HORTICULTURAL REPORT

2017 WEED CONTROL RESEARCH ON FRUIT & VEGETABLE CROPS

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By

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WEED CONTROL IN HORTICULTURAL CROPS – 2017
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.

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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.

Abbr.	Common Name	Botanical Name
ALFA	alfalfa	*Medicago sativa* L.
ANBG	annual bluegrass	*Poa annua* L.
ANFB	annual fleabane	*Erigeron annuus (*L.*) Pers.*
ATRI	Atriplex	*Atriplex patula L. (Gray)*
BABR	bald brome (upright brome)	*Bromus racemosus* L.
BEGR	Bermudagrass	*Cynodon dactylon* L. *Pers.*
BFTF	birdsfoot trefoil	*Lotus corniculatus* L.
BHPL	buckhorn plantain	*Plantago lanceolata* L.
BLDO	broadleaf dock	*Rumex obtusifolius* L.
BLME	black medic	*Medicago lupulina* L.
BRFB	British fleabane	*Inula britannica* L.
BRPL	broadleaf plantain	*Plantago major* L.
BSPL	blackseed plantain	*Plantago rugelii* Dcne.
BYGR	barnyardgrass	*Echinochloa crus-galli* (L.) Beauv.
CABG	Canada bluegrass	*Poa compressa* L.
CABR	California brome	*Bromus carinatus* L.
CAGE	Carolina geranium	*Geranium carolinianam L.*
CATH	Canada thistle	*Cirsium arvense* (L.) Scop.
CAWE	carpetweed	*Mollugo verticillata* L.
CEPR	common evening primrose	*Oenothera biennis* L.
CLGC	clammy groundcherry	*Physalis heterophylla* Nees.
COBD	common burdock	*Arctium minus (Hill) Bernh.*
COBU	cocklebur	*Xanthium strumarium* L.
COCW	common chickweed	*Stellaria media* (L.) Cyrillo
COGR	common groundsel	*Senecio vulgaris* L.
COLQ	common lambsquarters	*Chenopodium album* L.
COMA	common mallow	*Malva neglecta Wallr.*
COMU	common mullein	*Verbascum Thapsus* L.
COMW	common milkweed	*Asclepias syriaca* L.
COPU	common purslane	*Portulaca oleracea* L.
COPW	common pokeweed	*Phytolacca americana* L.
CORW	common ragweed	*Ambrosia artemisiifolia* L.
CRWS	creeping woodsorrel	*Oxalis corniculata* L.
CUDO	curly dock	*Rumex crispus* L.
CWBS	catchweed bedstraw	*Galium aparine* L.
DAND	dandelion	*Taraxacum officinale* Weber
DOBG	downy bromegrass	*Bromus tectorum* L.
EBNS	eastern black nightshade	*Solanum ptycanthum* Dun.
FAPA	fall panicum	*Panicum dichotomiflorum* Michx.
FIBW	field bindweed	*Convolvulus arvensis* L.
FIPA	field pansy	*Viola rafinesquii* Greene
FIPC	field pennycress	*Thlaspi arvense* L.
FISB	field sandbur	*Cenchrus incertus* M.A.Curtis
FIVI	field violet	*Viola arvensis* Murray
GALI	galinsoga	*Galinsoga quadriradiata* Ruiz & Pav.

WEED LIST

Abbr.	Common Name	Botanical Name
GIRW	giant ragweed	*Ambrosia trifida* L.
GOGR	goosegrass	*Eleusine indica* (L.) Gaertn.
GORO	goldenrod	*Solidago nemoralis* Ait.
GIFT	giant foxtail	*Setaria faberi* Hermm.
GRFT	green foxtail	*Setaria viridis* (L.) Beauv.
GFPW	greenflower pepperweed	*Lepidium densiflorum* Schmd.
HABC	hairy bittercress	*Cardamine hirsute* L.
HAFE	hard fescue	*Festuca brevipila* Tracey
HANS	hairy nightshade	*Solanum sarrachoides* Sendtner
HAVE	hairy vetch	*Vicia villosa* Roth
HEBW	hedge bindweed	*Calystegia sepium* (L.) R. Br.
HENB	henbit	*Lamium amplexicaule* L.
HEMU	hedge mustard	*Sisymbrium officinale (L.) Scop.*
HOAL	hoary alyssum	*Berteroa incana* (L.) DC.
HONE	horsenettle	*Solanum carolinense* L.
HOWE	horseweed (marestail)	*Conyza canadensis* (L.) Scop.
IRFB	Irish fleabane	*Inula salicina* L.
JABR	Japanese brome	*Bromus japonicas* L.
JIWE	jimsonweed	*Datura stramonium* L.
LACG	large crabgrass	*Digitaria sanguinalis* (L.) Scop
LATH	ladysthumb	*Polygonum persicaria* L.
MAYC	marsh yellowcress	*Rorippa islandica* (Oeder) Barbs
MECW	mouseear chickweed	*Cerastium vulgatum* L.
MECR	mouseear cress	Arabidopsis thaliana (L.) Heynh
MONO	monolepis	*Monolepis nuttaliane* Greene
MUTH	musk thistle	*Carduus nutans* L.
MWCH	mayweed chamomile	*Anthemis cotula* L.
NIMB	nimblewill	*Muhlenbergia schreberi* J.F. Gmel.
NLLQ	narrowleaf lambsquarters	*Chenopodium desiccatum* A. Nels
OEDA	oxeye daisy	*Chrysanthemum leucanthemum* L.
ORGR	orchardgrass	*Dactylis glomerata* L.
PAWE	pineappleweed	*Matricaria matricariodes* (Less)C.L.Porter
PEST	perennial sowthistle	*Sonchus arvensis L.*
PESW	Pennsylvania smartweed	*Polygonum pennsylvanicum* L.
PERG	perennial ryegrass	*Lolium perenne* L.
POAM	Powell amaranth	*Amaranthus powellii S. Wats*
POIV	poison ivy	*Rhus radicans* L.
PRKW	prostrate knotweed	*Polygonum aviculare* L.
PRLE	prickly lettuce	*Lactuca serriola* L.
PRPW	prostrate pigweed	*Amaranthus blitoides* S. Wats.
PUDN	purple deadnettle	*Lamium purpureum* L.
PUSW	purslane speedwell	*Veronica serpyllifolia* L.
PUVI	puncturevine	*Tribulus terrestris* L.
QUGR	quackgrass	*Agropyron repens* (L.) Beauv.
RECL	red clover	*Trifolium pratense* L.
REFE	red fescue	*Festuca rubra* L.
RESO	red sorrel	*Rumex acetosella* L.
ROCI	rough cinquefoil	*Potentilla norvegica L.*
ROFB	rough fleabane	*Erigeron asper* Nutt.
RRPW	redroot pigweed	*Amaranthus retroflexus* L.

WEED LIST

Abbr.	Common Name	Botanical Name
RSFI	redstem filaree	*Erodium cicutarium* (L.) L'Hér. ex Ait.
RUTH	Russian thistle	*Salsola iberica* L.
SFGE	smallflower geranium	*Geranium pusillum* L.
SHPU	shepherdspurse	*Capsella bursa-pastoris* (L.) Medic.
SLSW	slender speedwell	*Veronica filiformis* Sm.
SMGC	smooth groundcherry	*Physalis subglabrata Mackenzt Bush*
SPKW	spotted knapweed	*Centaurea stoebe* L.
SPSP	spotted spurge	*Euphorbia maculata* L.
STGR	stinkgrass	*Eragrostis cilianensis* (All.) E. Mosher
SWSW	swamp smartweed	*Polygonum coccineum* Muhl. ex Willd.
TAFE	tall fescue	*Festuca arundinacea* Schreb.
TLSW	thymeleaf sandwort	*Arenaria serpyllifolia* L.
TRCV	trailing crownvetch	*Coronilla caria L.*
TUPW	tumble pigweed	*Amaranthus albus* L.
VELE	velvetleaf	*Abutilon theophrasti* Medic.
VICR	Virginia creeper	*Parthenocissus quinquefolia* (L.) Planch.
VIPW	Virginia pepperweed	*Lepidium virginicum* L.
VOAS	volunteer asparagus	*Asparagus officinalis* L.
WESA	western salsify	*Tragopogon dubius* Scop.
WHCA	white campion	*Silene latifolia Poir.*
WHCL	white clover	*Trifolium repens* L.
WHHA	white heath aster	*Symphyotrichum ericoides* L.
WIBW	wild buckwheat	*Polygonum convolvulus* L.
WICA	wild carrot	*Daucus carota* L.
WICH	wild chamomile	*Matricaria chamomilla* L.
WIGA	wild garlic	*Allium vineale* L.
WIGR	witchgrass	*Panicum capillare* L.
WIMU	wild mustard	*Sinapis arvensis* L.
WIRA	wild radish	*Raphanus raphanistrum* L.
WLDGRP	wild grape	*Vitis* sp.
WLDRASP	wild raspberry	*Rubus* sp.
YEFC	yellow fieldcress (kiek)	*Rorippa sylvestris* L.
YEFT	yellow foxtail	*Setaria glauca* (L.) Beauv.
YEHW	yellow hawkweed	*Hieracium caespitosum Dumort.*
YENS	yellow nutsedge	*Cyperus esculentus* L.
YERO	yellow rocket	*Barbarea vulgaris* R. Br.

CHEMICAL LIST

COMMON NAME	TRADE NAME	FORMULATION	MANUFACTURER
2,4-D amine	Weedar 64	3.8 L	Nufarm, Inc.
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	Moxy	2 EC	Winfield Solutions
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

COMMON NAME	TRADE NAME	FORMULATION	MANUFACTURER
flumioxazin	Sureguard	51 WDG	Valent
fluthiacet	Cadet	0.91 EC	FMC
fluthiacet + mesotrione	Solstice	4L	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	Arysta
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

CHEMICAL LIST

COMMON NAME	TRADE NAME	FORMULATION	MANUFACTURER
phenmedipham 0.6 lb ai + desmedipham 0.6 lb ai	Betamix	1.3 L	Bayer CropScience
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	4.30 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	Solida	25 DF	FMC
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 + metribuzin	F4242	4 L	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

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

TEMPERATURE AND PRECIPITATION DATA

MSU Horticulture Teaching and Research Center

Recorded at
MSU Horticulture Teaching and Research Center (HTRC)
East Lansing, Michigan
2017

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	56.4	32.2		**1**	65.2	43	0.25	**1**	73.5	45.8	
2	59	29.8		**2**	49.6	39.6	0.19	**2**	79.9	43.3	
3	52.2	45.8	0.54	**3**	58.5	33.5		**3**	82.1	47.9	
4	55.6	41.9	0.38	**4**	49.2	42.1	0.34	**4**	85.7	60.2	0.06
5	44.8	34.3	0.55	**5**	54.8	41.2		**5**	70.3	50.8	
6	38.9	31.8	1.12	**6**	60.1	36.9		**6**	73	46.9	
7	52.4	32	0.03	**7**	55.1	34.2		**7**	75	49.7	
8	60.7	27.1		**8**	57.8	29.2		**8**	79.3	44	
9	73.6	47.8		**9**	64.6	27.4		**9**	82.3	52.8	0.02
10	74.5	55.9		**10**	68.6	43.7	0.02	**10**	86.1	54	
11	58.5	42.4		**11**	65.3	45.3	0.16	**11**	88.8	68.7	
12	57.8	41.4		**12**	67.5	37.9		**12**	90.4	64	
13	48.9	42.6		**13**	72	42.7		**13**	87.2	66.6	
14	63.6	41.7		**14**	69.4	49		**14**	86.8	65.8	0.15
15	80.6	47.4	0.18	**15**	73.5	38.6		**15**	85.7	64.9	
16	70.4	53.3		**16**	85.3	51	0.05	**16**	81.6	59.7	0.03
17	66.6	37.6		**17**	84.2	67.4		**17**	86.2	60.6	1.02
18	68.1	37.8		**18**	84	54.4		**18**	79.7	61.8	0.06
19	71.4	53.8	0.11	**19**	55	41.3		**19**	75.2	55.3	
20	68.7	47	1.03	**20**	63.7	44	0.15	**20**	75.5	50.8	0.04
21	53.1	43.4		**21**	72.5	52.2	0.84	**21**	76.6	46.2	
22	58.8	35.2		**22**	67.9	49		**22**	88.2	55.9	1.14
23	68.6	32.2		**23**	64.9	55.6	0.02	**23**	76.1	58.5	0.51
24	70.8	37.8		**24**	66.8	52	0.53	**24**	74.2	58.2	
25	73	50.5		**25**	62.3	55	0.04	**25**	69.2	51.4	
26	81.4	56.8	0.06	**26**	69.4	54		**26**	68.9	50	0.02
27	67.8	47.2		**27**	75.3	53.3		**27**	72.4	47	
28	64	43.8		**28**	78.9	54.6		**28**	76.7	66	
29	55.7	43.8	0.04	**29**	76.9	51.5		**29**	84.3	62	0.1
30	51.8	38.3	1.18	**30**	70.2	49.6		**30**	83.4	65.5	0.14
				31	68.5	45.8					

TEMPERATURE AND PRECIPITATION DATA

MSU Horticulture Teaching and Research Center

Recorded at
MSU Horticulture Teaching and Research Center (HTRC)
East Lansing, Michigan
2017

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	82.1	60.7		**1**	86.7	54		**1**	67.7	42.8	
2	82.1	58.5	0.01	**2**	86.1	62.3	0.06	**2**	76.4	43.4	
3	79.6	60.4		**3**	84.8	57.8	0.1	**3**	78.9	53.8	
4	83	52.7		**4**	67.7	57.9	0.21	**4**	83.9	52.1	
5	85.5	53.6		**5**	75.5	52.4		**5**	69.4	49.2	0.19
6	90.8	55.3		**6**	77.4	51.8	0.01	**6**	65.3	40.3	
7	85.1	64	1.54	**7**	76.4	53.1	0.03	**7**	64	44.3	0.37
8	77.2	59.6		**8**	81.9	47.2		**8**	67	46.2	
9	81.2	50.3		**9**	83.5	51.9		**9**	66.1	36.8	
10	76.9	65.2	0.25	**10**	83.7	54.7		**10**	69	37.1	
11	87.7	63.8	0.11	**11**	80.4	62.1	0.15	**11**	73.9	40.7	0.01
12	83	68	0.27	**12**	76	57.7	0.01	**12**	77.1	41.3	
13	81.5	69.2	0.34	**13**	79.9	50.8		**13**	76.7	55.7	
14	78.4	63		**14**	82.2	59.5		**14**	77.9	49.8	
15				**15**	81.7	58.5	0.31	**15**	80.6	52.4	
16				**16**	85.7	58.5		**16**	84.3	53.2	
17				**17**	83.7	67.3	0.2	**17**	86.5	58	0.01
18	87.2	55.9		**18**	74.1	61	0.08	**18**	76.4	60.6	
19	88.6	62.3		**19**	78.9	59.5		**19**	70.8	55.1	0.07
20	85.5	67.7		**20**	84.7	52.2		**20**	85.2	65.3	
21	87.1	62.3		**21**	87.3	61.9	0.03	**21**	93.2	66.2	0.46
22	83.5	67.7	0.13	**22**	77.6	57.8	0.09	**22**	92.7	63.1	
23	85	65.2		**23**	73.5	53.8		**23**	93	61.1	
24	75.7	55.9		**24**	65.3	44.8		**24**	90.5	57.9	
25	79.5	48.2		**25**	71.3	42		**25**	89.6	61	
26	82.1	55.3		**26**	74.8	43.3		**26**	91	59.3	
27	82.9	65.6		**27**	75.3	54.6		**27**	73	55.1	0.16
28	78.1	56		**28**	69.5	54.7	0.08	**28**	68.6	45.6	
29	81	49.1		**29**	77.6	52.9		**29**	67	48.7	0.02
30	85.7	51.7		**30**	81	54.7	0.01	**30**	64	39.6	
31	86	53		**31**	71.2	50.9					

TEMPERATURE AND PRECIPITATION DATA

MSU Clarksville Research Center

Recorded at
MSU Clarksville Research Center (Clarksville)
Clarksville, Michigan
2017

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	57.6	28.4		**1**	60.9	39.9	0.39	**1**	73.2	43.7	
2	58.2	30.9	0.01	**2**	45.4	37.9	0.18	**2**			
3	50.7	43.6	0.33	**3**	59.5	32.8		**3**	79.4	52.3	
4	47.4	36.9	0.28	**4**	46.4	41.1	0.03	**4**	83.1	60.6	0.29
5	41.2	34	0.3	**5**	61.5	36.8		**5**	75.6	50.3	
6	38.2	30.7	2.13	**6**	60.4	36.8	0.01	**6**	76.3	46.7	
7	53.7	30.6	0.01	**7**	52.6	32		**7**	78.2	47.3	
8	62	27.3		**8**	56.6	26.9		**8**	79.4	50.1	
9	74.2	48.8		**9**	64.8	27.7		**9**	82.8	57.8	
10	74.2	51.9	1.14	**10**	69.4	42.3		**10**	86.8	56.4	
11	52.4	40.2	0.01	**11**	69	44.4		**11**	89.5	68.8	
12	57.5	38.9	0.03	**12**	71.1	39.3		**12**	91.9	68.3	
13	46.4	41.2	0.03	**13**	72.5	41.3		**13**	90.8	68.2	
14	63.2	37.9		**14**	73	49.2		**14**	89	64.2	0.24
15	79.4	47	0.1	**15**				**15**	85	65.1	
16	69.4	51.7		**16**	86.4	53.1		**16**	80.2	62.8	0.4
17	65.2	40.7		**17**	84.8	66.7		**17**	82.5	63.9	0.55
18	69.3	36.4		**18**	76.9	47.4		**18**	74	63.5	2.01
19	68.6	51.5	0.02	**19**	53.7	39.4		**19**	72.4	56.7	
20	65	44.4	0.98	**20**	62.2	44.5		**20**	71.5	54.8	0.06
21	49.4	38.2		**21**	68.2	49.1		**21**	75.2	50.2	
22	62.6	33.4		**22**	65.1	46.9		**22**	86.3	59.9	0.69
23	68.3	35		**23**	65.1	54.1		**23**	76.2	64.5	1.03
24	69.9	37.4		**24**	69.4	53		**24**	70.1	57.1	
25	72.3	46.1		**25**	65	53		**25**	66.5	51.8	
26	79.8	56.1		**26**	72.2	48.8		**26**	66.4	49.6	
27	65.1	42.6		**27**	77.5	53.8		**27**	70.5	46.4	
28	59.9	41.6		**28**	77	56.6		**28**	73.3	53.1	0.08
29	54.6	39.1	0.22	**29**	74	51.9		**29**	78.9	60.5	0.36
30	41.7	37	1.12	**30**	68.1	48.8		**30**	79.6	63.6	
				31	63.8	53.7					

TEMPERATURE AND PRECIPITATION DATA

MSU Clarksville Research Center

Recorded at
MSU Clarksville Research Center (Clarksville)
Clarksville, Michigan
2017

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	78.7	64.3		**1**	83.1	55.5		**1**	69.5	40.9	
2	77.4	58.7	0.02	**2**	85.4	61		**2**	76.4	40.9	
3	80.2	60.3		**3**	82	60.8	0.89	**3**	77	50.5	
4	83.6	56.3		**4**	66.1	56.3	0.43	**4**	78.4	53.9	
5	84.7	57.4		**5**	74.4	50.8		**5**	67.3	45.4	
6	87.2	62		**6**	76.2	54.9	0.14	**6**	64.1	38.5	
7	82	61.3	0.94	**7**	74.8	57.5	0.45	**7**	62.5	42.6	
8	75.1	56.1		**8**	79.8	51.2		**8**	69.1	45.7	
9	78.5	53.7		**9**	80.6	57.4		**9**	69.3	38.8	
10	77.6	65.4	0.26	**10**	81.8	56.6		**10**	70	40.6	
11	86.9	62		**11**	77.6	59.8	0.15	**11**	73.8	40.9	
12	81	67.1	0.3	**12**	74.8	57.4		**12**	82.5	44	
13	79.1	65.2	0.71	**13**	79.1	51.4		**13**	78.6	47.7	
14	74	60.9		**14**	79.4	60.8		**14**	78.5	51.7	
15	77.4	53.3		**15**	83.2	60.9	0.01	**15**	82.8	52.7	
16	79.4	61.6		**16**	86.9	58.7		**16**	84.6	55	
17	81.4	56		**17**	80.8	64.9	0.35	**17**	87.7	60	
18	83.1	58.8		**18**	70.5	60.1		**18**	80.7	52.2	
19	87.2	63.2		**19**	78.7	56.9		**19**	75.2	56.4	
20	82.9	67.3		**20**	83.2	53.4		**20**	86.5	64.4	
21	85	61.3		**21**	83.2	64.8		**21**	92.7	65.1	
22	80.5	67.7	0.03	**22**	75.5	56.4	0.55	**22**	93.6	63.1	
23	82.3	64.5	0.01	**23**	72.4	52.7		**23**	95.8	66.1	
24	79.2	58.6		**24**	67.2	46.7		**24**	92.6	60.7	
25	81.1	53.3		**25**	73.5	44.3		**25**	89.1	62.1	
26	81	60.3		**26**	76.2	45.7		**26**	90.1	60	
27	84.4	65.8		**27**	74.8	54.6	0.01	**27**	70.9	52.5	
28	79.7	55.5		**28**	70.5	55.9		**28**	69	46.3	
29	84.4	51.1		**29**	78.8	54.1		**29**	68.4	47.3	
30	84.2	52.9		**30**	77.6	52		**30**	66.7	37.7	
31	84.3	53.7		**31**	74.2	51			69.5	40.9	

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
2017

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	52.8	32.3		**1**	74.7	47.2	0.48	**1**	73.7	45.2	
2	67	32		**2**	47.7	42.7	0.04	**2**	81.1	46.2	
3	57.1	50.8	0.41	**3**	66.4	32.5		**3**	79.1	54.9	
4	59	39.5	0.02	**4**	49.2	45.5	0.16	**4**	85.7	63.1	0.06
5	47.8	37	0.47	**5**	52.3	41		**5**	78.2	56	
6	41	36.2	0.84	**6**	52	41.7		**6**	71	48.6	
7	44	31.6		**7**	49.8	37.3		**7**	75.3	49.3	
8	69.6	29.4		**8**				**8**	77.2	46.8	
9	78.3	55		**9**	58.5	41.2		**9**	81.4	58.9	
10	75.4	46.3	0.15	**10**	72.5	49.5	0.52	**10**	89.2	58.7	
11	50.2	39.8		**11**	63.9	43.7	0.05	**11**	91.3	67.6	
12	55.7	36.2		**12**	66.1	45.6		**12**	93.3	68.3	
13	56.2	41.7	0.07	**13**	72.9	41		**13**	92	65.9	
14	72.7	46	0.02	**14**	67.5	46.1		**14**	92.1	66	0.05
15	82.1	61.4	0.02	**15**	79	44.8		**15**	83.1	65.9	0.12
16	72.3	50.3	0.12	**16**	86.3	63.7		**16**	84.4	65.3	0.03
17	70.6	40.1		**17**	83.8	68.5		**17**	87.3	69.5	0.35
18	79.5	48		**18**	77.9	53.3	0.03	**18**	77.6	68.3	0.04
19	70.4	47.6	0.01	**19**	54.3	42.2	0.05	**19**	75	56.9	0.23
20	79.8	51.3		**20**	62.3	46.4	0.43	**20**	76.2	55.5	0.02
21	52.2	41.3		**21**	65.5	50.6	0.05	**21**	80	52.1	0.01
22	61.4	37.2		**22**	72.1	49.3		**22**	86.7	67.4	0.02
23	71.8	35.8		**23**	63.9	56.3	0.02	**23**	76.1	64.5	0.23
24	79	41.7		**24**	72.3	54.4	0.18	**24**	71.7	62	
25	80	55.2		**25**	59.5	49.3		**25**	70.6	56.1	
26	82.9	61.2	0.07	**26**	71.4	48.2	0.53	**26**	69.6	55.4	
27	65.3	46	0.02	**27**	74.8	54.6	0.12	**27**	72.1	48.1	
28	64.5	38.3		**28**	74	57.3		**28**	77.8	54.1	0.02
29	55.3	45.8	0.57	**29**	75.8	51.1		**29**	82.6	63	0.61
30	58.9	44.3	0.83	**30**	70	49.2	0.03	**30**	81.2	65.8	0.05
	52.8	32.3		**31**	68.1	50.5			73.7	45.2	

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
2017

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	80.4	62.9	1.37	**1**	85.3	59.4		**1**	70.3	47.3	
2	83.7	58.1	0.01	**2**	83.6	61.4		**2**	70.4	42.3	0.15
3	81	62.8	0.4	**3**	85.1	63	0.16	**3**	77.5	51.3	
4	83	63.3		**4**	66.7	58.1	0.18	**4**	83.9	57.6	0.03
5	85.2	63.3		**5**	76.5	63		**5**	66.4	53	0.31
6	86	61.2		**6**	77.6	59.8		**6**	64.2	49.7	0.53
7	78.2	65.1	0.3	**7**	74.4	55.2	0.04	**7**	62.4	51.7	1.19
8	71	53.8		**8**	78.1	50.6		**8**	67.8	51.3	0.11
9	82.5	52.1		**9**	80	54.4		**9**	69.3	48.5	
10	80	65.1	0.32	**10**	83.5	58.1	0.13	**10**	69.6	45.8	
11	84	68.6		**11**	75.4	60	0.01	**11**	71.8	45.7	
12	84.5	58.6	1.82	**12**	72.9	55.8		**12**	76.5	48.5	
13	78.7	66.2	0.41	**13**	76.8	51.1		**13**	70.1	55.7	
14	71.5	61.8		**14**	83.1	59.7		**14**	75.8	53.4	
15	77.6	55.3		**15**	82.3	64		**15**	81.8	57.5	
16	74	60.2		**16**	88.5	57.2		**16**	84.4	61.2	
17	77.9	52.8		**17**	83.4	71.8	0.02	**17**	85	64.8	
18	84.2	56.3		**18**	76.7	61.7	0.01	**18**	76.3	56.4	
19	83.8	63.9		**19**	79.8	58.4		**19**	76.1	59.5	0.23
20	83.6	67.5	0.3	**20**	88.2	54.8		**20**	86.5	61.4	
21	88.7	62.3	0.15	**21**	83.5	69.3		**21**	89.5	69.9	
22	78.7	68.1	0.22	**22**	76.1	66.4	0.19	**22**	91.8	68.9	
23	82.6	65.3		**23**	72	53.8		**23**	93.3	67.8	
24	75.7	62		**24**	68.6	49.6	0.02	**24**	90.8	67.3	
25	80.2	55.7		**25**	73.3	44.1		**25**	88.8	63.5	
26	84.1	60.3		**26**	75.9	47.9		**26**	90	64	
27	84.8	67.9		**27**	74	59		**27**	72.8	58.5	
28	81.2	62.5		**28**	75.9	58.9	0.13	**28**	67	49.4	
29	81	52.2		**29**	78.5	57.9		**29**	66	49	
30	82	55.2		**30**	75.9	52.1		**30**	66.7	40.9	
31	82.5	54.6		**31**	74.2	57.2			70.3	47.3	

TEMPERATURE AND PRECIPITATION DATA

Fremont

Recorded at
City of Fremont
Fremont, Michigan
2017

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	60.3	26.7		**1**	57.7	39.5	0.57	**1**	73.3	42.1	
2	57.2	27.6	0.01	**2**	45.5	38.7	0.11	**2**	82.2	42.7	
3	53.9	44.4	0.75	**3**	60.4	30.1		**3**	79.3	52	0.01
4	50.3	35.4	0.17	**4**	57.7	39.9		**4**	85.2	61.6	0.12
5	40.8	32.7	0.25	**5**	64.2	37.1		**5**	79.9	52.4	
6	44.4	35.6	0.44	**6**	58.3	37		**6**	79	49.5	
7	53	31.7		**7**	50	35.2		**7**	81.6	47.8	
8	59.3	25.7		**8**	56.5	27.3		**8**	79.3	47.8	
9	72	49.7		**9**	64.8	27		**9**	82.4	57	0.03
10	69.5	52.9	0.42	**10**	70.3	39.7	0.03	**10**	83.6	55.8	
11	54.2	38.7		**11**	70.5	48.7		**11**	84.8	69.3	
12	58.1	39.1		**12**	73.5	40.4		**12**	85.5	69.1	
13	47.5	40.5	0.09	**13**	70.8	40.3		**13**	85.5	65.4	0.19
14	65.1	39.5		**14**	72.8	49.1		**14**	88.8	63.4	0.75
15	75.5	48.8	0.24	**15**	76.7	42.8	0.02	**15**	81.2	65.2	
16	68.9	50.2	0.31	**16**	81.6	55.2	0.52	**16**	79.8	62.1	
17	62.6	36.2		**17**	80.9	69.7		**17**	78.9	64	0.19
18	69.1	37.7	0.02	**18**	75.8	40.7	0.01	**18**	73.2	63.1	0.02
19	64.5	51.9		**19**	55.6	38.8		**19**	72.9	57.8	0.01
20	56.4	46.1	0.56	**20**	63.6	42.9	0.07	**20**	71.8	54.3	0.1
21	51.2	37.7	0.01	**21**	63.6	49.6	0.35	**21**	75.1	47.9	
22	67.1	33.6		**22**	61.7	47.2	0.04	**22**	80.9	58.4	0.07
23	68.7	30.4		**23**	65.2	53.7	0.02	**23**	79.1	62.2	1.66
24	71	39.9		**24**	70.3	54		**24**	69.8	54.3	
25	73	47.9		**25**	69.2	54.9	0.01	**25**	65.5	52.6	0.1
26	76.4	59.5		**26**	73.1	48.5		**26**	62.7	49.5	0.01
27	64	40.5	0.25	**27**	76.9	48.7		**27**	71.5	44.7	
28	55.1	37.2		**28**	71.4	55.5		**28**	70.8	49.1	0.67
29	55.7	41.3	0.08	**29**	70.8	47		**29**	76	61.9	0.33
30	43.9	39.5	1.04	**30**	66.3	48.9		**30**	78	63.5	
				31	67	47.2					

TEMPERATURE AND PRECIPITATION DATA

Fremont

Recorded at
City of Fremont
Fremont, Michigan
2017

	JULY				AUGUST				SEPTEMBER		
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	77.7	63.4	0.01	**1**	83.1	54.9		**1**	71.3	42.8	
2	72.8	59.1	0.05	**2**	85	59.6		**2**	72.2	39.8	0.03
3	84.1	55.1		**3**	79.6	62.7	0.07	**3**	76.8	49.2	
4	82.5	56.4		**4**	67.1	55.3	0.12	**4**	72	54	0.01
5	84.4	57.6		**5**	74.4	49.8	0.01	**5**	65.4	45.8	0.07
6	86.6	60.2		**6**	77.7	52.5		**6**	66.9	41.1	0.19
7	81.4	62.3	0.14	**7**	78.9	54.3		**7**	61.1	44.8	0.18
8	77.5	54.6		**8**	81.6	48.7		**8**	71.7	46.2	0.11
9	78.4	52.3	0.06	**9**	80.8	55.2		**9**	70.8	40.6	
10	78.1	61.1	0.09	**10**	80.2	57.5	1	**10**	70.3	41.7	
11	87	61.9		**11**	75.2	60.2	0.01	**11**	73.6	43.1	
12	79	64.7	0.05	**12**	77.4	54		**12**	86.1	42.9	
13	78.4	64.9	0.38	**13**	79.7	45		**13**	80.4	46.4	
14	72.9	57.8		**14**	77.5	56.8		**14**	75.1	55.6	
15	76.9	52.6		**15**	81.9	58.2		**15**	82.8	52.5	
16	79.8	60.8		**16**	85.9	57.5		**16**	83.3	56.6	
17	81.4	55.1		**17**	75.1	66.2	0.64	**17**	82.3	61	
18	83.1	54.8		**18**	69.9	63		**18**	81	52.5	
19	90	63.4		**19**	79.2	56.6	0.06	**19**	77.7	57.9	
20	88.7	65.6	0.02	**20**	80.4	55.9		**20**	85.4	61.1	
21	88.6	60.7		**21**	80.2	61.7		**21**	87.7	67.4	
22	82.1	66.6	0.03	**22**	73.8	58.5	0.42	**22**	91.5	64.9	
23	81.1	63.7	0.11	**23**	71.3	50.5		**23**	92.6	64	
24	83.2	60.4		**24**	70.1	47.2		**24**	90.6	61.7	
25	79.9	53.6		**25**	74.5	43.7		**25**	90.9	59.2	
26	79	62.3	0.1	**26**	76.1	44.9		**26**	88.4	58.6	
27	87.1	67.2	0.01	**27**	71.9	55.9	0.01	**27**	70.5	49.3	
28	83.6	58.7		**28**	71	56.2	0.1	**28**	69.5	46.1	
29	85.5	48.3		**29**	78.9	50.5		**29**	67.2	48.7	0.14
30	83.8	53		**30**	78.8	54.2		**30**	68.3	35.9	
31	85.5	53		**31**	74.2	53.2					

TEMPERATURE AND PRECIPITATION DATA

Hart

Recorded at
Asparagus Research Farm
Hart, Michigan
2017

APRIL				MAY				JUNE			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	55.4	25.7		**1**	58.8	39.9	0.42	**1**	72	45.9	
2	59	29.4	0.05	**2**	45.4	39.4	0.43	**2**	78.7	43.4	
3	59.1	43.2	0.48	**3**	56.3	29.9		**3**	78.4	54	
4	53.6	34.2	0.21	**4**	62.5	35.6		**4**	80.9	62	1.01
5	42.1	29.9	0.17	**5**	58.6	36		**5**	72.5	54.7	
6	45.1	36.5	0.01	**6**	54.5	36.1		**6**	74.6	46	
7	50	30.4		**7**	50.3	32.7		**7**	72.2	45.7	
8	59.7	25.5		**8**	49.9	23.2		**8**	77.3	46.7	
9	71.8	54.1		**9**	58.2	28.5		**9**	76.9	54.2	
10	69	44	0.98	**10**				**10**	83.3	54	
11	48.4	37		**11**	64.4	44.6		**11**	83.6	69.5	
12	53.8	37		**12**	64.4	41.5		**12**	77.5	64.7	0.22
13	50.5	39.5	0.14	**13**	70.1	36.1		**13**	80.8	58.5	0.01
14	66.9	38.3		**14**	65.6	46.1		**14**	86.1	63.7	0.33
15	77.1	50	0.38	**15**	76.8	43.4	0.11	**15**	80.8	64.5	
16	67.6	42.3	0.34	**16**	79.7	56.3	0.84	**16**	78.5	62.3	0.02
17	60.1	37		**17**	80.6	67.8		**17**	78.9	64	0.45
18	70.8	39.2		**18**	73.7	39.4	0.16	**18**	73.2	63	0.03
19	66.1	46.5		**19**	56.9	38.4		**19**	71.5	56.3	
20	53.6	43.3	0.51	**20**	62	41.4	0.06	**20**	67.9	53.9	0.06
21	51.7	37.5	0.08	**21**	64	48.7	0.11	**21**	74.8	48.1	
22	56.8	27.1		**22**	62.8	46	0.03	**22**	76.3	60.7	0.62
23	64.6	31.8		**23**	64.6	50.6	0.02	**23**	76.8	63.4	0.32
24	73.2	38.1		**24**	68.1	53	0.15	**24**	69	55	
25	75.9	50.5		**25**	67.1	49	0.01	**25**	66.5	52.5	
26	75.8	59.8	0.02	**26**	69.5	45		**26**	60.7	50.2	
27	61.4	40.9	0.19	**27**	74.5	46.1		**27**	70.5	45	
28	52.4	39		**28**	67.8	54.4	0.32	**28**	71	53.1	1
29	52.5	39.3	0.23	**29**	68.2	49.1		**29**	76.6	62.8	0.3
30	45.2	39.9	0.6	**30**	64.9	47.4		**30**	75.3	62.4	
				31	66.3	44.8					

TEMPERATURE AND PRECIPITATION DATA

Hart

Recorded at
Asparagus Research Farm
Hart, Michigan
2017

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	73.9	59.4		**1**	81.1	55.9		**1**	70.8	41.7	
2	72.2	58.5	0.02	**2**	81.7	64.5	0.04	**2**	70.2	42.7	0.1
3	77.3	54.5		**3**	78.5	60.8	0.94	**3**	75.1	54.2	
4	81.2	56.4		**4**	69.2	55.7	0.29	**4**	70.9	51.1	0.03
5	82.8	59.3		**5**	72.1	49.3		**5**	63.6	50.1	0.27
6	86.5	60		**6**	76.6	54.5		**6**	63.9	45.5	0.14
7	78.3	62.5	0.12	**7**	75.5	53.3	0.01	**7**	61.8	45.5	0.19
8	72.6	51.4		**8**	77.8	52.3		**8**	67.6	40.6	0.01
9	80.4	61.1	0.29	**9**	79.7	57.6		**9**	69.3	43	
10	78.8	61.7	0.01	**10**	79.3	61.2	0.1	**10**	69.1	44.8	
11	82.9	59.3		**11**	70.1	56.9	0.05	**11**	71.7	46.2	
12	80.8	64.6	0.05	**12**	73	51.4		**12**	79.3	47.3	
13	74.4	63.2	0.36	**13**	76.2	47.6		**13**	81.3	51.3	
14	68.1	54.5	0.01	**14**	77.4	56.2		**14**	75.7	52.3	
15	76.4	52.5		**15**	75.1	57	0.18	**15**	81.4	56	
16	73.1	57.1		**16**	81.9	56.6		**16**	85	60.7	
17	75.5	53.7		**17**	77.5	67.9	0.39	**17**	79.2	60.1	
18	81.4	53		**18**	70.5	64.9		**18**	76.2	50.5	
19	83.2	62.1		**19**	76.2	55		**19**	78	55.4	
20	82.8	64.6	0.02	**20**	80.7	60.9		**20**	85.9	57.9	
21	88.3	60		**21**	83.9	60.8		**21**	88.2	66.3	
22	79.4	63.8	0.28	**22**	73.2	63	0.01	**22**	90.6	67.2	
23	76.6	62.5	0.38	**23**	69.2	50.2		**23**	92	66.8	
24	76.6	54.7		**24**	68.1	45		**24**	91.5	64.9	
25	77.4	53.7		**25**	71.4	39.7		**25**	90.9	60.6	
26	73.8	61.7	0.63	**26**	74.8	43.5	0.01	**26**	88.3	60	0.03
27	84.8	62.9	0.34	**27**	73.3	57.6	0.02	**27**	69.7	55.3	
28	80.3	59.1		**28**	69.7	56.7	0.4	**28**	67.7	48.9	
29	78.8	49.1		**29**	75.9	50.3		**29**	64.6	46	0.02
30	79.1	51.9		**30**	76.3	52.3		**30**	64.1	31.2	
31	81.2	55.9		**31**	72.4	50					

TEMPERATURE AND PRECIPITATION DATA

Hudsonville

Recorded at
Michigan Celery Cooperative
Hudsonville, Michigan
2017

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	54.8	29.6		**1**	60.5	43.4	0.57	**1**	73.5	46	
2	58.6	29.5		**2**	46.5	38.1	0.02	**2**	78.2	45.6	
3	53.2	47.2	0.46	**3**	61.2	32.7		**3**	79.5	52.2	
4	52.4	36.9	0.14	**4**	51.7	43.7		**4**	82.1	62.5	0.12
5	43.2	32.7	0.29	**5**	66.2	39.6		**5**	76.7	55.5	
6	46	36	0.67	**6**	60.8	38.7		**6**	79.4	45.2	
7	52.4	33.9		**7**	53.6	32.8		**7**	81.2	47.5	
8	64	29.2		**8**	55	28.4		**8**	77.3	49.7	
9	77.2	51.7		**9**	66.6	30.5		**9**			
10	74.7	53.3	1.11	**10**	71.8	44.9	0.08	**10**			
11	53.6	40.1		**11**	69	48.4		**11**			
12	53.9	39.2		**12**	71.3	44.8		**12**			
13	51.3	44	0.03	**13**	72.5	41.9		**13**			
14	66.7	42.2		**14**	72.8	47.1		**14**	91.6	67.6	0.25
15	78.5	52.6	0.13	**15**	77.6	46.4	0.03	**15**	80.5	67.5	
16	72.7	48.8	0.07	**16**	86.6	59.4	0.03	**16**	81.7	65.3	0.15
17	64.6	39.3		**17**	84.4	69.5		**17**	81.8	66.5	0.25
18	72.4	43.5		**18**	77.6	46.8	0.04	**18**	74.5	61.9	0.85
19	66.5	50.6		**19**	54.4	40.3		**19**	72	57.1	
20	68.6	49.4	0.99	**20**	61.8	48.1	0.11	**20**	71.8	54.1	0.15
21	54.8	40.8		**21**	66.5	51.1	0.46	**21**	76.6	48.9	
22	65.9	33.2		**22**	67.5	49.9		**22**	86	61.5	0.01
23	66.3	33.5		**23**	65	57.8		**23**	77.4	64.5	0.28
24	72.4	42.3		**24**	71.7	55.9	0.03	**24**	70.8	57.6	
25	74.1	51.2		**25**	69.7	53.7	0.02	**25**	68.9	52	
26	81.2	61.1		**26**	71	47	0.02	**26**	65.9	49.5	0.15
27	66.1	43.6	0.14	**27**	78.7	51.9	0.01	**27**	70	45.6	
28	59.7	43.8		**28**	75.8	57.8		**28**	73.4	55.7	0.3
29	55.5	43.3	0.28	**29**	73.7	51.8		**29**	79.2	62.8	0.69
30	45.2	40.9	1.13	**30**	69.3	50.9	0.03	**30**	80.1	63.3	
				31							

TEMPERATURE AND PRECIPITATION DATA

Hudsonville

Recorded at
Michigan Celery Cooperative
Hudsonville, Michigan
2017

JULY				AUGUST				SEPTEMBER			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	77.5	64.3		**1**	84.6	55.5		**1**	69.7	46.7	
2	78.3	59.5	0.26	**2**	84.8	63.4		**2**	75.1	45.9	0.04
3	83.9	62.1		**3**	79.9	62	1.15	**3**	78.4	50.1	
4	83.6	59.5		**4**	67.8	55.5	0.2	**4**	78	55	
5	84.4	60.2		**5**	74.1	52.1		**5**	67.5	48.2	0.07
6	86.7	60.8		**6**	76.7	55		**6**	66.6	39.4	0.07
7	82.3	63.6	0.24	**7**	78.3	56.8	0.19	**7**	59.6	43.7	0.2
8	76.1	56.8		**8**	80.1	51.4		**8**	70.8	48.6	0.03
9	79.5	55.9		**9**	80.6	56.9		**9**	68.5	45.9	
10	81.8	66.1	0.11	**10**	81.2	58.7	0.1	**10**	68.6	42.1	
11	86.3	61		**11**	77.2	59.8	0.13	**11**	73.8	43.2	
12	81.4	68	0.34	**12**	76.7	57.5	0.01	**12**	82.2	45	
13	78.3	65	0.1	**13**	79.8	49.7		**13**	78.5	46.6	
14	73.9	60.4		**14**	80.5	59.6		**14**	78.4	54.1	
15	76.8	52.8		**15**	84.2	63.2	0.04	**15**	82.3	53.1	
16	83	61.3		**16**	86.4	59		**16**	85.9	59.3	
17	80.1	60.1		**17**	79.9	69	0.55	**17**	86.2	64	
18	83.1	56		**18**	71.7	62.4		**18**	80.8	49.5	
19	89.5	65		**19**	77.6	58		**19**	75.2	61.4	
20	83.9	67.4	0.02	**20**	83.3	55		**20**	86.5	63.9	
21	86.8	59.8		**21**	82.7	65		**21**	93	67.9	
22	78.9	67.4	0.05	**22**	75.1	57.1	0.17	**22**	93.7	64.8	
23	81.7	67	0.01	**23**	72.3	53.2		**23**	97.1	64.8	
24	82	60.4		**24**	70.7	50.6	0.01	**24**	92.5	60.8	
25	81.4	54.9		**25**	73.7	45.8		**25**	90.4	63.2	
26	81.5	61.2		**26**	74.6	45.4		**26**	91.1	58.5	
27	86.1	67.6		**27**	72.9	58.9		**27**	71.5	53.6	
28	82	62.8		**28**	72	59.4	0.02	**28**	70.9	45.4	
29	84.8	49.1		**29**	81	54.5		**29**	69.8	49.9	0.04
30	84.5	53.6		**30**	78.7	51.6		**30**	67.3	36.7	
31	84.4	52.6		**31**	73.7	57.7					

