

(01-ACS-4)

Preemergence applied Axiom and Epic followed by various postemergence herbicides for weed control in Liberty Link corn, Ames, Iowa, 2001. Owen, Micheal D.K., James F. Lux, and Damian D. Franzenburg. The purpose of this study was to evaluate flufenacet and other chloracetamide herbicides for weed efficacy and corn phytotoxicity. The soil was a Canisteo, Nicollet, Clarion Webster clay loam with a pH 6.8 and 4.3% organic matter. The experimental design was a randomized complete block with three replications and plots were 10 by 25 ft. The 2000 crop was soybean. Tillage included a spring field cultivation. Fertilization included 124 lb/A applied as urea. Crop residue on the soil surface was 7% at planting. "Pioneer hybrid 33P69 LL" corn was planted 1.25 inches deep on May 9, at 30,200 seeds/A in 30-inch rows. May rainfall included: 0.18, 0.39, 0.83, 0.12, 0.15, 0.22, 0.07, 0.98, 0.26, 1.58, 0.05, 0.15, 0.03, 0.27, 0.20, 0.02, 0.13 and 0.64 inches on May 1, 2, 3, 4, 5, 6, 9, 10, 13, 20, 21, 23, 24, 25, 26, 27, 28 and 31, respectively. Total rainfall for May was 6.27 inches. June rainfall included: 0.07, 0.02, 0.30, 0.14, 0.59, 0.38, 0.16 and 0.01 inches on June 1, 4, 5, 10, 12, 14, 16 and 20, respectively. Total rainfall for June was 1.67 inches. July rainfall included: 0.44 inches and 1.24 inches from July 1 through 15 and 16 through 31, respectively. Rainfall total for August was 2.50 inches. Application information is listed below:

Date	May 10	June 7	June 16
Treatment	PRE	EPOST	POST
Sprayer			
gpa	20	20	20
psi	30	30	30
nozzle	11002	11002	11002
Temperature (C)			
air	28	27	28
soil (4 inch)	20	26	22
Soil moisture	dry	damp	damp
Wind (mph)	7-10 SW	8-10 N	5-10 NW
Sky	cloudy	clear	clear
Relative humidity (%)	53%	46%	58%
Corn growth			
leaf no.	-	V4	V5-V6
height (inch)	-	4-5	6-12
Giant foxtail			
leaf no.	-	1-2	2-4, 0-3 tillers
height (inch)	-	0.25-0.5	0.5-4
infestation (ft <sup>2</sup> )	-	0-10	0-3
Common lambsquarters			
leaf no.	-	cotyl-6	numerous
height (inch)	-	0.125-3	1-4
infestation (ft <sup>2</sup> )	-	0-3	0-2
Common waterhemp			
leaf no.	-	-	numerous
height (inch)	-	-	1-2
infestation (ft <sup>2</sup> )	-	-	0-1
Ivyleaf morningglory			
leaf no.	-	cotyl	numerous
height (inch)	-	0.5-1	1-3
infestation (ft <sup>2</sup> )	-	0-5	0-4

Velvetleaf			
leaf no.	-	cotyl	cotyl-5
height (inch)	-	0.25	0.25-1.5
infestation (ft <sup>2</sup> )	-	0-2	0-1
Venice mallow			
leaf no.	-	-	cotyl-4
height (inch)	-	-	0.25-1.5
infestation (ft <sup>2</sup> )	-	-	0-1

Significant differences in corn stand between treatments were not attributable to the herbicides, but to variable emergence. PRE applied treatments exhibited excellent crop safety on May 29, prior to postemergence applications. On June 16, nearly all PRE and PRE followed by EPOST treatments provided good to excellent giant foxtail, velvetleaf, common waterhemp, common lambsquarters, and venice mallow control. No treatment achieved acceptable control of ivyleaf morningglory. Most EPOST and POST applied treatments caused corn injury, though 8% or less, when observed on June 25 and July 16. Good to excellent control of giant foxtail, velvetleaf, common waterhemp, common lambsquarters, and venice mallow was observed on July 16 and August 20, following POST applications. Generally, Ivyleaf morningglory control on July 16 and August 20 did not improve from earlier observations. (Dept. of Agronomy, Iowa State University, Ames)

