

MSU Weed Science Research Program

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

Trial ID: DB02-14
 Conducted: SVREC

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

Date Planted: Jun/27/2014 **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:	Sep/23/2014	Sep/29/2014
Time Treated:	12:35 PM	12:40 PM
% Cloud Cover:	0	10
Air Temp., Unit:	69 F	78 F
% Relative Humidity:	59	50
Wind Speed/Unit/Dir:	5 mph SW	6 mph W
Soil Temp., Unit:	60 F	75 F
Soil/Leaf Surface M:	2 5	4 5
Soil Moist (1=w 5=d):	2	4

Crop Stage at Each Application

	A	B
Crop Name:	PHSVX	PHSVX
Height (In.):	20 Eclip	20 Eclip
Stage (L):	70L 60Pod	98L 90Pod
Crop Name:	PHSVX	PHSVX
Height (In.):	20 Zorro	20 Zorro
Stage (L):	50L 50Pod	97L 85Pod
Crop Name:	PHSVX	PHSVX
Height (In.):	20 B10244	20 B10244
Stage (L):	55L 45Pod	95L 85Pod

Application Equipment

Appl	Sprayer Type	Speed MPH	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Boom Width	GPA	Carrier	PSI
A	Cub	3.8	AirMix	11003	27"	20"	100"	19	water	30
B	Cub	3.8	AirMix	11003	27"	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
 desiccation
 percent
 Sep/26/2014
 3 DA-A
 0

PHSVX
 desiccation
 percent
 Sep/29/2014
 7 DA-A
 0

PHSVX
 desiccation
 percent
 Oct/02/2014
 3 DA-B
 0

PHSVX
 desiccation
 percent
 Oct/06/2014
 7 DA-B
 0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	PHSVX desiccation percent Sep/26/2014 3 DA-A	PHSVX desiccation percent Sep/29/2014 7 DA-A	PHSVX desiccation percent Oct/02/2014 3 DA-B	PHSVX desiccation percent Oct/06/2014 7 DA-B
1	'Eclipse' - black bean							90	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							83	99		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							91	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							75	99		99
4	Untreated										
5	'Eclipse' - black bean									99	99
5	Gramoxone SL	2	L	2	pt/a	80%	B				
5	Surfactant		L	0.25	% v/v	80%	B				
6	'Eclipse' - black bean									99	99
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									98	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									98	99
8	Untreated										
9	'Zorro' - black bean							84	99		99
9	Gramoxone SL	2	L	2	pt/a	50%	A				
9	Surfactant		L	0.25	% v/v	50%	A				
10	'Zorro' - black bean							73	98		99
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							93	99		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							65	92		98
12	Untreated										
13	'Zorro' - black bean									95	99
13	Gramoxone SL	2	L	2	pt/a	80%	B				
13	Surfactant		L	0.25	% v/v	80%	B				
14	'Zorro' - black bean									94	99
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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 Crop Code
 Rating Data Type
 Rating Unit
 Rating Date
 Trt-Eval Interval
 # Subsamples, Dec.

PHSVX desiccation percent	PHSVX desiccation percent	PHSVX desiccation percent	PHSVX desiccation percent
Sep/26/2014	Sep/29/2014	Oct/02/2014	Oct/06/2014
3 DA-A	7 DA-A	3 DA-B	7 DA-B
0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	PHSVX desiccation percent	PHSVX desiccation percent	PHSVX desiccation percent	PHSVX desiccation percent
15	'Zorro' - black bean									96	99
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									89	97
16	Untreated										
17	'B10244' - black bean							86	99		99
17	Gramoxone SL	2	L	2	pt/a	50%	A				
17	Surfactant		L	0.25	% v/v	50%	A				
18	'B10244' - black bean							74	98		99
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							91	99		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							63	95		99
20	Untreated										
21	'B10244' - black bean									95	99
21	Gramoxone SL	2	L	2	pt/a	80%	B				
21	Surfactant		L	0.25	% v/v	80%	B				
22	'B10244' - black bean									94	99
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									91	99
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									91	98
24	Untreated										
LSD (P=.05)								3.5	2.5	3.8	0.7
CV								3.0	1.78	2.8	0.47

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

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 Rating Date
 Trt-Eval Interval
 # Subsamples, Dec.

PHSVX
 moisture
 percent
 Oct/08/2014
 7 DA-B
 1

PHSVX
 yield
 cwt/acre
 Oct/08/2014
 7 DA-B
 1

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	PHSVX moisture percent	PHSVX yield cwt/acre
1	'Eclipse' - black bean							20.3	19.1
1	Gramoxone SL	2	L	2	pt/a	50%	A		
1	Surfactant		L	0.25	% v/v	50%	A		
2	'Eclipse' - black bean							20.1	17.4
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							19.7	15.5
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							20.3	19.1
4	Untreated								
5	'Eclipse' - black bean							20.3	19.3
5	Gramoxone SL	2	L	2	pt/a	80%	B		
5	Surfactant		L	0.25	% v/v	80%	B		
6	'Eclipse' - black bean							20.3	19.8
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							19.1	17.8
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							19.3	20.9
8	Untreated								
9	'Zorro' - black bean							21.9	17.1
9	Gramoxone SL	2	L	2	pt/a	50%	A		
9	Surfactant		L	0.25	% v/v	50%	A		
10	'Zorro' - black bean							21.2	16.3
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							20.7	14.0
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							21.4	18.4
12	Untreated								
13	'Zorro' - black bean							21.0	19.4
13	Gramoxone SL	2	L	2	pt/a	80%	B		
13	Surfactant		L	0.25	% v/v	80%	B		
14	'Zorro' - black bean							21.4	16.3
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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PHSVX
 moisture
 percent
 Oct/08/2014
 7 DA-B
 1

PHSVX
 yield
 cwt/acre
 Oct/08/2014
 7 DA-B
 1

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	PHSVX moisture percent	PHSVX yield cwt/acre
15	'Zorro' - black bean							20.8	16.5
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							21.3	19.0
16	Untreated								
17	'B10244' - black bean							22.1	18.3
17	Gramoxone SL	2	L	2	pt/a	50%	A		
17	Surfactant		L	0.25	% v/v	50%	A		
18	'B10244' - black bean							21.8	18.0
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							21.4	15.2
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							22.0	19.5
20	Untreated								
21	'B10244' - black bean							22.2	19.9
21	Gramoxone SL	2	L	2	pt/a	80%	B		
21	Surfactant		L	0.25	% v/v	80%	B		
22	'B10244' - black bean							22.0	18.0
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							22.1	16.9
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							22.2	19.4
24	Untreated								
LSD (P=.05)								1.15	2.23
CV								3.88	8.76

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