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	58.6	32.6		**1**	62.1	43.4		**1**	82.2	49.1	
2	61.6	39.4		**2**	50.6	39.3		**2**	87.9	53	
3	61.2	47.3	0.18	**3**	56.6	33.1	0.01	**3**	91.6	57.9	
4	55.7	45.2		**4**	49.5	43	0.45	**4**	91.5	68.8	
5	47.8	38	1.04	**5**	61.7	40.6	0.01	**5**	85.1	54.1	
6	50.7	35.4	0.12	**6**	60.9	41.6	0.39	**6**	75.3	52.1	
7	55.1	33.2		**7**	61.4	36		**7**	76.6	53.6	
8	67.7	32.6		**8**	63.8	35.6		**8**	83.5	48.4	
9	76.7	50.4		**9**	61.1	42.4	0.91	**9**	89.7	62.5	
10	70.8	54.9	0.8	**10**	73.7	49.7	0.42	**10**	89.4	59.6	
11	56.4	37.9		**11**	64.3	49.7		**11**	91.7	66.5	
12	64.8	33.9		**12**	71	46.4		**12**	94.2	66	
13	72.2	46.9	0.15	**13**	79.8	45.4		**13**	96.4	67.8	1.99
14	77.6	47.5	0.31	**14**	83.4	53.6		**14**	88.6	66.4	0.85
15	79.1	58.8		**15**	87.1	50.3		**15**	88	67.1	
16	70.1	54.3	0.36	**16**	85.7	62.1		**16**	88.4	65	0.02
17	72.6	47		**17**	83.5	63.9		**17**	87.2	68.8	1.53
18	76.1	45.5		**18**	89.2	52.2		**18**	77.5	65	1.16
19	73.4	50.3	0.02	**19**	52.6	43.7	0.41	**19**	78.4	58.5	0.05
20	75.4	50.3		**20**	75.8	50.7	0.35	**20**	85.6	57.4	0.16
21	55.3	42.7		**21**	64.7	50	0.03	**21**	82.2	59.8	
22	59.9	39.8		**22**	75.1	45		**22**	85.3	71.3	
23	70.8	37.7		**23**	65.4	55.7	0.42	**23**	79.7	63.2	0.83
24	75.6	45.7		**24**	61.7	53.2	0.11	**24**	73.2	55.4	
25	78.7	48.1		**25**	66	51.1		**25**	72.1	53	
26	76.3	58.2	0.59	**26**	76.5	48.8	0.42	**26**	72.8	51.8	0.05
27	59.3	40.9	0.1	**27**	79.6	56.9		**27**	75.4	46.7	
28	59.3	41.8	0.01	**28**	76.5	56.6		**28**	82.4	52.3	
29	51.7	43.2	0.42	**29**	78.6	56		**29**	82.1	66	0.51
30	65	47	1.46	**30**	73.9	51.5	0.03	**30**	83.7	62.9	0.08
				31	75.1	48.8					

TEMPERATURE AND PRECIPITATION DATA

Momence

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

JULY				AUGUST			
Date	High Temp F	Low Temp F	Total Prec. in.	Date	High Temp F	Low Temp F	Total Prec. in.
1	81.6	63.4		**1**	83.6	61.6	0.61
2	87	55.7	0.15	**2**	84.1	61.7	
3	88.2	66.2		**3**	83.1	61.7	0.47
4	88.3	63.7	0.02	**4**	67.7	53.9	
5	85.9	67.5	0.01	**5**	76.7	52.9	
6	88.7	66.6		**6**	68.9	60.6	0.02
7	87.5	66.3		**7**	76.3	55.9	
8	79.5	58.9		**8**	79.6	51.2	
9	85.1	55.5		**9**	80	55.5	
10	84.6	68.4	0.25	**10**	83.5	53.9	0.09
11	81.7	69.5	0.36	**11**	76.8	59.6	
12	86.5	70.5	0.02	**12**	76.7	54.2	
13	84	67.3	0.04	**13**	78	51	
14	74.5	59.6		**14**	83.1	57.9	
15	78.7	54.3		**15**	86	64.3	
16	80.8	60.4		**16**	86.5	63	0.14
17	83.2	56.9		**17**	81.7	65.4	
18	87.8	55.2		**18**	82.5	62.3	
19	90.6	67.2	0.16	**19**	83.2	61.4	
20	89.7	67.8	0.15	**20**	86.2	60.3	0.33
21	89.1	69.4	1.48	**21**	83.6	65	0.47
22	84.2	68.6	0.36	**22**	77.3	57	0.44
23	86.9	65.4	0.03	**23**	76.6	54.4	
24	77.2	62		**24**	75.8	52.2	
25	79.7	59.4		**25**	71.9	48.1	
26	84.4	60.4	0.1	**26**	76.3	52.9	
27	82.9	66		**27**	78.3	55.7	0.06
28	79.7	63		**28**	77.2	59.3	0.19
29	77.9	58.1		**29**	78.1	55.4	
30	83.4	56.8		**30**	78.8	55.7	
31	84.7	58.9		**31**	77	57.5	

Weed Control in Asparagus - Hart - 2017

Project Code: 120-17-1 **Location: Hart, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Asparagus **Variety: Jersey Supreme**
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 50 ft long

Soil Type: Remus fine sandy loam **OM: 1.6%** **pH: 6.8**
Sand: 84% **Silt: 9%** **Clay: 7%** **CEC: 2.6**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/24/17	1:15 pm	69/59	F	Damp	4-6 SE	25	15% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/24	Asparagus		Preemergence	
4/24	DAND = dandelion	2-6″	Veg	Many
4/24	HAVE = hairy vetch	3-5″	Veg	Few
4/24	LACG = large crabgrass	3-5″	Veg	Mod
4/24	SFGE = smallflower geranium	1-2″	Veg	Many
	COLQ = common lambsquarters			
	FISB = field sandbur			
	RUTH = Russian thistle			
	POAM = Powell amaranth			

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. 29 harvests between 5/4/17-6/19/17

Weed Control in Asparagus - Hart - 2017

Weed Control in Asparagus – Hart – 2017

Trial ID: 120-17-1 Location: Hart, MI
Protocol ID: 120-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	ASPA	COLQ	RUTH	SFGE	ASPA	FISB	LACG
	Pest Code							COLQ	RUTH	SFGE		FISB	LACG
	Crop Code						ASPA				ASPA		
	Rating Date						01Jun17	01Jun17	01Jun17	01Jun17	19Jun17	19Jun17	19Jun17
	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
1	Sinbar	80	WDG	1	lb ai/a	PRE	2.0	10.0	10.0	10.0	1.7	10.0	10.0
2	Karmex	80	DF	1.6	lb ai/a	PRE	1.3	10.0	10.0	10.0	1.0	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	1.0	10.0	10.0	10.0	2.0	10.0	10.0
4	Command	3	ME	2	lb ai/a	PRE	1.3	10.0	10.0	10.0	1.3	10.0	10.0
5	Matrix	25	DF	0.063	lb ai/a	PRE	1.7	10.0	9.3	7.7	1.0	10.0	10.0
6	Trellis	75	DF	1.5	lb ai/a	PRE	1.3	10.0	1.6	5.3	1.0	8.0	10.0
	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE							
7	Zidua	85	WDG	0.267	lb ai/a	PRE	1.0	9.0	10.0	3.7	1.3	9.3	10.0
8	BIR	1.67	SL	0.045	lb ai/a	PRE	1.3	1.0	7.7	2.7	1.3	3.3	10.0
9	Callisto	4	SC	0.241	lb ai/a	PRE	1.3	10.0	10.0	5.0	1.7	5.3	10.0
	Prowl H20	3.8	CS	1.9	lb ai/a	PRE							
10	Untreated						1.0	1.3	1.0	3.0	1.7	1.0	7.3
LSD P=.05							0.95	0.65	2.38	3.51	0.75	3.37	0.31
Standard Deviation							0.55	0.38	1.38	2.05	0.43	1.97	0.18
CV							41.58	4.67	17.37	30.4	31.04	25.54	1.88

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	COLQ	HAVE	POAM	RUTH	SFGE	ASPA	FISB
	Pest Code						COLQ	HAVE	POAM	RUTH	SFGE		FISB
	Crop Code											ASPA	
	Rating Date						19Jun17	19Jun17	19Jun17	19Jun17	19Jun17	08Aug17	08Aug17
	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
1	Sinbar	80	WDG	1	lb ai/a	PRE	10.0	10.0	1.7	10.0	10.0	1.7	7.7
2	Karmex	80	DF	1.6	lb ai/a	PRE	10.0	10.0	1.7	10.0	10.0	1.0	9.0
	Sencor	75	DF	1.6	lb ai/a	PRE							
3	Alion 200	1.67	SC	0.085	lb ai/a	PRE	9.7	10.0	10.0	8.7	10.0	1.7	10.0
4	Command	3	ME	2	lb ai/a	PRE	7.7	9.7	4.7	8.0	9.0	1.3	9.3
5	Matrix	25	DF	0.063	lb ai/a	PRE	6.0	10.0	8.7	6.3	6.3	1.0	10.0
6	Trellis	75	DF	1.5	lb ai/a	PRE	4.0	6.0	3.7	1.0	5.3	1.0	5.3
	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE							
7	Zidua	85	WDG	0.267	lb ai/a	PRE	3.7	6.3	10.0	10.0	1.7	1.3	9.0
8	BIR	1.67	SL	0.045	lb ai/a	PRE	1.0	7.7	6.3	5.7	1.0	2.0	4.3
9	Callisto	4	SC	0.241	lb ai/a	PRE	10.0	10.0	5.0	4.0	3.0	1.7	3.7
	Prowl H20	3.8	CS	1.9	lb ai/a	PRE							
10	Untreated						1.0	7.0	1.0	1.7	1.7	1.0	3.7
LSD P=.05							2.60	4.70	3.26	3.46	2.66	1.00	3.81
Standard Deviation							1.51	2.74	1.90	2.02	1.55	0.58	2.22
CV							24.01	31.61	36.12	30.91	26.73	42.48	30.81

Weed Control in Asparagus - Hart - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LACG	COLQ	HAVE	HOWE	POAM	RUTH
	Pest Code											
	Crop Code											
	Rating Date						08Aug17	08Aug17	08Aug17	08Aug17	08Aug17	08Aug17
	Rating Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
1	Sinbar	80	WDG	1	lb ai/a	PRE	6.3	10.0	10.0	10.0	5.3	7.3
2	Karmex	80	DF	1.6	lb ai/a	PRE	7.7	8.7	10.0	10.0	8.7	10.0
	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	10.0	10.0	10.0	10.0
4	Command	3	ME	2	lb ai/a	PRE	10.0	4.3	8.3	9.0	7.3	7.7
5	Matrix	25	DF	0.063	lb ai/a	PRE	9.0	4.7	10.0	10.0	9.0	7.0
6	Trellis	75	DF	1.5	lb ai/a	PRE	8.7	3.0	6.7	10.0	7.0	5.0
	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE						
7	Zidua	85	WDG	0.267	lb ai/a	PRE	10.0	2.0	9.0	9.7	10.0	10.0
8	BIR	1.67	SL	0.045	lb ai/a	PRE	10.0	1.3	9.0	9.7	4.7	9.0
9	Callisto	4	SC	0.241	lb ai/a	PRE	10.0	9.0	10.0	10.0	5.0	7.0
	Prowl H20	3.8	CS	1.9	lb ai/a	PRE						
10	Untreated						5.7	1.0	7.7	10.0	6.0	10.0
LSD P=.05							3.92	2.94	3.33	1.06	4.59	5.50
Standard Deviation							2.29	1.71	1.94	0.62	2.68	3.21
CV							26.19	31.74	21.43	6.28	36.65	38.64

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	ASPA 13Jun13 TOTAL KG/PLOT	ASPA 21Jun14 TOTAL KG/PLOT	ASPA 17Jun15 TOTAL KG/PLOT	ASPA 16Jun16 TOTAL KG/PLOT	ASPA 19Jun17 TOTAL KG/PLOT	ASPA 2013-2017 AVERAGE KG/PLOT
	Pest Code											
	Crop Code						ASPA	ASPA	ASPA	ASPA	ASPA	ASPA
	Rating Date						13Jun13	21Jun14	17Jun15	16Jun16	19Jun17	2013-2017
	Rating Type						TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	AVERAGE
	Rating Unit						KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
1	Sinbar	80	WDG	1	lb ai/a	PRE	3.71	6.21	7.10	6.20	7.74	6.19
2	Karmex	80	DF	1.6	lb ai/a	PRE	3.76	7.42	8.72	7.60	9.29	7.36
	Sencor	75	DF	1.6	lb ai/a	PRE						
3	Alion 200	1.67	SC	0.085	lb ai/a	PRE	3.94	8.15	8.54	8.10	9.70	7.69
4	Command	3	ME	2	lb ai/a	PRE	3.59	7.49	8.88	7.74	8.61	7.26
5	Matrix	25	DF	0.063	lb ai/a	PRE	3.32	7.92	8.63	7.77	8.89	7.31
6	Trellis	75	DF	1.5	lb ai/a	PRE	3.33	6.75	8.21	7.40	8.14	6.77
	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE						
7	Zidua	85	WDG	0.267	lb ai/a	PRE	3.46	7.76	8.25	7.39	7.62	6.90
8	BIR	1.67	SL	0.045	lb ai/a	PRE	3.37	6.77	6.95	5.82	6.11	5.80
9	Callisto	4	SC	0.241	lb ai/a	PRE	3.42	7.16	6.99	6.32	7.14	6.21
	Prowl H20	3.8	CS	1.9	lb ai/a	PRE						
10	Untreated						4.07	7.36	7.92	6.61	7.30	6.65
LSD P=.05							0.897	1.312	1.901	1.531	1.702	1.276
Standard Deviation							0.523	0.765	1.108	0.893	0.992	0.744
CV							14.54	10.48	13.82	12.58	12.32	10.92

Weed Control in Asparagus - HTRC - 2017

Project Code: 120-17-2 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Asparagus **Variety: Millennium**
Planting Method: Transplants **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
EEPRE	4/10/17	9:20 am	66/52	F	Wet	8-10 SW	62	20% Cloudy	N
EPRE	4/12/17	9:30 am	43/45	F	Moist	6-7 N	66	98% Cloudy	N
PRE	4/22/17	7:00 am	39/45	F	Moist	1-2 SW	85	60% Cloudy	Y
PO1	6/2/17	10:15 am	72/58	F	Dry	2-3 NW	35	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/10	Asparagus		Preemergence	
4/10	DAND = dandelion	0-2″	Veg	Few
4/10	HOWE = horseweed	0-1″	Veg	Mod
4/10	MECR = mouseear cress	2-3″	Flower	Mod
4/10	QUGR = quackgrass	3-4″	Veg	Mod
4/10	WICA = wild carrot	3-7″	Veg	Mod
4/12	Asparagus		Preemergence	
4/22	DAND = dandelion	0-2″	Veg	Few
4/22	HOWE = horseweed	0-1″	Veg	Mod
4/22	MECR = mouseear cress	2-3″	Flower	Mod
4/22	QUGR = quackgrass	3-4″	Veg	Mod
4/22	WICA = wild carrot	3-7″	Veg	Mod
6/2	CATH = Canada thistle	6-10″	Foliar	Many
6/2	COMW= common milkweed	6-18″	Foliar	Mod
6/2	DOBG = downy bromegrass	12-15″	Seed	Few
6/2	HOWE = horseweed	1-6″	Foliar	Mod-Many
6/2	WICA = wild carrot	1-6″	Rosette	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. 22 harvests from 4/27/17 to 6/9/17.

Weed Control in Asparagus - HTRC - 2017

Weed Control in Asparagus – HTRC – 2017

Trial ID: 120-17-2 Location: East Lansing, MI
Protocol ID: 120-17-2 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	ASPA 15May17 RATING 1-10	ASPA 02Jun17 RATING 1-10	ASPA 12Jun17 RATING 1-10	LACG 12Jun17 RATING 1-10	CATH 12Jun17 RATING 1-10	COMW 12Jun17 RATING 1-10
1	Sinbar	80	WDG	1	lb ai/a	PRE	3.3	1.7	1.3	10.0	10.0	10.0
	Spartan	4	F	0.375	lb ai/a	PRE						
2	Karmex	80	DF	3	lb ai/a	PRE	2.3	1.3	1.0	10.0	10.0	9.0
	Command	3	ME	2	lb ai/a	PRE						
3	Karmex	80	DF	3	lb ai/a	PRE	2.0	1.7	1.3	10.0	9.3	10.0
	Prowl H20	3.8	CS	3	lb ai/a	PRE						
4	Solicam	80	DF	4	lb ai/a	PRE	2.0	1.7	1.3	10.0	10.0	8.7
	Tricor	75	DF	1	lb ai/a	PRE						
5	Karmex	80	DF	3	lb ai/a	PRE	1.3	1.3	1.0	5.0	7.0	6.3
	Callisto	4	SC	0.241	lb ai/a	PRE						
6	Authority MTZ	45	DF	0.255	lb ai/a	PRE	2.0	1.7	1.7	4.7	10.0	10.0
7	Karmex	80	DF	3	lb ai/a	PRE	2.0	1.0	1.3	9.7	10.0	10.0
	BIR	1.67	SL	0.045	lb ai/a	PRE						
8	Karmex	80	DF	3	lb ai/a	PRE	2.3	1.7	1.3	10.0	10.0	10.0
	Command	3	ME	2	lb ai/a	PRE						
	BIR	1.67	SL	0.045	lb ai/a	PRE						
9	Karmex	80	DF	3	lb ai/a	PRE	1.3	1.3	1.3	9.7	7.7	9.0
	Quinstar	3.8	L	0.25	lb ai/a	PO1						
	Sandea	75	WG	0.023	lb ai/a	PO1						
10	Karmex	80	DF	3	lb ai/a	PRE	2.0	1.3	1.7	6.7	9.0	7.3
	Lorox	50	DF	1	lb ai/a	PO1						
	Spur	3	L	0.188	lb ai/a	PO1						
11	Karmex	80	DF	3	lb ai/a	PRE	1.7	1.7	1.3	10.0	7.3	8.3
	Clarity	4	L	0.25	lb ai/a	PO1						
	Select Max	0.97	EC	0.12	lb ai/a	PO1						
12	Chateau SW	51	WDG	0.128	lb ai/a	PRE	2.0	2.3	2.0	9.3	10.0	10.0
13	Alion 200	1.67	SC	0.065	lb ai/a	PRE	2.3	1.3	1.0	10.0	10.0	10.0
14	Gramoxone SL	2	SL	1	lb ai/a	EEPRE	1.7	1.3	1.3	9.3	10.0	10.0
	Alion 200	1.67	SC	0.026	lb ai/a	EPRE						
15	Gramoxone SL	2	SL	1	lb ai/a	EEPRE	2.3	2.0	1.0	9.7	10.0	7.7
	Alion 200	1.67	SC	0.046	lb ai/a	EPRE						
16	Gramoxone SL	2	SL	1	lb ai/a	EEPRE	1.7	1.3	2.0	10.0	10.0	9.3
	Alion 200	1.67	SC	0.065	lb ai/a	EPRE						
17	Gramoxone SL	2	SL	1	lb ai/a	EEPRE	2.7	1.3	1.7	5.7	10.0	7.7
	Handweeded											
18	Untreated						2.0	1.3	2.0	8.3	10.0	10.0
LSD P=.05							1.98	1.16	1.03	2.77	2.32	3.48
Standard Deviation							1.19	0.69	0.62	1.66	1.39	2.09
CV							57.8	45.75	43.49	18.91	14.72	23.02

Weed Control in Asparagus - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	HOWE 12Jun17 RATING 1-10	WICA 12Jun17 RATING 1-10	ASPA TOTAL GOOD #/PLOT	ASPA TOTAL GOOD KG/PLOT	ASPA TOTAL CULL #/PLOT	ASPA TOTAL CULL KG/PLOT
1	Sinbar	80	WDG	1	lb ai/a	PRE	10.0	10.0	316.7	7.22	86.3	1.68
	Spartan	4	F	0.375	lb ai/a	PRE						
2	Karmex	80	DF	3	lb ai/a	PRE	10.0	10.0	354.3	8.64	15.7	0.41
	Command	3	ME	2	lb ai/a	PRE						
3	Karmex	80	DF	3	lb ai/a	PRE	10.0	10.0	357.3	9.52	28.3	0.73
	Prowl H20	3.8	CS	3	lb ai/a	PRE						
4	Solicam	80	DF	4	lb ai/a	PRE	10.0	10.0	323.3	8.08	26.7	0.61
	Tricor	75	DF	1	lb ai/a	PRE						
5	Karmex	80	DF	3	lb ai/a	PRE	9.3	10.0	305.7	8.00	17.7	0.52
	Callisto	4	SC	0.241	lb ai/a	PRE						
6	Authority MTZ	45	DF	0.255	lb ai/a	PRE	10.0	9.3	249.3	6.15	25.0	0.64
7	Karmex	80	DF	3	lb ai/a	PRE	10.0	9.3	362.0	8.55	21.0	0.47
	BIR	1.67	SL	0.045	lb ai/a	PRE						
8	Karmex	80	DF	3	lb ai/a	PRE	10.0	9.3	330.0	7.89	16.3	0.41
	Command	3	ME	2	lb ai/a	PRE						
	BIR	1.67	SL	0.045	lb ai/a	PRE						
9	Karmex	80	DF	3	lb ai/a	PRE	10.0	9.3	346.3	10.00	30.0	0.59
	Quinstar	3.8	L	0.25	lb ai/a	PO1						
	Sandea	75	WG	0.023	lb ai/a	PO1						
10	Karmex	80	DF	3	lb ai/a	PRE	9.0	9.3	273.7	7.05	17.3	0.44
	Lorox	50	DF	1	lb ai/a	PO1						
	Spur	3	L	0.188	lb ai/a	PO1						
11	Karmex	80	DF	3	lb ai/a	PRE	10.0	10.0	309.0	8.05	23.3	0.66
	Clarity	4	L	0.25	lb ai/a	PO1						
	Select Max	0.97	EC	0.12	lb ai/a	PO1						
12	Chateau SW	51	WDG	0.128	lb ai/a	PRE	10.0	9.3	231.7	5.96	70.3	1.21
13	Alion 200	1.67	SC	0.065	lb ai/a	PRE	9.7	6.7	360.3	8.50	40.7	0.97
14	Gramoxone SL	2	SL	1	lb ai/a	EEPRE	9.0	6.3	305.3	7.24	25.3	0.53
	Alion 200	1.67	SC	0.026	lb ai/a	EPRE						
15	Gramoxone SL	2	SL	1	lb ai/a	EEPRE	10.0	7.7	295.7	7.45	23.7	0.58
	Alion 200	1.67	SC	0.046	lb ai/a	EPRE						
16	Gramoxone SL	2	SL	1	lb ai/a	EEPRE	9.0	9.3	285.3	7.74	26.3	0.73
	Alion 200	1.67	SC	0.065	lb ai/a	EPRE						
17	Gramoxone SL Handweeded	2	SL	1	lb ai/a	EEPRE	7.3	4.7	378.3	8.40	20.7	0.40
18	Untreated						8.7	6.7	365.0	8.14	19.7	0.44
LSD P=.05							1.56	3.41	171.54	4.371	32.41	0.771
Standard Deviation							0.94	2.04	102.88	2.622	19.44	0.463
CV							9.81	23.38	32.21	33.1	65.49	69.27

Powell Amaranth Control in Asparagus - Malburg - 2017

Project Code: 120-74-4 **Location: Hart,MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Asparagus **Variety: Millenium**
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: 5.7**
Sand: 85% **Silt: 10%** **Clay: 5%** **CEC: 3.7**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/24/17	2:50 am	72/55	F	Moist	7-10 SE	N	25% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/24	Asparagus		Preemergence	
4/24	DAND = dandelion	4-6″	Veg	Mod
4/24	HAVE = hairy vetch	3-5″	Veg	Mod
4/24	LACG = large crabgrass	3-5″	Veg	Many
4/24	SFGE = smallflower geranium	1-2″	Veg	Many
4/24	WHCA = white campion	3-5″	Veg	Few
	POAM = Powell amaranth			

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. 28 harvests between 5/4/17 to 6/19/17.

Powell Amaranth Control in Asparagus - Malburg - 2017

Powell Amaranth Control in Asparagus - Malburg - 2017

Trial ID: 120-17-4 Location: Hart, MI
Protocol ID: 120-17-4 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	ASPA 01Jun17 RATING 1-10	SFGE 01Jun17 RATING 1-10	ASPA 19Jun17 RATING 1-10	LACG 19Jun17 RATING 1-10	POAM 19Jun17 RATING 1-10	SFGE 19Jun17 RATING 1-10	ASPA 08Aug17 RATING 1-10
1	Karmex	80	DF	3	lb ai/a	PRE	1.7	5.0	1.0	6.3	2.7	6.3	1.0
2	Lorox	50	DF	2	lb ai/a	PRE	1.3	4.7	1.7	7.0	1.7	4.3	1.3
3	Tricor	75	DF	1	lb ai/a	PRE	1.3	10.0	1.0	10.0	3.0	10.0	1.3
4	Spartan	4	F	0.375	lb ai/a	PRE	1.0	1.3	1.3	8.7	2.0	2.0	1.0
5	Sinbar	80	WDG	1	lb ai/a	PRE	1.3	8.7	1.3	10.0	6.3	10.0	1.0
6	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	1.3	4.7	1.3	10.0	4.3	6.0	1.7
7	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	1.0	1.3	1.3	10.0	8.3	1.0	1.0
	Sandea	75	WG	0.023	lb ai/a	PRE							
8	Chateau SW	51	WDG	0.192	lb ai/a	PRE	1.3	4.7	1.0	10.0	7.0	5.0	1.0
9	Callisto	4	SC	0.241	lb ai/a	PRE	2.0	3.0	1.3	10.0	4.7	4.0	1.3
10	Untreated						1.3	1.3	1.7	7.3	1.7	1.0	1.0
LSD P=.05							0.87	4.90	0.85	4.52	3.75	5.11	0.65
Standard Deviation							0.51	2.86	0.50	2.64	2.19	2.98	0.38
CV							36.99	63.98	38.32	29.51	52.52	59.93	32.58

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LACG 08Aug17 RATING 1-10	POAM 08Aug17 RATING 1-10	ASPA TOTAL KG/PLOT
1	Karmex	80	DF	3	lb ai/a	PRE	5.7	4.3	6.40
2	Lorox	50	DF	2	lb ai/a	PRE	7.3	3.3	6.26
3	Tricor	75	DF	1	lb ai/a	PRE	9.3	5.0	6.66
4	Spartan	4	F	0.375	lb ai/a	PRE	7.3	4.0	6.74
5	Sinbar	80	WDG	1	lb ai/a	PRE	10.0	5.0	7.05
6	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	10.0	2.0	6.00
7	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	10.0	5.7	6.07
	Sandea	75	WG	0.023	lb ai/a	PRE			
8	Chateau SW	51	WDG	0.192	lb ai/a	PRE	10.0	6.7	7.52
9	Callisto	4	SC	0.241	lb ai/a	PRE	8.7	3.3	6.89
10	Untreated						10.0	4.7	6.50
LSD P=.05							3.48	6.03	0.987
Standard Deviation							2.03	3.52	0.576
CV							23.0	79.89	8.71

Weed Control in Snapbean - HTRC - 2017

Project Code: 123-17-1 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Snapbean **Variety: Huntington 2014 (Syngenta)**
Planting Method: Seeded **Planting Date: 5/17/17** **Harvest Date: 7/25/17**
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: 2.4%** **pH: 6.7**
Sand: 53% **Silt: 29%** **Clay: 18%** **CEC: 8.7**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/19/17	11:45 am	52/81	F	Dry	7 NE	63	100% Cloudy	N
PO1	6/16/17	1:00 pm	81/78	F	Dry	4-6 SW	43	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/19	Snapbean		Preemergence	
5/19	No weeds			
6/16	Snapbean	3-5″	2 trifoliate lf	
6/16	LACG = large crabgrass	2-3″	Veg	Mod
6/16	QUGR = quackgrass	4-6″	Veg	Mod
6/16	COLQ = common lambsquarters	2-4″	Veg	Few
6/16	CORW = common ragweed	4-6″	Veg	Many
6/16	LATH = ladysthumb	3-5″	Veg	Few
6/16	RRPW = redroot pigsweed	2-6″	Veg	Many
6/16	VELE = velvetleaf	2-3″	Veg	Few
6/16	YEFT = yellow foxtail	3-6″	Veg	Many
6/16	YENS = yellow nutsedge	3-5″	Veg	Mod

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. 5/19 Dual Magnum 1.6 lb/ai sprayed on guards.
4. PO1 at 2 trifoliate leaf stage.

Weed Control in Snapbean - HTRC - 2017

Weed Control in Snapbean – HTRC – 2017

Trial ID:	123-17-1	Location:	East Lansing, MI
Protocol ID:	123-17-1	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	SNBE	YEFT	COLQ	CORW	RRPW	YENS	SNBE
Pest Code													
Crop Code							SNBE						SNBE
Crop Name													
Rating Date							16Jun17	16Jun17	16Jun17	16Jun17	16Jun17	16Jun17	22Jun17
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
1	Dual Magnum	7.62	EC	1.6	lb ai/a	PRE	2.3	10.0	7.7	5.3	9.3	10.0	3.0
2	Prowl H20	3.8	CS	1.3	lb ai/a	PRE	2.3	10.0	10.0	4.0	8.0	6.0	2.0
3	Command	3	ME	0.25	lb ai/a	PRE	2.0	9.3	8.3	5.0	9.3	5.7	2.0
4	Reflex	2	SL	0.25	lb ai/a	PRE	2.3	7.0	9.3	9.0	10.0	6.7	2.3
5	Pursuit	2	EC	0.031	lb ai/a	PRE	1.3	3.7	10.0	6.3	10.0	5.7	2.3
6	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	2.0	8.3	9.3	3.7	8.0	6.3	2.7
	Reflex	2	SL	0.25	lb ai/a	PO1							
7	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	1.0	10.0	7.7	3.7	8.0	4.0	2.0
	Sandea	75	WG	0.023	lb ai/a	PO1							
	Select Max	.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	2.0	10.0	6.0	4.3	9.3	10.0	2.0
	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	2.0	10.0	8.3	5.0	9.7	10.0	2.0
	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						2.0	3.0	3.0	1.7	4.7	2.7	1.3
LSD P=.05							1.29	2.82	2.50	1.72	3.21	2.81	1.47
Standard Deviation							0.75	1.65	1.46	1.01	1.87	1.64	0.86
CV							38.94	20.23	18.27	20.95	21.65	24.41	39.52

Weed Control in Snapbean - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	YEFT	COLQ	CORW	SNBE PLANT	SNBE BEAN
Pest Code							YEFT	COLQ	CORW		
Crop Code										SNBE	SNBE
Crop Name										PLANT	BEAN
Rating Date							22Jun17	22Jun17	22Jun17	25Jul17	25Jul17
Rating Type							RATING	RATING	RATING	TOTAL	TOTAL
Rating Unit							1-10	1-10	1-10	KG/PLOT	KG/PLOT
1	Dual Magnum	7.62	EC	1.6	lb ai/a	PRE	10.0	8.7	3.3	3.45	5.55
2	Prowl H20	3.8	CS	1.3	lb ai/a	PRE	10.0	10.0	1.0	4.19	6.70
3	Command	3	ME	0.25	lb ai/a	PRE	10.0	9.7	4.0	2.89	4.59
4	Reflex	2	SL	0.25	lb ai/a	PRE	5.3	8.3	9.0	3.61	6.60
5	Pursuit	2	EC	0.031	lb ai/a	PRE	2.7	10.0	7.0	4.01	6.61
6	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	10.0	10.0	10.0	4.90	8.45
	Reflex	2	SL	0.25	lb ai/a	PO1					
7	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	9.3	10.0	6.7	5.84	9.06
	Sandea	75	WG	0.023	lb ai/a	PO1					
	Select Max	.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	9.7	5.19	5.96
	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	9.7	4.66	6.08
	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	1.0	4.00	1.79
LSD P=.05							1.73	1.76	1.85	3.444	4.183
Standard Deviation							1.01	1.03	1.08	2.008	2.438
CV							12.88	11.7	17.61	46.98	39.72

Weed Control in Red Beet, Sugar Beet, and Swiss Chard - HTRC - 2017

Project Code: 109-17-1 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Red Beet, Sugar Beet, Swiss Chard **Variety: Ruby Queen, HM173RR, Silverado**
Planting Method: Seeded **Planting Date: 4/25/17 Harvest Date: See notes**
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: 2.3%** **pH: 5.7**
Sand: 56% **Silt: 28%** **Clay: 16%** **CEC: 7.2**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PPI	4/25/17	12:10 pm	67/56	F	Damp	1-6 SE	58	50% Cloudy	N
PRE	5/3/17	4:20 pm	61/58	F	Wet	1-3 SE	32	70% Cloudy	N
PO1	6/8/17	9:45 am	68/60	F	Damp	3-5 SW	46	0% Cloudy	Y

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/25	Red beet		PPI	
4/25	Sugar beet		PPI	
4/25	Swiss chard		PPI	
4/25	No weeds			
5/3	Red beet		Preemergence	
5/3	Sugar beet		Preemergence	
5/3	Swiss chard		Preemergence	
5/3	No weeds			
6/8	Red beet	1-4”	Foliar 3-5 lv	Fair
6/8	Swiss chard	3-4”	4-5 lv	Good
6/8	Sugar beet	4-6”	5-8 lv	Good
6/8	BYGR = barnyard grass	1-6”	3-5 lv	Many
6/8	COLQ = common lambsquarters	1-6”	3-10 lv	Many
6/8	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. Harvest dates were 7/24/17 for Red Beet and Swiss Chard, and 10/2/17 for Sugar Beet.

Weed Control in Red Beet, Sugar Beet, and Swiss Chard - HTRC - 2017

Weed Control in Red Beet, Sugar Beet, and Swiss Chard – HTRC – 2017

Trial ID:	109-17-1	Location:	East Lansing, MI
Protocol ID:	109-17-1	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	REBE	SWCH	SUBE	BYGR	COLQ	REBE
	Pest Code											
	Crop Code											
	Rating Date						30May17	30May17	30May17	30May17	30May17	06Jun17
	Rating Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	4.3	3.7	1.7	10.0	8.3	3.7
2	Pyramin	68	DF	2	lb ai/a	PRE	3.3	1.0	1.0	10.0	8.7	3.3
3	Outlook	6	EC	0.4	lb ai/a	PRE	3.7	2.7	1.7	10.0	7.7	3.3
4	Nortron	4	SC	1.5	lb ai/a	PRE	5.3	3.3	2.3	10.0	10.0	5.0
5	Ro-Neet	6	EC	3	lb ai/a	PPI	4.3	2.7	1.7	9.0	7.0	4.7
6	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	8.7	7.3	2.7	10.0	10.0	7.7
	Nortron	4	SC	1	lb ai/a	PRE						
	Betamix	1.3	EC	0.488	lb ai/a	PO1						
	Nortron	4	SC	0.5	lb ai/a	PO1						
	Upbeet	50	WDG	0.0156	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
7	Nortron	4	SC	1	lb ai/a	PRE	4.7	2.7	1.7	9.3	9.3	4.0
	Betamix	1.3	EC	0.488	lb ai/a	PO1						
	Nortron	4	SC	0.5	lb ai/a	PO1						
	Stinger	3	L	0.188	lb ai/a	PO1						
	Upbeet	50	WDG	0.0156	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
8	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	5.0	4.3	3.0	10.0	9.3	5.3
	Spin-Aid	1.3	L	0.488	lb ai/a	PO1						
	Nortron	4	SC	0.33	lb ai/a	PO1						
	Stinger	3	L	0.188	lb ai/a	PO1						
	Upbeet	50	WDG	0.0156	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
9	Ro-Neet	6	EC	3	lb ai/a	PPI	8.0	8.3	7.3	10.0	10.0	7.0
	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE						
	Spin-Aid	1.3	L	0.488	lb ai/a	PO1						
	Nortron	4	SC	0.5	lb ai/a	PO1						
	Stinger	3	L	0.188	lb ai/a	PO1						
	Upbeet	50	WDG	0.0156	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
10	Untreated					PRE	1.7	1.7	1.0	4.0	1.0	3.7
	Betamix	1.3	EC	0.488	lb ai/a	PO1						
	Nortron	4	SC	0.5	lb ai/a	PO1						
	Stinger	3	L	0.125	lb ai/a	PO1						
	Upbeet	50	WDG	0.0156	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
LSD P=.05							2.92	1.77	1.43	2.19	1.18	2.00
Standard Deviation							1.70	1.03	0.83	1.28	0.69	1.16
CV							34.73	27.37	34.68	13.84	8.43	24.43

Weed Control in Red Beet, Sugar Beet, and Swiss Chard - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	SWCH 06Jun17 RATING 1-10	SUBE 06Jun17 RATING 1-10	BYGR 06Jun17 RATING 1-10	COLQ 06Jun17 RATING 1-10	REBE 16Jun17 RATING 1-10	SWCH 16Jun17 RATING 1-10	SUBE 16Jun17 RATING 1-10
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	3.3	2.3	10.0	7.3	3.3	3.3	2.0
2	Pyramin	68	DF	2	lb ai/a	PRE	2.0	2.3	9.0	8.3	1.7	1.0	1.3
3	Outlook	6	EC	0.4	lb ai/a	PRE	2.7	2.3	10.0	6.0	2.3	2.3	2.3
4	Nortron	4	SC	1.5	lb ai/a	PRE	3.7	3.0	10.0	8.7	4.3	3.3	2.3
5	Ro-Neet	6	EC	3	lb ai/a	PPI	3.7	3.3	9.3	5.3	3.3	2.7	2.0
6	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	6.7	3.3	10.0	10.0	6.3	5.7	3.3
	Nortron	4	SC	1	lb ai/a	PRE							
	Betamix	1.3	EC	0.488	lb ai/a	PO1							
	Nortron	4	SC	0.5	lb ai/a	PO1							
	Upbeet	50	WDG	0.0156	lb ai/a	PO1							
	Select Max	.97	EC	0.12	lb ai/a	PO1							
7	Nortron	4	SC	1	lb ai/a	PRE	3.0	3.0	9.0	7.7	3.3	1.3	2.3
	Betamix	1.3	EC	0.488	lb ai/a	PO1							
	Nortron	4	SC	0.5	lb ai/a	PO1							
	Stinger	3	L	0.188	lb ai/a	PO1							
	Upbeet	50	WDG	0.0156	lb ai/a	PO1							
	Select Max	.97	EC	0.12	lb ai/a	PO1							
8	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	5.3	4.3	10.0	7.3	5.0	4.0	3.0
	Spin-Aid	1.3	L	0.488	lb ai/a	PO1							
	Nortron	4	SC	0.33	lb ai/a	PO1							
	Stinger	3	L	0.188	lb ai/a	PO1							
	Upbeet	50	WDG	0.0156	lb ai/a	PO1							
	Select Max	.97	EC	0.12	lb ai/a	PO1							
9	Ro-Neet	6	EC	3	lb ai/a	PPI	8.3	7.0	10.0	9.7	6.0	7.0	5.3
	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE							
	Spin-Aid	1.3	L	0.488	lb ai/a	PO1							
	Nortron	4	SC	0.5	lb ai/a	PO1							
	Stinger	3	L	0.188	lb ai/a	PO1							
	Upbeet	50	WDG	0.0156	lb ai/a	PO1							
	Select Max	.97	EC	0.12	lb ai/a	PO1							
10	Untreated					PRE	2.3	2.0	3.3	1.0	4.7	3.0	2.3
	Betamix	1.3	EC	0.488	lb ai/a	PO1							
	Nortron	4	SC	0.5	lb ai/a	PO1							
	Stinger	3	L	0.125	lb ai/a	PO1							
	Upbeet	50	WDG	0.0156	lb ai/a	PO1							
	Select Max	.97	EC	0.12	lb ai/a	PO1							
LSD P=.05							1.29	1.88	1.29	2.52	1.48	2.77	1.94
Standard Deviation							0.75	1.10	0.75	1.47	0.86	1.61	1.13
CV							28.59	26.8	22.81	16.21	12.1	40.01	33.67

Weed Control in Red Beet, Sugar Beet, and Swiss Chard - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BYGR	COLQ	CORW	REBE	REBE	REBE
Pest Code							BYGR	COLQ	CORW			
Crop Code										REBE	REBE	REBE
Rating Date							16Jun17	16Jun17	16Jun17	24Jul17	24Jul17	24Jul17
Rating Type							RATING	RATING	RATING	Count	HVRT-Root	HVRT-Plant
Rating Unit							1-10	1-10	1-10	#	KG/PLOT	KG/PLOT
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	10.0	6.0	6.7	63.0	6.43	4.17
2	Pyramin	68	DF	2	lb ai/a	PRE	6.7	7.0	10.0	66.3	8.21	4.46
3	Outlook	6	EC	0.4	lb ai/a	PRE	9.0	5.7	7.0	63.0	5.80	3.60
4	Nortron	4	SC	1.5	lb ai/a	PRE	8.7	8.3	7.7	47.3	5.38	3.00
5	Ro-Neet	6	EC	3	lb ai/a	PPI	8.7	4.0	4.0	53.3	4.20	3.52
6	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	10.0	10.0	9.7	42.3	5.08	3.09
	Nortron	4	SC	1	lb ai/a	PRE						
	Betamix	1.3	EC	0.488	lb ai/a	PO1						
	Nortron	4	SC	0.5	lb ai/a	PO1						
	Upbeet	50	WDG	0.0156	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
7	Nortron	4	SC	1	lb ai/a	PRE	10.0	9.7	10.0	71.3	9.06	4.75
	Betamix	1.3	EC	0.488	lb ai/a	PO1						
	Nortron	4	SC	0.5	lb ai/a	PO1						
	Stinger	3	L	0.188	lb ai/a	PO1						
	Upbeet	50	WDG	0.0156	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
8	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	10.0	9.3	10.0	56.0	7.24	4.07
	Spin-Aid	1.3	L	0.488	lb ai/a	PO1						
	Nortron	4	SC	0.33	lb ai/a	PO1						
	Stinger	3	L	0.188	lb ai/a	PO1						
	Upbeet	50	WDG	0.0156	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
9	Ro-Neet	6	EC	3	lb ai/a	PPI	10.0	10.0	10.0	42.0	4.99	2.68
	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE						
	Spin-Aid	1.3	L	0.488	lb ai/a	PO1						
	Nortron	4	SC	0.5	lb ai/a	PO1						
	Stinger	3	L	0.188	lb ai/a	PO1						
	Upbeet	50	WDG	0.0156	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
10	Untreated					PRE	8.7	6.0	9.3	44.7	2.83	2.44
	Betamix	1.3	EC	0.488	lb ai/a	PO1						
	Nortron	4	SC	0.5	lb ai/a	PO1						
	Stinger	3	L	0.125	lb ai/a	PO1						
	Upbeet	50	WDG	0.0156	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
LSD P=.05							1.59	1.20	4.81	22.38	4.007	1.847
Standard Deviation							0.92	0.70	2.80	13.05	2.336	1.077
CV							10.09	9.23	33.23	23.75	39.45	30.1

Weed Control in Red Beet, Sugar Beet, and Swiss Chard - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	SWCH 24Jul17 HARVEST KG/PLOT	SUBE 02Oct17 HARVEST #/PLOT	SUBE 02Oct17 HARVEST KG/PLOT
	Pest Code								
	Crop Code								
	Rating Date								
	Rating Type								
	Rating Unit								
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	7.88	81.7	76.13
2	Pyramin	68	DF	2	lb ai/a	PRE	14.48	89.7	69.76
3	Outlook	6	EC	0.4	lb ai/a	PRE	9.08	89.7	63.04
4	Nortron	4	SC	1.5	lb ai/a	PRE	9.68	94.7	78.86
5	Ro-Neet	6	EC	3	lb ai/a	PPI	7.62	88.7	63.73
6	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	8.84	94.3	104.92
	Nortron	4	SC	1	lb ai/a	PRE			
	Betamix	1.3	EC	0.488	lb ai/a	PO1			
	Nortron	4	SC	0.5	lb ai/a	PO1			
	Upbeet	50	WDG	0.0156	lb ai/a	PO1			
	Select Max	.97	EC	0.12	lb ai/a	PO1			
7	Nortron	4	SC	1	lb ai/a	PRE	13.32	99.3	89.80
	Betamix	1.3	EC	0.488	lb ai/a	PO1			
	Nortron	4	SC	0.5	lb ai/a	PO1			
	Stinger	3	L	0.188	lb ai/a	PO1			
	Upbeet	50	WDG	0.0156	lb ai/a	PO1			
	Select Max	.97	EC	0.12	lb ai/a	PO1			
8	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE	10.55	82.0	86.96
	Spin-Aid	1.3	L	0.488	lb ai/a	PO1			
	Nortron	4	SC	0.33	lb ai/a	PO1			
	Stinger	3	L	0.188	lb ai/a	PO1			
	Upbeet	50	WDG	0.0156	lb ai/a	PO1			
	Select Max	.97	EC	0.12	lb ai/a	PO1			
9	Ro-Neet	6	EC	3	lb ai/a	PPI	7.35	65.3	88.16
	Dual Magnum	7.62	EC	1.3	lb ai/a	PRE			
	Spin-Aid	1.3	L	0.488	lb ai/a	PO1			
	Nortron	4	SC	0.5	lb ai/a	PO1			
	Stinger	3	L	0.188	lb ai/a	PO1			
	Upbeet	50	WDG	0.0156	lb ai/a	PO1			
	Select Max	.97	EC	0.12	lb ai/a	PO1			
10	Untreated					PRE	6.15	77.3	48.55
	Betamix	1.3	EC	0.488	lb ai/a	PO1			
	Nortron	4	SC	0.5	lb ai/a	PO1			
	Stinger	3	L	0.125	lb ai/a	PO1			
	Upbeet	50	WDG	0.0156	lb ai/a	PO1			
	Select Max	.97	EC	0.12	lb ai/a	PO1			
LSD P=.05							6.799	25.04	27.173
Standard Deviation							3.964	14.60	15.840
CV							41.74	16.92	20.57

Weed Control in Broccoli and Cabbage – HTRC - 2017

Project Code: 114-17-1 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Broccoli, Cabbage **Variety: Green Magic, Blue Vantage**
Planting Method: Transplant **Planting Date: 5/10/17** **Harvest Date: See notes**
Spacing: 22” **Row Spacing: 36”**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Colwood Brookston loam **OM: 1.5%** **pH: 7.3**
Sand: 54% **Silt: 24%** **Clay: 22%** **CEC: 8.4**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRETP	5/10/17	11:40am	66/53	F	Dry	1 SE	29	95% Cloudy	N
POT	5/10/17	4:04 pm	70/64	F	Dry	3 SE	27	50% Cloudy	N
PO1	6/9/17	1:30 pm	80/68	F	Damp	3-4 SW	53	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/10	BROCOLLI		Preemergence	
5/10	CABBAGE		Preemergence	
5/10	No weeds			
6/9	BROCOLLI	5-7”	6-8 lv	Good
6/9	CABBAGE	4-5”	6-8 lv	Good
6/9	BYGR = barnyardgrass			
6/9	COLQ = common lambsquarters	1-2”	3-4 lv	Many
6/9	RRPW = redroot pigweed	1-2”	3-5 lv	Mod
6/9	YEFT = yellow foxtail	1-3”	3-4 lv	Many
6/9	YENS = yellow nutsedge	3-4”	2-3 lv	Mod
6/9	WIRA = wild radish	1-3”	3-4 lv	Mod

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. Water was used for transplanting
4. Soil was cloddy during transplanting.
5. Broccoli: 7 harvests from 7/2/17 to 8/2/17; Cabbage: 5 harvests from 7/14/17 to 8/7/17.