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CREATED: 06/05/2001 REVISED: 12/10/2001

COMPLETED: N

PROJECT TYPE: HERBICIDE

LOCATION: AMES, IA

RESEARCHED BY: IA State University

DESIGN: RANDOMIZED COMPLETE BLOCK DESIGN

PLOT SIZE: 10.00 FT WIDE X 25.00 FT LONG

REPS: 03

TRT NUM	TREATMENT COMPONENT	DOSAGE			ZEAMD	ZEAMD	ZEAMD	SETFA	ABUTH
		RATE	UNIT	TM	17.5 FT 07/19/01	PHY % 05/29/01	PHY % 06/16/01	CON % 06/16/01	CON % 06/16/01
1A	UNTREATED CHECK	0.00	NA	0	24	0	0	0	0
2A	»AXIOM (68DF)	0.98	LAA	1	28	0	0	98	96
	B»HORNET WDG (68.5WG)	0.128	LAA	1					
3A	HARNES XTRA (6SC)	3.45	LAA	1	26	0	0	99	73
4A	»EPIC (58DF)	0.54	LAA	1	27	0	0	98	98
5A	»EPIC (58DF)	0.44	LAA	1	26	0	0	98	98
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
6A	»USA 2001 (71.5DF)	0.58	LAA	1	26	0	0	98	95
7A	»USA 2001 (71.5DF)	0.72	LAA	1	29	0	0	99	98
8A	»USA 2001 (71.5DF)	0.58	LAA	1	26	0	0	99	96
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
9A	»USA 2001 (71.5DF)	0.72	LAA	1	27	0	0	96	96
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
10A	»AXIOM (68DF)	0.89	LAA	1	28	0	0	98	99
	B MARKSMAN (3.2SC)	1.00	LAA	2					
	C»28%N	2.50	PMV	2					
11A	»USA 2001 (71.5DF)	0.36	LAA	1	27	0	0	90	88
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C»CROP OIL CONCENTRATE	1.00	PMV	3					
	D»28%N	2.50	PMV	3					
12A	»EPIC (58DF)	0.25	LAA	1	26	0	0	90	90
	B»LIBERTY (1.67SL)	0.261	LAA	3					
	C»AMMONIUM SULFATE	3.00	LMA	3					
13A	»USA 2001 (71.5DF)	0.36	LAA	1	24	0	0	90	93
	B»LIBERTY (1.67SL)	0.261	LAA	3					
	C»AMMONIUM SULFATE	3.00	LMA	3					
14A	»EPIC (58DF)	0.25	LAA	1	25	0	0	92	96
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C»CROP OIL CONCENTRATE	1.00	PMV	3					
	D»28%N	2.50	PMV	3					
15A	»DEFINE (60DF)	0.79	LAA	2	25	0	0	95	98
	B ATRAZINE 90DF (WG)	0.90	LAA	2					
	C»CROP OIL CONCENTRATE	1.00	QMA	2					
16A	»LEADOFF (5SL)	0.94	LAA	1	29	0	0	85	83
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C CLARITY (4SL)	0.125	LAA	3					
	D»CROP OIL CONCENTRATE	1.00	PMV	3					
	E»28%N	2.00	QMA	3					
LSD (0.05)					3.81	0.00	0.00	6.45	9.00

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PLOT SIZE: 10.00 FT WIDE X 25.00 FT LONG

