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Wheat and ryegrass response to Osprey mixed with various adjuvants and other herbicides.

Trial ID: Wheat1-03
Location: Plains

Study Dir.:
Investigator: Stanley Culpepper

GENERAL TRIAL INFORMATION

Study Director: Stanley Culpepper **Title:** Ext. Agronomist
Affiliation: University of Georgia
Postal Code: 31794
Investigator: Stanley Culpepper **Title:** Ext. Agronomist
Affiliation: University of Georgia
Postal Code: 31794

TRIAL LOCATION

City: Plains **Trial Status:** completed
State/Prov.: GA **Trial Reliability:** excellent
Country: USA **Initiation Date:** Nov-25-02

Conducted Under GLP (Y/N): N **Conducted Under GEP (Y/N):** N

CROP AND WEED DESCRIPTION

Weed	Code	Common Name	Scientific Name
1.	LOLSS	annual ryegrass	

Crop 1: TRZAW WHEAT, WINTER **Variety:** Pioneer 26R61
Planting Date: Nov-25-02 **Planting Method:** conventional/drill
Rate: 6 per foot **Depth:** 0.5 in
Row Spacing: 7 inch **Seed Bed:** flat
Soil Temperature: 0. . **Soil Moisture:** irrigated **Emergence Date:** Dec-05-02

SITE AND DESIGN

Plot Width, Unit: 6 FT **Plot Length, Unit:** 25 FT **Reps:** 4
Site Type: research station
Tillage Type: CONVENTIONAL-TILL **Study Design:** RANDOMIZED COMPLETE BLOCK

APPLICATION DESCRIPTION

	A
Application Date:	Feb-02-03
Time of Day:	9 am
Application Method:	broadcast
Application Timing:	POST
Applic. Placement:	overtop
Air Temp., Unit:	63 F
% Relative Humidity:	60
Wind Velocity, Unit:	1 mph
Dew Presence (Y/N):	n
Soil Temp., Unit:	63 F
Soil Moisture:	fair
% Cloud Cover:	0

CROP STAGE AT EACH APPLICATION

	A
Crop 1 Code, Stage:	TRZAW POST
Stage Scale:	3lf-1till
Height, Unit:	3 inch

WEED STAGE AT EACH APPLICATION

	A
Weed 1 Code, Stage:	LOLSS POST
Stage Scale:	1-2tiller
Density, Unit:	see comme

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APPLICATION EQUIPMENT

	A
Appl. Equipment:	backpack
Operating Pressure:	22
Nozzle Type:	flat fan
Nozzle Size:	11002
Nozzle Spacing, Unit:	18 inch
Boom Length, Unit:	4.5 feet
Boom Height, Unit:	15 inch
Ground Speed, Unit:	3 mph
Carrier:	water
Spray Volume, Unit:	14.8 GPA
Propellant:	CO2
Tank Mix (Y/N):	Y

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Weed Code Crop Code Rating Data Type Rating Unit Rating Date Trt-Eval Interval ARM Action Codes # Subsamples, Dec.				wheat injury percent Feb-18-03 16 DA-A	wheat injury percent Mar-13-03 39 DA-A	wheat injury percent Apr-02-03 59 DA-A	wheat injury percent Jun-02-03 120 DA-A	LOLSS control percent Feb-18-03 16 DA-A	LOLSS control percent Mar-13-03 39 DA-A	LOLSS control percent Apr-02-03 59 DA-A	LOLSS control percent Jun-02-03 120 DA-A
Trt No.	Treatment Name	Rate	Unit	1	2	3	4	5	6	7	8
15	AE F130060 01 NIS	18.22 0.25	g ai/a % v/v	0.0	1.3	0.0	0.0	12.5	88.5	87.5	96.5
16	AE F130060 01 NIS Harmony Extra	18.22 0.25 8.5	g ai/a % v/v g ai/a	0.0	0.0	0.0	0.0	17.5	88.8	88.0	97.3
17	AE F130060 00 AE F107892 99 UAN MSO MCPA	6.07 12.15 3.8 1.5 1.25	g ai/a g ai/a pt/a pt/a pt/a	24.3	8.8	6.5	0.0	34.3	94.3	95.8	97.8
18	AE F130060 01 NIS MCPA	18.22 0.25 1.25	g ai/a % v/v pt/a	11.8	1.3	0.0	0.0	18.8	88.8	87.5	95.3
19	AE F130060 00 AE F107892 99 UAN MSO 2,4-D	6.07 12.15 3.8 1.5 1.25	g ai/a g ai/a pt/a pt/a pt/a	26.0	36.3	19.5	10.3	38.3	81.3	79.5	86.8
20	AE F130060 01 NIS 2,4-D	18.22 0.25 1.25	g ai/a % v/v pt/a	6.0	7.3	7.5	0.0	11.3	77.5	73.5	87.0
21	AE F130060 00 AE F107892 99 UAN MSO Express MCPA	6.07 12.15 3.8 1.5 0.25 1	g ai/a g ai/a pt/a pt/a oz/a pt/a	25.0	6.3	3.8	0.0	27.0	94.5	95.3	96.0
22	AE F130060 01 NIS Express MCPA	18.22 0.25 0.25 1	g ai/a % v/v oz/a pt/a	8.0	3.8	0.0	0.0	17.5	88.3	88.3	94.5
LSD (P=.05)				3.46	3.81	2.05	1.06	11.22	5.42	6.18	4.67
Standard Deviation				2.44	2.69	1.45	0.75	7.93	3.84	4.37	3.30
CV				30.85	70.9	85.6	160.16	43.22	4.39	5.05	3.61
Bartlett's X2				33.142	7.487	7.945	0.0	14.539	24.593	52.125	26.004
P(Bartlett's X2)				0.003*	0.824	0.047*	.	0.802	0.174	0.001*	0.017*