Weed Control in Broccoli and Cabbage – HTRC - 2017

Weed Control in Broccoli and Cabbage – HTRC – 2017

Trial ID: 114-17-1 Location: East Lansing, MI
Protocol ID: 114-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BROC	CABB	YEFT	COLQ	RRPW	WIRA	BROC
Pest Code													
Crop Code							BROC	CABB					BROC
Rating Date							02Jun17	02Jun17	02Jun17	02Jun17	02Jun17	02Jun17	09Jun17
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
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	1.7	2.0	10.0	10.0	10.0	10.0	2.3
2	Prowl H20	3.8	CS	1	lb ai/a	PRT	1.0	1.0	10.0	9.3	9.3	9.3	1.0
3	Command	3	ME	0.5	lb ai/a	PRT	3.7	3.3	10.0	10.0	10.0	9.0	3.0
4	GoalTender	4	SC	0.5	lb ai/a	PRT	1.3	2.0	9.3	10.0	10.0	10.0	2.0
5	BIR	1.67	SL	0.033	lb ai/a	PRT	4.0	3.0	7.0	10.0	10.0	10.0	3.7
6	BIR	1.67	SL	0.045	lb ai/a	PRT	6.0	3.7	7.0	10.0	10.0	10.0	6.3
7	BIR	1.67	SL	0.033	lb ai/a	PRT	4.0	2.7	5.3	9.0	8.0	10.0	3.3
8	BIR	1.67	SL	0.045	lb ai/a	POT	7.0	4.3	6.3	10.0	10.0	9.7	7.7
9	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	2.0	2.0	10.0	9.7	10.0	9.3	3.0
	BIR	1.67	SL	0.033	lb ai/a	PO1							
10	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	1.3	1.3	10.0	9.3	10.0	9.3	2.7
	BIR	1.67	SL	0.045	lb ai/a	PO1							
11	Chateau SW	51	WDG	0.064	lb ai/a	PRT	1.7	5.3	10.0	10.0	10.0	10.0	1.3
12	Spartan	4	F	0.188	lb ai/a	PRT	3.0	3.0	10.0	10.0	10.0	10.0	3.0
	Command	3	ME	0.5	lb ai/a	PRT							
13	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	1.3	1.3	10.0	10.0	10.0	10.0	2.7
	GoalTender	4	SC	0.125	lb ai/a	PO1							
	Select Max	.97	EC	0.12	lb ai/a	PO1							
14	Untreated						1.0	1.0	1.0	1.0	1.0	3.0	1.0
15	BIR	1.67	SL	0.033	lb ai/a	POT	4.3	4.7	9.3	10.0	10.0	10.0	5.7
LSD P=.05							1.59	1.25	3.56	1.06	0.88	1.96	1.33
Standard Deviation							0.95	0.75	2.13	0.63	0.53	1.17	0.79
CV							32.9	27.61	25.5	6.84	5.73	12.59	24.5

Weed Control in Broccoli and Cabbage – HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage							
Pest Code								YEFT	YENS	COLQ	RRPW		
Crop Code							CABB					BROC	CABB
Rating Date							09Jun17	09Jun17	09Jun17	09Jun17	09Jun17	16Jun19	16Jun19
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
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	2.3	10.0	10.0	7.7	10.0	2.0	2.0
2	Prowl H20	3.8	CS	1	lb ai/a	PRT	1.3	10.0	4.0	10.0	7.7	1.3	1.3
3	Command	3	ME	0.5	lb ai/a	PRT	3.0	10.0	3.3	10.0	8.7	2.0	2.0
4	GoalTender	4	SC	0.5	lb ai/a	PRT	2.0	10.0	6.7	9.7	10.0	2.3	2.0
5	BIR	1.67	SL	0.033	lb ai/a	PRT	3.3	9.3	6.0	8.7	8.3	3.3	2.7
6	BIR	1.67	SL	0.045	lb ai/a	PRT	4.0	7.7	1.7	9.7	9.0	6.0	3.7
7	BIR	1.67	SL	0.033	lb ai/a	PRT	2.3	6.0	2.3	9.0	6.0	3.3	2.3
8	BIR	1.67	SL	0.045	lb ai/a	POT	4.3	6.0	5.3	9.0	9.7	7.7	3.7
9	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	2.7	10.0	10.0	7.3	10.0	3.0	3.0
	BIR	1.67	SL	0.033	lb ai/a	PO1							
10	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	2.3	10.0	10.0	6.7	9.7	3.3	3.3
	BIR	1.67	SL	0.045	lb ai/a	PO1							
11	Chateau SW	51	WDG	0.064	lb ai/a	PRT	5.3	10.0	1.7	10.0	10.0	1.3	2.7
12	Spartan	4	F	0.188	lb ai/a	PRT	3.0	10.0	5.3	10.0	10.0	2.0	2.3
	Command	3	ME	0.5	lb ai/a	PRT							
13	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	2.7	10.0	9.3	7.3	10.0	3.0	2.7
	GoalTender	4	SC	0.125	lb ai/a	PO1							
	Select Max	.97	EC	0.12	lb ai/a	PO1							
14	Untreated						1.0	1.7	3.0	1.0	1.0	1.7	1.7
15	BIR	1.67	SL	0.033	lb ai/a	POT	4.3	10.0	7.0	9.7	9.3	4.3	3.3
LSD P=.05							1.09	3.08	3.75	2.07	2.17	1.21	1.20
Standard Deviation							0.65	1.84	2.24	1.24	1.30	0.72	0.72
CV							22.19	21.18	39.24	14.8	15.03	23.23	27.91

Weed Control in Broccoli and Cabbage – HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BYGR	YENS	COLQ	RRPW	WIRA	BROC
Pest Code							BYGR	YENS	COLQ	RRPW	WIRA	
Crop Code												BROC
Rating Date							16Jun19	16Jun19	16Jun19	16Jun19	16Jun19	23Jun17
Rating Type							RATING	RATING	RATING	RATING	RATING	STD COUNT
Rating Unit							1-10	1-10	1-10	1-10	1-10	#
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	10.0	10.0	6.7	10.0	7.0	17.3
2	Prowl H20	3.8	CS	1	lb ai/a	PRT	9.7	3.3	10.0	6.7	7.3	16.7
3	Command	3	ME	0.5	lb ai/a	PRT	10.0	3.7	10.0	6.0	7.0	18.0
4	GoalTender	4	SC	0.5	lb ai/a	PRT	9.0	6.7	9.0	10.0	9.7	16.3
5	BIR	1.67	SL	0.033	lb ai/a	PRT	8.3	5.7	8.0	9.0	7.0	16.7
6	BIR	1.67	SL	0.045	lb ai/a	PRT	7.0	3.0	10.0	6.0	9.3	6.3
7	BIR	1.67	SL	0.033	lb ai/a	PRT	2.3	1.0	5.0	3.7	6.0	15.0
8	BIR	1.67	SL	0.045	lb ai/a	POT	6.3	4.7	9.3	8.3	8.3	8.0
9	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	10.0	10.0	5.7	10.0	7.7	18.3
	BIR	1.67	SL	0.033	lb ai/a	PO1						
10	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	10.0	10.0	7.0	10.0	8.0	17.3
	BIR	1.67	SL	0.045	lb ai/a	PO1						
11	Chateau SW	51	WDG	0.064	lb ai/a	PRT	10.0	1.7	9.7	10.0	9.0	12.0
12	Spartan	4	F	0.188	lb ai/a	PRT	9.7	7.3	10.0	10.0	9.0	17.0
	Command	3	ME	0.5	lb ai/a	PRT						
13	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	10.0	10.0	9.0	10.0	9.7	18.3
	GoalTender	4	SC	0.125	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
14	Untreated						1.0	1.0	1.0	1.0	3.0	16.7
15	BIR	1.67	SL	0.033	lb ai/a	POT	10.0	4.3	9.3	8.0	10.0	13.0
LSD P=.05							2.99	3.60	2.55	2.80	4.11	5.46
Standard Deviation							1.79	2.15	1.53	1.68	2.46	3.27
CV							21.72	39.23	19.14	21.18	31.21	21.6

Weed Control in Broccoli and Cabbage – HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
Pest Code											
Crop Code							CABB	BROC	CABB	BROC	CABB
Rating Date							23Jun17	29Jun17	29Jun17	12Jul17	12Jul17
Rating Type							STD COUNT	RATING	RATING	STD COUNT	STD COUNT
Rating Unit							#	1-10	1-10	#	#
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	16.3	2.3	2.7	15.7	16.0
2	Prowl H20	3.8	CS	1	lb ai/a	PRT	18.7	1.0	1.0	16.7	19.0
3	Command	3	ME	0.5	lb ai/a	PRT	18.0	1.7	1.7	18.3	17.7
4	GoalTender	4	SC	0.5	lb ai/a	PRT	16.7	2.0	1.7	14.7	16.7
5	BIR	1.67	SL	0.033	lb ai/a	PRT	15.7	3.7	2.7	15.3	15.0
6	BIR	1.67	SL	0.045	lb ai/a	PRT	14.7	6.0	4.3	14.7	15.0
7	BIR	1.67	SL	0.033	lb ai/a	PRT	15.7	4.0	2.7	17.3	16.7
8	BIR	1.67	SL	0.045	lb ai/a	POT	15.7	6.7	4.0	11.7	15.7
9	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	18.0	2.3	3.0	17.7	16.0
	BIR	1.67	SL	0.033	lb ai/a	PO1					
10	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	17.7	2.3	2.3	17.7	18.3
	BIR	1.67	SL	0.045	lb ai/a	PO1					
11	Chateau SW	51	WDG	0.064	lb ai/a	PRT	9.7	1.7	2.7	16.7	12.3
12	Spartan	4	F	0.188	lb ai/a	PRT	16.7	2.0	2.0	15.0	16.7
	Command	3	ME	0.5	lb ai/a	PRT					
13	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	18.0	2.3	1.7	18.0	18.7
	GoalTender	4	SC	0.125	lb ai/a	PO1					
	Select Max	.97	EC	0.12	lb ai/a	PO1					
14	Untreated						18.0	3.0	2.3	17.3	18.0
15	BIR	1.67	SL	0.033	lb ai/a	POT	11.0	4.7	3.7	15.7	15.7
LSD P=.05							4.63	1.57	1.29	4.79	3.66
Standard Deviation							2.77	0.94	0.77	2.87	2.19
CV							17.28	30.89	30.27	17.74	13.26

Weed Control in Broccoli and Cabbage – HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
Pest Code											
Crop Code							BROC	BROC	BROC	BROC	BROC
Rating Date							12Jul17	12Jul17	13Jul17	13Jul17	17Jul17
Rating Type							HARVEST	HARVEST	HARVEST	HARVEST	HARVEST
Rating Unit							#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	#/PLOT
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	4.3	3.90	2.0	0.66	3.3
2	Prowl H20	3.8	CS	1	lb ai/a	PRT	7.0	3.66	2.0	0.56	4.3
3	Command	3	ME	0.5	lb ai/a	PRT	4.7	3.90	3.0	0.91	4.0
4	GoalTender	4	SC	0.5	lb ai/a	PRT	3.3	1.81	2.7	1.00	6.0
5	BIR	1.67	SL	0.033	lb ai/a	PRT	1.0	1.58	3.0	1.11	1.7
6	BIR	1.67	SL	0.045	lb ai/a	PRT	0.0		1.0	0.40	1.5
7	BIR	1.67	SL	0.033	lb ai/a	PRT	2.0	1.28	1.7	0.53	2.0
8	BIR	1.67	SL	0.045	lb ai/a	POT	0.0				
9	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	2.3	1.64	4.0	1.48	4.7
	BIR	1.67	SL	0.033	lb ai/a	PO1					
10	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	4.0	4.11	1.0	0.28	3.3
	BIR	1.67	SL	0.045	lb ai/a	PO1					
11	Chateau SW	51	WDG	0.064	lb ai/a	PRT	4.3	2.42	3.0	1.05	4.7
12	Spartan	4	F	0.188	lb ai/a	PRT	3.0	1.63	2.5	0.73	5.0
	Command	3	ME	0.5	lb ai/a	PRT					
13	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	3.3	1.82	3.3	1.06	4.7
	GoalTender	4	SC	0.125	lb ai/a	PO1					
	Select Max	.97	EC	0.12	lb ai/a	PO1					
14	Untreated						4.7	2.65	7.0	2.23	3.7
15	BIR	1.67	SL	0.033	lb ai/a	POT	0.7	0.48			1.0
LSD P=.05							4.40	3.779	2.65	0.854	3.46
Standard Deviation							2.63	2.172	1.44	0.462	2.05
CV							88.45	91.48	51.62	50.15	57.48

Weed Control in Broccoli and Cabbage – HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
Pest Code											
Crop Code							BROC	BROC	BROC	BROC	BROC
Rating Date							17Jul17	21Jul17	21Jul17	25Jul17	25Jul17
Rating Type							HARVEST	HARVEST	HARVEST	HARVEST	HARVEST
Rating Unit							KG/PLOT	#/PLOT	KG/PLOT	#/PLOT	KG/PLOT
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	0.93	2.0	0.48	1.3	0.24
2	Prowl H20	3.8	CS	1	lb ai/a	PRT	1.43	2.3	0.58	1.0	0.13
3	Command	3	ME	0.5	lb ai/a	PRT	1.00	4.0	1.05	1.5	0.38
4	GoalTender	4	SC	0.5	lb ai/a	PRT	1.77	2.0	0.45	1.0	0.21
5	BIR	1.67	SL	0.033	lb ai/a	PRT	0.35	3.0	0.73	1.5	0.44
6	BIR	1.67	SL	0.045	lb ai/a	PRT	0.43	1.0	0.29	2.0	0.67
7	BIR	1.67	SL	0.033	lb ai/a	PRT	0.69	2.0	0.38	2.0	0.49
8	BIR	1.67	SL	0.045	lb ai/a	POT		1.0	0.26	1.0	0.40
9	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	1.46	3.0	0.95	2.5	0.53
	BIR	1.67	SL	0.033	lb ai/a	PO1					
10	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	1.13	3.7	1.10	2.0	0.42
	BIR	1.67	SL	0.045	lb ai/a	PO1					
11	Chateau SW	51	WDG	0.064	lb ai/a	PRT	1.19	2.3	0.62	2.0	0.35
12	Spartan	4	F	0.188	lb ai/a	PRT	1.59	2.7	0.77	2.3	0.52
	Command	3	ME	0.5	lb ai/a	PRT					
13	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	1.19	3.0	0.74	2.3	0.51
	GoalTender	4	SC	0.125	lb ai/a	PO1					
	Select Max	.97	EC	0.12	lb ai/a	PO1					
14	Untreated						0.88	4.0	0.92	2.0	0.33
15	BIR	1.67	SL	0.033	lb ai/a	POT	0.07	1.0	0.31	1.0	0.19
LSD P=.05							1.139	3.59	1.027	1.69	0.352
Standard Deviation							0.673	2.09	0.599	0.96	0.200
CV							66.85	84.9	93.48	56.28	51.74

Weed Control in Broccoli and Cabbage – HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BROC 28Jul17 HARVEST #/PLOT	BROC 28Jul17 HARVEST KG/PLOT	BROC 02Aug17 HARVEST #/PLOT	BROC 02Aug17 HARVEST KG/PLOT	BROC TOTAL #/PLOT	BROC TOTAL KG/PLOT
	Pest Code											
	Crop Code						BROC	BROC	BROC	BROC	BROC	BROC
	Rating Date						28Jul17	28Jul17	02Aug17	02Aug17		
	Rating Type						HARVEST	HARVEST	HARVEST	HARVEST	TOTAL	TOTAL
	Rating Unit						#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	#/PLOT	KG/PLOT
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	6.5	0.78	1.0	0.13	17.3	5.29
2	Prowl H20	3.8	CS	1	lb ai/a	PRT	1.5	0.21	1.0	0.14	17.7	6.50
3	Command	3	ME	0.5	lb ai/a	PRT	3.0	0.55	1.0	0.15	17.0	5.75
4	GoalTender	4	SC	0.5	lb ai/a	PRT	3.3	0.40	1.0	0.07	17.3	5.38
5	BIR	1.67	SL	0.033	lb ai/a	PRT	2.0	0.33	3.0	0.63	9.0	2.45
6	BIR	1.67	SL	0.045	lb ai/a	PRT	2.0	0.45	2.0	0.62	4.3	1.24
7	BIR	1.67	SL	0.033	lb ai/a	PRT	1.0	0.14	1.5	0.25	8.7	2.55
8	BIR	1.67	SL	0.045	lb ai/a	POT			1.0	0.17	1.0	0.28
9	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	3.3	0.63	1.0	0.18	17.0	5.08
	BIR	1.67	SL	0.033	lb ai/a	PO1						
10	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	4.0	0.69	1.0	0.30	17.0	6.13
	BIR	1.67	SL	0.045	lb ai/a	PO1						
11	Chateau SW	51	WDG	0.064	lb ai/a	PRT	1.0	0.14	1.0	0.14	15.0	4.99
12	Spartan	4	F	0.188	lb ai/a	PRT	3.0	0.52	2.0	0.26	18.3	5.59
	Command	3	ME	0.5	lb ai/a	PRT						
13	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	1.5	0.16			17.7	5.43
	GoalTender	4	SC	0.125	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
14	Untreated						2.0	0.32	2.0	0.30	15.3	4.22
15	BIR	1.67	SL	0.033	lb ai/a	POT	2.0	0.38	2.5	0.56	5.7	1.41
LSD P=.05							3.04	0.585	3.19	0.921	5.73	2.231
Standard Deviation							1.75	0.336	1.23	0.355	3.43	1.334
CV							67.6	82.86	81.97	127.47	25.93	32.14

Weed Control in Broccoli and Cabbage – HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code												
Crop Code							CABB	CABB	CABB	CABB	CABB	CABB
Rating Date							14Jul17	14Jul17	18Jul17	18Jul17	25Jul17	25Jul17
Rating Type							HARVEST	HARVEST	HARVEST	HARVEST	HARVEST	HARVEST
Rating Unit							#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	#/PLOT	KG/PLOT
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	2.0	2.26	3.0	2.99	5.7	7.03
2	Prowl H20	3.8	CS	1	lb ai/a	PRT	5.0	5.96	3.5	4.11	6.3	7.55
3	Command	3	ME	0.5	lb ai/a	PRT	1.5	1.53	4.0	4.39	4.0	4.93
4	GoalTender	4	SC	0.5	lb ai/a	PRT	4.0	7.27	3.0	3.70	7.7	9.83
5	BIR	1.67	SL	0.033	lb ai/a	PRT	2.0	3.44	2.0	2.39	2.3	2.93
6	BIR	1.67	SL	0.045	lb ai/a	PRT	2.0	2.42	1.5	1.64	2.4	2.26
7	BIR	1.67	SL	0.033	lb ai/a	PRT	4.0	5.13	2.5	2.99	2.9	3.55
8	BIR	1.67	SL	0.045	lb ai/a	POT			2.0	2.33	1.9	2.00
9	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	2.0	1.88	3.5	4.09	5.7	6.88
	BIR	1.67	SL	0.033	lb ai/a	PO1						
10	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	6.0	7.69	3.0	3.41	5.0	5.69
	BIR	1.67	SL	0.045	lb ai/a	PO1						
11	Chateau SW	51	WDG	0.064	lb ai/a	PRT	2.5	3.47	3.0	3.97	2.4	2.96
12	Spartan	4	F	0.188	lb ai/a	PRT	4.5	6.36	3.3	4.22	3.3	4.96
	Command	3	ME	0.5	lb ai/a	PRT						
13	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	6.0	10.31	3.0	3.79	6.7	9.28
	GoalTender	4	SC	0.125	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
14	Untreated						1.5	1.32	2.5	2.26	3.7	4.22
15	BIR	1.67	SL	0.033	lb ai/a	POT					2.0	2.21
LSD P=.05							8.50	11.895	2.78	3.541	4.68	5.863
Standard Deviation							3.06	4.285	1.61	2.046	2.78	3.479
CV							92.62	94.39	56.51	61.91	67.12	68.42

Weed Control in Broccoli and Cabbage – HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CABB 02Aug17 HARVEST #/PLOT	CABB 02Aug17 HARVEST KG/PLOT	CABB 07Aug17 HARVEST #/PLOT	CABB 07Aug17 HARVEST KG/PLOT	CABB TOTAL #/PLOT	CABB TOTAL KG/PLOT
	Pest Code											
	Crop Code						CABB	CABB	CABB	CABB	CABB	CABB
	Rating Date						02Aug17	02Aug17	07Aug17	07Aug17		
	Rating Type						HARVEST	HARVEST	HARVEST	HARVEST	TOTAL	TOTAL
	Rating Unit						#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	#/PLOT	KG/PLOT
1	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	1.7	1.99	3.7	3.61	14.7	16.37
2	Prowl H20	3.8	CS	1	lb ai/a	PRT	1.5	1.77	4.3	4.34	17.3	19.78
3	Command	3	ME	0.5	lb ai/a	PRT	2.0	2.43	5.3	4.88	15.0	16.17
4	GoalTender	4	SC	0.5	lb ai/a	PRT	2.0	2.26	4.0	4.31	16.7	21.01
5	BIR	1.67	SL	0.033	lb ai/a	PRT	1.0	1.13	4.3	4.60	9.7	11.39
6	BIR	1.67	SL	0.045	lb ai/a	PRT	1.0	1.51	3.0	2.15	7.3	7.20
7	BIR	1.67	SL	0.033	lb ai/a	PRT	1.7	2.20	3.0	3.10	10.0	12.01
8	BIR	1.67	SL	0.045	lb ai/a	POT	1.0	1.04	6.0	5.51	8.7	8.61
9	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	2.0	2.72	5.7	5.79	15.7	17.83
	BIR	1.67	SL	0.033	lb ai/a	PO1						
10	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	3.7	4.58	3.3	3.07	17.0	19.31
	BIR	1.67	SL	0.045	lb ai/a	PO1						
11	Chateau SW	51	WDG	0.064	lb ai/a	PRT	1.0	1.74	2.3	2.00	8.7	10.73
12	Spartan	4	F	0.188	lb ai/a	PRT	1.7	2.30	3.0	2.75	14.3	18.47
	Command	3	ME	0.5	lb ai/a	PRT						
13	Dual Magnum	7.62	EC	1.3	lb ai/a	PRT	2.3	2.95	3.3	3.33	17.3	22.78
	GoalTender	4	SC	0.125	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
14	Untreated						2.5	2.53	5.0	5.22	13.0	13.51
15	BIR	1.67	SL	0.033	lb ai/a	POT	2.7	3.91	4.3	4.11	9.0	10.22
LSD P=.05							1.61	2.250	3.64	4.004	4.95	5.260
Standard Deviation							0.94	1.316	2.18	2.395	2.96	3.145
CV							51.07	56.37	53.84	61.14	22.83	20.93

Weed Control in Carrot – Muck Soil - Keilen - 2017

Project Code: 107-17-1 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Carrot **Variety: Belgrado**
Planting Method: Seeded **Planting Date: 5/3/17** **Harvest Date: 9/12/17**
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: 63.3%** **pH: 6.8**
Sand: 16% **Silt: 21%** **Clay: 0.1%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/9/17	9:10 am	56/47	F	Damp	2-6 NE	45	% Cloudy	Y
PO1	6/8/17	1:47 pm	82/66	F	Dry	1-2 NW	27	% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/9	Carrot		Preemergence	
5/9	No weeds			
6/8	Carrot	2-4″	2-3 lf	Good
6/8	LATH = ladysthumb	2-4″	Veg	Many
6/8	RRPW = redroot pigweed	3-5″	Veg	Many
6/8	YENS = yellow nutsedge	4-6″	Veg	Few
	HANS = hairy nightshade			

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. PO1 – carrot 2 LS.
4. Harvest: 10ft of 2 rows.

Weed Control in Carrot – Muck Soil - Keilen - 2017

Weed Control in Carrot – Muck Soil – Keilen – 2017

Trial ID:	107-17-1	Location:	East Lansing, MI
Protocol ID:	107-17-1	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage							
Pest Code								HANS	LATH	RRPW		LATH	RRPW
Crop Name							CARROT				CARROT		
Rating Date							06Jun17	06Jun17	06Jun17	06Jun17	12Jun17	12Jun17	12Jun17
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
1	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.7	2.7	5.0	4.7	1.0	7.7	9.3
	Lorox	50	DF	1	lb ai/a	PO1							
2	BIR	1.67	SL	0.033	lb ai/a	PRE	3.7	1.0	1.7	1.7	1.7	4.3	6.7
	Lorox	50	DF	1	lb ai/a	PO1							
3	BIR	1.67	SL	0.045	lb ai/a	PRE	2.0	1.3	1.3	3.0	2.0	7.0	8.0
	Lorox	50	DF	1	lb ai/a	PO1							
4	BIR	1.67	SL	0.09	lb ai/a	PRE	3.7	4.3	2.0	1.7	2.0	6.3	8.7
	Lorox	50	DF	1	lb ai/a	PO1							
5	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	2.0	7.0	4.0	4.3	1.0	4.0	3.0
	BIR	1.67	SL	0.033	lb ai/a	PO1							
6	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.0	4.0	3.3	1.7	1.0	7.3	8.3
	BIR	1.67	SL	0.033	lb ai/a	PO1							
	Lorox	50	DF	1	lb ai/a	PO1							
7	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	2.0	9.3	6.0	5.7	1.7	6.7	6.0
	BIR	1.67	SL	0.045	lb ai/a	PO1							
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	2.0	8.0	6.0	5.0	2.0	8.0	8.7
	BIR	1.67	SL	0.045	lb ai/a	PO1							
	Lorox	50	DF	1	lb ai/a	PO1							
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.0	5.3	5.3	3.0	1.7	5.7	5.0
	BIR	1.67	SL	0.09	lb ai/a	PO1							
10	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.0	8.0	5.0	3.0	2.0	9.3	8.7
	BIR	1.67	SL	0.09	lb ai/a	PO1							
	Lorox	50	DF	1	lb ai/a	PO1							
11	Zidua	85	WDG	0.133	lb ai/a	PRE	1.3	9.7	4.0	4.3	1.3	6.7	9.0
	Lorox	50	DF	1	lb ai/a	PO1							
12	Zidua	85	WDG	0.267	lb ai/a	PRE	2.0	4.3	2.0	3.0	1.3	6.7	8.0
	Lorox	50	DF	1	lb ai/a	PO1							
13	Lorox	50	DF	1	lb ai/a	PRE	1.3	4.3	2.3	4.0	1.3	1.3	1.7
	Zidua	85	WDG	0.133	lb ai/a	PRE							
14	Untreated						1.3	4.7	1.3	2.7	1.0	7.3	7.3
	Lorox	50	DF	1	lb ai/a	PO1							
LSD P=.05							1.67	4.06	3.71	3.77	1.48	2.68	2.14
Standard Deviation							1.00	2.42	2.21	2.24	0.88	1.60	1.28
CV							53.7	45.79	62.74	65.93	58.68	25.33	18.19

Weed Control in Carrot – Muck Soil - Keilen - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
Pest Code								LATH	RRPW		
Crop Name							CARROT			CARROT	CARROT
Rating Date							20Jun17	20Jun17	20Jun17	03Jul17	12Sep17
Rating Type							RATING	RATING	RATING	RATING	HARVEST
Rating Unit							1-10	1-10	1-10	1-10	KG/PLOT
1	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	4.0	10.0	10.0	1.3	27.68
	Lorox	50	DF	1	lb ai/a	PO1					
2	BIR	1.67	SL	0.033	lb ai/a	PRE	2.0	9.0	10.0	2.0	26.60
	Lorox	50	DF	1	lb ai/a	PO1					
3	BIR	1.67	SL	0.045	lb ai/a	PRE	2.3	9.0	10.0	2.0	27.33
	Lorox	50	DF	1	lb ai/a	PO1					
4	BIR	1.67	SL	0.09	lb ai/a	PRE	4.0	9.7	10.0	3.3	26.97
	Lorox	50	DF	1	lb ai/a	PO1					
5	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	2.7	7.0	6.0	4.0	25.36
	BIR	1.67	SL	0.033	lb ai/a	PO1					
6	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	5.0	10.0	10.0	3.7	22.66
	BIR	1.67	SL	0.033	lb ai/a	PO1					
	Lorox	50	DF	1	lb ai/a	PO1					
7	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	4.7	9.3	7.7	5.3	16.92
	BIR	1.67	SL	0.045	lb ai/a	PO1					
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	6.0	10.0	10.0	6.7	22.08
	BIR	1.67	SL	0.045	lb ai/a	PO1					
	Lorox	50	DF	1	lb ai/a	PO1					
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	4.3	9.3	7.3	5.3	22.38
	BIR	1.67	SL	0.09	lb ai/a	PO1					
10	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	4.7	10.0	10.0	7.3	16.51
	BIR	1.67	SL	0.09	lb ai/a	PO1					
	Lorox	50	DF	1	lb ai/a	PO1					
11	Zidua	85	WDG	0.133	lb ai/a	PRE	5.3	9.3	10.0	2.0	28.00
	Lorox	50	DF	1	lb ai/a	PO1					
12	Zidua	85	WDG	0.267	lb ai/a	PRE	2.3	9.0	9.3	3.0	25.14
	Lorox	50	DF	1	lb ai/a	PO1					
13	Lorox	50	DF	1	lb ai/a	PRE	3.0	8.7	8.7	3.3	26.58
	Zidua	85	WDG	0.133	lb ai/a	PRE					
14	Untreated						3.3	8.7	10.0	2.0	26.84
	Lorox	50	DF	1	lb ai/a	PO1					
LSD P=.05							3.21	2.09	2.06	2.16	5.708
Standard Deviation							1.91	1.24	1.23	1.29	3.400
CV							49.87	13.49	13.31	35.07	13.96

Performance of Bicyclopyrone on Carrot Grown in Mineral Soil – HTRC - 2017

Project Code: 107-72-2 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Carrot **Variety: Sugarsnax 54**
Planting Method: Seeded **Planting Date: 5/9** **Harvest Date: 8-16-17**
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: 2.2%** **pH: 6.9**
Sand: 54% **Silt: 28%** **Clay: 18%** **CEC: 9.6**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPOS	6/5/17	10:30 am	64/66	F	66	4-6 NE	76	100% Cloudy	N
PO1	6/8/17	3:30 am	81/78	F	78	4-6 N	35	30% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/5	Carrot	1-2″	2lf	Good
6/5	COLQ = common lambsquarters	1-4″	Veg	Many
6/5	CORW = common ragweed	2-3″	VEG	Mod
6/5	LACG = large crabgrass	3-5″	Veg	Many
6/5	LATH = ladysthumb	2-4″	Veg	Many
6/5	PEST = perennial sowthistle	4-6″	Veg	Mod
6/5	YENS = yellow nutsedge	3-5″	Veg	Many
6/5	YERO = yellow rocket	6-8″	Veg	Few
6/8	Carrot	1-2″	2lf	Good
6/8	COLQ = common lambsquarters	1-4″	Veg	Many
6/8	CORW = common ragweed	2-3″	Veg	Mod
6/8	LACG = large crabgrass	3-5″	Veg	Many
6/8	LATH = ladysthumb	2-4″	Veg	Many
6/8	PEST = perennial sowthistle	4-6″	Veg	Mod
6/8	YENS = yellow nutsedge	3-5″	Veg	Many
6/8	YERO = yellow rocket	6-8″	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. 6/14 - Lorox 0.5 lb ai/a applied to guard rows and between plot areas.

Performance of Bicyclopyrone on Carrot Grown in Mineral Soil – HTRC - 2017

Performance of Bicyclopyrone on Carrot Grown in Mineral Soil – HTRC – 2017

Trial ID:	107-17-2	Location:	East Lansing, MI
Protocol ID:	107-17-2	Investigator:	Dr. Bernard Zandstra
Study Director:	Colin Phillippo		

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CARROT 14Jun17 RATING 1-10	BYGR 14Jun17 RATING 1-10	COLQ 14Jun17 RATING 1-10	CARROT 11Jul17 RATING 1-10	CARROT 16Aug17 HARVEST KG/PLOT
1	Untreated - Weed Free						1.7	6.3	5.3	1.0	23.84
	Lorox	50	DF	0.5	lb ai/a	PO1					
2	BIR	1.67	SL	0.01125	lb ai/a	PRE	4.0	7.7	10.0	3.0	18.98
	Lorox	50	DF	0.5	lb ai/a	PO1					
3	BIR	1.67	SL	0.0225	lb ai/a	PRE	8.7	9.3	9.7	8.0	4.86
	Lorox	50	DF	0.5	lb ai/a	PO1					
4	BIR	1.67	SL	0.045	lb ai/a	PRE	10.0	9.7	10.0	8.3	1.72
	Lorox	50	DF	0.5	lb ai/a	PO1					
5	BIR	1.67	SL	0.01125	lb ai/a	EPOS	4.3	7.3	7.0	3.0	17.84
	Lorox	50	DF	0.5	lb ai/a	PO1					
6	BIR	1.67	SL	0.0225	lb ai/a	EPOS	7.7	8.3	7.0	6.7	8.10
	Lorox	50	DF	0.5	lb ai/a	PO1					
7	BIR	1.67	SL	0.045	lb ai/a	EPOS	9.7	8.3	7.0	7.7	4.23
	Lorox	50	DF	0.5	lb ai/a	PO1					
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PO1	2.0	5.3	6.0	2.0	19.57
	Lorox	50	DF	0.5	lb ai/a	PO1					
LSD P=.05							2.04	1.77	2.49	2.27	7.830
Standard Deviation							1.17	1.01	1.42	1.29	4.471
CV							19.46	12.95	18.36	26.08	36.08

Weed Control in Celery – Cnossen - 2017

Project Code: 113-17-1 **Location: Wayland, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Celery **Variety: CR-1**
Planting Method: Transplant **Planting Date: 6/30/17** **Harvest Date: 10/6/17**
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: 57.8%** **pH: 7.2**
Sand: 18% **Silt: 24%** **Clay: 0%**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
POT	7/3/11	2:49 pm	87/71	F	Sat	1-2 N	39	10% Cloudy	N
PO1	8/11/17	10:30 am	76/72	F	Moist	3-4 NE	60	70% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
7/3	Celery	3-5″	Veg	Good
7/3	No weeds			
8/11	Celery	6-8″	Veg	Good
8/11	COLQ = common lambsquarters	10-12″	Veg	Few
8/11	COPU = common purslane	4-6″	Veg	Many
8/11	Grass	4-6″	Veg	Few
8/11	LATH = ladysthumb	8-10″	Veg	Many
8/11	RRPW = redroot pigweed	18-24″	Mod	Mod
8/11	SHPU = sheperdspurse	5-7″	Seed set	Few

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. Spray POT 4-5 days after transplanting.
4. Spray PO1 4-5 weeks after transplanting.
5. Harvested 10 ft. of 2 rows.

Weed Control in Celery – Cnossen - 2017

Weed Control in Celery – Cnossen – 2017

Trial ID: 113-17-1 Location: Wayland, MI
Protocol ID: 113-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CELERY 25Jul17 RATING 1-10	COPU 25Jul17 RATING 1-10	LATH 25Jul17 RATING 1-10	RRPW 25Jul17 RATING 1-10	CELERY 17Aug17 RATING 1-10	COPU 17Aug17 RATING 1-10
1	Caparol	4	L	2	lb ai/a	POT, PO1	1.3	8.7	9.7	10.0	1.7	2.7
2	Prowl H20	3.8	CS	1.9	lb ai/a	POT	1.3	9.3	8.0	9.3	1.7	6.0
	Caparol	4	L	2	lb ai/a	PO1						
3	Dual Magnum	7.62	EC	1.9	lb ai/a	POT	2.7	10.0	10.0	10.0	2.7	6.3
	Chateau SW	51	WDG	0.096	lb ai/a	POT						
	Caparol	4	L	2	lb ai/a	PO1						
4	Zidua	85	WDG	0.133	lb ai/a	POT	2.7	10.0	9.0	10.0	3.0	7.0
	Caparol	4	L	2	lb ai/a	PO1						
5	Zidua	85	WDG	0.215	lb ai/a	POT	1.0	10.0	10.0	10.0	1.7	7.7
	Caparol	4	L	2	lb ai/a	PO1						
6	Dual Magnum	7.62	EC	1.9	lb ai/a	POT	7.3	10.0	9.7	10.0	6.0	8.3
	BIR	1.67	SL	0.033	lb ai/a	POT						
7	Dual Magnum	7.62	EC	1.9	lb ai/a	POT	1.3	10.0	9.3	10.0	4.0	7.0
	BIR	1.67	SL	0.033	lb ai/a	PO1						
	Caparol	4	L	1	lb ai/a	PO1						
8	Dual Magnum	7.62	EC	1.9	lb ai/a	POT	1.0	9.7	9.7	10.0	2.7	7.3
	BIR	1.67	SL	0.033	lb ai/a	PO1						
	Lorox	50	DF	1	lb ai/a	PO1						
9	Dual Magnum	7.62	EC	1.9	lb ai/a	POT	7.0	10.0	10.0	10.0	6.3	6.7
	Chateau SW	51	WDG	0.096	lb ai/a	POT						
	BIR	1.67	SL	0.033	lb ai/a	POT						
	Caparol	4	L	2	lb ai/a	PO1						
10	Zidua	85	WDG	0.133	lb ai/a	POT	1.3	10.0	10.0	10.0	2.3	8.7
	Chateau SW	51	WDG	0.096	lb ai/a	POT						
11	Zidua	85	WDG	0.215	lb ai/a	POT	1.7	10.0	10.0	10.0	2.0	9.7
	Chateau SW	51	WDG	0.096	lb ai/a	POT						
12	Untreated					POT	1.3	1.0	1.0	1.0	1.7	1.7
	Caparol	4	L	2	lb ai/a	PO1						
LSD P=.05							1.11	0.90	0.90	0.56	1.19	1.47
Standard Deviation							0.66	0.53	0.53	0.33	0.71	0.87
CV							26.29	5.9	6.03	3.63	23.73	13.15

Weed Control in Celery – Cnossen - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LATH	CELERY	COPU	LATH	CELERY	CELERY
Pest Code							LATH		COPU	LATH		
Crop Name								CELERY			CELERY	CELERY
Rating Date							17Aug17	24Aug17	24Aug17	24Aug17	06Oct17	06Oct17
Rating Type							RATING	RATING	RATING	RATING	HARVEST	HARVEST
Rating Unit							1-10	1-10	1-10	1-10	#/PLOT	KG/PLOT
1	Caparol	4	L	2	lb ai/a	POT, PO1	8.0	1.0	5.3	8.3	34.3	39.98
2	Prowl H20	3.8	CS	1.9	lb ai/a	POT	4.7	1.0	5.0	5.3	34.3	39.41
	Caparol	4	L	2	lb ai/a	PO1						
3	Dual Magnum	7.62	EC	1.9	lb ai/a	POT	9.3	1.7	8.0	9.0	31.3	37.39
	Chateau SW	51	WDG	0.096	lb ai/a	POT						
	Caparol	4	L	2	lb ai/a	PO1						
4	Zidua	85	WDG	0.133	lb ai/a	POT	5.0	2.0	5.7	5.3	32.0	35.38
	Caparol	4	L	2	lb ai/a	PO1						
5	Zidua	85	WDG	0.215	lb ai/a	POT	7.7	1.0	8.3	8.3	33.3	40.94
	Caparol	4	L	2	lb ai/a	PO1						
6	Dual Magnum	7.62	EC	1.9	lb ai/a	POT	10.0	6.0	8.3	9.0	21.0	19.92
	BIR	1.67	SL	0.033	lb ai/a	POT						
7	Dual Magnum	7.62	EC	1.9	lb ai/a	POT	6.0	6.7	7.3	6.7	34.7	20.06
	BIR	1.67	SL	0.033	lb ai/a	PO1						
	Caparol	4	L	1	lb ai/a	PO1						
8	Dual Magnum	7.62	EC	1.9	lb ai/a	POT	8.3	6.3	8.7	8.7	32.0	21.12
	BIR	1.67	SL	0.033	lb ai/a	PO1						
	Lorox	50	DF	1	lb ai/a	PO1						
9	Dual Magnum	7.62	EC	1.9	lb ai/a	POT	9.0	5.3	9.0	10.0	24.3	21.25
	Chateau SW	51	WDG	0.096	lb ai/a	POT						
	BIR	1.67	SL	0.033	lb ai/a	POT						
	Caparol	4	L	2	lb ai/a	PO1						
10	Zidua	85	WDG	0.133	lb ai/a	POT	10.0	1.7	9.7	10.0	33.0	41.16
	Chateau SW	51	WDG	0.096	lb ai/a	POT						
11	Zidua	85	WDG	0.215	lb ai/a	POT	10.0	1.7	9.3	9.7	34.0	41.01
	Chateau SW	51	WDG	0.096	lb ai/a	POT						
12	Untreated					POT	1.0	2.0	1.0	1.0	33.7	32.76
	Caparol	4	L	2	lb ai/a	PO1						
LSD P=.05							2.30	0.96	3.06	2.30	5.74	8.34
Standard Deviation							1.36	0.57	1.81	1.36	3.39	4.93
CV							18.33	18.78	25.33	17.81	10.75	15.15

Weed Control in Sweet Corn - HTRC - 2017

Project Code: 106-17-1 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Sweet Corn **Variety: Aspire B (80 day), SV9010SA (79 day)**
Planting Method: Seeded **Planting Date: June 5, 2017** **Harvest Date: 8/28/17**
Spacing: 6” **Row Spacing: 28”**
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: 2.0%** **pH: 7.5**
Sand: 60% **Silt: 25%** **Clay: 15%** **CEC: 7.7**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/6/17	9:10 am	64/63	F	Dry	2-4 NW	66	0% Cloudy	N
PO1	7/3/17	10:50 am	75/72	F	Dry	4-6 NE	52	85% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/6	Sweet corn		Preemergence	
5/6	No weeds			
7/3	Aspire B	6-12”	5-7 lv.	Good
7/3	SV9010SA	6-12”	5-7 lv.	Good
7/3	COLQ = common lambsquarters	10-14”	Veg	Mod
7/3	BYGR = barnyard grass	6-10”	Veg	Many
7/3	HEBW = hedge bindweed	12-16”	Veg	Mod
7/3	RRPW = redroot pigweed	2-6”	Veg	Many
	CORW = common ragweed			
	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. Aspire B is Liberty Link; SV9010SA is Roundup Ready.

