

MSU Weed Science Research Program

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

Trial ID: DB01-14
 Conducted: SVREC

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

Date Planted: Jun/05/2014 **Row Spacing:** 30 IN
Variety: See comments **No. of Reps:** 4
Population: 106,000 seeds/A **% OM:** 3.0
Soil Type: Clay loam **pH:** 7.6
Plot Size: 10 X 35 FT **Design:** SPLIT-BLOCK

Tillage: 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:	50% pod	80% pod
Date Treated:	Aug/25/2014	Sep/04/2014
Time Treated:	3:10 PM	10:30 AM
% Cloud Cover:	100	90
Air Temp., Unit:	81 F	78 F
% Relative Humidity:	75	61
Wind Speed/Unit/Dir:	6 mph S	10 mph S
Soil Temp., Unit:	79 F	76 F
Soil/Leaf Surface M:	4 5	3 5
Soil Moist (1=w 5=d):	4	3

Crop Stage at Each Application

	A	B
Crop Name:	PHSVX	PHSVX
Height (In.):	18 Eclip	18 Eclip
Stage (L):	70L 65Pod	95L 95Pod
Crop Name:	PHSVX	PHSVX
Height (In.):	18 Zorro	18 Zorro
Stage (L):	50L 60Pod	90L 85Pod
Crop Name:	PHSVX	PHSVX
Height (In.):	18 Zenith	18 Zenith
Stage (L):	40L 50Pod	90L 85pod

Application Equipment

Appl	Sprayer	Speed	Nozzle	Nozzle	Nozzle	Nozzle	Boom			
	Type	MPH	Type	Size	Height	Spacing	Width	GPA	Carrier	PSI
A	Cub	3.8	AirMix	11003	28"	20"	100"	19	water	30
B	Cub	3.8	AirMix	11003	28"	20"	100"	19	water	30

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

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Rating Data Type

Rating Unit

Rating Date

Trt-Eval Interval

Subsamples, Dec.

PHSVX
 desiccation
 percent
 Aug/28/2014
 3 DA-A
 0

PHSVX
 desiccation
 percent
 Sep/02/2014
 7 DA-A
 0

PHSVX
 desiccation
 percent
 Sep/07/2014
 14 DA-A
 0

PHSVX
 desiccation
 percent
 Sep/07/2014
 3 DA-B
 0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	PHSVX desiccation percent Aug/28/2014 3 DA-A	PHSVX desiccation percent Sep/02/2014 7 DA-A	PHSVX desiccation percent Sep/07/2014 14 DA-A	PHSVX desiccation percent Sep/07/2014 3 DA-B
1	'Eclipse' - black bean							84	99	99	
1	Gramoxone SL	2	L	2	pt/a	50%	A				
1	Surfactant		L	0.25	% v/v	50%	A				
2	'Eclipse' - black bean							75	95	99	
2	Roundup PowerMax	4.5	L	22	fl oz/a	50%	A				
2	AMS		WG	17	lb/100 gal	50%	A				
3	'Eclipse' - black bean							83	99	99	
3	Sharpen	2.85	L	2	fl oz/a	50%	A				
3	MSO		L	1	% v/v	50%	A				
3	AMS		WG	17	lb/100 gal	50%	A				
4	'Eclipse' - black bean							69	84	96	
4	Untreated										
5	'Eclipse' - black bean										99
5	Gramoxone SL	2	L	2	pt/a	80%	B				
5	Surfactant		L	0.25	% v/v	80%	B				
6	'Eclipse' - black bean										98
6	Roundup PowerMax	4.5	L	22	fl oz/a	80%	B				
6	AMS		WG	17	lb/100 gal	80%	B				
7	'Eclipse' - black bean										99
7	Sharpen	2.85	L	2	fl oz/a	80%	B				
7	MSO		L	1	% v/v	80%	B				
7	AMS		WG	17	lb/100 gal	80%	B				
8	'Eclipse' - black bean										97
8	Untreated										
9	'Zorro' - black bean							76	97	99	
9	Gramoxone SL	2	L	2	pt/a	50%	A				
9	Surfactant		L	0.25	% v/v	50%	A				
10	'Zorro' - black bean							65	88	98	
10	Roundup PowerMax	4.5	L	22	fl oz/a	50%	A				
10	AMS		WG	17	lb/100 gal	50%	A				
11	'Zorro' - black bean							74	98	99	
11	Sharpen	2.85	L	2	fl oz/a	50%	A				
11	MSO		L	1	% v/v	50%	A				
11	AMS		WG	17	lb/100 gal	50%	A				
12	'Zorro' - black bean							55	73	93	
12	Untreated										
13	'Zorro' - black bean										96
13	Gramoxone SL	2	L	2	pt/a	80%	B				
13	Surfactant		L	0.25	% v/v	80%	B				
14	'Zorro' - black bean										93
14	Roundup PowerMax	4.5	L	22	fl oz/a	80%	B				
14	AMS		WG	17	lb/100 gal	80%	B				

