						0.00	1.23	2.75	3.09	0.37	2.02	
CV						0.0	15.07	44.92	50.51	32.93	25.8	

Preemergence Weed Control in Cherry - CRC - 2016

Pest Code						COCW	POIV	MECR	WHCL	LACG	
Crop Code						CHERRY					
Rating Date						21Jun16	21Jun16	21Jun16	21Jun16	18Jul16	18Jul16
Rating 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	Growth Unit Stage						
1	Goaltender	4	SC	1.5 lb ai/a	EPRE456	9.3	1.0	9.0	6.7	1.0	10.0
	Durango	5.4	L	1.35 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
2	Pindar GT	4.013	SC	1.5 lb ai/a	EPRE456	10.0	2.3	10.0	10.0	1.0	9.0
	Durango	5.4	L	1.35 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
3	Pindar GT	4.013	SC	3.01 lb ai/a	EPRE456	10.0	8.0	9.3	10.0	1.3	9.3
	Durango	5.4	L	1.35 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
4	Goaltender	4	SC	1.5 lb ai/a	FALL1345	4.7	8.0	7.7	9.0	1.3	10.0
	Durango	5.4	L	1.35 lb ai/a	FALL1345						
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
5	Pindar GT	4.013	SC	1.5 lb ai/a	FALL1345	1.7	7.7	7.0	10.0	2.3	4.0
	Durango	5.4	L	1.35 lb ai/a	FALL1345						
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
6	Pindar GT	4.013	SC	3.01 lb ai/a	FALL1345	1.0	1.7	6.3	10.0	1.0	3.7
	Durango	5.4	L	1.35 lb ai/a	FALL1345						
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
7	Trellis SC	4.17	SC	0.75 lb ai/a	EPRE456	10.0	5.0	9.3	10.0	1.0	1.3
	Durango	5.4	L	1.5 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
8	Trellis SC	4.17	SC	2 lb ai/a	EPRE456	10.0	6.0	10.0	9.3	1.0	3.0
	Durango	5.4	L	1.5 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
9	Trellis SC	4.17	SC	0.75 lb ai/a	FALL1345	7.7	6.3	3.7	10.0	1.0	6.7
	Durango	5.4	L	1.35 lb ai/a	FALL1345						
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
10	Trellis SC	4.17	SC	2 lb ai/a	FALL1345	7.3	5.7	6.0	10.0	1.3	7.3
	Durango	5.4	L	1.35 lb ai/a	FALL1345						
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
11	Durango	5.4	L	1.35 lb ai/a	EPRE456	5.3	7.7	8.3	9.3	1.0	7.7
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
12	Durango	5.4	L	1.35 lb ai/a	FALL1345	10.0	7.3	7.7	10.0	1.7	9.0
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
LSD P=.05						4.44	5.56	4.73	2.35	0.82	3.26
Standard Deviation						2.62	3.28	2.79	1.39	0.48	1.92
CV						36.2	59.07	35.53	14.55	38.77	28.51