Weed Control in Sweet Corn - HTRC - 2017

Weed Control in Sweet Corn – HTRC – 2017

Trial ID: 106-17-1 Location: East Lansing, MI
Protocol ID: 106-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	SWCO ASPIRE B 26Jun17 RATING 1-10	SWCO SV9010SA 26Jun17 RATING 1-10	SWCO ASPIRE B 03Jul17 RATING 1-10	SWCO SV9010SA 03Jul17 RATING 1-10	BYGR 03Jul17 RATING 1-10
	Pest Code										BYGR
	Crop Code										
	Crop Name										
	Rating Date						26Jun17	26Jun17	03Jul17	03Jul17	03Jul17
	Rating Type						RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10
1	Acuron	3.547	CS	2.58	lb ai/a	PRE	2.3	2.7	2.7	3.0	10.0
2	Zidua	85	WDG	0.21	lb ai/a	PRE	2.3	2.7	3.3	3.0	10.0
3	Lumax	3.948	L	1.23	lb ai/a	PRE	2.0	2.3	2.0	2.0	9.0
4	Bicep II Magnum	3.5	F	1.3	qt/a	PRE	1.3	2.0	1.3	4.0	10.0
5	Surpass	6.4	EC	2	lb ai/a	PRE	2.0	2.3	2.7	2.7	10.0
6	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	1.3	1.7	1.3	1.3	10.0
7	Outlook	6	EC	0.98	lb ai/a	PRE	1.0	1.0	1.3	1.3	10.0
8	Anthem ATZ	4.5	SE	1.4	lb ai/a	PRE	1.7	1.7	2.0	2.0	10.0
9	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	1.3	1.3	2.0	2.0	10.0
	AAtrex	4	L	1	lb ai/a	PRE					
	Solstice	4	F	2.5	fl oz/a	PO1 (V4)					
	COC	100	SL	1	% v/v	PO1 (V4)					
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)					
10	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	1.3	2.0	1.7	1.7	9.0
	AAtrex	4	L	0.5	lb ai/a	PO1 (V4)					
	Solstice	4	F	2.5	fl oz/a	PO1 (V4)					
	COC	100	SL	1	% v/v	PO1 (V4)					
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)					
11	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	1.7	1.7	2.0	2.3	9.3
	AAtrex	4	L	1	lb ai/a	PO1 (V4)					
	Callisto	4	SC	0.075	lb ai/a	PO1 (V4)					
	COC	100	SL	1	% v/v	PO1 (V4)					
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)					
12	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	2.7	2.3	2.0	2.0	7.0
	Callisto	4	SC	0.094	lb ai/a	PO1					
	Accent	75	WDG	0.031	lb ai/a	PO1					
	COC	100	SL	1	% v/v	PO1					
13	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	2.0	2.0	2.3	2.7	9.7
	Impact	2.8	SC	0.022	lb ai/a	PO1					
	MSO	100	SL	0.5	% v/v	PO1					
	N Pak (AMS)	100	L	3	% v/v	PO1					
14	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	1.0	1.0	1.0	1.3	10.0
	Laudis	3.5	SC	0.082	lb ai/a	PO1					
	COC	100	SL	1	% v/v	PO1					
	N Pak (AMS)	100	L	3	% v/v	PO1					
15	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	1.7	2.0	2.3	2.3	10.0
	tolpyralate	3.34	L	0.27	lb ai/a	PO1					
	MSO	100	SL	0.5	% v/v	PO1					
	UAN	28	L	2.5	% v/v	PO1					

Weed Control in Sweet Corn - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
Pest Code											BYGR
Crop Code							SWCO	SWCO	SWCO	SWCO	
Crop Name							ASPIRE B	SV9010SA	ASPIRE B	SV9010SA	
Rating Date							26Jun17	26Jun17	03Jul17	03Jul17	03Jul17
Rating Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
16	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	1.7	1.7	1.7	1.7	10.0
	Liberty 280	2.34	L	0.37	lb ai/a	PO1					
17	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	2.3	2.0	2.3	2.7	10.0
	Roundup PowerMax	5.5	L	0.95	lb ai/a	PO1					
18	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	1.3	1.3	1.0	1.3	10.0
	AAtrex	4	L	0.5	lb ai/a	PO1					
	BIR	1.67	SL	0.033	lb ai/a	PO1					
19	Untreated					PRE	1.3	1.3	1.3	1.3	4.0
	Liberty 280	2.34	L	0.37	lb ai/a	PO1					
20	Untreated						1.0	1.0	1.3	1.3	8.0
LSD P=.05							1.34	1.65	1.69	2.57	2.34
Standard Deviation							0.81	1.00	1.02	1.56	1.42
CV							48.76	55.48	54.29	74.24	15.23

Weed Control in Sweet Corn - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	COLQ	CORW	RRPW	HEBW	SWCO
	Pest Code										
	Crop Code										
	Crop Name										ASPIRE B
	Rating Date						03Jul17	03Jul17	03Jul17	03Jul17	11Jul17
	Rating Type						RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10
1	Acuron	3.547	CS	2.58	lb ai/a	PRE	10.0	10.0	10.0	10.0	2.0
2	Zidua	85	WDG	0.21	lb ai/a	PRE	10.0	9.7	10.0	10.0	2.3
3	Lumax	3.948	L	1.23	lb ai/a	PRE	7.7	5.3	10.0	10.0	1.7
4	Bicep II Magnum	3.5	F	1.3	qt/a	PRE	10.0	10.0	10.0	9.7	1.7
5	Surpass	6.4	EC	2	lb ai/a	PRE	10.0	10.0	10.0	7.0	1.7
6	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	9.0	6.7	10.0	8.3	1.3
7	Outlook	6	EC	0.98	lb ai/a	PRE	9.3	8.3	10.0	10.0	1.3
8	Anthem ATZ	4.5	SE	1.4	lb ai/a	PRE	10.0	10.0	10.0	7.7	2.0
9	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	10.0	9.7	10.0	10.0	1.7
	AAtrex	4	L	1	lb ai/a	PRE					
	Solstice	4	F	2.5	fl oz/a	PO1 (V4)					
	COC	100	SL	1	% v/v	PO1 (V4)					
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)					
10	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	7.0	4.3	10.0	7.0	1.7
	AAtrex	4	L	0.5	lb ai/a	PO1 (V4)					
	Solstice	4	F	2.5	fl oz/a	PO1 (V4)					
	COC	100	SL	1	% v/v	PO1 (V4)					
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)					
11	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	6.0	4.0	8.3	10.0	1.7
	AAtrex	4	L	1	lb ai/a	PO1 (V4)					
	Callisto	4	SC	0.075	lb ai/a	PO1 (V4)					
	COC	100	SL	1	% v/v	PO1 (V4)					
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)					
12	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	5.3	4.0	7.0	4.7	2.7
	Callisto	4	SC	0.094	lb ai/a	PO1					
	Accent	75	WDG	0.031	lb ai/a	PO1					
	COC	100	SL	1	% v/v	PO1					
13	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	7.3	4.3	9.7	7.0	1.3
	Impact	2.8	SC	0.022	lb ai/a	PO1					
	MSO	100	SL	0.5	% v/v	PO1					
	N Pak (AMS)	100	L	3	% v/v	PO1					
14	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	6.3	7.0	10.0	10.0	1.3
	Laudis	3.5	SC	0.082	lb ai/a	PO1					
	COC	100	SL	1	% v/v	PO1					
	N Pak (AMS)	100	L	3	% v/v	PO1					
15	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	7.3	5.7	10.0	7.0	2.3
	tolpyralate	3.34	L	0.27	lb ai/a	PO1					
	MSO	100	SL	0.5	% v/v	PO1					
	UAN	28	L	2.5	% v/v	PO1					
16	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	8.0	4.3	10.0	6.7	2.0
	Liberty 280	2.34	L	0.37	lb ai/a	PO1					
17	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	6.0	5.7	10.0	8.3	1.7
	Roundup PowerMax	5.5	L	0.95	lb ai/a	PO1					
18	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	6.7	7.0	10.0	10.0	1.7
	AAtrex	4	L	0.5	lb ai/a	PO1					
	BIR	1.67	SL	0.033	lb ai/a	PO1					
19	Untreated					PRE	1.7	1.7	2.7	10.0	1.3
	Liberty 280	2.34	L	0.37	lb ai/a	PO1					
20	Untreated						1.7	2.7	7.0	10.0	1.0
LSD P=.05							3.06	2.31	2.33	4.71	1.31
Standard Deviation							1.85	1.40	1.41	2.85	0.79
CV							24.81	21.52	15.27	32.92	46.13

Weed Control in Sweet Corn - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		BYGR	LACG	COLQ	CORW	RRPW
Pest Code								BYGR	LACG	COLQ	CORW	RRPW
Crop Code							SWCO					
Crop Name							SV9010SA					
Rating Date							11Jul17	11Jul17	11Jul17	11Jul17	11Jul17	11Jul17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Acuron	3.547	CS	2.58	lb ai/a	PRE	2.0	10.0	10.0	10.0	10.0	10.0
2	Zidua	85	WDG	0.21	lb ai/a	PRE	2.0	10.0	10.0	8.3	9.0	10.0
3	Lumax	3.948	L	1.23	lb ai/a	PRE	1.7	7.7	10.0	5.3	3.3	8.7
4	Bicep II Magnum	3.5	F	1.3	qt/a	PRE	1.3	9.7	10.0	10.0	9.7	10.0
5	Surpass	6.4	EC	2	lb ai/a	PRE	1.7	10.0	10.0	10.0	10.0	10.0
6	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	1.7	10.0	10.0	7.0	5.3	9.3
7	Outlook	6	EC	0.98	lb ai/a	PRE	1.3	10.0	10.0	9.0	7.0	10.0
8	Anthem ATZ	4.5	SE	1.4	lb ai/a	PRE	2.0	10.0	10.0	10.0	10.0	10.0
9	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	1.7	10.0	10.0	10.0	10.0	10.0
	AAtrex	4	L	1	lb ai/a	PRE						
	Solstice	4	F	2.5	fl oz/a	PO1 (V4)						
	COC	100	SL	1	% v/v	PO1 (V4)						
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)						
10	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	1.7	9.7	10.0	10.0	10.0	10.0
	AAtrex	4	L	0.5	lb ai/a	PO1 (V4)						
	Solstice	4	F	2.5	fl oz/a	PO1 (V4)						
	COC	100	SL	1	% v/v	PO1 (V4)						
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)						
11	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	2.0	10.0	10.0	10.0	10.0	10.0
	AAtrex	4	L	1	lb ai/a	PO1 (V4)						
	Callisto	4	SC	0.075	lb ai/a	PO1 (V4)						
	COC	100	SL	1	% v/v	PO1 (V4)						
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)						
12	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	2.0	9.3	9.3	10.0	9.3	10.0
	Callisto	4	SC	0.094	lb ai/a	PO1						
	Accent	75	WDG	0.031	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
13	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	4.3	10.0	10.0	10.0	10.0	10.0
	Impact	2.8	SC	0.022	lb ai/a	PO1						
	MSO	100	SL	0.5	% v/v	PO1						
	N Pak (AMS)	100	L	3	% v/v	PO1						
14	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	1.3	10.0	10.0	10.0	10.0	10.0
	Laudis	3.5	SC	0.082	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	N Pak (AMS)	100	L	3	% v/v	PO1						
15	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	2.0	10.0	10.0	10.0	10.0	10.0
	tolpyralate	3.34	L	0.27	lb ai/a	PO1						
	MSO	100	SL	0.5	% v/v	PO1						
	UAN	28	L	2.5	% v/v	PO1						
16	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	7.3	10.0	10.0	10.0	10.0	10.0
	Liberty 280	2.34	L	0.37	lb ai/a	PO1						
17	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	2.0	10.0	10.0	10.0	10.0	10.0
	Roundup PowerMax	5.5	L	0.95	lb ai/a	PO1						
18	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	1.3	10.0	10.0	8.0	10.0	10.0
	AAtrex	4	L	0.5	lb ai/a	PO1						
	BIR	1.67	SL	0.033	lb ai/a	PO1						
19	Untreated					PRE	6.7	10.0	10.0	8.3	10.0	10.0
	Liberty 280	2.34	L	0.37	lb ai/a	PO1						
20	Untreated						1.3	1.0	1.0	1.0	1.0	1.7
LSD P=.05							2.25	1.55	0.43	1.44	1.54	0.84
Standard Deviation							1.36	0.94	0.26	0.87	0.93	0.51
CV							57.53	10.04	2.71	9.85	10.66	5.35

Weed Control in Sweet Corn - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
Pest Code							HEBW				
Crop Code								SWCO	SWCO	SWCO	SWCO
Crop Name								ASPIRE B	ASPIRE B	SV9010SA	SV9010SA
Rating Date							11Jul17	29Aug17	29Aug17	28Aug17	28Aug17
Rating Type							RATING	HARVEST	HARVEST	HARVEST	HARVEST
Rating Unit							1-10	#/PLOT	KG/PLOT	#/PLOT	KG/PLOT
1	Acuron	3.547	CS	2.58	lb ai/a	PRE	10.0	33.7	13.64	42.7	17.27
2	Zidua	85	WDG	0.21	lb ai/a	PRE	10.0	22.3	8.98	33.3	13.51
3	Lumax	3.948	L	1.23	lb ai/a	PRE	10.0	25.0	9.94	33.7	13.55
4	Bicep II Magnum	3.5	F	1.3	qt/a	PRE	10.0	39.7	16.29	56.3	21.81
5	Surpass	6.4	EC	2	lb ai/a	PRE	1.0	37.0	14.53	37.3	16.92
6	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	10.0	30.0	11.78	48.7	18.57
7	Outlook	6	EC	0.98	lb ai/a	PRE	10.0	35.0	13.70	46.3	19.02
8	Anthem ATZ	4.5	SE	1.4	lb ai/a	PRE	10.0	31.0	11.93	44.3	17.64
9	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	10.0	39.0	15.84	51.7	21.02
	AAtrex	4	L	1	lb ai/a	PRE					
	Solstice	4	F	2.5	fl oz/a	PO1 (V4)					
	COC	100	SL	1	% v/v	PO1 (V4)					
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)					
10	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	10.0	40.0	16.21	52.0	20.92
	AAtrex	4	L	0.5	lb ai/a	PO1 (V4)					
	Solstice	4	F	2.5	fl oz/a	PO1 (V4)					
	COC	100	SL	1	% v/v	PO1 (V4)					
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)					
11	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	10.0	42.0	17.42	53.7	22.57
	AAtrex	4	L	1	lb ai/a	PO1 (V4)					
	Callisto	4	SC	0.075	lb ai/a	PO1 (V4)					
	COC	100	SL	1	% v/v	PO1 (V4)					
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)					
12	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	6.0	36.0	13.60	44.7	17.94
	Callisto	4	SC	0.094	lb ai/a	PO1					
	Accent	75	WDG	0.031	lb ai/a	PO1					
	COC	100	SL	1	% v/v	PO1					
13	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	7.0	37.7	15.52	50.3	20.90
	Impact	2.8	SC	0.022	lb ai/a	PO1					
	MSO	100	SL	0.5	% v/v	PO1					
	N Pak (AMS)	100	L	3	% v/v	PO1					
14	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	10.0	38.0	17.30	57.0	22.78
	Laudis	3.5	SC	0.082	lb ai/a	PO1					
	COC	100	SL	1	% v/v	PO1					
	N Pak (AMS)	100	L	3	% v/v	PO1					
15	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	5.0	39.0	15.38	49.7	20.10
	tolpyralate	3.34	L	0.27	lb ai/a	PO1					
	MSO	100	SL	0.5	% v/v	PO1					
	UAN	28	L	2.5	% v/v	PO1					
16	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	10.0	47.7	19.19	12.7	4.15
	Liberty 280	2.34	L	0.37	lb ai/a	PO1					
17	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	8.0	38.3	13.31	48.7	18.95
	Roundup PowerMax	5.5	L	0.95	lb ai/a	PO1					
18	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	10.0	40.7	15.64	51.3	20.71
	AAtrex	4	L	0.5	lb ai/a	PO1					
	BIR	1.67	SL	0.033	lb ai/a	PO1					
19	Untreated					PRE	10.0	39.0	15.90	22.3	4.98
	Liberty 280	2.34	L	0.37	lb ai/a	PO1					
20	Untreated						1.0	36.0	13.52	44.0	17.17
LSD P=.05							.	10.30	3.833	15.62	5.875
Standard Deviation							.	6.24	2.323	9.46	3.560
CV							.	17.17	16.04	21.49	20.32

Weed Control in Sweet Corn - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	SWCO TOTAL HARVEST #/PLOT	SWCO TOTAL HARVEST KG/PLOT
1	Acuron	3.547	CS	2.58	lb ai/a	PRE	76.3	30.91
2	Zidua	85	WDG	0.21	lb ai/a	PRE	55.7	22.49
3	Lumax	3.948	L	1.23	lb ai/a	PRE	58.7	23.49
4	Bicep II Magnum	3.5	F	1.3	qt/a	PRE	96.0	38.11
5	Surpass	6.4	EC	2	lb ai/a	PRE	74.3	31.44
6	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	78.7	30.35
7	Outlook	6	EC	0.98	lb ai/a	PRE	81.3	32.72
8	Anthem ATZ	4.5	SE	1.4	lb ai/a	PRE	75.3	29.57
9	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	90.7	36.86
	AAtrex	4	L	1	lb ai/a	PRE		
	Solstice	4	F	2.5	fl oz/a	PO1 (V4)		
	COC	100	SL	1	% v/v	PO1 (V4)		
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)		
10	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	92.0	37.13
	AAtrex	4	L	0.5	lb ai/a	PO1 (V4)		
	Solstice	4	F	2.5	fl oz/a	PO1 (V4)		
	COC	100	SL	1	% v/v	PO1 (V4)		
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)		
11	Anthem MAXX	4.3	SC	4	fl oz/a	PRE	95.7	39.98
	AAtrex	4	L	1	lb ai/a	PO1 (V4)		
	Callisto	4	SC	0.075	lb ai/a	PO1 (V4)		
	COC	100	SL	1	% v/v	PO1 (V4)		
	Ammonium Sulfate	100	SG	1.7	lb ai/a	PO1 (V4)		
12	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	80.7	31.55
	Callisto	4	SC	0.094	lb ai/a	PO1		
	Accent	75	WDG	0.031	lb ai/a	PO1		
	COC	100	SL	1	% v/v	PO1		
13	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	88.0	36.42
	Impact	2.8	SC	0.022	lb ai/a	PO1		
	MSO	100	SL	0.5	% v/v	PO1		
	N Pak (AMS)	100	L	3	% v/v	PO1		
14	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	95.0	40.08
	Laudis	3.5	SC	0.082	lb ai/a	PO1		
	COC	100	SL	1	% v/v	PO1		
	N Pak (AMS)	100	L	3	% v/v	PO1		
15	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	88.7	35.48
	tolpyralate	3.34	L	0.27	lb ai/a	PO1		
	MSO	100	SL	0.5	% v/v	PO1		
	UAN	28	L	2.5	% v/v	PO1		
16	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	60.3	23.34
	Liberty 280	2.34	L	0.37	lb ai/a	PO1		
17	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	87.0	32.25
	Roundup PowerMax	5.5	L	0.95	lb ai/a	PO1		
18	Dual Magnum	7.62	EC	0.95	lb ai/a	PRE	92.0	36.35
	AAtrex	4	L	0.5	lb ai/a	PO1		
	BIR	1.67	SL	0.033	lb ai/a	PO1		
19	Untreated					PRE	61.3	20.88
	Liberty 280	2.34	L	0.37	lb ai/a	PO1		
20	Untreated						80.0	30.68
LSD P=.05							21.60	8.637
Standard Deviation							13.09	5.234
CV							16.28	16.36

Weed Control in Cucumber – HTRC - 2017

Project Code: 108-17-1 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Cucumber, pickling **Variety: Expedition**
Planting Method: Seeded **Planting Date: 6/1** **Harvest Date: 7/20/17**
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: 3.0%** **pH: 5.9**
Sand: 52% **Silt: 28%** **Clay: 20%** **CEC: 12.0**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	6/2/17	10:00 am	73/68	F	Dry	4 W	32	5% Cloudy	N
PO1	6/27/17	8:30 am	60/58	F	Damp	4-6 NW	62	0% Cloudy	Y

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/2	None			
6/2	Preemergence			
6/27	Cucumber	4-6″	3-4 lv	Good
6/27	COLQ = common lambsquarters	1-3″	4-5 lv	Few
6/27	RRPW = redroot pigsweed	3-4″	3-6 lv	Few
6/27	BYGR = barnyardgrass			
6/27	CORW = common ragweed			

Notes and Comments
1. Spray applied with 12 nozzle 16ft 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 Cucumber – HTRC - 2017

Weed Control in Cucumber – HTRC – 2017

Trial ID: 108-17-1 Location: East Lansing, MI
Protocol ID: 108-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CUKE 22Jun17 RATING 1-10	COLQ 22Jun17 RATING 1-10	CORW 22Jun17 RATING 1-10	CUKE 05Jul17 RATING 1-10	BYGR 05Jul17 RATING 1-10	COLQ 05Jul17 RATING 1-10	CORW 05Jul17 RATING 1-10
1	Curbit	3	EC	1.13	lb ai/a	PRE	1.7	10.0	10.0	1.3	9.7	10.0	9.7
	Command	3	ME	0.375	lb ai/a	PRE							
2	Strategy	2.1	SE	6	pt/a	PRE	1.7	9.7	9.3	1.7	10.0	9.7	9.0
3	Curbit	3	EC	0.75	lb ai/a	PRE	2.3	10.0	10.0	2.7	9.7	9.0	9.0
	Reflex	2	SL	0.125	lb ai/a	PRE							
4	Curbit	3	EC	0.75	lb ai/a	PRE	2.7	10.0	10.0	2.7	7.0	9.7	9.7
	Command	3	ME	0.25	lb ai/a	PRE							
	Reflex	2	SL	0.125	lb ai/a	PRE							
5	Curbit	3	EC	0.75	lb ai/a	PRE	1.7	10.0	10.0	2.3	8.7	9.3	9.7
	Command	3	ME	0.25	lb ai/a	PRE							
	BIR	1.67	SL	0.033	lb ai/a	PRE							
6	Curbit	3	EC	0.75	lb ai/a	PRE	2.0	10.0	10.0	2.0	9.3	9.7	10.0
	Command	3	ME	0.25	lb ai/a	PRE							
	BIR	1.67	SL	0.045	lb ai/a	PRE							
7	Curbit	3	EC	0.75	lb ai/a	PRE	2.0	10.0	10.0	3.7	9.0	9.3	10.0
	Command	3	ME	0.25	lb ai/a	PRE							
	BIR	1.67	SL	0.033	lb ai/a	PO1							
8	Curbit	3	EC	0.75	lb ai/a	PRE	2.3	9.3	10.0	2.7	8.7	9.7	9.3
	Command	3	ME	0.25	lb ai/a	PRE							
	Sandea	75	WG	0.023	lb ai/a	PRE							
9	Curbit	3	EC	0.75	lb ai/a	PRE	3.0	10.0	10.0	3.0	8.7	9.0	9.0
	Command	3	ME	0.25	lb ai/a	PRE							
	Dual Magnum	7.62	EC	0.3	lb ai/a	PRE							
10	Curbit	3	EC	0.75	lb ai/a	PRE	2.0	10.0	9.3	3.3	9.3	9.0	9.0
	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	10.0	10.0	3.3	9.3	9.7	10.0
	Command	3	ME	0.25	lb ai/a	PRE							
	Sandea	75	WG	0.023	lb ai/a	PO1							
	BIR	1.67	SL	0.033	lb ai/a	PO1							
12	Handweeded						1.7	9.0	10.0	2.3	1.7	4.7	5.3
LSD P=.05							1.17	0.61	0.41	1.11	1.65	2.05	2.55
Standard Deviation							0.69	0.36	0.24	0.66	0.97	1.21	1.51
CV							33.98	3.65	2.44	25.44	11.56	13.38	16.49

Weed Control in Cucumber – HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	RRPW 05Jul17 RATING 1-10	CUKE 20Jul17 HVST-FRUIT KG/PLOT	CUKE 20Jul17 HVST-PLANT KG/PLOT	CUKE 21Jul17 GRADE1 KG/PLOT	CUKE 21Jul17 GRADE2 KG/PLOT
1	Curbit	3	EC	1.13	lb ai/a	PRE	9.0	48.95	61.87	3.26	10.45
	Command	3	ME	0.375	lb ai/a	PRE					
2	Strategy	2.1	SE	6	pt/a	PRE	9.7	53.47	66.51	3.51	12.64
3	Curbit	3	EC	0.75	lb ai/a	PRE	9.0	46.89	68.48	4.13	12.18
	Reflex	2	SL	0.125	lb ai/a	PRE					
4	Curbit	3	EC	0.75	lb ai/a	PRE	8.3	49.61	57.20	3.31	11.72
	Command	3	ME	0.25	lb ai/a	PRE					
	Reflex	2	SL	0.125	lb ai/a	PRE					
5	Curbit	3	EC	0.75	lb ai/a	PRE	9.0	50.62	67.52	3.74	12.14
	Command	3	ME	0.25	lb ai/a	PRE					
	BIR	1.67	SL	0.033	lb ai/a	PRE					
6	Curbit	3	EC	0.75	lb ai/a	PRE	9.0	55.80	71.49	3.44	13.33
	Command	3	ME	0.25	lb ai/a	PRE					
	BIR	1.67	SL	0.045	lb ai/a	PRE					
7	Curbit	3	EC	0.75	lb ai/a	PRE	10.0	41.29	57.03	3.29	11.42
	Command	3	ME	0.25	lb ai/a	PRE					
	BIR	1.67	SL	0.033	lb ai/a	PO1					
8	Curbit	3	EC	0.75	lb ai/a	PRE	10.0	54.23	72.26	3.91	13.21
	Command	3	ME	0.25	lb ai/a	PRE					
	Sandea	75	WG	0.023	lb ai/a	PRE					
9	Curbit	3	EC	0.75	lb ai/a	PRE	9.0	50.39	63.57	3.09	11.20
	Command	3	ME	0.25	lb ai/a	PRE					
	Dual Magnum	7.62	EC	0.3	lb ai/a	PRE					
10	Curbit	3	EC	0.75	lb ai/a	PRE	9.3	48.87	63.68	3.86	12.90
	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	10.0	47.93	61.21	3.40	13.03
	Command	3	ME	0.25	lb ai/a	PRE					
	Sandea	75	WG	0.023	lb ai/a	PO1					
	BIR	1.67	SL	0.033	lb ai/a	PO1					
12	Handweeded						7.3	48.44	71.18	3.56	12.71
LSD P=.05							1.16	9.828	12.522	0.967	2.396
Standard Deviation							0.68	5.804	7.395	0.571	1.415
CV							7.48	11.68	11.35	16.13	11.55

Weed Control in Cucumber – HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CUKE 21Jul17 GRADE3 KG/PLOT	CUKE 21Jul17 GRADE4 KG/PLOT
	Pest Code							
	Crop Code						CUKE	CUKE
	Rating Date						21Jul17	21Jul17
	Rating Type						GRADE3	GRADE4
	Rating Unit						KG/PLOT	KG/PLOT
1	Curbit	3	EC	1.13	lb ai/a	PRE	26.37	7.19
	Command	3	ME	0.375	lb ai/a	PRE		
2	Strategy	2.1	SE	6	pt/a	PRE	28.90	6.80
3	Curbit	3	EC	0.75	lb ai/a	PRE	24.15	5.18
	Reflex	2	SL	0.125	lb ai/a	PRE		
4	Curbit	3	EC	0.75	lb ai/a	PRE	24.80	4.33
	Command	3	ME	0.25	lb ai/a	PRE		
	Reflex	2	SL	0.125	lb ai/a	PRE		
5	Curbit	3	EC	0.75	lb ai/a	PRE	28.36	7.97
	Command	3	ME	0.25	lb ai/a	PRE		
	BIR	1.67	SL	0.033	lb ai/a	PRE		
6	Curbit	3	EC	0.75	lb ai/a	PRE	29.86	7.75
	Command	3	ME	0.25	lb ai/a	PRE		
	BIR	1.67	SL	0.045	lb ai/a	PRE		
7	Curbit	3	EC	0.75	lb ai/a	PRE	20.99	4.58
	Command	3	ME	0.25	lb ai/a	PRE		
	BIR	1.67	SL	0.033	lb ai/a	PO1		
8	Curbit	3	EC	0.75	lb ai/a	PRE	26.33	6.74
	Command	3	ME	0.25	lb ai/a	PRE		
	Sandea	75	WG	0.023	lb ai/a	PRE		
9	Curbit	3	EC	0.75	lb ai/a	PRE	27.89	7.08
	Command	3	ME	0.25	lb ai/a	PRE		
	Dual Magnum	7.62	EC	0.3	lb ai/a	PRE		
10	Curbit	3	EC	0.75	lb ai/a	PRE	27.10	3.70
	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	25.14	5.10
	Command	3	ME	0.25	lb ai/a	PRE		
	Sandea	75	WG	0.023	lb ai/a	PO1		
	BIR	1.67	SL	0.033	lb ai/a	PO1		
12	Handweeded						26.26	4.75
LSD P=.05							7.641	2.692
Standard Deviation							4.512	1.589
CV							17.13	26.8

Weed Control in Basil – Van Drunen - 2017

Project Code: 117-17-3 **Location: Momence, IL**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Basil **Variety: Lg. Leaf Italian, Genovese, Esmeralda, Aroma**
Planting Method: Seeded **Planting Date: 5/23** **Harvest Date: 8/18/17**
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: 7.5%** **pH: 6.8**
Sand: 26% **Silt: 40%** **Clay: 34%** **CEC: 22.5**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/25/17	10:55 am	60/57	F	Saturated	7-10 NW	54	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/25	Basil		Preemergence	
5/25	No weeds COPU = common purslane LACG = large crabgrass RRPW = redroot pigweed 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. 5/25 – guard sprayed with Aim @ 0.031 lb ai/a

Weed Control in Basil – Van Drunen - 2017

Weed Control in Basil – Van Drunen – 2017

Trial ID: 117-17-3 Location: Momence, IL
Protocol ID: 117-17-3 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BASIL AROMA 23Jun17 RATING 1-10	BASIL ESMER 23Jun17 RATING 1-10	BASIL GENOVESE 23Jun17 RATING 1-10	BASIL ITALIAN 23Jun17 RATING 1-10	LACG 23Jun17 RATING 1-10	YEFT 23Jun17 RATING 1-10
1	Devrinol 2-XT	2	L	1	lb ai/a	PRE	4.0	4.0	4.0	1.0	5.3	1.3
2	Lorox	50	DF	0.25	lb ai/a	PRE	1.7	1.7	2.0	1.0	1.0	4.0
3	Lorox	50	DF	0.5	lb ai/a	PRE	1.0	1.7	1.3	1.0	1.0	1.0
4	Kerb	3.3	SC	1	lb ai/a	PRE	1.3	2.0	1.7	1.0	1.0	3.7
5	Spartan	4	F	0.125	lb ai/a	PRE	1.0	1.0	1.0	2.7	1.0	1.0
6	Aim	2	EC	0.031	lb ai/a	PRE	2.7	1.7	1.0	1.0	1.0	3.3
7	Dacthal	75	WP	6	lb ai/a	PRE	10.0	10.0	10.0	10.0	1.0	3.7
8	Curbit	3	EC	0.5	lb ai/a	PRE	1.0	1.0	1.0	1.0	1.0	1.0
9	GoalTender	4	SC	0.063	lb ai/a	PRE	6.7	7.3	5.3	2.0	1.0	1.0
10	Untreated						1.7	1.7	1.0	1.0	1.0	1.0
LSD P=.05							3.36	3.41	3.12	1.61	2.05	4.62
Standard Deviation							1.96	1.99	1.82	0.94	1.20	2.69
CV							63.22	62.12	64.19	43.24	83.53	128.2

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	COPU 23Jun17 RATING 1-10	RRPW 23Jun17 RATING 1-10	BASIL AROMA 19Jul17 RATING 1-10	BASIL ESMER 19Jul17 RATING 1-10	BASIL GENOVESE 19Jul17 RATING 1-10	BASIL ITALIAN 19Jul17 RATING 1-10
1	Devrinol 2-XT	2	L	1	lb ai/a	PRE	1.0	1.0	3.7	4.0	4.3	4.0
2	Lorox	50	DF	0.25	lb ai/a	PRE	7.3	9.0	3.3	3.0	3.3	3.0
3	Lorox	50	DF	0.5	lb ai/a	PRE	9.3	8.0	2.7	3.0	3.3	3.7
4	Kerb	3.3	SC	1	lb ai/a	PRE	10.0	2.3	1.3	1.7	3.0	1.7
5	Spartan	4	F	0.125	lb ai/a	PRE	9.7	10.0	1.0	1.0	1.0	1.0
6	Aim	2	EC	0.031	lb ai/a	PRE	5.7	8.7	3.7	4.0	4.3	5.0
7	Dacthal	75	WP	6	lb ai/a	PRE	10.0	7.0	10.0	10.0	10.0	10.0
8	Curbit	3	EC	0.5	lb ai/a	PRE	1.0	1.0	4.3	5.3	4.7	5.0
9	GoalTender	4	SC	0.063	lb ai/a	PRE	7.0	4.7	2.7	4.0	5.3	6.0
10	Untreated						1.0	1.0	5.7	6.7	6.7	7.3
LSD P=.05							3.85	3.62	3.66	2.86	2.62	2.49
Standard Deviation							2.25	2.11	2.14	1.67	1.53	1.45
CV							36.24	40.06	55.7	39.04	33.23	31.11

Weed Control in Basil – Van Drunen - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Name												
Crop Code							BASIL	BASIL	BASIL	BASIL	BASIL	BASIL
Crop Name							AROMA	ESMER	GENOVESE	ITALIAN	AROMA	ESMER
Rating Date							18Aug17	18Aug17	18Aug17	18Aug17	18Aug17	18Aug17
Rating Type							RATING	RATING	RATING	RATING	HARVEST	HARVEST
Rating Unit							1-10	1-10	1-10	1-10	KG/PLOT	KG/PLOT
1	Devrinol 2-XT	2	L	1	lb ai/a	PRE	3.0	2.7	2.7	1.3	9.84	3.02
2	Lorox	50	DF	0.25	lb ai/a	PRE	2.7	2.3	3.3	2.0	7.06	2.55
3	Lorox	50	DF	0.5	lb ai/a	PRE	1.7	2.0	2.7	2.0	7.73	2.47
4	Kerb	3.3	SC	1	lb ai/a	PRE	1.3	1.7	1.7	1.0	9.69	4.32
5	Spartan	4	F	0.125	lb ai/a	PRE	1.0	1.0	1.0	1.0	12.73	8.99
6	Aim	2	EC	0.031	lb ai/a	PRE	2.3	3.0	3.7	4.3	5.40	3.56
7	Dacthal	75	WP	6	lb ai/a	PRE	8.7	10.0	10.0	10.0	0.00	0.00
8	Curbit	3	EC	0.5	lb ai/a	PRE	4.0	4.0	4.3	4.3	8.10	2.57
9	GoalTender	4	SC	0.063	lb ai/a	PRE	2.0	2.7	4.0	4.0	7.92	2.34
10	Untreated						5.0	6.7	6.3	6.0	2.81	0.92
LSD P=.05							3.54	2.53	2.55	2.49	7.084	1.789
Standard Deviation							2.06	1.47	1.49	1.45	4.130	1.043
CV							65.09	40.96	37.49	40.36	57.95	33.95

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage			
Pest Name									
Crop Code							BASIL	BASIL	BASIL
Crop Name							GENOVESE	ITALIAN	
Rating Date							18Aug17	18Aug17	18Aug17
Rating Type							HARVEST	HARVEST	TOTAL
Rating Unit							KG/PLOT	KG/PLOT	KG/PLOT
1	Devrinol 2-XT	2	L	1	lb ai/a	PRE	3.55	6.29	22.70
2	Lorox	50	DF	0.25	lb ai/a	PRE	2.33	3.87	15.81
3	Lorox	50	DF	0.5	lb ai/a	PRE	2.63	4.89	17.72
4	Kerb	3.3	SC	1	lb ai/a	PRE	2.98	7.62	24.61
5	Spartan	4	F	0.125	lb ai/a	PRE	9.12	9.59	40.43
6	Aim	2	EC	0.031	lb ai/a	PRE	1.80	1.13	11.88
7	Dacthal	75	WP	6	lb ai/a	PRE	0.00	0.00	0.00
8	Curbit	3	EC	0.5	lb ai/a	PRE	2.09	2.69	15.45
9	GoalTender	4	SC	0.063	lb ai/a	PRE	1.88	2.92	15.05
10	Untreated						0.89	1.19	5.81
LSD P=.05							2.828	5.666	12.68
Standard Deviation							1.649	3.303	7.39
CV							60.44	82.19	43.62

Weed Control in Cilantro, Dill, Fennel, and Parsley– Van Drunen - 2017

Project Code: 117-17-3 **Location: Momence, IL**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Cilantro, Dill, Fennel, Parsley **Variety: Slo Bolt, Dukat, Florence, Gigante d'Italia**
Planting Method: Seeded **Planting Date: 5/23/17** **Harvest Date:**
Spacing: 1 in **Row Spacing: 10 in; 1 row of 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: 4.2%** **pH: 6.8**
Sand: 35% **Silt: 42%** **Clay: 23%** **CEC: 12.7**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/25/17	11:30 am	60/57	F	Saturated	7-10 NW	54	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/25	Cilantro		Preemergence	
5/25	Dill		Preemergence	
5/25	Fennel		Preemergence	
5/25	Parsley		Preemergence	
5/25	No weeds			
	LACG = large crabgrass			
	YEFT = yellow foxtail			
	COPU = common purslane			

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. 5/25- Guards sprayed with Dual Magnum @ 0.67 lb ai/a
4. Dill crop was lost.

Weed Control in Cilantro, Dill, Fennel, and Parsley– Van Drunen - 2017

Weed Control in Cilantro, Dill, Fennel, and Parsley – Van Drunen – 2017

Trial ID: 117-17-4 Location: Momence, IL
Protocol ID: 117-17-4 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CILANTRO	DILL	FENNEL	PARSLEY	LACG	YEFT
Pest Code												
Crop Name							CILANTRO	DILL	FENNEL	PARSLEY		
Rating Date							23Jun17	23Jun17	23Jun17	23Jun17	23Jun17	23Jun17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Lorox	50	DF	0.5	lb ai/a	PRE	1.0	1.0	4.7	6.3	2.3	6.7
2	Lorox	50	DF	0.75	lb ai/a	PRE	1.3	2.7	4.7	4.7	6.7	8.0
3	Zidua	85	WDG	0.09	lb ai/a	PRE	4.0	8.7	10.0	10.0	9.3	10.0
4	Dual Magnum	7.62	EC	0.67	lb ai/a	PRE	2.7	2.7	7.0	6.7	9.7	9.0
5	Caparol	4	L	1	lb ai/a	PRE	1.0	1.0	5.3	5.7	3.0	7.7
6	Command	3	ME	0.5	lb ai/a	PRE	2.3	1.7	4.0	8.0	9.3	10.0
7	BIR	1.67	SL	0.033	lb ai/a	PRE	4.3	7.7	8.0	10.0	7.3	6.7
8	Curbit	3	EC	0.5	lb ai/a	PRE	1.3	1.0	2.0	4.3	1.0	1.0
9	GoalTender	4	SC	0.063	lb ai/a	PRE	1.7	2.3	6.0	3.7	2.7	3.7
10	Untreated						1.7	1.3	1.0	1.7	1.0	1.0
LSD P=.05							1.32	2.23	2.56	4.99	3.51	5.11
Standard Deviation							0.77	1.30	1.49	2.91	2.05	2.98
CV							35.97	43.37	28.28	47.65	39.11	46.8

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	COPU	CILANTRO	DILL	FENNEL	PARSELY	FENNEL
Pest Code												
Crop Name								CILANTRO	DILL	FENNEL	PARSELY	FENNEL
Rating Date							23Jun17	18Jul17	18Jul17	18Jul17	18Jul17	18Aug17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Lorox	50	DF	0.5	lb ai/a	PRE	8.3	1.0	1.0	3.0	4.7	2.3
2	Lorox	50	DF	0.75	lb ai/a	PRE	10.0	1.0	1.7	3.7	1.7	3.0
3	Zidua	85	WDG	0.09	lb ai/a	PRE	10.0	1.0	7.0	9.7	10.0	9.3
4	Dual Magnum	7.62	EC	0.67	lb ai/a	PRE	9.7	1.7	1.3	3.7	4.0	3.0
5	Caparol	4	L	1	lb ai/a	PRE	10.0	1.3	1.0	3.3	5.3	2.0
6	Command	3	ME	0.5	lb ai/a	PRE	10.0	1.3	1.0	1.0	6.3	1.3
7	BIR	1.67	SL	0.033	lb ai/a	PRE	10.0	1.7	6.7	6.7	10.0	4.7
8	Curbit	3	EC	0.5	lb ai/a	PRE	1.0	3.3	3.0	4.3	8.3	5.0
9	GoalTender	4	SC	0.063	lb ai/a	PRE	10.0	1.0	1.3	3.0	1.3	2.3
10	Untreated						1.0	5.0	5.0	7.7	9.3	8.0
LSD P=.05							0.92	1.83	3.32	4.21	3.55	4.06
Standard Deviation							0.53	1.07	1.93	2.45	2.07	2.37
CV							6.68	58.16	66.66	53.36	33.96	57.7

Weed Control in Cilantro, Dill, Fennel, and Parsley– Van Drunen - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	PARSLEY 18Aug17 RATING 1-10	CILANTRO 18Jul17 HARVEST KG/PLOT	FENNEL 18Aug17 COUNT #/PLOT	FENNEL 18Aug17 HARVEST KG/PLOT	PARSLEY 18Aug17 HARVEST KG/PLOT
	Pest Code										
	Crop Name						PARSLEY	CILANTRO	FENNEL	FENNEL	PARSLEY
	Rating Date						18Aug17	18Jul17	18Aug17	18Aug17	18Aug17
	Rating Type						RATING	HARVEST	COUNT	HARVEST	HARVEST
	Rating Unit						1-10	KG/PLOT	#/PLOT	KG/PLOT	KG/PLOT
1	Lorox	50	DF	0.5	lb ai/a	PRE	4.7	5.543	66.0	6.410	0.863
2	Lorox	50	DF	0.75	lb ai/a	PRE	1.0	4.733	57.7	6.467	3.380
3	Zidua	85	WDG	0.09	lb ai/a	PRE	10.0	5.250	20.0	0.197	0.000
4	Dual Magnum	7.62	EC	0.67	lb ai/a	PRE	3.0	5.277	39.0	6.490	2.463
5	Caparol	4	L	1	lb ai/a	PRE	6.3	6.140	38.3	5.113	2.380
6	Command	3	ME	0.5	lb ai/a	PRE	5.7	4.437	66.7	10.977	0.387
7	BIR	1.67	SL	0.033	lb ai/a	PRE	10.0	4.793	23.0	3.753	0.000
8	Curbit	3	EC	0.5	lb ai/a	PRE	7.0	2.403	37.7	1.733	0.213
9	GoalTender	4	SC	0.063	lb ai/a	PRE	1.0	4.457	50.0	6.727	3.027
10	Untreated						9.7	0.930	9.7	0.433	0.013
LSD P=.05							4.59	2.8333	48.41	4.6525	2.1680
Standard Deviation							2.67	1.6516	28.22	2.7121	1.2638
CV							45.82	37.57	69.17	56.15	99.3

Weed Control in Native Spearmint – Irrer - 2017

Project Code: 121-17-1 **Location: St. Johns, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Spearmint **Variety: Native Spearmint**
Planting Method: Roots **Planting Date: 2014** **Harvest Date:**
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: 4.0%** **pH: 5.9**
Sand: 36% **Silt: 40%** **Clay: 24%** **CEC: 12.6**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/14/17	9:31 am	50/45	F	Moist	4-8 E	56	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/14	Spearmint	½-1″	Veg	Good
4/14	CUDO = curly dock	5-7″	Veg	Few
4/14	WHCA = white campion	2-4″	Veg	Mod
4/14	YERO = yellow rocket	3-5″	Veg	Many
	FIPC = field pennycress			
	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.

