Adjuvant Mixes for Soil Applied Herbicides.

01-ARC3-E150

OBJECTIVE: Determine the effectiveness of mixing Landoil with soil residual herbicides to reduce herbicide use rates.

SUMMARY: No corn injury was observed with any treatment. Weed control with reduced rates of Harness, Harness Xtra and Aatrex was highly variable. Only the full use rate of Harness Xtra alone controlled at least 90% of all weed species at 30 days after treatment (DAT). In general, adding Landoil to Harness or Harness Xtra did not increase weed control. However, giant foxtail and yellow nutsedge control 60 DAT was increased when Landoil was added to Aatrex at 1.67 or 1.1 lb/A. Similarly, adding Landoil to Aatrex at 1.67 lb/A improved control of common ragweed and morningglory species at 60 DAT.

Corn yield ranged from 104 bu/A in nontreated plots to 184 bu/A. Corn yield was reduced when Landoil was added to Harness at 1.5 pt or Harness Xtra at 3.7 pt compared to each herbicide applied without Landoil.

HERBICIDES / ADJUVANT	WEEDS	CROP
AATREX 90 WG	foxtail, giant	corn, field
HARNESS 7 EC	morningglory, species	
HARNESS XTRA 6 L	nutsedge, yellow	
LANDOIL 100 LIQ	pigweed, redroot	
	ragweed, common	

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Adjuvant Mixes for Soil Applied Herbicides.

Project Code: 01-ARC3-E150 Location: Agronomy Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Carbondale IL 62901 USA
Trial Status: Final **Initiation Date:** 4-24-01

Objective:
Determine the effectiveness of mixing Landoil with soil residual herbicides to reduce herbicide use rates.

	Weed Code	Common Name	Scientific Name
1.	SETFA	foxtail, giant	Setaria faberi Herrm.
2.	CYPES	nutsedge, yellow	Cyperus esculentus L.
3.	AMBEL	ragweed, common	Ambrosia artemisiifolia L.
4.	IPOSS	morningglory, species	Ipomoea sp.
5.	AMARE	pigweed, redroot	Amaranthus retroflexus L.

Crop 1: ZEAMX corn, field **Variety:** P33G26
Planting Method: Seeded **Planting Date:** 5-2-01
Rate: 28000 S/A **Depth:** 1.5 IN
Row Spacing: 30 IN

Plot Width, Unit: 10 FT **Plot Length, Unit:** 30 FT **Reps:** 3
Tillage Type: Reduced-Till **Study Design:** Randomized complete block
Previous Crop, Year: GLXMA, 2000
Field Prep./Maintenance: N 150 LB/A, P2O5 0 LB/A, K2O 0 LB/A, applied 6-5-01.

Soil Name: Weir **% OM:** 1.6 **pH:** 5.9 **CEC:** 9
Texture: Silt loam **Fert. Level:** P1: 118 LB/A, K: 439 LB/A

APPLICATION DESCRIPTION

	A
Application Date:	5-3-01
Time of Day:	12:00
Application Method:	Spray
Application Timing:	PRE
Applic. Placement:	BROSOI
Air Temp., Unit:	80 F
% Relative Humidity:	50
Wind Velocity, Unit:	0-2 MPH

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	ZEAMX NA
Height, Unit:	NA NA

