Purdue University Weed Science

Sinate - Academic awareness

Trial ID: 20-WIN-AMVAC-Sinate Location: Winamac Trial Year: 2020
Protocol ID: 20C04H061 Investigator (Creator): Dr. Bryan Young
Project ID: 61 Study Director: Dr. Bryan Young
Sponsor Contact: Scott Akin

General Trial Information

Study Director: Dr. Bryan Young
Investigator: Dr. Bryan Young

Discipline: H herbicide
Trial Status: E established
ARM Trial Created On: Mar-21-2020
Initiation Date: May-1-2020
Completion Date: Aug-14-2020

Trial Location

City: Winamac **Country:** USA United States
State/Prov.: Indiana
Postal Code: 46996

Conducted Under GLP: No
Conducted Under GEP: No

Objectives:

Provide academic researchers access to topramezone + glufosinate premix to apply as label directions.

Contacts

Role: STYDIR study director
Study Director: Dr. Bryan Young
Organization: Purdue University
Address 1: 915 W. State Street
Country: USA United States **E-mail:** BryanYoung@purdue.edu
City: West Lafayette, IN **Postal Code:** 47907

Role: INVEST investigator
Investigator: Dr. Bryan Young

Role: SPONSR sponsor
Sponsor: Scott Akin

Crop Description

Crop 1: C ZEAMD Zea mays indentata Dent corn **BBCH Scale:** BCOR
Entry Date: Aug-3-2020 **Stage Scale:** BBCH
Variety: DKC 62-52 RIB
Planting Date: May-22-2020 **Planting Rate:** 32000 S/A
Depth: 2 IN
Rows per Plot: 4 **Planting Method:** SEEDED seeded
Row Spacing: 30 IN **Planting Equipment:** PP plot planter
Soil Moisture: NORMAL normal, adequate

Pest Description

Pest 1 Type: W **Code:** AMAPA Amaranthus palmeri **Entry Date:** Aug-14-2020
Common Name: Palmer amaranth **Stage Scale:** BBCH
Attributes: glyphosate-resistant

Pest 2 Type: W **Code:** DIGSA Digitaria sanguinalis **Entry Date:** Jun-17-2020
Common Name: crabgrass, large **Stage Scale:** BBCH

Pest 3 Type: W **Code:** CHEAL Chenopodium album **Entry Date:** Jun-17-2020
Common Name: lambsquarters, common **Stage Scale:** BBCH

Site and Design

Treated Plot Width: 6.67 FT **Site Type:** FIELD field
Treated Plot Length: 25 FT **Experimental Unit:** 4 ROW row
Treated Plot Area: 166.75 FT2 **Treatments:** 8 **Tillage Type:** NOTILL no-till
Replications: 4 **Study Design:** RACOBL Randomized Complete Block (RCB)

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Field Prep./Maintenance:
5/22/20: Applied 60 gal/A of 28% UAN (180 lb N/A) to trial area.
5/22/20: Blanket burndown of Gramoxone @ 4 pt/A plus NIS applied to trial area

Soil Description
Description Name: Winamac 17
% Sand: 83 **% OM:** 2.8 **Texture:** LS loamy sand
% Silt: 10 **pH:** 6.1
% Clay: 7 **CEC:** 9.4 **Fert. Level:** G good

Weather Conditions
Overall Moisture Conditions: BELNOR below normal
Closest Weather Station: Winamac **Distance:** 0.1 MI

