The Ohio State University

Evaluation of Impact CORE programs for performance and corn safety compared to competitive programs in academic trials.

Trial ID: 20IMPACTCORE Trial Year: 2020
Protocol ID: 20C04H069 Investigator: Dr. Mark M. Loux
Project ID: 69 Study Director: Richard Porter

General Trial Information
Study Director: Richard Porter
Investigator: Dr. Mark M. Loux

Discipline: H herbicide
Trial Status: E established
ARM Trial Created On: Apr-8-2020 **Trial Usage/Type:** DEV Development/Registration
Initiation Date: Apr-22-2020 **Planned Completion Date:** Sep-30-2020

Trial Location
Address (Location): 7721 South Charleston Pike
City: South Charleston **Country:** USA United States
State/Prov.: Ohio
Postal Code: 45368

Latitude of LL Corner °: 39.85952 N
Longitude of LL Corner °: -83.67567 W
Altitude of LL Corner: 1097.00 FT

Conducted Under GLP: No
Conducted Under GEP: No

Objectives:
Evaluation of Impact CORE programs applied early postemergence for performance and corn safety compared to competitive programs in academic trials.

Contacts
Study Director: Richard Porter

Investigator: Dr. Mark M. Loux

Crop Description
Crop 1: C ZEAMX Zea mays Corn **BBCH Scale:** BCOR
Entry Date: Apr-23-2020 **Stage Scale:** BBCH
Variety: Seed Consultants SCS1105AM
Attributes: Glyphosate and Glufosinate Resistant
Planting Date: Apr-22-2020 **Planting Rate:** 32097 S/A
Depth: 2 IN
Rows per Plot: 4 **Planting Method:** PLANTD planted
Row Spacing: 30 IN **Planting Equipment:** FPP finger pickup planter
Seed Bed: MEDIUM medium
Soil Temperature: 54 F **Soil Moisture:** NORMAL normal, adequate
Emergence Date: May-14-2020

Pest Description
Pest 1 Type: W **Code:** SETFA Setaria faberi
Common Name: Giant foxtail **Entry Date:** Jun-9-2020

Pest 2 Type: W **Code:** ECHCG Echinochloa crus-galli
Common Name: Common barnyard grass **Entry Date:** Jun-9-2020

Pest 3 Type: W **Code:** AMBTR Ambrosia trifida
Common Name: Giant ragweed **Entry Date:** Jun-9-2020

Pest 4 Type: W **Code:** CHEAL Chenopodium album
Common Name: common lambsquarters **Entry Date:** Jun-9-2020

Pest 5 Type: W **Code:** IPOHP Ipomoea heterophylla
Common Name: scarlet morning glory **Entry Date:** May-28-2020

Site and Design
Treated Plot Width: 10 FT **Site Type:** FIELD field
Treated Plot Length: 30 FT **Experimental Unit:** 4 ROW row
Treated Plot Area: 300 FT2 **Treatments:** 10 **Tillage Type:** CONTIL conventional-till
Replications: 4 **Study Design:** RACOBL Randomized Complete Block (RCB)
Untreated Arrangement: INCLUDED single control randomized in each block

No.	Previous Crop	Year
1.	SOYBEAN	2019

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Field Prep./Maintenance:

Maintain fertility program for optimum corn growth. Target plant population which simulates commercial corn production in the area.

Soil Description

Description Name: Big E
% Sand: 44 **% OM:** 3.1 **Texture:** L loam
% Silt: 45 **pH:** 6.6 **Soil Name:** Kokomo
% Clay: 11 **CEC:** 15.2 **Fert. Level:** G good
Soil Drainage: G good

Application Description

	A
Application Date	May-23-2020
Appl. Start Time	9:00 AM
Appl. Stop Time	9:47 AM
Application Method	NONINC
Application Timing	POSPOS
Application Placement	BROFOL
Applied By	Dobbels
Appl. Entry Date	Jun-9-2020
Air Temperature Start, Stop	65 65 F
% Relative Humidity Start, Stop	90 90
Wind Velocity+Dir. Start	4 MPH E
Wind Velocity+Dir. Stop	4 MPH E
Wind Velocity+Dir. Max	4 MPH E
Wet Leaves (Y/N)	N no
Soil Temperature	57 F
Soil Moisture	WET
Soil Surface Condition	MEDIUM
% Cloud Cover	33
Next Moisture Occurred On	May-23-2020
Time to Next Moisture	8 HR
Moisture 6 Hours after Appl.	0 IN
Moisture 1 Week after Appl.	1.07 IN

Protocol Application Directions:

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

Application Timing: Make application to corn when weeds are 3 inches or smaller in size.

Please record following information in **SITE DESCRIPTION** sections:

Crop/Weed Information: Crop stage & height; weed stages & heights, & densities at application.