Preemergence Weed Control in Cherry - CRC - 2016

Pest Code				COCW		POIV		CHERRY	CHERRY	CHERRY	CHERRY
Crop Code								01Apr14	16Oct14	27Oct15	16Sep16
Rating Date								DIAMETER	DIAMETER	DIAMETER	DIAMETER
Rating Type								CM	CM	CM	CM
Rating Unit								CM	CM	CM	CM
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Growth Stage	18Jul16 RATING	18Jul16 RATING	01Apr14 DIAMETER	16Oct14 DIAMETER	27Oct15 DIAMETER	16Sep16 DIAMETER
1	Goaltender	4	SC	1.5 lb ai/a	EPRE456	8.3	2.3	18.067	18.70	18.967	19.550
	Durango	5.4	L	1.35 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
2	Pindar GT	4.013	SC	1.5 lb ai/a	EPRE456	10.0	1.0	18.787	19.47	20.033	20.637
	Durango	5.4	L	1.35 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
3	Pindar GT	4.013	SC	3.01 lb ai/a	EPRE456	9.3	8.0	20.827	21.17	21.867	22.427
	Durango	5.4	L	1.35 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
4	Goaltender	4	SC	1.5 lb ai/a	FALL1345	4.0	8.3	20.147	20.70	21.100	22.160
	Durango	5.4	L	1.35 lb ai/a	FALL1345						
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
5	Pindar GT	4.013	SC	1.5 lb ai/a	FALL1345	3.7	4.7	14.553	15.10	15.367	16.090
	Durango	5.4	L	1.35 lb ai/a	FALL1345						
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
6	Pindar GT	4.013	SC	3.01 lb ai/a	FALL1345	1.7	2.7	18.740	19.30	19.600	20.320
	Durango	5.4	L	1.35 lb ai/a	FALL1345						
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
7	Trellis SC	4.17	SC	0.75 lb ai/a	EPRE456	10.0	7.7	20.700	21.47	21.700	22.497
	Durango	5.4	L	1.5 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
8	Trellis SC	4.17	SC	2 lb ai/a	EPRE456	9.3	4.7	22.907	23.53	24.633	25.287
	Durango	5.4	L	1.5 lb ai/a	EPRE456						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
9	Trellis SC	4.17	SC	0.75 lb ai/a	FALL1345	5.3	10.0	18.200	18.80	18.933	19.487
	Durango	5.4	L	1.35 lb ai/a	FALL1345						
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
10	Trellis SC	4.17	SC	2 lb ai/a	FALL1345	6.3	8.7	20.060	20.20	20.500	21.283
	Durango	5.4	L	1.35 lb ai/a	FALL1345						
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
11	Durango	5.4	L	1.35 lb ai/a	EPRE456	4.7	10.0	21.053	21.57	22.643	22.840
	N Pak (AMS)	100	L	2.5 % v/v	EPRE456						
12	Durango	5.4	L	1.35 lb ai/a	FALL1345	8.3	7.3	19.060	19.70	20.300	21.270
	N Pak (AMS)	100	L	2.5 % v/v	FALL1345						
LSD P=.05						5.12	4.81	6.3424	6.307	6.7814	7.1269
Standard Deviation						3.02	2.84	3.7454	3.724	4.0046	4.2086
CV						44.76	45.22	19.28	18.64	19.56	19.9

Field Bindweed Control in Concord Grape - HTRC - 2016

Project Code: 132-16-1

Location: East Lansing, MI
Block 37

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Grape Variety: Concord
 Planting Method: Seedling Planting Date: 1967
 Spacing: 7 ft; 4 vines/plot 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: 5.1% pH: 7.1
 Sand: 53% Silt: 30% Clay: 17% CEC: 12.8

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPRE	4/23/16	2:30 pm	61/54	F	Wet	2-5 NE	62	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/23	GRAPE	4'	N/A	N/A
4/23	ANBG = annual bluegrass	3-6"	Veg	Many
4/23	COMA = common mallow	1-3"	Veg	Few
4/23	DAND = dandelion	3-6"	Flower	Few
4/23	LACG = large crabgrass	6-8"	Veg	Mod
4/23	MECR = mouseear cress	4-6"	Flower	Many
4/23	ORGR = orchardgrass	6-10"	Veg	Mod
4/23	SLSW = slender speedwell	2-3"	Flower	Few
4/23	WHCA = white campion	1-3"	Veg	Many
4/23	WHHA = white heath aster	1-3"	Veg	Few
4/23	WICA = wild carrot	2-4"	Veg	Many
	CABR = California brome			
	FIBW = field bindweed			
	GORO = goldenrod			
	HAFE = hard fescue			
	HOWE = horseweed			
	QUGR = quackgrass			

Notes and Comments

1. Spray applied with 2 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer. One pass on each side of row.
 2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
-

Field Bindweed Control in Concord Grape - HTRC - 2016

Field Bindweed Control in Concord Grape - HTRC - 2016					
Trial ID:	132-16-1	Location:	East Lansing, MI		
Protocol ID:	132-16-1	Investigator:	Dr. Bernard Zandstra		
Study Director:	Colin Phillippo				

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	GRAPE						
					CABR	ORGR	QUGR	COMA	FIBW		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Growth Stage	24May16 RATING	24May16 RATING	24May16 RATING	24May16 RATING	24May16 RATING	24May16 RATING
						1-10	1-10	1-10	1-10	1-10	1-10
1	Zeus Prime XC	3.5	EC	0.16 lb ai/a	EPRE	1.3	10.0	7.7	6.0	9.3	6.7
	Karmex	80	DF	3 lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE						
2	Zeus Prime XC	3.5	EC	0.16 lb ai/a	EPRE	2.3	9.3	7.3	8.7	9.0	5.7
	Alion 200	1.67	SC	0.065 lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE						
3	Trellis SC	4.17	SC	1 lb ai/a	EPRE	1.7	9.3	8.0	7.7	8.7	3.7
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE						
4	Mission	25	WG	0.063 lb ai/a	EPRE	1.7	10.0	8.0	7.3	10.0	6.3
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE						
5	Chateau SW	51	WDG	0.383 lb ai/a	EPRE	1.3	8.7	9.3	6.7	9.0	6.7
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE						
6	Zeus Prime XC	3.5	EC	0.16 lb ai/a	EPRE	2.0	8.7	7.7	7.3	9.3	4.7
	Solicam	80	DF	3.2 lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1 lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5 % v/v	EPRE						
7	Zeus Prime XC	3.5	EC	0.16 lb ai/a	EPRE	3.3	6.3	8.0	2.3	10.0	9.0
	Goal 2XL	2	EC	2 lb ai/a	EPRE						
8	Untreated					1.3	10.0	4.0	1.0	10.0	4.7
LSD P=.05						1.44	2.88	3.89	2.49	1.81	5.34
Standard Deviation						0.82	1.64	2.22	1.42	1.03	3.05
CV						43.74	18.16	29.58	24.18	10.96	51.57

