

Evaluation of Steadfast and Broadleaf Tankmix Partners.

01-10B-W90

OBJECTIVE: Evaluate Steadfast for crop tolerance and weed control applied alone and in combination with broadleaf tankmix partners.

SUMMARY: Corn injury 7 DAT was 11 to 19% from Steadfast treatments, 14 to 18% from Basis Gold treatments, and 7% from Accent. By 28 DAT, no corn injury was observed from any treatment.

Steadfast alone controlled 95% of giant foxtail and common cocklebur and 93% of yellow nutsedge at 56 DAT. Adding a tank mix partner to Steadfast did not increase giant foxtail, common cocklebur or yellow nutsedge control.

Waterhemp control was 30% at 56 DAT from Steadfast alone. All tank mix partners except Hornet and Northstar increased waterhemp control with Steadfast. The greatest waterhemp control was observed when Steadfast was tank mixed with either Callisto plus Aatrex (95%) or Aatrex at 16 oz/A (89%). Tank mixing Hornet with Steadfast decreased waterhemp control by 17%. Steadfast alone controlled only 22% of common ragweed at 56 DAT. The addition of any tank mix partner except Tough to Steadfast increased common ragweed control to at least 96%.

Corn yield was greatest in plots treated with Steadfast plus Aatrex at 16 oz or Callisto plus Aatrex.

HERBICIDES

AATREX 90 WG
ACCENT 75 WG
BASIS GOLD 90 WG
CALLISTO 4 SC
CLARITY 4 EC
DISTINCT 70 WG
HORNET 68.5 WG
MARKSMAN 3.2 L
NORTHSTAR 47.4 WG
STEADFAST 75 WG
TOUGH 5 EC

WEEDS

cocklebur, common
foxtail, giant
nutsedge, yellow
ragweed, common
waterhemp, common

CROP

corn, field

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Evaluation of Steadfast and Broadleaf Tankmix Partners.

Project Code: 01-10B-W90 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:

Evaluate Steadfast for crop tolerance and weed control applied alone and in combination with broadleaf tankmix partners.

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. XANST	cocklebur, common	Xanthium strumarium L.
5. AMBEL	ragweed, common	Ambrosia artemisiifolia L.

Crop 1: ZEAMX corn, field Variety: P33G28 LL
 Planting Method: Seeded Planting Date: 5-8-01
 Rate: 28000 S/A Depth: 1.5 IN
 Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 24 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 150 LB/A

Soil Name: Weir % OM: 1.6 pH: 6.3 CEC: 12
 Texture: Silt loam Fert. Level: P1: 82 LB/A, K: 274 LB/A

APPLICATION DESCRIPTION

A

Application Date: 6-5-01
 Time of Day: 12:00
 Application Method: Spray
 Application Timing: 2-4"GR
 Applic. Placement: BROFOL
 Air Temp., Unit: 84 F
 % Relative Humidity: 60
 Wind Velocity, Unit: 5-10 MPH
 Dew Presence (Y/N): N
 Soil Moisture: ABONOR
 % Cloud Cover: 10

CROP STAGE AT EACH APPLICATION

A

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

WEED STAGE AT EACH APPLICATION

A

Weed 1 Code: SETFA
 Stage(leaves): 3-4
 Height(inches): 4-6
 Density: Medium

Weed 2 Code: CYPES
 Stage(leaves): 4-6
 Height(inches): 2-4
 Density: Medium

Weed 3 Code: AMATA
 Stage(leaves): 1-2
 Height(inches): 0-2
 Density: High

Weed 4 Code: XANST
Stage(leaves): 2-5
Height(inches): 1-4
Density: Medium

Weed 5 Code: AMBEL

APPLICATION EQUIPMENT

A

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

NOTES: HARVESTED 10-2-01, 2 ROWS X 21 FT.

Evaluation of Steadfast and Broadleaf Tankmix Partners.

