University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Reps: 4 Rows: 6 by 25 feet
Appl. Amount: 15 GAL/AC Mix Size: 1.5 L (total for 4 plots; minimum=0.782 L, overage=346.2 mL)

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	Amt Product to Measure	Diluent	Rep 1	2	3	4
1	Untreated Check								-	101	203	307	404
2	Sinate 2.57 L	2.57	L	0.56	lb ai/a	A	POSPOS	21.79 mL/mx		102	204	302	405
	MSO	100	L	1	% v/v	A	POSPOS	15.0 mL/mx					
	AMS	34	L	2	lb/a	A	POSPOS		-				
3	Sinate 2.57 L	2.57	L	0.82	lb ai/a	A	POSPOS	31.9 mL/mx		103	207	305	408
	MSO	100	L	1	% v/v	A	POSPOS	15.0 mL/mx					
	AMS	34	L	2	lb/a	A	POSPOS		-				
4	Sinate 2.57 L	2.57	L	1.65	lb ai/a	A	POSPOS	64.2 mL/mx		104	201	308	401
	MSO	100	L	1	% v/v	A	POSPOS	15.0 mL/mx					
	AMS	34	L	2	lb/a	A	POSPOS		-				
5	ImpactZ 4.26 SC	4.26	SC	0.356	lb ai/a	A	POSPOS	8.356 mL/mx		105	202	304	407
	MSO	100	L	1	% v/v	A	POSPOS	15.0 mL/mx					
	AMS	34	L	2	lb/a	A	POSPOS		-				
6	ImpactZ 4.26 SC	4.26	SC	0.53	lb ai/a	A	POSPOS	12.44 mL/mx		106	208	303	402
	MSO	100	L	1	% v/v	A	POSPOS	15.0 mL/mx					
	AMS	34	L	2	lb/a	A	POSPOS		-				
7	ImpactZ 4.26 SC	4.26	SC	0.71	lb ai/a	A	POSPOS	16.66 mL/mx		107	206	301	406
	MSO	100	L	1	% v/v	A	POSPOS	15.0 mL/mx					
	AMS	34	L	3	lb/a	A	POSPOS		-				
8	ImpactZ 4.26 SC	4.26	SC	1.42	lb ai/a	A	POSPOS	33.33 mL/mx		108	205	306	403
	MSO	100	L	1	% v/v	A	POSPOS	15.0 mL/mx					
	AMS	34	L	2	lb/a	A	POSPOS		-				

Sort Order: Treatment

Trial Comments

LIQUID AMSOL WAS USED INSTEAD OF DRY AMS AT 2.0% V/V (30 MLS/MIX)

SINATE = TOPRAMEZONE (0.1 LBS/GAL) + GLUFOSINATE (2.47 LBS/GAL)
IMPACTZ = TOPRAMEZONE (0.26 LBS/GAL) + ATRAZINE (4 LBS/GAL)

MSO = MES 100 (DREXEL)

04/23/24: SUNRISE WAS 6:56 AM

11002AIXR TIPS WERE USED BUT AT 35-40 PSI, THESE TIPS DELIVER A COARSE DROPLET SIZE (ACCORDING TO TEEJET)

PLOT 106 AIR PRESSURE PROBLEMS????

HARVEST DATE: 08/29/24
HARVEST MOISTURE: 14.85%
YIELDS ADJUSTED TO 15.5%

GENERAL WEATHER COMMENTS THAT HAD AN INFLUENCE ON FINAL YIELD:
A: 21.75 INCHES OF RAINFALL FROM MARCH 1 TO MAY 31 (NORMAL IS 11.08".)
B: MAY 4: HAILSTORM
C: MAY 28-JUNE 26: NO RAINFALL

ANNUAL GRASSES: NON-UNIFORM MIXTURE OF TEXAS PANICUM, CRABGRASS, GOOSEGRASS, AND CROWFOOTGRASS.

SUMMARY:

1) GENERALLY, CORN INJURY WAS HIGHEST WHEN IMPACT Z WAS APPLIED AT RATES OF 16 OZ/A OR GREATER.

2) ON MAY 15 (22 DAT), THE FOLLOWING WEED CONTROL OBSERVATIONS WERE MADE:

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

A) ALL RATES OF SINATE AND IMPACTZ PROVIDED AT LEAST 92% CONTROL OF PALMER AMARANTH, CARPETWEED, AND ANNUAL GRASSES.

B) WILD RADISH CONTROL WAS AT LEAST 90% WITH ALL TREATMENTS OF SINATE AND IMPACTZ EXCEPT SINATE @ 28 OZ/A (86% CONTROL).

3) CORN YIELDS WERE NOT INFLUENCED BY ANY TREATMENT (P=0.1299)
,

General Trial Information

Study Director: Daniel Kunkel **Title:** NE Product Development Director
Investigator: Dan Kunkel **Title:** _____

Discipline: H herbicide
Status: E established **Usage/Type:** DEV Development/Registrat

ARM Trial Created On: Mar-22-24 **Meets All Objectives:** _ **Reliability:** _____
Initiation Date: _____ **Planned Completion Date:** Sep-15-23 **Interim Data Due:** _____
Completion Date: _____ **Last Possible Tour Visit:** _____

Trial Location

City: _____ **Country:** USA United States
State/Prov.: Georgia **County:** _____
Postal Code: _____ **Climate Zone:** _____

Latitude of LL Corner °: _____ _
Longitude of LL Corner °: _____ _
GPS Accuracy of LL Corner: _____ __
Altitude of LL Corner: _____ _____
Angle y-axis to North °: _____
Directions:

Keywords:

Regulations

Test Facility: _____
GEP Accreditation Number: _____
GEP Accreditation Link: _____
Certificate Expiration: _____
Conducted Under GLP: No **Official Trial ID:** _____
Conducted Under GEP: No **Official Protocol ID:** _____

No.	Destroyed?	Crop No.	Crop Code	Crop Stage	Part Destroyed	Explanation	Method	Destruction Date	Verified By
1.									

No.	Guideline	Discipline	Description
1.			

No.	Permit Number	Permit Description
1.		

Objectives:
Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety. Include new maximum and 2x rates. Evaluate weed control from Sinate at 41 oz compared to current maximum rate of 28oz and for ImpactZ of 16.0 oz vs 10.7 oz. Evaluate weeds on current labels and determine what changes can be made to the label following study.

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Materials and Methods

ADDITIONAL DETAILS AND COMMENTS:

1. Crop type: Field corn, LL

2. Use typical fertilizer and pest control programs on entire study area to ensure a healthy crop.

3. Evaluations See site information "data to collect" for details.

4. Record the following information in Protocol Description tabs/sections:
- Application details: Date, time, etc,
- Crop Information: Crop stage & height for each application, plant vigor etc to note crop health.
- Environmental Conditions: Air and soil temp, humidity.
- Soil Characteristics: Soil type/texture, pH, CEC, OM, etc.
- Deviations: Please describe deviations, errors and variables that may influence crop health.
- Rainfall/Irrigation, especially note rainfall for the 1st 4 weeks after application.

5. Protocol Deviations: Provide a written description and assessment of any difficulties, problems or unusual occurrences during the conduct of the trial. Examples include deviations from protocol and application problems or errors. Call your regional AMVAC product development manager as soon as possible if a significant deviation occurs, or if you have questions on problems encountered in the trial.

6. Product Samples: AMVAC will provide a samples of Sinate and ImpactZ. The cooperator is asked to provide MSO, and AMS. A liquid AMS such as N-Pak liquid AMS which provides 3.4 lb/gal of AMS may be used in place of dry product. Do not use AMS alternative water conditioners such as Quest or N-Tense. Please request this material from your regional AMVAC product development representative.

7. Digital photographs from at least one replicate in trial to show performance of all treatments at each crop injury and efficacy evaluation are requested. If injury greater than 10% is observed in a treatment, a few closeup photos should be taken showing symptoms observed. Please factor this time into the work plan and bid

TRIAL RESULTS AND DATA ARE CONFIDENTIAL TO AMVAC.
-Do not print, publish, or share data, results of study, or any contents of this protocol.

USE ONLY AMVAC ARM-GENERATED DAT FILE FOR THIS TRIAL.
-Do not generate .dat files from non-ARM protocol versions (Word or pdf files). A dat file will be provided to you.

REVISIONS
0.1 First Draft
0.2 Internal Review complete
1.0 review complete final protocol.

