

LSU Northeast Research Station

Effect of barnyardgrass growth stage and application timings on the efficacy of Regiment.

Trial ID: SJ06R047

Protocol ID: SJ06R047

Location: Bay 5, North end

Study Director:

Investigator: Bill Williams

General Trial Information

Investigator: Bill Williams

Objectives:

1. To determine the effect of barnyardgrass growth stage on Regiment efficacy.
2. To compare DynaPak and Dynamic as adjuvants for Regiment.
3. To compare pre-flood and postflood applications.

Conclusions:

Based on the difficulties encountered in SJ06R024 and the inferences drawn from that study, a new experiment was planned. The idea was to obtain all the desired growth stages of barnyardgrass at one time and then apply pre-flood treatments followed by permanent flood two days later. The post-flood treatments were applied five days after permanent flood. This eliminated moisture and new emergence as variables. Various combinations of Command and Roundup WeatherMax were used to obtain the different barnyardgrass growth stages in the experiment. Prilled urea at 300 lb/A was applied just before permanent flood.

Barnyardgrass control at 2 weeks after application declined from nearly 100 percent to as low as 30 percent as the growth stage increased from the 4-5 leaf stage to heading. This trend was observed irrespective of whether Dyne-A-Pak or Dynamic was used, or herbicide was applied pre-flood or post-flood. A similar trend was observed at 4 weeks after application in case of pre-flood applications; however, in case of post-flood applications the level of control was lower for early growth stages, it increased to about 40-50 percent for 2-3 tiller and 3-4 tiller stage, and again declined for later stages. Also, Dyne-A-Pak resulted in 99 percent control of barnyard grass with 2-3 tiller, whereas Dynamic only resulted in 50 percent control.

Regiment killed primary tillers of big barnyardgrass plants (later stages), but regrowth occurred in these plants. This type of effect was observed more in case of post-flood treatments. The lack of control at early stages in post-flood application was largely due to the fact that a larger portion of these plants were below the water line. As in SJ06R024, these results suggest that Dyne-A-Pak can help improve Regiment activity on barnyardgrass in early tillering stages. Still, there is a limit to the size of barnyardgrass that Regiment can kill.

Crop Description

Crop 1: NONE No crop.

Pest Description

Pest 1 Type: W Code: ECHCG Echinochloa crus-galli
 Common Name: Common barnyardgrass
 Description: Dense natural population.

Site and Design

Plot Width, Unit: 6.67 FT

Plot Length, Unit: 15 FT

Replications: 9

Study Design: Completely Randomized

Soil Description

Description Name: Bay 5 - Middle

% Sand: 20

% OM: 1.73

Texture: Clay

% Silt: 30

pH: 7.49

Soil Name: Sharkey

% Clay: 50

CEC: 22.4

Fert. Level: Excellent

Moisture Conditions

Overall Moisture Conditions: Dry

Closest Weather Station: Northeast Research Station

Distance: 0.25

Unit: MI

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	Date	Time	Amount	Unit	Type	Interval	Unit
1.	5/5/06	8:00 pm	1.49	In	Rain	1	Hou
2.	5/5/06	4:00 am				4	Hou
3.	5/6/06	8:00 am	0.31	In	Rain	3.5	Hou
4.	5/7/06	11:00 a	1.06	In	Rain	4	Hou
5.	5/7/06	12:00 p				2	Hou
6.	5/9/06	7:00 pm	0.39	In	Rain	0.75	Hou
7.	5/11/06	7:15 pm	0.2	In	Rain	0.5	Hou
8.	5/15/06	10:00 a	0.21	In	Rain	1	Hou
9.	5/19/06				Flush		
10.	5/27/06				Flush		
11.	5/28/06	5:00 pm	0.18	In	Rain	1	Hou
12.	5/29/06	2:30 pm	0.46	In	Rain	2.5	Hou
13.	5/30/06	1:30 pm	0.79	In	Rain	3	Hou
14.	6/2/06	6:30 pm	0.03	In	Rain	1	Hou
15.	6/7/06				Fertilize		
16.	6/8/06				Perment Flood		
17.	6/17/06	7:00 pm	0.03	In	Rain	1	Hou
18.	6/18/06	10:00 p	0.01	In	Rain	1	Hou
19.	6/19/06	10:00 p	0.05	In	Rain	1	Hou
20.	6/20/06	2:30 pm	0.19	In	Rain	1	Hou
21.	6/24/06	9:00 pm	0.07	In	Rain	1	Hou
22.	7/3/06	1:00 pm	0.07	In	Rain	0.5	Hou
23.	7/4/06	3:00 pm	0.69	In	Rain	1.5	Hou
24.	7/4/06	7:00 am				1	Hou
25.	7/5/06	12:00 a	1.25	In	Rain	0.75	Hou
26.	7/5/06	6:00pm				1.5	Hou
27.	7/6/06	6:00 pm	0.35	In	Rain	3.5	Hou
28.	7/11/06	2:00 pm	0.45	In	Rain	2	Hou

