

MSU Weed Science Research Program

Weed control in non-GMO soybean

Trial ID: SOY11-23 Study Dir.: Sprague, Stiles
 Conducted: Campus, C-16 Investigator: Christy Sprague

Planting Date: May-9-2023 **Row Spacing:** 30 IN
Variety: ZFS1326 **No. of Reps:** 4
Population: 150000 seeds/A **% OM:** 2
Soil Type: L loam **pH:** 6.7
Plot Size: 10 X 30 FT **Study Design:** Randomized Complete Block (RCB)

Tillage/Previous Crops: Fall chisel plowed, fall soil finished twice, spring soil finished twice.
Fertilizer:

Crop and Weed Description

Weed	Code	Common Name	Scientific Name
1	ANGR	annual grass	mainly foxtail species
2	CHEAL	common lambsquarters	Chenopodium album
3	AMBEL	common ragweed	Ambrosia artemisiifolia
4	ABUTH	velvetleaf	Abutilon theophrasti
5	SINAR	wild mustard	Sinapis arvensis
Crop	Code	Common Name	
1	GLXMA	Soybean	

Application Description

	A	B	C
Application Timing:	PRE	POST	+7d
Date Treated:	May-9-2023	Jun-9-2023	Jun-16-2023
Time Treated:	3:10 PM	9:00 AM	10:30 AM
% Cloud Cover:	0	0	98
Air Temp., Unit:	70 F	58 F	63 F
% Relative Humidity:	29	75	85
Wind Speed/Unit/Dir:	7 MPH NNE	5 MPH NW	7.5 MPH N
Soil Temp, Unit:	65 F	65 F	64 F
Leaf Moist/Dew Presence (Y/N):	N	N	N
Soil Moist:	5	5	5

Crop Stage at Each Application

	A	B	C
Crop 1 Name:	GLXMA	GLXMA	GLXMA
Height:		3 "	6 "
Stage:		V1	V2-V3

Weed Stage at Each Application

	A	B	C
Weed 1 Name:	ANGR	ANGR	ANGR
Height:		3-5 " (3)	5-8 " (6)
Stage:		4-6L	5-7L
Weed 2 Name:	CHEAL	CHEAL	CHEAL
Height:		2-6 " (4)	1-4 " (4)
Stage:		4-8L	6-18L
Weed 3 Name:	AMBEL	AMBEL	AMBEL
Height:		2-6 " (4)	3-6 " (4)
Stage:		4-6L	6-10L
Weed 4 Name:	ABUTH	ABUTH	ABUTH
Height:			2-6 " (4)
Stage:			2-4L
Weed 5 Name:	SINAR	SINAR	SINAR
Height:		1-3 " (2)	
Stage:		2-4L	

Weed Density

	1	2	3	4	5
Date:	Jun-16-2023	Jun-16-2023	Jun-16-2023	Jun-16-2023	Jun-16-2023
Weed Name:	ANGR	CHEAL	AMBEL	ABUTH	SINAR
Density:	2 FT2	1 FT2	3 FT2	1 FT2	1 FT2

Application Equipment

Appl	Sprayer Type	Ground Speed	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Boom Width	Spray Volume	Carrier	Operation Pressure
A	CUB	3.8 MPH	AIXR	11003	18.0 "	20 "	100 "	19 GAL/AC	WATER	30 PSI
B	CUB	3.8 MPH	AIXR	11003	18.0 "	20 "	100 "	19 GAL/AC	WATER	30 PSI
C	CUB	3.8 MPH	AIXR	11003	22.0 "	20 "	100 "	19 GAL/AC	WATER	30 PSI

Comments: Common ragweed (AMBEL) at this location is resistant to the Group 2 (ALS-inhibiting) herbicides.

