

(01-ACN-1)

Evaluation of effectiveness of sequential treatments of Balance Pro and Define for weed control and corn tolerance, Ames, Iowa, 2001. Owen, Micheal D.K., James F. Lux, and Damian D. Franzenburg. The purpose of this study was to evaluate isoxaflutole applied early preplant for burndown activity on emerged weeds and residual control in no-tillage corn production systems. 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. Fertilization included 124 lb/A actual N applied as urea. Crop residue on the soil surface was 63% at planting. "Garst hybrid 8550" corn was planted 1.75 inches deep on May 8, at 30,200 seeds/A in 30-inch rows. April rainfall included: 0.01, 0.25, 0.01, 0.54, 0.41, 0.87, 0.09, 0.01, 0.07, 0.02, 0.73, 0.07 and 0.26 inches on April 2, 6, 7, 8, 10, 11, 13, 15, 20, 21, 22, 24 and 30, respectively. Total rainfall for April was 3.34 inches. 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	April 18	May 9
Treatment	EPP	PRE
Sprayer		
gpa	20	20
psi	30	30
nozzle	11003	11002
Temperature (C)		
air	18	24
soil (4 inch)	13	20
Soil moisture	dry	dry
Wind (mph)	5-7 SSW	7-10 S
Sky	clear	clear
Relative humidity (%)	35%	52%
Giant foxtail		
leaf no.	-	1-2
height (inch)	-	0.25-0.5
infestation (ft ²)	-	5-20
Common lambsquarters		
leaf no.	cotyl-2	numerous
height (inch)	0.25	0.5-2
infestation (ft ²)	5-25	10-30
Common waterhemp		
leaf no.	-	1-3
height (inch)	-	0.5
infestation (ft ²)	-	0-1
Pennsylvania smartweed		
leaf no.	-	2-3
height (inch)	-	0.5-2
infestation (ft ²)	-	0-1

Velvetleaf		
leaf no.	-	cotyl-3
height (inch)	-	0.25-1.5
infestation (ft ²)	-	1-5

Effect of herbicide treatment on corn stand could not be evaluated due to serious stand reductions caused by cutworm feeding. Corn injury was evaluated on the remaining stand and none was detected from any treatment on May 12, June 9, and 16. EPP applications of Balance Pro and Axiom were effective in controlling giant foxtail and common lambsquarters when observed on May 12, twenty-four days after application. All treatments, when observed on May 25 and following May 9 PRE applications, had achieved 99% control of giant foxtail, velvetleaf, common waterhemp, common lambsquarters, and Pennsylvania smartweed. Control of these species continued to be acceptable with all treatments when observed on June 9 and July 9. (Dept. of Agronomy, Iowa State University, Ames)

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CREATED: 06/04/2001 **REVISED:** 11/30/2001

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			SETFA	CHEAL	ZEAMD	SETFA	ABUTH
		RATE	UNIT	TM	CON % 05/12/01	CON % 05/12/01	PHY % 05/25/01	CON % 05/25/01	CON % 05/25/01
1A	UNTREATED CHECK	0.00	NA	0	0	0	0	0	0
2A	BALANCE PRO (4SC)	0.047	LAA	1	99	99	0	99	99
	B>BALANCE PRO (4SC)	0.07	LAA	2					
	C ATRAZINE 90DF (WG)	1.35	LAA	2					
	D>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	E>AMMONIUM SULFATE	8.50	PMG	2					
3A	BALANCE PRO (4SC)	0.117	LAA	2	0	0	0	99	99
	B ATRAZINE 90DF (WG)	1.35	LAA	2					
	C>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	D>AMMONIUM SULFATE	8.50	PMG	2					
4A	BALANCE PRO (4SC)	0.07	LAA	1	99	99	0	99	99
	B>BALANCE PRO (4SC)	0.047	LAA	2					
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	D>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	E>AMMONIUM SULFATE	8.50	PMG	2					
5A	BALANCE PRO (4SC)	0.094	LAA	1	99	99	0	99	99
	B>DEFINE (60DF)	0.30	LAA	2					
	C ATRAZINE 90DF (WG)	1.35	LAA	2					
	D>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	E>AMMONIUM SULFATE	8.50	PMG	2					
6A	BALANCE PRO (4SC)	0.094	LAA	2	0	0	0	99	99
	B>DEFINE (60DF)	0.30	LAA	2					
	C ATRAZINE 90DF (WG)	1.35	LAA	2					
	D>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	E>AMMONIUM SULFATE	8.50	PMG	2					
7A	AXIOM (68DF)	0.60	LAA	1	99	99	0	99	99
	B>AXIOM (68DF)	0.29	LAA	2					
	C>BALANCE PRO (4SC)	0.094	LAA	2					
	D>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	E>AMMONIUM SULFATE	8.50	PMG	2					
8A	AXIOM (68DF)	0.89	LAA	2	0	0	0	99	99
	B>BALANCE PRO (4SC)	0.094	LAA	2					
	C>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	D>AMMONIUM SULFATE	8.50	PMG	2					
LSD (0.05)					0.00	0.00	0.00	0.00	0.00