Results:

Conclusions:

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Contacts

Role: STYDIR study director
Study Director: Daniel Kunkel **Title:** NE Product Development Director
Organization: AMVAC **Org. Type:** _____
Address 1: 31 Silvers Lane **Phone No.:** _____ **Mobil**
Address 2: _____
Country: USA United States **E-mail:** DanielK@AMVAC.com
City: Plainsboro **State/Prov:** NJ **Postal**

Role: INVEST investigator
Investigator: Dan Kunkel **Title:** _____
Organization: AMVAC **Org. Type:** _____
Address 1: _____ **Phone No.:** _____ **Mobile**
Address 2: _____
Country: USA United States **E-mail:** _____
City: _____ **State/Prov:** _____ **Postal C**

Role: SPONSR sponsor
Sponsor: Greg Armel, Ph.D. **Title:** Product Development Manager, Sou
Organization: Amvac **Org. Type:** _____
Address 1: 1508 Jeremy Lane **Phone No.:** _____ **Mobile**
Address 2: _____
Country: USA United States **E-mail:** GregoryA@amvac.com
City: Rocky Mount **State/Prov:** NC **Postal C**

Role: COOPER cooperator
Cooperator: Eric P Prostko **Title:** Professor and Extension Weed Spe
Organization: University of Georgia **Org. Type:** University
Address 1: 4604 Research Way **Phone No.:** _____ **Mobile**
Address 2: _____
Country: USA United States **E-mail:** eprostko@uga.edu
City: Tifton **State/Prov:** GA **Postal C**

Role: _____
Contact Name 5: _____ **Title:** _____
Organization: _____ **Org. Type:** _____
Address 1: _____ **Phone No.:** _____
Address 2: _____
Country: ___ **E-mail:** _____
City: _____ **State/Prov:** _____

Crop Description

Crop 1: C ZEAMX Zea mays Corn **BBCH Scale:** E
Entry Date: Apr-2-24 **Stage Scale:** BBCH
Variety: PIONEER 2042 VYHR
Attributes: LL Corn

Seed Shape: _____ **Seed Size:** _____ _____
Perennial Age: _____ _____ **Perennial Height:** _____ __

Nursery Date: _____
Planting Date: Apr-1-24 **Planting Rate:** 33880 S/A
Depth: 1.5 IN
Rows per Plot: 2 **Planting Method:** PLANTD planted
Row Spacing: 36 IN **Planting Equipment:** VP vacuum planter
Spacing within Row: _____ _____ **Seed Bed:** FRIABL friable
Soil Temperature: _____ _ **Soil Moisture:** GOOD good

Emergence Date: _____

Harvest Date: _____ **Harvest Equipment:** _____
Moisture Meter: _____ **Harvested Width:** 6 FT
% Standard Moisture: 15.5 **Harvested Length:** 25 FT
Weighing Equipment: _____

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Pest Description

Pest 1 Type: W **Code:** PANTE Urochloa texana **Entry Date:** _____
Common Name: Texas panicum **Stage Scale:** BBCH
Attributes: _____ **Artificial Population:** _
Establishment Date: _____ **Time:** _____ **Stage at Establishment:** _____
Establishment Rate: _____ _____
Concentration: _____ _____
Establishment Method/Description: _____
Crop: __ _____ **Stage at Infestation:** _____

Pest 2 Type: W **Code:** AMAPA Amaranthus palmeri **Entry Date:** Mar-22-24
Common Name: Palmer amaranth **Stage Scale:** BBCH
Attributes: _____ **Artificial Population:** _
Establishment Date: _____ **Time:** _____ **Stage at Establishment:** _____
Establishment Rate: _____ _____
Concentration: _____ _____
Establishment Method/Description: _____
Crop: __ _____ **Stage at Infestation:** _____

Pest 3 Type: W **Code:** RAPRA Raphanus raphanistrum **Entry Date:** Mar-22-24
Common Name: Wild radish **Stage Scale:** BBCH
Attributes: _____ **Artificial Population:** _
Establishment Date: _____ **Time:** _____ **Stage at Establishment:** _____
Establishment Rate: _____ _____
Concentration: _____ _____
Establishment Method/Description: _____
Crop: __ _____ **Stage at Infestation:** _____

Pest 4 Type: W **Code:** CYPES Cyperus esculentus **Entry Date:** Apr-25-24
Common Name: Yellow nutsedge **Stage Scale:** BBCH
Attributes: _____ **Artificial Population:** _
Establishment Date: _____ **Time:** _____ **Stage at Establishment:** _____
Establishment Rate: _____ _____
Concentration: _____ _____
Establishment Method/Description: _____
Crop: __ _____ **Stage at Infestation:** _____

Pest 5 Type: W **Code:** ARAHY ARACHIS HYPOGAEA **Entry Date:** Apr-25-24
Common Name: VOLUNTEER PEANUT **Stage Scale:** BBCH
Attributes: _____ **Artificial Population:** _
Establishment Date: _____ **Time:** _____ **Stage at Establishment:** _____
Establishment Rate: _____ _____
Concentration: _____ _____
Establishment Method/Description: _____
Crop: __ _____ **Stage at Infestation:** _____

Pest 6 Type: W **Code:** MOLVE Mollugo verticillata **Entry Date:** May-2-24
Common Name: carpetweed **Stage Scale:** BBCH
Attributes: _____ **Artificial Population:** _
Establishment Date: _____ **Time:** _____ **Stage at Establishment:** _____
Establishment Rate: _____ _____
Concentration: _____ _____
Establishment Method/Description: _____
Crop: __ _____ **Stage at Infestation:** _____

Site and Design

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Treated Plot Width: 6 FT
Treated Plot Length: 25 FT
Treated Plot Area: 150.0 FT2
Replications: 4 **Treatments:** 8 **Plots:** 32
% Slope: _____

Site Type: FIELD field
Experimental Unit: 4 ROW row
Tillage Type: _____
Study Design: RACOBL Randomized Complete Block (RCB)

Distance between Blocks: 1 FT
Distance between 'Plot' Experimental Units: 0.5 FT

Trial Initiation Comments:

Location Quality:

No.	Previous Crop	Previous Pest Type	Previous Pest	Previous Pesticides	Year	Month	Comment
1.	PEANUT				2023		
2.							

Maintenance

No.	Date	Type	Maintenance Product Name	Form Conc	Form Unit	Form Type	Description	Rate	Rate Unit	Tank Mix (Yes/No)	Comment
1.											

Comment:

Field Prep./Maintenance:
PREPLANT: 1000 LBS/A 5-15-30
SIDEDRESS: 125-0-0-16: APRIL 24 AND MAY 1
AXILO BMZ @ 2 LBS/A (MICRO-NUTRIENTS): APRIL 30
SIDEDRESS: 83-0-0-10: MAY 13

Soil Description
Description Name: _____
% Sand: 94 **% OM:** 0.6 **Texture:** S sand
% Silt: 4 **% Carbon:** _____ **Soil Name:** DOTHAN LOAMY SAND
% Clay: 2 **% Lime:** _____ **Fert. Level:** G good
pH: 7.0 **CEC:** 2.8
Soil Drainage: _
Comment:

Additional Measured Elements

Date	Element	Quantity	Unit	Depth	Unit	Comment

Weather Conditions
Overall Moisture Conditions: _____ **Irrigation Type:** _____
Weather Station Name: _____ **Code:** _____ **Distance:** _____ __

No.	Date	Time	Moisture Total	Unit	Min Temp	Max Temp	Avg Temp	Temp Unit	Min % Relative Humidity	Max % Relative Humidity	Avg % Relative Humidity	Min Wind	Max Wind	Avg Win
1.														

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Comment:
04/03: 1.3" RAINFALL
04/10: 0.2" RAINFALL
04/10: 2.71" RAINFALL
04/11: 1.78" RAINFALL
04/21: 1" RAINFALL
04/26: 0.3" IRRIGATION
05/02: 0.5" IRRIGATION
05/04: 0.9" RAINFALL (HAIL)
05/09: 0.75" RAINFALL
05/10: 0.75" RAINFALL
05/13: 1.1" RAINFALL
05/17:0.96" RAINFALL
05/19: 0.69" RAINFALL
05/25: 0.44" RAINFALL
05/27: 0.62" RAINFALL
06/03: 0.35" IRRIGATION
06/05: 0.4" IRRIGATION
06/11: 0.45" IRRGATION
06/17: 0.4" IRRIGATION
06/27: 0.9" RAINFALL

Greenhouse Information

No.
1.