No.	Date	Moisture Total	Unit
1.	May-28-2020	0.44	IN
2.	Jun-4-2020	0.01	IN
3.	Jun-9-2020	0.23	IN
4.	Jun-13-2020	0.04	IN
5.	Jun-20-2020	0.16	IN
6.	Jun-21-2020	0.05	IN
7.	Jun-22-2020	0.72	IN
8.	Jun-23-2020	0.02	IN
9.	Jun-24-2020	0.2	IN
10.	Jun-25-2020	0.01	IN
11.	Jun-26-2020	0.02	IN
12.	Jun-27-2020	2.29	IN
13.	Jun-30-2020	0.5	IN
14.	Jul-10-2020	0.71	IN
15.	Jul-11-2020	0.01	IN
16.	Jul-12-2020	0.03	IN
17.	Jul-15-2020	0.28	IN
18.	Jul-16-2020	1.12	IN
19.	Jul-19-2020	0.2	IN
20.	Jul-21-2020	0.39	IN
21.	Jul-22-2020	0.03	IN
22.	Jul-28-2020	0.01	IN
23.	Aug-1-2020	0.5	IN
24.	Aug-2-2020	0.68	IN
25.	Aug-3-2020	0.03	IN
26.	Aug-4-2020	0.01	IN
27.	Aug-7-2020	0.04	IN

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Application Description

	A
Application Date	Jun-15-2020
Appl. Start Time	9:50 AM
Appl. Stop Time	10:10 AM
Application Method	BROADC
Application Timing	POSPOS
Application Placement	BROFOL
Applied By	NS
Appl. Entry Date	Jun-17-2020
Air Temperature Start, Stop	72 72 F
% Relative Humidity Start, Stop	42 45
Wind Velocity+Dir. Start	3 MPH E
Wind Velocity+Dir. Stop	10 MPH E
Wind Velocity+Dir. Max	10 MPH E
Wet Leaves (Y/N)	N no
Soil Temperature	68 F
Soil Moisture	BELNOR
% Cloud Cover	0

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	ZEAMD BCOR
Stage Majority, Percent	34
Stage Minimum, Percent	34
Stage Maximum, Percent	35
Height Average	10 IN
Height Minimum, Maximum	8 11

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale	AMAPA W BBCH
Stage Majority, Percent	18
Stage Minimum, Percent	15
Stage Maximum, Percent	19
Height Average	3 IN
Height Minimum, Maximum	0.5 4
Density Average	3 FT2
Pest 2 Code, Type, Scale	DIGSA W BBCH
Stage Majority, Percent	16
Stage Minimum, Percent	15
Stage Maximum, Percent	19
Height Average	3 IN
Height Minimum, Maximum	1 5
Density Average	2 FT2
Pest 3 Code, Type, Scale	CHEAL W BBCH
Stage Majority, Percent	16
Stage Minimum, Percent	14
Stage Maximum, Percent	18
Height Average	2.5 IN
Height Minimum, Maximum	1 3
Density Average	1 FT2

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Application Equipment

	A
Equipment Type	SPRBAC
Operation Pressure	30 PSI
Nozzle Type	TEEJTU
Nozzle Size	11002
Nozzle Spacing	20 IN
Boom Length	6.67 FT
Carrier	WATER
Application Amount	15 GAL/AC
Mix Size	0.2497 GAL
Propellant	COMCO2

Context	Date	By	Notes
STATUS	Mar-21-2020	Dr. Bryan Young	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Jun-17-2020	Dr. Bryan Young	Automatically added by ARM: Trial Status updated to 'E' when Application Date entered.

Instructions:

Additional treatments can be added at the descretion of the researcher but no treatment in the protocol can be omitted or modified.

1. Crop type: LL corn only - acquire local variety.
2. Record crop tolerance and weed efficacy at 14 and 28 DAT.
3. Target problem grass and broadleaf weed species in your area.
4. Use nozzles that produce a medium to coarse droplet spectrum – DO NOT use nozzles required in dicamba resistant soybean that produce very large droplets.
5. Record all application details, crop/weed information, and environmental conditions in Protocol Description tabs/sections.Identify all weeds to exact species.
6. Photographs: Take photos of the 1st rep of the 14 DAT rating.
7. Yield: Not required.