Michigan State University

Weed control in non-GMO soybean

Trial ID: SOY11-23

Protocol ID: SOY11-23 Location: Campus, C-16 Trial Year: 2023

Study Director: Sprague, Stiles Sponsor Contact:

Investigator: Christy Sprague

Rating Date	May-30-2023	Jun-6-2023	Jun-6-2023	Jun-6-2023	Jun-6-2023	Jun-6-2023	Jun-16-2023
Rating Type	injury	injury	control	control	control	control	injury
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Crop Type, Code	C, GLXMA	C, GLXMA					C, GLXMA
Pest Code			ANGR	CHEAL	AMBEL	ABUTH	
Trt-Eval Interval	21 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A	7 DA-B
Number of Decimals	0	0	0	0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Appl Code	Appl Timing	May-30-2023	Jun-6-2023	Jun-6-2023	Jun-6-2023	Jun-6-2023	Jun-16-2023	
1	Boundary	2.4	pt/a	A	PRE	0	2	96	99	83	91	24
	Flexstar	1	pt/a	B	POST							
	Harmony SG	0.125	oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	SelectMax	9	fl oz/a	C	+ 7 d							
	Surfactant	0.25	% v/v	C	+ 7 d							
2	BroadAxe XC	32	fl oz/a	A	PRE	0	2	94	99	66	76	25
	Flexstar	1	pt/a	B	POST							
	Perpetuo	6	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	SelectMax	9	fl oz/a	C	+ 7 d							
	Surfactant	0.25	% v/v	C	+ 7 d							
3	AMS	2.5	lb/a	C	+ 7 d							
	Sonic	6	oz/a	A	PRE	0	1	89	99	85	93	28
	Boundary	1.5	pt/a	A	PRE							
	Flexstar	1	pt/a	B	POST							
	Harmony SG	0.125	oz/a	B	POST							
	SelectMax	12	fl oz/a	B	POST							
	Surfactant	0.25	% v/v	B	POST							
4	AMS	2.5	lb/a	B	POST							
	Surveil	3.5	oz/a	A	PRE	0	0	77	95	77	92	19
	Metribuzin	6	oz/a	A	PRE							
	Raptor	5	fl oz/a	B	POST							
	Flexstar	1	pt/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
5	Untreated					0	0	0	0	0	0	0
	Dimetric Charged	12	fl oz/a	A	PRE	1	0	90	94	76	90	26
6	Flexstar	1	pt/a	B	POST							
	Perpetuo	6	fl oz/a	B	POST							
	SelectMax	12	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	Valor EZ	2.5	fl oz/a	A	PRE	3	2	94	94	78	84	18
	Prowl H2O	2	pt/a	A	PRE							
7	Flexstar	1	pt/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	Raptor	5	fl oz/a	C	+ 7 d							
	Crop oil concentrate	1	% v/v	C	+ 7 d							
	AMS	2.5	lb/a	C	+ 7 d							
	8	Fierce EZ	7.5	fl oz/a	A	PRE	2	0	98	95	87	93
Raptor		5	fl oz/a	B	POST							
Basagran		12.8	fl oz/a	B	POST							
Flexstar		1	pt/a	B	POST							
Crop oil concentrate		1	% v/v	B	POST							
AMS		2.5	lb/a	B	POST							
9		Fierce MTZ	16	fl oz/a	A	PRE	4	2	91	97	85	88
	Raptor	5	fl oz/a	B	POST							
	Cobra	10	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							

Michigan State University

Weed control in non-GMO soybean

Trial ID: SOY11-23

Protocol ID: SOY11-23 Location: Campus, C-16 Trial Year: 2023

Study Director: Sprague, Stiles Sponsor Contact:

Investigator: Christy Sprague

Rating Date	May-30-2023	Jun-6-2023	Jun-6-2023	Jun-6-2023	Jun-6-2023	Jun-6-2023	Jun-16-2023
Rating Type	injury	injury	control	control	control	control	injury
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Crop Type, Code	C, GLXMA	C, GLXMA					C, GLXMA
Pest Code			ANGR	CHEAL	AMBEL	ABUTH	
Trt-Eval Interval	21 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A	7 DA-B
Number of Decimals	0	0	0	0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Appl Code	Appl Timing							
18	Warrant Ultra	50 fl oz/a	A	PRE		0	2	90	96	83	84	24
	Metribuzin	6 oz/a	A	PRE								
	Synchrony XP	0.375 oz/a	B	POST								
	Cobra	10 fl oz/a	B	POST								
	SelectMax	12 fl oz/a	B	POST								
	Surfactant	0.25 % v/v	B	POST								
	AMS	2.5 lb/a	B	POST								
19	Matador-S	3 pt/a	A	PRE		0	3	91	100	79	98	22
	Cobra	10 fl oz/a	B	POST								
	SelectMax	12 fl oz/a	B	POST								
	Surfactant	0.25 % v/v	B	POST								
	AMS	2.5 lb/a	B	POST								
20	Up-Stage	21 fl oz/a	A	PRE		0	2	99	100	93	100	18
	Preview 2.1	25 fl oz/a	A	PRE								
	Ultra Blazer	1.5 pt/a	B	POST								
	Crop oil concentrate	2 pt/a	B	POST								
21	Up-Stage	21 fl oz/a	A	PRE		0	3	98	100	92	100	12
	Moccasin MTZ	42 fl oz/a	A	PRE								
	Basagran	1.6 pt/a	B	POST								
	Ultra Blazer	1 pt/a	B	POST								
	Crop oil concentrate	2 pt/a	B	POST								
	LSD P=.05					2.3	1.8	10.2	7.3	12.2	14.7	4.1
	Standard Deviation					1.6	1.3	7.2	5.2	8.6	10.4	2.9
	CV					219.25	81.81	8.21	5.58	10.86	11.88	16.03

Michigan State University

Weed control in non-GMO soybean

Trial ID: SOY11-23
 Protocol ID: SOY11-23 Location: Campus, C-16 Trial Year: 2023
 Study Director: Sprague, Stiles Sponsor Contact:
 Investigator: Christy Sprague

Rating Date	Jun-23-2023	Jun-23-2023	Jun-23-2023	Jun-23-2023	Jun-23-2023	Jul-7-2023	Jul-7-2023
Rating Type	injury	control	control	control	control	injury	control
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Crop Type, Code	C, GLXMA					C, GLXMA	
Pest Code		ANGR	CHEAL	AMBEL	ABUTH		ANGR
Trt-Eval Interval	7 DA-C	7 DA-C	7 DA-C	7 DA-C	7 DA-C	21 DA-C	21 DA-C
Number of Decimals	0	0	0	0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Appl Code	Appl Timing	Jun-23-2023 injury	Jun-23-2023 control	Jun-23-2023 control	Jun-23-2023 control	Jun-23-2023 control	Jul-7-2023 injury	Jul-7-2023 control
1	Boundary	2.4	pt/a	A	PRE	13	94	100	96	99	0	98
	Flexstar	1	pt/a	B	POST							
	Harmony SG	0.125	oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	SelectMax	9	fl oz/a	C	+ 7 d							
	Surfactant	0.25	% v/v	C	+ 7 d							
	AMS	2.5	lb/a	C	+ 7 d							
2	BroadAxe XC	32	fl oz/a	A	PRE	17	94	98	87	99	2	99
	Flexstar	1	pt/a	B	POST							
	Perpetuo	6	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	SelectMax	9	fl oz/a	C	+ 7 d							
	Surfactant	0.25	% v/v	C	+ 7 d							
	AMS	2.5	lb/a	C	+ 7 d							
3	Sonic	6	oz/a	A	PRE	12	96	100	99	100	0	92
	Boundary	1.5	pt/a	A	PRE							
	Flexstar	1	pt/a	B	POST							
	Harmony SG	0.125	oz/a	B	POST							
	SelectMax	12	fl oz/a	B	POST							
	Surfactant	0.25	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
4	Surveil	3.5	oz/a	A	PRE	14	94	99	92	100	1	82
	Metribuzin	6	oz/a	A	PRE							
	Raptor	5	fl oz/a	B	POST							
	Flexstar	1	pt/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
5	Untreated					0	0	0	0	0	0	0
6	Dimetric Charged	12	fl oz/a	A	PRE	13	99	96	98	100	0	96
	Flexstar	1	pt/a	B	POST							
	Perpetuo	6	fl oz/a	B	POST							
	SelectMax	12	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
7	Valor EZ	2.5	fl oz/a	A	PRE	18	96	99	97	100	1	97
	Prowl H2O	2	pt/a	A	PRE							
	Flexstar	1	pt/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	Raptor	5	fl oz/a	C	+ 7 d							
	Crop oil concentrate	1	% v/v	C	+ 7 d							
	AMS	2.5	lb/a	C	+ 7 d							
8	Fierce EZ	7.5	fl oz/a	A	PRE	17	98	98	99	100	2	96
	Raptor	5	fl oz/a	B	POST							
	Basagran	12.8	fl oz/a	B	POST							
	Flexstar	1	pt/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
9	Fierce MTZ	16	fl oz/a	A	PRE	15	96	98	89	100	0	91
	Raptor	5	fl oz/a	B	POST							
	Cobra	10	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							