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Application Description

	A
Date	Apr-23-24
Start Time	
Stop Time	7:30 AM
Standard	
Method	BROADC
Timing	POSPOS
Placement	BROFOL
Mixed/Prepared By	EPP/NJS
Applied By	NJS
Entry Date	Apr-25-24
Air Temperature Start, Stop	, 46 F
% Relative Humidity Start, Stop	93,
Wind Velocity+Dir. Start	0 MPH,
Wind Velocity+Dir. Stop	0 MPH,
Wind Velocity+Dir. Max	0 MPH,
Wet Leaves (Y/N)	Y, yes
Soil Temperature	58 F
Soil Temperature Depth	
Soil Moisture	
Soil Surface Condition	
% Ground Cover	
% Cloud Cover	0
First Moisture Occurred On	
Time to First Moisture	
Amount of First Moisture	
Moisture 1 Week Before Appl.	
Moisture 6 Hours After Appl.	
Moisture 24 Hours After Appl.	
Moisture 1 Week After Appl.	
Problems with Application?	

Comment:

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Protocol Application Directions:
Plant a locally adapted LibertyLink (glufosinate tolerant) corn hybrid.

Running Checks: Running checks between plots are preferred but not required in this trial. Since weed pressure often varies across a trial, a running check provides an adjacent comparison for evaluations.

Water Volume and Source: Apply at 15 GPA. If water is known to have mineral content, report water hardness.

Application Timing: Make applications as follows:
Applic Code A: POSPOS - apply once weeds are 4-6" in height.

Application details:

- Leave a running untreated check strip beside all plots to gauge weed species and pressure present in the trial.
- Document application date, time, sprayer type, GPA, PSI, nozzle type and orifice size.
- Use spray nozzle tips which produce medium to coarse size droplets (approx. VMD range of 250 to 400 microns). **Do not use TeeJet AI, AIXR, TTI spray tips or any tips that produce very coarse (VC), extremely coarse (XC), or ultra coarse (UC) spray droplets.**

Environmental Conditions: Document air temp, wind speed & direction, humidity, & percent cloud cover at application. Be sure to document if weed species are actively growing or under stress (e.g. drought, excessive heat, etc.) at application.

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	ZEAMX, BCOR
Days after Emergence	
Stage Majority, Percent	V4,
Stage Minimum, Percent	
Stage Maximum, Percent	
Diameter Average	
Diameter Minimum, Maximum	
Height Average	8 IN
Height Minimum, Maximum	
Density Average	
Density Minimum, Maximum	
Coverage	

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale	PANTE, W, BBCH
Establishment Interval	
Stage Majority, Percent	
Stage Minimum, Percent	
Stage Maximum, Percent	

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Diameter Average	
Diameter Minimum, Maximum	
Height Average	IN
Height Minimum, Maximum	1, 3
Relative Density	
Density Average	
Density Minimum, Maximum	
Coverage	
Crop Part Attacked, Code	
Pest 2 Code, Type, Scale	AMAPA, W, BBCH
Establishment Interval	
Stage Majority, Percent	
Stage Minimum, Percent	
Stage Maximum, Percent	
Diameter Average	
Diameter Minimum, Maximum	
Height Average	IN
Height Minimum, Maximum	1, 3
Relative Density	
Density Average	
Density Minimum, Maximum	
Coverage	
Crop Part Attacked, Code	
Pest 3 Code, Type, Scale	RAPRA, W, BBCH
Establishment Interval	
Stage Majority, Percent	
Stage Minimum, Percent	
Stage Maximum, Percent	
Diameter Average	
Diameter Minimum, Maximum	
Height Average	IN
Height Minimum, Maximum	1, 4
Relative Density	
Density Average	
Density Minimum, Maximum	
Coverage	
Crop Part Attacked, Code	
Pest 4 Code, Type, Scale	CYPES, W, BBCH
Establishment Interval	
Stage Majority, Percent	
Stage Minimum, Percent	
Stage Maximum, Percent	
Diameter Average	
Diameter Minimum, Maximum	

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Height Average	IN
Height Minimum, Maximum	4, 6
Relative Density	
Density Average	
Density Minimum, Maximum	
Coverage	
Crop Part Attacked, Code	
Pest 5 Code, Type, Scale	ARAHY, W, BBCH
Establishment Interval	
Stage Majority, Percent	
Stage Minimum, Percent	
Stage Maximum, Percent	
Diameter Average	
Diameter Minimum, Maximum	
Height Average	
Height Minimum, Maximum	1, 2
Relative Density	
Density Average	
Density Minimum, Maximum	
Coverage	
Crop Part Attacked, Code	
Pest 6 Code, Type, Scale	MOLVE, W, BBCH
Establishment Interval	
Stage Majority, Percent	
Stage Minimum, Percent	
Stage Maximum, Percent	
Diameter Average	0.25 IN
Diameter Minimum, Maximum	
Height Average	
Height Minimum, Maximum	
Relative Density	
Density Average	
Density Minimum, Maximum	
Coverage	
Crop Part Attacked, Code	

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Application Equipment

	A
Equipment Name	FOLIAR
Equipment Type	BACCAI
Operation Pressure	35 PSI
Nozzle Model	
Nozzle Type	11002AIXR
Nozzle TradeName	
Nozzle Tip Size, Color	
Nozzle Spacing	20.0 IN
Nozzles/Row	
Nozzle Count	
Spray Quality	M, medium
Band Width	
Spray Swath	60.0 IN
% Coverage	
Boom ID	
Boom Length	60.0 IN
Boom Height	
Ground Speed	3.5 MPH
Carrier	WATER
Water Hardness (ppm CaCO3)	
Application Amount	15 GAL/AC
Mix Overage	30.0 %
Mix Size	1.5 L
Spray pH	
Propellant	COMCO2
Tank Mix (Y/N)	Y, yes

Equipment Comment:

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Equipment

	1.
Equipment Name	
Platform Type	
Platform Trade Name	
Platform Model	
Sensor Type	
Sensor Trade Name	
Sensor Model	
Resolution	
Sensor Height	
Sensor Speed	
Original Data Location	
Analysis Company	
Analysis Method	
Software Version	
Scale Trade Name	
Scale Model	

Treatment Appl. Comments

Trt No	Treatment Application Comment

Notes

No.	Context	Date	Time	By	Notes
1.	STATUS	Mar-20-24		Gregory Armel	Automatically added by ARM: Trial Status updated to 'S' during trial creation by (XAVARG).
2.	STATUS	Apr-2-24		Eric P. Prostko	Automatically added by ARM: Trial Status updated to 'E' when Planting Date was entered by (EGAPRE).
3.					

Deviations

No. 1: Date:_____ **By:**_____
Deviations:
Reasons:

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

SE Definitions

	1.	2.	3.
Rating Timing			
SE Name			
SE Description	% Phyto-General	% Weed Cotrol	
Part Rated	PLANT, C	PLANT, P	
Rating Type	PHYGEN	CONTRO	
Rating Unit	%	%	
Rating Min/Max/Interval	0, 100,	0, 100,	
Sample Size	1 PLOT	1 PLOT	
Collection Basis	1 PLOT	1 PLOT	
Reporting Basis	1 PLOT	1 PLOT	
Number of Subsamples			
Untreated Rating Type			
ARM Action Codes			
Pest Type, Code			
Crop Type, Code			
Required	REQUIR	REQUIR	

No.	Task	Comment
1.		

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Instructions:

ADDITIONAL DETAILS AND COMMENTS:

1. Crop type: Field corn, LL

2. Use typical fertilizer and pest control programs on entire study area to ensure a healthy crop.

3. Evaluations See site information "data to collect" for details.

4. Record the following information in Protocol Description tabs/sections:
- Application details: Date, time, etc,
- Crop Information: Crop stage & height for each application, plant vigor etc to note crop health.
- Environmental Conditions: Air and soil temp, humidity.
- Soil Characteristics: Soil type/texture, pH, CEC, OM, etc.
- Deviations: Please describe deviations, errors and variables that may influence crop health.
- Rainfall/Irrigation, especially note rainfall for the 1st 4 weeks after application.

5. Protocol Deviations: Provide a written description and assessment of any difficulties, problems or unusual occurrences during the conduct of the trial. Examples include deviations from protocol and application problems or errors. Call your regional AMVAC product development manager as soon as possible if a significant deviation occurs, or if you have questions on problems encountered in the trial.

6. Product Samples: AMVAC will provide a samples of Sinate and ImpactZ. The cooperator is asked to provide MSO, and AMS. A liquid AMS such as N-Pak liquid AMS which provides 3.4 lb/gal of AMS may be used in place of dry product. Do not use AMS alternative water conditioners such as Quest or N-Tense. Please request this material from your regional AMVAC product development representative.

