

Additive effects on volunteer corn control with clethodim

Trial ID: SOY15-19 Study Dir.: Sprague, Stiles, Powell
 Conducted: Campus, B-9 Investigator: Christy Sprague

Planting Date: Jun-4-2019 **Row Spacing:** 30 IN
Variety: Asgrow AG26X8 **No. of Reps:** 4
Population: 156000 seeds/A **% OM:** 3
Soil Type: SCL sandy clay loam **pH:** 7.1
Plot Size: 10 X 35 FT **Study Design:** Randomized Complete Block (RCB)

Tillage/Previous Crops: Fall chisel plowed; Spring soil finish (2X)

Fertilizer:

Crop and Weed Description

Weed	Code	Common Name	Scientific Name
1	ZEAMX	Volunteer corn	Zea mays
Crop	Code	Common Name	
1	GLXMA	Soybean	

Application Description

Application Timing: A
 POST
Date Treated: Jul-9-2019
Time Treated: 3:40 PM
% Cloud Cover: 0
Air Temp., Unit: 85 F
% Relative Humidity: 39
Wind Speed/Unit/Dir: 4 mph SE
Soil Temp, Unit: 92 F
Leaf Moist/Dew Presence (Y/N): 5
Soil Moist: 5

Crop Stage at Each Application

Crop 1 Name: A
 GLXMA
Height: 6-7 " (6.5)
Stage: V3

Weed Stage at Each Application

Weed 1 Name: A
 ZEAMX
Height: 8-16 " (12)
Stage: V4

Weed Density

Date: 1
 Jul-9-2019
Weed Name: ZEAMX
Density: 5 FT²

Application Equipment

Appl	Sprayer Type	Ground Speed	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Boom Width	Spray Volume	Carrier	Operation Pressure
A	CUB	3.8 mph	AIXR	11003	32 "	20 "	100 "	19 GPA	WATER	30 psi

Comments:

Volunteer corn was spread prior to soil finishing. Roundup PowerMax at 32 fl oz/A + AMS was applied to the entire study on July 1 to control all weeds, except volunteer corn. SUMMARY - A field study was conducted to assess the effect of two Flotek additives (Flotek 3902 and Flotek 4002) on volunteer corn control with clethodim. The clethodim formulations used in this trial were the Intensity 2EC which requires the use of a crop oil concentrate (COC) with the option of adding a nitrogen source (i.e., ammonium sulfate) and SelectMax 0.97EC where additive selection is more flexible. These products were applied at the lower end of the rate spectrum for treatment differentiation. Across the three evaluation times treatment performance for volunteer corn control was fairly similar. Volunteer corn control when Flotek 4002 at 1% v/v was added to Intensity was the only treatment that was similar to the standard of crop oil concentrate at 1% v/v added to Intensity for the 7 and 14 days after treatment evaluation without the use of a nitrogen source (AMS). When AMS was included with the Intensity treatments, Flotek 3902 and Flotek 4002 both at 1% v/v provided similar control to Intensity + COC 1% v/v + AMS. An additional objective of this experiment was to determine if either of the Flotek formulations could overcome the antagonism observed when Warrant is tank-mixed with SelectMax and applied with a non-ionic surfactant and AMS. Replacing the non-ionic surfactant with a COC or Flotek 4002 at 1% v/v overcame this antagonism. From these results Flotek 4002 at 1% v/v appears to be a promising additive for use with both formulations of clethodim, especially if a nitrogen source such as AMS is included.

Additive effects on volunteer corn control with clethodim

Trial ID: SOY15-19

Location: Campus, B-9

Investigator: Christy Sprague

Study Director: Sprague, Stiles, Powell

Pest Code	GLXMA	ZEAMX	GLXMA	ZEAMX	GLXMA
Crop Type, Code	Jul-16-2019	Jul-16-2019	Jul-23-2019	Jul-23-2019	Jul-30-2019
Rating Date	injury	control	injury	control	injury
Rating Type	percent	percent	percent	percent	percent
Rating Unit	7 DA-A	7 DA-A	14 DA-A	14 DA-A	21 DA-A
Trt-Eval Interval	0	0	0	0	0
Number of Decimals					

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code	GLXMA	ZEAMX	GLXMA
1	Intensity	2 EC		4 fl oz/a		POST	A	0	13	0
2	Intensity	2 EC		4 fl oz/a		POST	A	0	85	0
2	Crop oil concentrate	L		1 % v/v		POST	A			88
3	Intensity	2 EC		4 fl oz/a		POST	A	0	20	0
3	Flotek 3902	L		0.5 % v/v		POST	A			13
4	Intensity	2 EC		4 fl oz/a		POST	A	0	44	0
4	Flotek 3902	L		1 % v/v		POST	A			36
5	Untreated							0	0	0
6	Intensity	2 EC		4 fl oz/a		POST	A	0	76	0
6	Flotek 4002	L		0.5 % v/v		POST	A			71
7	Intensity	2 EC		4 fl oz/a		POST	A	0	87	0
7	Flotek 4002	L		1 % v/v		POST	A			86
8	Intensity	2 EC		4 fl oz/a		POST	A	0	90	0
8	Crop oil concentrate	L		1 % v/v		POST	A			92
8	AMS	WG		2.5 lb/a		POST	A			
9	Intensity	2 EC		4 fl oz/a		POST	A	0	90	0
9	Flotek 3902	L		1 % v/v		POST	A			91
9	AMS	WG		2.5 lb/a		POST	A			
10	Intensity	2 EC		4 fl oz/a		POST	A	0	90	0
10	Flotek 4002	L		1 % v/v		POST	A			91
10	AMS	WG		2.5 lb/a		POST	A			
11	SelectMax	0.97 EC		6 fl oz/a		POST	A	0	90	0
11	Surfactant	L		0.25 % v/v		POST	A			91
11	AMS	WG		2.5 lb/a		POST	A			
12	SelectMax	0.97 EC		6 fl oz/a		POST	A	0	85	0
12	Warrant	3 L		3 pt/a		POST	A			81
12	Surfactant	L		0.25 % v/v		POST	A			
12	AMS	WG		2.5 lb/a		POST	A			
13	SelectMax	0.97 EC		6 fl oz/a		POST	A	0	84	0
13	Warrant	3 L		3 pt/a		POST	A			86
13	Crop oil concentrate	L		1 % v/v		POST	A			2
13	AMS	WG		2.5 lb/a		POST	A			
14	SelectMax	0.97 EC		6 fl oz/a		POST	A	0	83	0
14	Warrant	3 L		3 pt/a		POST	A			76
14	Flotek 3902	L		1 % v/v		POST	A			5
14	AMS	WG		2.5 lb/a		POST	A			