Michigan State University

Weed control in non-GMO soybean

Trial ID: SOY11-23

Protocol ID: SOY11-23 Location: Campus, C-16 Trial Year: 2023

Study Director: Sprague, Stiles Sponsor Contact:

Investigator: Christy Sprague

Rating Date	Jun-23-2023	Jun-23-2023	Jun-23-2023	Jun-23-2023	Jun-23-2023	Jul-7-2023	Jul-7-2023
Rating Type	injury	control	control	control	control	injury	control
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Crop Type, Code	C, GLXMA					C, GLXMA	
Pest Code		ANGR	CHEAL	AMBEL	ABUTH		ANGR
Trt-Eval Interval	7 DA-C	7 DA-C	7 DA-C	7 DA-C	7 DA-C	21 DA-C	21 DA-C
Number of Decimals	0	0	0	0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Appl Code	Appl Timing	Jun-23-2023 injury	Jun-23-2023 control	Jun-23-2023 control	Jun-23-2023 control	Jun-23-2023 control	Jul-7-2023 injury	Jul-7-2023 control
18	Warrant Ultra	50 fl oz/a	A	PRE		14	96	99	83	100	0	94
	Metribuzin	6 oz/a	A	PRE								
	Synchrony XP	0.375 oz/a	B	POST								
	Cobra	10 fl oz/a	B	POST								
	SelectMax	12 fl oz/a	B	POST								
	Surfactant	0.25 % v/v	B	POST								
	AMS	2.5 lb/a	B	POST								
19	Matador-S	3 pt/a	A	PRE		16	99	100	79	95	0	98
	Cobra	10 fl oz/a	B	POST								
	SelectMax	12 fl oz/a	B	POST								
	Surfactant	0.25 % v/v	B	POST								
	AMS	2.5 lb/a	B	POST								
20	Up-Stage	21 fl oz/a	A	PRE		13	98	100	98	100	0	94
	Preview 2.1	25 fl oz/a	A	PRE								
	Ultra Blazer	1.5 pt/a	B	POST								
	Crop oil concentrate	2 pt/a	B	POST								
21	Up-Stage	21 fl oz/a	A	PRE		12	95	100	92	100	0	90
	Moccasin MTZ	42 fl oz/a	A	PRE								
	Basagran	1.6 pt/a	B	POST								
	Ultra Blazer	1 pt/a	B	POST								
	Crop oil concentrate	2 pt/a	B	POST								
	LSD P=.05					4.6	5.3	4.8	7.7	4.3	2.0	6.5
	Standard Deviation					3.3	3.8	3.4	5.4	3.0	1.4	4.6
	CV					25.82	4.14	3.59	6.33	3.22	252.13	5.16

Michigan State University

Weed control in non-GMO soybean

Trial ID: SOY11-23
 Protocol ID: SOY11-23 Location: Campus, C-16 Trial Year: 2023
 Study Director: Sprague, Stiles Sponsor Contact:
 Investigator: Christy Sprague

