

Lightning plus Distinct and Callisto Tankmixtures.

02-11C-E70

OBJECTIVE: Determine if Lightning plus Distinct or Callisto can be used at reduced rates to provide sufficient weed control.

SUMMARY: The purpose of this study was to determine if reduced rates of Distinct or Callisto could be used with Lightning without unacceptable reductions in weed control. Lightning alone controlled 85 to 88% of giant foxtail and 47% of yellow nutsedge at 14 days after treatment (DAT). In general, tank mixing any rate of Distinct or Callisto with Lightning did not affect giant foxtail or yellow nutsedge control. Lightning alone controlled less than 5% of waterhemp at 14 DAT. Tank mixing Callisto with Lightning increased waterhemp control to at least 95% regardless of Callisto rate or adjuvant system (Prime Oil plus AMS vs. Activator-90 plus AMS). Tank mixing Distinct at 4 oz/A with Lightning increased waterhemp control 14 DAT to 88 to 94%. Using a reduced rate (2 oz/A) of Distinct with Lightning reduced waterhemp control from the tank mixture to 78 to 82%. Lightning alone provided 92% control of velvetleaf at 14 DAT. Tank mixing any rate of Callisto or Distinct at 4 oz plus Prime Oil and AMS with Lightning increased velvetleaf control by 4 to 7%. Common ragweed and ivyleaf morningglory control from Lightning alone was 82 to 85% at 14 DAT. The reduced rate of Callisto plus Prime Oil increased common ragweed control as much as the full rate of Callisto plus Prime Oil. In general, tank mixing the reduced rate of Callisto with Lightning provided weed control equal to the full rate of Callisto plus Lightning. Although the reduced rate of Distinct often increased weed control with Lightning, weed control with the full rate of Distinct plus Lightning was usually greater.

HERBICIDES

AATREX 90 WG
CALLISTO 4 SC
DISTINCT 70 WG
LIGHTNING 70 WG

WEEDS

foxtail, giant
morningglory, ivyleaf
nutsedge, yellow
ragweed, common
velvetleaf
waterhemp, common

CROP

corn, field

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Lightning plus Distinct and Callisto Tankmixtures.

Project Code: 02-11C-E70 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
 Trial Status: Final Updated: 10-31-02

Objective:

Determine if Lightning plus Distinct or Callisto can be used at reduced rates to provide sufficient weed control.

Weed Code	Common Name	Scientific Name
1. SETFA	foxtail, giant	Setaria faberi Herrm.
2. CYPES	nutsedge, yellow	Cyperus esculentus L.
3. AMATA	waterhemp, common	Amaranthus rudis Sauer
4. ABUTH	velvetleaf	Abutilon theophrasti Medicus
5. AMBEL	ragweed, common	Ambrosia artemisiifolia L.
6. IPOHE	morningglory, ivyleaf	Ipomoea hederacea (L.) Jacq.

Crop 1: ZEAMX corn, field Variety: Pioneer 33P71 CL
 Planting Method: Seeded Planting Date: 5-29-02
 Rate: 28000 S/A Depth: 1.5 IN
 Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 28 FT Reps: 3
 Tillage Type: Reduced-Till Study Design: Randomized complete block
 Previous Crop, Year: GLXMA, 2001

Field Prep./Maintenance: N 150 LB/A, P205 50 LB/A, K20 150 LB/A

Soil Name: Ebbert % OM: 1.7 pH: 6.0 CEC: 12
 Texture: Silt loam Fert. Level: P1: 68 LB/A, K: 225 LB/A

APPLICATION DESCRIPTION

A

Application Date: 6-17-02
 Time of Day: 17:00
 Application Method: Spray
 Application Timing: 12"CN
 Applic. Placement: BROFOL
 Air Temp., Unit: 82 F
 % Relative Humidity: 30
 Wind Velocity, Unit: 0-3 MPH
 Soil Moisture: NORMAL
 % Cloud Cover: 5

CROP STAGE AT EACH APPLICATION

A

Crop 1 Code, Stage: ZEAMX V5
 Height, Unit: 12 IN

WEED STAGE AT EACH APPLICATION

A

Weed 1 Code: SETFA
 Stage(leaves): 3-5
 Height(inches): 3-5
 Density: Medium

Weed 2 Code: CYPES
 Stage(leaves): 6-12
 Height(inches): 6-12
 Density: High

Weed 3 Code: AMATA
 Stage(leaves): 6-10
 Height(inches): 4-8
 Density: Low

Weed 4 Code: ABUTH
Stage(leaves): 3-5
Height(inches): 4-6
Density: Medium

Weed 5 Code: AMBEL
Stage(leaves): 4-8
Height(inches): 4-8
Density: Low

Weed 6 Code: IPOHE
Stage(leaves): 0-10
Height(inches): 1-8
Density: Low

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:

This study was not harvested.

Lightning plus Distinct and Callisto Tankmixtures.