Weed Control in Native Spearmint – Irrer - 2017

Weed Control in Native Spearmint – Irrer – 2017

Trial ID: 121-17-1 Location: St. Johns, MI
Protocol ID: 121-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	MINT 01Jun17 RATING 1-10	CUDO 01Jun17 RATING 1-10	WHCA 01Jun17 RATING 1-10	YERO 01Jun17 RATING 1-10	MINT 22Jun17 RATING 1-10	CUDO 22Jun17 RATING 1-10	FIPC 22Jun17 RATING 1-10
1	Zidua	85	WDG	0.21	lb ai/a	PRE	3.0	7.0	6.3	4.0	3.0	8.3	9.3
2	Zidua	85	WDG	0.42	lb ai/a	PRE	3.0	7.7	6.7	4.0	3.0	4.3	10.0
3	Lorox	50	DF	0.5	lb ai/a	PRE	3.0	4.0	4.3	5.7	1.7	3.3	9.7
4	Lorox	50	DF	1	lb ai/a	PRE	2.3	9.0	3.3	4.7	2.0	8.3	8.0
5	Lorox	50	DF	0.5	lb ai/a	PRE	2.3	7.0	7.0	7.7	1.7	4.0	9.0
	Gramoxone SL	2	SL	0.375	lb ai/a	PRE							
6	Lorox	50	DF	0.5	lb ai/a	PRE	1.7	4.3	4.7	3.0	1.7	7.0	5.0
	Command	3	ME	0.5	lb ai/a	PRE							
7	Lorox	50	DF	0.5	lb ai/a	PRE	2.3	6.3	8.7	8.0	2.3	7.7	10.0
	Goal 2XL	2	EC	0.31	lb ai/a	PRE							
8	Lorox	50	DF	0.5	lb ai/a	PRE	4.3	9.7	7.0	7.7	4.7	6.0	10.0
	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							
9	Zidua	85	WDG	0.21	lb ai/a	PRE	2.7	7.0	4.7	5.7	3.0	6.0	10.0
	Gramoxone SL	2	SL	0.375	lb ai/a	PRE							
	NIS	100	SL	0.25	% v/v	PRE							
10	Zidua	85	WDG	0.21	lb ai/a	PRE	2.7	6.3	7.0	3.7	2.7	6.3	10.0
	Command	3	ME	0.5	lb ai/a	PRE							
11	Zidua	85	WDG	0.21	lb ai/a	PRE	3.0	6.3	7.0	5.0	2.7	5.0	9.3
	Goal 2XL	2	EC	0.31	lb ai/a	PRE							
12	Zidua	85	WDG	0.21	lb ai/a	PRE	3.0	6.7	8.3	7.7	2.3	6.3	9.3
	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							
LSD P=.05							2.25	6.04	7.06	5.34	1.52	5.44	2.56
Standard Deviation							1.33	3.57	4.17	3.15	0.89	3.21	1.51
CV							47.9	52.61	66.74	56.78	35.01	53.04	16.54

Weed Control in Native Spearmint – Irrer - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	WHCA	YERO	MINT	CORW
Pest Code							WHCA	YERO		CORW
Crop Name									MINT	
Rating Date							22Jun17	22Jun17	05Jul17	05Jul17
Rating Type							RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10
1	Zidua	85	WDG	0.21	lb ai/a	PRE	6.0	6.0	2.3	9.3
2	Zidua	85	WDG	0.42	lb ai/a	PRE	7.0	6.0	4.0	8.0
3	Lorox	50	DF	0.5	lb ai/a	PRE	7.3	5.7	2.7	5.7
4	Lorox	50	DF	1	lb ai/a	PRE	5.7	6.3	3.7	9.0
5	Lorox	50	DF	0.5	lb ai/a	PRE	7.0	9.3	1.7	7.7
	Gramoxone SL	2	SL	0.375	lb ai/a	PRE				
6	Lorox	50	DF	0.5	lb ai/a	PRE	4.7	4.7	3.0	9.7
	Command	3	ME	0.5	lb ai/a	PRE				
7	Lorox	50	DF	0.5	lb ai/a	PRE	6.0	8.7	2.3	10.0
	Goal 2XL	2	EC	0.31	lb ai/a	PRE				
8	Lorox	50	DF	0.5	lb ai/a	PRE	7.0	7.0	3.7	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				
9	Zidua	85	WDG	0.21	lb ai/a	PRE	3.7	7.0	2.7	7.3
	Gramoxone SL	2	SL	0.375	lb ai/a	PRE				
	NIS	100	SL	0.25	% v/v	PRE				
10	Zidua	85	WDG	0.21	lb ai/a	PRE	7.0	3.3	3.0	9.0
	Command	3	ME	0.5	lb ai/a	PRE				
11	Zidua	85	WDG	0.21	lb ai/a	PRE	7.0	7.0	3.0	8.0
	Goal 2XL	2	EC	0.31	lb ai/a	PRE				
12	Zidua	85	WDG	0.21	lb ai/a	PRE	8.0	6.7	2.7	8.7
	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				
LSD P=.05							6.90	4.98	2.18	3.33
Standard Deviation							4.08	2.94	1.29	1.97
CV							64.1	45.48	44.65	24.42

Preemergence Weed Control in Onion – Muck Soil - Keilen - 2017

Project Code: 112-17-1 **Location: East Lansing, MI**
Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Onion **Variety: Champ**
Planting Method: Seeded **Planting Date: 4/22/17** **Harvest Date: 9/5/17**
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: 76.4%** **pH: 5.6**
Sand: 11% **Silt: 12%** **Clay: 0.3%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/25/17	9:45 am	62/53	F	Damp	2-7 N	61	80% Cloudy	N
DPRE	5/3/17	3:30 pm	56/50	F	Moist	1-3 NE	45	80% Cloudy	N
PO1	5/23/17	8:57 am	63/59	F	Moist	6 SW	73	90% Cloudy	N
PO2	6/1/17	12:47 pm	67/63	F	Dry	4-8 SE	66	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/25	Onions		Preemergence	
4/25	No weeds			
5/3	Onions		Preemergence	
5/3	LATH = ladysthumb	<1/2″	Seedling	Many
5/23	Onions	2-3″	1 lf	Good
5/23	LATH = ladysthumb	1-2″	Veg	Many
6/1	Onions	2-4″	2 lf	Good
6/1	LATH = ladysthumb	2-4″	Veg	Many
	COPU = common purslane			
	RRPW = redroot pigweed			

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. Plots were sprayed with GoalTender 0.125 + SelectMax 0.12 lb ai/a as needed for crop maintenance.

Preemergence Weed Control in Onion – Muck Soil - Keilen - 2017

Preemergence Weed Control in Onion – Muck Soil – Keilen – 2017

Trial ID: 112-17-1 Location: East Lansing, MI
Protocol ID: 112-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	ONION 17May17 RATING 1-10	BARLEY 17May17 RATING 1-10	LATH 17May17 RATING 1-10	ONION 19May17 RATING 1-10	LATH 19May17 RATING 1-10	ONION 05Jun17 RATING 1-10
1	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2	1.3	1.7	1.7	1.0	1.7	1.7
	Buctril	2	EC	0.187	lb ai/a	PRE						
2	Prowl H20	3.8	CS	3.8	lb ai/a	PRE, PO1, 2	1.0	1.7	1.7	1.0	2.0	1.7
	Buctril	2	EC	0.187	lb ai/a	PRE						
3	Zidua	85	WDG	0.133	lb ai/a	PRE	1.3	1.7	2.7	1.0	2.7	2.0
	Buctril	2	EC	0.187	lb ai/a	PRE						
	Prowl H20	3.8	CS	1.9	lb ai/a	PO1, 2						
4	Zidua	85	WDG	0.133	lb ai/a	DPRE	2.7	3.0	8.0	1.0	7.0	1.3
	Buctril	2	EC	0.187	lb ai/a	DPRE						
	Prowl H20	3.8	CS	1.9	lb ai/a	PO1, 2						
5	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.0	1.7	2.3	1.0	2.0	1.7
	Buctril	2	EC	0.187	lb ai/a	PRE						
	Zidua	85	WDG	0.133	lb ai/a	PO1						
	Prowl H20	3.8	CS	1.9	lb ai/a	PO2						
6	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1,2	1.0	4.0	7.0	1.0	6.0	1.3
	Buctril	2	EC	0.187	lb ai/a	DPRE						
7	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2	1.0	1.3	3.0	1.0	3.0	1.7
	BIR	1.67	SL	0.033	lb ai/a	PRE						
	Buctril	2	EC	0.187	lb ai/a	PRE						
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2	1.7	1.7	3.3	1.0	3.3	2.0
	BIR	1.67	SL	0.045	lb ai/a	PRE						
	Buctril	2	EC	0.187	lb ai/a	PRE						
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2	1.0	1.3	2.0	1.0	2.0	2.0
	BIR	1.67	SL	0.09	lb ai/a	PRE						
	Buctril	2	EC	0.187	lb ai/a	PRE						
10	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	1.0	6.7	7.0	1.0	6.3	1.3
	Buctril	2	EC	0.187	lb ai/a	DPRE						
	BIR	1.67	SL	0.033	lb ai/a	DPRE						
11	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	2.0	7.3	7.7	1.0	4.7	1.0
	Buctril	2	EC	0.187	lb ai/a	DPRE						
	BIR	1.67	SL	0.045	lb ai/a	DPRE						
12	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	1.0	8.0	8.0	1.0	6.7	1.3
	Buctril	2	EC	0.187	lb ai/a	DPRE						
	BIR	1.67	SL	0.09	lb ai/a	DPRE						
13	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	1.3	4.7	5.3	1.0	5.0	2.7
	Buctril	2	EC	0.187	lb ai/a	DPRE						
	Chateau SW	51	WDG	0.032	lb ai/a	PO1, 2						
	BIR	1.67	SL	0.045	lb ai/a	PO1, 2						
14	Untreated						1.0	1.0	1.0	1.0	1.3	1.7
LSD P=.05							1.25	1.53	2.88	0.00	3.18	1.01
Standard Deviation							0.74	0.91	1.71	0.00	1.90	0.60
CV							56.89	27.86	39.54	0.0	49.46	35.95

Preemergence Weed Control in Onion – Muck Soil - Keilen - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LATH	ONION	ONION	COPU	LATH	RRPW
Pest Code							LATH			COPU	LATH	RRPW
Crop Name								ONION	ONION			
Rating Date							05Jun17	12Jun17	03Jul17	03Jul17	03Jul17	03Jul17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2	2.7	4.3	4.3	9.7	8.3	4.3
	Buctril	2	EC	0.187	lb ai/a	PRE						
2	Prowl H20	3.8	CS	3.8	lb ai/a	PRE, PO1, 2	2.7	2.3	4.0	9.7	8.3	8.7
	Buctril	2	EC	0.187	lb ai/a	PRE						
3	Zidua	85	WDG	0.133	lb ai/a	PRE	2.7	3.7	4.0	8.7	6.7	8.0
	Buctril	2	EC	0.187	lb ai/a	PRE						
	Prowl H20	3.8	CS	1.9	lb ai/a	PO1, 2						
4	Zidua	85	WDG	0.133	lb ai/a	DPRE	8.0	1.7	1.7	8.3	7.7	8.3
	Buctril	2	EC	0.187	lb ai/a	DPRE						
	Prowl H20	3.8	CS	1.9	lb ai/a	PO1, 2						
5	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	3.3	4.0	4.3	8.7	7.0	8.0
	Buctril	2	EC	0.187	lb ai/a	PRE						
	Zidua	85	WDG	0.133	lb ai/a	PO1						
	Prowl H20	3.8	CS	1.9	lb ai/a	PO2						
6	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1,2	6.7	1.3	1.3	10.0	8.0	9.0
	Buctril	2	EC	0.187	lb ai/a	DPRE						
7	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2	3.0	2.7	3.0	10.0	7.3	7.3
	BIR	1.67	SL	0.033	lb ai/a	PRE						
	Buctril	2	EC	0.187	lb ai/a	PRE						
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2	3.3	3.3	3.7	10.0	7.3	8.3
	BIR	1.67	SL	0.045	lb ai/a	PRE						
	Buctril	2	EC	0.187	lb ai/a	PRE						
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2	3.7	3.0	3.7	9.7	6.3	7.3
	BIR	1.67	SL	0.09	lb ai/a	PRE						
	Buctril	2	EC	0.187	lb ai/a	PRE						
10	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	6.0	1.0	2.0	10.0	6.7	9.7
	Buctril	2	EC	0.187	lb ai/a	DPRE						
	BIR	1.67	SL	0.033	lb ai/a	DPRE						
11	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	7.0	1.0	1.0	9.3	6.7	8.3
	Buctril	2	EC	0.187	lb ai/a	DPRE						
	BIR	1.67	SL	0.045	lb ai/a	DPRE						
12	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	6.7	1.0	1.3	9.3	7.3	9.3
	Buctril	2	EC	0.187	lb ai/a	DPRE						
	BIR	1.67	SL	0.09	lb ai/a	DPRE						
13	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	9.3	2.0	1.3	9.3	8.3	7.3
	Buctril	2	EC	0.187	lb ai/a	DPRE						
	Chateau SW	51	WDG	0.032	lb ai/a	PO1, 2						
	BIR	1.67	SL	0.045	lb ai/a	PO1, 2						
14	Untreated						1.0	3.7	3.7	6.0	5.3	4.0
LSD P=.05							3.09	1.98	2.14	2.22	2.66	3.52
Standard Deviation							1.84	1.18	1.28	1.33	1.59	2.10
CV							39.09	47.19	45.44	14.42	21.91	27.21

Preemergence Weed Control in Onion – Muck Soil - Keilen - 2017

Pest Code							
Crop Name							ONION
Rating Date							05Sep17
Rating Type							HARVEST
Rating Unit							KG/PLOT
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, PO1, 2	46.84
	Buctril	2	EC	0.187	lb ai/a	PRE	
2	Prowl H20	3.8	CS	3.8	lb ai/a	PRE, PO1, 2	52.82
	Buctril	2	EC	0.187	lb ai/a	PRE	
3	Zidua	85	WDG	0.133	lb ai/a	PRE	41.19
	Buctril	2	EC	0.187	lb ai/a	PRE	
	Prowl H20	3.8	CS	1.9	lb ai/a	PO1, 2	
4	Zidua	85	WDG	0.133	lb ai/a	DPRE	76.57
	Buctril	2	EC	0.187	lb ai/a	DPRE	
	Prowl H20	3.8	CS	1.9	lb ai/a	PO1, 2	
5	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	45.12
	Buctril	2	EC	0.187	lb ai/a	PRE	
	Zidua	85	WDG	0.133	lb ai/a	PO1	
	Prowl H20	3.8	CS	1.9	lb ai/a	PO2	
6	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1,2	75.46
	Buctril	2	EC	0.187	lb ai/a	DPRE	
7	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2	53.05
	BIR	1.67	SL	0.033	lb ai/a	PRE	
	Buctril	2	EC	0.187	lb ai/a	PRE	
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2	47.83
	BIR	1.67	SL	0.045	lb ai/a	PRE	
	Buctril	2	EC	0.187	lb ai/a	PRE	
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE, PO1, 2	50.74
	BIR	1.67	SL	0.09	lb ai/a	PRE	
	Buctril	2	EC	0.187	lb ai/a	PRE	
10	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	75.50
	Buctril	2	EC	0.187	lb ai/a	DPRE	
	BIR	1.67	SL	0.033	lb ai/a	DPRE	
11	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	80.00
	Buctril	2	EC	0.187	lb ai/a	DPRE	
	BIR	1.67	SL	0.045	lb ai/a	DPRE	
12	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	73.62
	Buctril	2	EC	0.187	lb ai/a	DPRE	
	BIR	1.67	SL	0.09	lb ai/a	DPRE	
13	Prowl H20	3.8	CS	1.9	lb ai/a	DPRE, PO1, 2	72.98
	Buctril	2	EC	0.187	lb ai/a	DPRE	
	Chateau SW	51	WDG	0.032	lb ai/a	PO1, 2	
	BIR	1.67	SL	0.045	lb ai/a	PO1, 2	
14	Untreated						41.10
LSD P=.05							25.128
Standard Deviation							14.969
CV							25.16

Postemergence Weed Control in Onion – Muck Soil - Keilen - 2017

Project Code: 112-17-2 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Onion **Variety: Champ**
Planting Method: Seeded **Planting Date: 4/22/17** **Harvest Date: 9/5/17**
Spacing: 1 in, beds on 36” centers **Row Spacing: 10 inch**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 30 ft long

Soil Type: Houghton Muck **OM: 77.5%** **pH: 5.4**
Sand: 19% **Silt: 12%** **Clay: 0.1%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	5/23	10:00 am	65/60	F	Damp	6 SW	65	90% Cloudy	N
PO2	6/1	2:00 pm	70/64	F	Dry	4-8 SE	60	0% Cloudy	N
PO3	6/23	10:00 am	73/68	F	Dry	6-8 SE	65	50% Cloudy	N
PO4	7/14	1:00 pm	74/70	F	Damp	3-4 NW	58	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/23	ONION	1-2”	1 LS	Good
5/23	LATH = ladysthumb	½-1”	2-3 Lv.	Many
6/1	ONION	2-3”	2 LS	Good
6/1	LATH = ladysthumb	2-4”	5-7 Lv.	Many
6/27	ONION	6-8”	3-5 LS	Good
6/27	LATH = ladysthumb	4-6”	10-15 Lv.	Many
7/14	ONION	18-20”	5-6Lv.	Mod-good
7/14	LATH = ladysthumb	4-10”	Foliar	Mod-many
7/14	RRPW = redroot pigweed	4-8”	10-15 Lv.	Few
7/14	SPSP = spotted spurge	4-8”	Foliar	Mod

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 - 2017

Postemergence Weed Control in Onion – Muck Soil – Keilen – 2017

Trial ID: 112-17-2 Location: East Lansing, MI
Protocol ID: 112-17-2 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	ONION 05Jun17 RATING 1-10	LATH 05Jun17 RATING 1-10	ONION 12Jun17 RATING 1-10	LATH 12Jun17 RATING 1-10	ONION 03Jul17 RATING 1-10	LATH 03Jul17 RATING 1-10
1	GoalTender	4	SC	0.063	lb ai/a	PO1, 2, 3, 4	2.7	8.0	2.0	6.0	3.7	4.3
2	GoalTender	4	SC	0.125	lb ai/a	PO1, 2, 3, 4	2.7	6.7	3.3	4.3	4.0	6.0
3	GoalTender	4	SC	0.25	lb ai/a	PO1, 2, 3, 4	3.0	7.7	3.0	7.3	3.0	2.7
4	GoalTender	4	SC	0.125	lb ai/a	PO1, 2, 3, 4	4.7	10.0	3.7	9.0	3.7	7.7
	Chateau SW	51	WDG	0.032	lb ai/a	PO1, 2, 3						
5	BIR	1.67	SL	0.033	lb ai/a	PO1	2.7	7.0	3.7	6.3	3.7	4.3
	NIS	100	SL	0.25	% v/v	PO1						
	GoalTender	4	SC	0.125	lb ai/a	PO2, 3, 4						
6	BIR	1.67	SL	0.045	lb ai/a	PO1	3.3	7.3	4.7	8.0	4.7	4.0
	NIS	100	SL	0.25	% v/v	PO1						
	GoalTender	4	SC	0.125	lb ai/a	PO2, 3, 4						
7	BIR	1.67	SL	0.09	lb ai/a	PO1	4.0	9.7	7.7	9.0	5.7	6.3
	NIS	100	SL	0.25	% v/v	PO1						
	GoalTender	4	SC	0.125	lb ai/a	PO2, 3, 4						
8	GoalTender	4	SC	0.125	lb ai/a	PO1, 2, 3, 4	4.3	9.3	4.0	9.7	4.7	9.3
	BIR	1.67	SL	0.033	lb ai/a	PO1, 2, 3, 4						
	NIS	100	SL	0.25	% v/v	PO1, 2, 3, 4						
9	GoalTender	4	SC	0.125	lb ai/a	PO1, 2, 3, 4	4.7	10.0	5.0	10.0	4.3	10.0
	BIR	1.67	SL	0.045	lb ai/a	PO1, 2, 3, 4						
	NIS	100	SL	0.25	% v/v	PO1, 2, 3, 4						
10	GoalTender	4	SC	0.125	lb ai/a	PO1, 2	3.0	10.0	2.7	9.0	2.7	6.3
	Reflex	2	SL	0.125	lb ai/a	PO3, 4						
	Chateau SW	51	WDG	0.032	% v/v	PO1, 2, 3						
11	GoalTender	4	SC	0.125	lb ai/a	PO2, 3, 4	1.0	3.0	1.7	2.7	4.0	8.3
	Chateau SW	51	WDG	0.032	lb ai/a	PO2, 3, 4						
12	GoalTender	4	SC	0.125	lb ai/a	PO2, 3, 4	2.3	5.0	3.0	4.0	6.3	9.0
	Buctril	2	EC	0.187	lb ai/a	PO2, 3, 4						
13	GoalTender	4	SC	0.125	lb ai/a	PO1, 2, 3, 4	2.3	8.7	2.0	7.0	3.3	6.0
	Starane Ultra	2.8	L	0.123	lb ai/a	PO3, 4						
14	Untreated						1.3	1.0	4.0	9.0	3.7	6.3
LSD P=.05							1.56	1.81	1.93	2.43	1.86	2.71
Standard Deviation							0.93	1.08	1.15	1.45	1.11	1.61
CV							31.03	14.61	31.96	19.99	27.03	24.91

Postemergence Weed Control in Onion – Muck Soil - Keilen - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	ONION 24Jul17 RATING 1-10	LATH 24Jul17 RATING 1-10	RRPW 24Jul17 RATING 1-10	SPSP 24Jul17 RATING 1-10	ONION 05Sep17 HARVEST KG/PLOT
1	GoalTender	4	SC	0.063	lb ai/a	PO1, 2, 3, 4	2.3	5.0	10.0	3.0	41.70
2	GoalTender	4	SC	0.125	lb ai/a	PO1, 2, 3, 4	3.3	7.0	10.0	3.7	43.02
3	GoalTender	4	SC	0.25	lb ai/a	PO1, 2, 3, 4	2.3	6.3	9.3	7.3	41.66
4	GoalTender	4	SC	0.125	lb ai/a	PO1, 2, 3, 4	2.7	3.3	10.0	6.3	42.48
	Chateau SW	51	WDG	0.032	lb ai/a	PO1, 2, 3					
5	BIR	1.67	SL	0.033	lb ai/a	PO1	2.3	5.3	10.0	1.3	36.39
	NIS	100	SL	0.25	% v/v	PO1					
	GoalTender	4	SC	0.125	lb ai/a	PO2, 3, 4					
6	BIR	1.67	SL	0.045	lb ai/a	PO1	4.3	4.7	10.0	1.3	33.65
	NIS	100	SL	0.25	% v/v	PO1					
	GoalTender	4	SC	0.125	lb ai/a	PO2, 3, 4					
7	BIR	1.67	SL	0.09	lb ai/a	PO1	5.7	3.3	10.0	2.0	26.87
	NIS	100	SL	0.25	% v/v	PO1					
	GoalTender	4	SC	0.125	lb ai/a	PO2, 3, 4					
8	GoalTender	4	SC	0.125	lb ai/a	PO1, 2, 3, 4	3.3	10.0	10.0	4.7	26.60
	BIR	1.67	SL	0.033	lb ai/a	PO1, 2, 3, 4					
	NIS	100	SL	0.25	% v/v	PO1, 2, 3, 4					
9	GoalTender	4	SC	0.125	lb ai/a	PO1, 2, 3, 4	3.7	10.0	10.0	5.0	23.61
	BIR	1.67	SL	0.045	lb ai/a	PO1, 2, 3, 4					
	NIS	100	SL	0.25	% v/v	PO1, 2, 3, 4					
10	GoalTender	4	SC	0.125	lb ai/a	PO1, 2	3.3	8.7	10.0	3.7	44.10
	Reflex	2	SL	0.125	lb ai/a	PO3, 4					
	Chateau SW	51	WDG	0.032	% v/v	PO1, 2, 3					
11	GoalTender	4	SC	0.125	lb ai/a	PO2, 3, 4	3.3	8.0	10.0	6.3	45.19
	Chateau SW	51	WDG	0.032	lb ai/a	PO2, 3, 4					
12	GoalTender	4	SC	0.125	lb ai/a	PO2, 3, 4	5.7	9.0	10.0	5.0	18.51
	Buctril	2	EC	0.187	lb ai/a	PO2, 3, 4					
13	GoalTender	4	SC	0.125	lb ai/a	PO1, 2, 3, 4	3.0	8.7	10.0	6.0	46.79
	Starane Ultra	2.8	L	0.123	lb ai/a	PO3, 4					
14	Untreated						1.3	4.0	6.0	1.0	37.01
LSD P=.05							1.84	3.16	2.15	4.57	18.915
Standard Deviation							1.10	1.88	1.28	2.72	11.268
CV							32.86	28.27	13.24	67.26	31.08

Weed Control in Onion – Mineral Soil - Vogel - 2017

Project Code: 112-17-3 **Location: Fremont, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Onion **Variety: Safrane; SV4643NT**
Planting Method: Seeded **Planting Date: 4/15/17** **Harvest Date: 8/8/17**
Spacing: 1 in **Row Spacing: 3 double rows 6″ x 18″**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.3 ft wide x 20 ft long

Soil Type: Pipestone sand **OM: 3.4%** **pH: 6.3**
Sand: 86% **Silt: 7%** **Clay: 7%** **CEC: 5.6**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	4/28/17	11:40 am	50/50	F	Dry	8-11 SW	50	50% Cloudy	N
DPRE	5/9/17	12:15 am	57/50	F	Dry	4-5 SE	20	50% Cloudy	N
PO1	5/23/17	10:40 am	63/48	F	Damp	5-6SW	66	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/28	Onion	½″	Veg	Good
4/28	Many unidentified	<1/2″	Seedlings	Many
5/9	Onion	½-1″	Loop-flod.	Few
5/9	HANS = hairy nightshade	½-1″	Cot	Many
5/23	Onion	3″	1 LS	Good
5/23	HANS = hairy nightshade	1-2″	3-4 Lv	Many
5/23	COLQ = common lambsquarters	½-2″	Cot – 4Lv	

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. Apply PRE treatment 10-14 days after seeding (some loops were up at PRE).
4. GoalTender 0.125 lb ai/a was applied to all plots as needed at PO1 and PO2.
5. DPRE = few onions emerged to loop stage; PO1 = 1 LS.

Weed Control in Onion – Mineral Soil - Vogel - 2017

Weed Control in Onion – Mineral Soil – Vogel – 2017

Trial ID: 112-17-3 Location: Fremont, MI
Protocol ID: 112-17-3 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage							
Pest Code								COLQ	HANS		COLQ	HANS	
Crop Name							ONION			ONION			ONION
Rating Date							23May17	23May17	23May17	01Jun17	01Jun17	01Jun17	19Jun17
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
1	Prowl H20	3.8	CS	0.5	lb ai/a	PRE	1.6	7.7	5.3	2.0	9.7	9.7	1.7
	Prowl H20	3.8	CS	0.95	lb ai/a	PO1							
2	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1	1.3	7.7	6.0	1.7	10.0	10.0	1.3
3	Prowl H20	3.8	CS	0.95	lb ai/a	PRE, PO1	2.6	9.7	8.0	2.3	10.0	10.0	2.3
4	Prowl H20	3.8	CS	0.5	lb ai/a	PRE, PO1	1.6	8.0	5.7	2.7	10.0	10.0	2.7
	BIR	1.67	SL	0.016	lb ai/a	PRE, PO1							
5	Prowl H20	3.8	CS	0.5	lb ai/a	PRE, PO1	1.0	4.3	2.3	2.3	9.7	9.7	1.3
	BIR	1.67	SL	0.016	lb ai/a	PO1							
6	Nortron	4	SC	1	lb ai/a	PRE	1.0	8.0	6.3	2.0	9.7	9.7	2.3
	Prowl H20	3.8	CS	0.95	lb ai/a	PO1							
7	Prowl H20	3.8	CS	0.25	lb ai/a	PRE	1.6	7.7	6.7	3.0	10.0	10.0	2.0
	Nortron	4	SC	0.5	lb ai/a	PRE							
	Prowl H20	3.8	CS	0.95	lb ai/a	PO1							
8	Prowl H20	3.8	CS	0.5	lb ai/a	PRE	1.3	6.3	6.3	2.7	10.0	9.3	2.7
	Nortron	4	SC	0.5	lb ai/a	PRE							
	Prowl H20	3.8	CS	1.5	lb ai/a	PO1							
9	Prowl H20	3.8	CS	0.5	lb ai/a	PRE	2.3	9.0	8.0	2.7	10.0	10.0	2.3
	BIR	1.67	SL	0.016	lb ai/a	PRE							
	Prowl H20	3.8	CS	0.95	lb ai/a	PO1							
10	Prowl H20	3.8	CS	0.5	lb ai/a	PRE	1.0	6.0	5.0	1.3	7.0	6.7	1.3
	BIR	1.67	SL	0.033	lb ai/a	PO1							
11	Untreated					PRE	1.5	7.0	6.0	2.3	8.0	9.3	1.7
	Zidua	85	WDG	0.067	lb ai/a	DPRE							
12	Untreated					PRE	2.0	1.0	1.0	2.3	6.7	7.7	1.7
	Zidua	85	WDG	0.067	lb ai/a	PO1							
13	Zidua	85	WDG	0.067	lb ai/a	PRE	2.0	8.0	9.3	2.7	8.7	10.0	1.7
LSD P=.05							0.23	3.55	4.35	1.29	1.80	1.40	1.26
Standard Deviation							0.14	2.10	2.58	0.77	1.07	0.83	0.75
CV							34.38	30.28	44.17	33.16	11.61	8.84	38.83

Weed Control in Onion – Mineral Soil - Vogel - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	COLQ 19Jun17 RATING 1-10	HANS 19Jun17 RATING 1-10	ONION 08Aug17 RATING 1-10	ONION 08Sep17 HARVEST KG/PLOT
1	Prowl H20	3.8	CS	0.5	lb ai/a	PRE	8.3	7.3	1.7	66.71
	Prowl H20	3.8	CS	0.95	lb ai/a	PO1				
2	Prowl H20	3.8	CS	0.75	lb ai/a	PRE, PO1	7.3	7.0	1.7	68.25
3	Prowl H20	3.8	CS	0.95	lb ai/a	PRE, PO1	9.7	9.0	1.7	62.90
4	Prowl H20	3.8	CS	0.5	lb ai/a	PRE, PO1	8.0	8.3	2.0	56.38
	BIR	1.67	SL	0.016	lb ai/a	PRE, PO1				
5	Prowl H20	3.8	CS	0.5	lb ai/a	PRE, PO1	7.7	5.0	2.0	65.24
	BIR	1.67	SL	0.016	lb ai/a	PO1				
6	Nortron	4	SC	1	lb ai/a	PRE	8.7	8.0	3.0	56.20
	Prowl H20	3.8	CS	0.95	lb ai/a	PO1				
7	Prowl H20	3.8	CS	0.25	lb ai/a	PRE	8.0	7.0	2.3	60.91
	Nortron	4	SC	0.5	lb ai/a	PRE				
	Prowl H20	3.8	CS	0.95	lb ai/a	PO1				
8	Prowl H20	3.8	CS	0.5	lb ai/a	PRE	9.3	8.3	2.7	57.00
	Nortron	4	SC	0.5	lb ai/a	PRE				
	Prowl H20	3.8	CS	1.5	lb ai/a	PO1				
9	Prowl H20	3.8	CS	0.5	lb ai/a	PRE	9.3	9.3	1.7	62.61
	BIR	1.67	SL	0.016	lb ai/a	PRE				
	Prowl H20	3.8	CS	0.95	lb ai/a	PO1				
10	Prowl H20	3.8	CS	0.5	lb ai/a	PRE	2.7	2.3	3.3	39.32
	BIR	1.67	SL	0.033	lb ai/a	PO1				
11	Untreated					PRE	4.3	8.7	2.3	60.58
	Zidua	85	WDG	0.067	lb ai/a	DPRE				
12	Untreated					PRE	5.7	8.3	3.0	59.36
	Zidua	85	WDG	0.067	lb ai/a	PO1				
13	Zidua	85	WDG	0.067	lb ai/a	PRE	4.7	8.7	2.0	60.13
LSD P=.05							2.25	3.28	1.74	16.175
Standard Deviation							1.33	1.95	1.03	9.598
CV							18.51	26.0	45.76	16.09

Weed Control in Established Chives– Van Drunen - 2017

Project Code: 117-17-1 **Location: Momence, IL**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Green Onion, Chive **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: 5.3%** **pH: 6.2**
Sand: 32% **Silt: 38%** **Clay: 30%** **CEC: 15.8**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/25	1:30 pm	62/59	F	Saturated	8-10 N	77	100% Cloudy	N
PO1	6/23/17	1:39 pm	84/75	F	Saturated	2-3 N	47	75% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/25	Chive	4-10″	Flower	Good
5/25	ANBG = annual bluegrass	3-5″	Flower	Few
5/25	CATH = Canada thistle	6-10″	Veg	Mod
5/25	COLQ = common lambsquarters	1-3″	Veg	Few
5/25	DAND = dandelion	3-8″	Veg	Mod
5/25	HENB = henbit	4-6″	Flower	Few
5/25	MECW = mouseear chickweed	4-6″	Flower	Mod
5/25	PRLE = prickly lettuce	4-6″	Veg	Many
5/25	WHCL = white clover	2-3″	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. PRE applied 2 weeks after first cutting.
4. PO1 applied after first harvest.
5. 5/25 – guards sprayed with Prowl H_2O @ 0.95 lb ai/a.
6. 3 harvests on 6/23/17, 7/19/17, and 8/18/17

Weed Control in Established Chives– Van Drunen - 2017

Weed Control in Established Chives – Van Drunen – 2017

Trial ID: 117-17-1 Location: Momence, IL
Protocol ID: 117-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CHIVES 23Jun17 RATING 1-10	CATH 23Jun17 RATING 1-10	DAND 23Jun17 RATING 1-10	YEFT 23Jun17 RATING 1-10	CHIVES 19Jul17 RATING 1-10	CHIVES 18Aug17 RATING 1-10	CHIVES 23Jun17 HSVT1 KG/PLOT
1	Untreated						3.7	3.5	1.0	7.0	2.7	2.3	13.47
2	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	2.0	1.0	1.0	10.0	1.7	1.7	10.82
3	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	2.3	5.0	1.0	9.3	2.3	1.7	13.18
	BIR	1.67	SL	0.033	lb ai/a	PRE							
4	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	3.7	2.0	6.3	9.3	4.0	2.7	8.52
	BIR	1.67	SL	0.045	lb ai/a	PRE							
5	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	2.3	1.0	3.7	8.7	1.3	2.7	15.32
	BIR	1.67	SL	0.033	lb ai/a	PO1							
6	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	2.0	3.0	1.0	9.3	2.0	2.3	21.28
	BIR	1.67	SL	0.033	lb ai/a	PO1							
	NIS	100	SL	0.25	% v/v	PO1							
7	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	2.3	2.7	1.7	6.3	2.7	2.0	13.53
	BIR	1.67	SL	0.045	lb ai/a	PO1							
8	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	2.3	1.0	1.0	9.3	1.7	2.7	17.22
	BIR	1.67	SL	0.045	lb ai/a	PO1							
	NIS	100	SL	0.25	% v/v	PO1							
9	Zidua	85	WDG	0.133	lb ai/a	PRE	1.7	3.7	1.0	10.0	1.3	1.0	17.62
10	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	1.7	1.0	1.0	10.0	1.3	2.0	17.42
	GoalTender	4	SC	0.125	lb ai/a	PO1							
	Fusilade DX	2	EC	0.25	lb ai/a	PO1							
LSD P=.05							1.61	4.78	2.44	3.28	1.89	2.17	11.647
Standard Deviation							0.94	2.71	1.42	1.91	1.10	1.27	6.789
CV							39.2	114.08	76.32	21.42	52.57	60.3	45.76

Weed Control in Established Chives– Van Drunen - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CHIVES 19Jul17 HVST2 KG/PLOT	CHIVES 18Aug17 HVST3 KG/PLOT	CHIVES TOTAL HVST KG/PLOT
	Pest Code								
	Crop Name						CHIVES	CHIVES	CHIVES
	Rating Date						19Jul17	18Aug17	TOTAL
	Rating Type						HVST2	HVST3	HVST
	Rating Unit						KG/PLOT	KG/PLOT	KG/PLOT
1	Untreated						7.16	6.78	30.74
2	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	7.44	8.15	26.41
3	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	7.13	8.44	28.09
	BIR	1.67	SL	0.033	lb ai/a	PRE			
4	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	3.89	5.64	18.05
	BIR	1.67	SL	0.045	lb ai/a	PRE			
5	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	6.89	5.71	27.91
	BIR	1.67	SL	0.033	lb ai/a	PO1			
6	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	9.55	7.61	38.44
	BIR	1.67	SL	0.033	lb ai/a	PO1			
	NIS	100	SL	0.25	% v/v	PO1			
7	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	7.46	8.80	29.79
	BIR	1.67	SL	0.045	lb ai/a	PO1			
8	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	7.35	7.34	31.91
	BIR	1.67	SL	0.045	lb ai/a	PO1			
	NIS	100	SL	0.25	% v/v	PO1			
9	Zidua	85	WDG	0.133	lb ai/a	PRE	9.15	10.15	36.91
10	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	8.84	8.24	34.49
	GoalTender	4	SC	0.125	lb ai/a	PO1			
	Fusilade DX	2	EC	0.25	lb ai/a	PO1			
	LSD P=.05						3.801	3.706	16.873
	Standard Deviation						2.216	2.160	9.836
	CV						29.6	28.11	32.49

Weed Control in Seeded Green Onion and Chive – Van Drunen - 2017

Project Code: 117-17-2 **Location: Momence, IL**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Green Onion, Chive **Variety: Purly, Tokyo Long White**
Planting Method: Seeded **Planting Date: 5/23/17** **Harvest Date: 8/18/17**
Spacing: 100 seeds/ft **Row Spacing: 10 in; 2 rows of each crop/plot**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.5 ft wide x 30 ft long

Soil Type: Jasper loam **OM: 5.0%** **pH: 6.4**
Sand: 32% **Silt: 53%** **Clay: 15%** **CEC: 15.0**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	5/25	12:56 pm	62/59	F	Saturated	8-10 N	77	100% Cloudy	N
PO1	6/23/17	1:51 pm	84/75	F	Saturated	2-3 N	47	75% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/25	Green Onion		Preemergence	
5/25	Chive		Preemergence	
5/25	No weeds			

BYGR = barnyard grass
LACG = large crabgrass
RRPW = redroot pigweed
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. All plots may be sprayed with GoalTender 0.063 lb ai/a and SelectMax 0.12 after 2-3 LS for plot maintenance.
4. 5/25 – guards sprayed with Prowl H_2O @ 0.95 lb ai/a.
5. Chive stand was very poor so they were not harvested.