Rating Date	Jul-7-2023	Jul-7-2023	Jul-7-2023	Jul-21-2023	Jul-21-2023	Jul-21-2023	Jul-21-2023
Rating Type	control	control	control	injury	control	control	control
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Crop Type, Code	C, GLXMA						
Pest Code	CHEAL	AMBEL	ABUTH		ANGR	CHEAL	AMBEL
Trt-Eval Interval	21 DA-C	21 DA-C	21 DA-C	35 DA-C	35 DA-C	35 DA-C	35 DA-C
Number of Decimals	0	0	0	0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Appl Code	Appl Timing	Jul-7-2023 control	Jul-7-2023 control	Jul-7-2023 control	Jul-21-2023 injury	Jul-21-2023 control	Jul-21-2023 control	Jul-21-2023 control
1	Boundary	2.4	pt/a	A	PRE	98	93	96	0	97	93	93
	Flexstar	1	pt/a	B	POST							
	Harmony SG	0.125	oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	SelectMax	9	fl oz/a	C	+ 7 d							
	Surfactant	0.25	% v/v	C	+ 7 d							
	AMS	2.5	lb/a	C	+ 7 d							
2	BroadAxe XC	32	fl oz/a	A	PRE	99	83	95	3	100	98	79
	Flexstar	1	pt/a	B	POST							
	Perpetuo	6	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	SelectMax	9	fl oz/a	C	+ 7 d							
	Surfactant	0.25	% v/v	C	+ 7 d							
	AMS	2.5	lb/a	C	+ 7 d							
3	Sonic	6	oz/a	A	PRE	100	93	100	0	95	100	95
	Boundary	1.5	pt/a	A	PRE							
	Flexstar	1	pt/a	B	POST							
	Harmony SG	0.125	oz/a	B	POST							
	SelectMax	12	fl oz/a	B	POST							
	Surfactant	0.25	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
4	Surveil	3.5	oz/a	A	PRE	93	83	100	1	86	100	80
	Metribuzin	6	oz/a	A	PRE							
	Raptor	5	fl oz/a	B	POST							
	Flexstar	1	pt/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
5	Untreated					0	0	0	0	0	0	0
6	Dimetric Charged	12	fl oz/a	A	PRE	92	95	100	1	96	90	92
	Flexstar	1	pt/a	B	POST							
	Perpetuo	6	fl oz/a	B	POST							
	SelectMax	12	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
7	Valor EZ	2.5	fl oz/a	A	PRE	93	91	100	2	98	95	90
	Prowl H2O	2	pt/a	A	PRE							
	Flexstar	1	pt/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	Raptor	5	fl oz/a	C	+ 7 d							
	Crop oil concentrate	1	% v/v	C	+ 7 d							
	AMS	2.5	lb/a	C	+ 7 d							
8	Fierce EZ	7.5	fl oz/a	A	PRE	98	94	100	4	94	97	95
	Raptor	5	fl oz/a	B	POST							
	Basagran	12.8	fl oz/a	B	POST							
	Flexstar	1	pt/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
9	Fierce MTZ	16	fl oz/a	A	PRE	96	88	100	2	94	95	87
	Raptor	5	fl oz/a	B	POST							
	Cobra	10	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							

Michigan State University

Weed control in non-GMO soybean

Trial ID: SOY11-23

Protocol ID: SOY11-23 Location: Campus, C-16 Trial Year: 2023

Study Director: Sprague, Stiles Sponsor Contact:

Investigator: Christy Sprague

Rating Date	Jul-7-2023	Jul-7-2023	Jul-7-2023	Jul-21-2023	Jul-21-2023	Jul-21-2023	Jul-21-2023
Rating Type	control	control	control	injury	control	control	control
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100
Crop Type, Code				C, GLXMA			
Pest Code	CHEAL	AMBEL	ABUTH		ANGR	CHEAL	AMBEL
Trt-Eval Interval	21 DA-C	21 DA-C	21 DA-C	35 DA-C	35 DA-C	35 DA-C	35 DA-C
Number of Decimals	0	0	0	0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Appl Code	Appl Timing	93	82	96	1	94	98	84
18	Warrant Ultra	50 fl oz/a	A	PRE								
	Metribuzin	6 oz/a	A	PRE								
	Synchrony XP	0.375 oz/a	B	POST								
	Cobra	10 fl oz/a	B	POST								
	SelectMax	12 fl oz/a	B	POST								
	Surfactant	0.25 % v/v	B	POST								
	AMS	2.5 lb/a	B	POST								
19	Matador-S	3 pt/a	A	PRE		96	78	98	0	99	95	74
	Cobra	10 fl oz/a	B	POST								
	SelectMax	12 fl oz/a	B	POST								
	Surfactant	0.25 % v/v	B	POST								
	AMS	2.5 lb/a	B	POST								
20	Up-Stage	21 fl oz/a	A	PRE		100	93	99	1	98	100	89
	Preview 2.1	25 fl oz/a	A	PRE								
	Ultra Blazer	1.5 pt/a	B	POST								
	Crop oil concentrate	2 pt/a	B	POST								
21	Up-Stage	21 fl oz/a	A	PRE		99	90	100	0	95	100	89
	Moccasin MTZ	42 fl oz/a	A	PRE								
	Basagran	1.6 pt/a	B	POST								
	Ultra Blazer	1 pt/a	B	POST								
	Crop oil concentrate	2 pt/a	B	POST								
	LSD P=.05					8.9	8.7	5.5	2.9	6.1	8.6	9.1
	Standard Deviation					6.3	6.1	3.9	2.0	4.3	6.1	6.4
	CV					6.92	7.36	4.15	200.91	4.74	6.61	7.9

Michigan State University

Weed control in non-GMO soybean

Trial ID: SOY11-23

Protocol ID: SOY11-23 Location: Campus, C-16 Trial Year: 2023

Study Director: Sprague, Stiles Sponsor Contact:

Investigator: Christy Sprague

Rating Date	Jul-21-2023	Oct-23-2023	Oct-23-2023	Oct-23-2023	Oct-23-2023	Nov-1-2023	Nov-1-2023
Rating Type	control	control	control	control	control	moisture	yield
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	bu/A, -, -
Crop Type, Code						C, GLXMA	C, GLXMA
Pest Code	ABUTH	ANGR	CHEAL	AMBEL	ABUTH		
Trt-Eval Interval	35 DA-C	129 DA-C	129 DA-C	129 DA-C	129 DA-C		
Number of Decimals	0	0	0	0	0	1	1

Trt No.	Treatment Name	Rate	Unit	Appl Code	Appl Timing	Jul-21-2023	Oct-23-2023	Oct-23-2023	Oct-23-2023	Oct-23-2023	Nov-1-2023	Nov-1-2023
1	Boundary	2.4	pt/a	A	PRE	99	98	93	88	95	13.8	63.0
	Flexstar	1	pt/a	B	POST							
	Harmony SG	0.125	oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	SelectMax	9	fl oz/a	C	+ 7 d							
	Surfactant	0.25	% v/v	C	+ 7 d							
	AMS	2.5	lb/a	C	+ 7 d							
2	BroadAxe XC	32	fl oz/a	A	PRE	95	100	100	78	98	13.4	56.9
	Flexstar	1	pt/a	B	POST							
	Perpetuo	6	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	SelectMax	9	fl oz/a	C	+ 7 d							
	Surfactant	0.25	% v/v	C	+ 7 d							
	AMS	2.5	lb/a	C	+ 7 d							
3	Sonic	6	oz/a	A	PRE	100	92	100	90	100	12.3	63.6
	Boundary	1.5	pt/a	A	PRE							
	Flexstar	1	pt/a	B	POST							
	Harmony SG	0.125	oz/a	B	POST							
	SelectMax	12	fl oz/a	B	POST							
	Surfactant	0.25	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
4	Surveil	3.5	oz/a	A	PRE	100	85	100	76	100	12.9	61.4
	Metribuzin	6	oz/a	A	PRE							
	Raptor	5	fl oz/a	B	POST							
	Flexstar	1	pt/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
5	Untreated					0	0	0	0	0	10.3	25.7
6	Dimetric Charged	12	fl oz/a	A	PRE	100	97	90	86	100	12.7	62.2
	Flexstar	1	pt/a	B	POST							
	Perpetuo	6	fl oz/a	B	POST							
	SelectMax	12	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
7	Valor EZ	2.5	fl oz/a	A	PRE	100	99	93	87	100	13.8	60.6
	Prowl H2O	2	pt/a	A	PRE							
	Flexstar	1	pt/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
	Raptor	5	fl oz/a	C	+ 7 d							
	Crop oil concentrate	1	% v/v	C	+ 7 d							
	AMS	2.5	lb/a	C	+ 7 d							
8	Fierce EZ	7.5	fl oz/a	A	PRE	100	94	100	86	100	13.0	62.3
	Raptor	5	fl oz/a	B	POST							
	Basagran	12.8	fl oz/a	B	POST							
	Flexstar	1	pt/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							
9	Fierce MTZ	16	fl oz/a	A	PRE	100	96	95	80	100	12.5	58.4
	Raptor	5	fl oz/a	B	POST							
	Cobra	10	fl oz/a	B	POST							
	Crop oil concentrate	1	% v/v	B	POST							
	AMS	2.5	lb/a	B	POST							