Field Bindweed Control in Concord Grape - HTRC - 2016

Pest Code				HAFE	WICA	GRAPE		CABR	ORGR	QUGR		
Crop Code				24May16	24May16	14Jun16	14Jun16	14Jun16	14Jun16	14Jun16		
Rating Date				RATING	RATING	RATING	RATING	RATING	RATING	RATING		
Rating Type				1-10	1-10	1-10	1-10	1-10	1-10	1-10		
Rating Unit												
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Growth Stage						
1	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	9.0	7.3	1.0	8.3	7.0	6.0
	Karmex	80	DF	3	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
2	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	8.7	7.3	1.7	5.3	6.7	6.7
	Alion 200	1.67	SC	0.065	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
3	Trellis SC	4.17	SC	1	lb ai/a	EPRE	10.0	8.0	1.3	4.7	5.7	7.3
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
4	Mission	25	WG	0.063	lb ai/a	EPRE	10.0	9.0	1.0	8.7	7.3	7.0
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
5	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	10.0	8.0	2.0	5.3	9.3	5.7
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
6	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	8.0	7.0	1.3	7.7	9.0	6.7
	Solicam	80	DF	3.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
7	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	3.7	1.3	2.3	7.3	7.0	2.7
	Goal 2XL	2	EC	2	lb ai/a	EPRE						
8	Untreated						4.0	1.0	1.7	4.0	3.0	1.7
LSD P=.05							3.82	3.50	1.07	6.07	4.38	4.04
Standard Deviation							2.18	2.00	0.61	3.46	2.50	2.31
CV							27.58	32.65	39.72	54.0	36.35	42.31

Field Bindweed Control in Concord Grape - HTRC - 2016

Pest Code				COMA	FIBW	WHCA	WICA	GRAPE		CABR		
Crop Code				14Jun16	14Jun16	14Jun16	14Jun16	06Jul16	06Jul16			
Rating Date				RATING	RATING	RATING	RATING	RATING	RATING			
Rating 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	Rate Unit	Growth Stage						
1	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	7.0	3.3	9.0	3.3	1.3	8.0
	Karmex	80	DF	3	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
2	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	4.3	3.3	10.0	3.3	1.0	5.0
	Alion 200	1.67	SC	0.065	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
3	Trellis SC	4.17	SC	1	lb ai/a	EPRE	4.3	3.0	10.0	6.3	1.7	6.0
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
4	Mission	25	WG	0.063	lb ai/a	EPRE	10.0	5.0	10.0	9.3	1.0	10.0
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
5	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	7.0	2.7	10.0	6.3	1.7	6.3
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
6	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	7.0	4.3	4.7	6.3	1.7	10.0
	Solicam	80	DF	3.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
7	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	10.0	5.0	7.7	1.0	2.3	5.0
	Goal 2XL	2	EC	2	lb ai/a	EPRE						
8	Untreated						10.0	5.0	10.0	5.0	1.7	6.7
LSD P=.05							6.75	5.06	3.63	4.50	1.09	4.21
Standard Deviation							3.86	2.89	2.07	2.57	0.62	2.41
CV							51.71	73.06	23.27	50.09	40.35	33.78