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Pest Type												W Weed	W Weed
Pest Code												AMAPA	DIGSA
Pest Name												Palmer amaranth	large crabgrass
Crop Type, Code											C ZEAMD		
Crop Name											Dent corn		
Rating Date											Jun-29-2020	Jun-29-2020	Jun-29-2020
Rating Type											PHYGEN	CONTRO	CONTRO
Rating Unit											%	%	%
Number of Subsamples											1	1	1
Days After First/Last Applic.											14 14	14 14	14 14
Trt-Eval Interval											14 DA-A	14 DA-A	28 DA-A
Number of Decimals											0	0	0
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	1	2	3
1	NONTREATED									0 d	0 c	0 c
2	SINATE	2.57	LBA/GAL	SL	21	fl oz/a	0.42	lb ai/a	A	2 bcd	98 a	99 ab
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
3	SINATE	2.57	LBA/GAL	SL	21	fl oz/a	0.42	lb ai/a	A	5 a	99 a	99 a
	AATREX	4	LB/GAL	L	1	pt/a	0.5	lb ai/a	A			
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
4	SINATE	2.57	LBA/GAL	SL	28	fl oz/a	0.56	lb ai/a	A	3 ab	98 a	98 ab
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
5	IMPACT	2.8	LB/GAL	L	1	fl oz/a	0.022	lb ai/a	A	1 cd	97 a	98 b
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
6	LIBERTY 280 SL	2.34	LB/GAL	SL	32	fl oz/a	0.59	lb ai/a	A	3 abc	98 a	99 ab
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
7	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13	lb ae/a	32	fl oz/a	A	1 cd	89 b	99 a
	STATUS	56	%	WG	0.175	lb ai/a	5	oz/a	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
8	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13	lb ae/a	32	fl oz/a	A	3 abc	97 a	99 a
	STATUS	56	%	WG	0.175	lb ai/a	5	oz/a	A			
	AATREX	4	LB/GAL	L	1	pt/a	0.5	lb ai/a	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
LSD P=.05										2.4	4.3	1.1
Standard Deviation										1.6	2.9	0.7
CV										78.1	3.49	0.85
Grand Mean										2.1	84.4	86.2
Levene's F										1.216	5.527	3.54
Levene's Prob(F)										0.332	0.001*	0.009*
Rank X2										.	.	.
P(Rank X2)										.	.	.
Skewness										0.2327	-2.3115*	-2.3777*
Kurtosis										-1.67*	3.6902*	3.9002*
Replicate F										1.071	1.394	3.279
Replicate Prob(F)										0.3826	0.2722	0.0411
Treatment F										4.058	540.466	8939.500
Treatment Prob(F)										0.0058	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
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Trial Year: 2020
Protocol ID: 20C04H061
Investigator (Creator): Dr. Bryan Young
Project ID: 61
Study Director: Dr. Bryan Young
Sponsor Contact: Scott Akin

Pest Type	W Weed		W Weed
Pest Code	CHEAL		AMAPA
Pest Name	common lambsqua>		Palmer amaranth
Crop Type, Code		C ZEAMD	
Crop Name		Dent corn	
Rating Date	Jun-29-2020	Jul-13-2020	Jul-13-2020
Rating Type	CONTRO	PHYGEN	CONTRO
Rating Unit	%	%	%
Number of Subsamples	1	1	1
Days After First/Last Applic.	14 14	28 28	28 28
Trt-Eval Interval	14 DA-A	28 DA-A	14 DA-A
Number of Decimals	0	0	0