Project Code: 02-11C-E70 Location: Belleville Research Center

Weed Code		SETFA SETFA CYPES CYPES AMATA AMATA ABUTH ABUTH AMBEL AMBEL IPOHE IPOHE																						
Crop Code		ZEAMX ZEAMX ZEAMX			Control		Control		Control		Control		Control		Control		Control		Control					
Rating Data Type		Injury Injury Injury			Percent		Percent		Percent		Percent		Percent		Percent		Percent		Percent					
Rating Unit		6-24-02 7-1-02 8-12-02			7-1-02		8-12-02		7-1-02		8-12-02		7-1-02		8-12-02		7-1-02		8-12-02					
Rating Date		7 DA-A 14 DA-A 56 DA-A			14 DA-A		56 DA-A		14 DA-A		56 DA-A		14 DA-A		56 DA-A		14 DA-A		56 DA-A					
Trt-Eval Interval																								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code															
1	NONTREATED									0	0	0	0	0	0	0	0	0	0	0				
2	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	85	96	47	53	2	3	92	95	85	90	83	88
2	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	12"CN	A															
2	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															
3	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	88	93	47	60	0	0	92	95	82	88	82	87
3	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	12"CN	A															
3	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															
4	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	85	96	50	62	88	94	90	96	90	96	90	92
4	DISTINCT	70	WG	0.175	LB A/A	4	OZ/A	12"CN	A															
4	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	12"CN	A															
4	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															
5	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	92	93	43	52	96	98	98	98	98	98	88	87
5	CALLISTO	4	SC	0.094	LB A/A	3	OZ/A	12"CN	A															
5	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	12"CN	A															
5	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															
6	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	83	93	53	60	82	87	90	93	85	90	87	88
6	DISTINCT	70	WG	0.0875	LB A/A	2	OZ/A	12"CN	A															
6	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	12"CN	A															
6	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															
7	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	85	95	47	57	98	98	99	99	96	98	90	90
7	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	12"CN	A															
7	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	12"CN	A															
7	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															
8	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	87	96	50	58	94	98	96	98	96	98	93	92
8	DISTINCT	70	WG	0.175	LB A/A	4	OZ/A	12"CN	A															
8	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	12"CN	A															
8	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															
9	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	85	95	47	52	96	93	99	99	99	99	87	83
9	CALLISTO	4	SC	0.094	LB A/A	3	OZ/A	12"CN	A															
9	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	12"CN	A															
9	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															
10	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	88	96	43	57	78	88	88	95	90	96	90	93
10	DISTINCT	70	WG	0.0875	LB A/A	2	OZ/A	12"CN	A															
10	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	12"CN	A															
10	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															

Weed Code	SETFA SETFA CYPES CYPES AMATA AMATA ABUTH ABUTH AMBEL AMBEL IPOHE IPOHE																
Crop Code	ZEAMX	ZEAMX	ZEAMX	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	
Rating Data Type	Injury	Injury	Injury	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	
Rating Date	6-24-02	7-1-02	8-12-02	7-1-02	8-12-02	7-1-02	8-12-02	7-1-02	8-12-02	7-1-02	8-12-02	7-1-02	8-12-02	7-1-02	8-12-02	7-1-02	8-12-02
Trt-Eval Interval	7 DA-A	14 DA-A	56 DA-A	14 DA-A	56 DA-A	14 DA-A	56 DA-A	14 DA-A	56 DA-A	14 DA-A	56 DA-A	14 DA-A	56 DA-A	14 DA-A	56 DA-A	14 DA-A	56 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code															
11	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	87	92	47	55	95	93	96	98	93	98	91	87
11	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	12"CN	A															
11	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	12"CN	A															
11	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															
12	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	72	88	47	53	98	99	99	99	98	98	99	90
12	DISTINCT	70	WG	0.0875	LB A/A	2	OZ/A	12"CN	A															
12	AATREX	90	WG	0.5	LB A/A	8.9	OZ/A	12"CN	A															
12	ACTIVATOR 90	100	LIQ	0.25	% V/V	0.25	%V/V	12"CN	A															
12	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															
13	LIGHTNING	70	WG	0.056	LB A/A	1.28	OZ/A	12"CN	A	0	0	0	82	96	53	65	99	99	99	99	99	99	99	97
13	CALLISTO	4	SC	0.047	LB A/A	1.5	OZ/A	12"CN	A															
13	AATREX	90	WG	0.5	LB A/A	8.9	OZ/A	12"CN	A															
13	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	12"CN	A															
13	AMS	100	DRY	2.5	LB/A	2.5	LB/A	12"CN	A															
LSD (P=.05)										0.0	0.0	0.0	6.6	3.2	10.0	11.5	6.2	8.2	4.2	3.4	4.7	3.2	6.6	7.6
Replicate F										0.000	0.000	0.000	2.182	2.370	0.291	2.378	1.101	0.212	1.819	0.388	0.591	0.513	0.714	3.674
Replicate Prob(F)										1.0000	1.0000	1.0000	0.1347	0.1150	0.7502	0.1142	0.3486	0.8106	0.1838	0.6829	0.5617	0.6052	0.4999	0.0406
Treatment F										0.000	0.000	0.000	113.091	554.615	15.782	17.182	363.495	214.212	347.437	540.090	261.356	589.067	126.551	92.522
Treatment Prob(F)										1.0000	1.0000	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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Location: Belleville Research Center

Trial Comments

1. Protocol: BASF.
2. DA-A = days after 12"CN application.