7. Digital photographs from at least one replicate in trial to show performance of all treatments at each crop injury and efficacy evaluation are requested. If injury greater than 10% is observed in a treatment, a few closeup photos should be taken showing symptoms observed. Please factor this time into the work plan and bid

TRIAL RESULTS AND DATA ARE CONFIDENTIAL TO AMVAC.
-Do not print, publish, or share data, results of study, or any contents of this protocol.

USE ONLY AMVAC ARM-GENERATED DAT FILE FOR THIS TRIAL.
-Do not generate .dat files from non-ARM protocol versions (Word or pdf files). A dat file will be provided to you.

REVISIONS
0.1 First Draft
0.2 Internal Review complete
1.0 review complete final protocol.
Yield Required: N

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Geographic Area/Environmental Considerations:
Select a site with a history of moderate annual grass and broadleaf weed infestation as indicated in the pest description section. Target species may include grassses such as foxtail, crabgrass, barnyardgrass, goosegrass, shattercane, millet or field sandbur as well as broadleaf weeds such as Palmer amaranth, lambsquarters, velvetleaf, sunflower or waterhemp

SITE SELECTION NOTE: Treatments 4, 6, 7 and 8 contain elevated topramezone use rates (equivalent to Impact at 2.9 to 4.0 oz/acre) which could injure sensitive rotational crops the year following application. Consult the Impact label for rotational crop guidance.

Cropping Considerations:
Plant a locally adapted LibertyLink (glufosinate tolerant) corn hybrid.

Data to Collect:
Assess general percent crop injury (PHYGEN) using 0 to 100% scale at 7, 14 and 28 days after POSPOS application code A.

Evaluate percent weed control using 0 to 100% scale at 7, 14, and 28 after POSPOS application code A for each weed species consistently present throughout the trial. Do not provide an all inclusive weed control rating for annual grasses or annual broadleaf weeds, rate each weed spp present.

Crop yield is not requested.

Statistical Analysis:
Not requested.

Final data should be submitted to AMVAC by August 30, 2024

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	1	2	3
	Rating Date							Apr-30-24	Apr-30-24	Apr-30-24
	Rating Type							stunting	bleaching	necrosis
	Part Rated							PLANT, C	PLANT, C	PLANT, C
	SE Description							% Phyto-General	% Phyto-General	% Phyto-General
	Crop Name							Corn	Corn	Corn
	Crop Type, Code							C, ZEAMX	C, ZEAMX	C, ZEAMX
1	Untreated Check							0.0 d	0.0 f	0.0 d
2	Sinate 2.57 L	2.57	L	0.56	lb ai/a	A	POSPOS	2.5 cd	5.0 e	0.0 d
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
3	Sinate 2.57 L	2.57	L	0.82	lb ai/a	A	POSPOS	2.5 cd	7.5 de	0.0 d
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
4	Sinate 2.57 L	2.57	L	1.65	lb ai/a	A	POSPOS	5.0 c	10.0 d	0.0 d
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
5	ImpactZ 4.26 SC	4.26	SC	0.356	lb ai/a	A	POSPOS	5.0 c	15.0 c	0.0 d
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
6	ImpactZ 4.26 SC	4.26	SC	0.53	lb ai/a	A	POSPOS	11.3 b	17.5 bc	3.8 c
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
7	ImpactZ 4.26 SC	4.26	SC	0.71	lb ai/a	A	POSPOS	11.3 b	20.0 b	8.8 b
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	3	lb/a	A	POSPOS			
8	ImpactZ 4.26 SC	4.26	SC	1.42	lb ai/a	A	POSPOS	21.3 a	27.5 a	16.3 a
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
	LSD P=.10							4.28	2.86	1.95
	Standard Deviation							3.52	2.35	1.60
	CV							47.93	18.31	44.58
	Grand Mean							7.34	12.81	3.59
	Bartlett's X2^							11.216	20.307*	34.267*
	P(Bartlett's X2)							0.129	0.005*	0.00*
	Replicate F							2.586	0.568	0.304
	Replicate Prob(F)							0.0803	0.6425	0.8219
	Treatment F							15.486	57.649	55.957
	Treatment Prob(F)							0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.10, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) or mean separation letters for columns 11,18 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	4	5	6	7
	Rating Date							Apr-30-24	Apr-30-24	Apr-30-24	Apr-30-24
	Rating Type							CONTRO	CONTRO	CONTRO	CONTRO
	Part Rated							PLANT, P	PLANT, P	PLANT, P	PLANT, P
	SE Description							% Weed Control	% Weed Cotrol	% Weed Cotrol	% Weed Control
	Crop Name							Palmer amaranth	wild radish	annaul grasses	carpetweed
	Crop Type, Code							C, AMAPA	C, RAPRA	C, AGRASS	C, MOLVE
1	Untreated Check							0.0 c	0.0 d	0.0 c	0.0 c
2	Sinate 2.57 L	2.57	L	0.56	lb ai/a	A	POSPOS	98.0 b	66.3 c	96.0 b	75.5 b
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
3	Sinate 2.57 L	2.57	L	0.82	lb ai/a	A	POSPOS	99.0 a	83.5 b	96.0 b	99.0 a
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
4	Sinate 2.57 L	2.57	L	1.65	lb ai/a	A	POSPOS	99.0 a	93.3 a	95.8 b	99.0 a
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
5	ImpactZ 4.26 SC	4.26	SC	0.356	lb ai/a	A	POSPOS	99.0 a	98.0 a	99.0 a	99.0 a
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
6	ImpactZ 4.26 SC	4.26	SC	0.53	lb ai/a	A	POSPOS	99.0 a	99.0 a	99.0 a	99.0 a
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
7	ImpactZ 4.26 SC	4.26	SC	0.71	lb ai/a	A	POSPOS	99.0 a	99.0 a	99.0 a	99.0 a
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	3	lb/a	A	POSPOS				
8	ImpactZ 4.26 SC	4.26	SC	1.42	lb ai/a	A	POSPOS	99.0 a	99.0 a	99.0 a	99.0 a
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
	LSD P=.10							0.86	6.37	2.05	19.09
	Standard Deviation							0.71	5.24	1.68	15.69
	CV							0.82	6.57	1.97	18.75
	Grand Mean							86.50	79.75	85.47	83.69
	Bartlett's X2^							31.135*	15.863*	12.612	31.135*
	P(Bartlett's X2)							0.00*	0.026*	0.082	0.00*
	Replicate F							1.000	2.262	2.279	1.000
	Replicate Prob(F)							0.4123	0.1109	0.1090	0.4123
	Treatment F							9773.714	170.413	1689.682	19.682
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.10, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) or mean separation letters for columns 11,18 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	8	9	10	11
	Rating Date							May-7-24	May-7-24	May-7-24	May-7-24
	Rating Type							STUNTING	BLEACHING	NECROSIS	CONTROL
	Part Rated							PLANT, -	PLANT, -	PLANT, -	
	SE Description										
	Crop Name							Corn	Corn	Corn	PALMER AMARANTH
	Crop Type, Code							C, ZEAMX	C, ZEAMX	C, ZEAMX	C, AMAPA
1	Untreated Check							0.0 d	0.0 d	0.0 c	0.0 na
2	Sinate 2.57 L	2.57	L	0.56	lb ai/a	A	POSPOS	1.3 d	0.0 d	0.0 c	99.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
3	Sinate 2.57 L	2.57	L	0.82	lb ai/a	A	POSPOS	0.0 d	1.3 cd	0.0 c	99.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
4	Sinate 2.57 L	2.57	L	1.65	lb ai/a	A	POSPOS	3.8 cd	0.0 d	0.0 c	99.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
5	ImpactZ 4.26 SC	4.26	SC	0.356	lb ai/a	A	POSPOS	1.3 d	2.5 bc	0.0 c	99.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
6	ImpactZ 4.26 SC	4.26	SC	0.53	lb ai/a	A	POSPOS	7.5 bc	3.8 b	2.5 b	99.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
7	ImpactZ 4.26 SC	4.26	SC	0.71	lb ai/a	A	POSPOS	8.8 b	6.3 a	3.8 b	99.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	3	lb/a	A	POSPOS				
8	ImpactZ 4.26 SC	4.26	SC	1.42	lb ai/a	A	POSPOS	16.3 a	7.5 a	11.3 a	99.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
	LSD P=.10							4.91	2.45	1.82	.
	Standard Deviation							4.03	2.01	1.49	0.00
	CV							83.24	75.81	68.3	0.0
	Grand Mean							4.84	2.66	2.19	86.63
	Bartlett's X2^							13.40	6.818	8.725	.
	P(Bartlett's X2)							0.063	0.448	0.273	.
	Replicate F							2.611	1.734	2.333	NaN
	Replicate Prob(F)							0.0783	0.1907	0.1032	NaN
	Treatment F							7.957	8.560	27.800	NaN
	Treatment Prob(F)							0.0001	0.0001	0.0001	NaN