Application details: Date, time, sprayer type, water pH, GPA, PSI, nozzle type and orifice.
Use a spray nozzle which produces medium to coarse size droplets (approximate VMD range of 240 to 400 microns). Do not use a spray nozzle which produces very coarse, extremely coarse, or ultra coarse spray droplets.

Environmental Conditions: Air temp, wind speed & direction, humidity, & percent cloud cover at application.

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	ZEAMX BCOR
Days after Emergence	9
Stage Majority, Percent	V2 90
Stage Minimum, Percent	V2 90
Stage Maximum, Percent	V3 10
Height Average	3 IN
Height Minimum, Maximum	3 3

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Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale	SETFA W
Stage Majority, Percent	12 80
Stage Minimum, Percent	10 10
Stage Maximum, Percent	14 10
Height Average	1 IN
Height Minimum, Maximum	0.25 1
Density Average	102 PLA/m2
Density Min, Max	40 188
Pest 2 Code, Type, Scale	ECHCG W
Stage Majority, Percent	12 80
Stage Minimum, Percent	10 10
Stage Maximum, Percent	14 10
Height Average	0.5 IN
Height Minimum, Maximum	0.25 1
Density Average	35 PLA/m2
Density Min, Max	0 76
Pest 3 Code, Type, Scale	AMBTR W
Stage Majority, Percent	14 80
Stage Minimum, Percent	10 10
Stage Maximum, Percent	16 10
Height Average	2 IN
Height Minimum, Maximum	1 3
Density Average	31 PLA/m2
Density Min, Max	4 88
Pest 4 Code, Type, Scale	CHEAL W
Stage Majority, Percent	14 90
Stage Minimum, Percent	12 10
Stage Maximum, Percent	14 90
Height Average	1 IN
Height Minimum, Maximum	0.5 1
Density Average	48 PLA/m2
Density Min, Max	0 112
Pest 5 Code, Type, Scale	IPOHP W
Stage Majority, Percent	10 100
Stage Minimum, Percent	10 100
Stage Maximum, Percent	10
Height Average	0.5 IN
Height Minimum, Maximum	0.5 0.5

Application Equipment

	A
Appl. Equipment	10' AIXR
Equipment Type	BACCAI
Operation Pressure	44 PSI
Nozzle Type	AIXR
Nozzle Size	110015
Nozzle Spacing	18 IN
Boom Length	6.67 FT
Boom Height	20 IN
Ground Speed	3 MPH
Carrier	WATER
Application Amount	15 GAL/AC
Mix Size	2 L
Propellant	COMCO2

Protocol Equipment Comment:

Small plot backpack equipment preferred.

Context	Date	By	Notes
STATUS	Apr-8-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'S' during trial creation.
STATUS	Apr-23-2020	Dr. Mark M. Loux	Automatically added by ARM: Trial Status updated to 'E' when Initiation Date entered.

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Instructions:

ADDITIONAL DETAILS AND COMMENTS:

Record the following information in Protocol Description tabs/sections:

- Soil Characteristics: Soil type/texture, pH, CEC, OM, etc.
- Deviations: Please describe deviations, errors and variables that may influence crop tolerance or weed control. Inform AMVAC PD manager of deviations when they occur and not late in the season.

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 close-up photos should be taken showing symptoms observed.

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

AMVAC will provide a sample of Impact CORE herbicide for the trial. Cooperator is requested to provide other herbicides in the protocol, adjuvants, 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.

Geographic Area/Environmental Considerations:

Select site with a mixture of annual broadleaf and grass weeds.

Cropping Considerations:

A glyphosate-tolerant corn hybrid must be used. Select a hybrid adapted to the area. A hybrid with *Bt* traits for above and below-ground insect protection is strongly recommended.

Data to Collect:

Percent crop injury (0 to 100%) will be evaluated at 7 and 14 days following early post application. If crop injury is present, the type observed (e.g. necrosis or chlorosis) must be reported.

Percent weed control by species will be evaluated at 14, 28, and 42 days after the early post application. Target weed species are waterhemp, Palmer amaranth, velvetleaf, giant ragweed, lambsquarters, giant foxtail, and other indigenous broadleaf weeds and grasses at the trial site.

Yields are not requested.

Statistical Analysis:

Not requested.