REPS: 03

TRT NUM	TREATMENT COMPONENT	DOSAGE			AMATA	CHEAL	HIBTR	IPOHG	ZEAMD
		RATE	UNIT	TM	CON % 06/16/01	CON % 06/16/01	CON % 06/16/01	CON % 06/16/01	PHY % 06/25/01
1A	UNTREATED CHECK	0.00	NA	0	0	0	0	0	0
2A	»AXIOM (68DF)	0.98	LAA	1	99	99	98	63	0
	B»HORNET WDG (68.5WG)	0.128	LAA	1					
3A	HARNES XTRA (6SC)	3.45	LAA	1	99	99	96	73	2
4A	»EPIC (58DF)	0.54	LAA	1	99	99	96	75	3
5A	»EPIC (58DF)	0.44	LAA	1	99	99	98	63	0
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
6A	»USA 2001 (71.5DF)	0.58	LAA	1	99	98	96	57	0
7A	»USA 2001 (71.5DF)	0.72	LAA	1	99	99	99	57	0
8A	»USA 2001 (71.5DF)	0.58	LAA	1	99	99	99	81	0
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
9A	»USA 2001 (71.5DF)	0.72	LAA	1	99	99	99	77	5
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
10A	»AXIOM (68DF)	0.89	LAA	1	99	99	99	82	5
	B MARKSMAN (3.2SC)	1.00	LAA	2					
	C»28%N	2.50	PMV	2					
11A	»USA 2001 (71.5DF)	0.36	LAA	1	99	92	93	63	8
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C»CROP OIL CONCENTRATE	1.00	PMV	3					
	D»28%N	2.50	PMV	3					
12A	»EPIC (58DF)	0.25	LAA	1	99	93	90	40	2
	B»LIBERTY (1.67SL)	0.261	LAA	3					
	C»AMMONIUM SULFATE	3.00	LMA	3					
13A	»USA 2001 (71.5DF)	0.36	LAA	1	96	92	93	72	2
	B»LIBERTY (1.67SL)	0.261	LAA	3					
	C»AMMONIUM SULFATE	3.00	LMA	3					
14A	»EPIC (58DF)	0.25	LAA	1	99	95	88	45	7
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C»CROP OIL CONCENTRATE	1.00	PMV	3					
	D»28%N	2.50	PMV	3					
15A	»DEFINE (60DF)	0.79	LAA	2	99	99	99	81	2
	B ATRAZINE 90DF (WG)	0.90	LAA	2					
	C»CROP OIL CONCENTRATE	1.00	QMA	2					
16A	»LEADOFF (5SL)	0.94	LAA	1	96	80	80	50	5
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C CLARITY (4SL)	0.125	LAA	3					
	D»CROP OIL CONCENTRATE	1.00	PMV	3					
	E»28%N	2.00	QMA	3					
LSD (0.05)					3.11	7.00	7.30	45.07	5.31

