

Callisto Adjuvant x Time of Day Study.

01-51W-M100

OBJECTIVE: Determine if the efficacy of Callisto is effected by the time of day the application occurs. Furthermore, determine if the time of day influences the adjuvant response of Callisto.

SUMMARY: No corn injury was observed in this study. There were no significant differences in waterhemp control from Callisto applied at 6:00 a.m., regardless of adjuvant. Time of day did not affect waterhemp control at 28 days after treatment (DAT) when Callisto was applied with Destiny MSO. However, when Callisto was applied with Activator-90 or Prime Oil, waterhemp control was usually less with 4:00 p.m. applications compared to 6:00 a.m., 11:00 a.m. or 9:00 p.m. Waterhemp control with Callisto plus Ag Dynamics 1 was greater at 6:00 a.m. compared to any other time of day.

Corn yield was variable and reflective of competition from weeds other than waterhemp in the plots.

HERBICIDE / ADJUVANTS

CALLISTO 4 SC
28% UAN 100 LIQ
ACTIVATOR 90 100 LIQ
AG DYNAMICS 1 100 LIQ
DESTINY MSO 100 LIQ
PRIME OIL COC 100 LIQ

WEEDS

waterhemp, common

CROP

corn, field

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Callisto Adjuvant x Time of Day Study.

Project Code: 01-51W-M100 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
Trial Status: Final Initiation Date: 5-11-01**Objective:**

Determine if the efficacy of Callisto is effected by the time of day the application occurs. Furthermore, determine if the time of day influences the adjuvant response of Callisto.

Weed Code	Common Name	Scientific Name
1.	AMATA waterhemp, common	Amaranthus rudis Sauer

Crop 1:	ZEAMX corn, field	Variety:	P33G28 LL
Planting Method:	Seeded	Planting Date:	5-9-01
Rate:	28000 S/A	Depth:	1.5 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	27 FT	Reps:	3
Tillage Type:	Reduced-Till	Study Design:	Randomized complete block		
Previous Crop, Year:	GLXMA, 2000				
Field Prep./Maintenance:	N 150 LB/A, P205 0 LB/A, K20 150 LB/A				

Soil Name:	Weir	% OM:	1.8	pH:	5.7	CEC:	10
Texture:	Silt loam	Fert. Level:	P1: 98 LB/A, K: 258 LB/A				

APPLICATION DESCRIPTION

	A
Application Date:	6-13-01
Time of Day:	See note
Application Method:	Spray
Application Timing:	4-6"W
Applic. Placement:	BROFOL
Soil Moisture:	NORMAL

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	ZEAMX V5
Height, Unit:	14-16 IN

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code:	AMATA
Stage(leaves):	8-10
Height(inches):	4-8
Density:	High

APPLICATION EQUIPMENT

	A
Appl. Equipment:	CO2 sprayer
Operating Pressure:	40 PSI
Nozzle Type:	Flat fan
Nozzle Size:	8002
Boom Length, Unit:	7.5 FT
Spray Volume, Unit:	20 GPA

NOTES: HARVESTED 10-4-01, 2 ROWS X 24 FT.

For time of day, see treatment list.

Air temperature (F) at 6:00, 11:00, 16:00 and 21:00 was 72, 86, 90, and 84, respectively.

Relative humidity at 6:00, 11:00, 16:00 and 21:00 was 98, 54, 46, and 66, respectively.

At 6:00 there was heavy dew present.

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Weed Code	ZEAMX	ZEAMX	AMATA	AMATA
Crop Code	Yield	Injury	Control	Control
Rating Data Type	bu/A	Percent	Percent	Percent
Rating Unit	10-4-01	6-27-01	6-27-01	7-11-01
Rating Date		14 DA-A	14 DA-A	28 DA-A
Trt-Eval Interval				

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	ZEAMX Yield	ZEAMX Injury	AMATA Control	AMATA Control
1	NONTREATED									158	0	0	0
2	6:00 AM									194	0	63	68
2	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-1	A				
2	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W-1	A				
2	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-1	A				
3	6:00 AM									182	0	65	72
3	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-1	A				
3	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-1	A				
3	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-1	A				
4	6:00 AM									187	0	65	72
4	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-1	A				
4	DESTINY MSO	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-1	A				
4	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-1	A				
5	6:00 AM									181	0	72	82
5	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-1	A				
5	AG DYNAMICS 1	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-1	A				
5	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-1	A				
6	11:00 AM									177	0	58	78
6	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-2	B				
6	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W-2	B				
6	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-2	B				
7	11:00 AM									188	0	62	80
7	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-2	B				
7	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-2	B				
7	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-2	B				
8	11:00 AM									198	0	62	77
8	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-2	B				
8	DESTINY MSO	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-2	B				
8	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-2	B				
9	11:00 AM									171	0	52	68
9	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-2	B				
9	AG DYNAMICS 1	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-2	B				
9	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-2	B				
10	4:00 PM									198	0	47	50
10	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-3	C				
10	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W-3	C				
10	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-3	C				
11	4:00 PM									201	0	47	63
11	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-3	C				
11	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-3	C				
11	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-3	C				
12	4:00 PM									178	0	55	73
12	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-3	C				
12	DESTINY MSO	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-3	C				
12	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-3	C				
13	4:00 PM									192	0	50	67
13	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-3	C				
13	AG DYNAMICS 1	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-3	C				
13	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-3	C				
14	9:00 PM									196	0	60	67
14	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-4	D				
14	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	4-6"W-4	D				
14	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-4	D				
15	9:00 PM									191	0	67	70
15	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-4	D				
15	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-4	D				
15	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-4	D				
16	9:00 PM									190	0	50	68
16	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-4	D				
16	DESTINY MSO	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-4	D				
16	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-4	D				

Weed Code									AMATA	AMATA
Crop Code										
Rating Data Type									ZEAMX	ZEAMX
Rating Unit									Yield	Injury
Rating Date									bu/A	Percent
Trt-Eval Interval									10-4-01	6-27-01
										Control
										Percent
										6-27-01
										7-11-01
										14 DA-A
										28 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code				
17	9:00 PM									193	0	57	60
17	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	4-6"W-4	D				
17	AG DYNAMICS 1	100	LIQ	1.0	% V/V	1	%V/V	4-6"W-4	D				
17	28% UAN	100	LIQ	2.5	% V/V	2.5	%V/V	4-6"W-4	D				
18	HANDWEED									205	0	99	99
	LSD (P=.05)									23.2	0.0	14.7	16.4
	Replicate F									7.156	0.000	1.652	4.560
	Replicate Prob(F)									0.0025	1.0000	0.2067	0.0176
	Treatment F									2.125	0.000	13.289	12.038
	Treatment Prob(F)									0.0301	1.0000	0.0001	0.0001

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Trial Comments

1. Protocol: SIU - BGY.
2. Blanket application of Accent + Activator 90 at 0.67 oz/A + 0.25 %v/v applied at 2-3 inch grass over entire area, using a 10 ft boom.
3. DA-A = days after 4-6"W application.