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Pest Type				W Weed	W Weed	W Weed
Pest Code				SETFA	ECHCG	AMBTR
Pest Scientific Name				Setaria faberi	Echinochloa cr>	Ambrosia trifi>
Pest Name				Giant foxtail	Common barnyar>	Giant ragweed
Crop Type, Code	C ZEAMX	C ZEAMX	C ZEAMX	C ZEAMX	C ZEAMX	C ZEAMX
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn
Description	CROP INJURY	CROP INJURY	WEED CONTROL	WEED CONTROL	WEED CONTROL	
Rating Date	May-29-2020	Jun-5-2020	Jun-5-2020	Jun-5-2020	Jun-5-2020	
SE Group No.	7	7	9	9	9	
Part Rated	PLANT C	PLANT C	PLANT P	PLANT P	PLANT P	
Rating Type	PHYGEN	PHYGEN	CONTRO	CONTRO	CONTRO	
Rating Unit	%	%	%	%	%	
Sample Size	2 ROW	2 ROW	2 ROW	2 ROW	2 ROW	
Collection Basis	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	
Number of Subsamples	1	1	1	1	1	
Crop Stage Scale	BBCH	BBCH	BBCH	BBCH	BBCH	
Crop Stage Majority	13	14	14	14	14	
Assessed By	Dobbels	ACKLEY	ACKLEY	ACKLEY	ACKLEY	
Data Entry Date	May-29-2020	Jun-9-2020	Jun-22-2020	Jun-22-2020	Jun-22-2020	
Rating Timing	7 DAT	14				
Days After First/Last Applic.						
Trt-Eval Interval	7 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A	
Plant-Eval Interval	37 DP-1	44 DP-1	44 DP-1	44 DP-1	44 DP-1	
Days After Emergence	15 DE-1	22 DE-1	22 DE-1	22 DE-1	22 DE-1	
Number of Decimals	0	0	0	0	0	

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	1*	2*	3*	4*	5*
1	Untreated Check					0 c	0 -	0 c	0 c	0 c
2	Impact CORE	1.12	lb ai/a	20	fl oz/a	2 b	0 -	100 a	100 a	89 ab
2	Roundup Powermax	1.13	lb ae/a	32	fl oz/a					
2	NIS	0.25	% v/v	0.3	pt/a					
2	AMS	13.33	lb/100 gal	2	lb/a					
3	Impact CORE	1.68	lb ai/a	30	fl oz/a	0 c	0 -	100 a	100 a	86 ab
3	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a					
3	NIS	0.25	% v/v	0.3	pt/a					
3	AMS	13.33	lb/100 gal	2	lb/a					
4	Impact CORE	1.12	lb ai/a	20	fl oz/a	2 b	0 -	100 a	100 a	86 ab
4	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a					
4	Atrazine	0.5	lb ai/a	16	fl oz/a					
4	NIS	0.25	% v/v	0.3	pt/a					
4	AMS	13.33	lb/100 gal	2	lb/a					
5	Impact CORE	1.68	lb ai/a	30	fl oz/a	1 c	0 -	100 a	100 a	88 ab
5	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a					
5	Atrazine	0.5	lb ai/a	16	fl oz/a					
5	NIS	0.25	% v/v	0.3	pt/a					
5	AMS	13.33	lb/100 gal	2	lb/a					
6	Impact CORE	1.68	lb ai/a	30	fl oz/a	3 a	0 -	100 a	100 a	89 ab
6	MSO	0.25	% v/v	0.3	pt/a					
6	AMS	13.33	lb/100 gal	2	lb/a					
7	Impact CORE	1.68	lb ai/a	30	fl oz/a	0 c	0 -	100 a	100 a	92 a
7	Atrazine	0.5	lb ai/a	16	fl oz/a					
7	MSO	0.25	% v/v	0.3	pt/a					
7	AMS	13.33	lb/100 gal	2	lb/a					

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.
* Adjusted means
Could not calculate LSD (% mean diff) for columns 2,6,7,11,14,15,16,17 because error mean square = 0.

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Pest Type			W Weed	W Weed	W Weed
Pest Code			SETFA	ECHCG	AMBTR
Pest Scientific Name			Setaria faberi	Echinochloa cr>	Ambrosia trifi>
Pest Name			Giant foxtail	Common barnyar>	Giant ragweed
Crop Type, Code	C ZEAMX	C ZEAMX	C ZEAMX	C ZEAMX	C ZEAMX
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR
Crop Scientific Name	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays
Crop Name	Corn	Corn	Corn	Corn	Corn
Description	CROP INJURY	CROP INJURY	WEED CONTROL	WEED CONTROL	WEED CONTROL
Rating Date	May-29-2020	Jun-5-2020	Jun-5-2020	Jun-5-2020	Jun-5-2020
SE Group No.	7	7	9	9	9
Part Rated	PLANT C	PLANT C	PLANT P	PLANT P	PLANT P
Rating Type	PHYGEN	PHYGEN	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Sample Size	2 ROW	2 ROW	2 ROW	2 ROW	2 ROW
Collection Basis	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples	1	1	1	1	1
Crop Stage Scale	BBCH	BBCH	BBCH	BBCH	BBCH
Crop Stage Majority	13	14	14	14	14
Assessed By	Dobbels	ACKLEY	ACKLEY	ACKLEY	ACKLEY
Data Entry Date	May-29-2020	Jun-9-2020	Jun-22-2020	Jun-22-2020	Jun-22-2020
Rating Timing	7 DAT	14			
Days After First/Last Applic.					
Trt-Eval Interval	7 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A
Plant-Eval Interval	37 DP-1	44 DP-1	44 DP-1	44 DP-1	44 DP-1
Days After Emergence	15 DE-1	22 DE-1	22 DE-1	22 DE-1	22 DE-1
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	1*	2*	3*	4*	5*
8	Armezon PRO	0.585	lb ai/a	14	fl oz/a	0 c	0 -	100 a	100 a	81 b
8	Roundup Powermax	1.13	lb ae/a	32	fl oz/a					
8	NIS	0.25	% v/v	0.3	pt/a					
8	AMS	13.33	lb/100 gal	2	lb/a					
9	Resicore	1.03	lb ai/a	40	fl oz/a	0 c	0 -	100 b	100 b	96 a
9	Roundup Powermax	1.13	lb ae/a	32	fl oz/a					
9	NIS	0.25	% v/v	0.3	pt/a					
9	AMS	13.33	lb/100 gal	2	lb/a					
10	Halex GT	1.98	lb ai/a	3.6	pt/a	3 a	0 -	100 a	100 a	90 ab
10	Atrazine	0.5	lb ai/a	16	fl oz/a					
10	NIS	0.25	% v/v	0.3	pt/a					
10	AMS	13.33	lb/100 gal	2	lb/a					