Means followed by same letter or symbol do not significantly differ (P=.10, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) or mean separation letters for columns 11,18 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	12	13	14
Rating Date								May-7-24	May-7-24	May-7-24
Rating Type								CONTROL	CONTROL	CONTROL
Part Rated										
SE Description										
Crop Name								WILD RADISH	ANNUAL GRASSES	CARPETWEED
Crop Type, Code								C, RAPRA	C, AGRASS	C, MOLVE
1	Untreated Check							0.0 c	0.0 c	0.0 c
2	Sinate 2.57 L	2.57	L	0.56	lb ai/a	A	POSPOS	93.5 b	92.3 b	90.0 b
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
3	Sinate 2.57 L	2.57	L	0.82	lb ai/a	A	POSPOS	94.5 b	98.0 a	97.0 a
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
4	Sinate 2.57 L	2.57	L	1.65	lb ai/a	A	POSPOS	98.0 a	98.0 a	98.0 a
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
5	ImpactZ 4.26 SC	4.26	SC	0.356	lb ai/a	A	POSPOS	98.0 a	98.0 a	99.0 a
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
6	ImpactZ 4.26 SC	4.26	SC	0.53	lb ai/a	A	POSPOS	96.0 ab	97.0 a	98.0 a
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
7	ImpactZ 4.26 SC	4.26	SC	0.71	lb ai/a	A	POSPOS	99.0 a	99.0 a	99.0 a
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	3	lb/a	A	POSPOS			
8	ImpactZ 4.26 SC	4.26	SC	1.42	lb ai/a	A	POSPOS	99.0 a	99.0 a	99.0 a
	MSO	100	L	1	% v/v	A	POSPOS			
	AMS	34	L	2	lb/a	A	POSPOS			
LSD P=.10								3.28	2.76	2.30
Standard Deviation								2.70	2.27	1.89
CV								3.18	2.67	2.22
Grand Mean								84.75	85.16	85.00
Bartlett's X2^								16.074*	25.80*	12.391
P(Bartlett's X2)								0.024*	0.001*	0.088
Replicate F								0.974	0.280	1.428
Replicate Prob(F)								0.4238	0.8389	0.2627
Treatment F								647.175	921.021	1335.652
Treatment Prob(F)								0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.10, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) or mean separation letters for columns 11,18 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	15	16	17	18
Rating Date								May-7-24	May-15-24	May-15-24	May-15-24
Rating Type								CONTROL	STUNTING	BLEACHING	NECROSIS
Part Rated											
SE Description											
Crop Name								VOLUNTEER PEANUT	Flour corn	Flour corn	Flour corn
Crop Type, Code								C, ARAHY	C, ZEAMA	C, ZEAMA	C, ZEAMA
1	Untreated Check							0.0 c	0.0 c	0.0 -	0.0 na
2	Sinate 2.57 L	2.57	L	0.56	lb ai/a	A	POSPOS	88.8 b	2.5 bc	1.3 -	0.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
3	Sinate 2.57 L	2.57	L	0.82	lb ai/a	A	POSPOS	87.3 b	2.5 bc	1.3 -	0.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
4	Sinate 2.57 L	2.57	L	1.65	lb ai/a	A	POSPOS	90.8 ab	7.5 b	2.5 -	0.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
5	ImpactZ 4.26 SC	4.26	SC	0.356	lb ai/a	A	POSPOS	87.5 b	2.5 bc	0.0 -	0.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
6	ImpactZ 4.26 SC	4.26	SC	0.53	lb ai/a	A	POSPOS	89.8 ab	8.8 b	0.0 -	0.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
7	ImpactZ 4.26 SC	4.26	SC	0.71	lb ai/a	A	POSPOS	90.0 ab	5.0 bc	2.5 -	0.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	3	lb/a	A	POSPOS				
8	ImpactZ 4.26 SC	4.26	SC	1.42	lb ai/a	A	POSPOS	98.0 a	16.3 a	1.3 -	0.0 na
	MSO	100	L	1	% v/v	A	POSPOS				
	AMS	34	L	2	lb/a	A	POSPOS				
LSD P=.10								8.84	6.74	2.86	.
Standard Deviation								7.26	5.54	2.35	0.00
CV								9.19	98.43	215.26	0.0
Grand Mean								79.00	5.63	1.09	0.00
Bartlett's X2^								5.318	11.205	7.36	.
P(Bartlett's X2)								0.621	0.13	0.392	.
Replicate F								2.618	1.019	2.396	NaN
Replicate Prob(F)								0.0778	0.4040	0.0969	NaN
Treatment F								78.126	3.495	0.785	NaN
Treatment Prob(F)								0.0001	0.0121	0.6072	NaN

Means followed by same letter or symbol do not significantly differ (P=.10, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) or mean separation letters for columns 11,18 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.
Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	19	20	21	22	23	24
	Rating Date							May-15-24	May-15-24	May-15-24	May-15-24	Aug-29-24	Aug-29-24
	Rating Type							CONTROL	CONTROL	CONTROL	CONTROL	YIELD	YIELD
	Part Rated												
	SE Description												
	Crop Name											Flour corn	Flour corn
	Crop Type, Code											C, ZEAMA	C, ZEAMA
1	Untreated Check							0.0 c	0.0 d	0.0 c	0.0 d	31.5 -	164.6 -
2	Sinate 2.57 L	2.57	L	0.56	lb ai/a	A	POSPOS	94.5 b	86.3 c	92.5 b	95.0 c	36.8 -	192.0 -
	MSO	100	L	1	% v/v	A	POSPOS						
	AMS	34	L	2	lb/a	A	POSPOS						
3	Sinate 2.57 L	2.57	L	0.82	lb ai/a	A	POSPOS	99.0 a	90.0 b	98.0 a	96.0 b	37.3 -	194.7 -
	MSO	100	L	1	% v/v	A	POSPOS						
	AMS	34	L	2	lb/a	A	POSPOS						
4	Sinate 2.57 L	2.57	L	1.65	lb ai/a	A	POSPOS	99.0 a	97.0 a	96.8 ab	99.0 a	32.0 -	167.2 -
	MSO	100	L	1	% v/v	A	POSPOS						
	AMS	34	L	2	lb/a	A	POSPOS						
5	ImpactZ 4.26 SC	4.26	SC	0.356	lb ai/a	A	POSPOS	99.0 a	93.8 a	93.5 ab	99.0 a	40.0 -	209.0 -
	MSO	100	L	1	% v/v	A	POSPOS						
	AMS	34	L	2	lb/a	A	POSPOS						
6	ImpactZ 4.26 SC	4.26	SC	0.53	lb ai/a	A	POSPOS	95.8 ab	96.0 a	92.3 b	99.0 a	28.8 -	150.2 -
	MSO	100	L	1	% v/v	A	POSPOS						
	AMS	34	L	2	lb/a	A	POSPOS						
7	ImpactZ 4.26 SC	4.26	SC	0.71	lb ai/a	A	POSPOS	99.0 a	95.0 a	94.8 ab	99.0 a	36.3 -	189.4 -
	MSO	100	L	1	% v/v	A	POSPOS						
	AMS	34	L	3	lb/a	A	POSPOS						
8	ImpactZ 4.26 SC	4.26	SC	1.42	lb ai/a	A	POSPOS	99.0 a	96.0 a	98.0 a	99.0 a	30.8 -	160.7 -
	MSO	100	L	1	% v/v	A	POSPOS						
	AMS	34	L	2	lb/a	A	POSPOS						
	LSD P=.10							3.49	3.47	4.57	0.86	7.01	36.61
	Standard Deviation							2.87	2.86	3.76	0.71	5.76	30.09
	CV							3.35	3.49	4.51	0.82	16.86	16.86
	Grand Mean							85.66	81.75	83.22	85.75	34.16	178.49
	Bartlett's X2^							35.189*	16.519*	9.05	31.135*	9.728	9.728
	P(Bartlett's X2)							0.00*	0.021*	0.249	0.00*	0.205	0.205
	Replicate F							0.509	0.255	0.516	1.000	5.034	5.034
	Replicate Prob(F)							0.6803	0.8566	0.6758	0.4123	0.0088	0.0088
	Treatment F							582.644	541.638	321.929	9624.571	1.851	1.851
	Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.1299	0.1299