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	4	5	6
1	NONTREATED									0 b	0 -	0 c
2	SINATE	2.57	LBA/GAL	SL	21	fl oz/a	0.42	lb ai/a	A	99 a	0 -	97 ab
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
3	SINATE	2.57	LBA/GAL	SL	21	fl oz/a	0.42	lb ai/a	A	99 a	1 -	97 a
	AATREX	4	LB/GAL	L	1	pt/a	0.5	lb ai/a	A			
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
4	SINATE	2.57	LBA/GAL	SL	28	fl oz/a	0.56	lb ai/a	A	99 a	0 -	97 ab
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
5	IMPACT	2.8	LB/GAL	L	1	fl oz/a	0.022	lb ai/a	A	99 a	0 -	95 ab
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
6	LIBERTY 280 SL	2.34	LB/GAL	SL	32	fl oz/a	0.59	lb ai/a	A	99 a	0 -	94 b
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
7	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13	lb ae/a	32	fl oz/a	A	99 a	0 -	97 ab
	STATUS	56	%	WG	0.175	lb ai/a	5	oz/a	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
8	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13	lb ae/a	32	fl oz/a	A	99 a	0 -	95 ab
	STATUS	56	%	WG	0.175	lb ai/a	5	oz/a	A			
	AATREX	4	LB/GAL	L	1	pt/a	0.5	lb ai/a	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			

	4	5	6
LSD P=.05	.	0.5	2.8
Standard Deviation	0.0	0.4	1.9
CV	0.0	565.69	2.23
Grand Mean	86.6	0.1	84.0
Levene's F	0.00		1.881
Levene's Prob(F)	0.00*		0.118
Rank X2	.	.	.
P(Rank X2)	.	.	.
Skewness	-2.3809*	5.6569*	-2.3614*
Kurtosis	3.9094*	32.0*	3.853*
Replicate F	0.000	1.000	2.874
Replicate Prob(F)	1.0000	0.4123	0.0605
Treatment F	0.000	1.000	1309.607
Treatment Prob(F)	1.0000	0.4586	0.0001

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Sponsor Contact: Scott Akin

Pest Type								W Weed	W Weed	W Weed
Pest Code								DIGSA	CHEAL	AMAPA
Pest Name								large crabgrass	common lambsqua>	Palmer amaranth
Crop Type, Code										
Crop Name										
Rating Date								Jul-13-2020	Jul-13-2020	Jul-27-2020
Rating Type								CONTRO	CONTRO	CONTRO
Rating Unit								%	%	%
Number of Subsamples								1	1	1
Days After First/Last Applic.								28 28	28 28	42 42
Trt-Eval Interval								28 DA-A	14 DA-A	28 DA-A
Number of Decimals								0	0	0
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	7	8	9
1	NONTREATED									0 c	0 b	0 c
2	SINATE	2.57	LBA/GAL	SL	21	fl oz/a	0.42	lb ai/a	A	96 ab	99 a	97 a
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
3	SINATE	2.57	LBA/GAL	SL	21	fl oz/a	0.42	lb ai/a	A	94 b	99 a	97 a
	AATREX	4	LB/GAL	L	1	pt/a	0.5	lb ai/a	A			
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
4	SINATE	2.57	LBA/GAL	SL	28	fl oz/a	0.56	lb ai/a	A	96 ab	99 a	96 ab
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
5	IMPACT	2.8	LB/GAL	L	1	fl oz/a	0.022	lb ai/a	A	96 ab	99 a	95 ab
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
6	LIBERTY 280 SL	2.34	LB/GAL	SL	32	fl oz/a	0.59	lb ai/a	A	95 ab	99 a	93 b
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
7	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13	lb ae/a	32	fl oz/a	A	97 a	99 a	97 a
	STATUS	56	%	WG	0.175	lb ai/a	5	oz/a	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
8	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13	lb ae/a	32	fl oz/a	A	97 a	99 a	96 ab
	STATUS	56	%	WG	0.175	lb ai/a	5	oz/a	A			
	AATREX	4	LB/GAL	L	1	pt/a	0.5	lb ai/a	A			
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A			
LSD P=.05										2.9	.	3.4
Standard Deviation										1.9	0.0	2.3
CV										2.32	0.0	2.76
Grand Mean										83.8	86.6	83.8
Levene's F										5.227	0.00	0.779
Levene's Prob(F)										0.001*	0.00*	0.611
Rank X2										.	.	.
P(Rank X2)										.	.	.
Skewness										-2.3613*	-2.3809*	-2.3541*
Kurtosis										3.8529*	3.9094*	3.8306*
Replicate F										1.775	0.000	1.796
Replicate Prob(F)										0.1828	1.0000	0.1788
Treatment F										1215.019	0.000	857.627
Treatment Prob(F)										0.0001	1.0000	0.0001