WEED STAGE AT EACH APPLICATION
NA

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:	10 GPA

NOTES: HARVESTED 10-4-01, 2 ROWS X 28 FT.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	ZEAMX Yield bu/A 10-4-01	ZEAMX Injury Percent 6-2-01 30 DA-A	ZEAMX Injury Percent 7-2-01 60 DA-A	SETFA Control Percent 6-2-01 30 DA-A	SETFA Control Percent 7-2-01 60 DA-A	CYPES Control Percent 6-2-01 30 DA-A	CYPES Control Percent 7-2-01 60 DA-A	AMBEL Control Percent 6-2-01 30 DA-A	AMBEL Control Percent 7-2-01 60 DA-A	IPOSS Control Percent 6-2-01 30 DA-A	IPOSS Control Percent 7-2-01 60 DA-A	AMARE Control Percent 6-2-01 30 DA-A	AMARE Control Percent 7-2-01 60 DA-A
1	HARNESS	7	EC	1.97	LB A/A	2.25	PT/A	PRE	A	155	0	0	94	97	85	60	99	48	92	48	99	99
2	HARNESS	7	EC	1.31	LB A/A	1.5	PT/A	PRE	A	150	0	0	80	99	58	60	94	13	73	10	99	99
3	HARNESS	7	EC	0.65	LB A/A	0.74	PT/A	PRE	A	117	0	0	63	27	32	0	93	0	40	0	99	99
4	HARNESS XTRA	6	L	2.8	LB A/A	3.73	PT/A	PRE	A	185	0	0	99	92	95	57	98	96	90	47	99	99
5	HARNESS XTRA	6	L	1.87	LB A/A	2.5	PT/A	PRE	A	153	0	0	94	85	77	53	97	80	67	27	99	99
6	HARNESS XTRA	6	L	0.93	LB A/A	1.24	PT/A	PRE	A	137	0	0	70	77	43	47	78	33	53	0	99	99
7	AATREX	90	WG	1.5	LB A/A	1.67	LB/A	PRE	A	150	0	0	76	50	56	23	65	66	55	50	99	99
8	NONTREATED									104	0	0	0	0	0	0	0	0	0	0	0	0
9	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	PRE	A	166	0	0	86	53	75	27	93	93	72	88	99	99
10	AATREX	90	WG	0.5	LB A/A	0.56	LB/A	PRE	A	151	0	0	62	0	53	0	60	63	20	7	99	99
11	LANDOIL	100	LIQ	1.0	QT/A	1	QT/A	PRE	A	155	0	0	79	85	67	50	85	0	78	0	99	99
11	HARNESS	7	EC	1.97	LB A/A	2.25	PT/A	PRE	A													
12	LANDOIL	100	LIQ	1.0	QT/A	1	QT/A	PRE	A	115	0	0	77	92	53	53	72	0	65	0	99	99
12	HARNESS	7	EC	1.31	LB A/A	1.5	PT/A	PRE	A													
13	LANDOIL	100	LIQ	1.0	QT/A	1	QT/A	PRE	A	109	0	0	73	77	43	50	71	0	50	0	99	99
13	HARNESS	7	EC	0.65	LB A/A	0.74	PT/A	PRE	A													
14	LANDOIL	100	LIQ	1.0	QT/A	1	QT/A	PRE	A	148	0	0	98	94	86	60	98	90	96	53	99	99
14	HARNESS XTRA	6	L	2.8	LB A/A	3.73	PT/A	PRE	A													
15	LANDOIL	100	LIQ	1.0	QT/A	1	QT/A	PRE	A	147	0	0	72	82	53	50	60	70	48	27	99	99
15	HARNESS XTRA	6	L	1.87	LB A/A	2.5	PT/A	PRE	A													
16	LANDOIL	100	LIQ	1.0	QT/A	1	QT/A	PRE	A	115	0	0	83	73	40	50	85	23	43	0	99	99
16	HARNESS XTRA	6	L	0.93	LB A/A	1.24	PT/A	PRE	A													
17	LANDOIL	100	LIQ	1.0	QT/A	1	QT/A	PRE	A	182	0	0	98	93	96	53	98	98	83	98	99	99
17	AATREX	90	WG	1.5	LB A/A	1.67	LB/A	PRE	A													
18	LANDOIL	100	LIQ	1.0	QT/A	1	QT/A	PRE	A	178	0	0	96	78	78	47	97	95	75	77	99	99
18	AATREX	90	WG	1.0	LB A/A	1.1	LB/A	PRE	A													
19	LANDOIL	100	LIQ	1.0	QT/A	1	QT/A	PRE	A	129	0	0	45	0	35	0	35	85	23	0	83	66
19	AATREX	90	WG	0.5	LB A/A	0.56	LB/A	PRE	A													
LSD (P=.05)										33.8	0.0	0.0	39.7	15.0	38.7	13.9	42.6	32.6	33.9	30.2	11.0	22.5
Replicate F										1.519	0.000	0.000	0.951	4.277	2.060	3.642	2.959	0.729	4.320	0.062	0.972	0.944
Replicate Prob(F)										0.2326	1.0000	1.0000	0.3964	0.0218	0.1426	0.0366	0.0649	0.4896	0.0211	0.9404	0.3882	0.3989
Treatment F										4.247	0.000	0.000	2.896	44.123	3.336	22.426	3.068	12.021	4.936	10.021	36.035	9.130
Treatment Prob(F)										0.0001	1.0000	1.0000	0.0037	0.0001	0.0011	0.0001	0.0022	0.0001	0.0001	0.0001	0.0001	0.0001

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Trial Comments

1. Protocol: SIU/UI/WIU.
2. DA-A = Days after PRE application.
3. Landoil added to water before adding herbicides.