Weed Control in Seeded Green Onion and Chive – Van Drunen - 2017

Weed Control on Seeded Green Onion and Chive – Van Drunen – 2017

Trial ID: 117-17-5 Location: Momence, IL
Protocol ID: 117-17-5 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CHIVES	GRON	LACG	RRPW	YEFT	CHIVES	GRON
Pest Code													
Crop Name							CHIVES	GRON				CHIVES	GRON
Rating Date							23Jun17	23Jun17	23Jun17	23Jun17	23Jun17	19Jul17	19Jul17
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
1	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	4.0	1.7	1.0	7.3	3.7	4.3	1.0
2	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	5.0	1.7	1.7	10.0	2.3	6.3	1.0
	Chateau SW	51	WDG	0.016	lb ai/a	PRE							
3	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	4.7	5.3	9.0	10.0	9.3	4.0	2.3
	BIR	1.67	SL	0.033	lb ai/a	PRE							
4	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	1.7	2.3	1.0	3.0	3.7	1.7	1.0
	BIR	1.67	SL	0.033	lb ai/a	PO1							
5	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	7.3	3.7	8.3	10.0	9.3	7.0	2.0
	Zidua	85	WDG	0.032	lb ai/a	PRE							
6	Zidua	85	WDG	0.032	lb ai/a	PRE	4.0	2.3	6.7	9.0	5.0	3.7	1.7
7	Zidua	85	WDG	0.053	lb ai/a	PRE	7.7	4.7	9.3	10.0	9.0	7.7	1.7
8	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	3.0	2.3	1.0	8.7	1.0	3.0	1.3
	Zidua	85	WDG	0.032	lb ai/a	PO1							
9	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	2.0	1.0	1.7	9.3	3.7	2.7	1.0
	Zidua	85	WDG	0.053	lb ai/a	PO1							
10	Untreated						2.7	1.3	1.0	1.0	1.0	9.5	3.5
LSD P=.05							2.34	2.41	2.57	2.38	4.08	4.34	1.23
Standard Deviation							1.36	1.41	1.50	1.39	2.38	2.52	0.72
CV							32.5	53.36	36.78	17.73	49.5	50.52	43.4

Weed Control in Seeded Green Onion and Chive – Van Drunen - 2017

Weed Control on Seeded Green Onion and Chive – Van Drunen – 2017

Trial ID: 117-17-5 Location: Momence, IL
Protocol ID: 117-17-5 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BYGR 19Jul17 RATING 1-10	LACG 19Jul17 RATING 1-10	CHIVES 18Aug17 RATING 1-10	GRON 18Aug17 RATING 1-10	GRON 18Aug17 WEIGHT KG/PLOT
1	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	10.0	10.0	1.7	2.0	7.577
2	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	10.0	10.0	4.3	2.0	10.207
	Chateau SW	51	WDG	0.016	lb ai/a	PRE					
3	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	10.0	10.0	3.3	3.7	4.563
	BIR	1.67	SL	0.033	lb ai/a	PRE					
4	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	6.7	1.0	8.3	5.0	1.123
	BIR	1.67	SL	0.033	lb ai/a	PO1					
5	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	10.0	10.0	5.0	2.3	10.097
	Zidua	85	WDG	0.032	lb ai/a	PRE					
6	Zidua	85	WDG	0.032	lb ai/a	PRE	10.0	10.0	2.7	1.3	12.200
7	Zidua	85	WDG	0.053	lb ai/a	PRE	10.0	10.0	5.7	2.3	8.270
8	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	3.0	3.0	9.3	4.7	2.553
	Zidua	85	WDG	0.032	lb ai/a	PO1					
9	Prowl H20	3.8	CS	0.95	lb ai/a	PRE	2.7	2.7	9.3	4.0	3.603
	Zidua	85	WDG	0.053	lb ai/a	PO1					
10	Untreated						1.0	1.0	10.0	7.0	0.307
LSD P=.05							3.41	2.31	3.59	2.02	5.1258
Standard Deviation							1.99	1.35	2.09	1.18	2.9880
CV							27.13	19.89	35.08	34.37	49.39

Weed Control in Green Onion and Leek – Muck Soil – Schreur - 2017

Project Code: 112-17-4 **Location: Hudsonville, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Green onion, Leek **Variety: Tokyo Long White, American Flag**
Planting Method: Seeded **Planting Date: 4/19/17** **Harvest Date: see notes**
Spacing: 3 inch **Row Spacing: 24 inch; 1 row each crop/plot**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 2.7 ft wide x 30 ft long

Soil Type: Carlisle muck **OM: 54.1%** **pH: 6.1**
Sand: 27% **Silt: 18%** **Clay: 1%** **CEC:**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPRE	4/24/17	11:00 am	62/51	F	Moist	3-5 SE	49	15% Cloudy	N
DPRE	5/9/17	10:30 am	50/48	F	Dry	4-5 NE	28	10% Cloudy	N
PO1	5/23/17	2:00 pm	62/62	F	Damp	7-8 SW	85	10% Cloudy	Y

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/24	Onions		Preemergence	
4/24	No weeds			
5/9	Onion	Few emerged ½″	Early loop	Few
5/9	COPU = common purslane	¼-1/2″	Cot	Few
5/9	LATH = ladysthumb	½-1″	Cot	Few
5/9	PAWE = pineappleweed	½-1″	1-2 Lv	Few
5/23	Onion	3-4″ 1 LS	1LS	Good
5/23	SHPU = sheperdspurse	6-8″	Flower	Many
5/23	PAWE = pineappleweed	2-4″	Foliar	Few
5/23	LATH = ladysthumb	2-3″	4-6 Lv	Mod
5/23	CORW = common ragweed	2-3″	4-6 Lv	Mod
	MAYC = marsh yellowcress			

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. GoalTender 0.063 lb ai/a and SelectMax 0.12 lb ai/a were used for crop maintenance.
4. Apply PRE treatments 1-3 days after seeding; apply DPRE 12-14 days after seeding.
5. Trt. 7 BIR applied 4/25
6. Harvested: Green onion on 7/27/17, Leek on 10/10/17

Weed Control in Green Onion and Leek – Muck Soil – Schreur - 2017

Weed Control in Seeded Green Onion and Leek – Muck Soil – Schreur – 2017

Trial ID: 112-17-4 Location: Hudsonville, MI
Protocol ID: 112-17-4 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	GRON 19May17 RATING 1-10	LEEK 19May17 RATING 1-10	LATH 19May17 RATING 1-10	PAWE 19May17 RATING 1-10	SHPU 19May17 RATING 1-10	GRON 23May17 RATING 1-10
1	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.3	1.0	8.0	4.3	6.7	1.3
2	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	2.3	1.3	9.3	8.0	9.3	1.7
3	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	2.0	1.3	9.0	5.0	8.0	1.7
	Chateau SW	51	WDG	0.032	lb ai/a	PRE						
4	Zidua	85	WDG	0.053	lb ai/a	PRE	2.3	1.0	8.0	5.3	7.0	3.7
5	Zidua	85	WDG	0.053	lb ai/a	DPRE	2.0	1.7	6.7	3.3	6.3	1.7
6	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.0	1.0	8.7	4.3	7.0	1.3
	Zidua	85	WDG	0.053	lb ai/a	1 LS						
7	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	2.0	1.3	9.0	8.7	8.3	2.3
	BIR	1.67	SL	0.033	lb ai/a	PRE						
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.7	1.0	8.7	8.0	6.0	2.3
	Dual Magnum	7.62	EC	1.3	lb ai/a	1 LS						
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.7	1.0	6.3	7.7	5.7	1.3
	Outlook	6	EC	0.98	lb ai/a	1 LS						
10	Untreated						1.3	1.0	1.7	1.0	1.0	1.7
LSD P=.05							1.22	0.83	1.79	3.26	2.80	1.56
Standard Deviation							0.71	0.48	1.04	1.90	1.63	0.91
CV							40.32	41.4	13.83	34.17	25.01	47.83

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LEEK 23May17 RATING 1-10	CORW 23May17 RATING 1-10	PAWE 23May17 RATING 1-10	SHPU 23May17 RATING 1-10	GRON 05Jun17 RATING 1-10	LEEK 05Jun17 RATING 1-10
1	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.3	3.3	5.7	6.3	1.0	1.0
2	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	1.3	7.3	6.0	7.7	1.7	1.7
3	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.0	5.0	6.3	7.0	1.3	1.7
	Chateau SW	51	WDG	0.032	lb ai/a	PRE						
4	Zidua	85	WDG	0.053	lb ai/a	PRE	1.0	5.3	4.0	7.3	2.0	1.3
5	Zidua	85	WDG	0.053	lb ai/a	DPRE	1.3	5.3	6.7	5.7	1.7	1.7
6	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.0	3.0	4.7	6.3	1.0	1.3
	Zidua	85	WDG	0.053	lb ai/a	1 LS						
7	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.3	8.0	9.0	7.7	4.0	2.7
	BIR	1.67	SL	0.033	lb ai/a	PRE						
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.3	6.7	5.7	7.0	3.3	2.3
	Dual Magnum	7.62	EC	1.3	lb ai/a	1 LS						
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	1.3	5.7	6.0	6.3	1.7	1.7
	Outlook	6	EC	0.98	lb ai/a	1 LS						
10	Untreated						1.3	7.0	5.3	4.7	2.0	2.3
LSD P=.05							0.77	3.17	4.56	1.66	1.52	1.67
Standard Deviation							0.45	1.85	2.66	0.97	0.88	0.98
CV							36.26	32.63	44.79	14.7	44.95	55.22

Weed Control in Green Onion and Leek – Muck Soil – Schreur - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	COGR	COLQ	COPU	CORW	LATH	PAWE	RRPW
Pest Code													
Crop Code													
Rating Date							05Jun17	05Jun17	05Jun17	05Jun17	05Jun17	05Jun17	05Jun17
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
1	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	5.0	9.0	8.7	1.7	6.7	3.3	9.3
2	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	7.0	9.3	9.3	4.3	8.7	4.0	8.7
3	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	7.0	9.0	9.0	5.0	8.7	2.0	7.0
	Chateau SW	51	WDG	0.032	lb ai/a	PRE							
4	Zidua	85	WDG	0.053	lb ai/a	PRE	6.0	9.0	8.7	4.7	2.3	3.7	7.7
5	Zidua	85	WDG	0.053	lb ai/a	DPRE	5.3	7.3	8.3	5.3	1.7	3.0	7.7
6	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	8.3	9.3	10.0	3.3	8.7	5.7	9.3
	Zidua	85	WDG	0.053	lb ai/a	1 LS							
7	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	6.3	9.7	10.0	5.3	7.3	8.0	8.7
	BIR	1.67	SL	0.033	lb ai/a	PRE							
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	9.3	9.3	10.0	5.0	8.0	6.0	9.0
	Dual Magnum	7.62	EC	1.3	lb ai/a	1 LS							
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	6.7	10.0	9.3	3.0	7.7	5.0	9.7
	Outlook	6	EC	0.98	lb ai/a	1 LS							
10	Untreated						3.3	1.0	8.7	4.3	1.7	2.7	3.7
LSD P=.05							5.14	2.82	2.15	4.20	2.66	4.65	3.37
Standard Deviation							3.00	1.64	1.25	2.45	1.55	2.71	1.96
CV							46.56	19.78	13.61	58.34	25.24	62.54	24.32

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	SHPU	GRON	LEEK	GRON	LEEK	COPU	MAYC
Pest Code													
Crop Code								GRON	LEEK	GRON	LEEK		
Rating Date							05Jun17	19Jun17	19Jun17	07Jul17	07Jul17	07Jul17	07Jul17
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
1	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	5.3	1.7	2.3	2.0	3.0	4.3	5.7
2	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	7.7	2.0	1.0	2.0	2.3	4.3	5.3
3	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	4.7	3.0	2.7	2.3	3.3	5.0	6.3
	Chateau SW	51	WDG	0.032	lb ai/a	PRE							
4	Zidua	85	WDG	0.053	lb ai/a	PRE	7.0	4.0	2.3	3.7	2.7	5.3	6.3
5	Zidua	85	WDG	0.053	lb ai/a	DPRE	4.0	3.0	3.0	2.7	3.0	5.7	4.3
6	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	7.0	1.7	1.7	2.0	2.0	6.0	2.3
	Zidua	85	WDG	0.053	lb ai/a	1 LS							
7	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	5.0	3.0	1.7	3.0	2.3	4.0	6.0
	BIR	1.67	SL	0.033	lb ai/a	PRE							
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	6.0	3.0	2.0	3.0	3.7	5.3	5.7
	Dual Magnum	7.62	EC	1.3	lb ai/a	1 LS							
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	4.7	2.3	2.3	2.0	2.3	6.7	4.7
	Outlook	6	EC	0.98	lb ai/a	1 LS							
10	Untreated						3.7	4.7	5.3	5.0	5.0	3.0	2.3
LSD P=.05							2.62	2.05	1.91	2.29	1.93	2.78	2.86
Standard Deviation							1.53	1.20	1.11	1.34	1.12	1.62	1.67
CV							27.75	42.25	45.64	48.29	37.88	32.58	34.08

Weed Control in Green Onion and Leek – Muck Soil – Schreur - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	RRPW 07Jul17 RATING 1-10	GRON 25Jul17 RATING 1-10	LEEK 25Jul17 RATING 1-10	GRON 27Jul17 HARVEST #/PLOT	GRON 27Jul17 HARVEST KG/PLOT
1	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	33.95	2.3	3.0	90.7	6.14
2	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	36.70	2.3	1.7	77.0	6.32
3	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	33.90	1.7	2.3	82.0	4.96
	Chateau SW	51	WDG	0.032	lb ai/a	PRE					
4	Zidua	85	WDG	0.053	lb ai/a	PRE	35.87	3.3	1.7	47.7	3.52
5	Zidua	85	WDG	0.053	lb ai/a	DPRE	30.78	2.3	2.0	72.3	3.63
6	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	36.61	2.0	1.7	93.7	6.87
	Zidua	85	WDG	0.053	lb ai/a	1 LS					
7	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	34.51	2.0	1.3	69.7	3.94
	BIR	1.67	SL	0.033	lb ai/a	PRE					
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	33.85	3.0	2.0	65.3	4.48
	Dual Magnum	7.62	EC	1.3	lb ai/a	1 LS					
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	34.03	1.7	1.7	93.3	6.99
	Outlook	6	EC	0.98	lb ai/a	1 LS					
10	Untreated						21.77	3.3	4.3	62.0	1.89
LSD P=.05							3.66	2.33	1.52	44.98	3.266
Standard Deviation							2.13	1.36	0.89	26.22	1.904
CV							43.21	56.47	40.99	34.79	39.07

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LEEK 10Oct17 HARVEST #/PLOT	LEEK 10Oct17 HARVEST KG/PLOT
1	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	69.7	33.95
2	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	73.7	36.70
3	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	70.3	33.90
	Chateau SW	51	WDG	0.032	lb ai/a	PRE		
4	Zidua	85	WDG	0.053	lb ai/a	PRE	75.3	35.87
5	Zidua	85	WDG	0.053	lb ai/a	DPRE	65.3	30.78
6	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	76.0	36.61
	Zidua	85	WDG	0.053	lb ai/a	1 LS		
7	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	72.0	34.51
	BIR	1.67	SL	0.033	lb ai/a	PRE		
8	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	70.7	33.85
	Dual Magnum	7.62	EC	1.3	lb ai/a	1 LS		
9	Prowl H20	3.8	CS	1.9	lb ai/a	PRE	71.0	34.03
	Outlook	6	EC	0.98	lb ai/a	1 LS		
10	Untreated						47.7	21.77
LSD P=.05							22.10	10.586
Standard Deviation							12.88	6.171
CV							18.62	18.59

Weed Control in Processing Peppers - HTRC - 2017

Project Code: 101-17-1 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Peppers **Variety: Jalapeno, Hungarian Hot Wax**
Planting Method: Transplant **Planting Date: 5/15/17** **Harvest Date: See notes**
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: 5.7**
Sand: 52% **Silt: 28%** **Clay: 20%** **CEC: 8.2**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	5/15/17	12:43 pm	76/60	F	Damp	2 W	20	60% Cloudy	N
PO1	6/21/17	1:30 pm	75/70	F	Damp	2-4 NE	37	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/15	Peppers		Pretransplant	
5/15	No weeds			
6/21	Banana Peppers	6 Lv.	Blossom	Good
6/21	Hot Peppers	OT 7in	Foliar	Good
6/21	COLQ = common lambsquarters	1-4”	Foliar	Mod
6/21	COPU = common purslane	3-5”	Foliar	Few
6/21	CORW = common ragweed	1-6”	Foliar	Many
6/21	EBNS = Eastern black nightshade	1-2“	Fol. 4-6 Lv.	Few
6/21	YEFT = yellow foxtail	1-4”	Foliar	Mod
6/21	YENS = yellow nightshade	4-8”	Foliar	Many
	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. 2 harvests for Banana pepper on 8/14/17 and 9/25/17; 2 harvests for Jalapeno pepper on 8/14/17 and 9/26/17.

Weed Control in Processing Peppers - HTRC - 2017

Weed Control in Processing Peppers – HTRC – 2017

Trial ID: 101-17-1 Location: East Lansing, MI
Protocol ID: 101-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BANANA	JALAPENO	YEFT	YENS	COLQ	CORW
Pest Code									YEFT	YENS	COLQ	CORW
Crop Name							BANANA	JALAPENO				
Rating Date							20Jun17	20Jun17	20Jun17	20Jun17	20Jun17	20Jun17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	1.3	1.3	10.0	10.0	10.0	8.0
	BIR	1.67	SL	0.033	lb ai/a	PRT						
2	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	1.0	1.0	10.0	6.3	10.0	1.7
3	Chateau SW	51	WDG	0.032	lb ai/a	PRT	2.0	1.3	8.3	6.7	9.3	8.7
4	Command	3	ME	1	lb ai/a	PRT	1.3	1.7	10.0	10.0	10.0	10.0
	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT						
5	Reflex	2	SL	0.25	lb ai/a	PRT	1.0	1.0	9.7	5.3	10.0	10.0
	Command	3	ME	1	lb ai/a	PRT						
6	League	75	WDG	0.19	lb ai/a	PRT	1.3	1.7	6.7	10.0	9.7	7.3
7	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	1.7	1.7	9.7	10.0	10.0	9.7
	Command	3	ME	1	lb ai/a	PRT						
	Sandea	75	WG	0.023	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	1.3	1.3	10.0	10.0	10.0	9.7
	Command	3	ME	1	lb ai/a	PRT						
	Rely 280	2.34	L	0.58	lb ai/a	PO1 DIR						
9	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	1.0	1.3	10.0	10.0	10.0	9.7
	Command	3	ME	1	lb ai/a	PRT						
	Reglone	2	L	0.5	lb ai/a	PO1 DIR						
10	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	1.0	1.0	10.0	10.0	10.0	10.0
	Command	3	ME	1	lb ai/a	PRT						
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1DIR						
11	Untreated						1.0	1.0	1.0	4.0	1.0	1.0
LSD P=.05							0.82	0.80	0.92	4.30	0.68	1.05
Standard Deviation							0.48	0.47	0.54	2.52	0.40	0.62
CV							37.71	36.1	6.26	30.05	4.37	7.9

Weed Control in Processing Peppers - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	EBNS	BANANA	JALAPENO	BANANA	JALAPENO	BYGR
Pest Code							EBNS					BYGR
Crop Name								BANANA	JALAPENO	BANANA	JALAPENO	
Rating Date							20Jun17	23Jun17	23Jun17	29Jun17	29Jun17	29Jun17
Rating Type							RATING	STAND	STAND	RATING	RATING	RATING
Rating Unit							1-10	#/PLOT	#/PLOT	1-10	1-10	1-10
1	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	10.0	10.7	17.0	1.3	1.7	10.0
	BIR	1.67	SL	0.033	lb ai/a	PRT						
2	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	8.7	16.3	18.3	1.0	1.0	9.0
3	Chateau SW	51	WDG	0.032	lb ai/a	PRT	10.0	15.7	17.3	1.7	1.0	6.7
4	Command	3	ME	1	lb ai/a	PRT	10.0	16.3	18.7	1.0	1.0	10.0
	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT						
5	Reflex	2	SL	0.25	lb ai/a	PRT	10.0	17.3	12.0	1.0	1.0	10.0
	Command	3	ME	1	lb ai/a	PRT						
6	League	75	WDG	0.19	lb ai/a	PRT	3.0	17.0	15.0	1.0	2.0	5.3
7	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	10.0	16.3	18.0	2.0	2.3	10.0
	Command	3	ME	1	lb ai/a	PRT						
	Sandea	75	WG	0.023	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	10.0	17.7	16.7	1.3	1.7	10.0
	Command	3	ME	1	lb ai/a	PRT						
	Rely 280	2.34	L	0.58	lb ai/a	PO1 DIR						
9	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	10.0	17.0	17.0	1.7	1.7	10.0
	Command	3	ME	1	lb ai/a	PRT						
	Reglone	2	L	0.5	lb ai/a	PO1 DIR						
10	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	10.0	18.0	17.0	1.7	1.7	10.0
	Command	3	ME	1	lb ai/a	PRT						
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1DIR						
11	Untreated						1.0	15.7	17.3	2.0	1.7	6.3
LSD P=.05							1.19	4.53	5.91	1.01	0.90	3.48
Standard Deviation							0.70	2.66	3.47	0.60	0.53	2.04
CV							8.27	16.45	20.71	41.81	34.85	23.1

Weed Control in Processing Peppers - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	LACG	YEFT	YENS	COLQ	CORW	EBNS
Pest Code							LACG	YEFT	YENS	COLQ	CORW	EBNS
Crop Name												
Rating Date							29Jun17	29Jun17	29Jun17	29Jun17	29Jun17	29Jun17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	10.0	10.0	10.0	9.7	7.7	10.0
	BIR	1.67	SL	0.033	lb ai/a	PRT						
2	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	9.3	10.0	7.0	10.0	1.0	10.0
3	Chateau SW	51	WDG	0.032	lb ai/a	PRT	7.0	8.7	7.0	9.0	6.7	10.0
4	Command	3	ME	1	lb ai/a	PRT	7.0	10.0	10.0	10.0	9.7	10.0
	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT						
5	Reflex	2	SL	0.25	lb ai/a	PRT	9.7	10.0	6.3	10.0	9.7	10.0
	Command	3	ME	1	lb ai/a	PRT						
6	League	75	WDG	0.19	lb ai/a	PRT	8.7	6.7	10.0	10.0	6.0	1.0
7	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	10.0	7.0	10.0	8.7	9.3	9.7
	Command	3	ME	1	lb ai/a	PRT						
	Sandea	75	WG	0.023	lb ai/a	PO1						
	Select Max	.97	EC	0.12	lb ai/a	PO1						
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	10.0	10.0	10.0	10.0	10.0	10.0
	Command	3	ME	1	lb ai/a	PRT						
	Rely 280	2.34	L	0.58	lb ai/a	PO1 DIR						
9	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	10.0	10.0	10.0	10.0	10.0	10.0
	Command	3	ME	1	lb ai/a	PRT						
	Reglone	2	L	0.5	lb ai/a	PO1 DIR						
10	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	10.0	10.0	10.0	10.0	10.0	10.0
	Command	3	ME	1	lb ai/a	PRT						
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1DIR						
11	Untreated						6.7	6.0	10.0	6.3	5.0	6.3
LSD P=.05							3.82	3.76	3.88	2.83	2.24	2.42
Standard Deviation							2.24	2.21	2.28	1.66	1.32	1.42
CV							25.11	24.72	24.99	17.6	17.02	16.09

Weed Control in Processing Peppers - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BANANA JALAPENO 13Jul17 STAND #/PLOT	BANANA 14Aug17 HARVEST KG/PLOT	BANANA 25Sep17 HARVEST KG/PLOT	BANANA TOTAL HARVEST KG/PLOT
	Pest Code									
	Crop Name						BANANA JALAPENO	BANANA	BANANA	BANANA
	Rating Date						13Jul17	14Aug17	25Sep17	TOTAL
	Rating Type						STAND	HARVEST	HARVEST	HARVEST
	Rating Unit						#/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
1	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	15.0	5.72	12.91	18.63
	BIR	1.67	SL	0.033	lb ai/a	PRT				
2	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	16.0	5.61	8.85	14.47
3	Chateau SW	51	WDG	0.032	lb ai/a	PRT	15.0	4.65	9.51	14.15
4	Command	3	ME	1	lb ai/a	PRT	17.7	9.67	15.58	25.25
	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT				
5	Reflex	2	SL	0.25	lb ai/a	PRT	17.3	10.63	14.56	25.19
	Command	3	ME	1	lb ai/a	PRT				
6	League	75	WDG	0.19	lb ai/a	PRT	17.7	6.56	8.93	15.49
7	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	16.3	7.52	15.32	22.84
	Command	3	ME	1	lb ai/a	PRT				
	Sandea	75	WG	0.023	lb ai/a	PO1				
	Select Max	.97	EC	0.12	lb ai/a	PO1				
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	18.0	8.51	15.79	24.30
	Command	3	ME	1	lb ai/a	PRT				
	Rely 280	2.34	L	0.58	lb ai/a	PO1 DIR				
9	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	17.7	8.97	15.13	24.10
	Command	3	ME	1	lb ai/a	PRT				
	Reglone	2	L	0.5	lb ai/a	PO1 DIR				
10	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	18.3	9.10	14.95	24.06
	Command	3	ME	1	lb ai/a	PRT				
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1DIR				
11	Untreated						15.7	3.17	5.12	8.29
LSD P=.05							3.00	3.462	5.556	8.506
Standard Deviation							1.76	2.033	3.262	4.994
CV							10.51	27.92	26.26	25.34

Weed Control in Processing Peppers - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	JALAPENO 14Aug17 HARVEST KG/PLOT	JALAPENO 26Sep17 HARVEST KG/PLOT	JALAPENO TOTAL HARVEST KG/PLOT
	Pest Code								
	Crop Name						JALAPENO	JALAPENO	JALAPENO
	Rating Date						14Aug17	26Sep17	TOTAL
	Rating Type						HARVEST	HARVEST	HARVEST
	Rating Unit						KG/PLOT	KG/PLOT	KG/PLOT
1	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	5.01	14.32	19.32
	BIR	1.67	SL	0.033	lb ai/a	PRT			
2	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	3.76	12.56	16.32
3	Chateau SW	51	WDG	0.032	lb ai/a	PRT	6.33	15.79	22.11
4	Command	3	ME	1	lb ai/a	PRT	8.33	21.14	29.47
	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT			
5	Reflex	2	SL	0.25	lb ai/a	PRT	8.44	16.72	25.16
	Command	3	ME	1	lb ai/a	PRT			
6	League	75	WDG	0.19	lb ai/a	PRT	4.59	11.00	15.59
7	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	7.05	19.01	26.06
	Command	3	ME	1	lb ai/a	PRT			
	Sandea	75	WG	0.023	lb ai/a	PO1			
	Select Max	.97	EC	0.12	lb ai/a	PO1			
8	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	6.11	17.46	23.57
	Command	3	ME	1	lb ai/a	PRT			
	Rely 280	2.34	L	0.58	lb ai/a	PO1 DIR			
9	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	5.66	18.80	24.46
	Command	3	ME	1	lb ai/a	PRT			
	Reglone	2	L	0.5	lb ai/a	PO1 DIR			
10	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	7.31	17.19	24.50
	Command	3	ME	1	lb ai/a	PRT			
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1DIR			
11	Untreated						2.10	5.00	7.09
LSD P=.05							3.769	8.206	10.912
Standard Deviation							2.213	4.818	6.407
CV							37.63	31.37	30.16

Weed Control in Bell Pepper and Tomato - HTRC - 2017

Project Code: 101-17-2 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Bell Pepper, Tomato **Variety: Aristotle, Sunbrite**
Planting Method: Seeded **Planting Date: 5/30/17** **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: 5.7**
Sand: 52% **Silt: 28%** **Clay: 20%** **CEC: 8.2**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRT	5/30/17	12:45 pm	68/63	F	Damp	9 SW	36	50% Cloudy	N
PO1 DIR	6/27/17	9:30 am	64/59	F	Damp	3-4 NW	53	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
5/30	Peppers		Pretransplant	
5/30	No weeds			
6/27	Peppers	5-7″	4-8 Lv.	Good
6/27	COLQ = common lambsquarters	1-4″	6-10 Lv.	Many- some plots
6/27	COPU = common purslane	4-6″	Foliar	Many- some plots
6/27	CORW = common ragweed	2-5″	4-6 Lv.	Many- some plots
6/27	RRPW = redroot pigweed	2-6″	Foliar	Many- some plots
6/27	YEFT = yellow foxtail	1-6″	3-5 Lv.	Mod

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 DIR 4-5 weeks after transplanting.

Weed Control in Bell Pepper and Tomato - HTRC - 2017

Weed Control in Bell Pepper and Tomato – HTRC – 2017

Trial ID: 101-17-2 Location: East Lansing, MI
Protocol ID: 101-17-2 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	PEPPER	TOMATO	YEFT	COLQ	COPU	CORW
	Pest Code											
	Crop Name						PEPPER	TOMATO				
	Rating Date						21Jun17	21Jun17	21Jun17	21Jun17	21Jun17	21Jun17
	Rating Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
1	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	1.7	1.3	10.0	10.0	10.0	2.0
2	Command	3	ME	1	lb ai/a	PRT	1.7	3.3	10.0	10.0	10.0	10.0
3	Reflex	2	SL	0.125	lb ai/a	PRT	1.3	1.3	8.0	7.7	10.0	8.7
4	League	75	WDG	0.19	lb ai/a	PRT	1.0	1.0	4.7	5.0	1.7	1.7
5	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	1.7	1.7	10.0	9.0	10.0	3.7
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
6	Authority MTZ	45	DF	0.338	lb ai/a	PRT	3.0	2.7	10.0	10.0	10.0	6.3
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT						
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Solida	25	SG	0.016	lb ai/a	PO1 DIR						
	NIS	100	SL	0.25	% v/v	PO1 DIR						
7	F4242	4	L	0.344	lb ai/a	PRT	2.7	1.3	10.0	10.0	10.0	9.0
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT						
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Solida	25	SG	0.016	% v/v	PO1 DIR						
	NIS	100	SL	0.25	% v/v	PO1 DIR						
8	Authority MTZ	45	DF	0.338	lb ai/a	PRT	3.7	2.0	10.0	10.0	10.0	9.7
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
9	F4242	4	L	0.344	lb ai/a	PRT	3.0	2.7	10.0	10.0	10.0	8.7
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
10	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	1.7	1.3	7.0	7.0	7.0	3.3
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
11	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	1.7	1.3	10.0	10.0	10.0	2.3
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1 DIR						
12	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	2.3	1.3	9.7	10.0	10.0	3.3
	Reglone	2	L	0.5	lb ai/a	PO1 DIR						
13	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	2.3	1.7	8.7	10.0	10.0	2.3
	Rely 280	2.34	L	0.87	lb ai/a	PO1 DIR						
	AMS	100	DF	3.4	lb ai/a	PO1 DIR						
14	Untreated						1.3	1.0	1.0	1.0	1.0	1.0
LSD P=.05							1.23	1.06	3.38	2.96	2.43	3.05
Standard Deviation							0.74	0.63	2.02	1.76	1.45	1.82
CV							35.48	36.77	23.71	20.64	16.91	35.35

Weed Control in Bell Pepper and Tomato - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	PEPPER 23Jun17 STAND #/PLOT	TOMATO 23Jun17 STAND #/PLOT	PEPPER 29Jun17 RATING 1-10	TOMATO 29Jun17 RATING 1-10	BYGR 29Jun17 RATING 1-10	LACG 29Jun17 RATING 1-10
	Pest Code										BYGR	LACG
	Crop Name						PEPPER	TOMATO	PEPPER	TOMATO		
	Rating Date						23Jun17	23Jun17	29Jun17	29Jun17	29Jun17	29Jun17
	Rating Type						STAND	STAND	RATING	RATING	RATING	RATING
	Rating Unit						#/PLOT	#/PLOT	1-10	1-10	1-10	1-10
1	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	16.3	17.0	1.0	1.0	9.3	10.0
2	Command	3	ME	1	lb ai/a	PRT	16.3	16.0	2.3	3.3	10.0	10.0
3	Reflex	2	SL	0.125	lb ai/a	PRT	17.3	16.7	1.0	1.0	6.3	7.3
4	League	75	WDG	0.19	lb ai/a	PRT	17.0	17.0	1.0	1.0	1.0	1.0
5	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	17.7	17.7	1.7	1.7	10.0	10.0
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
6	Authority MTZ	45	DF	0.338	lb ai/a	PRT	13.0	17.0	3.0	2.7	10.0	10.0
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT						
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Solida	25	SG	0.016	lb ai/a	PO1 DIR						
	NIS	100	SL	0.25	% v/v	PO1 DIR						
7	F4242	4	L	0.344	lb ai/a	PRT	13.7	17.7	2.3	1.3	10.0	10.0
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT						
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Solida	25	SG	0.016	% v/v	PO1 DIR						
	NIS	100	SL	0.25	% v/v	PO1 DIR						
8	Authority MTZ	45	DF	0.338	lb ai/a	PRT	11.7	17.7	4.3	2.0	9.7	10.0
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
9	F4242	4	L	0.344	lb ai/a	PRT	15.0	17.0	2.7	2.0	10.0	9.3
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
10	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	17.7	17.3	1.0	1.0	7.3	7.3
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
11	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	17.3	17.0	2.0	1.3	10.0	10.0
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1 DIR						
12	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	17.3	16.3	2.0	1.0	9.7	10.0
	Reglone	2	L	0.5	lb ai/a	PO1 DIR						
13	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	16.3	17.0	2.3	1.7	10.0	10.0
	Rely 280	2.34	L	0.87	lb ai/a	PO1 DIR						
	AMS	100	DF	3.4	lb ai/a	PO1 DIR						
14	Untreated						18.3	16.7	1.0	1.0	1.0	1.0
LSD P=.05							3.75	2.87	1.34	1.02	2.24	2.39
Standard Deviation							2.24	1.71	0.80	0.61	1.33	1.42
CV							13.92	10.06	40.34	38.61	16.31	17.18

Weed Control in Bell Pepper and Tomato - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	YENS	COLQ	COPU	CORW	EBNS	PEPPER
	Pest Code						YENS	COLQ	COPU	CORW	EBNS	
	Crop Name											PEPPER
	Rating Date						29Jun17	29Jun17	29Jun17	29Jun17	29Jun17	05Jul17
	Rating Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
1	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	7.7	10.0	7.0	5.0	10.0	1.0
2	Command	3	ME	1	lb ai/a	PRT	7.7	10.0	10.0	9.7	10.0	2.0
3	Reflex	2	SL	0.125	lb ai/a	PRT	8.7	4.3	9.3	8.3	9.3	1.0
4	League	75	WDG	0.19	lb ai/a	PRT	7.0	3.3	1.0	2.7	4.0	1.7
5	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	10.0	8.7	9.0	8.7	10.0	2.0
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
6	Authority MTZ	45	DF	0.338	lb ai/a	PRT	10.0	10.0	9.0	9.0	10.0	3.3
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT						
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Solida	25	SG	0.016	lb ai/a	PO1 DIR						
	NIS	100	SL	0.25	% v/v	PO1 DIR						
7	F4242	4	L	0.344	lb ai/a	PRT	10.0	10.0	9.7	9.0	10.0	3.3
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT						
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Solida	25	SG	0.016	% v/v	PO1 DIR						
	NIS	100	SL	0.25	% v/v	PO1 DIR						
8	Authority MTZ	45	DF	0.338	lb ai/a	PRT	9.7	10.0	9.7	10.0	10.0	4.3
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
9	F4242	4	L	0.344	lb ai/a	PRT	10.0	10.0	9.0	9.3	10.0	3.3
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
10	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	6.3	7.3	5.7	6.7	7.3	2.0
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
11	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	10.0	10.0	9.3	9.0	10.0	2.3
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1 DIR						
12	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	10.0	10.0	9.7	9.7	10.0	2.0
	Reglone	2	L	0.5	lb ai/a	PO1 DIR						
13	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	7.0	10.0	9.0	8.3	10.0	2.0
	Rely 280	2.34	L	0.87	lb ai/a	PO1 DIR						
	AMS	100	DF	3.4	lb ai/a	PO1 DIR						
14	Untreated						5.7	1.0	1.0	1.0	1.0	1.0
LSD P=.05							3.99	2.58	2.86	2.67	3.10	1.22
Standard Deviation							2.37	1.54	1.71	1.59	1.85	0.73
CV							27.77	18.77	22.05	20.98	21.26	32.39

Weed Control in Bell Pepper and Tomato - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	TOMATO 05Jul17 RATING 1-10	BYGR 05Jul17 RATING 1-10	LACG 05Jul17 RATING 1-10	COLQ 05Jul17 RATING 1-10	CORW 05Jul17 RATING 1-10	PEPPER 13Jul17 STAND #/PLOT
1	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	1.7	9.0	10.0	10.0	1.0	16.0
2	Command	3	ME	1	lb ai/a	PRT	3.7	10.0	10.0	10.0	8.0	16.3
3	Reflex	2	SL	0.125	lb ai/a	PRT	1.3	1.0	1.0	3.3	8.3	17.0
4	League	75	WDG	0.19	lb ai/a	PRT	1.7	1.0	1.0	4.7	1.0	16.0
5	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	1.7	10.0	10.0	8.7	6.0	17.0
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
6	Authority MTZ	45	DF	0.338	lb ai/a	PRT	2.7	10.0	10.0	10.0	7.7	15.0
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT						
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Solida	25	SG	0.016	lb ai/a	PO1 DIR						
	NIS	100	SL	0.25	% v/v	PO1 DIR						
7	F4242	4	L	0.344	lb ai/a	PRT	2.0	10.0	10.0	10.0	8.7	14.7
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT						
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Solida	25	SG	0.016	% v/v	PO1 DIR						
	NIS	100	SL	0.25	% v/v	PO1 DIR						
8	Authority MTZ	45	DF	0.338	lb ai/a	PRT	2.7	10.0	10.0	10.0	9.7	12.0
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
9	F4242	4	L	0.344	lb ai/a	PRT	2.7	10.0	10.0	10.0	8.7	15.7
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
10	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	1.3	10.0	10.0	7.0	3.0	17.3
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR						
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR						
11	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	1.0	9.7	10.0	10.0	7.0	17.3
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1 DIR						
12	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	1.0	9.0	10.0	10.0	6.7	15.3
	Reglone	2	L	0.5	lb ai/a	PO1 DIR						
13	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	1.7	10.0	10.0	10.0	8.3	16.0
	Rely 280	2.34	L	0.87	lb ai/a	PO1 DIR						
	AMS	100	DF	3.4	lb ai/a	PO1 DIR						
14	Untreated						1.0	1.0	1.0	1.0	1.0	15.3
LSD P=.05							1.12	0.92	0.00	2.99	1.81	4.04
Standard Deviation							0.67	0.55	0.00	1.78	1.08	2.40
CV							36.07	6.91	0.0	21.71	17.8	15.23

Weed Control in Bell Pepper and Tomato - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	TOMATO 13Jul17 STAND #/PLOT	PEPPER 07Aug17 HARVEST #/PLOT	PEPPER 07Aug17 HARVEST KG/PLOT	PEPPER 22Aug17 STAND #/PLOT	PEPPER 22Aug17 HARVEST KG/PLOT
	Pest Code										
	Crop Name										
	Rating Date										
	Rating Type										
	Rating Unit										
1	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	16.7	11.7	2.60	19.7	3.79
2	Command	3	ME	1	lb ai/a	PRT	14.7	15.3	3.24	30.3	6.39
3	Reflex	2	SL	0.125	lb ai/a	PRT	16.7	11.7	2.31	30.0	5.41
4	League	75	WDG	0.19	lb ai/a	PRT	16.0	2.3	0.47	12.7	2.22
5	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	17.7	7.3	1.52	17.7	3.32
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
6	Authority MTZ	45	DF	0.338	lb ai/a	PRT	17.3	5.0	1.00	18.3	3.45
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT					
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Solida	25	SG	0.016	lb ai/a	PO1 DIR					
	NIS	100	SL	0.25	% v/v	PO1 DIR					
7	F4242	4	L	0.344	lb ai/a	PRT	17.0	6.3	1.42	20.7	3.79
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT					
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Solida	25	SG	0.016	% v/v	PO1 DIR					
	NIS	100	SL	0.25	% v/v	PO1 DIR					
8	Authority MTZ	45	DF	0.338	lb ai/a	PRT	17.7	4.0	0.85	10.7	2.21
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
9	F4242	4	L	0.344	lb ai/a	PRT	17.0	8.7	1.68	26.3	5.03
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
10	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	16.7	9.0	1.51	34.0	5.80
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
11	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	17.3	8.0	1.94	23.7	4.78
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1 DIR					
12	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	15.7	14.7	3.04	24.3	4.73
	Reglone	2	L	0.5	lb ai/a	PO1 DIR					
13	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	16.0	12.0	2.76	28.0	5.41
	Rely 280	2.34	L	0.87	lb ai/a	PO1 DIR					
	AMS	100	DF	3.4	lb ai/a	PO1 DIR					
14	Untreated						14.0	2.3	0.40	9.0	1.61
LSD P=.05							2.80	8.50	1.814	14.34	2.904
Standard Deviation							1.67	5.06	1.080	8.54	1.730
CV							10.14	59.88	61.19	39.17	41.81

Weed Control in Bell Pepper and Tomato - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	PEPPER 07Sep17 HARVEST #/PLOT	PEPPER 07Sep17 HARVEST KG/PLOT	PEPPER 12Sep17 HARVEST #/PLOT	PEPPER 12Sep17 HARVEST KG/PLOT	PEPPER 22Sep17 HARVEST #/PLOT
	Pest Code										
	Crop Name						PEPPER	PEPPER	PEPPER	PEPPER	PEPPER
	Rating Date						07Sep17	07Sep17	12Sep17	12Sep17	22Sep17
	Rating Type						HARVEST	HARVEST	HARVEST	HARVEST	HARVEST
	Rating Unit						#/PLOT	KG/PLOT	#/PLOT	KG/PLOT	#/PLOT
1	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	25.7	4.66	28.7	4.73	28.7
2	Command	3	ME	1	lb ai/a	PRT	28.3	5.96	39.3	3.74	39.3
3	Reflex	2	SL	0.125	lb ai/a	PRT	20.7	3.87	28.7	4.64	28.7
4	League	75	WDG	0.19	lb ai/a	PRT	9.0	1.47	22.3	2.62	22.3
5	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	22.0	3.94	39.3	4.32	39.3
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
6	Authority MTZ	45	DF	0.338	lb ai/a	PRT	22.7	4.15	33.0	5.30	33.0
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT					
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Solida	25	SG	0.016	lb ai/a	PO1 DIR					
	NIS	100	SL	0.25	% v/v	PO1 DIR					
7	F4242	4	L	0.344	lb ai/a	PRT	18.0	3.35	28.7	5.30	28.7
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT					
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Solida	25	SG	0.016	% v/v	PO1 DIR					
	NIS	100	SL	0.25	% v/v	PO1 DIR					
8	Authority MTZ	45	DF	0.338	lb ai/a	PRT	15.7	3.05	25.0	3.95	25.0
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
9	F4242	4	L	0.344	lb ai/a	PRT	29.0	5.50	35.3	4.97	35.3
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
10	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	17.0	3.00	35.3	7.95	35.3
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
11	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	34.7	6.11	37.3	8.96	37.3
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1 DIR					
12	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	33.7	6.53	34.0	6.99	34.0
	Reglone	2	L	0.5	lb ai/a	PO1 DIR					
13	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	36.3	6.58	37.3	7.69	37.3
	Rely 280	2.34	L	0.87	lb ai/a	PO1 DIR					
	AMS	100	DF	3.4	lb ai/a	PO1 DIR					
14	Untreated						10.3	1.62	11.3	1.82	11.3
LSD P=.05							20.54	4.147	17.33	3.266	17.33
Standard Deviation							12.23	2.470	10.32	1.946	10.32
CV							53.03	57.84	33.17	37.33	33.17

Weed Control in Bell Pepper and Tomato - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	PEPPER 22Sep17 HARVEST KG/PLOT	PEPPER 05Oct17 HARVEST #/PLOT	PEPPER 05Oct17 HARVEST KG/PLOT	PEPPER TOTAL #/PLOT	PEPPER TOTAL KG/PLOT
	Pest Code										
	Crop Name						PEPPER	PEPPER	PEPPER	PEPPER	PEPPER
	Rating Date						22Sep17	05Oct17	05Oct17		
	Rating Type						HARVEST	HARVEST	HARVEST	TOTAL	TOTAL
	Rating Unit						KG/PLOT	#/PLOT	KG/PLOT	#/PLOT	KG/PLOT
1	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	4.24	7.3	0.78	121.7	20.79
2	Command	3	ME	1	lb ai/a	PRT	6.73	20.3	2.36	173.0	28.41
3	Reflex	2	SL	0.125	lb ai/a	PRT	4.34	10.3	1.06	130.0	21.63
4	League	75	WDG	0.19	lb ai/a	PRT	3.28	12.7	1.19	81.3	11.24
5	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	5.97	13.0	1.53	138.7	20.59
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
6	Authority MTZ	45	DF	0.338	lb ai/a	PRT	5.48	15.7	1.72	127.7	21.09
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT					
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Solida	25	SG	0.016	lb ai/a	PO1 DIR					
	NIS	100	SL	0.25	% v/v	PO1 DIR					
7	F4242	4	L	0.344	lb ai/a	PRT	4.80	13.3	1.50	115.7	20.15
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT					
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Solida	25	SG	0.016	% v/v	PO1 DIR					
	NIS	100	SL	0.25	% v/v	PO1 DIR					
8	Authority MTZ	45	DF	0.338	lb ai/a	PRT	4.16	9.7	1.01	90.0	15.23
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
9	F4242	4	L	0.344	lb ai/a	PRT	6.09	13.7	1.49	148.3	24.76
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
10	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	5.95	15.7	2.19	146.3	26.40
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
11	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	5.86	15.7	1.72	156.7	29.38
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1 DIR					
12	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	5.77	15.7	1.63	156.3	28.69
	Reglone	2	L	0.5	lb ai/a	PO1 DIR					
13	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	5.72	20.7	2.17	171.7	30.33
	Rely 280	2.34	L	0.87	lb ai/a	PO1 DIR					
	AMS	100	DF	3.4	lb ai/a	PO1 DIR					
14	Untreated						1.68	7.3	0.69	51.7	7.81
LSD P=.05							2.984	11.11	1.130	53.13	9.411
Standard Deviation							1.778	6.62	0.673	31.65	5.606
CV							35.53	48.52	44.81	24.49	25.61

Weed Control in Bell Pepper and Tomato - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	TOMATO 21Aug17 HARVEST KG/PLOT	TOMATO 30Aug17 HARVEST KG/PLOT	TOMATO 06Sep17 HARVEST KG/PLOT	TOMATO 12Sep17 HARVEST KG/PLOT	TOMATO 21Sep17 HARVEST KG/PLOT
	Pest Code										
	Crop Name						TOMATO	TOMATO	TOMATO	TOMATO	TOMATO
	Rating Date						21Aug17	30Aug17	06Sep17	12Sep17	21Sep17
	Rating Type						HARVEST	HARVEST	HARVEST	HARVEST	HARVEST
	Rating Unit						KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
1	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	6.16	10.74	11.08	4.7250	23.93
2	Command	3	ME	1	lb ai/a	PRT	3.44	7.94	7.18	3.7417	28.70
3	Reflex	2	SL	0.125	lb ai/a	PRT	5.94	9.87	10.16	4.6417	22.51
4	League	75	WDG	0.19	lb ai/a	PRT	7.28	4.38	2.00	2.6200	15.50
5	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	5.88	8.53	11.91	4.3150	28.84
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
6	Authority MTZ	45	DF	0.338	lb ai/a	PRT	2.90	10.99	10.65	5.2967	29.49
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT					
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Solida	25	SG	0.016	lb ai/a	PO1 DIR					
	NIS	100	SL	0.25	% v/v	PO1 DIR					
7	F4242	4	L	0.344	lb ai/a	PRT	4.45	11.94	10.17	5.2967	29.06
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT					
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Solida	25	SG	0.016	% v/v	PO1 DIR					
	NIS	100	SL	0.25	% v/v	PO1 DIR					
8	Authority MTZ	45	DF	0.338	lb ai/a	PRT	3.62	9.51	9.60	3.9500	22.27
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
9	F4242	4	L	0.344	lb ai/a	PRT	3.83	10.59	12.32	4.9717	24.31
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
10	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	5.73	12.51	14.28	7.9483	32.11
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR					
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR					
11	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	5.46	10.93	22.37	8.9617	31.21
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1 DIR					
12	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	5.44	12.72	14.69	6.9933	29.26
	Reglone	2	L	0.5	lb ai/a	PO1 DIR					
13	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	4.28	9.70	21.52	7.6917	27.60
	Rely 280	2.34	L	0.87	lb ai/a	PO1 DIR					
	AMS	100	DF	3.4	lb ai/a	PO1 DIR					
14	Untreated						5.20	5.35	2.14	1.8183	27.03
LSD P=.05							4.557	3.623	5.579	3.26625	16.261
Standard Deviation							2.715	2.158	3.324	1.94568	9.686
CV							54.6	22.27	29.07	37.33	36.47

Weed Control in Bell Pepper and Tomato - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	TOMATO 27Sep17 HARVEST KG/PLOT	TOMATO 03Oct17 HARVEST KG/PLOT	TOMATO TOTAL KG/PLOT
	Pest Code								
	Crop Name						TOMATO	TOMATO	TOMATO
	Rating Date						27Sep17	03Oct17	
	Rating Type						HARVEST	HARVEST	TOTAL
	Rating Unit						KG/PLOT	KG/PLOT	KG/PLOT
1	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	23.82	16.12	96.57
2	Command	3	ME	1	lb ai/a	PRT	21.30	12.09	84.39
3	Reflex	2	SL	0.125	lb ai/a	PRT	25.93	14.09	93.15
4	League	75	WDG	0.19	lb ai/a	PRT	12.81	6.08	50.67
5	Dual Magnum	7.62	EC	0.95	lb ai/a	PRT	26.46	15.47	101.40
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR			
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR			
6	Authority MTZ	45	DF	0.338	lb ai/a	PRT	27.35	20.66	107.33
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT			
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR			
	Solida	25	SG	0.016	lb ai/a	PO1 DIR			
	NIS	100	SL	0.25	% v/v	PO1 DIR			
7	F4242	4	L	0.344	lb ai/a	PRT	27.83	12.44	101.18
	Dual Magnum	7.62	EC	0.72	lb ai/a	PRT			
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR			
	Solida	25	SG	0.016	% v/v	PO1 DIR			
	NIS	100	SL	0.25	% v/v	PO1 DIR			
8	Authority MTZ	45	DF	0.338	lb ai/a	PRT	25.25	14.82	89.02
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR			
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR			
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR			
9	F4242	4	L	0.344	lb ai/a	PRT	26.62	16.96	99.59
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR			
	Sandea	75	WG	0.023	lb ai/a	PO1 DIR			
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR			
10	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	25.52	12.00	110.09
	Tricor	75	DF	0.25	lb ai/a	PO1 DIR			
	Select Max	0.97	EC	0.12	lb ai/a	PO1 DIR			
11	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	20.32	12.12	111.35
	Gramoxone SL	2	SL	0.5	lb ai/a	PO1 DIR			
12	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	28.11	15.47	112.68
	Reglone	2	L	0.5	lb ai/a	PO1 DIR			
13	Prowl H20	3.8	CS	1.4	lb ai/a	PRT	21.50	18.99	111.27
	Rely 280	2.34	L	0.87	lb ai/a	PO1 DIR			
	AMS	100	DF	3.4	lb ai/a	PO1 DIR			
14	Untreated						8.51	4.30	54.34
LSD P=.05							8.134	7.052	26.944
Standard Deviation							4.845	4.201	16.050
CV							21.11	30.69	16.98

Bell Pepper and Banana Pepper Production with Organic Fertilizer - HTRC - 2017

Project Code: 101-17-4 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Peppers, Bell and Banana **Variety: Aristotle, Hot Hungarian Wax**
Planting Method: Transplant **Planting Date: 5/31/17** **Harvest Date: See notes**
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: 6.4**
Sand: 57% **Silt: 27%** **Clay: 16%** **CEC: 7.4**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PO1	6/30/17	1:00 p.m.	75/70	F	Damp	NE 3-5	60	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/30	Pepper	8-10”	Foliar	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. Treat plot with Reflex (0.12 la ai/A) + Command (1 lb ai/A) before transplanting.
4. Apply 400 lb 19-19-19 fertilizer before planting. Applied 6/30/17.
5. Apply fertilizer treatments, side-dressed, at 4-6 weeks after transplant (4-6 WATP); till in with Lee tiller.
   a. Nature’s Supreme: 4 lb/row; 8 lb/plot. Apply next to row and till in lightly.
   b. McGeary Organics: 2 lb/row; 4 lb/plot. Apply next to row and till in.
   c. Ammonium nitrate: 0.5 lb/row; 1 lb/plot. Apply next to row and till in.
6. 3 harvests for Bell pepper on 8/17/17,9/7/17,and 9/25/17; 2 harvest for Banana pepper on 8/22/17 and 9/25/17.