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Pest Type									W Weed	W Weed
Pest Code									DIGSA	CHEAL
Pest Name									large crabgrass	common lambsqua>
Crop Type, Code										
Crop Name										
Rating Date									Jul-27-2020	Jul-27-2020
Rating Type									CONTRO	CONTRO
Rating Unit									%	%
Number of Subsamples									1	1
Days After First/Last Applic.									42 42	42 42
Trt-Eval Interval									14 DA-A	28 DA-A
Number of Decimals										
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Appl Code	10	11
1	NONTREATED									0.0 d	0.0 b
2	SINATE	2.57	LBA/GAL	SL	21	fl oz/a	0.42	lb ai/a	A	95.5 abc	96.8 a
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A		
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A		
3	SINATE	2.57	LBA/GAL	SL	21	fl oz/a	0.42	lb ai/a	A	93.3 bc	97.3 a
	AATREX	4	LB/GAL	L	1	pt/a	0.5	lb ai/a	A		
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A		
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A		
4	SINATE	2.57	LBA/GAL	SL	28	fl oz/a	0.56	lb ai/a	A	95.0 abc	97.3 a
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A		
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A		
5	IMPACT	2.8	LB/GAL	L	1	fl oz/a	0.022	lb ai/a	A	94.5 abc	97.5 a
	MSO ULTRA	100	%	L	1	% v/v	1	% v/v	A		
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A		
6	LIBERTY 280 SL	2.34	LB/GAL	SL	32	fl oz/a	0.59	lb ai/a	A	92.3 c	96.5 a
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A		
7	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13	lb ae/a	32	fl oz/a	A	96.8 a	98.0 a
	STATUS	56	%	WG	0.175	lb ai/a	5	oz/a	A		
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A		
8	ROUNDUP POWERMAX	4.5	LBAE/GAL	SL	1.13	lb ae/a	32	fl oz/a	A	96.5 ab	97.8 a
	STATUS	56	%	WG	0.175	lb ai/a	5	oz/a	A		
	AATREX	4	LB/GAL	L	1	pt/a	0.5	lb ai/a	A		
	AMSOL	3.4	LB/GAL	SL	3	lb ai/a	6	% v/v	A		
LSD P=.05										3.37	1.51
Standard Deviation										2.29	1.03
CV										2.76	1.21
Grand Mean										82.97	85.13
Levene's F										3.985	1.208
Levene's Prob(F)										0.005*	0.336
Rank X2										.	.
P(Rank X2)										.	.
Skewness										-2.3525*	-2.3766*
Kurtosis										3.8274*	3.8973*
Replicate F										1.068	0.236
Replicate Prob(F)										0.3839	0.8703
Treatment F										856.846	4467.304
Treatment Prob(F)										0.0001	0.0001

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Purdue University Weed Science

Sinate - Academic awareness

Trial ID: 20-WIN-AMVAC-Sinate Location: Winamac Trial Year: 2020
Protocol ID: 20C04H061 Investigator (Creator): Dr. Bryan Young
Project ID: 61 Study Director: Dr. Bryan Young
Sponsor Contact: Scott Akin

Pest Type
W, Weed = Weed or volunteer crop
Pest Code
AMAPA, Amaranthus palmeri, Palmer amaranth = US
DIGSA, Digitaria sanguinalis, large crabgrass = US
CHEAL, Chenopodium album, common lambsquarters = US
Crop Type, Code
C = EPPO species (Bayer) codes
ZEAMD, BCOR, Zea mays indentata, Dent corn = US
Rating Type
PHYGEN = phytotoxicity - general / injury
CONTRO = control / burndown or knockdown
Rating Unit
% = percent