Means followed by same letter or symbol do not significantly differ (P=.10, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) or mean separation letters for columns 11,18 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Rating Type
CONTRO = control / burndown or knockdown
YIELD = yield
Part Rated
PLANT = plant
C = Crop is Part Rated
P = Pest is Part Rated
Crop Type, Code
C = EPPO species (Bayer) codes
ZEAMX, BCOR, Zea mays, Corn = US
ZEAMA, BCOR, Zea mays amylacea, Flour corn = US
ARM Action Codes
TY1 = 5.2256044*[23]

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	Plot	Apr-30-24 stunting PLANT, C % Phyto-General Corn C, ZEAMX	Apr-30-24 bleaching PLANT, C % Phyto-General Corn C, ZEAMX	Apr-30-24 necrosis PLANT, C % Phyto-General Corn C, ZEAMX
									1	2	3
1	Untreated Check							101	0.0	0.0	0.0
								203	0.0	0.0	0.0
								307	0.0	0.0	0.0
								404	0.0	0.0	0.0
								Mean =	0.0	0.0	0.0
2	Sinate 2.57 L	2.57	L	0.56	lb ai/a	A	POSPOS	102	5.0	5.0	0.0
	MSO	100	L	1	% v/v	A	POSPOS	204	0.0	5.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	302	5.0	5.0	0.0
								405	0.0	5.0	0.0
								Mean =	2.5	5.0	0.0
3	Sinate 2.57 L	2.57	L	0.82	lb ai/a	A	POSPOS	103	5.0	10.0	0.0
	MSO	100	L	1	% v/v	A	POSPOS	207	0.0	5.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	305	5.0	5.0	0.0
								408	0.0	10.0	0.0
								Mean =	2.5	7.5	0.0
4	Sinate 2.57 L	2.57	L	1.65	lb ai/a	A	POSPOS	104	10.0	15.0	0.0
	MSO	100	L	1	% v/v	A	POSPOS	201	0.0	10.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	308	10.0	10.0	0.0
								401	0.0	5.0	0.0
								Mean =	5.0	10.0	0.0
5	ImpactZ 4.26 SC	4.26	SC	0.356	lb ai/a	A	POSPOS	105	5.0	15.0	0.0
	MSO	100	L	1	% v/v	A	POSPOS	202	0.0	15.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	304	10.0	15.0	0.0
								407	5.0	15.0	0.0
								Mean =	5.0	15.0	0.0
6	ImpactZ 4.26 SC	4.26	SC	0.53	lb ai/a	A	POSPOS	106	10.0	20.0	5.0
	MSO	100	L	1	% v/v	A	POSPOS	208	15.0	15.0	5.0
	AMS	34	L	2	lb/a	A	POSPOS	303	10.0	20.0	5.0
								402	10.0	15.0	0.0
								Mean =	11.3	17.5	3.8
7	ImpactZ 4.26 SC	4.26	SC	0.71	lb ai/a	A	POSPOS	107	10.0	20.0	10.0
	MSO	100	L	1	% v/v	A	POSPOS	206	10.0	20.0	10.0
	AMS	34	L	3	lb/a	A	POSPOS	301	10.0	20.0	5.0
								406	15.0	20.0	10.0
								Mean =	11.3	20.0	8.8
8	ImpactZ 4.26 SC	4.26	SC	1.42	lb ai/a	A	POSPOS	108	30.0	25.0	15.0
	MSO	100	L	1	% v/v	A	POSPOS	205	20.0	30.0	15.0
	AMS	34	L	2	lb/a	A	POSPOS	306	20.0	25.0	15.0
								403	15.0	30.0	20.0
								Mean =	21.3	27.5	16.3

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	Plot	Apr-30-24 CONTRO PLANT, P % Weed Control Palmer amaranth C, AMAPA	Apr-30-24 CONTRO PLANT, P % Weed Cotrol wild radish C, RAPRA	Apr-30-24 CONTRO PLANT, P % Weed Cotrol annaul grasses C, AGRASS
									4	5	6
1	Untreated Check							101	0.0	0.0	0.0
								203	0.0	0.0	0.0
								307	0.0	0.0	0.0
								404	0.0	0.0	0.0
								Mean =	0.0	0.0	0.0
2	Sinate 2.57 L	2.57 L		0.56	lb ai/a	A	POSPOS	102	95.0	65.0	95.0
	MSO	100 L		1	% v/v	A	POSPOS	204	99.0	70.0	95.0
	AMS	34 L		2	lb/a	A	POSPOS	302	99.0	65.0	95.0
								405	99.0	65.0	99.0
								Mean =	98.0	66.3	96.0
3	Sinate 2.57 L	2.57 L		0.82	lb ai/a	A	POSPOS	103	99.0	85.0	95.0
	MSO	100 L		1	% v/v	A	POSPOS	207	99.0	99.0	95.0
	AMS	34 L		2	lb/a	A	POSPOS	305	99.0	85.0	95.0
								408	99.0	65.0	99.0
								Mean =	99.0	83.5	96.0
4	Sinate 2.57 L	2.57 L		1.65	lb ai/a	A	POSPOS	104	99.0	90.0	95.0
	MSO	100 L		1	% v/v	A	POSPOS	201	99.0	99.0	90.0
	AMS	34 L		2	lb/a	A	POSPOS	308	99.0	99.0	99.0
								401	99.0	85.0	99.0
								Mean =	99.0	93.3	95.8
5	ImpactZ 4.26 SC	4.26 SC		0.356	lb ai/a	A	POSPOS	105	99.0	95.0	99.0
	MSO	100 L		1	% v/v	A	POSPOS	202	99.0	99.0	99.0
	AMS	34 L		2	lb/a	A	POSPOS	304	99.0	99.0	99.0
								407	99.0	99.0	99.0
								Mean =	99.0	98.0	99.0
6	ImpactZ 4.26 SC	4.26 SC		0.53	lb ai/a	A	POSPOS	106	99.0	99.0	99.0
	MSO	100 L		1	% v/v	A	POSPOS	208	99.0	99.0	99.0
	AMS	34 L		2	lb/a	A	POSPOS	303	99.0	99.0	99.0
								402	99.0	99.0	99.0
								Mean =	99.0	99.0	99.0
7	ImpactZ 4.26 SC	4.26 SC		0.71	lb ai/a	A	POSPOS	107	99.0	99.0	99.0
	MSO	100 L		1	% v/v	A	POSPOS	206	99.0	99.0	99.0
	AMS	34 L		3	lb/a	A	POSPOS	301	99.0	99.0	99.0
								406	99.0	99.0	99.0
								Mean =	99.0	99.0	99.0
8	ImpactZ 4.26 SC	4.26 SC		1.42	lb ai/a	A	POSPOS	108	99.0	99.0	99.0
	MSO	100 L		1	% v/v	A	POSPOS	205	99.0	99.0	99.0
	AMS	34 L		2	lb/a	A	POSPOS	306	99.0	99.0	99.0
								403	99.0	99.0	99.0
								Mean =	99.0	99.0	99.0