Bell Pepper and Banana Pepper Production with Organic Fertilizer - HTRC - 2017

Bell Pepper and Banana Pepper Production with Organic Fertilizer – HTRC – 2017

Trial ID: 101-17-4 Location: East Lansing, MI
Protocol ID: 101-17-4 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BANANA 23Jun17 STAND #/PLOT	BELL 23Jun17 STAND #/PLOT	BANANA 13Jul17 STAND #/PLOT	BELL 13Jul17 STAND #/PLOT	BANANA 22Aug17 HARVEST KG/PLOT
1	Ammonium nitrate 33-0-0	33.5	GR	50	lb ai/a	4-6 WATP	15.7	17.7	15.3	17.0	3.32
2	Nature's Supreme 4-3-2	4	GR	50	lb ai/a	4-6 WATP	15.0	18.0	16.0	17.7	3.78
3	McGeary Organics 8-1-1	8	GR	50	lb ai/a	4-6 WATP	16.0	17.7	15.7	17.3	3.27
4	No sidedress						17.3	18.7	15.0	17.0	4.87
LSD P=.05							6.41	2.83	4.74	3.03	8.84
Standard Deviation							3.21	1.41	2.37	1.52	4.43
CV							20.06	7.86	15.32	8.8	116.18

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BANANA 25Sep17 HARVEST KG/PLOT	BANANA TOTAL HARVEST KG/PLOT	BELL 17Aug17 HARVEST #/PLOT	BELL 17Aug17 HARVEST KG/PLOT
1	Ammonium nitrate 33-0-0	33.5	GR	50	lb ai/a	4-6 WATP	3.16	6.48	8.0	1.54
2	Nature's Supreme 4-3-2	4	GR	50	lb ai/a	4-6 WATP	3.48	7.26	10.3	1.75
3	McGeary Organics 8-1-1	8	GR	50	lb ai/a	4-6 WATP	4.48	7.76	7.3	1.37
4	No sidedress						4.89	9.75	8.0	1.45
LSD P=.05							8.56	16.66	19.37	3.71
Standard Deviation							4.28	8.34	9.70	1.86
CV							107.03	106.73	115.21	121.63

Bell Pepper and Banana Pepper Production with Organic Fertilizer - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BELL 07Sep17 HARVEST #/PLOT	BELL 07Sep17 HARVEST KG/PLOT	BELL 25Sep17 HARVEST #/PLOT	BELL 25Sep17 HARVEST KG/PLOT
	Crop Code									
	Crop Name						BELL	BELL	BELL	BELL
	Rating Date						07Sep17	07Sep17	25Sep17	25Sep17
	Rating Type						HARVEST	HARVEST	HARVEST	HARVEST
	Rating Unit						#/PLOT	KG/PLOT	#/PLOT	KG/PLOT
1	Ammonium nitrate 33-0-0	33.5	GR	50	lb ai/a	4-6 WATP	31.3	4.98	32.0	4.46
2	Nature's Supreme 4-3-2	4	GR	50	lb ai/a	4-6 WATP	30.7	5.24	23.7	3.55
3	McGeary Organics 8-1-1	8	GR	50	lb ai/a	4-6 WATP	61.0	10.67	41.0	6.57
4	No sidedress						42.0	7.16	21.0	3.33
LSD P=.05							54.07	9.67	47.26	7.66
Standard Deviation							27.06	4.84	23.65	3.83
CV							65.6	68.99	80.4	85.65

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BELL TOTAL HARVEST #/PLOT	BELL TOTAL HARVEST KG/PLOT
	Crop Code							
	Crop Name						BELL	BELL
	Rating Date						TOTAL	TOTAL
	Rating Type						HARVEST	HARVEST
	Rating Unit						#/PLOT	KG/PLOT
1	Ammonium nitrate 33-0-0	33.5	GR	50	lb ai/a	4-6 WATP	71.3	10.97
2	Nature's Supreme 4-3-2	4	GR	50	lb ai/a	4-6 WATP	64.7	10.54
3	McGeary Organics 8-1-1	8	GR	50	lb ai/a	4-6 WATP	109.3	18.61
4	No sidedress						71.0	11.94
LSD P=.05							115.20	20.220
Standard Deviation							57.66	10.120
CV							72.91	77.76

Weed Control in Pumpkin and Squash - HTRC - 2017

Project Code: 108-17-2 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Pumpkin, Squash **Variety: Burgess buttercup, Howden, Ultra butternut,**
Planting Method: Seeded **Planting Date: 6/7/17** **Harvest Date: See notes**
Spacing: 6 in **Row Spacing: 5 ft, 1 row each crop/plot**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 16 ft wide x 50 ft long

Soil Type: Marlette fine sandy loam **OM: 1.9%** **pH: 6.3**
Sand: 65% **Silt: 11%** **Clay: 24%** **CEC: 6.6**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
PRE	6/8/17	10:48 am	76/67	F	Dry	1 W	36	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/8	Pumpkin		Preemergence	
6/8	Squash		Preemergence	
6/8	No weeds			

COLQ = common lambsquarters

Notes and Comments
1. Spray applied with 12 nozzle 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. Pumpkin was harvested 9/22/17-9/25/17; squash was harvested 9/19/17-9/20/17.

Weed Control in Pumpkin and Squash - HTRC - 2017

Weed Control in Pumpkin and Squash – HTRC – 2017

Trial ID: 108-17-2 Location: East Lansing, MI
Protocol ID: 108-17-2 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BUTCUP 26Jun17 RATING 1-10	HOWDEN 26Jun17 RATING 1-10	BUTNUT 26Jun17 RATING 1-10	BUTCUP 11Jul17 RATING 1-10	HOWDEN 11Jul17 RATING 1-10	BUTNUT 11Jul17 RATING 1-10
	Pest Code											
	Crop Code											
	Rating Date						26Jun17	26Jun17	26Jun17	11Jul17	11Jul17	11Jul17
	Rating Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
1	Curbit	3	EC	1.13	lb ai/a	PRE	1.3	1.3	1.0	1.0	1.0	1.0
	Command	3	ME	0.375	lb ai/a	PRE						
2	Strategy	2.1	SE	6	pt/a	PRE	1.7	2.0	1.3	2.0	2.0	1.7
3	Curbit	3	EC	1.13	lb ai/a	PRE	1.3	1.3	1.3	1.0	1.3	1.3
	Command	3	ME	0.375	lb ai/a	PRE						
	Reflex	2	SL	0.125	lb ai/a	PRE						
4	Dual Magnum	7.62	EC	1.26	lb ai/a	PRE	1.7	2.0	2.0	2.3	1.7	2.3
	Reflex	2	SL	0.125	lb ai/a	PRE						
5	Dual Magnum	7.62	EC	1.26	lb ai/a	PRE	2.0	3.0	1.7	2.0	2.0	2.7
	Command	3	ME	0.375	lb ai/a	PRE						
	Reflex	2	SL	0.125	lb ai/a	PRE						
6	Curbit	3	EC	1.13	lb ai/a	PRE	2.0	2.0	1.7	3.3	2.0	1.7
	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	1.7	2.0	1.3	2.3	1.3	1.3
	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	1.3	1.7	1.3	1.3	1.3	1.3
	Command	3	ME	0.375	lb ai/a	PRE						
	BIR	1.67	SL	0.033	lb ai/a	PRE						
9	Curbit	3	EC	1.13	lb ai/a	PRE	1.3	1.0	1.3	1.7	1.3	2.0
	Command	3	ME	0.375	lb ai/a	PRE						
	BIR	1.67	SL	0.045	lb ai/a	PRE						
10	Untreated						1.3	1.7	1.7	1.7	1.7	2.0
LSD P=.05							1.26	1.22	1.43	1.45	1.34	1.48
Standard Deviation							0.73	0.71	0.83	0.85	0.78	0.86
CV							46.78	39.43	56.74	45.41	49.75	49.78

Weed Control in Pumpkin and Squash - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
Pest Code							COLQ				
Crop Code								BUTCUP	BUTCUP	BUTNUT	BUTNUT
Rating Date							11Jul17	19Sep17	19Sep17	19Sep17	19Sep17
Rating Type							RATING	HVST	HVST	HVST	HVST
Rating Unit							1-10	#/PLOT	KG/PLOT	#/PLOT	KG/PLOT
1	Curbit	3	EC	1.13	lb ai/a	PRE	6.3	74.0	88.99	71.0	157.14
	Command	3	ME	0.375	lb ai/a	PRE					
2	Strategy	2.1	SE	6	pt/a	PRE	8.0	74.0	87.56	65.7	139.75
3	Curbit	3	EC	1.13	lb ai/a	PRE	7.0	84.7	102.14	71.0	155.41
	Command	3	ME	0.375	lb ai/a	PRE					
	Reflex	2	SL	0.125	lb ai/a	PRE					
4	Dual Magnum	7.62	EC	1.26	lb ai/a	PRE	6.3	65.7	69.74	50.3	92.60
	Reflex	2	SL	0.125	lb ai/a	PRE					
5	Dual Magnum	7.62	EC	1.26	lb ai/a	PRE	9.3	70.3	75.98	61.3	120.99
	Command	3	ME	0.375	lb ai/a	PRE					
	Reflex	2	SL	0.125	lb ai/a	PRE					
6	Curbit	3	EC	1.13	lb ai/a	PRE	10.0	74.7	67.13	64.0	128.86
	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	6.7	63.7	62.81	63.3	126.42
	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	7.7	73.0	75.88	55.0	118.29
	Command	3	ME	0.375	lb ai/a	PRE					
	BIR	1.67	SL	0.033	lb ai/a	PRE					
9	Curbit	3	EC	1.13	lb ai/a	PRE	7.3	65.3	71.41	48.0	99.45
	Command	3	ME	0.375	lb ai/a	PRE					
	BIR	1.67	SL	0.045	lb ai/a	PRE					
10	Untreated						8.0	63.7	69.41	56.3	108.99
LSD P=.05							3.06	17.77	30.45	17.27	40.193
Standard Deviation							1.78	10.36	17.75	10.07	23.430
CV							23.24	14.61	23.02	16.61	18.78

Weed Control in Pumpkin and Squash - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	PUMP YEL 25Sep17 HARVEST #/PLOT	PUMP YEL 25Sep17 HARVEST KG/PLOT	PUMP GRN 25Sep17 HARVEST #/PLOT	PUMP GRN 25Sep17 HARVEST KG/PLOT
	Pest Code									
	Crop Code									
	Rating Date									
	Rating Type									
	Rating Unit									
1	Curbit	3	EC	1.13	lb ai/a	PRE	37.0	181.69	2.7	7.39
	Command	3	ME	0.375	lb ai/a	PRE				
2	Strategy	2.1	SE	6	pt/a	PRE	28.3	175.78	3.0	12.66
3	Curbit	3	EC	1.13	lb ai/a	PRE	36.0	190.87	3.7	14.38
	Command	3	ME	0.375	lb ai/a	PRE				
	Reflex	2	SL	0.125	lb ai/a	PRE				
4	Dual Magnum	7.62	EC	1.26	lb ai/a	PRE	31.0	157.09	1.3	3.65
	Reflex	2	SL	0.125	lb ai/a	PRE				
5	Dual Magnum	7.62	EC	1.26	lb ai/a	PRE	30.0	179.63	1.3	5.29
	Command	3	ME	0.375	lb ai/a	PRE				
	Reflex	2	SL	0.125	lb ai/a	PRE				
6	Curbit	3	EC	1.13	lb ai/a	PRE	35.0	171.43	1.7	3.47
	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	35.0	182.55	6.3	31.37
	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	31.3	183.23	2.0	6.75
	Command	3	ME	0.375	lb ai/a	PRE				
	BIR	1.67	SL	0.033	lb ai/a	PRE				
9	Curbit	3	EC	1.13	lb ai/a	PRE	34.7	166.68	4.7	19.49
	Command	3	ME	0.375	lb ai/a	PRE				
	BIR	1.67	SL	0.045	lb ai/a	PRE				
10	Untreated						29.0	142.28	2.7	6.88
LSD P=.05							11.18	57.175	3.44	18.821
Standard Deviation							6.51	33.329	2.01	10.971
CV							19.9	19.25	68.4	98.57

Spring Weed Control in Strawberry - HTRC - 2017

Project Code: 124-14-2 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Strawberry **Variety: Jewel**
Planting Method: Transplant **Planting Date:** **Harvest Date: See notes**
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: 7.3**
Sand: 86% **Silt: 8%** **Clay: 6%** **CEC: 5.3**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPRE	3/29/17	10:10 am	45/39	F	Moist	3 SE	57	5% Cloudy	Y

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
3/29	Strawberry	1-3″	Dormant	Good
3/29	LACG = large crabgrass	3-5″	Veg	Few
3/29	QUGR = quackgrass	2-4″	Veg	Many
3/29	BLME = black medic	3-5″	Veg	Mod
3/29	COCW = common chickweed	1-3″	Veg	Few
3/29	HOWE = horseweed	2-3″	Veg	Mod
3/29	SPKW = spotted knapweed	4-6″	Veg	Many
3/29	WICA = wild carrot	1-3″	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. 4 harvests between 6/16-6/26
4. The crop was reduced by frost.

Spring Weed Control in Strawberry - HTRC - 2017

Spring Weed Control in Strawberry – HTRC – 2017

Trial ID: 124-17-2 Location: East Lansing, MI
Protocol ID: 124-17-2 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	STBE 3/May/17 RATING 1-10	BLME 3/May/17 RATING 1-10	HOWE 3/May/17 RATING 1-10	SPKW 3/May/17 RATING 1-10	STBE 17/May/17 RATING 1-10	BLME 17/May/17 RATING 1-10
1	Sinbar	80	WDG	0.4	lb ai/a	PRE	4.0	8.7	7.0	5.7	3.7	10.0
2	Spartan	4	F	0.25	lb ai/a	PRE	2.3	1.0	3.7	5.0	2.7	1.7
3	Prowl H20	3.8	CS	1.4	lb ai/a	PRE	2.7	1.7	1.7	5.0	3.0	2.3
4	Devrinol DF-XT	50	DF	4	lb ai/a	PRE	5.0	7.7	4.7	5.0	4.0	10.0
5	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	4.7	4.0	3.0	5.7	3.7	4.3
6	Ultra Blazer	2	L	0.375	lb ai/a	PRE	3.0	7.7	4.7	1.7	2.3	7.3
7	Reflex	2	SL	0.375	lb ai/a	PRE	4.7	2.7	5.0	3.7	4.7	2.3
8	Trellis SC	4.17	SC	1	lb ai/a	PRE	4.0	7.0	9.0	8.0	3.0	4.3
9	Spartan	4	F	0.25	lb ai/a	PRE	5.0	7.0	3.0	6.7	4.3	7.0
	Prowl H20	3.8	CS	1.4	lb ai/a	PRE						
10	Ultra Blazer	2	L	0.375	lb ai/a	PRE	4.7	4.0	4.3	3.0	4.7	1.3
	Spartan	4	F	0.25	lb ai/a	PRE						
11	Trellis SC	4.17	SC	1	lb ai/a	PRE	5.3	6.0	3.3	5.7	6.3	7.0
	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE						
12	Untreated						3.7	1.7	4.3	4.3	3.7	1.0
LSD P=.05							4.12	4.61	5.12	6.25	3.89	4.66
Standard Deviation							2.43	2.72	3.02	3.69	2.29	2.75
CV							59.57	55.33	67.61	74.59	59.86	56.23

Spring Weed Control in Strawberry - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
Pest Code							HOWE	SPKW		BLME	HOWE
Crop Code									STBE		
Rating Date							17/May/17	17/May/17	25/May/17	25/May/17	25/May/17
Rating Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
1	Sinbar	80	WDG	0.4	lb ai/a	PRE	6.0	6.3	4.3	10.0	5.3
2	Spartan	4	F	0.25	lb ai/a	PRE	2.3	4.3	3.3	1.7	2.3
3	Prowl H20	3.8	CS	1.4	lb ai/a	PRE	1.3	4.7	4.0	1.0	3.3
4	Devrinol DF-XT	50	DF	4	lb ai/a	PRE	2.0	2.3	4.3	6.7	2.0
5	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	1.7	4.0	4.3	4.0	3.3
6	Ultra Blazer	2	L	0.375	lb ai/a	PRE	1.3	1.0	2.3	6.0	3.3
7	Reflex	2	SL	0.375	lb ai/a	PRE	3.3	4.0	6.3	2.7	3.0
8	Trellis SC	4.17	SC	1	lb ai/a	PRE	7.3	7.3	4.3	4.7	4.0
9	Spartan	4	F	0.25	lb ai/a	PRE	3.0	6.7	5.0	7.0	4.7
	Prowl H20	3.8	CS	1.4	lb ai/a	PRE					
10	Ultra Blazer	2	L	0.375	lb ai/a	PRE	2.7	1.3	4.3	1.3	3.7
	Spartan	4	F	0.25	lb ai/a	PRE					
11	Trellis SC	4.17	SC	1	lb ai/a	PRE	2.3	4.0	7.0	7.0	1.3
	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE					
12	Untreated						2.0	4.0	4.0	1.0	3.0
LSD P=.05							4.46	6.88	4.21	4.93	3.13
Standard Deviation							2.63	4.06	2.49	2.91	1.85
CV							89.45	97.44	55.58	65.95	56.31

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
Pest Code							SPKW				
Crop Code								STBE	STBE	STBE	STBE
Rating Date							25/May/17	16/Jun/17	20/Jun/17	23/Jun/17	26/Jun/17
Rating Type							RATING	HARVEST	HARVEST	HARVEST	HARVEST
Rating Unit							1-10	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
1	Sinbar	80	WDG	0.4	lb ai/a	PRE	6.0	1.81	1.32	0.46	0.24
2	Spartan	4	F	0.25	lb ai/a	PRE	4.3	1.02	1.10	0.49	0.20
3	Prowl H20	3.8	CS	1.4	lb ai/a	PRE	5.0	1.54	1.53	0.62	0.26
4	Devrinol DF-XT	50	DF	4	lb ai/a	PRE	3.7	1.22	0.87	0.36	0.20
5	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	5.0	1.31	1.18	0.44	0.28
6	Ultra Blazer	2	L	0.375	lb ai/a	PRE	1.0	1.08	1.24	0.54	0.32
7	Reflex	2	SL	0.375	lb ai/a	PRE	4.0	0.61	0.62	0.18	0.12
8	Trellis SC	4.17	SC	1	lb ai/a	PRE	7.0	1.63	0.92	0.61	0.20
9	Spartan	4	F	0.25	lb ai/a	PRE	8.0	1.29	0.98	0.45	0.26
	Prowl H20	3.8	CS	1.4	lb ai/a	PRE					
10	Ultra Blazer	2	L	0.375	lb ai/a	PRE	2.0	1.20	0.73	0.28	0.13
	Spartan	4	F	0.25	lb ai/a	PRE					
11	Trellis SC	4.17	SC	1	lb ai/a	PRE	6.7	0.55	0.42	0.20	0.11
	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE					
12	Untreated						4.0	0.96	0.55	0.45	0.16
LSD P=.05							5.95	1.177	1.107	0.469	0.222
Standard Deviation							3.51	0.695	0.654	0.277	0.131
CV							74.43	58.67	68.51	65.6	63.51

Spring Weed Control in Strawberry - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	
Pest Code							
Crop Code							STBE
Rating Date							
Rating Type							TOTAL
Rating Unit							KG/PLOT
1	Sinbar	80	WDG	0.4	lb ai/a	PRE	3.84
2	Spartan	4	F	0.25	lb ai/a	PRE	2.81
3	Prowl H20	3.8	CS	1.4	lb ai/a	PRE	3.94
4	Devrinol DF-XT	50	DF	4	lb ai/a	PRE	2.65
5	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	3.21
6	Ultra Blazer	2	L	0.375	lb ai/a	PRE	3.17
7	Reflex	2	SL	0.375	lb ai/a	PRE	1.52
8	Trellis SC	4.17	SC	1	lb ai/a	PRE	3.36
9	Spartan	4	F	0.25	lb ai/a	PRE	2.98
	Prowl H20	3.8	CS	1.4	lb ai/a	PRE	
10	Ultra Blazer	2	L	0.375	lb ai/a	PRE	2.34
	Spartan	4	F	0.25	lb ai/a	PRE	
11	Trellis SC	4.17	SC	1	lb ai/a	PRE	1.28
	Dual Magnum	7.62	EC	1.9	lb ai/a	PRE	
12	Untreated						2.12
LSD P=.05							2.779
Standard Deviation							1.641
CV							59.3

Fall Weed Control in Strawberry - HTRC - 2017

Project Code: 124-17-1 **Location: East Lansing, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Strawberry
Planting Method: Transplanted **Planting Date:** **Harvest Date: see notes**
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: 1.3%** **pH: 7.2**
Sand: 88% **Silt: 7%** **Clay: 5%** **CEC: 5.2**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
FALL	11/2/16	11:40 am	65/57	F	Moist	1-2 SW	81	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
11/2	Strawberry	3-4″ tall	Veg	Good
11/2	QUGR = quackgrass	4=6″	Veg	Few
11/2	ASPA = asparagus	2-3″	Flower	Mod
11/2	BLME = black medic	4-6″	Veg	Few
11/2	CAWE = carpetweed	8-10″	Seed set	Many
11/2	CLGC = clammy ground cherry	6-8″	Seed set	Few
11/2	COMU = common mullein	2-4″	Veg	Few
11/2	HAVE = hairy vetch	8-12″	Seed set	Few
11/2	SFGE = smallflower geranium	6-8″	Veg	Few
11/2	SMGC = smooth ground cherry	8-10″	Seed set	Few
11/2	SPKW = spotted knapweed	4-10″	Rosette	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. 4 harvests between 6/15-6/26
4. The crop was reduced by frost.

Fall Weed Control in Strawberry - HTRC - 2017

Fall Weed Control in Strawberry – HTRC – 2017

Trial ID: 124-17-1 Location: East Lansing, MI
Protocol ID: 124-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code								BLME	SPKW		BLME	HOWE
Crop Code							STBE			STBE		
Rating Date							3/May/17	3/May/17	3/May/17	17/May/17	17/May/17	17/May/17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Sinbar	80	WDG	0.4	lb ai/a	FALL	4.3	9.7	7.0	4.3	10.0	10.0
2	Spartan	4	F	0.25	lb ai/a	FALL	1.3	9.0	5.7	2.0	7.3	5.0
3	Prowl H20	3.8	CS	1.4	lb ai/a	FALL	4.7	7.0	8.3	4.3	4.7	1.7
4	Devrinol DF-XT	50	DF	4	lb ai/a	FALL	3.7	7.0	7.3	3.0	7.0	2.0
5	Dual Magnum	7.62	EC	1.9	lb ai/a	FALL	4.0	4.3	6.3	3.7	4.0	5.3
6	Ultra Blazer	2	L	0.375	lb ai/a	FALL	2.7	10.0	4.7	2.0	7.7	5.3
7	Reflex	2	SL	0.375	lb ai/a	FALL	3.3	5.7	9.0	3.3	4.3	6.7
8	Trellis SC	4.17	SC	1	lb ai/a	FALL	5.0	4.0	8.7	4.3	3.3	9.3
9	Spartan	4	F	0.25	lb ai/a	FALL	4.3	6.3	3.3	3.7	4.0	2.3
	Prowl H20	3.8	CS	1.4	lb ai/a	FALL						
10	Ultra Blazer	2	L	0.375	lb ai/a	FALL	3.0	8.3	7.7	3.0	4.7	5.7
	Spartan	4	F	0.25	lb ai/a	FALL						
11	Trellis SC	4.17	SC	1	lb ai/a	FALL	2.3	6.7	3.7	2.3	5.3	11.0
	Dual Magnum	7.62	EC	1.9	lb ai/a	FALL						
12	Untreated						1.7	6.0	4.0	1.7	5.3	4.0
LSD P=.05							3.62	6.36	5.67	3.28	7.66	5.10
Standard Deviation							2.14	3.75	3.35	1.94	4.52	3.01
CV							63.63	53.61	53.1	61.67	80.2	52.85

Fall Weed Control in Strawberry - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	SPKW		BLME	HOWE	SPKW
Pest Code											
Crop Code								STBE			
Rating Date							17/May/17	25/May/17	25/May/17	25/May/17	25/May/17
Rating Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
1	Sinbar	80	WDG	0.4	lb ai/a	FALL	4.3	5.0	7.7	10.0	5.3
2	Spartan	4	F	0.25	lb ai/a	FALL	3.0	1.7	7.0	4.3	4.7
3	Prowl H20	3.8	CS	1.4	lb ai/a	FALL	5.7	5.7	4.0	1.0	4.3
4	Devrinol DF-XT	50	DF	4	lb ai/a	FALL	7.0	3.3	7.0	1.3	7.3
5	Dual Magnum	7.62	EC	1.9	lb ai/a	FALL	6.0	4.3	4.0	4.3	6.0
6	Ultra Blazer	2	L	0.375	lb ai/a	FALL	5.7	3.0	4.7	6.0	4.7
7	Reflex	2	SL	0.375	lb ai/a	FALL	8.7	3.0	4.0	5.7	8.7
8	Trellis SC	4.17	SC	1	lb ai/a	FALL	10.0	5.0	4.0	7.3	9.3
9	Spartan	4	F	0.25	lb ai/a	FALL	3.0	4.3	3.0	4.3	3.3
	Prowl H20	3.8	CS	1.4	lb ai/a	FALL					
10	Ultra Blazer	2	L	0.375	lb ai/a	FALL	5.0	3.3	4.3	5.0	5.3
	Spartan	4	F	0.25	lb ai/a	FALL					
11	Trellis SC	4.17	SC	1	lb ai/a	FALL	3.3	3.0	3.3	7.7	3.7
	Dual Magnum	7.62	EC	1.9	lb ai/a	FALL					
12	Untreated						4.0	2.0	3.7	2.0	4.0
LSD P=.05							5.70	3.46	7.62	3.92	5.44
Standard Deviation							3.37	2.04	4.50	2.32	3.21
CV							61.51	56.18	95.34	47.14	57.81

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	STBE	STBE	STBE	STBE	STBE
Pest Code											
Crop Code											
Rating Date							15/Jun/17	19/Jun/17	22/Jun/17	26/Jun/17	
Rating Type							HARVEST	HARVEST	HARVEST	HARVEST	TOTAL
Rating Unit							KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT	KG/PLOT
1	Sinbar	80	WDG	0.4	lb ai/a	FALL	0.86	1.36	0.70	0.33	3.25
2	Spartan	4	F	0.25	lb ai/a	FALL	0.79	1.16	0.77	0.52	3.24
3	Prowl H20	3.8	CS	1.4	lb ai/a	FALL	0.81	1.26	0.67	0.39	3.12
4	Devrinol DF-XT	50	DF	4	lb ai/a	FALL	0.84	1.49	0.68	0.56	3.57
5	Dual Magnum	7.62	EC	1.9	lb ai/a	FALL	1.05	1.52	0.66	0.43	3.65
6	Ultra Blazer	2	L	0.375	lb ai/a	FALL	0.91	1.36	0.66	0.37	3.30
7	Reflex	2	SL	0.375	lb ai/a	FALL	0.59	1.39	0.80	0.52	3.30
8	Trellis SC	4.17	SC	1	lb ai/a	FALL	0.89	1.04	0.62	0.28	2.82
9	Spartan	4	F	0.25	lb ai/a	FALL	0.57	0.95	0.48	0.29	2.27
	Prowl H20	3.8	CS	1.4	lb ai/a	FALL					
10	Ultra Blazer	2	L	0.375	lb ai/a	FALL	0.75	1.17	0.69	0.54	3.16
	Spartan	4	F	0.25	lb ai/a	FALL					
11	Trellis SC	4.17	SC	1	lb ai/a	FALL	0.85	1.32	0.64	0.46	3.27
	Dual Magnum	7.62	EC	1.9	lb ai/a	FALL					
12	Untreated						0.77	1.81	0.98	0.50	4.04
LSD P=.05							0.853	1.136	0.600	0.407	2.573
Standard Deviation							0.504	0.671	0.354	0.241	1.519
CV							62.46	50.97	50.89	55.87	46.75

Weed Control in Apple - CRC - 2017

Project Code:128-17-1 **Location: Clarksville, MI**
Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Apple **Variety: 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

Soil Type: Lapeer sandy loam **OM: 2.8%** **pH: 6.2**
Sand: 56% **Silt: 25%** **Clay: 19%** **CEC: 6.3**

Herbicide Application Information

Timing	Date	Time	Air/Soil	T	Soil Surf	Wind	RH	Sky	Dew
EPRE	4/13	2:20 pm	48/48	F	Moist	7-8 NE	83	100% Cloudy	N
PRE	4/25	3:15 pm	72/62	F	Dry	1-3 SE	47	75% Cloudy	N
POST	6/20	10:30 am	70/63	F	Damp	5-6 SW	50	50% Cloudy	Y

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/13	APPLE			
4/13	ANBG = annual bluegrass	1-3″	Veg	Few
4/13	DAND = dandelion	4-6″	Veg	Many
4/13	GORO = goldenrod	2-4″	Veg	Mod
4/13	HOWE = horseweed	2-3″	Veg	Few
4/13	WHCL = white clover	1-2″	Veg	Few
4/13	YERO = yellow rocket	2-4″	Veg	Few
6/20	APPLE	12-15″	1-2 Fruit	Good
6/20	BYGR = barnyard grass	2-12″	Foliar	Many
6/20	COLQ = common lambsquarters	2-10″	Foliar	Many
6/20	CORW = common ragweed	3-8″	Foliar	Few
6/20	DAND = dandelion	4-10″	Foliar	Few
6/20	PESW = Pennsylvania smartweed	6-12″	Foliar	Mod
6/20	PRKW = prostrate knotweed	2-12″	Flower	Few
6/20	WICA = wild carrot	2-10″	Foliar	Mod
	SHPU = shepherdspurse			
	BLPL = broadleaf plantain			
	RRPW = redroot pigweed			
	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. Varieties: Dandee Red, Honeycrisp, Rising Sun Fuji, Ruby Jon, Schlet Spur Red Delicious.
4. GPS coordinates from Northeast corner of plot on 9/25/17: 42.87475144 -85.26764670

Weed Control in Apple - CRC - 2017

Weed Control in Apple – CRC – 2017

Trial ID: 128-17-1 Location: Clarksville, MI
Protocol ID: 128-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	APPLE 05Jun17 RATING 1-10	BYGR 05Jun17 RATING 1-10	COLQ 05Jun17 RATING 1-10	CORW 05Jun17 RATING 1-10	DAND 05Jun17 RATING 1-10	PESW 05Jun17 RATING 1-10
1	Untreated						1.0	1.7	1.0	6.0	1.0	2.0
2	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE	1.0	3.3	5.0	6.0	4.0	9.0
	Ammonium Sulfate	100	SG	3.4	lb ai/a	EPRE						
3	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	1.0	8.0	7.3	10.0	8.3	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 ai/a	EPRE						
4	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	1.0	9.7	9.7	10.0	9.7	10.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
5	Matrix	25	WG	0.03	lb ai/a	EPRE	1.0	8.3	9.7	8.7	9.7	10.0
	Alion 200	1.67	SC	0.046	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 ai/a	EPRE						
6	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	1.0	9.7	10.0	10.0	8.3	6.5
	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						
7	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	1.0	9.0	10.0	9.3	9.7	10.0
	Solida	25	DF	0.03	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
8	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	1.0	10.0	9.7	10.0	10.0	10.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	COC	100	SL	1	% v/v	EPRE						
9	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	1.0	9.7	9.7	10.0	10.0	10.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Rely 280	2.34	L	0.88	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
10	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	1.0	9.7	9.7	10.0	10.0	10.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
11	Princep	90	WDG	4.4	lb ai/a	EPRE	1.0	7.3	5.3	10.0	7.7	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						

Weed Control in Apple - CRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code								BYGR	COLQ	CORW	DAND	PESW
Crop Code							APPLE					
Rating Date							05Jun17	05Jun17	05Jun17	05Jun17	05Jun17	05Jun17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
12	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	1.0	10.0	10.0	10.0	8.3	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
LSD P=.05							0.00	2.59	1.26	3.09	0.78	3.41
Standard Deviation							0.00	1.53	0.74	1.82	0.46	1.55
CV							0.0	19.02	8.88	19.89	5.47	17.31

Weed Control in Apple - CRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	PRKW	SHPU	WHCL	WICA	APPLE	BYGR
Pest Code							PRKW	SHPU	WHCL	WICA		BYGR
Crop Code											APPLE	
Rating Date							05Jun17	05Jun17	05Jun17	05Jun17	20Jun17	20Jun17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						4.0	1.0	1.0	5.5	1.0	1.0
2	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE	8.7	5.5	8.0	8.5	1.0	3.0
	Ammonium Sulfate	100	SG	3.4	lb ai/a	EPRE						
3	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	9.5	9.0	9.5	1.0	4.7
	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 ai/a	EPRE						
4	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	9.3	10.0	10.0	9.5	1.0	8.3
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
5	Matrix	25	WG	0.03	lb ai/a	EPRE	10.0	10.0	10.0	9.0	1.0	5.7
	Alion 200	1.67	SC	0.046	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 ai/a	EPRE						
6	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	9.7	10.0	10.0	8.5	1.0	9.0
	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						
7	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	9.3	10.0	8.0	8.5	1.0	6.7
	Solida	25	DF	0.03	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
8	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	7.0	10.0	9.5	10.0	1.0	8.7
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	COC	100	SL	1	% v/v	EPRE						
9	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	9.3	10.0	9.5	9.5	1.0	9.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Rely 280	2.34	L	0.88	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
10	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	10.0	9.5	10.0	1.0	7.3
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
11	Princep	90	WDG	4.4	lb ai/a	EPRE	10.0	10.0	9.0	10.0	1.0	2.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
12	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	9.3	10.0	10.0	10.0	1.0	8.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
LSD P=.05							3.21	4.03	1.50	3.07	0.00	3.87
Standard Deviation							1.90	1.83	0.68	1.40	0.00	2.29
CV							21.36	20.72	7.91	15.45	0.0	36.76

Weed Control in Apple - CRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	COLQ	CORW	DAND	PESW	PRKW	SHPU
	Pest Code						COLQ	CORW	DAND	PESW	PRKW	SHPU
	Crop Code											
	Rating Date						20Jun17	20Jun17	20Jun17	20Jun17	20Jun17	20Jun17
	Rating Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						1.0	4.0	3.7	6.3	4.7	1.0
2	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE	3.3	6.3	3.3	4.0	8.7	4.0
	Ammonium Sulfate	100	SG	3.4	lb ai/a	EPRE						
3	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	4.0	10.0	8.3	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 ai/a	EPRE						
4	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	9.0	10.0	9.3	10.0	7.3	10.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
5	Matrix	25	WG	0.03	lb ai/a	EPRE	9.0	9.0	10.0	10.0	9.7	10.0
	Alion 200	1.67	SC	0.046	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 ai/a	EPRE						
6	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	10.0	10.0	9.7	7.0	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						
7	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	10.0	9.0	9.3	10.0	7.7	10.0
	Solida	25	DF	0.03	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
8	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	9.7	10.0	9.7	10.0	6.0	10.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	COC	100	SL	1	% v/v	EPRE						
9	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	9.0	10.0	10.0	10.0	8.3	10.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Rely 280	2.34	L	0.88	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
10	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	9.3	10.0	10.0	10.0	9.3	10.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
11	Princep	90	WDG	4.4	lb ai/a	EPRE	2.7	10.0	8.3	10.0	9.7	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
12	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	10.0	10.0	8.0	10.0	8.0	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	LSD P=.05						1.31	3.62	1.93	4.41	4.07	2.54
	Standard Deviation						0.77	2.14	1.13	2.60	2.41	1.50
	CV						10.08	23.69	12.94	29.09	29.06	17.14

Weed Control in Apple - CRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	WICA		BYGR	YEFT	BLPL	COLQ
Pest Code							WICA		BYGR	YEFT	BLPL	COLQ
Crop Code								APPLE				
Rating Date							20Jun17	14Jul17	14Jul17	14Jul17	14Jul17	14Jul17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						1.0	1.0	1.0	4.3	1.7	1.0
2	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE	4.0	1.0	2.7	7.7	2.3	4.7
	Ammonium Sulfate	100	SG	3.4	lb ai/a	EPRE						
3	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	9.0	1.0	2.0	4.3	9.3	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 ai/a	EPRE						
4	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	8.7	1.0	5.3	8.7	10.0	7.7
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
5	Matrix	25	WG	0.03	lb ai/a	EPRE	9.0	1.0	5.0	4.0	6.3	4.0
	Alion 200	1.67	SC	0.046	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 ai/a	EPRE						
6	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	9.3	1.0	7.3	8.7	9.3	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						
7	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	9.0	1.0	4.0	5.0	6.3	9.0
	Solida	25	DF	0.03	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
8	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	1.0	6.3	9.0	8.7	9.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	COC	100	SL	1	% v/v	EPRE						
9	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	9.7	1.0	6.7	8.0	10.0	8.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Rely 280	2.34	L	0.88	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
10	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	1.0	6.3	8.0	9.3	8.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
11	Princep	90	WDG	4.4	lb ai/a	EPRE	10.0	1.0	9.3	10.0	10.0	9.3
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
12	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	8.7	1.0	9.7	10.0	10.0	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
LSD P=.05							2.95	0.00	3.76	5.20	2.46	3.59
Standard Deviation							1.74	0.00	2.22	3.07	1.45	2.12
CV							21.23	0.0	40.6	42.05	18.65	31.16

Weed Control in Apple - CRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	CORW	PESW	PRKW	RRPW	WICA	APPLE
Pest Code							CORW	PESW	PRKW	RRPW	WICA	
Crop Code												APPLE
Rating Date							14Jul17	14Jul17	14Jul17	14Jul17	14Jul17	09Aug17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						7.0	5.3	5.5	10.0	5.0	1.0
2	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE	6.3	4.3	10.0	10.0	1.5	1.0
	Ammonium Sulfate	100	SG	3.4	lb ai/a	EPRE						
3	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	9.0	10.0	10.0	5.5	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 ai/a	EPRE						
4	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	10.0	10.0	2.0	10.0	2.5	1.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
5	Matrix	25	WG	0.03	lb ai/a	EPRE	7.3	10.0	10.0	10.0	6.0	1.0
	Alion 200	1.67	SC	0.046	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 ai/a	EPRE						
6	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	10.0	6.7	8.0	10.0	9.0	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						
7	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	8.0	10.0	5.5	10.0	5.5	1.0
	Solida	25	DF	0.03	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
8	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	10.0	1.0	10.0	9.0	1.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	COC	100	SL	1	% v/v	EPRE						
9	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	10.0	6.5	10.0	9.5	1.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Rely 280	2.34	L	0.88	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
10	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	10.0	7.5	10.0	10.0	1.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
11	Princep	90	WDG	4.4	lb ai/a	EPRE	10.0	10.0	10.0	10.0	10.0	1.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
12	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	10.0	10.0	10.0	10.0	10.0	1.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
LSD P=.05							4.53	4.12	7.38	0.00	6.48	0.00
Standard Deviation							2.68	2.43	3.36	0.00	2.95	0.00
CV							29.56	27.69	46.82	0.0	42.34	0.0

Weed Control in Apple - CRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BYGR	LACG	YEFT	COLQ	CORW	HOWE
Pest Code							BYGR	LACG	YEFT	COLQ	CORW	HOWE
Crop Code												
Rating Date							09Aug17	09Aug17	09Aug17	09Aug17	09Aug17	09Aug17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						3.7	1.0	1.0	1.0	7.0	5.0
2	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE	1.7	2.3	10.0	7.0	4.7	9.0
	Ammonium Sulfate	100	SG	3.4	lb ai/a	EPRE						
3	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	1.0	3.0	4.0	1.0	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 ai/a	EPRE						
4	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	5.0	9.3	8.0	7.3	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						
5	Matrix	25	WG	0.03	lb ai/a	EPRE	3.7	3.3	5.5	3.0	7.3	9.7
	Alion 200	1.67	SC	0.046	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 ai/a	EPRE						
6	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	7.0	4.3	10.0	10.0	10.0	7.7
	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						
7	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	4.0	2.0	3.5	10.0	7.7	7.0
	Solida	25	DF	0.03	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
8	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	6.3	6.7	10.0	8.3	10.0	9.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	COC	100	SL	1	% v/v	EPRE						
9	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	6.3	7.3	4.5	6.7	10.0	7.7
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Rely 280	2.34	L	0.88	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
10	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	8.0	9.3	5.5	6.7	10.0	9.3
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
11	Princep	90	WDG	4.4	lb ai/a	EPRE	6.0	9.0	10.0	7.0	10.0	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
12	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	9.0	9.7	10.0	10.0	10.0	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
LSD P=.05							4.98	3.44	7.62	4.59	4.56	4.64
Standard Deviation							2.94	2.02	3.46	2.71	2.69	2.74
CV							57.18	33.47	50.66	41.68	30.3	31.52

Weed Control in Apple - CRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	PESW	PRKW	WICA	APPLE	BYGR	FAPA
Pest Code							PESW	PRKW	WICA		BYGR	FAPA
Crop Code										APPLE		
Rating Date							09Aug17	09Aug17	09Aug17	13Sep17	13Sep17	13Sep17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						9.0	5.5	4.5	1.3	3.7	1.0
2	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE	6.0	10.0	2.0	1.3	4.3	1.3
	Ammonium Sulfate	100	SG	3.4	lb ai/a	EPRE						
3	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	5.7	10.0	6.5	1.0	2.7	2.7
	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 ai/a	EPRE						
4	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	10.0	1.5	2.0	1.0	7.0	4.7
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
5	Matrix	25	WG	0.03	lb ai/a	EPRE	10.0	10.0	6.0	1.0	4.0	5.0
	Alion 200	1.67	SC	0.046	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 ai/a	EPRE						
6	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	7.0	10.0	8.5	1.0	6.0	8.7
	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						
7	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	9.0	5.5	6.5	1.0	2.7	1.3
	Solida	25	DF	0.03	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
8	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	1.5	7.0	1.0	5.7	6.7
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	COC	100	SL	1	% v/v	EPRE						
9	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	3.0	10.0	1.0	8.3	4.7
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Rely 280	2.34	L	0.88	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
10	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	7.0	10.0	1.0	8.7	8.3
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
11	Princep	90	WDG	4.4	lb ai/a	EPRE	10.0	10.0	10.0	1.0	5.7	4.3
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
12	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	10.0	10.0	8.5	1.0	7.3	8.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
LSD P=.05							4.12	6.59	6.13	0.38	4.79	3.82
Standard Deviation							2.43	2.99	2.79	0.22	2.83	2.26
CV							27.38	42.75	41.04	21.29	51.4	47.21

Weed Control in Apple - CRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	YEFT	COLQ	CORW	HOWE	PESW	WICA
	Pest Code						YEFT	COLQ	CORW	HOWE	PESW	WICA
	Crop Code											
	Rating Date						13Sep17	13Sep17	13Sep17	13Sep17	13Sep17	13Sep17
	Rating Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						9.7	3.0	7.0	7.0	7.0	6.0
2	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE	9.0	8.3	7.0	10.0	4.7	8.7
	Ammonium Sulfate	100	SG	3.4	lb ai/a	EPRE						
3	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	6.0	1.7	10.0	9.0	10.0	8.3
	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 ai/a	EPRE						
4	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	10.0	7.0	10.0	7.7	10.0	6.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
5	Matrix	25	WG	0.03	lb ai/a	EPRE	5.7	4.0	7.0	9.0	8.0	6.7
	Alion 200	1.67	SC	0.046	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 ai/a	EPRE						
6	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	10.0	10.0	10.0	10.0	5.3	8.7
	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						
7	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	8.7	10.0	9.0	7.0	7.7	7.7
	Solida	25	DF	0.03	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
8	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	9.0	8.0	10.0	7.7	10.0	8.7
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	COC	100	SL	1	% v/v	EPRE						
9	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	8.3	4.7	10.0	9.0	10.0	8.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Rely 280	2.34	L	0.88	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
10	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	7.0	7.3	10.0	9.0	10.0	10.0
	Matrix	25	WG	0.063	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
11	Princep	90	WDG	4.4	lb ai/a	EPRE	6.3	6.3	9.3	10.0	8.0	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
12	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	10.0	10.0	10.0	10.0	10.0	9.3
	Roundup PowerMax	5.5	L	1.4	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
	Roundup PowerMax	5.5	L	0.94	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	COC	100	SL	1	% v/v	PO1						
	LSD P=.05						4.66	4.12	4.61	4.78	4.88	4.84
	Standard Deviation						2.75	2.44	2.72	2.82	2.88	2.86
	CV						33.13	36.37	29.9	32.16	34.34	34.98

Weed Control in Blueberry - SWMREC - 2017

Project Code: 127-17-1 **Location: Benton Harbor, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Blueberry **Variety: Bluecrop**
Planting Method: Transplant **Planting Date: 1990**
Spacing: 4 ft in row **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
EPRE	4/11/17	2:00 pm	48/51	F	Moist	3-5 SW	82	100% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/11	Blueberry		early bud break	
4/11	ANBG = annual bluegrass	4-6″	Veg	Many
4/11	BHPL = buckhorn plantain	2-4″	Veg	Mod
4/11	COCW = common chickweed	2-4″	Flower	Many
4/11	CUDO = curly dock	2-3″	Veg	Mod
4/11	DAND = dandelion	2-6″	Veg	Many
4/11	HAVE = hairy vetch	4-6″	Veg	Mod
4/11	MECR = mouseear cress	4-6″	Flower	Mod
4/11	RESO = red sorrel	2-4″	Veg	Few
4/11	WHCL = white clover	1-2″	Veg	Many
4/11	WIGA = wild garlic	6-8″	Veg	Few
4/11	WIGR = witchgrass	2-4″	Veg	Few
	BLDO = broadleaf dock			
	DOBG = downy bromegrass			
	GORO = goldenrod			
	HONE = horsenettle			
	QUGR = quackgrass			
	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 row.
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.