	1*	2*	3*	4*	5*
LSD P=.05	0.9	.	0.2	0.2	10.6
Standard Deviation	0.6	0.0	0.2	0.2	7.3
CV	67.7	0.0	0.18	0.18	9.15
Grand Mean	0.9	0.0	90.0	90.0	79.6
Levene's F	0.761	0.00	1.00	1.00	1.176
Levene's Prob(F)	0.652	.	0.461	0.461	0.345
Rank X2	.	.	.	.	.
P(Rank X2)	.	.	.	.	.
Skewness	0.7455	.	-2.7716*	-2.7716*	-2.1557*
Kurtosis	-1.2048	.	5.9787*	5.9787*	3.8666*
Replicate F	1.211	0.000	1.000	1.000	13.431
Replicate Prob(F)	0.3246	1.0000	0.4079	0.4079	0.0001
Treatment F	13.813	0.000	159912.127	159912.127	60.120
Treatment Prob(F)	0.0001	1.0000	0.0001	0.0001	0.0001

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Pest Type			W Weed		W Weed	W Weed	W Weed
Pest Code			CHEAL		SETFA	ECHCG	AMBTR
Pest Scientific Name			Chenopodium al>		Setaria faberi	Echinochloa cr>	Ambrosia trifi>
Pest Name			common lambsqu>		Giant foxtail	Common barnyar>	Giant ragweed
Crop Type, Code			C ZEAMX	C ZEAMX			
BBCH Scale			BCOR	BCOR			
Crop Scientific Name			Zea mays	Zea mays			
Crop Name			Corn	Corn			
Description			WEED CONTROL	PHYG			
Rating Date			Jun-5-2020	Jun-19-2020	Jun-19-2020	Jun-19-2020	Jun-19-2020
SE Group No.			10	12	11	11	11
Part Rated			PLANT P	PLANT P	PLANT P	PLANT P	PLANT P
Rating Type			CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO
Rating Unit			%	%	%	%	%
Sample Size			2 ROW	2 ROW	2 ROW	2 ROW	2 ROW
Collection Basis			1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples			1	1	1	1	1
Crop Stage Scale			BBCH	BBCH			
Crop Stage Majority			14	16			
Assessed By			ACKLEY				
Data Entry Date			Jun-22-2020	Jun-22-2020	Jun-22-2020	Jun-22-2020	Jun-22-2020
Rating Timing							
Days After First/Last Applic.							
Trt-Eval Interval			14 DA-A	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Plant-Eval Interval			44 DP-1	58 DP-1	58 DP-1	58 DP-1	58 DP-1
Days After Emergence			22 DE-1	36 DE-1	36 DE-1	36 DE-1	36 DE-1
Number of Decimals			0	0	0	0	0