Field Bindweed Control in Concord Grape - HTRC - 2016

Pest Code				ORGR	QUGR	COMA	FIBW	HOWE	WICA			
Crop Code				06Jul16	06Jul16	06Jul16	06Jul16	06Jul16	06Jul16			
Rating Date				RATING	RATING	RATING	RATING	RATING	RATING			
Rating 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	Rate Unit	Growth Stage						
1	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	6.7	5.0	7.0	2.3	10.0	3.0
	Karmex	80	DF	3	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
2	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	8.3	6.0	7.0	2.3	10.0	2.7
	Alion 200	1.67	SC	0.065	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
3	Trellis SC	4.17	SC	1	lb ai/a	EPRE	7.7	4.3	1.7	1.0	10.0	3.0
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
4	Mission	25	WG	0.063	lb ai/a	EPRE	7.7	5.7	10.0	5.3	4.7	10.0
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
5	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	9.3	4.7	7.0	1.7	10.0	4.0
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
6	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	8.7	4.7	7.0	3.7	10.0	4.7
	Solicam	80	DF	3.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
7	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	8.3	2.0	7.0	5.3	10.0	3.0
	Goal 2XL	2	EC	2	lb ai/a	EPRE						
8	Untreated						4.0	1.7	10.0	6.3	9.3	7.7
LSD P=.05							4.52	4.14	6.23	3.58	2.98	4.42
Standard Deviation							2.58	2.36	3.56	2.04	1.70	2.52
CV							34.0	55.57	50.21	58.36	18.41	53.08

Field Bindweed Control in Concord Grape - HTRC - 2016

Pest Code						COMA	FIBW	GORO	HOWE	WICA		
Crop Code						GRAPE						
Rating Date						25Jul16	25Jul16	25Jul16	25Jul16	25Jul16		
Rating 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	Rate Unit	Growth Stage						
1	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	1.0	7.0	2.7	7.0	10.0	3.3
	Karmex	80	DF	3	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
2	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	1.3	7.0	1.3	4.0	7.0	1.0
	Alion 200	1.67	SC	0.065	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
3	Trellis SC	4.17	SC	1	lb ai/a	EPRE	1.3	1.0	1.7	10.0	9.3	6.0
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
4	Mission	25	WG	0.063	lb ai/a	EPRE	1.7	10.0	4.0	4.7	1.7	9.0
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
5	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	2.0	7.0	3.0	5.3	10.0	4.7
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
6	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	1.7	7.0	4.3	10.0	10.0	4.0
	Solicam	80	DF	3.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
7	Zeus Prime XC	3.5	EC	0.16	lb ai/a	EPRE	2.0	4.7	4.7	5.0	6.7	2.0
	Goal 2XL	2	EC	2	lb ai/a	EPRE						
8	Untreated						1.3	7.0	5.0	6.7	8.0	4.7
LSD P=.05							1.60	7.09	3.74	7.29	4.20	4.26
Standard Deviation							0.92	4.05	2.13	4.16	2.40	2.43
CV							59.42	63.94	64.02	63.24	30.6	56.16

Preemergence Weed Control in Hops - SWMREC - 2016

Project Code:135-16-1

Location: Benton Harbor, MI

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Hops Variety: Cascade, Centennial, Willamette, Santiam
 Planting Method: Transplant Planting Date: 2013
 Spacing: 6 ft Row Spacing: 10 ft
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Spinks loamy fine sand OM: 1.2% pH: 6.5
 Sand: 91% Silt: 4% Clay: 5% CEC: 4.3

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/25/16	1:15pm	78/62	F	Damp	5-8 SW	37	30% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/25	HOPS	6-12"	Veg	Good
4/25	BLDO = broadleaf dock	6-8"	Veg	Mod.
4/25	MECW = mouseear chickweed	2-4"	Flower	Mod.
4/25	PUDN = purple deadnettle	2-4"	Flower	Few
4/25	QUGR = quackgrass	4-6"	Veg	Many
4/25	RESO = red sorrel	2-3"	Veg	Few
	DOBG = downy brome grass			
	HOAL = hoary alyssum			
	WHCA = white campion			

Notes and Comments

1. Spray applied with 2 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer. One pass on each side of row.
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
3. Preemergence experiment used the middle two rows in the 4 row yard at SWMREC.

Preemergence Weed Control in Hops - SWMREC - 2016

Preemergence Weed Control in Hops - SWMREC - 2016			
Trial ID:	135-16-1	Location:	Benton Harbor, MI
Protocol ID:	135-16-1	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