Project Code: 01-10B-W90 Location: Belleville Research Center

Weed Code						SETFA	SETFA	SETFA	CYPES	CYPES	CYPES	AMATA	AMATA	AMATA
Crop Code						ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX				
Rating Data Type						Yield	Injury	Injury	Injury	Injury	Control	Control	Control	Control
Rating Unit						bu/A	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date						10-2-01	6-12-01	6-19-01	7-3-01	7-31-01	6-19-01	7-3-01	7-31-01	6-19-01
Trt-Eval Interval						7 DA-A	14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code														
1	NONTREATED									186	0	0	0	0	0	0	0	0					
2	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"	GR A	216	15	0	0	0	96	99	95	72	98	93	20	40	30
2	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A														
2	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A														
3	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"	GR A	204	19	4	0	0	95	97	93	75	78	70	67	53	45
3	CLARITY	4	EC	0.125	LB A/A	4	OZ/A	2-4"	GR A														
3	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A														
3	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A														
4	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"	GR A	212	12	4	0	0	95	98	95	72	77	72	82	85	78
4	MARKSMAN	3.2	L	0.4	LB A/A	16	OZ/A	2-4"	GR A														
4	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A														
4	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A														
5	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"	GR A	216	15	3	0	0	98	98	95	77	82	77	88	82	82
5	AATREX	90	WG	0.45	LB A/A	8	OZ/A	2-4"	GR A														
5	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A														
5	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A														
6	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"	GR A	218	15	0	0	0	98	98	93	75	80	75	93	88	84
6	AATREX	90	WG	0.675	LB A/A	12	OZ/A	2-4"	GR A														
6	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A														
6	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A														
7	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"	GR A	229	16	0	0	0	98	97	92	78	82	77	94	93	89
7	AATREX	90	WG	0.9	LB A/A	16	OZ/A	2-4"	GR A														
7	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A														
7	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A														
8	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"	GR A	205	16	2	0	0	96	93	93	72	88	82	37	23	13
8	HORNET	68.5	WG	0.0856	LB A/A	2	OZ/A	2-4"	GR A														
8	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A														
8	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A														
9	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"	GR A	210	13	1	0	0	97	96	92	70	85	81	84	82	77
9	DISTINCT	70	WG	0.0875	LB A/A	2	OZ/A	2-4"	GR A														
9	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A														
9	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A														
10	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"	GR A	215	18	3	0	0	96	98	95	72	93	88	33	40	32
10	NORTHSTAR	47.4	WG	0.0741	LB A/A	2.5	OZ/A	2-4"	GR A														
10	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A														
10	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A														
11	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"	GR A	204	17	6	0	0	96	99	95	72	83	79	63	57	48
11	TOUGH	5	EC	0.469	LB A/A	12	OZ/A	2-4"	GR A														
11	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A														
11	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A														

Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	SETFA	SETFA	SETFA	CYPES	CYPES	CYPES	AMATA	AMATA	AMATA
						Yield	Injury	Injury	Injury	Injury	Control	Control	Control	Control	Control	Control	Control	Control	Control
						bu/A	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
						10-2-01	6-12-01	6-19-01	7-3-01	7-31-01	6-19-01	7-3-01	7-31-01	6-19-01	7-3-01	7-31-01	6-19-01	7-3-01	7-31-01
							7 DA-A	14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Prod Rate	Prod Unit	Grow Stg	Appl Code														
12	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"GR A	228	11	0	0	0	95	98	95	78	87	81	99	99	95
12	CALLISTO	4	SC	0.0625	LB A/A	2	OZ/A	2-4"GR A														
12	AATREX	90	WG	0.225	LB A/A	4	OZ/A	2-4"GR A														
12	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR A														
12	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR A														
13	BASIS GOLD	90	WG	0.788	LB A/A	14	OZ/A	2-4"GR A	230	14	0	0	0	95	96	92	72	73	68	90	93	87
13	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR A														
13	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR A														
14	BASIS GOLD	90	WG	0.788	LB A/A	14	OZ/A	2-4"GR A	217	18	5	0	0	93	98	95	75	75	70	93	94	89
14	CLARITY	4	EC	0.125	LB A/A	4	OZ/A	2-4"GR A														
14	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR A														
14	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR A														
15	ACCENT	75	WG	0.031	LB A/A	0.66	OZ/A	2-4"GR A	218	7	0	0	0	92	97	93	65	45	38	0	20	10
15	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR A														
15	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR A														
LSD (P=.05)									17.5	3.8	2.7	0.0	0.0	3.1	2.7	4.2	8.7	9.9	10.8	14.1	9.3	10.9
Replicate F									3.343	0.968	1.072	0.000	0.000	0.398	0.523	0.045	0.758	5.319	4.793	2.711	0.037	0.143
Replicate Prob(F)									0.0499	0.3921	0.3558	1.0000	1.0000	0.6755	0.5986	0.9560	0.4778	0.0116	0.0165	0.0839	0.9637	0.8675
Treatment F									3.456	13.052	5.335	0.000	0.000	522.452	732.185	275.714	40.738	49.182	38.562	53.149	99.375	78.337
Treatment Prob(F)									0.0025	0.0001	0.0001	1.0000	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Evaluation of Steadfast and Broadleaf Tankmix Partners.

