

Liberty AMS Replacement study - Duke WCA.

Project Code: 05-52-ME40      Location: Belleville Research Center  
 Investigator: Bryan Young

**Investigator:** Bryan Young, Associate Professor, Southern Illinois University

**City State Zip Country:**      Belleville      IL 62221 USA  
**Trial Status:** Final      **Updated:**      11-14-05

**Objective:**

Evaluate crop response and weed control for Liberty applications with Duke WCA instead of standard ammonium sulfate.

Weed Code	Common Name	Scientific Name
1.	SETFA foxtail, giant	Setaria faberi Herrm.
2.	PANDI panicum, fall	Panicum dichotomiflorum Michx.
3.	AMATA waterhemp, common	Amaranthus rudis Sauer
4.	AMBTR ragweed, giant	Ambrosia trifida L.
5.	ABUTH velvetleaf	Abutilon theophrasti Medicus

**Crop 1:** ZEAMX corn, field      **Variety:** 33P62 HX LL  
**Planting Method:** Seeded      **Planting Date:** 5-6-05  
**Rate:** 28000 S/A      **Depth:** 1.5 IN  
**Row Spacing:** 30 IN

**Plot Width, Unit:** 10 FT      **Plot Length, Unit:** 25 FT      **Reps:** 3  
**Tillage Type:** Reduced-Till      **Study Design:** Randomized complete block  
**Previous Crop, Year:** GLXMA, 2004

**Field Prep./Maintenance:** N 150 LB/A, P205 0 LB/A, K20 100 LB/A

**Soil Name:** Weir      **% OM:** 2.2      **pH:** 6.9      **CEC:** 9  
**Texture:** Silt loam      **Fert. Level:** P1: 107 LB/A, K: 420 LB/A

**APPLICATION DESCRIPTION**

	A	B
<b>Application Date:</b>	05-06-05	05-31-05
<b>Time of Day:</b>	19:00	13:00
<b>Application Method:</b>	Spray	Spray
<b>Application Timing:</b>	PRE	4-6"W
<b>Applic. Placement:</b>	BROSIO	BROFOL
<b>Air Temp., Unit:</b>	60 F	80 F
<b>% Relative Humidity:</b>	44	30
<b>Wind Velocity, Unit:</b>	0-2 MPH	3-4 MPH
<b>Soil Moisture:</b>	NORMAL	BELNOR

**CROP STAGE AT EACH APPLICATION**

	A	B
<b>Crop 1 Code, Stage:</b>	ZEAMX NA	ZEAMX V4
<b>Height, Unit:</b>	NA NA	10-12 IN

**WEED STAGE AT EACH APPLICATION**

	A	B
<b>Weed 1 Code:</b>		SETFA
<b>Stage (leaves):</b>		3-6
<b>Height (inches):</b>		3-8
<b>Density:</b>		Medium
<b>Weed 2 Code:</b>		PANDI
<b>Stage (leaves):</b>		3-6
<b>Height (inches):</b>		3-8
<b>Density:</b>		Medium
<b>Weed 3 Code:</b>		AMATA
<b>Stage (leaves):</b>		4-9
<b>Height (inches):</b>		2-8
<b>Density:</b>		Low
<b>Weed 4 Code:</b>		AMBTR
<b>Stage (leaves):</b>		8-10
<b>Height (inches):</b>		6-8
<b>Density:</b>		Medium
<b>Weed 5 Code:</b>		ABUTH
<b>Stage (leaves):</b>		5-7
<b>Height (inches):</b>		5-8
<b>Density:</b>		Low

**APPLICATION EQUIPMENT**

	A	B
<b>Appl. Equipment:</b>	CO2 sprayer	CO2 sprayer
<b>Operating Pressure:</b>	40 PSI	40 PSI
<b>Nozzle Type:</b>	Flat fan	Flat fan
<b>Nozzle Size:</b>	8003	8002
<b>Boom Length, Unit:</b>	7.5 FT	7.5 FT
<b>Spray Volume, Unit:</b>	20 GPA	20 GPA

