

MSU Weed Science Research Program

Effect of preharvest applications on black bean color retention - Early Planting

Trial ID: DB01-13
Conducted: SVREC

Study Dir.: Goffnett, Sprague, Powell
Investigator: Christy Sprague

Date Planted: Jun/13/2013
Variety: See Comments
Population: 106,000 seeds/A
Soil Type: Clay loam
Plot Size: 10 X 35 FT
Row Spacing: 30 IN
No. of Reps: 4
% OM: 4.1
pH: 7.7
Design: SPLIT-BLOCK

Tillage: Previous crop corn. Fall moldboard plow. Spring field cultivate, spring soil finish.

Crop	Code	Common Name
1.	PHSVX	BEAN, DRY
2.	PHSVX	BEAN, DRY
3.	PHSVX	BEAN, DRY

Application Description

	A	B
Application Timing:	PREHAR A	PREHAR B
Date Treated:	Sep/03/2013	Sep/09/2013
Time Treated:	2:00 pm	5:30 pm
% Cloud Cover:	15	10
Air Temp., Unit:	79 F	73 F
% Relative Humidity:	45	62
Wind Speed/Unit/Dir:	5 mph W	3 mph S
Soil Temp., Unit:	73 F	75 F
Soil/Leaf Surface M:	5 5	5 5
Soil Moist (1=w 5=d):	5	5

Crop Stage at Each Application

	A	B
Crop Name:	PHSVX	PHSVX
Height (In.):	23 Eclip	23 Eclip
Stage (L):	80L 50Pod	95L 80Pod
Crop Name:	PHSVX	PHSVX
Height (In.):	27 Zorro	27 Zorro
Stage (L):	50L 40Pod	85L 70Pod
Crop Name:	PHSVX	PHSVX
Height (In.):	24 B10244	24 B10244
Stage (L):	50L 40Pod	90L 60Pod

Application Equipment

Appl	Sprayer	Speed	Nozzle	Nozzle	Nozzle	Nozzle	Boom			
A	Type	MPH	Type	Size	Height	Spacing	Width	GPA	Carrier	PSI
A	Cub	3.8	AirMix	11003	29"	20"	100"	19	water	30
B	Cub	3.8	AirMix	11003	29"	20"	100"	19	water	30

Comments: Black bean varieties: 'Eclipse', 'Zorro', and 'B10244'

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Weed Code				
Crop Code				
Rating Data Type				
Rating Unit				
Rating Date				
Trt-Eval Interval				
# Subsamples, Dec.				
			PHSVX	PHSVX
			desiccation	desiccation
			percent	percent
			Sep/06/2013	Sep/09/2013
			3 DA-A	6 DA-A
			0	0
				PHSVX
				desiccation
				percent
				Sep/12/2013
				3 DA-B
				7 DA-B
				0