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Subsamples, Dec.

PHSVX
 desiccation
 percent
 Aug/28/2014
 3 DA-A
 0

PHSVX
 desiccation
 percent
 Sep/02/2014
 7 DA-A
 0

PHSVX
 desiccation
 percent
 Sep/07/2014
 14 DA-A
 0

PHSVX
 desiccation
 percent
 Sep/07/2014
 3 DA-B
 0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	PHSVX desiccation percent Aug/28/2014 3 DA-A	PHSVX desiccation percent Sep/02/2014 7 DA-A	PHSVX desiccation percent Sep/07/2014 14 DA-A	PHSVX desiccation percent Sep/07/2014 3 DA-B
15	'Zorro' - black bean										98
15	Sharpen	2.85	L	2	fl oz/a	80%	B				
15	MSO		L	1	% v/v	80%	B				
15	AMS		WG	17	lb/100 gal	80%	B				
16	'Zorro' - black bean										92
16	Untreated										
17	'B10244' - black bean							78	96	99	
17	Gramoxone SL	2	L	2	pt/a	50%	A				
17	Surfactant		L	0.25	% v/v	50%	A				
18	'B10244' - black bean							64	83	98	
18	Roundup PowerMax	4.5	L	22	fl oz/a	50%	A				
18	AMS		WG	17	lb/100 gal	50%	A				
19	'B10244' - black bean							73	98	99	
19	Sharpen	2.85	L	2	fl oz/a	50%	A				
19	MSO		L	1	% v/v	50%	A				
19	AMS		WG	17	lb/100 gal	50%	A				
20	'B10244' - black bean							58	68	93	
20	Untreated										
21	'B10244' - black bean										98
21	Gramoxone SL	2	L	2	pt/a	80%	B				
21	Surfactant		L	0.25	% v/v	80%	B				
22	'B10244' - black bean										95
22	Roundup PowerMax	4.5	L	22	fl oz/a	80%	B				
22	AMS		WG	17	lb/100 gal	80%	B				
23	'B10244' - black bean										98
23	Sharpen	2.85	L	2	fl oz/a	80%	B				
23	MSO		L	1	% v/v	80%	B				
23	AMS		WG	17	lb/100 gal	80%	B				
24	'B10244' - black bean										94
24	Untreated										
LSD (P=.05)								6.3	3.4	1.0	2.0
CV								6.15	2.65	0.68	1.43

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

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 Trt-Eval Interval
 # Subsamples, Dec.