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	Plot	Apr-30-24 CONTRO PLANT, P % Weed Control carpetweed C, MOLVE	May-7-24 STUNTING PLANT, - Corn C, ZEAMX	May-7-24 BLEACHING PLANT, - Corn C, ZEAMX	May-7-24 NECROSIS PLANT, - Corn C, ZEAMX
	Rating Date								Apr-30-24	May-7-24	May-7-24	May-7-24
	Rating Type								CONTRO	STUNTING	BLEACHING	NECROSIS
	Part Rated								PLANT, P	PLANT, -	PLANT, -	PLANT, -
	SE Description								% Weed Control			
	Crop Name								carpetweed	Corn	Corn	Corn
	Crop Type, Code								C, MOLVE	C, ZEAMX	C, ZEAMX	C, ZEAMX
									7	8	9	10
1	Untreated Check							101	0.0	0.0	0.0	0.0
								203	0.0	0.0	0.0	0.0
								307	0.0	0.0	0.0	0.0
								404	0.0	0.0	0.0	0.0
								Mean =	0.0	0.0	0.0	0.0
2	Sinate 2.57 L	2.57	L	0.56	lb ai/a	A	POSPOS	102	95.0	0.0	0.0	0.0
	MSO	100	L	1	% v/v	A	POSPOS	204	99.0	0.0	0.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	302	99.0	5.0	0.0	0.0
								405	9.0	0.0	0.0	0.0
								Mean =	75.5	1.3	0.0	0.0
3	Sinate 2.57 L	2.57	L	0.82	lb ai/a	A	POSPOS	103	99.0	0.0	0.0	0.0
	MSO	100	L	1	% v/v	A	POSPOS	207	99.0	0.0	5.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	305	99.0	0.0	0.0	0.0
								408	99.0	0.0	0.0	0.0
								Mean =	99.0	0.0	1.3	0.0
4	Sinate 2.57 L	2.57	L	1.65	lb ai/a	A	POSPOS	104	99.0	0.0	0.0	0.0
	MSO	100	L	1	% v/v	A	POSPOS	201	99.0	0.0	0.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	308	99.0	15.0	0.0	0.0
								401	99.0	0.0	0.0	0.0
								Mean =	99.0	3.8	0.0	0.0
5	ImpactZ 4.26 SC	4.26	SC	0.356	lb ai/a	A	POSPOS	105	99.0	0.0	0.0	0.0
	MSO	100	L	1	% v/v	A	POSPOS	202	99.0	0.0	5.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	304	99.0	5.0	5.0	0.0
								407	99.0	0.0	0.0	0.0
								Mean =	99.0	1.3	2.5	0.0
6	ImpactZ 4.26 SC	4.26	SC	0.53	lb ai/a	A	POSPOS	106	99.0	5.0	5.0	5.0
	MSO	100	L	1	% v/v	A	POSPOS	208	99.0	15.0	5.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	303	99.0	10.0	5.0	5.0
								402	99.0	0.0	0.0	0.0
								Mean =	99.0	7.5	3.8	2.5
7	ImpactZ 4.26 SC	4.26	SC	0.71	lb ai/a	A	POSPOS	107	99.0	10.0	5.0	5.0
	MSO	100	L	1	% v/v	A	POSPOS	206	99.0	10.0	5.0	5.0
	AMS	34	L	3	lb/a	A	POSPOS	301	99.0	10.0	10.0	5.0
								406	99.0	5.0	5.0	0.0
								Mean =	99.0	8.8	6.3	3.8
8	ImpactZ 4.26 SC	4.26	SC	1.42	lb ai/a	A	POSPOS	108	99.0	25.0	5.0	10.0
	MSO	100	L	1	% v/v	A	POSPOS	205	99.0	15.0	5.0	10.0
	AMS	34	L	2	lb/a	A	POSPOS	306	99.0	15.0	10.0	15.0
								403	99.0	10.0	10.0	10.0
								Mean =	99.0	16.3	7.5	11.3

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	Plot	May-7-24 CONTROL PALMER AMARANTH C, AMAPA 11	May-7-24 CONTROL WILD RADISH C, RAPRA 12	May-7-24 CONTROL ANNUAL GRASSES C, AGRASS 13
1	Untreated Check							101	0.0	0.0	0.0
								203	0.0	0.0	0.0
								307	0.0	0.0	0.0
								404	0.0	0.0	0.0
								Mean =	0.0	0.0	0.0
2	Sinate 2.57 L	2.57 L		0.56	lb ai/a	A	POSPOS	102	99.0	99.0	99.0
	MSO	100 L		1	% v/v	A	POSPOS	204	99.0	90.0	90.0
	AMS	34 L		2	lb/a	A	POSPOS	302	99.0	95.0	90.0
								405	99.0	90.0	90.0
								Mean =	99.0	93.5	92.3
3	Sinate 2.57 L	2.57 L		0.82	lb ai/a	A	POSPOS	103	99.0	90.0	95.0
	MSO	100 L		1	% v/v	A	POSPOS	207	99.0	99.0	99.0
	AMS	34 L		2	lb/a	A	POSPOS	305	99.0	99.0	99.0
								408	99.0	90.0	99.0
								Mean =	99.0	94.5	98.0
4	Sinate 2.57 L	2.57 L		1.65	lb ai/a	A	POSPOS	104	99.0	95.0	95.0
	MSO	100 L		1	% v/v	A	POSPOS	201	99.0	99.0	99.0
	AMS	34 L		2	lb/a	A	POSPOS	308	99.0	99.0	99.0
								401	99.0	99.0	99.0
								Mean =	99.0	98.0	98.0
5	ImpactZ 4.26 SC	4.26 SC		0.356	lb ai/a	A	POSPOS	105	99.0	95.0	95.0
	MSO	100 L		1	% v/v	A	POSPOS	202	99.0	99.0	99.0
	AMS	34 L		2	lb/a	A	POSPOS	304	99.0	99.0	99.0
								407	99.0	99.0	99.0
								Mean =	99.0	98.0	98.0
6	ImpactZ 4.26 SC	4.26 SC		0.53	lb ai/a	A	POSPOS	106	99.0	95.0	95.0
	MSO	100 L		1	% v/v	A	POSPOS	208	99.0	99.0	99.0
	AMS	34 L		2	lb/a	A	POSPOS	303	99.0	95.0	99.0
								402	99.0	95.0	95.0
								Mean =	99.0	96.0	97.0
7	ImpactZ 4.26 SC	4.26 SC		0.71	lb ai/a	A	POSPOS	107	99.0	99.0	99.0
	MSO	100 L		1	% v/v	A	POSPOS	206	99.0	99.0	99.0
	AMS	34 L		3	lb/a	A	POSPOS	301	99.0	99.0	99.0
								406	99.0	99.0	99.0
								Mean =	99.0	99.0	99.0
8	ImpactZ 4.26 SC	4.26 SC		1.42	lb ai/a	A	POSPOS	108	99.0	99.0	99.0
	MSO	100 L		1	% v/v	A	POSPOS	205	99.0	99.0	99.0
	AMS	34 L		2	lb/a	A	POSPOS	306	99.0	99.0	99.0
								403	99.0	99.0	99.0
								Mean =	99.0	99.0	99.0

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	Plot	May-7-24 CONTROL CARPETWEED C, MOLVE	May-7-24 CONTROL VOLUNTEER PEANUT C, ARAHY	May-15-24 STUNTING Flour corn C, ZEAMA
									14	15	16
1	Untreated Check							101	0.0	0.0	0.0
								203	0.0	0.0	0.0
								307	0.0	0.0	0.0
								404	0.0	0.0	0.0
								Mean =	0.0	0.0	0.0
2	Sinate 2.57 L	2.57	L	0.56	lb ai/a	A	POSPOS	102	90.0	95.0	5.0
	MSO	100	L	1	% v/v	A	POSPOS	204	95.0	75.0	5.0
	AMS	34	L	2	lb/a	A	POSPOS	302	85.0	95.0	0.0
								405	90.0	90.0	0.0
								Mean =	90.0	88.8	2.5
3	Sinate 2.57 L	2.57	L	0.82	lb ai/a	A	POSPOS	103	95.0	75.0	5.0
	MSO	100	L	1	% v/v	A	POSPOS	207	99.0	80.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	305	95.0	95.0	0.0
								408	99.0	99.0	5.0
								Mean =	97.0	87.3	2.5
4	Sinate 2.57 L	2.57	L	1.65	lb ai/a	A	POSPOS	104	95.0	75.0	10.0
	MSO	100	L	1	% v/v	A	POSPOS	201	99.0	90.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	308	99.0	99.0	15.0
								401	99.0	99.0	5.0
								Mean =	98.0	90.8	7.5
5	ImpactZ 4.26 SC	4.26	SC	0.356	lb ai/a	A	POSPOS	105	99.0	85.0	0.0
	MSO	100	L	1	% v/v	A	POSPOS	202	99.0	85.0	0.0
	AMS	34	L	2	lb/a	A	POSPOS	304	99.0	95.0	5.0
								407	99.0	85.0	5.0
								Mean =	99.0	87.5	2.5
6	ImpactZ 4.26 SC	4.26	SC	0.53	lb ai/a	A	POSPOS	106	99.0	75.0	5.0
	MSO	100	L	1	% v/v	A	POSPOS	208	99.0	99.0	20.0
	AMS	34	L	2	lb/a	A	POSPOS	303	99.0	95.0	5.0
								402	95.0	90.0	5.0
								Mean =	98.0	89.8	8.8
7	ImpactZ 4.26 SC	4.26	SC	0.71	lb ai/a	A	POSPOS	107	99.0	95.0	10.0
	MSO	100	L	1	% v/v	A	POSPOS	206	99.0	85.0	10.0
	AMS	34	L	3	lb/a	A	POSPOS	301	99.0	90.0	0.0
								406	99.0	90.0	0.0
								Mean =	99.0	90.0	5.0
8	ImpactZ 4.26 SC	4.26	SC	1.42	lb ai/a	A	POSPOS	108	99.0	99.0	30.0
	MSO	100	L	1	% v/v	A	POSPOS	205	99.0	95.0	15.0
	AMS	34	L	2	lb/a	A	POSPOS	306	99.0	99.0	10.0
								403	99.0	99.0	10.0
								Mean =	99.0	98.0	16.3