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

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Weed Code				wheat	wheat
Crop Code				yield	yield
Rating Data Type				lb/plot	bu/A
Rating Unit					
Rating Date				Jun-02-03	Jun-02-03
Trt-Eval Interval				120 DA-A	120 DA-A
ARM Action Codes					TY2
# Subsamples, Dec.					1
Trt No.	Treatment Name	Rate	Unit	9	10
1	non-treated			10.9	65.9
2	AE F130060 00	6.07	g ai/a	11.1	66.9
	AE F107892 99	12.15	g ai/a		
	MSO	1.5	pt/a		
	UAN	3.8	pt/a		
3	AE F130060 01	18.22	g ai/a	10.9	65.6
	MSO	1.5	pt/a		
	UAN	3.8	pt/a		
4	AE F130060 03	6.07	g ai/a	10.9	65.9
	AE F107892 99	12.15	g ai/a		
	UAN	3.8	pt/a		
	NIS	0.25	% v/v		
5	AE F115008 00	1.012	g ai/a	11.2	67.5
	AE F107892 00	3.036	g ai/a		
	UAN	3.8	pt/a		
	NIS	0.25	% v/v		
6	AE F130060 00	6.07	g ai/a	11.1	66.9
	AE F107892 00	12.15	g ai/a		
	MSO	1.5	pt/a		
7	AE F130060 00	6.07	g ai/a	10.5	63.5
	AE F107892 00	12.15	g ai/a		
	Hasten	1.5	pt/a		
8	AE F130060 00	6.07	g ai/a	11.0	66.2
	AE F107892 00	12.15	g ai/a		
	Hasten	1.5	pt/a		
	UAN	3.8	pt/a		
9	AE F130060 00	6.07	g ai/a	11.0	66.6
	AE F107892 00	12.15	g ai/a		
	NIS	0.25	% v/v		
10	AE F130060 00	6.07	g ai/a	11.4	68.7
	AE F107892 00	12.15	g ai/a		
	Hasten	1.5	pt/a		
	UAN	3.8	pt/a		
	Destiny	1.5	pt/a		
11	Hoelon	340	g ai/a	11.3	68.4
12	AE F130060 00	6.07	g ai/a	11.1	66.9
	AE F107892 99	12.15	g ai/a		
	UAN	3.8	pt/a		
	NIS	0.25	% v/v		
	Harmony Extra	8.5	g ai/a		
13	AE F130060 00	6.07	g ai/a	11.1	67.2
	AE F107892 99	12.15	g ai/a		
	UAN	3.8	pt/a		
	MSO	1.5	pt/a		
	Harmony Extra	8.5	g ai/a		
14	AE F130060 01	18.22	g ai/a	11.6	69.9
	Harmony Extra	8.5	g ai/a		
	UAN	3.8	pt/a		
	NIS	0.25	% v/v		
15	AE F130060 01	18.22	g ai/a	11.2	67.8
	NIS	0.25	% v/v		
16	AE F130060 01	18.22	g ai/a	11.3	68.1
	NIS	0.25	% v/v		
	Harmony Extra	8.5	g ai/a		