Michigan State University

Weed control in non-GMO soybean

Trial ID: SOY11-23

Protocol ID: SOY11-23 Location: Campus, C-16 Trial Year: 2023

Study Director: Sprague, Stiles Sponsor Contact:

Investigator: Christy Sprague

Rating Date	Jul-21-2023	Oct-23-2023	Oct-23-2023	Oct-23-2023	Oct-23-2023	Nov-1-2023	Nov-1-2023
Rating Type	control	control	control	control	control	moisture	yield
Rating Unit/Min/Max	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	%, 0, 100	bu/A, -, -
Crop Type, Code						C, GLXMA	C, GLXMA
Pest Code	ABUTH	ANGR	CHEAL	AMBEL	ABUTH		
Trt-Eval Interval	35 DA-C	129 DA-C	129 DA-C	129 DA-C	129 DA-C		
Number of Decimals	0	0	0	0	0	1	1

Trt No.	Treatment Name	Rate	Unit	Appl Code	Appl Timing	Jul-21-2023	Oct-23-2023	Oct-23-2023	Oct-23-2023	Oct-23-2023	Nov-1-2023	Nov-1-2023
18	Warrant Ultra	50 fl oz/a	A	A	PRE	98	95	96	81	98	14.0	58.8
	Metribuzin	6 oz/a	A	A	PRE							
	Synchrony XP	0.375 oz/a	B	B	POST							
	Cobra	10 fl oz/a	B	B	POST							
	SelectMax	12 fl oz/a	B	B	POST							
	Surfactant	0.25 % v/v	B	B	POST							
	AMS	2.5 lb/a	B	B	POST							
19	Matador-S	3 pt/a	A	A	PRE	96	99	92	74	100	12.8	59.7
	Cobra	10 fl oz/a	B	B	POST							
	SelectMax	12 fl oz/a	B	B	POST							
	Surfactant	0.25 % v/v	B	B	POST							
	AMS	2.5 lb/a	B	B	POST							
20	Up-Stage	21 fl oz/a	A	A	PRE	98	98	100	86	99	13.2	68.3
	Preview 2.1	25 fl oz/a	A	A	PRE							
	Ultra Blazer	1.5 pt/a	B	B	POST							
	Crop oil concentrate	2 pt/a	B	B	POST							
21	Up-Stage	21 fl oz/a	A	A	PRE	100	90	99	86	100	13.3	66.3
	Moccasin MTZ	42 fl oz/a	A	A	PRE							
	Basagran	1.6 pt/a	B	B	POST							
	Ultra Blazer	1 pt/a	B	B	POST							
	Crop oil concentrate	2 pt/a	B	B	POST							
	LSD P=.05					5.5	6.2	8.1	9.3	3.0	1.83	9.65
	Standard Deviation					3.9	4.4	5.7	6.6	2.1	1.30	6.82
	CV					4.17	4.89	6.17	8.37	2.21	10.09	11.55