				DOBG	QUGR	HOAL	RESO	WHCA					
				HOPS						HOPS			
				09Jun16	09Jun16	09Jun16	09Jun16	09Jun16	09Jun16	07Jul16			
				RATING	RATING	RATING	RATING	RATING	RATING	RATING			
				1-10	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	Chateau SW	51	WDG	0.191	lb ai/a	PRE	2.0	7.0	2.0	8.7	10.0	10.0	1.0
2	Solicam	80	DF	4	lb ai/a	PRE	1.3	9.0	4.7	9.0	10.0	7.0	1.7
3	Surflan	4	L	4	lb ai/a	PRE	2.0	6.0	2.0	1.0	10.0	4.7	2.3
4	Prowl H2O	3.8	CS	1.9	lb ai/a	PRE	1.0	6.0	1.3	1.0	7.7	10.0	1.3
5	Outlook	6	EC	0.98	lb ai/a	PRE	2.0	3.3	1.7	1.7	4.0	4.0	1.3
6	Trellis SC	4.17	SC	1	lb ai/a	PRE	1.3	6.0	1.0	10.0	10.0	6.7	1.7
7	Alion	1.67	SC	0.085	lb ai/a	PRE	2.0	9.0	4.3	9.3	10.0	7.0	1.3
8	Untreated						2.0	6.0	3.0	3.7	4.0	7.0	1.7
LSD P=.05							1.57	6.52	4.01	2.15	4.66	7.41	1.18
Standard Deviation							0.90	3.72	2.29	1.23	2.66	4.23	0.67
CV							52.47	56.92	91.6	22.14	32.41	60.1	43.63

				QUGR	GORO	HOAL	HONE	WHCA					
				HOPS						QUGR			
				07Jul16	07Jul16	07Jul16	07Jul16	07Jul16	10Aug16	10Aug16			
				RATING	RATING	RATING	RATING	RATING	RATING	RATING			
				1-10	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	Chateau SW	51	WDG	0.191	lb ai/a	PRE	1.0	1.0	9.7	7.0	6.3	1.3	1.0
2	Solicam	80	DF	4	lb ai/a	PRE	2.0	7.0	10.0	7.0	6.3	2.3	1.0
3	Surflan	4	L	4	lb ai/a	PRE	1.7	6.3	1.0	9.3	3.0	4.0	2.0
4	Prowl H2O	3.8	CS	1.9	lb ai/a	PRE	1.0	2.7	3.0	4.0	10.0	2.3	1.7
5	Outlook	6	EC	0.98	lb ai/a	PRE	2.3	7.0	1.7	4.0	4.7	2.3	1.0
6	Trellis SC	4.17	SC	1	lb ai/a	PRE	1.0	4.0	10.0	5.7	4.7	3.7	1.0
7	Alion	1.67	SC	0.085	lb ai/a	PRE	4.0	10.0	9.7	7.0	7.0	2.7	3.3
8	Untreated						1.0	9.0	8.0	2.0	7.0	3.7	1.3
LSD P=.05							2.81	5.89	2.18	8.27	7.47	2.32	2.14
Standard Deviation							1.61	3.37	1.25	4.72	4.27	1.33	1.22
CV							91.74	57.29	18.81	82.14	69.67	47.47	79.29

Preemergence Weed Control in Hops - SWMREC - 2016

Pest Code					COLQ	HOAL	HONE	HOWE	WHCA		
Crop Code											
Rating Date					10Aug16	10Aug16	10Aug16	10Aug16	10Aug16		
Rating 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	Growth Unit	Stage					
1	Chateau SW	51	WDG	0.191 lb ai/a	PRE		7.0	8.3	7.0	8.7	5.3
2	Solicam	80	DF	4 lb ai/a	PRE		10.0	10.0	5.7	4.0	4.3
3	Surflan	4	L	4 lb ai/a	PRE		7.3	4.3	4.3	7.0	2.3
4	Prowl H20	3.8	CS	1.9 lb ai/a	PRE		6.3	1.0	4.0	6.3	10.0
5	Outlook	6	EC	0.98 lb ai/a	PRE		9.0	1.0	4.7	1.3	7.0
6	Trellis SC	4.17	SC	1 lb ai/a	PRE		10.0	10.0	4.0	6.7	7.0
7	Alion	1.67	SC	0.085 lb ai/a	PRE		7.0	7.3	7.3	7.0	7.0
8	Untreated						9.3	4.0	1.3	4.3	7.0
LSD P=.05							4.98	5.67	8.50	5.63	7.43
Standard Deviation							2.84	3.24	4.86	3.22	4.24
CV							34.44	56.31	101.32	56.74	67.85

Postemergence Weed Control in Hops - SWMREC - 2016

Project Code: 135-16-2

Location: Benton Harbor, MI

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Hops Variety: Cascade
 Planting Method: Transplant Planting Date: 5/26/16
 Spacing: 6 feet Row Spacing: 10 feet
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Spinks loamy fine sand OM: 1.2% pH: 6.5
 Sand: 91% Silt: 4% Clay: 5% CEC: 4.3

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	7/13/16	2:00 pm	86/79	F	Dry	5-7 SE	52	75% Cloudy	N
PO2	8/18/16	11:00 am	73/70	F	Dry	2-3 SW	87	100% Cloudy	Y