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REPS: 03

TRT NUM	TREATMENT COMPONENT	DOSAGE			ZEAMD	SETFA	ABUTH	AMATA	CHEAL
		RATE	UNIT	TM	PHY % 07/16/01	CON % 07/16/01	CON % 07/16/01	CON % 07/16/01	CON % 07/16/01
1A	UNTREATED CHECK	0.00	NA	0	0	0	0	0	0
2A	»AXIOM (68DF)	0.98	LAA	1	0	95	96	99	99
	B»HORNET WDG (68.5WG)	0.128	LAA	1					
3A	HARNES XTRA (6SC)	3.45	LAA	1	2	98	52	99	95
4A	»EPIC (58DF)	0.54	LAA	1	3	98	98	99	99
5A	»EPIC (58DF)	0.44	LAA	1	0	96	99	99	99
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
6A	»USA 2001 (71.5DF)	0.58	LAA	1	0	96	96	98	99
7A	»USA 2001 (71.5DF)	0.72	LAA	1	0	93	96	99	98
8A	»USA 2001 (71.5DF)	0.58	LAA	1	0	98	98	99	99
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
9A	»USA 2001 (71.5DF)	0.72	LAA	1	5	95	99	99	98
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
10A	»AXIOM (68DF)	0.89	LAA	1	5	98	99	99	99
	B MARKSMAN (3.2SC)	1.00	LAA	2					
	C»28%N	2.50	PMV	2					
11A	»USA 2001 (71.5DF)	0.36	LAA	1	8	93	96	99	96
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C»CROP OIL CONCENTRATE	1.00	PMV	3					
	D»28%N	2.50	PMV	3					
12A	»EPIC (58DF)	0.25	LAA	1	2	95	99	99	99
	B»LIBERTY (1.67SL)	0.261	LAA	3					
	C»AMMONIUM SULFATE	3.00	LMA	3					
13A	»USA 2001 (71.5DF)	0.36	LAA	1	2	92	96	99	96
	B»LIBERTY (1.67SL)	0.261	LAA	3					
	C»AMMONIUM SULFATE	3.00	LMA	3					
14A	»EPIC (58DF)	0.25	LAA	1	7	93	99	99	99
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C»CROP OIL CONCENTRATE	1.00	PMV	3					
	D»28%N	2.50	PMV	3					
15A	»DEFINE (60DF)	0.79	LAA	2	2	93	96	99	98
	B ATRAZINE 90DF (WG)	0.90	LAA	2					
	C»CROP OIL CONCENTRATE	1.00	QMA	2					
16A	»LEADOFF (5SL)	0.94	LAA	1	5	92	98	99	99
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C CLARITY (4SL)	0.125	LAA	3					
	D»CROP OIL CONCENTRATE	1.00	PMV	3					
	E»28%N	2.00	QMA	3					
LSD (0.05)					5.31	5.85	4.79	1.00	3.43

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REPS: 03

TRT	TREATMENT NUM COMPONENT	DOSAGE			HIBTR	IPOHG	SETFA	ABUTH	AMATA
		RATE	UNIT	TM	CON % 07/16/01	CON % 07/16/01	CON % 08/20/01	CON % 08/20/01	CON % 08/20/01
1A	UNTREATED CHECK	0.00	NA	0	0	0	0	0	0
2A	»AXIOM (68DF)	0.98	LAA	1	98	42	92	96	99
	B»HORNET WDG (68.5WG)	0.128	LAA	1					
3A	HARNES XTRA (6SC)	3.45	LAA	1	92	70	92	45	99
4A	»EPIC (58DF)	0.54	LAA	1	96	67	95	98	99
5A	»EPIC (58DF)	0.44	LAA	1	99	80	93	99	98
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
6A	»USA 2001 (71.5DF)	0.58	LAA	1	96	57	96	96	98
7A	»USA 2001 (71.5DF)	0.72	LAA	1	99	57	92	96	99
8A	»USA 2001 (71.5DF)	0.58	LAA	1	98	60	96	98	99
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
9A	»USA 2001 (71.5DF)	0.72	LAA	1	98	73	93	98	99
	B ATRAZINE 90DF (WG)	0.90	LAA	1					
10A	»AXIOM (68DF)	0.89	LAA	1	99	65	94	99	99
	B MARKSMAN (3.2SC)	1.00	LAA	2					
	C»28%N	2.50	PMV	2					
11A	»USA 2001 (71.5DF)	0.36	LAA	1	94	73	92	98	99
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C»CROP OIL CONCENTRATE	1.00	PMV	3					
	D»28%N	2.50	PMV	3					
12A	»EPIC (58DF)	0.25	LAA	1	99	88	91	99	99
	B»LIBERTY (1.67SL)	0.261	LAA	3					
	C»AMMONIUM SULFATE	3.00	LMA	3					
13A	»USA 2001 (71.5DF)	0.36	LAA	1	98	95	88	96	99
	B»LIBERTY (1.67SL)	0.261	LAA	3					
	C»AMMONIUM SULFATE	3.00	LMA	3					
14A	»EPIC (58DF)	0.25	LAA	1	99	93	88	99	99
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C»CROP OIL CONCENTRATE	1.00	PMV	3					
	D»28%N	2.50	PMV	3					
15A	»DEFINE (60DF)	0.79	LAA	2	99	83	87	95	99
	B ATRAZINE 90DF (WG)	0.90	LAA	2					
	C»CROP OIL CONCENTRATE	1.00	QMA	2					
16A	»LEADOFF (5SL)	0.94	LAA	1	99	98	88	98	99
	B»BASIS GOLD (89.5DF)	0.783	LAA	3					
	C CLARITY (4SL)	0.125	LAA	3					
	D»CROP OIL CONCENTRATE	1.00	PMV	3					
	E»28%N	2.00	QMA	3					
LSD (0.05)					4.78	41.62	7.22	4.09	1.38