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	Plot	May-15-24 BLEACHING Flour corn C, ZEAMA 17	May-15-24 NECROSIS Flour corn C, ZEAMA 18	May-15-24 CONTROL 19	May-15-24 CONTROL 20	May-15-24 CONTROL 21
1	Untreated Check							101	0.0	0.0	0.0	0.0	0.0
								203	0.0	0.0	0.0	0.0	0.0
								307	0.0	0.0	0.0	0.0	0.0
								404	0.0	0.0	0.0	0.0	0.0
								Mean =	0.0	0.0	0.0	0.0	0.0
2	Sinate 2.57 L	2.57 L		0.56	lb ai/a	A	POSPOS	102	0.0	0.0	99.0	90.0	95.0
	MSO	100 L		1	% v/v	A	POSPOS	204	5.0	0.0	85.0	80.0	90.0
	AMS	34 L		2	lb/a	A	POSPOS	302	0.0	0.0	95.0	90.0	95.0
								405	0.0	0.0	99.0	85.0	90.0
								Mean =	1.3	0.0	94.5	86.3	92.5
3	Sinate 2.57 L	2.57 L		0.82	lb ai/a	A	POSPOS	103	5.0	0.0	99.0	90.0	99.0
	MSO	100 L		1	% v/v	A	POSPOS	207	0.0	0.0	99.0	90.0	99.0
	AMS	34 L		2	lb/a	A	POSPOS	305	0.0	0.0	99.0	85.0	95.0
								408	0.0	0.0	99.0	95.0	99.0
								Mean =	1.3	0.0	99.0	90.0	98.0
4	Sinate 2.57 L	2.57 L		1.65	lb ai/a	A	POSPOS	104	10.0	0.0	99.0	95.0	99.0
	MSO	100 L		1	% v/v	A	POSPOS	201	0.0	0.0	99.0	95.0	90.0
	AMS	34 L		2	lb/a	A	POSPOS	308	0.0	0.0	99.0	99.0	99.0
								401	0.0	0.0	99.0	99.0	99.0
								Mean =	2.5	0.0	99.0	97.0	96.8
5	ImpactZ 4.26 SC	4.26 SC		0.356	lb ai/a	A	POSPOS	105	0.0	0.0	99.0	90.0	90.0
	MSO	100 L		1	% v/v	A	POSPOS	202	0.0	0.0	99.0	95.0	95.0
	AMS	34 L		2	lb/a	A	POSPOS	304	0.0	0.0	99.0	95.0	90.0
								407	0.0	0.0	99.0	95.0	99.0
								Mean =	0.0	0.0	99.0	93.8	93.5
6	ImpactZ 4.26 SC	4.26 SC		0.53	lb ai/a	A	POSPOS	106	0.0	0.0	90.0	95.0	85.0
	MSO	100 L		1	% v/v	A	POSPOS	208	0.0	0.0	99.0	99.0	99.0
	AMS	34 L		2	lb/a	A	POSPOS	303	0.0	0.0	95.0	95.0	95.0
								402	0.0	0.0	99.0	95.0	90.0
								Mean =	0.0	0.0	95.8	96.0	92.3
7	ImpactZ 4.26 SC	4.26 SC		0.71	lb ai/a	A	POSPOS	107	5.0	0.0	99.0	95.0	90.0
	MSO	100 L		1	% v/v	A	POSPOS	206	5.0	0.0	99.0	95.0	95.0
	AMS	34 L		3	lb/a	A	POSPOS	301	0.0	0.0	99.0	95.0	95.0
								406	0.0	0.0	99.0	95.0	99.0
								Mean =	2.5	0.0	99.0	95.0	94.8
8	ImpactZ 4.26 SC	4.26 SC		1.42	lb ai/a	A	POSPOS	108	0.0	0.0	99.0	99.0	99.0
	MSO	100 L		1	% v/v	A	POSPOS	205	5.0	0.0	99.0	95.0	95.0
	AMS	34 L		2	lb/a	A	POSPOS	306	0.0	0.0	99.0	95.0	99.0
								403	0.0	0.0	99.0	95.0	99.0
								Mean =	1.3	0.0	99.0	96.0	98.0

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Timing	Plot	May-15-24 CONTROL 22	Aug-29-24 YIELD Flour corn C, ZEAMA 23	Aug-29-24 YIELD Flour corn C, ZEAMA 24
1	Untreated Check							101	0.0	37.0	193.3
								203	0.0	33.0	172.4
								307	0.0	35.0	182.9
								404	0.0	21.0	109.7
								Mean =	0.0	31.5	164.6
2	Sinate 2.57 L	2.57 L		0.56	lb ai/a	A	POSPOS	102	95.0	40.0	209.0
	MSO	100 L		1	% v/v	A	POSPOS	204	95.0	35.0	182.9
	AMS	34 L		2	lb/a	A	POSPOS	302	95.0	38.0	198.6
								405	95.0	34.0	177.7
								Mean =	95.0	36.8	192.0
3	Sinate 2.57 L	2.57 L		0.82	lb ai/a	A	POSPOS	103	95.0	38.0	198.6
	MSO	100 L		1	% v/v	A	POSPOS	207	95.0	41.0	214.2
	AMS	34 L		2	lb/a	A	POSPOS	305	95.0	40.0	209.0
								408	99.0	30.0	156.8
								Mean =	96.0	37.3	194.7
4	Sinate 2.57 L	2.57 L		1.65	lb ai/a	A	POSPOS	104	99.0	36.0	188.1
	MSO	100 L		1	% v/v	A	POSPOS	201	99.0	44.0	229.9
	AMS	34 L		2	lb/a	A	POSPOS	308	99.0	27.0	141.1
								401	99.0	21.0	109.7
								Mean =	99.0	32.0	167.2
5	ImpactZ 4.26 SC	4.26 SC		0.356	lb ai/a	A	POSPOS	105	99.0	41.0	214.2
	MSO	100 L		1	% v/v	A	POSPOS	202	99.0	39.0	203.8
	AMS	34 L		2	lb/a	A	POSPOS	304	99.0	42.0	219.5
								407	99.0	38.0	198.6
								Mean =	99.0	40.0	209.0
6	ImpactZ 4.26 SC	4.26 SC		0.53	lb ai/a	A	POSPOS	106	99.0	37.0	193.3
	MSO	100 L		1	% v/v	A	POSPOS	208	99.0	19.0	99.3
	AMS	34 L		2	lb/a	A	POSPOS	303	99.0	40.0	209.0
								402	99.0	19.0	99.3
								Mean =	99.0	28.8	150.2
7	ImpactZ 4.26 SC	4.26 SC		0.71	lb ai/a	A	POSPOS	107	99.0	33.0	172.4
	MSO	100 L		1	% v/v	A	POSPOS	206	99.0	33.0	172.4
	AMS	34 L		3	lb/a	A	POSPOS	301	99.0	42.0	219.5
								406	99.0	37.0	193.3
								Mean =	99.0	36.3	189.4
8	ImpactZ 4.26 SC	4.26 SC		1.42	lb ai/a	A	POSPOS	108	99.0	29.0	151.5
	MSO	100 L		1	% v/v	A	POSPOS	205	99.0	33.0	172.4
	AMS	34 L		2	lb/a	A	POSPOS	306	99.0	40.0	209.0
								403	99.0	21.0	109.7
								Mean =	99.0	30.8	160.7

University of Georgia

Sinate and ImpactZ elevated use rate evaluation for efficacy and LL corn crop safety.

Trial ID: 24HC028USGA01
Protocol ID: 24HC028US (PE-05A-24) Location: Trial Year: 2024
Project ID: 028
Study Director: Daniel Kunkel Sponsor Contact: Greg Armel, Ph.D. Conducted Under GEP: No
Investigator: Dan Kunkel Trial Origin: P public institution trial

Rating Type
CONTRO = control / burndown or knockdown
YIELD = yield
Part Rated
PLANT = plant
C = Crop is Part Rated
P = Pest is Part Rated
Crop Type, Code
C = EPPO species (Bayer) codes
ZEAMX, BCOR, Zea mays, Corn = US
ZEAMA, BCOR, Zea mays amylacea, Flour corn = US
ARM Action Codes
TY1 = 5.2256044*[23]