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	6*	7*	8*	9*	10*
1	Untreated Check					0 b	0 -	0 d	0 c	0 c
2	Impact CORE	1.12	lb ai/a	20	fl oz/a	100 a	0 -	98 a	99 a	93 a
2	Roundup Powermax	1.13	lb ae/a	32	fl oz/a					
2	NIS	0.25	% v/v	0.3	pt/a					
2	AMS	13.33	lb/100 gal	2	lb/a					
3	Impact CORE	1.68	lb ai/a	30	fl oz/a	100 a	0 -	97 a	98 a	84 ab
3	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a					
3	NIS	0.25	% v/v	0.3	pt/a					
3	AMS	13.33	lb/100 gal	2	lb/a					
4	Impact CORE	1.12	lb ai/a	20	fl oz/a	100 a	0 -	97 a	98 a	86 ab
4	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a					
4	Atrazine	0.5	lb ai/a	16	fl oz/a					
4	NIS	0.25	% v/v	0.3	pt/a					
4	AMS	13.33	lb/100 gal	2	lb/a					
5	Impact CORE	1.68	lb ai/a	30	fl oz/a	100 a	0 -	96 a	97 a	82 ab
5	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a					
5	Atrazine	0.5	lb ai/a	16	fl oz/a					
5	NIS	0.25	% v/v	0.3	pt/a					
5	AMS	13.33	lb/100 gal	2	lb/a					
6	Impact CORE	1.68	lb ai/a	30	fl oz/a	100 a	0 -	99 a	99 a	82 ab
6	MSO	0.25	% v/v	0.3	pt/a					
6	AMS	13.33	lb/100 gal	2	lb/a					
7	Impact CORE	1.68	lb ai/a	30	fl oz/a	100 a	0 -	98 a	99 a	81 ab
7	Atrazine	0.5	lb ai/a	16	fl oz/a					
7	MSO	0.25	% v/v	0.3	pt/a					
7	AMS	13.33	lb/100 gal	2	lb/a					

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Pest Code	CHEAL		SETFA	ECHCG	AMBTR
Pest Scientific Name	Chenopodium al>		Setaria faberi	Echinochloa cr>	Ambrosia trifi>
Pest Name	common lambsqu>		Giant foxtail	Common barnyar>	Giant ragweed
Crop Type, Code	C ZEAMX	C ZEAMX			
BBCH Scale	BCOR	BCOR			
Crop Scientific Name	Zea mays	Zea mays			
Crop Name	Corn	Corn			
Description	WEED CONTROL	PHYG			
Rating Date	Jun-5-2020	Jun-19-2020	Jun-19-2020	Jun-19-2020	Jun-19-2020
SE Group No.	10	12	11	11	11
Part Rated	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P
Rating Type	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Sample Size	2 ROW	2 ROW	2 ROW	2 ROW	2 ROW
Collection Basis	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples	1	1	1	1	1
Crop Stage Scale	BBCH	BBCH			
Crop Stage Majority	14	16			
Assessed By	ACKLEY				
Data Entry Date	Jun-22-2020	Jun-22-2020	Jun-22-2020	Jun-22-2020	Jun-22-2020
Rating Timing					
Days After First/Last Applic.					
Trt-Eval Interval	14 DA-A	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Plant-Eval Interval	44 DP-1	58 DP-1	58 DP-1	58 DP-1	58 DP-1
Days After Emergence	22 DE-1	36 DE-1	36 DE-1	36 DE-1	36 DE-1
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	6*	7*	8*	9*	10*
8	Armezon PRO	0.585	lb ai/a	14	fl oz/a	100 a	0 -	84 c	76 b	68 b
8	Roundup Powermax	1.13	lb ae/a	32	fl oz/a					
8	NIS	0.25	% v/v	0.3	pt/a					
8	AMS	13.33	lb/100 gal	2	lb/a					
9	Resicore	1.03	lb ai/a	40	fl oz/a	100 a	0 -	90 b	95 a	95 a
9	Roundup Powermax	1.13	lb ae/a	32	fl oz/a					
9	NIS	0.25	% v/v	0.3	pt/a					
9	AMS	13.33	lb/100 gal	2	lb/a					
10	Halex GT	1.98	lb ai/a	3.6	pt/a	100 a	0 -	98 a	99 a	85 ab
10	Atrazine	0.5	lb ai/a	16	fl oz/a					
10	NIS	0.25	% v/v	0.3	pt/a					
10	AMS	13.33	lb/100 gal	2	lb/a					
LSD P=.05						.	.	3.5	14.1	18.5
Standard Deviation						0.0	0.0	2.4	9.7	12.8
CV						0.0	0.0	2.86	11.29	16.87
Grand Mean						90.0	0.0	85.4	86.0	75.6
Levene's F						0.00	0.00	0.699	1.186	1.412
Levene's Prob(F)						.	.	0.705	0.339	0.227
Rank X2						.	.	.	.	.
P(Rank X2)						.	.	.	.	.
Skewness						-2.7717*	.	-2.6322*	-2.4101*	-1.6002*
Kurtosis						5.9791*	.	5.4624*	4.1774*	1.5874*
Replicate F						0.000	0.000	2.434	1.190	9.414
Replicate Prob(F)						1.0000	1.0000	0.0867	0.3323	0.0002
Treatment F						0.000	0.000	619.528	40.828	18.668
Treatment Prob(F)						1.0000	1.0000	0.0001	0.0001	0.0001

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* Adjusted means
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The Ohio State University

Evaluation of Impact CORE programs for performance and corn safety compared to competitive programs in academic trials.

