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	WEEDS	CROP
ZA1296 4 EC	MORNINGGLORY, IVYLEAF	CORN, FIELD
28% UAN 100 LIQ	NUTSEDGE, YELLOW	
ACTIVATOR 90 100 LIQ	RAGWEED, COMMON	
AGRISTAY 100 LIQ	SIDA, PRICKLY	
AMS 100 DRY	SMARTWEED, PENNSYLVANIA	
PRIME OIL COC 100 LIQ	VELVETLEAF	
SUN-IT II 100 LIQ	WATERHEMP, COMMON	

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 PENSYLVANICUM 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	Variety:	DK 683 SR
Planting Method:	SEEDED	Planting Date:	May-3-00
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:	RCB	
Previous Crop, Year:	GLXMA, 1999	Fertilizer applied:	N 150 LB/A,	P_2O_5 50 LB/A, K_2O 150 LB/A

Soil Name:	EBBERT	% OM: 2	pH: 6.9	CEC: 12
Texture:	SILT LOAM	P_1: 66 LB/A,	K: 379 LB/A	

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_2 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

	TREATMENT	FORM.	RATE	UNIT	PROD RATE	APPL TIME	APPL CODE	ZEAMX INJURY, DAT 7	14	28	CONTROL, DAYS AFTER 12"CN CYPES 14	28	AMBEL 14	28	ABUTH 14	28	IPOHE 14	28	AMATA 14	28	POLPY 14	28	SIDSP 14	28
								%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
1	NONTREATED							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.