Project Code: 01-10B-W90 Location: Belleville Research Center

Weed Code		XANST	XANST	XANST	AMBEL	AMBEL	AMBEL
Crop Code							
Rating Data Type		Control	Control	Control	Control	Control	Control
Rating Unit		Percent	Percent	Percent	Percent	Percent	Percent
Rating Date		6-19-01	7-3-01	7-31-01	6-19-01	7-3-01	7-31-01
Trt-Eval Interval		14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A

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
2	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"GR	A	93	99	95	20	30	22
2	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR	A						
2	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR	A						
3	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"GR	A	95	99	95	99	99	95
3	CLARITY	4	EC	0.125	LB A/A	4	OZ/A	2-4"GR	A						
3	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR	A						
3	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR	A						
4	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"GR	A	96	99	95	99	99	96
4	MARKSMAN	3.2	L	0.4	LB A/A	16	OZ/A	2-4"GR	A						
4	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR	A						
4	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR	A						
5	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"GR	A	83	88	82	99	99	96
5	AATREX	90	WG	0.45	LB A/A	8	OZ/A	2-4"GR	A						
5	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR	A						
5	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR	A						
6	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"GR	A	82	80	75	94	99	96
6	AATREX	90	WG	0.675	LB A/A	12	OZ/A	2-4"GR	A						
6	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR	A						
6	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR	A						
7	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"GR	A	87	93	89	99	99	96
7	AATREX	90	WG	0.9	LB A/A	16	OZ/A	2-4"GR	A						
7	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR	A						
7	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR	A						
8	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"GR	A	96	99	95	99	99	97
8	HORNET	68.5	WG	0.0856	LB A/A	2	OZ/A	2-4"GR	A						
8	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR	A						
8	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR	A						
9	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"GR	A	98	98	93	99	99	96
9	DISTINCT	70	WG	0.0875	LB A/A	2	OZ/A	2-4"GR	A						
9	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR	A						
9	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR	A						
10	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"GR	A	98	99	95	98	99	96
10	NORTHSTAR	47.4	WG	0.0741	LB A/A	2.5	OZ/A	2-4"GR	A						
10	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR	A						
10	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR	A						
11	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"GR	A	95	96	92	96	83	78
11	TOUGH	5	EC	0.469	LB A/A	12	OZ/A	2-4"GR	A						
11	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"GR	A						
11	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"GR	A						

Weed Code	XANST	XANST	XANST	AMBEL	AMBEL	AMBEL
Crop Code						
Rating Data Type	Control	Control	Control	Control	Control	Control
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	6-19-01	7-3-01	7-31-01	6-19-01	7-3-01	7-31-01
Trt-Eval Interval	14 DA-A	28 DA-A	56 DA-A	14 DA-A	28 DA-A	56 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	XANST	XANST	XANST	AMBEL	AMBEL	AMBEL
12	STEADFAST	75	WG	0.0352	LB A/A	0.75	OZ/A	2-4"	GR A	99	99	95	99	99	96
12	CALLISTO	4	SC	0.0625	LB A/A	2	OZ/A	2-4"	GR A						
12	AATREX	90	WG	0.225	LB A/A	4	OZ/A	2-4"	GR A						
12	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A						
12	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A						
13	BASIS GOLD	90	WG	0.788	LB A/A	14	OZ/A	2-4"	GR A	95	99	95	99	99	96
13	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A						
13	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A						
14	BASIS GOLD	90	WG	0.788	LB A/A	14	OZ/A	2-4"	GR A	99	97	93	99	99	96
14	CLARITY	4	EC	0.125	LB A/A	4	OZ/A	2-4"	GR A						
14	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A						
14	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A						
15	ACCENT	75	WG	0.031	LB A/A	0.66	OZ/A	2-4"	GR A	78	80	77	33	66	62
15	PRIME OIL COC	100	LIQ	1.0	% V/V	1	%V/V	2-4"	GR A						
15	28% UAN	100	LIQ	2.0	QT/A	2	QT/A	2-4"	GR A						
LSD (P=.05)										15.7	13.6	13.3	14.6	13.3	14.1
Replicate F										0.760	0.673	0.675	3.416	0.704	0.967
Replicate Prob(F)										0.4770	0.5180	0.5173	0.0470	0.5033	0.3926
Treatment F										20.834	29.021	28.072	45.230	43.042	38.928
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Evaluation of Steadfast and Broadleaf Tankmix Partners.

Project Code: 01-10B-W90 Location: Belleville Research Center

Trial Comments

- 1. Protocol: DuPont.
- 2. DA-A = days after 2-4"GR application.