

Evaluation of Define in Preemergence and Early Postemergence Applications.

01-51W-N90

OBJECTIVE: Determine the rates of Define required for preemergence and early postemergence applications.

SUMMARY: Corn injury ranging from 8 to 10% was observed 14 days after the postemergence applications (DAPO) from treatments that included Buctril + atrazine. No injury was observed from any treatment by 28 DAPO.

All treatments provided at least 96% control of giant foxtail, waterhemp, ivyleaf morningglory, and velvetleaf at 56 DAPO. Yellow nutsedge control was generally poor from treatments of Define followed by Buctril + atrazine. Treatments that included Dual II Magnum or Bicep II Magnum tended to provide the greatest control of yellow nutsedge at 28 DAPO.

Corn yield ranged from 187 bu/A in nontreated plots to 216 bu/A. Corn yield was similar in all herbicide treated plots.

HERBICIDES

AATREX 90 WG
 AE F130360 35 WG
 BICEP II MAGNUM 5.5 L
 BUCTRIL+ATRAZINE 3 L
 CALLISTO 4 SC
 DEFINE 60 WG
 DUAL II MAGNUM 7.64 EC
 HORNET 68.5 WG
 LIBERTY 1.67 EC

WEEDS

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

CROP

corn, field

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Evaluation of Define in Preemergence and Early Postemergence Applications.

Project Code: 01-51W-N90 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: 4-19-01**Objective:**

Determine the rates of Define required for preemergence and early postemergence applications.

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. IPOHE	morningglory, ivyleaf	Ipomoea hederacea (L.) Jacq.
5. ABUTH	velvetleaf	Abutilon theophrasti Medicus

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 200 LB/A				

Soil Name:	Weir	% OM:	1.7	pH:	6.8	CEC:	11
Texture:	Silt loam	Fert. Level:	P1: 79 LB/A, K: 215 LB/A				

APPLICATION DESCRIPTION

	A	B
Application Date:	5-11-01	6-5-01
Time of Day:	8:00	11:30
Application Method:	Spray	Spray
Application Timing:	PRE	1-3"W
Applic. Placement:	BROS01	BROFOL
Air Temp., Unit:	68 F	84 F
% Relative Humidity:	82	60
Wind Velocity, Unit:	2-4 MPH	5-10 MPH
Soil Moisture:	NORMAL	ABONOR
% Cloud Cover:	75	20

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code, Stage:	ZEAMX NA	ZEAMX V4
Height, Unit:	NA NA	8-10 IN

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	SETFA	SETFA
Stage(leaves):		3-6
Height(inches):		2-4
Density:		Low
Weed 2 Code:	CYPES	CYPES
Stage(leaves):		3-6
Height(inches):		2-4
Density:		Medium
Weed 3 Code:	AMATA	AMATA
Stage(leaves):		2-4
Height(inches):		0.5-1
Density:		High

Weed 4 Code:	IPOHE	IPOHE
Stage(leaves):		2-4
Height(inches):		1-3
Density:		Medium

Weed 5 Code:	ABUTH	ABUTH
Stage(leaves):		2-4
Height(inches):		2-4
Density:		Medium

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan
Nozzle Size:	8003	8002
Boom Length, Unit:	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA

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

Evaluation of Define in Preemergence and Early Postemergence Applications.

Project Code: 01-51W-N90 Location: Belleville Research Center

Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	SETFA	SETFA	SETFA	SETFA	CYPES	CYPES	CYPES	CYPES
						Yield	Injury	Injury	Injury	Injury	Injury	Control	Control	Control	Control	Control	Control	Control	Control
						bu/A	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
						10-4-01	5-28-01	6-5-01	6-19-01	7-3-01	7-31-01	6-5-01	6-19-01	7-3-01	7-31-01	6-5-01	6-19-01	7-3-01	7-31-01
						14 DAE	0 DA-B	14 DA-B	28 DA-B	56 DA-B	0 DA-B	14 DA-B	28 DA-B	56 DA-B	0 DA-B	14 DA-B	28 DA-B	56 DA-B	0 DA-B