Trial ID: 20IMPACTCORE Trial Year: 2020
Protocol ID: 20C04H069 Investigator: Dr. Mark M. Loux
Project ID: 69 Study Director: Richard Porter

Pest Type		W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code		CHEAL	SETFA	AMBTR	CHEAL	AMARE
Pest Scientific Name		Chenopodium al>	Setaria faberi	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>
Pest Name		common lambsqu>	Giant foxtail	Giant ragweed	common lambsqu>	Redroot pigweed
Crop Type, Code						
BBCH Scale						
Crop Scientific Name						
Crop Name						
Description						
Rating Date		Jun-19-2020	Jul-1-2020	Jul-1-2020	Jul-1-2020	Jul-1-2020
SE Group No.		11	13	14	15	16
Part Rated		PLANT P	PLANT P	PLANT P	PLANT P	PLANT P
Rating Type		CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit		%	%	%	%	%
Sample Size		2 ROW	2 ROW	2 ROW	2 ROW	2 ROW
Collection Basis		1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples		1	1	1	1	1
Crop Stage Scale						
Crop Stage Majority						
Assessed By						
Data Entry Date		Jun-22-2020	Jul-1-2020	Jul-1-2020	Jul-1-2020	Jul-1-2020
Rating Timing						
Days After First/Last Applic.			39 39	39 39	39 39	39 39
Trt-Eval Interval		27 DA-A	39 DA-A	39 DA-A	39 DA-A	39 DA-A
Plant-Eval Interval		58 DP-1	70 DP-1	70 DP-1	70 DP-1	70 DP-1
Days After Emergence		36 DE-1	48 DE-1	48 DE-1	48 DE-1	48 DE-1
Number of Decimals		0	0	0	0	0

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	11*	12*	13*	14*	15*
1	Untreated Check					0 b	0 d	0 d	0 b	0 b
2	Impact CORE	1.12	lb ai/a	20	fl oz/a	100 a	74 ab	68 abc	100 a	100 a
2	Roundup Powermax	1.13	lb ae/a	32	fl oz/a					
2	NIS	0.25	% v/v	0.3	pt/a					
2	AMS	13.33	lb/100 gal	2	lb/a					
3	Impact CORE	1.68	lb ai/a	30	fl oz/a	100 a	73 ab	56 abc	100 a	100 a
3	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a					
3	NIS	0.25	% v/v	0.3	pt/a					
3	AMS	13.33	lb/100 gal	2	lb/a					
4	Impact CORE	1.12	lb ai/a	20	fl oz/a	100 a	73 ab	71 a	100 a	100 a
4	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a					
4	Atrazine	0.5	lb ai/a	16	fl oz/a					
4	NIS	0.25	% v/v	0.3	pt/a					
4	AMS	13.33	lb/100 gal	2	lb/a					
5	Impact CORE	1.68	lb ai/a	30	fl oz/a	100 a	64 bc	50 bc	100 a	100 a
5	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a					
5	Atrazine	0.5	lb ai/a	16	fl oz/a					
5	NIS	0.25	% v/v	0.3	pt/a					
5	AMS	13.33	lb/100 gal	2	lb/a					
6	Impact CORE	1.68	lb ai/a	30	fl oz/a	100 a	80 a	54 abc	100 a	100 a
6	MSO	0.25	% v/v	0.3	pt/a					
6	AMS	13.33	lb/100 gal	2	lb/a					
7	Impact CORE	1.68	lb ai/a	30	fl oz/a	100 a	75 a	56 abc	100 a	100 a
7	Atrazine	0.5	lb ai/a	16	fl oz/a					
7	MSO	0.25	% v/v	0.3	pt/a					
7	AMS	13.33	lb/100 gal	2	lb/a					

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The Ohio State University

Evaluation of Impact CORE programs for performance and corn safety compared to competitive programs in academic trials.

Trial ID: 20IMPACTCORE Trial Year: 2020
Protocol ID: 20C04H069 Investigator: Dr. Mark M. Loux
Project ID: 69 Study Director: Richard Porter