Application Description

	A	B
Application Date:	8/18/06	10/25/06
Time of Day:	2.00 pm	4.00 pm
Application Method:	SPRAY	SPRAY
Application Timing:	Pre-flood	Po-flood
Application Placement:	BROFOL	BROFOL
Soil Moisture:	Dry	Wet
% Cloud Cover:	0	0

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	NONE	NONE

Pest Stage At Each Application

	A	B
Pest 1 Code, Disc., Scale:	ECHCG W	ECHCG W

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Application Equipment

	A	B	C
Appl. Equipment:	Backpack	Backpack	Backpack
Operating Pressure, Unit:	31 PSI	31 PSI	31 PSI
Nozzle Type:	Greenleaf	Greenleaf	Greenleaf
Nozzle Size:	11002	11002	11002
Nozzle Spacing, Unit:	20 IN	20 IN	20 IN
Nozzles/Row:	2	2	2
Ground Speed, Unit:	2.8 MPH	2.8 MPH	2.8 MPH
Carrier:	Water	Water	Water
Spray Volume, Unit:	15 GAL/AC	15 GAL/AC	15 GAL/AC
Propellant:	CO2	CO2	CO2

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Trt No.	Treatment Name	Rate	Unit	W Weed	ECHCG	Common barn>	ECHCG	Common barn>
				1			2	
1	Regiment	0.5	oz/a	97.1	a		99.0	a
	Dyne-A-Pak	1.5	% v/v					
2	Regiment	0.5	oz/a	99.0	a		99.0	a
	Dyne-A-Pak	1.5	% v/v					
3	Regiment	0.5	oz/a	96.2	a		99.0	a
	Dyne-A-Pak	2.5	% v/v					
4	Regiment	0.5	oz/a	91.7	ab		53.0	b
	Dyne-A-Pak	2.5	% v/v					
5	Regiment	0.5	oz/a	30.0	fg		23.3	bc
	Dyne-A-Pak	1.5	% v/v					
6	Regiment	0.5	oz/a	50.0	e		10.0	c
	Dyne-A-Pak	1.5	% v/v					
7	Regiment	0.5	oz/a	96.4	a		99.0	a
	Dymanic	0.5	% v/v					
8	Regiment	0.5	oz/a	99.0	a		99.0	a
	Dymanic	0.5	% v/v					
9	Regiment	0.5	oz/a	94.0	ab		49.7	b
	Dymanic	0.5	% v/v					
10	Regiment	0.5	oz/a	71.7	cd		30.0	bc
	Dymanic	0.5	% v/v					
11	Regiment	0.5	oz/a	20.0	g		15.0	c
	Dymanic	0.5	% v/v					
12	Regiment	0.5	oz/a	30.0	fg		10.0	c
	Dymanic	0.5	% v/v					
13	Regiment	0.5	oz/a	92.6	ab		12.5	c
	Dyne-A-Pak	1.5	% v/v					
14	Regiment	0.5	oz/a	85.0	abc		10.0	c
	Dyne-A-Pak	1.5	% v/v					
15	Regiment	0.5	oz/a	81.7	abc		50.0	b
	Dyne-A-Pak	2.5	% v/v					
16	Regiment	0.5	oz/a	77.5	bcd		50.0	b
	Dyne-A-Pak	2.5	% v/v					
17	Regiment	0.5	oz/a	42.5	ef		30.0	bc
	Dyne-A-Pak	1.5	% v/v					
18	Regiment	0.5	oz/a	40.0	ef		10.0	c
	Dyne-A-Pak	1.5	% v/v					
19	Regiment	0.5	oz/a	96.8	a		39.7	bc
	Dymanic	0.5	% v/v					
20	Regiment	0.5	oz/a	87.5	abc		10.0	c
	Dymanic	0.5	% v/v					
21	Regiment	0.5	oz/a	63.3	d		36.7	bc
	Dymanic	0.5	% v/v					
22	Regiment	0.5	oz/a	65.0	d		50.0	b
	Dymanic	0.5	% v/v					
23	Regiment	0.5	oz/a	40.0	ef		10.0	c
	Dymanic	0.5	% v/v					

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Pest Type	W Weed		ECHCG
Pest Code	ECHCG		ECHCG
Pest Name	Common barn>		Common barn>
Part Rated	PLATOT P		PLATOT P
Rating Date	9/8/06		9/24/06
Rating Data Type	CONTROL		CONTROL
Rating Unit	%		%
Days After First/Last Applic.	21 21		37 37
Trt-Eval Interval	21 DA-A		37 DA-A
Trt Treatment	Rate		
No. Name	Rate Unit	1	2
24 Regiment	0.5 oz/a	30.0 fg	10.0 c
Dymanic	0.5 % v/v		
LSD (P=.05)		11.56	20.55
Standard Deviation		11.56	20.55
CV		16.54	49.09
Bartlett's X2		54.566	25.231
P(Bartlett's X2)		0.001*	0.001*
Treatment F		44.602	21.456
Treatment Prob(F)		0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.