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Weed Code					
Crop Code				wheat	wheat
Rating Data Type				yield	yield
Rating Unit				lb/plot	bu/A
Rating Date				Jun-02-03	Jun-02-03
Trt-Eval Interval				120 DA-A	120 DA-A
ARM Action Codes					TY2
# Subsamples, Dec.					1
Trt No.	Treatment Name	Rate	Rate Unit	9	10
17	AE F130060 00	6.07	g ai/a	11.0	66.6
	AE F107892 99	12.15	g ai/a		
	UAN	3.8	pt/a		
	MSO	1.5	pt/a		
	MCPA	1.25	pt/a		
18	AE F130060 01	18.22	g ai/a	10.5	63.5
	NIS	0.25	% v/v		
	MCPA	1.25	pt/a		
19	AE F130060 00	6.07	g ai/a	8.5	51.1
	AE F107892 99	12.15	g ai/a		
	UAN	3.8	pt/a		
	MSO	1.5	pt/a		
	2,4-D	1.25	pt/a		
20	AE F130060 01	18.22	g ai/a	10.8	65.0
	NIS	0.25	% v/v		
	2,4-D	1.25	pt/a		
21	AE F130060 00	6.07	g ai/a	10.3	62.3
	AE F107892 99	12.15	g ai/a		
	UAN	3.8	pt/a		
	MSO	1.5	pt/a		
	Express	0.25	oz/a		
	MCPA	1	pt/a		
22	AE F130060 01	18.22	g ai/a	10.7	64.7
	NIS	0.25	% v/v		
	Express	0.25	oz/a		
	MCPA	1	pt/a		
LSD (P=.05)				0.78	4.70
Standard Deviation				0.55	3.32
CV				5.06	5.06
Bartlett's X2				50.481	50.489
P(Bartlett's X2)				0.001*	0.001*

Means followed by same letter do not significantly differ
(P=.05, Duncan's New MRT)

Column 10: TY2 = 6.05*[9]

Trial Comments

GENERAL COMMENTS: Annual ryegrass was seeded across the back 6 foot of each plot to make sure some ryegrass was present. However, prior to harvest this area was removed so the yields would be a comparison of a weed free/tolerance trial. No weeds were present except the ryegrass seeded on the back end of each plot. The wheat was sidedressed within 10 days of the mesosulfuron application.

OBJECTIVE: Evaluate several formulations of mesosulfuron and potential adjuvants.

INJURY (noted completely as wheat stunting):

- 1) Greatest injury was noted with a MSO plus UAN adjuvant system compared to MSO alone, UAN alone or other adjuvant system.
- 2) At 16 days after treatment, unacceptable injury was noted with Osprey plus UAN + MSO mixed with either MCPA, 2,4-D or Express + MCPA (24-26% injury). Injury from Osprey mixed with either MCPA, 2,4-D, or Express + MCPA was at most half when the UAN + MSO was not the adjuvant system (6 to 12%).
- 3) Osprey + MSO + UAN was more injurious at 16 DAT than F130060 00 at 16 DAT, no differences by 50 days.
- 4) Only Osprey + MSO + UAN + 2,4-D was still showing injury at harvest.

RYEGRASS CONTROL:

- 1) Control at 16 DAT was less than 38%. Plots with greatest wheat injury also provided greatest ryegrass control.

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- 2) By 50 DAT, control was excellent with all Osprey treatments except several of those using a NIS adjuvant only.
- 3) By harvest, all treatments provided excellent control except AEF 130060 00 plus NIS (87%) alone or mixed with 2,4-D and Osprey + NIS + 2,4-D.
- 4) 2-4-D mixed with Osprey was antagonistic. This was not noted with Express + MCPA or MCPA alone.

WHEAT YIELD:

- 1) The trial was extremely uniform with a CV of only 5.6.
- 2) The only treatment that reduced yield was AEF 130060 00 + UAN + MSO + 2,4-D.

CONCLUSIONS:

- 1) Do not use both MSO and UAN as carrier.
- 2) Probably dont want to mix Osprey with 2,4-D.
- 3) Mixing MCPA with Osprey may be very beneficial for weed control. No issues in this trial. Further evaluation needed.
- 4) SOMEBODY NEEDS TO FIGURE OUT WHERE THIS EARLY SEASON INJURY CAME FROM!!!!!!!!!!!!!!!!!!!!!!!!!!!!