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
7/13	HOPS	~2'		Good
7/13	COLQ = common lambsquarters	12-30"	Veg	Mod.
7/13	HONE = horsenettle	10-16"	Flower	Mod.
7/13	QUGR = quackgrass	10-16"	Veg	Many
7/13	RESO = red sorrel	2-4"	Veg	Many
7/13	SHPU = sheperdspurse	6-12"	Flower	Mod.
8/18	COLQ = common lambsquarters	1-4'	Seed	Many
8/18	HOAL = hoary alyssum	15-24"	Flower	Mod
8/18	HONE = horsenettle	12-16"	Flower & seed	Many
8/18	HOWE = horseweed	4-6'	Seed	Mod
8/18	LACG = large crabgrass	12-18"	Seed	Many
8/18	RESO = red sorrel	3-6"	Veg	Many

Notes and Comments

1. Spray applied with 2 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer. One pass on each side of the row.
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
3. Postemergence experiment used the outside 2 rows.

Postemergence Weed Control in Hops - SWMREC - 2016

Postemergence Weed Control in Hops - 2016					
Trial ID:	135-16-2	Location:	Benton Harbor, MI		
Protocol ID:	135-16-2	Investigator:	Dr. Bernard Zandstra		
Study Director:	Colin Phillippo				

						LACG	COLQ	HOAL	HONE	RESO	
						HOPS					
						10Aug16	10Aug16	10Aug16	10Aug16	10Aug16	10Aug16
						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	Growth Unit Stage						
1	Aim	2	EC	0.032 lb ai/a	PO1	4.0	3.0	4.3	4.0	4.0	4.0
2	Gramoxone SL	2	SL	1 lb ai/a	PO1	1.7	2.3	5.3	9.0	4.0	10.0
3	Reglone	2	L	1 lb ai/a	PO1	1.3	1.3	4.3	7.0	9.3	9.7
4	Scythe	4.2	EC	40 lb ai/a	PO1	2.3	2.0	3.0	1.3	7.0	6.3
5	Aim	2	EC	0.032 lb ai/a	PO1	1.7	3.3	1.7	1.3	4.7	4.7
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
6	Stinger	3	L	0.125 lb ai/a	PO1	3.3	1.7	5.3	3.3	5.3	10.0
7	Rely 280	2.34	L	0.5 lb ai/a	PO1	1.3	2.0	4.0	1.0	3.7	5.7
8	Untreated					3.7	3.0	1.7	4.0	4.0	4.3
LSD P=.05						2.50	3.44	5.72	6.08	8.09	5.57
Standard Deviation						1.43	1.97	3.27	3.47	4.62	3.18
CV						59.13	84.23	88.1	89.6	88.01	46.57

						LACG	COLQ	HOAL	HONE	RESO	
						HOPS					
						26Aug16	26Aug16	26Aug16	26Aug16	26Aug16	26Aug16
						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	Growth Unit Stage						
1	Aim	2	EC	0.032 lb ai/a	PO1	2.0	1.3	3.7	1.0	2.5	4.5
2	Gramoxone SL	2	SL	1 lb ai/a	PO1	3.7	8.7	7.7	10.0	5.5	9.0
3	Reglone	2	L	1 lb ai/a	PO1	2.7	6.7	6.0	10.0		5.0
4	Scythe	4.2	EC	40 lb ai/a	PO1	1.7	5.3	6.3	4.0	4.0	3.0
5	Aim	2	EC	0.032 lb ai/a	PO1	1.7	6.3	7.7	10.0	3.0	4.0
	Select Max	0.97	EC	0.12 lb ai/a	PO1						
6	Stinger	3	L	0.125 lb ai/a	PO1	1.3	1.0	1.3	1.0	2.5	10.0
7	Rely 280	2.34	L	0.5 lb ai/a	PO1	1.7	7.3	5.3	7.0	5.0	8.3
8	Untreated					1.7	1.0	1.0	1.0	1.0	1.0
LSD P=.05						1.85	2.45	4.24	4.26	3.81	2.44
Standard Deviation						1.06	1.40	2.41	2.13	1.68	1.32
CV						51.68	29.72	49.32	38.75	50.03	23.53

Postemergence Weed Control in 3 Year Canaan Fir - Wahmhoff - 2016

Project Code: XMAS-16-1

Location: Gobles, MI

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Fir Variety: Canaan Fir
 Planting Method: Transplant Planting Date: 2014
 Spacing: 5 ft Row Spacing: 6 ft; 6-7 plants/row
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 5.3 ft wide x 35 ft long