Could not calculate LSD (% mean diff) for columns 1,3 because error mean square = 0.

Additive effects on volunteer corn control with clethodim

Trial ID: SOY15-19

Location: Campus, B-9

Investigator: Christy Sprague

Study Director: Sprague, Stiles, Powell

Pest Code					
Crop Type, Code					
Rating Date	GLXMA	ZEAMX	GLXMA	ZEAMX	GLXMA
Rating Type	Jul-16-2019	Jul-16-2019	Jul-23-2019	Jul-23-2019	Jul-30-2019
Rating Unit	injury	control	injury	control	injury
Trt-Eval Interval	percent	percent	percent	percent	percent
Number of Decimals	7 DA-A	7 DA-A	14 DA-A	14 DA-A	21 DA-A
	0	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
15	SelectMax	0.97	EC	6 fl oz/a		POST	A	0	88	0	87	5
15	Warrant	3	L	3 pt/a		POST	A					
15	Flotek 4002		L	1 % v/v		POST	A					
15	AMS		WG	2.5 lb/a		POST	A					
	LSD P=.05							.	6.0	.	8.7	0.8
	Standard Deviation							0.0	4.2	0.0	6.1	0.6
	CV							0.0	6.17	0.0	9.19	54.13

Additive effects on volunteer corn control with clethodim

Trial ID: SOY15-19

Location: Campus, B-9

Investigator: Christy Sprague

Study Director: Sprague, Stiles, Powell

Pest Code	
Crop Type, Code	ZEAMX
Rating Date	Jul-30-2019
Rating Type	control
Rating Unit	percent
Trt-Eval Interval	21 DA-A
Number of Decimals	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code	
1	Intensity	2	EC	4 fl oz/a		POST	A	6
2	Intensity	2	EC	4 fl oz/a		POST	A	93
2	Crop oil concentrate	L		1 % v/v		POST	A	
3	Intensity	2	EC	4 fl oz/a		POST	A	13
3	Flotek 3902	L		0.5 % v/v		POST	A	
4	Intensity	2	EC	4 fl oz/a		POST	A	21
4	Flotek 3902	L		1 % v/v		POST	A	
5	Untreated							0
6	Intensity	2	EC	4 fl oz/a		POST	A	66
6	Flotek 4002	L		0.5 % v/v		POST	A	
7	Intensity	2	EC	4 fl oz/a		POST	A	80
7	Flotek 4002	L		1 % v/v		POST	A	
8	Intensity	2	EC	4 fl oz/a		POST	A	96
8	Crop oil concentrate	L		1 % v/v		POST	A	
8	AMS	WG		2.5 lb/a		POST	A	
9	Intensity	2	EC	4 fl oz/a		POST	A	91
9	Flotek 3902	L		1 % v/v		POST	A	
9	AMS	WG		2.5 lb/a		POST	A	
10	Intensity	2	EC	4 fl oz/a		POST	A	93
10	Flotek 4002	L		1 % v/v		POST	A	
10	AMS	WG		2.5 lb/a		POST	A	
11	SelectMax	0.97	EC	6 fl oz/a		POST	A	91
11	Surfactant	L		0.25 % v/v		POST	A	
11	AMS	WG		2.5 lb/a		POST	A	
12	SelectMax	0.97	EC	6 fl oz/a		POST	A	75
12	Warrant	3	L	3 pt/a		POST	A	
12	Surfactant	L		0.25 % v/v		POST	A	
12	AMS	WG		2.5 lb/a		POST	A	
13	SelectMax	0.97	EC	6 fl oz/a		POST	A	89
13	Warrant	3	L	3 pt/a		POST	A	
13	Crop oil concentrate	L		1 % v/v		POST	A	
13	AMS	WG		2.5 lb/a		POST	A	
14	SelectMax	0.97	EC	6 fl oz/a		POST	A	75
14	Warrant	3	L	3 pt/a		POST	A	
14	Flotek 3902	L		1 % v/v		POST	A	
14	AMS	WG		2.5 lb/a		POST	A	

Could not calculate LSD (% mean diff) for columns 1,3 because error mean square = 0.

Additive effects on volunteer corn control with clethodim

Trial ID: SOY15-19

Location: Campus, B-9

Investigator: Christy Sprague

Study Director: Sprague, Stiles, Powell

Pest Code	
Crop Type, Code	ZEAMX
Rating Date	Jul-30-2019
Rating Type	control
Rating Unit	percent
Trt-Eval Interval	21 DA-A
Number of Decimals	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code	
15	SelectMax	0.97	EC	6	fl oz/a	POST	A	87
15	Warrant	3	L	3	pt/a	POST	A	
15	Flotek 4002		L	1	% v/v	POST	A	
15	AMS		WG	2.5	lb/a	POST	A	

LSD P=.05	6.4
Standard Deviation	4.5
CV	6.93