**NOTES:**

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	ZEAMX Yield bu/A	ZEAMX Injury Percent	ZEAMX Injury Percent	ZEAMX Injury Percent	SETFA Control Percent	SETFA Control Percent	PANDI Control Percent	PANDI Control Percent				
						10-15-05	06-07-05	06-14-05	06-28-05	06-14-05	06-28-05	06-14-05	06-28-05				
							7 DA-B	14 DA-B	28 DA-B	14 DA-B	28 DA-B	14 DA-B	28 DA-B				
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				
2	BICEP II MAGNUM	5.5 L		2.9 lb ai/a		2.1 qt/a		PRE	A	153	2	0	0				
2	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B		99	99	93				
3	BICEP II MAGNUM	5.5 L		2.9 lb ai/a		2.1 qt/a		PRE	A	151	3	0	0				
3	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B		99	99	95				
3	DUKE WCA	100 LIQ		0.25 % v/v		0.25 % v/v		4-6"W	B				92				
4	BICEP II MAGNUM	5.5 L		2.9 lb ai/a		2.1 qt/a		PRE	A	166	3	0	0				
4	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B		99	99	96				
4	DUKE WCA	100 LIQ		0.5 % v/v		0.5 % v/v		4-6"W	B				90				
5	BICEP II MAGNUM	5.5 L		2.9 lb ai/a		2.1 qt/a		PRE	A	165	5	0	0				
5	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B		99	99	95				
5	AMS	100 DRY		3.0 lb/a		3 lb/a		4-6"W	B				91				
6	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	123	6	0	0				
7	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	103	6	0	0				
7	DUKE WCA	100 LIQ		0.25 % v/v		0.25 % v/v		4-6"W	B		99	99	53				
8	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	105	4	0	0				
8	DUKE WCA	100 LIQ		0.5 % v/v		0.5 % v/v		4-6"W	B		99	99	55				
9	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	113	5	0	0				
9	AMS	100 DRY		3.0 lb/a		3 lb/a		4-6"W	B		99	99	55				
LSD (P=.05)										30.4	1.9	0.0	0.0	0.0	0.0	13.0	4.7
Replicate F										0.030	1.308	0.000	0.000	0.000	0.000	4.911	2.227
Replicate Prob(F)										0.9702	0.2978	1.0000	1.0000	1.0000	1.0000	0.0217	0.1402
Treatment F										25.661	9.954	0.000	0.000	0.000	0.000	54.810	342.024
Treatment Prob(F)										0.0001	0.0001	1.0000	1.0000	1.0000	1.0000	0.0001	0.0001

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						AMATA	AMATA	AMBTR	AMBTR	ABUTH	ABUTH
						Control	Control	Control	Control	Control	Control
						Percent	Percent	Percent	Percent	Percent	Percent
						06-14-05	06-28-05	06-14-05	06-28-05	06-14-05	06-28-05
						14 DA-B	28 DA-B	14 DA-B	28 DA-B	14 DA-B	28 DA-B
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code		
1	NONTREATED									0	0
2	BICEP II MAGNUM	5.5 L		2.9 lb ai/a		2.1 qt/a		PRE	A	99	99
2	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	97	97
3	BICEP II MAGNUM	5.5 L		2.9 lb ai/a		2.1 qt/a		PRE	A	99	99
3	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	99	99
3	DUKE WCA	100 LIQ		0.25 % v/v		0.25 % v/v		4-6"W	B	99	99
4	BICEP II MAGNUM	5.5 L		2.9 lb ai/a		2.1 qt/a		PRE	A	99	99
4	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	99	97
4	DUKE WCA	100 LIQ		0.5 % v/v		0.5 % v/v		4-6"W	B	99	99
5	BICEP II MAGNUM	5.5 L		2.9 lb ai/a		2.1 qt/a		PRE	A	99	99
5	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	99	99
5	AMS	100 DRY		3.0 lb/a		3 lb/a		4-6"W	B	99	99
6	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	88	82
7	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	97	95
7	DUKE WCA	100 LIQ		0.25 % v/v		0.25 % v/v		4-6"W	B	98	99
8	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	98	98
8	DUKE WCA	100 LIQ		0.5 % v/v		0.5 % v/v		4-6"W	B	83	77
9	LIBERTY	1.67 EC		0.444 lb ai/a		34 fl oz/a		4-6"W	B	99	93
9	AMS	100 DRY		3.0 lb/a		3 lb/a		4-6"W	B	88	80
LSD (P=.05)						10.0	8.6	2.3	5.1	1.7	4.6
Replicate F						4.749	3.887	0.000	1.279	3.883	3.425
Replicate Prob(F)						0.0240	0.0421	1.0000	0.3052	0.0422	0.0578
Treatment F						89.661	120.474	1801.396	359.382	3397.758	444.332
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Trial Comments

1. Protocol: Estes, Inc.
2. Ratings: CI 7, 14 and 28 DAT; WC 14 and 28 DAT.
3. Yield.
4. DA-B = Days after 4-6"W application.
5. Harvested 10-15-05, (2) 30 inch rows by 22 ft.