Soil Type: Spinks-Oshtemo sandy loam OM: 1.6% pH: 4.8
 Sand: 79% Silt: 14% Clay: 7% CEC: 4.6

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	5/27/16	1:30 pm	78/55	F	Dry	3-4 SW	65	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/27	CANAAN FIR	18-24"	Post Bud Break	Good
5/27	FIPA = field pansy	6-10"	Flower	Many
5/27	HOWE = horseweed	2-4"	Foliar	Many
5/27	VIPW = Virginia pepperweed	12-14"	Flower	Mod
	CAWE = carpetweed			
	YEHW = yellow hawkweed			

Notes and Comments

1. Spray applied with 2 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer. One pass on each side of the row.
 2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
-

Postemergence Weed Control in 3 Year Canaan Fir - Wahmhoff - 2016

Postemergence Weed Control in 3 Year Canaan Fir - Wahmhoff - 2016					
Trial ID:	XMAS-16-1	Location:	Gobles, MI		
Protocol ID:	XMAS-16-1	Investigator:	Dr. Bernard Zandstra		
Study Director:	Colin Phillippo				

						YEHW	HOWE	VIPW	FIPA			
						CAN FIR				CAN FIR		
						23Jun16	23Jun16	23Jun16	23Jun16	23Jun16	27Jul16	
						RATING	RATING	RATING	RATING	RATING	RATING	
						1-10	1-10	1-10	1-10	1-10	1-10	
Trt	Treatment	Form	Form	Rate	Growth							
No.	Name	Conc	Type	Rate	Unit	Stage						
1	AAtrex	4	L	1 lb ai/a	PO1	1.0	2.7	3.0	7.7	1.0	1.0	
2	Lorox	50	DF	1 lb ai/a	PO1	1.3	5.3	1.0	8.3	10.0	1.3	
3	Stinger	3	L	0.125 lb ai/a	PO1	1.3	6.0	9.7	2.3	4.0	1.3	
4	Stinger	3	L	0.25 lb ai/a	PO1	2.0	9.7	9.0	1.0	2.3	1.7	
5	Roundup Original	4	L	1 lb ai/a	PO1	1.3	10.0	10.0	10.0	10.0	1.3	
6	GoalTender	4	SC	1 lb ai/a	PO1	2.0	2.3	1.7	7.0	10.0	1.7	
7	Asulox	3.34	SL	3.34 lb ai/a	PO1	2.7	4.7	10.0	8.7	2.3	3.3	
8	Mission	25	WG	0.033 lb ai/a	PO1	1.0	9.7	4.3	9.3	9.0	1.0	
9	Fusilade DX	2	EC	0.25 lb ai/a	PO1	3.3	1.0	1.0	3.0	1.3	1.0	
10	Untreated					1.0	1.0	1.7	2.7	4.0	1.3	
LSD P=.05						1.86	2.94	1.68	4.07	4.09	0.93	
Standard Deviation						1.08	1.71	0.98	2.37	2.38	0.54	
CV						63.74	32.71	19.04	39.52	44.13	36.06	

						HOWE	VIPW	CAWE	CAN FIR		HOWE	
						27Jul16	27Jul16	27Jul16	18Aug16	18Aug16		
						RATING	RATING	RATING	RATING	RATING	RATING	
						1-10	1-10	1-10	1-10	1-10	1-10	
Trt	Treatment	Form	Form	Rate	Growth							
No.	Name	Conc	Type	Rate	Unit	Stage						
1	AAtrex	4	L	1 lb ai/a	PO1	3.3	7.7	10.0	1.7	1.0		
2	Lorox	50	DF	1 lb ai/a	PO1	1.0	9.0	10.0	1.3	1.0		
3	Stinger	3	L	0.125 lb ai/a	PO1	9.0	2.7	9.0	1.0	9.3		
4	Stinger	3	L	0.25 lb ai/a	PO1	10.0	1.0	9.0	1.7	10.0		
5	Roundup Original	4	L	1 lb ai/a	PO1	10.0	10.0	7.3	1.3	9.7		
6	GoalTender	4	SC	1 lb ai/a	PO1	2.0	6.3	9.3	2.0	1.7		
7	Asulox	3.34	SL	3.34 lb ai/a	PO1	9.3	6.0	6.7	2.7	10.0		
8	Mission	25	WG	0.033 lb ai/a	PO1	6.0	10.0	10.0	1.0	4.0		
9	Fusilade DX	2	EC	0.25 lb ai/a	PO1	4.0	3.3	10.0	1.7	1.7		
10	Untreated					5.7	4.3	10.0	1.3	3.3		
LSD P=.05						3.62	5.26	3.93	1.17	2.57		
Standard Deviation						2.11	3.07	2.29	0.68	1.50		
CV						35.02	50.83	25.09	43.6	28.95		

