

Evaluation of Various Adjuvants with ZA1296.

00-11C-E70

OBJECTIVE: Determine the most effective adjuvant system for use in postemergence applications with ZA1296 while preventing extensive crop injury.

SUMMARY: Corn injury was 5% or less from all treatments. However, applications of ZA 1296 with Sun-it II and a nitrogen source resulted in the greatest amount of corn injury. ZA 1296 alone controlled 91 to 99% of common ragweed, velvetleaf, common waterhemp, and Pennsylvania smartweed with no significant differences between adjuvant treatments. Control of ivyleaf morningglory and prickly sida ranged from 83 to 88% with ZA 1296 with no differences between adjuvant treatments. Therefore, this research was not able to identify the most effective adjuvant system for postemergence applications of ZA 1296.

HERBICIDE/ADJUVANTS

ZA1296 4 EC
28% UAN 100 LIQ
ACTIVATOR 90 100 LIQ
AGRISTAY 100 LIQ
AMS 100 DRY
PRIME OIL COC 100 LIQ
SUN-IT II 100 LIQ

WEEDS

MORNINGGLORY, IVYLEAF
NUTSEDGE, YELLOW
RAGWEED, COMMON
SIDA, PRICKLY
SMARTWEED, PENNSYLVANIA
VELVETLEAF
WATERHEMP, COMMON

CROP

CORN, FIELD

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Evaluation of Various Adjuvants with ZA1296.

Project Code: 00-11C-E70 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

Weed Code	Common Name	Scientific Name
1. CYPES	NUTSEDGE, YELLOW	CYPERUS ESCULENTUS L.
2. AMATA	WATERHEMP, COMMON	AMARANTHUS RUDIS SAUER
3. AMBEL	RAGWEED, COMMON	AMBROSIA ARTEMISIIFOLIA L.
4. POLPY	SMARTWEED, PENNSYLVANIA	POLYGONUM PENNSYLVANICUM L.
5. ABUTH	VELVETLEAF	ABUTILON THEOPHRASTI MEDIK.
6. SIDSP	SIDA, PRICKLY	SIDA SPINOSA L.
7. IPOHE	MORNINGGLORY, IVYLEAF	IPOMOEA HEDERACEA (L.) JACQ.

Crop 1: ZEAMX CORN, FIELD
 Planting Method: SEED
 Rate: 28000 S/A
 Row Spacing: 30 IN

Variety: DK 683 SR
 Planting Date: May-3-00
 Depth: 1.5 IN

Plot Width, Unit: 10 FT
 Tillage Type: REDUCED-TILL
 Previous Crop, Year: GLXMA, 1999

Plot Length, Unit: 27 FT
 Study Design: RCB
 Fertilizer applied: N 150 LB/A, P₂O₅ 50 LB/A, K₂O 150 LB/A

Soil Name: EBBERT
 Texture: SILT LOAM

% OM: 2
 P₁: 66 LB/A, pH: 6.9
 K: 379 LB/A CEC: 12

APPLICATION DESCRIPTION

A
 Application Date: May-30-00
 Time of Day: 11:00
 Application Method: SPRAY
 Application Timing: 12"CN
 Applic. Placement: BROFOL
 Air Temp., Unit: 75 F
 % Relative Humidity: 75
 Wind Velocity, Unit: 4-6 MPH
 Soil Moisture: NORMAL
 % Cloud Cover: 0

CROP STAGE AT EACH APPLICATION

A
 Crop 1 Code, Stage: ZEAMX V4-V5
 Height, Unit: 12 IN

WEED STAGE AT EACH APPLICATION

A
 Weed 1 Code: CYPES
 Stage(leaves): 4-8
 Height(inches): 4-7
 Density: HIGH

Weed 2 Code: AMATA
 Stage(leaves): 3-5
 Height(inches): 2-5
 Density: MEDIUM

Weed 3 Code: AMBEL
 Stage(leaves): 4-6
 Height(inches): 3-6
 Density: HIGH

Weed 4 Code: POLPY
 Stage(leaves): 4-6
 Height(inches): 4-6
 Density: MEDIUM

Weed 5 Code: ABUTH
 Stage(leaves): 2-5
 Height(inches): 3-6
 Density: HIGH

Weed 6 Code: SIDSP
 Stage(leaves): 1-3
 Height(inches): 2-4
 Density: LOW

Weed 7 Code: IPOHE
 Stage(leaves): 1-4
 Height(inches): 2-4
 Density: HIGH

APPLICATION EQUIPMENT

A
 Appl. Equipment: CO, SPRAY
 Operating Pressure: 40 PSI
 Nozzle Type: FLAT FAN
 Nozzle Size: 8002
 Boom Length, Unit: 7.33 FT
 Spray Volume, Unit: 20 GPA

NOTES:

Not harvested.