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	Yield	Injury	Injury	Injury	Injury	Injury	Control	Control	Control	Control	Control	Control		
1	NONTREATED									187	0	0	0	0	0	0	0	0	0	0	0		
2	DEFINE	60	WG	0.3	LB A/A	8	OZ/A	PRE	A	206	0	0	8	0	0	99	99	99	98	67	55	58	52
2	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B														
3	DEFINE	60	WG	0.375	LB A/A	10	OZ/A	PRE	A	208	0	0	10	0	0	99	99	99	98	63	58	63	58
3	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B														
4	DUAL II MAGNUM	7.64	EC	0.86	LB A/A	0.9	PT/A	PRE	A	195	0	0	10	0	0	99	99	99	98	95	93	92	87
4	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B														
5	DEFINE	60	WG	0.45	LB A/A	12	OZ/A	PRE	A	202	0	0	10	0	0	99	99	99	98	47	40	47	40
5	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B														
6	DUAL II MAGNUM	7.64	EC	1.05	LB A/A	1.1	PT/A	PRE	A	201	0	0	10	0	0	99	99	99	98	95	78	77	72
6	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B														
7	DEFINE	60	WG	0.525	LB A/A	14	OZ/A	PRE	A	214	0	0	8	0	0	99	99	99	98	60	40	42	35
7	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B														
8	DEFINE	60	WG	0.675	LB A/A	18	OZ/A	PRE	A	212	0	0	10	0	0	99	99	99	98	70	67	58	53
8	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B														
9	DUAL II MAGNUM	7.64	EC	1.595	LB A/A	1.67	PT/A	PRE	A	209	0	0	10	0	0	99	98	98	94	85	90	88	83
9	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B														
10	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B	216			0	0	0		99	98	96		78	80	75
10	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	1-3"W	B														
11	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B	197			0	0	0		99	99	98		93	90	86
11	DEFINE	60	WG	0.225	LB A/A	6	OZ/A	1-3"W	B														
11	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	1-3"W	B														
12	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B	210			0	0	0		99	99	98		80	80	75
12	DEFINE	60	WG	0.3375	LB A/A	9	OZ/A	1-3"W	B														
12	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	1-3"W	B														
13	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B	214			0	0	0		99	99	98		90	82	79
13	DEFINE	60	WG	0.45	LB A/A	12	OZ/A	1-3"W	B														
13	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	1-3"W	B														
14	AE F130360	35	WG	0.0328	LB A/A	1.5	OZ/A	1-3"W	B	206			0	0	0		99	98	97		73	72	67
14	DEFINE	60	WG	0.3	LB A/A	8	OZ/A	1-3"W	B														
14	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	1-3"W	B														
15	AE F130360	35	WG	0.0328	LB A/A	1.5	OZ/A	1-3"W	B	206			0	0	0		99	99	98		60	52	45
15	CALLISTO	4	SC	0.094	LB A/A	3	OZ/A	1-3"W	B														
15	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	1-3"W	B														
15	AMS	100	DRY	3.0	LB A/A	3	LB/A	1-3"W	B														
16	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B	216			0	0	0		99	97	95		82	78	73
16	CALLISTO	4	SC	0.094	LB A/A	3	OZ/A	1-3"W	B														
16	AMS	100	DRY	3.0	LB A/A	3	LB/A	1-3"W	B														

Weed Code										SETFA	SETFA	SETFA	SETFA	CYPES	CYPES	CYPES	CYPES
Crop Code										ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
Rating Data Type										Yield	Injury	Injury	Injury	Injury	Injury	Control	Control
Rating Unit										bu/A	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date										10-4-01	5-28-01	6-5-01	6-19-01	7-3-01	7-31-01	6-5-01	6-19-01
Trt-Eval Interval										14 DAE	0 DA-B	14 DA-B	28 DA-B	56 DA-B	0 DA-B	14 DA-B	28 DA-B

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code														
17	BICEP II MAGNUM	5.5	L	2.89	LB A/A	2.1	QT/A	1-3"W	B	214		8	0	0	92	87	84	90	87	82			
17	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	1-3"W	B														
18	BICEP II MAGNUM	5.5	L	2.89	LB A/A	2.1	QT/A	1-3"W	B	213		7	0	0	97	97	93	92	85	80			
18	HORNET	68.5	WG	0.128	LB A/A	3	OZ/A	1-3"W	B														
18	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	1-3"W	B														
LSD (P=.05)										19.6	0.0	0.0	2.2	0.0	0.0	0.0	1.9	3.0	5.1	15.2	13.8	14.9	16.2
Replicate F										3.154	0.000	0.000	1.831	0.000	0.000	0.000	0.568	1.843	1.683	1.221	1.408	2.722	2.695
Replicate Prob(F)										0.0554	1.0000	1.0000	0.1757	1.0000	1.0000	1.0000	0.5719	0.1738	0.2071	0.3209	0.2586	0.0801	0.0819
Treatment F										1.380	0.000	0.000	38.477	0.000	0.000	0.000	1275.740	497.470	175.169	32.736	26.450	19.936	16.359
Treatment Prob(F)										0.2065	1.0000	1.0000	0.0001	1.0000	1.0000	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Evaluation of Define in Preemergence and Early Postemergence Applications.