PHSVX desiccation percent
 Sep/09/2014 7 DA-B
 0

PHSVX moisture percent
 Sep/09/2014 7 DA-B
 1

PHSVX yield cwt/acre
 Sep/09/2014 7 DA-B
 1

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	PHSVX desiccation percent Sep/09/2014 7 DA-B 0	PHSVX moisture percent Sep/09/2014 7 DA-B 1	PHSVX yield cwt/acre Sep/09/2014 7 DA-B 1
1	'Eclipse' - black bean								15.2	20.5
1	Gramoxone SL	2	L	2	pt/a	50%	A			
1	Surfactant		L	0.25	% v/v	50%	A			
2	'Eclipse' - black bean								15.2	21.4
2	Roundup PowerMax	4.5	L	22	fl oz/a	50%	A			
2	AMS		WG	17	lb/100 gal	50%	A			
3	'Eclipse' - black bean								15.2	12.9
3	Sharpen	2.85	L	2	fl oz/a	50%	A			
3	MSO		L	1	% v/v	50%	A			
3	AMS		WG	17	lb/100 gal	50%	A			
4	'Eclipse' - black bean								15.3	26.0
4	Untreated									
5	'Eclipse' - black bean							99	15.1	26.1
5	Gramoxone SL	2	L	2	pt/a	80%	B			
5	Surfactant		L	0.25	% v/v	80%	B			
6	'Eclipse' - black bean							99	15.1	24.0
6	Roundup PowerMax	4.5	L	22	fl oz/a	80%	B			
6	AMS		WG	17	lb/100 gal	80%	B			
7	'Eclipse' - black bean							99	15.3	22.8
7	Sharpen	2.85	L	2	fl oz/a	80%	B			
7	MSO		L	1	% v/v	80%	B			
7	AMS		WG	17	lb/100 gal	80%	B			
8	'Eclipse' - black bean							99	15.1	25.1
8	Untreated									
9	'Zorro' - black bean								15.5	19.8
9	Gramoxone SL	2	L	2	pt/a	50%	A			
9	Surfactant		L	0.25	% v/v	50%	A			
10	'Zorro' - black bean								15.6	22.0
10	Roundup PowerMax	4.5	L	22	fl oz/a	50%	A			
10	AMS		WG	17	lb/100 gal	50%	A			
11	'Zorro' - black bean								15.3	7.6
11	Sharpen	2.85	L	2	fl oz/a	50%	A			
11	MSO		L	1	% v/v	50%	A			
11	AMS		WG	17	lb/100 gal	50%	A			
12	'Zorro' - black bean								15.7	24.7
12	Untreated									
13	'Zorro' - black bean							99	15.5	25.1
13	Gramoxone SL	2	L	2	pt/a	80%	B			
13	Surfactant		L	0.25	% v/v	80%	B			
14	'Zorro' - black bean							98	15.6	22.5
14	Roundup PowerMax	4.5	L	22	fl oz/a	80%	B			
14	AMS		WG	17	lb/100 gal	80%	B			

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 # Subsamples, Dec.

PHSVX desiccation percent
 PHSVX moisture percent
 PHSVX yield cwt/acre
 Sep/09/2014 7 DA-B
 Sep/09/2014 7 DA-B
 Sep/09/2014 7 DA-B
 0 1 1

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	PHSVX desiccation percent	PHSVX moisture percent	PHSVX yield cwt/acre
15	'Zorro' - black bean							99	15.5	22.9
15	Sharpen	2.85	L	2	fl oz/a	80%	B			
15	MSO		L	1	% v/v	80%	B			
15	AMS		WG	17	lb/100 gal	80%	B			
16	'Zorro' - black bean							96	15.6	26.9
16	Untreated									
17	'B10244' - black bean								15.9	21.3
17	Gramoxone SL	2	L	2	pt/a	50%	A			
17	Surfactant		L	0.25	% v/v	50%	A			
18	'B10244' - black bean								16.1	20.3
18	Roundup PowerMax	4.5	L	22	fl oz/a	50%	A			
18	AMS		WG	17	lb/100 gal	50%	A			
19	'B10244' - black bean								15.6	8.1
19	Sharpen	2.85	L	2	fl oz/a	50%	A			
19	MSO		L	1	% v/v	50%	A			
19	AMS		WG	17	lb/100 gal	50%	A			
20	'B10244' - black bean								16.0	26.4
20	Untreated									
21	'B10244' - black bean							99	16.0	25.3
21	Gramoxone SL	2	L	2	pt/a	80%	B			
21	Surfactant		L	0.25	% v/v	80%	B			
22	'B10244' - black bean							99	15.9	21.2
22	Roundup PowerMax	4.5	L	22	fl oz/a	80%	B			
22	AMS		WG	17	lb/100 gal	80%	B			
23	'B10244' - black bean							99	16.0	21.3
23	Sharpen	2.85	L	2	fl oz/a	80%	B			
23	MSO		L	1	% v/v	80%	B			
23	AMS		WG	17	lb/100 gal	80%	B			
24	'B10244' - black bean							98	16.0	25.9
24	Untreated									
LSD (P=.05)								1.1	0.44	3.95
CV								0.77	2.02	12.9

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