Resistant Horseweed and Common Ragweed Control in Christmas Trees - Mathisen - 2016

Project Code: XMAS-16-2

Location: Greenville, MI

Personnel: Bernard H. Zandstra, Colin Phillippo
 Crop: Christmas Tree Variety: Fraser Fir
 Planting Method: Transplant Planting Date:
 Spacing: 60 in Row Spacing: 60 in
 Tillage Type: Conventional Study Design: RCB Replications: 3
 Plot Size: 5.5 ft wide x 35 ft long

Soil Type: McBride Sandy loam OM: 1.4% pH: 4.7
 Sand: 78% Silt: 14% Clay: 8% CEC: 3.5

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/2/16	2:00 pm	78/72	F	Dry	3-6 NW	35	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/2	FRASIER FIR	6-8'	1" buds	Good
6/2	COMW = common milkweed	18-24"	Foliar	Few
6/2	CORW = common ragweed	1-6"	Foliar	Mod
6/2	HOWE = horseweed	2-6"	Foliar	Mod
	WICA = wild carrot			

Notes and Comments

1. Spray applied with 2 nozzle boom. FF8002, 20 gpa, 30 psi, 3.2 mph, CO2 backpack sprayer. One pass on each side of row.
 2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
 3. PO1 = after bud break.
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Resistant Horseweed and Common Ragweed Control in Christmas Trees - Mathisen - 2016

Resistant Horseweed and Common Ragweed Control in Christmas Trees - Mathisen - 2016

Trial ID: XMAS-16-2	Location: Greenville, MI
Protocol ID: XMAS-16-2	Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo	

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	COMW		CORW		HOWE		CORW	
					FRAS FIR		FRAS FIR		FRAS FIR		FRAS FIR	
					01Jul16	01Jul16	01Jul16	01Jul16	26Jul16	26Jul16	26Jul16	26Jul16
					RATING	RATING	RATING	RATING	RATING	RATING	RATING	RATING
					1-10	1-10	1-10	1-10	1-10	1-10	1-10	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Unit	Growth Stage						
1	Stinger	3 L		0.125 lb ai/a	PO1		1.0	6.7	2.0	10.0	1.0	1.0
2	Stinger	3 L		0.25 lb ai/a	PO1		1.0	3.3	1.7	7.0	1.0	1.7
3	AAtrex	4 L		1 lb ai/a	PO1		1.7	2.7	6.7	7.3	1.0	4.7
4	Roundup Original	4 L		1 lb ai/a	PO1		1.0	7.7	10.0	9.7	1.3	9.7
5	GoalTender	4 SC		1 lb ai/a	PO1		1.0	2.0	6.7	2.3	1.0	6.3
6	Mission	25 WG		0.033 lb ai/a	PO1		1.0	3.7	5.3	5.0	1.3	4.7
7	Sandea	75 WG		0.047 lb ai/a	PO1		1.3	3.3	2.0	4.3	1.3	2.7
8	Velpar	2 L		1 lb ai/a	PO1		2.3	4.7	10.0	10.0	2.3	10.0
9	Untreated						1.0	1.7	1.3	4.3	1.0	1.7
LSD P=.05							0.60	3.86	3.87	4.62	0.70	3.35
Standard Deviation							0.35	2.23	2.24	2.67	0.40	1.94
CV							27.55	56.24	44.05	40.0	31.97	41.14

Pest Code	Crop Code	Rating Date	Rating Type	Rating Unit	HOWE		WICA					
					26Jul16		26Jul16					
					RATING		RATING					
					1-10		1-10					
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Form Unit	Growth Stage						
1	Stinger	3 L		0.125 lb ai/a	PO1		10.0	10.0				
2	Stinger	3 L		0.25 lb ai/a	PO1		7.3	9.3				
3	AAtrex	4 L		1 lb ai/a	PO1		6.0	7.0				
4	Roundup Original	4 L		1 lb ai/a	PO1		9.3	9.0				
5	GoalTender	4 SC		1 lb ai/a	PO1		4.0	8.0				
6	Mission	25 WG		0.033 lb ai/a	PO1		4.0	10.0				
7	Sandea	75 WG		0.047 lb ai/a	PO1		4.0	9.3				
8	Velpar	2 L		1 lb ai/a	PO1		10.0	10.0				
9	Untreated						3.3	9.3				
LSD P=.05							4.70	2.02				
Standard Deviation							2.71	1.17				
CV							42.1	12.8				