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TRT NUM	TREATMENT COMPONENT	DOSAGE			AMATA	CHEAL	POLPY	ZEAMD	ZEAMD
		RATE	UNIT	TM	CON % 05/25/01	CON % 05/25/01	CON % 05/25/01	PHY % 06/09/01	PHY % 06/16/01
1A	UNTREATED CHECK	0.00	NA	0	0	0	0	0	0
2A	BALANCE PRO (4SC)	0.047	LAA	1	99	99	99	0	0
	B>BALANCE PRO (4SC)	0.07	LAA	2					
	C ATRAZINE 90DF (WG)	1.35	LAA	2					
	D>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	E>AMMONIUM SULFATE	8.50	PMG	2					
3A	BALANCE PRO (4SC)	0.117	LAA	2	99	99	99	0	0
	B ATRAZINE 90DF (WG)	1.35	LAA	2					
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4A	BALANCE PRO (4SC)	0.07	LAA	1	99	99	99	0	0
	B>BALANCE PRO (4SC)	0.047	LAA	2					
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5A	BALANCE PRO (4SC)	0.094	LAA	1	99	99	99	0	0
	B>DEFINE (60DF)	0.30	LAA	2					
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6A	BALANCE PRO (4SC)	0.094	LAA	2	99	99	99	0	0
	B>DEFINE (60DF)	0.30	LAA	2					
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	E>AMMONIUM SULFATE	8.50	PMG	2					
7A	AXIOM (68DF)	0.60	LAA	1	99	99	99	0	0
	B>AXIOM (68DF)	0.29	LAA	2					
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	E>AMMONIUM SULFATE	8.50	PMG	2					
8A	AXIOM (68DF)	0.89	LAA	2	99	99	99	0	0
	B>BALANCE PRO (4SC)	0.094	LAA	2					
	C>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	D>AMMONIUM SULFATE	8.50	PMG	2					
LSD (0.05)					0.00	0.00	0.00	0.00	0.00

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TRT NUM	TREATMENT COMPONENT	DOSAGE			SETFA	ABUTH	AMATA	CHEAL	POLPY
		RATE	UNIT	TM	CON % 06/16/01	CON % 06/16/01	CON % 06/16/01	CON % 06/16/01	CON % 06/16/01
1A	UNTREATED CHECK	0.00	NA	0	0	0	0	0	0
2A	BALANCE PRO (4SC)	0.047	LAA	1	98	99	99	99	99
	B>BALANCE PRO (4SC)	0.07	LAA	2					
	C ATRAZINE 90DF (WG)	1.35	LAA	2					
	D>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	E>AMMONIUM SULFATE	8.50	PMG	2					
3A	BALANCE PRO (4SC)	0.117	LAA	2	99	99	99	99	99
	B ATRAZINE 90DF (WG)	1.35	LAA	2					
	C>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	D>AMMONIUM SULFATE	8.50	PMG	2					
4A	BALANCE PRO (4SC)	0.07	LAA	1	98	99	99	99	99
	B>BALANCE PRO (4SC)	0.047	LAA	2					
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	D>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
	E>AMMONIUM SULFATE	8.50	PMG	2					
5A	BALANCE PRO (4SC)	0.094	LAA	1	99	99	99	99	96
	B>DEFINE (60DF)	0.30	LAA	2					
	C ATRAZINE 90DF (WG)	1.35	LAA	2					
	D>ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
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	D>AMMONIUM SULFATE	8.50	PMG	2					
LSD (0.05)					2.09	1.43	0.00	0.00	3.22

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	RATE	UNIT	TM	CON % 07/09/01	CON % 07/09/01	CON % 07/09/01	CON % 07/09/01	CON % 07/09/01
1A UNTREATED CHECK	0.00	NA	0	0	0	0	0	0
2A»BALANCE PRO (4SC)	0.047	LAA	1	95	93	93	99	98
B»BALANCE PRO (4SC)	0.07	LAA	2					
C ATRAZINE 90DF (WG)	1.35	LAA	2					
D»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
E»AMMONIUM SULFATE	8.50	PMG	2					
3A»BALANCE PRO (4SC)	0.117	LAA	2	93	96	93	99	98
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B»BALANCE PRO (4SC)	0.094	LAA	2					
C»ROUNDUP ULTRAMAX (5SL)	1.02	LAA	2					
D»AMMONIUM SULFATE	8.50	PMG	2					
	LSD (0.05)			3.65	8.57	7.38	1.87	3.75

» = SUPPLEMENTAL CHEMICAL

* TIMING CODES

00 = UNTRCHK / UNTREATED TIMING (FP)

01 = EARPRE / EPP 04/18/2001(1)

02 = PREPRE / PRE 05/09/2001(2)