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code				
1	'Eclipse' - black bean							98		99	
	Gramoxone SL	2	L	2	pt/a	50%	A				99
	Surfactant		L	0.25	% v/v	50%	A				
2	'Eclipse' - black bean							88		98	
	Roundup PowerMax	4.5	L	22	fl oz/a	50%	A				99
	AMS		WG	17	lb/100 gal	50%	A				
3	'Eclipse' - black bean							93		99	
	Sharpen	2.85	L	2	fl oz/a	50%	A				99
	MSO		L	1	% v/v	50%	A				
	AMS		WG	17	lb/100 gal	50%	A				
4	'Eclipse' - black bean							88		94	
	Untreated										98
5	'Eclipse' - black bean									97	
	Gramoxone SL	2	L	2	pt/a	80%	B				98
	Surfactant		L	0.25	% v/v	80%	B				
6	'Eclipse' - black bean									98	
	Roundup PowerMax	4.5	L	22	fl oz/a	80%	B				99
	AMS		WG	17	lb/100 gal	80%	B				
7	'Eclipse' - black bean									97	
	Sharpen	2.85	L	2	fl oz/a	80%	B				99
	MSO		L	1	% v/v	80%	B				
	AMS		WG	17	lb/100 gal	80%	B				
8	'Eclipse' - black bean									98	
	Untreated										99
9	'Zorro' - black bean							94		99	
	Gramoxone SL	2	L	2	pt/a	50%	A				99
	Surfactant		L	0.25	% v/v	50%	A				
10	'Zorro' - black bean							70		96	
	Roundup PowerMax	4.5	L	22	fl oz/a	50%	A				99
	AMS		WG	17	lb/100 gal	50%	A				
11	'Zorro' - black bean							84		99	
	Sharpen	2.85	L	2	fl oz/a	50%	A				99
	MSO		L	1	% v/v	50%	A				
	AMS		WG	17	lb/100 gal	50%	A				
12	'Zorro' - black bean							70		88	
	Untreated										96
13	'Zorro' - black bean									97	
	Gramoxone SL	2	L	2	pt/a	80%	B				99
	Surfactant		L	0.25	% v/v	80%	B				
14	'Zorro' - black bean									90	
	Roundup PowerMax	4.5	L	22	fl oz/a	80%	B				97
	AMS		WG	17	lb/100 gal	80%	B				
15	'Zorro' - black bean									98	
	Sharpen	2.85	L	2	fl oz/a	80%	B				99
	MSO		L	1	% v/v	80%	B				
	AMS		WG	17	lb/100 gal	80%	B				
16	'Zorro' - black bean									90	
	Untreated										96
17	'B10244' - black bean							96		99	
	Gramoxone SL	2	L	2	pt/a	50%	A				99
	Surfactant		L	0.25	% v/v	50%	A				

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Weed Code								
Crop Code								
Rating Data Type						PHSVX	PHSVX	PHSVX
Rating Unit						desiccation	desiccation	desiccation
Rating Date						percent	percent	percent
Trt-Eval Interval						Sep/06/2013	Sep/09/2013	Sep/12/2013
# Subsamples, Dec.						3 DA-A	6 DA-A	3 DA-B
						0	0	7 DA-B
								0

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code				
18	'B10244' - black bean Roundup PowerMax AMS	4.5	L	22	fl oz/a	50%	A	63	96		99
			WG	17	lb/100 gal	50%	A				
19	'B10244' - black bean Sharpen MSO AMS	2.85	L	2	fl oz/a	50%	A	79	99		99
			L	1	% v/v	50%	A				
			WG	17	lb/100 gal	50%	A				
20	'B10244' - black bean Untreated							63	86		96
21	'B10244' - black bean Gramoxone SL Surfactant	2	L	2	pt/a	80%	B			98	99
			L	0.25	% v/v	80%	B				
22	'B10244' - black bean Roundup PowerMax AMS	4.5	L	22	fl oz/a	80%	B			96	98
			WG	17	lb/100 gal	80%	B				
23	'B10244' - black bean Sharpen MSO AMS	2.85	L	2	fl oz/a	80%	B			98	99
			L	1	% v/v	80%	B				
			WG	17	lb/100 gal	80%	B				
24	'B10244' - black bean Untreated									93	97
LSD (P=.05)								2.8	2.3	3.1	1.0
CV								2.38	1.68	2.21	0.74

Means followed by same letter do not significantly differ (P=.05, LSD)