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**REPS:** 03

TRT	TREATMENT	DOSAGE			CHEAL	HIBTR	IPOHG		
		NUM	COMPONENT	RATE	UNIT	TM	CON %	CON %	CON %
					08/20/01	08/20/01	08/20/01		
1A	UNTREATED CHECK			0.00	NA	0	0	0	0
2A	»AXIOM (68DF)			0.98	LAA	1	99	98	42
	B»HORNET WDG (68.5WG)			0.128	LAA	1			
3A	HARNES XTRA (6SC)			3.45	LAA	1	91	92	58
4A	»EPIC (58DF)			0.54	LAA	1	99	96	57
5A	»EPIC (58DF)			0.44	LAA	1	99	99	57
	B ATRAZINE 90DF (WG)			0.90	LAA	1			
6A	»USA 2001 (71.5DF)			0.58	LAA	1	98	96	52
7A	»USA 2001 (71.5DF)			0.72	LAA	1	98	99	45
8A	»USA 2001 (71.5DF)			0.58	LAA	1	99	98	43
	B ATRAZINE 90DF (WG)			0.90	LAA	1			
9A	»USA 2001 (71.5DF)			0.72	LAA	1	98	98	55
	B ATRAZINE 90DF (WG)			0.90	LAA	1			
10A	»AXIOM (68DF)			0.89	LAA	1	99	99	35
	B MARKSMAN (3.2SC)			1.00	LAA	2			
	C»28%N			2.50	PMV	2			
11A	»USA 2001 (71.5DF)			0.36	LAA	1	96	98	60
	B»BASIS GOLD (89.5DF)			0.783	LAA	3			
	C»CROP OIL CONCENTRATE			1.00	PMV	3			
	D»28%N			2.50	PMV	3			
12A	»EPIC (58DF)			0.25	LAA	1	99	99	48
	B»LIBERTY (1.67SL)			0.261	LAA	3			
	C»AMMONIUM SULFATE			3.00	LMA	3			
13A	»USA 2001 (71.5DF)			0.36	LAA	1	96	98	65
	B»LIBERTY (1.67SL)			0.261	LAA	3			
	C»AMMONIUM SULFATE			3.00	LMA	3			
14A	»EPIC (58DF)			0.25	LAA	1	99	99	47
	B»BASIS GOLD (89.5DF)			0.783	LAA	3			
	C»CROP OIL CONCENTRATE			1.00	PMV	3			
	D»28%N			2.50	PMV	3			
15A	»DEFINE (60DF)			0.79	LAA	2	98	99	55
	B ATRAZINE 90DF (WG)			0.90	LAA	2			
	C»CROP OIL CONCENTRATE			1.00	QMA	2			
16A	»LEADOFF (5SL)			0.94	LAA	1	99	99	72
	B»BASIS GOLD (89.5DF)			0.783	LAA	3			
	C CLARITY (4SL)			0.125	LAA	3			
	D»CROP OIL CONCENTRATE			1.00	PMV	3			
	E»28%N			2.00	QMA	3			
LSD (0.05)							4.77	3.52	43.12

» = SUPPLEMENTAL CHEMICAL

\* TIMING CODES

00 = UNTRCHK / UNTREATED TIMING (FP)

01 = PREPRE / PRE 05/10/2001(1)

02 = EAPOWE / EPOST 06/07/2001(2)

03 = POSPOS / POST 06/16/2001(3)