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	11*	12*	13*	14*	15*
	Pest Type					W Weed	W Weed	W Weed	W Weed	W Weed
	Pest Code					CHEAL	SETFA	AMBTR	CHEAL	AMARE
	Pest Scientific Name					Chenopodium al>	Setaria faberi	Ambrosia trifi>	Chenopodium al>	Amaranthus ret>
	Pest Name					common lambsqu>	Giant foxtail	Giant ragweed	common lambsqu>	Redroot pigweed
	Crop Type, Code									
	BBCH Scale									
	Crop Scientific Name									
	Crop Name									
	Description									
	Rating Date					Jun-19-2020	Jul-1-2020	Jul-1-2020	Jul-1-2020	Jul-1-2020
	SE Group No.					11	13	14	15	16
	Part Rated					PLANT P	PLANT P	PLANT P	PLANT P	PLANT P
	Rating Type					CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
	Rating Unit					%	%	%	%	%
	Sample Size					2 ROW	2 ROW	2 ROW	2 ROW	2 ROW
	Collection Basis					1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
	Number of Subsamples					1	1	1	1	1
	Crop Stage Scale									
	Crop Stage Majority									
	Assessed By									
	Data Entry Date					Jun-22-2020	Jul-1-2020	Jul-1-2020	Jul-1-2020	Jul-1-2020
	Rating Timing									
	Days After First/Last Applic.						39 39	39 39	39 39	39 39
	Trt-Eval Interval					27 DA-A	39 DA-A	39 DA-A	39 DA-A	39 DA-A
	Plant-Eval Interval					58 DP-1	70 DP-1	70 DP-1	70 DP-1	70 DP-1
	Days After Emergence					36 DE-1	48 DE-1	48 DE-1	48 DE-1	48 DE-1
	Number of Decimals					0	0	0	0	0
8	Armezon PRO	0.585	lb ai/a	14	fl oz/a	100 a	58 c	48 c	100 a	100 a
8	Roundup Powermax	1.13	lb ae/a	32	fl oz/a					
8	NIS	0.25	% v/v	0.3	pt/a					
8	AMS	13.33	lb/100 gal	2	lb/a					
9	Resicore	1.03	lb ai/a	40	fl oz/a	100 a	58 c	70 ab	100 a	100 a
9	Roundup Powermax	1.13	lb ae/a	32	fl oz/a					
9	NIS	0.25	% v/v	0.3	pt/a					
9	AMS	13.33	lb/100 gal	2	lb/a					
10	Halex GT	1.98	lb ai/a	3.6	pt/a	100 a	76 a	63 abc	100 a	100 a
10	Atrazine	0.5	lb ai/a	16	fl oz/a					
10	NIS	0.25	% v/v	0.3	pt/a					
10	AMS	13.33	lb/100 gal	2	lb/a					
	LSD P=.05					.	10.4	21.1	.	.
	Standard Deviation					0.0	7.2	14.5	0.0	0.0
	CV					0.0	11.37	27.17	0.0	0.0
	Grand Mean					90.0	63.0	53.5	90.0	90.0
	Levene's F					0.00	0.509	1.50	0.00	0.00
	Levene's Prob(F)					.	0.856	0.193	.	.
	Rank X2					.	.	.	.	.
	P(Rank X2)					.	.	.	.	.
	Skewness					-2.7717*	-1.6813*	-1.2045*	-2.7717*	-2.7717*
	Kurtosis					5.9791*	2.4218*	0.4052	5.9791*	5.9791*
	Replicate F					0.000	11.360	1.806	0.000	0.000
	Replicate Prob(F)					1.0000	0.0001	0.1698	1.0000	1.0000
	Treatment F					0.000	42.955	7.972	0.000	0.000
	Treatment Prob(F)					1.0000	0.0001	0.0001	1.0000	1.0000

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Trial ID: 20IMPACTCORE Trial Year: 2020
Protocol ID: 20C04H069 Investigator: Dr. Mark M. Loux
Project ID: 69 Study Director: Richard Porter

Pest Type	W	Weed
Pest Code		ABUTH
Pest Scientific Name		Abutilon theop>
Pest Name		velvetleaf
Crop Type, Code		
BBCH Scale		
Crop Scientific Name		
Crop Name		
Description		
Rating Date		Jul-1-2020
SE Group No.		17 18
Part Rated		PLANT P
Rating Type		CONTRO
Rating Unit		%
Sample Size	2	ROW
Collection Basis	1	PLOT
Number of Subsamples		1 1
Crop Stage Scale		
Crop Stage Majority		
Assessed By		
Data Entry Date		Jul-1-2020
Rating Timing		
Days After First/Last Applic.		39 39
Trt-Eval Interval		39 DA-A
Plant-Eval Interval		70 DP-1
Days After Emergence		48 DE-1
Number of Decimals		0

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	16*	17
1	Untreated Check						0 b
2	Impact CORE	1.12	lb ai/a	20	fl oz/a		100 a
2	Roundup Powermax	1.13	lb ae/a	32	fl oz/a		
2	NIS	0.25	% v/v	0.3	pt/a		
2	AMS	13.33	lb/100 gal	2	lb/a		
3	Impact CORE	1.68	lb ai/a	30	fl oz/a		100 a
3	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a		
3	NIS	0.25	% v/v	0.3	pt/a		
3	AMS	13.33	lb/100 gal	2	lb/a		
4	Impact CORE	1.12	lb ai/a	20	fl oz/a		100 a
4	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a		
4	Atrazine	0.5	lb ai/a	16	fl oz/a		
4	NIS	0.25	% v/v	0.3	pt/a		
4	AMS	13.33	lb/100 gal	2	lb/a		
5	Impact CORE	1.68	lb ai/a	30	fl oz/a		100 a
5	Roundup PowerMax	1.13	lb ae/a	32	fl oz/a		
5	Atrazine	0.5	lb ai/a	16	fl oz/a		
5	NIS	0.25	% v/v	0.3	pt/a		
5	AMS	13.33	lb/100 gal	2	lb/a		
6	Impact CORE	1.68	lb ai/a	30	fl oz/a		100 a
6	MSO	0.25	% v/v	0.3	pt/a		
6	AMS	13.33	lb/100 gal	2	lb/a		
7	Impact CORE	1.68	lb ai/a	30	fl oz/a		100 a
7	Atrazine	0.5	lb ai/a	16	fl oz/a		
7	MSO	0.25	% v/v	0.3	pt/a		
7	AMS	13.33	lb/100 gal	2	lb/a		