Project Code: 01-51W-N90 Location: Belleville Research Center

Weed Code				AMATA	AMATA	AMATA	AMATA	IPOHE	IPOHE	IPOHE	IPOHE	ABUTH	ABUTH	ABUTH	ABUTH				
Rating Data Type				Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control				
Rating Unit				Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent				
Rating Date				6-5-01	6-19-01	7-3-01	7-31-01	6-5-01	6-19-01	7-3-01	7-31-01	6-5-01	6-19-01	7-3-01	7-31-01				
Trt-Eval Interval				0 DA-B	14 DA-B	28 DA-B	56 DA-B	0 DA-B	14 DA-B	28 DA-B	56 DA-B	0 DA-B	14 DA-B	28 DA-B	56 DA-B				
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			
2	DEFINE	60	WG	0.3	LB A/A	8	OZ/A	PRE	A	96	99	99	98	0	99	99			
2	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B										
3	DEFINE	60	WG	0.375	LB A/A	10	OZ/A	PRE	A	98	99	99	98	13	99	98			
3	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B										
4	DUAL II MAGNUM	7.64	EC	0.86	LB A/A	0.9	PT/A	PRE	A	98	99	99	98	3	99	99			
4	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B										
5	DEFINE	60	WG	0.45	LB A/A	12	OZ/A	PRE	A	99	99	99	98	50	99	99			
5	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B										
6	DUAL II MAGNUM	7.64	EC	1.05	LB A/A	1.1	PT/A	PRE	A	99	99	99	98	17	99	99			
6	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B										
7	DEFINE	60	WG	0.525	LB A/A	14	OZ/A	PRE	A	99	99	99	98	63	99	99			
7	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B										
8	DEFINE	60	WG	0.675	LB A/A	18	OZ/A	PRE	A	99	99	99	98	33	99	98			
8	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B										
9	DUAL II MAGNUM	7.64	EC	1.595	LB A/A	1.67	PT/A	PRE	A	99	99	99	98	0	99	98			
9	BUCTRIL+ATRAZINE	3	L	0.563	LB A/A	1.5	PT/A	1-3"W	B										
10	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B		99	99	98		99	99			
10	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	1-3"W	B										
11	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B		99	99	98		99	99			
11	DEFINE	60	WG	0.225	LB A/A	6	OZ/A	1-3"W	B										
11	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	1-3"W	B										
12	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B		99	99	98		99	99			
12	DEFINE	60	WG	0.3375	LB A/A	9	OZ/A	1-3"W	B										
12	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	1-3"W	B										
13	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B		99	99	98		99	99			
13	DEFINE	60	WG	0.45	LB A/A	12	OZ/A	1-3"W	B										
13	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	1-3"W	B										
14	AE F130360	35	WG	0.0328	LB A/A	1.5	OZ/A	1-3"W	B		99	99	98		99	99			
14	DEFINE	60	WG	0.3	LB A/A	8	OZ/A	1-3"W	B										
14	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	1-3"W	B										
15	AE F130360	35	WG	0.0328	LB A/A	1.5	OZ/A	1-3"W	B		99	99	98		99	99			
15	CALLISTO	4	SC	0.094	LB A/A	3	OZ/A	1-3"W	B										
15	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	1-3"W	B										
15	AMS	100	DRY	3.0	LB A/A	3	LB/A	1-3"W	B										
16	LIBERTY	1.67	EC	0.365	LB A/A	28	OZ/A	1-3"W	B		99	99	98		99	99			
16	CALLISTO	4	SC	0.094	LB A/A	3	OZ/A	1-3"W	B										
16	AMS	100	DRY	3.0	LB A/A	3	LB/A	1-3"W	B										

Weed Code	AMATA	AMATA	AMATA	AMATA	IPOHE	IPOHE	IPOHE	IPOHE	ABUTH	ABUTH	ABUTH	ABUTH
Rating Data Type	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	6-5-01	6-19-01	7-3-01	7-31-01	6-5-01	6-19-01	7-3-01	7-31-01	6-5-01	6-19-01	7-3-01	7-31-01
Trt-Eval Interval	0 DA-B	14 DA-B	28 DA-B	56 DA-B	0 DA-B	14 DA-B	28 DA-B	56 DA-B	0 DA-B	14 DA-B	28 DA-B	56 DA-B

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code												
17	BICEP II MAGNUM	5.5	L	2.89	LB A/A	2.1	QT/A	1-3"W	B												
17	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	1-3"W	B	99	99	98		99	99	98					
18	BICEP II MAGNUM	5.5	L	2.89	LB A/A	2.1	QT/A	1-3"W	B												
18	HORNET	68.5	WG	0.128	LB A/A	3	OZ/A	1-3"W	B	99	99	98		99	99	98					
18	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	1-3"W	B												
LSD (P=.05)										3.2	0.0	0.0	0.0	16.1	0.0	0.9	1.8	22.5	0.0	0.0	0.0
Replicate F										3.176	0.000	0.000	0.000	0.903	0.000	0.239	0.136	1.970	0.000	0.000	0.000
Replicate Prob(F)										0.0689	1.0000	1.0000	1.0000	0.4250	1.0000	0.7884	0.8733	0.1719	1.0000	1.0000	1.0000
Treatment F										956.459	0.000	0.000	0.000	19.548	0.000	5264.172	1299.112	3.820	0.000	0.000	0.000
Treatment Prob(F)										0.0001	1.0000	1.0000	1.0000	0.0001	1.0000	0.0001	0.0001	0.0108	1.0000	1.0000	1.0000

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Project Code: 01-51W-N90 Location: Belleville Research Center

Trial Comments

1. Protocol: Aventis.
2. DAE = days after emergence. DA-B = days after 1-3"W application. 0 DA-B = prior to postemergence application.