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	# Subsamples, Dec.	PHSVX moisture percent	PHSVX YIELD CWT
				Sep/18/2013	Sep/18/2013		9 DA-B	9 DA-B
							1	1
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code	
1	'Eclipse' - black bean							15.0
	Gramoxone SL	2	L	2	pt/a	50%	A	18.5
	Surfactant		L	0.25	% v/v	50%	A	
2	'Eclipse' - black bean							15.0
	Roundup PowerMax	4.5	L	22	fl oz/a	50%	A	19.8
	AMS		WG	17	lb/100 gal	50%	A	
3	'Eclipse' - black bean							14.9
	Sharpen	2.85	L	2	fl oz/a	50%	A	20.2
	MSO		L	1	% v/v	50%	A	
	AMS		WG	17	lb/100 gal	50%	A	
4	'Eclipse' - black bean							15.0
	Untreated							21.4
5	'Eclipse' - black bean							15.0
	Gramoxone SL	2	L	2	pt/a	80%	B	19.6
	Surfactant		L	0.25	% v/v	80%	B	
6	'Eclipse' - black bean							15.0
	Roundup PowerMax	4.5	L	22	fl oz/a	80%	B	20.6
	AMS		WG	17	lb/100 gal	80%	B	
7	'Eclipse' - black bean							15.0
	Sharpen	2.85	L	2	fl oz/a	80%	B	20.9
	MSO		L	1	% v/v	80%	B	
	AMS		WG	17	lb/100 gal	80%	B	
8	'Eclipse' - black bean							14.9
	Untreated							21.5
9	'Zorro' - black bean							15.7
	Gramoxone SL	2	L	2	pt/a	50%	A	21.5
	Surfactant		L	0.25	% v/v	50%	A	
10	'Zorro' - black bean							15.7
	Roundup PowerMax	4.5	L	22	fl oz/a	50%	A	25.2
	AMS		WG	17	lb/100 gal	50%	A	
11	'Zorro' - black bean							15.8
	Sharpen	2.85	L	2	fl oz/a	50%	A	17.9
	MSO		L	1	% v/v	50%	A	
	AMS		WG	17	lb/100 gal	50%	A	
12	'Zorro' - black bean							15.7
	Untreated							24.5
13	'Zorro' - black bean							15.6
	Gramoxone SL	2	L	2	pt/a	80%	B	24.2
	Surfactant		L	0.25	% v/v	80%	B	
14	'Zorro' - black bean							15.6
	Roundup PowerMax	4.5	L	22	fl oz/a	80%	B	25.3
	AMS		WG	17	lb/100 gal	80%	B	
15	'Zorro' - black bean							15.6
	Sharpen	2.85	L	2	fl oz/a	80%	B	24.1
	MSO		L	1	% v/v	80%	B	
	AMS		WG	17	lb/100 gal	80%	B	
16	'Zorro' - black bean							15.7
	Untreated							24.3
17	'B10244' - black bean							16.1
	Gramoxone SL	2	L	2	pt/a	50%	A	20.9
	Surfactant		L	0.25	% v/v	50%	A	
18	'B10244' - black bean							15.8
	Roundup PowerMax	4.5	L	22	fl oz/a	50%	A	25.1
	AMS		WG	17	lb/100 gal	50%	A	

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Weed Code
 Crop Code PHSVX PHSVX
 Rating Data Type moisture YIELD
 Rating Unit percent CWT
 Rating Date Sep/18/2013 Sep/18/2013
 Trt-Eval Interval 9 DA-B 9 DA-B
 # Subsamples, Dec. 1 1

Trt No.	Treatment Name	Form Conc	Form Type	Form Rate	Form Unit	Grow Stg	Appl Code		
19	'B10244' - black bean							15.8	15.0
	Sharpen	2.85	L	2	fl oz/a	50%	A		
	MSO		L	1	% v/v	50%	A		
	AMS		WG	17	lb/100 gal	50%	A		
20	'B10244' - black bean							16.0	25.1
	Untreated								
21	'B10244' - black bean							16.1	24.3
	Gramoxone SL	2	L	2	pt/a	80%	B		
	Surfactant		L	0.25	% v/v	80%	B		
22	'B10244' - black bean							15.8	25.8
	Roundup PowerMax	4.5	L	22	fl oz/a	80%	B		
	AMS		WG	17	lb/100 gal	80%	B		
23	'B10244' - black bean							16.0	25.7
	Sharpen	2.85	L	2	fl oz/a	80%	B		
	MSO		L	1	% v/v	80%	B		
	AMS		WG	17	lb/100 gal	80%	B		
24	'B10244' - black bean							15.9	24.7
	Untreated								
LSD (P=.05)								0.25	3.14
CV								1.14	9.94

Means followed by same letter do not significantly differ (P=.05, LSD)