Weed Control in Blueberry - SWMREC - 2017

Weed Control in Blueberry – SWMREC – 2017

Trial ID: 127-17-1 Location: Benton Harbor, MI
Protocol ID: 127-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BLBE 22May17 RATING 1-10	ANBG 22May17 RATING 1-10	QUGR 22May17 RATING 1-10	BHPL 22May17 RATING 1-10	BLDO 22May17 RATING 1-10
1	Untreated						1.0	1.0	7.0	1.0	7.0
2	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	1.0	10.0	10.0	4.3	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					
3	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	1.0	10.0	10.0	6.3	10.0
	Solida	25	SG	0.031	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
4	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	1.0	6.3	9.0	6.0	10.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
5	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	1.0	10.0	10.0	3.7	4.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
6	Matrix	25	DF	0.031	lb ai/a	EPRE	1.0	10.0	10.0	5.0	7.7
	Alion 200	1.67	SC	0.065	lb ai/a	EPRE					
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
7	Zeus Prime XC	3.5	EC	0.41	lb ai/a	EPRE	1.0	7.7	9.7	1.0	10.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Venue	0.177	SC	0.0055	lb ai/a	EPRE					
	NIS	100	SL	0.25	% v/v	EPRE					
8	Sinbar	80	WDG	1.6	lb ai/a	EPRE	1.0	10.0	10.0	8.7	9.3
	Surflan	4	L	3	lb ai/a	EPRE					
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	NIS	100	SL	0.25	% v/v	EPRE					
9	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	1.0	10.0	6.7	6.3	7.0
	Prowl H20	3.8	CS	4	lb ai/a	EPRE					
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
10	Solicam	80	DF	4	lb ai/a	EPRE	1.0	10.0	10.0	9.7	9.7
	Princep	90	WDG	4	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE					
	Venue	0.177	SC	0.0055	lb ai/a	EPRE					
LSD P=.05							0.00	2.62	4.21	5.54	5.89
Standard Deviation							0.00	1.53	2.45	3.23	3.43
CV							0.0	17.96	26.56	62.05	41.51

Weed Control in Blueberry - SWMREC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	DAND	GORO	HOWE	WHCL	YEHW
Pest Code											
Crop Code											
Rating Date							22May17	22May17	22May17	22May17	22May17
Rating Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
1	Untreated						1.0	7.0	4.0	1.0	10.0
2	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	7.0	10.0	10.0	10.0	6.3
	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					
3	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	9.0	10.0	10.0	8.7	6.0
	Solida	25	SG	0.031	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
4	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	4.7	4.0	7.0	10.0	1.7
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
5	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	10.0	7.3	10.0	10.0	7.3
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
6	Matrix	25	DF	0.031	lb ai/a	EPRE	9.7	10.0	10.0	10.0	6.7
	Alion 200	1.67	SC	0.065	lb ai/a	EPRE					
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
7	Zeus Prime XC	3.5	EC	0.41	lb ai/a	EPRE	4.0	10.0	10.0	10.0	1.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Venue	0.177	SC	0.0055	lb ai/a	EPRE					
	NIS	100	SL	0.25	% v/v	EPRE					
8	Sinbar	80	WDG	1.6	lb ai/a	EPRE	10.0	9.0	10.0	10.0	7.3
	Surflan	4	L	3	lb ai/a	EPRE					
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	NIS	100	SL	0.25	% v/v	EPRE					
9	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	9.0	10.0	10.0	10.0	4.3
	Prowl H20	3.8	CS	4	lb ai/a	EPRE					
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
10	Solicam	80	DF	4	lb ai/a	EPRE	8.7	10.0	10.0	10.0	8.3
	Princep	90	WDG	4	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE					
	Venue	0.177	SC	0.0055	lb ai/a	EPRE					
LSD P=.05							5.18	4.48	3.87	0.63	4.85
Standard Deviation							3.02	2.61	2.26	0.37	2.83
CV							41.37	29.91	24.82	4.07	47.95

Weed Control in Blueberry - SWMREC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BLBE	QUGR	BHPL	CUDO	DOBG	HAVE
	Pest Code							QUGR	BHPL	CUDO	DOBG	HAVE
	Crop Code						BLBE					
	Rating Date						15Jun17	15Jun17	15Jun17	15Jun17	15Jun17	15Jun17
	Rating Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						2.3	5.3	1.0	1.0	1.0	1.0
2	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	1.0	7.3	5.3	8.3	8.0	7.7
	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						
3	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	1.3	8.7	2.3	10.0	8.0	4.7
	Solida	25	SG	0.031	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
4	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	1.0	8.3	6.7	9.0	4.3	7.7
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
5	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	1.0	10.0	3.0	1.7	8.3	5.7
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
6	Matrix	25	DF	0.031	lb ai/a	EPRE	1.0	9.0	4.0	6.7	8.7	7.0
	Alion 200	1.67	SC	0.065	lb ai/a	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
7	Zeus Prime XC	3.5	EC	0.41	lb ai/a	EPRE	1.7	7.3	2.3	4.3	1.3	6.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Venue	0.177	SC	0.0055	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
8	Sinbar	80	WDG	1.6	lb ai/a	EPRE	1.0	10.0	10.0	7.0	7.0	5.0
	Surflan	4	L	3	lb ai/a	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
9	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	1.0	5.7	9.3	4.3	7.0	8.7
	Prowl H20	3.8	CS	4	lb ai/a	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
10	Solicam	80	DF	4	lb ai/a	EPRE	1.3	9.3	9.3	7.0	8.3	4.7
	Princep	90	WDG	4	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	Venue	0.177	SC	0.0055	lb ai/a	EPRE						
LSD P=.05							1.04	3.60	3.59	5.65	3.05	6.59
Standard Deviation							0.61	2.10	2.09	3.29	1.78	3.84
CV							47.81	25.94	39.21	55.48	28.63	66.25

Weed Control in Blueberry - SWMREC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	HOWE	RESO	ROFB	YEHW	BLBE	QUGR
	Pest Code						HOWE	RESO	ROFB	YEHW		QUGR
	Crop Code										BLBE	
	Rating Date						15Jun17	15Jun17	15Jun17	15Jun17	07Jul17	07Jul17
	Rating Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						5.3	1.7	4.0	4.7	1.3	5.3
2	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	7.7	7.7	10.0	3.7	1.3	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						
3	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	7.0	2.3	10.0	6.3	1.7	9.3
	Solida	25	SG	0.031	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
4	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	10.0	1.3	10.0	6.3	1.0	8.7
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
5	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	10.0	4.7	10.0	7.0	1.0	9.3
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
6	Matrix	25	DF	0.031	lb ai/a	EPRE	7.7	5.7	8.7	5.7	1.3	7.3
	Alion 200	1.67	SC	0.065	lb ai/a	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE						
	N Pak (AMS)	100	L	2.5	% v/v	EPRE						
7	Zeus Prime XC	3.5	EC	0.41	lb ai/a	EPRE	10.0	7.3	10.0	4.0	1.7	4.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	Venue	0.177	SC	0.0055	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
8	Sinbar	80	WDG	1.6	lb ai/a	EPRE	7.7	4.7	10.0	6.3	1.7	10.0
	Surflan	4	L	3	lb ai/a	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
	NIS	100	SL	0.25	% v/v	EPRE						
9	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	10.0	7.0	9.3	4.0	1.3	5.7
	Prowl H20	3.8	CS	4	lb ai/a	EPRE						
	Rely 280	2.34	L	1.2	lb ai/a	EPRE						
10	Solicam	80	DF	4	lb ai/a	EPRE	10.0	9.0	10.0	7.0	2.0	9.0
	Princep	90	WDG	4	lb ai/a	EPRE						
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE						
	Venue	0.177	SC	0.0055	lb ai/a	EPRE						
LSD P=.05							4.68	4.55	3.25	3.84	1.41	4.48
Standard Deviation							2.73	2.65	1.90	2.24	0.82	2.61
CV							31.95	51.72	20.61	40.7	57.44	35.93

Weed Control in Blueberry - SWMREC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	BHPL	HAVE	YEHW	BLBE	HONE
Pest Code							BHPL	HAVE	YEHW		HONE
Crop Code										BLBE	
Rating Date							07Jul17	07Jul17	07Jul17	15Aug17	15Aug17
Rating Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
1	Untreated						1.0	4.0	1.7	3.0	4.0
2	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	1.7	7.0	4.3	1.3	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					
3	Zeus Prime XC	3.5	EC	0.164	lb ai/a	EPRE	1.7	4.7	1.7	1.3	7.0
	Solida	25	SG	0.031	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
4	Alion 200	1.67	SC	0.065	lb ai/a	EPRE	8.7	7.7	2.7	1.3	10.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
5	IAF + RIS-sodium	41	WG	0.077	lb ai/a	EPRE	3.7	7.0	2.3	1.3	7.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
6	Matrix	25	DF	0.031	lb ai/a	EPRE	1.3	9.0	3.0	1.3	4.7
	Alion 200	1.67	SC	0.065	lb ai/a	EPRE					
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1.0	lb ai/a	EPRE					
	N Pak (AMS)	100	L	2.5	% v/v	EPRE					
7	Zeus Prime XC	3.5	EC	0.41	lb ai/a	EPRE	5.3	10.0	1.7	2.3	7.0
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	Venue	0.177	SC	0.0055	lb ai/a	EPRE					
	NIS	100	SL	0.25	% v/v	EPRE					
8	Sinbar	80	WDG	1.6	lb ai/a	EPRE	10.0	7.0	3.3	1.3	7.0
	Surflan	4	L	3	lb ai/a	EPRE					
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
	NIS	100	SL	0.25	% v/v	EPRE					
9	Chateau SW	51	WDG	0.383	lb ai/a	EPRE	9.0	10.0	3.0	1.0	4.0
	Prowl H20	3.8	CS	4	lb ai/a	EPRE					
	Rely 280	2.34	L	1.2	lb ai/a	EPRE					
10	Solicam	80	DF	4	lb ai/a	EPRE	9.3	4.7	6.3	1.3	10.0
	Princep	90	WDG	4	lb ai/a	EPRE					
	Roundup PowerMax	5.5	L	1	lb ai/a	EPRE					
	Venue	0.177	SC	0.0055	lb ai/a	EPRE					
LSD P=.05							3.65	7.46	3.98	0.93	7.41
Standard Deviation							2.13	4.35	2.32	0.54	4.32
CV							41.16	61.23	77.35	34.53	65.14

Weed Control in Grape - HTRC - 2017

Project Code: 132-17-1 **Location: East Lansing, MI**

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
PRE	4/17/17	11:00 am	66/51	F	Moist	3-5 NW	32	10% Cloudy	N
PO1	6/7/17	10:00 am	65/60	F	Dry	6-7 NE	34	0% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/17	Grape	4-5 ft.	Dormant	Good
4/17	ANBG = annual bluegrass	1-3″	Veg	Many
4/17	DAND = dandelion	4-6″	Flower	Many
4/17	GORO = goldenrod	3-5″	Veg	Mod
4/17	MECR = mouseear cress	3-5″	Late flower	Many
4/17	QUGR = quackgrass	4-6″	Veg	Many
4/17	WICA = wild carrot	1-3″	Veg	Many
4/17	WIGR = witchgrass	4-6″	Veg	Many
6/7	Grape	8-10 ft.	12-18 new growth	Good
6/7	ORGR = orchardgrass	12-20″	Seed	Mod
6/7	QUGR = quackgrass	6-13″	Foliar	Mod
6/7	CABR = California brome	12-18″	Seed	Mod-many
6/7	CATH = Canada thistle	6-24″	Flower	Mod-many
6/7	FIBW = field bindweed	6-24″	Flower	Many
6/7	WICA = wild carrot	4-10″	Foliar	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 row.
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
3. GPS coordinates from Northeast corner of plot on 9/15/17: 42.67354670 -84.48601948

Weed Control in Grape - HTRC - 2017

Weed Control in Grape – HTRC – 2017

Trial ID: 132-17-1 Location: East Lansing, MI
Protocol ID: 132-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage		ORGR	ANBG	CABR	DAND
	Pest Code										
	Crop Name						GRAPE				
	Rating Date						17May17	17May17	17May17	17May17	17May17
	Rating Type						RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10
1	Untreated						1.0	1.3	1.0	4.0	3.3
2	Alion 200	1.67	SC	0.046	lb ai/a	PRE	1.0	7.7	8.7	10.0	9.3
	Rely 200	2.34	L	1.2	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE					
3	IAF + RIS-sodium	41	WG	0.077	oz/a	PRE	1.0	6.7	4.0	9.3	9.0
	Rely 280	2.34	L	1.2	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE					
4	Matrix	25	WG	0.031	lb ai/a	PRE	1.3	8.7	9.3	10.0	10.0
	Alion 200	1.67	SC	0.046	lb ai/a	PRE					
	Rely 280	2.34	L	1.2	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE					
5	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	1.0	9.3	9.0	8.7	9.0
	Alion 200	1.67	SC	0.065	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
6	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	1.0	8.3	10.0	10.0	10.0
	Matrix	25	WG	0.031	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
7	Mission	25	WG	0.063	lb ai/a	PRE	1.0	9.0	9.3	10.0	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
8	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	1.0	6.7	10.0	10.0	10.0
	Trellis SC	4.17	SC	1	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
9	Princep	90	WDG	4	lb ai/a	PRE	1.0	6.7	9.7	10.0	10.0
	Surflan	4	L	4	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
	Rely 280	2.34	L	1.5	lb ai/a	PO1					
	Venue	0.177	SC	0.00275	lb ai/a	PO1					
	N Pak (AMS)	100	L	2.5	% v/v	PO1					

Weed Control in Grape - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage					
Pest Code								ORGR	ANBG	CABR	DAND
Crop Name							GRAPE				
Rating Date							17May17	17May17	17May17	17May17	17May17
Rating Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
10	Princep	90	WDG	4	lb ai/a	PRE	1.0	8.7	9.3	10.0	10.0
	Surflan	4	L	4	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
	Rely 280	2.34	L	1.5	lb ai/a	PO1					
	Venue	0.177	SC	0.0055	lb ai/a	PO1					
	N Pak (AMS)	100	L	2.5	% v/v	PO1					
11	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	1.3	2.3	4.7	4.0	6.7
	Goal 2XL	2	EC	2	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
12	Untreated					PRE	1.3	1.7	1.0	1.0	3.3
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PO1					
	Venue	0.177	SC	0.0055	lb ai/a	PO1					
	N Pak (AMS)	100	L	2.5	% v/v	PO1					
LSD P=.05							0.49	2.60	3.04	3.68	3.30
Standard Deviation							0.29	1.53	1.79	2.18	1.95
CV							26.65	23.92	25.04	26.92	23.24

Weed Control in Grape - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	FIBW	GORO	WICA	GRAPE	ORGR
Pest Code											
Crop Name											
Rating Date							17May17	17May17	17May17	06Jun17	06Jun17
Rating Type							RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10
1	Untreated						1.0	4.3	4.0	1.3	4.3
2	Alion 200	1.67	SC	0.046	lb ai/a	PRE	6.3	5.7	4.7	1.3	8.3
	Rely 200	2.34	L	1.2	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE					
3	IAF + RIS-sodium	41	WG	0.077	oz/a	PRE	3.3	9.3	4.0	1.3	8.3
	Rely 280	2.34	L	1.2	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE					
4	Matrix	25	WG	0.031	lb ai/a	PRE	5.7	10.0	9.0	1.0	8.7
	Alion 200	1.67	SC	0.046	lb ai/a	PRE					
	Rely 280	2.34	L	1.2	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE					
5	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	10.0	9.3	9.7	1.0	10.0
	Alion 200	1.67	SC	0.065	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
6	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	9.3	8.7	8.3	1.3	8.7
	Matrix	25	WG	0.031	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
7	Mission	25	WG	0.063	lb ai/a	PRE	4.3	10.0	9.7	1.3	9.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
8	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	6.3	9.0	8.0	1.0	8.0
	Trellis SC	4.17	SC	1	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
9	Princep	90	WDG	4	lb ai/a	PRE	10.0	10.0	4.3	1.3	9.0
	Surflan	4	L	4	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
	Rely 280	2.34	L	1.5	lb ai/a	PO1					
	Venue	0.177	SC	0.00275	lb ai/a	PO1					
	N Pak (AMS)	100	L	2.5	% v/v	PO1					
10	Princep	90	WDG	4	lb ai/a	PRE	8.7	9.0	8.7	1.3	8.7
	Surflan	4	L	4	lb ai/a	PRE					
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
	Rely 280	2.34	L	1.5	lb ai/a	PO1					
	Venue	0.177	SC	0.0055	lb ai/a	PO1					
	N Pak (AMS)	100	L	2.5	% v/v	PO1					
11	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	10.0	10.0	1.0	1.0	7.7
	Goal 2XL	2	EC	2	lb ai/a	PRE					
	N Pak (AMS)	100	L	2.5	% v/v	PRE					
12	Untreated					PRE	3.3	10.0	7.0	1.3	9.3
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PO1					
	Venue	0.177	SC	0.0055	lb ai/a	PO1					
	N Pak (AMS)	100	L	2.5	% v/v	PO1					
LSD P=.05							4.80	3.88	5.68	0.78	3.79
Standard Deviation							2.84	2.29	3.35	0.46	2.24
CV							43.45	26.13	51.39	37.46	26.85

Weed Control in Grape - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	QUGR	CABR	FIBW	WICA	GRAPE	ORGR
	Pest Code											
	Crop Name										GRAPE	
	Rating Date						06Jun17	06Jun17	06Jun17	06Jun17	23Jun17	23Jun17
	Rating Type						RATING	RATING	RATING	RATING	RATING	RATING
	Rating Unit						1-10	1-10	1-10	1-10	1-10	1-10
1	Untreated						6.0	1.7	1.0	1.3	1.0	6.3
2	Alion 200	1.67	SC	0.046	lb ai/a	PRE	5.3	8.7	3.0	2.3	1.0	9.0
	Rely 200	2.34	L	1.2	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE						
3	IAF + RIS-sodium	41	WG	0.077	oz/a	PRE	5.3	3.7	4.3	2.3	1.0	8.0
	Rely 280	2.34	L	1.2	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE						
4	Matrix	25	WG	0.031	lb ai/a	PRE	7.3	10.0	3.7	7.7	1.0	8.7
	Alion 200	1.67	SC	0.046	lb ai/a	PRE						
	Rely 280	2.34	L	1.2	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE						
5	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	7.3	10.0	9.7	7.3	1.0	9.0
	Alion 200	1.67	SC	0.065	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
6	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	9.0	9.3	7.7	4.3	1.0	9.0
	Matrix	25	WG	0.031	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
7	Mission	25	WG	0.063	lb ai/a	PRE	9.0	10.0	4.7	9.3	1.3	8.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
8	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	7.0	10.0	3.7	6.0	2.0	8.7
	Trellis SC	4.17	SC	1	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
9	Princep	90	WDG	4	lb ai/a	PRE	4.7	10.0	5.3	1.7	1.0	10.0
	Surflan	4	L	4	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
	Rely 280	2.34	L	1.5	lb ai/a	PO1						
	Venue	0.177	SC	0.00275	lb ai/a	PO1						
	N Pak (AMS)	100	L	2.5	% v/v	PO1						
10	Princep	90	WDG	4	lb ai/a	PRE	5.7	9.3	5.7	3.7	1.3	9.7
	Surflan	4	L	4	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
	Rely 280	2.34	L	1.5	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	N Pak (AMS)	100	L	2.5	% v/v	PO1						
11	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	5.7	1.0	8.7	3.0	1.7	9.0
	Goal 2XL	2	EC	2	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
12	Untreated					PRE	2.3	1.3	1.3	3.7	1.3	8.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	N Pak (AMS)	100	L	2.5	% v/v	PO1						
LSD P=.05							4.77	1.59	3.25	4.51	0.92	3.10
Standard Deviation							2.82	0.94	1.92	2.67	0.54	1.83
CV							45.28	13.29	39.28	60.73	44.28	20.97

Weed Control in Grape - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	QUGR 23Jun17 RATING 1-10	CABR 23Jun17 RATING 1-10	FIBW 23Jun17 RATING 1-10	WICA 23Jun17 RATING 1-10	GRAPE 06Jul17 RATING 1-10	QUGR 06Jul17 RATING 1-10
1	Untreated						6.0	1.7	1.7	1.7	1.3	7.0
2	Alion 200	1.67	SC	0.046	lb ai/a	PRE	5.3	10.0	3.7	3.0	1.0	5.0
	Rely 200	2.34	L	1.2	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE						
3	IAF + RIS-sodium	41	WG	0.077	oz/a	PRE	5.3	3.0	1.7	1.7	1.3	5.0
	Rely 280	2.34	L	1.2	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE						
4	Matrix	25	WG	0.031	lb ai/a	PRE	7.7	9.3	3.0	6.3	1.3	6.0
	Alion 200	1.67	SC	0.046	lb ai/a	PRE						
	Rely 280	2.34	L	1.2	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE						
5	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	7.3	9.3	7.0	7.0	1.3	6.3
	Alion 200	1.67	SC	0.065	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
6	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	8.7	9.0	5.0	6.3	1.3	6.7
	Matrix	25	WG	0.031	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
7	Mission	25	WG	0.063	lb ai/a	PRE	9.3	9.7	2.7	10.0	2.3	8.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
8	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	8.3	10.0	1.7	2.3	2.3	7.3
	Trellis SC	4.17	SC	1	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
9	Princep	90	WDG	4	lb ai/a	PRE	9.3	10.0	7.3	9.0	1.3	6.7
	Surflan	4	L	4	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
	Rely 280	2.34	L	1.5	lb ai/a	PO1						
	Venue	0.177	SC	0.00275	lb ai/a	PO1						
	N Pak (AMS)	100	L	2.5	% v/v	PO1						
10	Princep	90	WDG	4	lb ai/a	PRE	9.7	10.0	7.0	10.0	1.7	7.3
	Surflan	4	L	4	lb ai/a	PRE						
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
	Rely 280	2.34	L	1.5	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	N Pak (AMS)	100	L	2.5	% v/v	PO1						
11	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	4.7	2.3	6.7	1.0	1.7	1.3
	Goal 2XL	2	EC	2	lb ai/a	PRE						
	N Pak (AMS)	100	L	2.5	% v/v	PRE						
12	Untreated					PRE	8.3	6.7	8.3	7.7	1.3	8.3
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PO1						
	Venue	0.177	SC	0.0055	lb ai/a	PO1						
	N Pak (AMS)	100	L	2.5	% v/v	PO1						
LSD P=.05							3.63	3.27	3.41	3.64	1.27	4.53
Standard Deviation							2.14	1.93	2.01	2.15	0.75	2.68
CV							28.59	25.43	43.43	39.12	48.9	42.45

Weed Control in Grape - HTRC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	FIBW	HOWE	WICA
Pest Code							FIBW	HOWE	WICA
Crop Name									
Rating Date							06Jul17	06Jul17	06Jul17
Rating Type							RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10
1	Untreated						1.7	7.0	2.7
2	Alion 200	1.67	SC	0.046	lb ai/a	PRE	1.7	9.0	3.0
	Rely 200	2.34	L	1.2	lb ai/a	PRE			
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE			
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE			
3	IAF + RIS-sodium	41	WG	0.077	oz/a	PRE	3.0	9.0	2.0
	Rely 280	2.34	L	1.2	lb ai/a	PRE			
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE			
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE			
4	Matrix	25	WG	0.031	lb ai/a	PRE	3.0	9.3	7.7
	Alion 200	1.67	SC	0.046	lb ai/a	PRE			
	Rely 280	2.34	L	1.2	lb ai/a	PRE			
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE			
	Ammonium Sulfate	100	SG	3.4	lb ai/a	PRE			
5	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	5.7	10.0	6.3
	Alion 200	1.67	SC	0.065	lb ai/a	PRE			
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE			
	N Pak (AMS)	100	L	2.5	% v/v	PRE			
6	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	4.0	10.0	5.0
	Matrix	25	WG	0.031	lb ai/a	PRE			
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE			
	N Pak (AMS)	100	L	2.5	% v/v	PRE			
7	Mission	25	WG	0.063	lb ai/a	PRE	1.7	7.7	10.0
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE			
	N Pak (AMS)	100	L	2.5	% v/v	PRE			
8	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	1.0	10.0	2.3
	Trellis SC	4.17	SC	1	lb ai/a	PRE			
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE			
	N Pak (AMS)	100	L	2.5	% v/v	PRE			
9	Princep	90	WDG	4	lb ai/a	PRE	6.7	10.0	10.0
	Surflan	4	L	4	lb ai/a	PRE			
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE			
	N Pak (AMS)	100	L	2.5	% v/v	PRE			
	Rely 280	2.34	L	1.5	lb ai/a	PO1			
	Venue	0.177	SC	0.00275	lb ai/a	PO1			
	N Pak (AMS)	100	L	2.5	% v/v	PO1			
10	Princep	90	WDG	4	lb ai/a	PRE	6.0	10.0	9.0
	Surflan	4	L	4	lb ai/a	PRE			
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PRE			
	N Pak (AMS)	100	L	2.5	% v/v	PRE			
	Rely 280	2.34	L	1.5	lb ai/a	PO1			
	Venue	0.177	SC	0.0055	lb ai/a	PO1			
	N Pak (AMS)	100	L	2.5	% v/v	PO1			
11	Zeus Prime XC	3.5	EC	0.41	lb ai/a	PRE	7.7	7.0	2.7
	Goal 2XL	2	EC	2	lb ai/a	PRE			
	N Pak (AMS)	100	L	2.5	% v/v	PRE			
12	Untreated					PRE	8.3	10.0	7.7
	Roundup PowerMax	5.5	L	1.4	lb ai/a	PO1			
	Venue	0.177	SC	0.0055	lb ai/a	PO1			
	N Pak (AMS)	100	L	2.5	% v/v	PO1			
LSD P=.05							3.19	4.06	4.48
Standard Deviation							1.89	2.40	2.65
CV							44.97	26.42	46.45

Preemergence Weed Control in Hops – SWMREC - 2017

Project Code: 135-17-1 **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: 5.5 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	4/11/17	11:30 am	46/48	F	Moist	3	SW	80	100% Cloudy	Y

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
4/11	Hops	3-4″	Veg	Good
4/11	HENB = henbit	2-3″	Veg	Mod
4/11	HOWE = horseweed	1=3″	Veg	Many
4/11	PUDN = purple deadnettle	2-3″	Flower	Mod
4/11	WHCA = white campion	2-4″	Veg	Mod
4/11	WHCL = white clover	4-6″	Veg	Few
4/11	WIGR = witchgrass	4-6″	Veg	Many
	BHPL = buckhorn plantain			
	COMW = common milkweed			
	HOAL = hoary alyssum			
	HONE = horsenettle			
	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 rows.
2. Crop and weed injury ratings on scale of 1-10; 1 = no injury, 10 = complete kill.
3. All PRE plots sprayed with SelectMax 0.12 lb ai/a.

Preemergence Weed Control in Hops – SWMREC - 2017

Preemergence Weed Control in Hops – SWMREC – 2017

Trial ID: 135-17-1 Location: Benton Harbor, MI
Protocol ID: 135-17-1 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage						
Pest Code								QUGR	BHPL	COMW	HOAL	HOWE
Crop Name							HOPS					
Rating Date							22May17	22May17	22May17	22May17	22May17	22May17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Chateau SW	51	WDG	0.191	lb ai/a	PRE	1.3	3.7	10.0	10.0	9.0	9.3
2	Solicam	80	DF	4	lb ai/a	PRE	1.3	2.0	7.0	10.0	7.0	4.0
3	Surflan	4	L	4	lb ai/a	PRE	1.0	2.3	10.0	7.0	4.3	9.7
4	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	1.3	1.3	10.0	10.0	6.7	10.0
5	Outlook	6	EC	0.98	lb ai/a	PRE	1.7	1.7	7.0	7.0	7.0	10.0
6	Trellis SC	4.17	SC	1	lb ai/a	PRE	1.3	2.0	7.0	10.0	10.0	10.0
7	Alion 200	1.67	SC	0.085	lb ai/a	PRE	1.0	5.3	7.0	10.0	4.7	10.0
8	Untreated						1.0	3.0	10.0	6.7	6.3	10.0
LSD P=.05							0.97	3.75	6.77	5.42	7.73	3.33
Standard Deviation							0.56	2.14	3.87	3.09	4.41	1.90
CV							44.51	80.33	45.48	35.03	64.16	20.83

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage							
Pest Code							PUDN	WHCL		QUGR	HAVE	HOAL	HOWE
Crop Name									HOPS				
Rating Date							22May17	22May17	15Jun17	15Jun17	15Jun17	15Jun17	15Jun17
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
1	Chateau SW	51	WDG	0.191	lb ai/a	PRE	10.0	7.0	1.0	4.3	7.3	9.0	9.0
2	Solicam	80	DF	4	lb ai/a	PRE	2.0	4.0	1.7	3.0	7.0	6.3	4.3
3	Surflan	4	L	4	lb ai/a	PRE	10.0	10.0	3.7	1.0	6.3	1.3	10.0
4	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	10.0	7.3	3.0	1.3	10.0	8.7	10.0
5	Outlook	6	EC	0.98	lb ai/a	PRE	4.0	10.0	2.7	1.3	7.0	6.0	10.0
6	Trellis SC	4.17	SC	1	lb ai/a	PRE	10.0	9.7	2.3	1.0	10.0	7.3	10.0
7	Alion 200	1.67	SC	0.085	lb ai/a	PRE	7.0	10.0	3.7	3.3	10.0	7.0	10.0
8	Untreated						7.0	10.0	3.3	1.0	6.0	4.0	10.0
LSD P=.05							5.89	4.78	2.14	3.25	6.09	5.98	1.91
Standard Deviation							3.36	2.73	1.22	1.85	3.47	3.41	1.09
CV							44.83	32.08	45.84	90.77	43.66	54.98	11.87

Preemergence Weed Control in Hops – SWMREC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	WHCA	HOPS	QUGR	HAVE	HOAL	HONE	HOWE
Pest Code													
Crop Name													
Rating Date							15Jun17	07Jul17	07Jul17	07Jul17	07Jul17	07Jul17	07Jul17
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
1	Chateau SW	51	WDG	0.191	lb ai/a	PRE	10.0	1.0	4.0	9.7	8.7	4.7	7.7
2	Solicam	80	DF	4	lb ai/a	PRE	6.0	2.7	4.0	9.0	7.0	4.0	3.7
3	Surflan	4	L	4	lb ai/a	PRE	7.0	4.0	1.0	10.0	1.7	1.0	8.7
4	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	8.0	2.3	1.0	10.0	8.7	1.0	10.0
5	Outlook	6	EC	0.98	lb ai/a	PRE	7.7	3.0	1.0	7.3	5.3	1.0	7.0
6	Trellis SC	4.17	SC	1	lb ai/a	PRE	10.0	2.7	1.0	10.0	9.0	1.0	9.7
7	Alion 200	1.67	SC	0.085	lb ai/a	PRE	4.0	3.7	2.7	10.0	8.7	4.0	9.0
8	Untreated						9.0	3.7	1.0	6.3	5.0	1.0	10.0
LSD P=.05							6.02	2.50	3.07	3.98	5.78	4.59	3.73
Standard Deviation							3.44	1.43	1.75	2.27	3.30	2.62	2.13
CV							44.62	49.7	89.58	25.15	48.87	118.63	25.96

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	HOPS	QUGR	HOAL	HONE	HOWE	WHCA
Pest Code								QUGR	HOAL	HONE	HOWE	WHCA
Crop Name							HOPS					
Rating Date							15Aug17	15Aug17	15Aug17	15Aug17	15Aug17	15Aug17
Rating Type							RATING	RATING	RATING	RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10	1-10	1-10	1-10
1	Chateau SW	51	WDG	0.191	lb ai/a	PRE	1.0	6.0	9.7	7.7	9.0	7.0
2	Solicam	80	DF	4	lb ai/a	PRE	2.7	5.0	7.0	6.0	5.7	7.0
3	Surflan	4	L	4	lb ai/a	PRE	4.0	1.3	1.0	3.7	9.0	9.0
4	Prowl H20	3.8	CS	3.8	lb ai/a	PRE	3.3	2.0	6.7	2.7	10.0	9.3
5	Outlook	6	EC	0.98	lb ai/a	PRE	3.3	3.0	5.3	1.3	9.7	7.7
6	Trellis SC	4.17	SC	1	lb ai/a	PRE	3.3	1.3	4.7	4.0	7.7	10.0
7	Alion 200	1.67	SC	0.085	lb ai/a	PRE	3.3	3.0	9.3	4.0	7.3	4.0
8	Untreated						3.7	1.3	4.3	1.0	9.0	7.7
LSD P=.05							2.54	3.71	6.51	6.42	5.15	6.20
Standard Deviation							1.45	2.12	3.72	3.67	2.94	3.54
CV							47.01	73.64	61.92	96.73	34.94	45.95

Postemergence Weed Control in Hops - SWMREC - 2017

Project Code: 135-17-2 **Location: Benton Harbor, MI**

Personnel: Bernard H. Zandstra, Colin Phillippo
Crop: Hops **Variety: Cascade**
Planting Method: Transplant **Planting Date: 2016**
Spacing: 6 ft **Row Spacing: 10 ft**
Tillage Type: Conventional **Study Design: RCB** **Replications: 3**
Plot Size: 5.5 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	6/15/17	10:30 am	80/70	F	Damp	4-6 SW	55	50% Cloudy	N

Crop and Weed Information at Application

		Height or Diameter	Growth Stage	Density
6/15	Hops	3-6’	Climbing	Good
6/15	DOBG = downy bromegrass	12-18”	Seed	Mod
6/15	QUGR = quackgrass	12-15”	Foliar	Many
6/15	HAVE = hairy vetch	12-22”	Flower	Mod
6/15	HOAL = hoary alyssum	12-18”	Flower	Many
6/15	HOWE = horseweed	12-18”	Foliar	Mod
6/15	RESO = red sorrel	10-12”	Flower	Mod
6/15	WHCA = white campion	12-20”	Flower	Mod
	COMW = common milkweed			

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.

Postemergence Weed Control in Hops - SWMREC - 2017

Postemergence Weed Control in Hops – SWMREC – 2017

Trial ID: 135-17-2 Location: Benton Harbor, MI
Protocol ID: 135-17-2 Investigator: Dr. Bernard Zandstra
Study Director: Colin Phillippo

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	HOPS 22May17 RATING 1-10	HOPS 07Jul17 RATING 1-10	QUGR 07Jul17 RATING 1-10	COMW 07Jul17 RATING 1-10	HAVE 07Jul17 RATING 1-10	HOAL 07Jul17 RATING 1-10
1	Aim	2	EC	0.032	lb ai/a	PO1	1.7	3.0	4.0	10.0	4.7	2.7
2	Gramoxone SL	2	SL	1	lb ai/a	PO1	1.0	1.7	7.7	10.0	9.3	8.0
3	Reglone	2	L	1	lb ai/a	PO1	1.0	2.0	3.0	10.0	7.7	8.0
4	Aim	2	EC	0.032	lb ai/a	PO1	1.7	3.0	3.7	10.0	3.0	2.0
	Select Max	.97	EC	0.12	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
5	Stinger	3	L	0.25	lb ai/a	PO1	1.7	2.0	1.7	10.0	10.0	1.0
6	Rely 280	2.34	L	1.2	lb ai/a	PO1	1.0	3.3	4.0	10.0	10.0	5.3
7	Roundup Original	4	L	0.5	lb ai/a	PO1	1.0	1.3	3.0	7.3	4.3	6.7
	NIS	100	SL	0.25	% v/v	PO1						
8	Untreated						1.0	3.0	3.0	10.0	7.3	1.7
LSD P=.05							1.05	2.80	3.65	2.86	5.11	3.57
Standard Deviation							0.60	1.60	2.08	1.63	2.92	2.04
CV							47.81	66.05	55.55	16.89	41.45	46.22

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	HONE 07Jul17 RATING 1-10	HOWE 07Jul17 RATING 1-10	RESO 07Jul17 RATING 1-10	HOPS 15Aug17 RATING 1-10	QUGR 15Aug17 RATING 1-10	HOAL 15Aug17 RATING 1-10
1	Aim	2	EC	0.032	lb ai/a	PO1	7.0	2.3	7.0	2.7	7.0	2.3
2	Gramoxone SL	2	SL	1	lb ai/a	PO1	7.0	5.3	10.0	1.0	7.3	9.0
3	Reglone	2	L	1	lb ai/a	PO1	7.7	8.7	10.0	2.0	3.7	7.7
4	Aim	2	EC	0.032	lb ai/a	PO1	1.0	3.7	10.0	2.7	5.0	1.0
	Select Max	.97	EC	0.12	lb ai/a	PO1						
	NIS	100	SL	0.25	% v/v	PO1						
5	Stinger	3	L	0.25	lb ai/a	PO1	7.3	10.0	10.0	2.0	5.3	1.0
6	Rely 280	2.34	L	1.2	lb ai/a	PO1	4.7	7.7	10.0	2.7	4.3	1.0
7	Roundup Original	4	L	0.5	lb ai/a	PO1	5.3	10.0	9.3	2.0	6.3	1.7
	NIS	100	SL	0.25	% v/v	PO1						
8	Untreated						7.0	4.7	7.0	3.0	1.7	1.0
LSD P=.05							8.11	5.41	4.12	2.14	4.81	2.01
Standard Deviation							4.63	3.09	2.35	1.22	2.74	1.15
CV							78.85	47.19	25.64	54.43	53.98	37.2

Postemergence Weed Control in Hops - SWMREC - 2017

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Growth Stage	HONE	HOWE	WHCA
Pest Code							HONE	HOWE	WHCA
Crop Name									
Rating Date							15Aug17	15Aug17	15Aug17
Rating Type							RATING	RATING	RATING
Rating Unit							1-10	1-10	1-10
1	Aim	2	EC	0.032	lb ai/a	PO1	7.0	1.7	10.0
2	Gramoxone SL	2	SL	1	lb ai/a	PO1	7.0	3.3	10.0
3	Reglone	2	L	1	lb ai/a	PO1	4.7	7.0	7.0
4	Aim	2	EC	0.032	lb ai/a	PO1	1.0	3.0	6.0
	Select Max	.97	EC	0.12	lb ai/a	PO1			
	NIS	100	SL	0.25	% v/v	PO1			
5	Stinger	3	L	0.25	lb ai/a	PO1	7.7	10.0	10.0
6	Rely 280	2.34	L	1.2	lb ai/a	PO1	4.0	7.0	10.0
7	Roundup Original	4	L	0.5	lb ai/a	PO1	7.3	10.0	10.0
	NIS	100	SL	0.25	% v/v	PO1			
8	Untreated						6.3	6.0	10.0
LSD P=.05							7.63	6.04	4.51
Standard Deviation							4.36	3.45	2.58
CV							77.44	57.45	28.25