TABLE. EVALUATION OF VARIOUS ADJUVANTS WITH ZA1296. PROJECT CODE:00-11C-E70

							ZEAMX			CONTROL, DAYS AFTER 12"CN														
						APPL	APPL	INJURY, DAT			CYPES		AMBEL		ABUTH		IPOHE		AMATA		POLPY		SIDSP	
TREATMENT	FORM.	RATE	UNIT	PROD	RATE	TIME	CODE	7	14	28	14	28	14	28	14	28	14	28	14	28	14	28	14	28
							%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
1	NONTREATED						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		0	0	0	48	43	91	91	96	96	88	88	99	98	99	98	88	86
3	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		0	0	0	47	33	88	88	95	96	87	87	99	99	99	99	86	85
3	PRIME OIL COC	100 LIQ	1.0 % V/V	1.0 %V/V	12"CN	A																		
4	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		0	0	0	43	40	89	89	96	96	87	87	99	99	99	99	86	84
4	SUN-IT II	100 LIQ	1.0 % V/V	1.0 %V/V	12"CN	A																		
5	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		0	0	0	52	43	90	90	96	98	88	88	99	98	99	99	87	85
5	AGRISTAY	100 LIQ	1.25 % V/V	1.25 %V/V	12"CN	A																		
6	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		1	1	0	50	40	90	92	95	95	87	87	99	98	99	99	87	83
6	28% UAN	100 LIQ	2.5 % V/V	2.5 %V/V	12"CN	A																		
7	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		0	0	0	48	40	93	93	95	95	87	87	99	99	99	99	87	85
7	PRIME OIL COC	100 LIQ	1.0 % V/V	1.0 %V/V	12"CN	A																		
7	28% UAN	100 LIQ	2.5 % V/V	2.5 %V/V	12"CN	A																		
8	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		4	4	0	47	33	93	93	96	96	87	87	99	99	99	99	88	86
8	SUN-IT II	100 LIQ	1.0 % V/V	1.0 %V/V	12"CN	A																		
8	28% UAN	100 LIQ	2.5 % V/V	2.5 %V/V	12"CN	A																		
9	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		3	3	0	43	27	93	93	96	96	86	86	99	99	99	99	88	85
9	AGRISTAY	100 LIQ	1.25 % V/V	1.25 %V/V	12"CN	A																		
9	28% UAN	100 LIQ	2.5 % V/V	2.5 %V/V	12"CN	A																		
10	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		0	0	0	48	37	87	87	95	95	88	87	99	99	99	99	87	85
10	AMS	100 DRY	2.0 % W/W	17.0 LB/100 GAL	12"CN	A																		
11	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		3	2	0	48	33	92	92	95	95	87	87	99	99	99	99	88	87
11	PRIME OIL COC	100 LIQ	1.0 % V/V	1.0 %V/V	12"CN	A																		
11	AMS	100 DRY	2.0 % W/W	17.0 LB/100 GAL	12"CN	A																		
12	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		5	4	1	50	42	91	91	96	96	87	87	99	99	99	99	88	86
12	SUN-IT II	100 LIQ	1.0 % V/V	1.0 %V/V	12"CN	A																		
12	AMS	100 DRY	2.0 % W/W	17.0 LB/100 GAL	12"CN	A																		
13	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		3	3	0	47	32	95	95	96	96	88	86	99	99	99	99	88	86
13	AGRISTAY	100 LIQ	1.25 % V/V	1.25 %V/V	12"CN	A																		
13	AMS	100 DRY	2.0 % W/W	17.0 LB/100 GAL	12"CN	A																		
14	ZA1296	4 EC	0.094 LB A/A	3.0 OZ/A	12"CN	A		0	0	0	52	47	95	95	95	95	87	86	99	99	99	99	87	86
14	ACTIVATOR 90	100 LIQ	0.25 % V/V	0.25 %V/V	12"CN	A																		
LSD							2	2	0.8	9	13	5	5	3	4	2	3	0	2	0	1	3	3	
P							0.01	0.01	0.5	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.0	0.01	1.0	0.01	0.01	0.01	

1. PROTOCOL: SIU-BGY AND BCJ.

2. BLANKET APPLICATION OF POAST PLUS AND COC AT 0.188 LBAI/A AND 1.0 %V/V, APPLIED AT 2-4 INCH GRASS HEIGHT ON MAY-22-00 TO ALL PLOTS.

3. RATING DATES:

7 DAYS AFTER 12"CN, 14 DAYS AFTER 12"CN, AND 28 DAYS AFTER 12"CN ON JUN-6-00, JUN-13-00, AND JUN-27-00, RESPECTIVELY.