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Trial ID: 20IMPACTCORE Trial Year: 2020
Protocol ID: 20C04H069 Investigator: Dr. Mark M. Loux
Project ID: 69 Study Director: Richard Porter

Pest Type	W	Weed
Pest Code	ABUTH	
Pest Scientific Name	Abutilon theop>	
Pest Name	velvetleaf	
Crop Type, Code		
BBCH Scale		
Crop Scientific Name		
Crop Name		
Description		
Rating Date	Jul-1-2020	
SE Group No.	17	18
Part Rated	PLANT	P
Rating Type	CONTRO	
Rating Unit	%	
Sample Size	2	ROW
Collection Basis	1	PLOT
Number of Subsamples	1	1
Crop Stage Scale		
Crop Stage Majority		
Assessed By		
Data Entry Date	Jul-1-2020	
Rating Timing		
Days After First/Last Applic.	39	39
Trt-Eval Interval	39	DA-A
Plant-Eval Interval	70	DP-1
Days After Emergence	48	DE-1
Number of Decimals	0	

Trt No.	Treatment Name	Rate	Rate Unit	Other Rate	Other Rate Unit	16*	17
8	Armezon PRO	0.585	lb ai/a	14	fl oz/a	100 a	
8	Roundup Powermax	1.13	lb ae/a	32	fl oz/a		
8	NIS	0.25	% v/v	0.3	pt/a		
8	AMS	13.33	lb/100 gal	2	lb/a		
9	Resicore	1.03	lb ai/a	40	fl oz/a	100 a	
9	Roundup Powermax	1.13	lb ae/a	32	fl oz/a		
9	NIS	0.25	% v/v	0.3	pt/a		
9	AMS	13.33	lb/100 gal	2	lb/a		
10	Halex GT	1.98	lb ai/a	3.6	pt/a	100 a	
10	Atrazine	0.5	lb ai/a	16	fl oz/a		
10	NIS	0.25	% v/v	0.3	pt/a		
10	AMS	13.33	lb/100 gal	2	lb/a		
LSD P=.05						.	.
Standard Deviation						0.0	.
CV						0.0	.
Grand Mean						90.0	.
Levene's F						0.00	.
Levene's Prob(F)						.	.
Rank X2						.	.
P(Rank X2)						.	.
Skewness						-2.7717*	.
Kurtosis						5.9791*	.
Replicate F						0.000	
Replicate Prob(F)						1.0000	
Treatment F						0.000	
Treatment Prob(F)						1.0000	

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Trial ID: 20IMPACTCORE Trial Year: 2020
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Project ID: 69 Study Director: Richard Porter

Pest Type
W, Weed = Weed or volunteer crop
Pest Code
SETFA, Setaria faberi, Giant foxtail = US
ECHCG, Echinochloa crus-galli, Common barnyard grass = US
AMBTR, Ambrosia trifida, Giant ragweed = US
CHEAL, Chenopodium album, common lambsquarters = US
AMARE, Amaranthus retroflexus, Redroot pigweed = US
ABUTH, Abutilon theophrasti, velvetleaf = US
Crop Type, Code
C = EPPO species (Bayer) codes
ZEAMX, BCOR, Zea mays, Corn = US
Part Rated
PLANT = plant
C = Crop is Part Rated
P = Pest is Part Rated
Rating Type
PHYGEN = phytotoxicity - general / injury
CONTRO = control / burndown or knockdown
Rating Unit
% = percent

ROW = row

PLOT = total plot
Crop Stage Scale
BBCH = BBCH uniform plant stages
Crop Stage Majority
13 = 3 leaves unfolded (V3 = Third Leaf)
14 = 4 leaves unfolded (V4 = Fourth Leaf)
16 = 6 leaves unfolded (V6 = Sixth Leaf)
Plant-Eval Interval
37 DP-1 = 1 ZEAMX Apr-22-2020
44 DP-1 = 1 ZEAMX Apr-22-2020
58 DP-1 = 1 ZEAMX Apr-22-2020
70 DP-1 = 1 ZEAMX Apr-22-2020