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R. S. Currie
Kansas State University, rscurrie@ksu.edu

P. W. Geier
Kansas State University, pgeier@ksu.edu

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Diflexx Duo Compared to Capreno, Halex GT, Armezon, Outlook, Status, Degree Xtra, and Bicep II Magnum for Weed Control in Irrigated Corn

R.S. Currie and P.W. Geier

Summary

Control of kochia, quinoa, and green foxtail was complete with all herbicides at 78 days after treatment (DAT). Palmer amaranth, common sunflower, and crabgrass was 97% at 8 DAT. By 78 DAT, common sunflower control was complete with all herbicides. Crabgrass control at 78 DAT was excellent except when Diflexx Duo (dicamba + tembotrione) at 24 oz/a + atrazine was mixed with glyphosate or Liberty. All herbicide-treated corn yielded 111 to 126 bu/a more grain than the untreated controls. The various additions to the premixes improved weed control to the point that no difference occurred among them for yield.

Introduction

Diflexx Duo is a very competitive herbicide package mix with Capreno, Halex GT (*S*-metolachlor + atrazine + mesotrione + glyphosate), Armezon (topramezone), Degree Xtra (acetochlor + atrazine), and Bicep II Magnum (*S*-metolachlor + atrazine). Each of these package mixes has different levels of preemergence and postemergence weed control. Adding other compounds—such as Liberty (glufosinate), Outlook (dimethenamid-*P*), and Status (dicamba + diflufenzopyr)—can often improve overall weed control. Therefore, it was the objective of this study to compare these compounds alone and with other products to measure their overall weed control.

Experimental Procedures

An experiment at the Kansas State University Southwest Research-Extension Center near Garden City, KS, evaluated the premix of Diflexx Duo with tank mixtures for postemergence efficacy compared to standards in corn. All herbicides were applied using a tractor-mounted, compressed-CO₂ sprayer delivering 20 GPA at 30 psi when corn was 5 to 8 inches tall. Application, environmental, crop, and weed information is shown in Table 1. Plot size was 10 × 35 feet and arranged in a randomized complete block with four replicates. Soil for the experiment was a Beeler silt loam with pH 7.6 and 2.4% organic matter. Visual weed control was evaluated on June 7 and August 16, 2017, which was 8 and 78 DAT, respectively. Corn yields were determined on October 18, 2017 by mechanically harvesting the center two rows of each plot and adjusting grain weights to 15.5% moisture.

Results and Discussion

Control of kochia, quinoa, and green foxtail was complete with all herbicides evaluated at 8 and 78 DAT (data not shown), and was 97% or more for Palmer amaranth, common sunflower, and crabgrass at 8 DAT (Table 2). By 78 DAT, common sunflower control was complete with all herbicides. On the same date, only Capreno + glyphosate and atrazine controlled Palmer amaranth less than 94%. Crabgrass control at 78 DAT was greatest with any herbicide treatment except when Diflexx Duo at 24 oz/a + atrazine was mixed with glyphosate or Liberty (85 to 86%). All herbicide-treated corn yielded 111 to 126 bu/a more grain than the untreated controls, but no difference occurred among herbicide treatments for yield.

Table 1. Application information

Application timing	Postemergence
Application date	May 30, 2017
Air temperature (°F)	71
Relative humidity (%)	54
Soil temperature (°F)	64
Wind speed (mph)	5
Wind direction	West
Soil moisture	Good
Corn	
Height (inch)	5 to 8
Leaves (number)	3 to 4
Common sunflower	
Height (inch)	6 to 10
Density (plants/ft ²)	0.3
Palmer amaranth	
Height (inch)	1 to 6
Density (plants/ft ²)	1.9
Green foxtail	
Height (inch)	3 to 6
Density (plants/ft ²)	0.5
Kochia	
Height (inch)	4 to 6
Density (plants/ft ²)	0.3
Quinoa	
Height (inch)	4 to 8
Density (plants/ft ²)	0.5
Crabgrass	
Height (inch)	3 to 5
Density (plants/ft ²)	1.9

Table 2. Diflexx Duo postemergence comparisons in corn.

Treatment	Rate	Palmer amaranth		Common sunflower		Crabgrass		Corn yield
		8 DAT ^a	78 DAT	8 DAT	78 DAT	8 DAT	78 DAT	
	oz/a	----- % Visual -----						bu/a
Untreated	---	0	0	0	0	0	0	46.2
Diflexx Duo	32	100	96	100	100	97	90	170.6
Glyphosate	32							
Atrazine	16							
Ammonium sulfate	1%							
Diflexx Duo	32	100	99	99	100	97	91	158.5
Atrazine	16							
Crop oil concentrate	1%							
Ammonium sulfate	1%							
Diflexx Duo	24	100	96	98	100	98	86	159.2
Glyphosate	32							
Atrazine	16							
Ammonium sulfate	1%							
Diflexx Duo	24	100	94	97	100	97	85	161.4
Liberty	32							
Atrazine	16							
Ammonium sulfate	1%							
Capreno	3.0	100	91	99	100	98	93	168.5
Glyphosate	32							
Atrazine	16							
Ammonium sulfate	1%							
Halex GT	3.6 pt	100	98	99	100	97	88	169.0
Atrazine	16							
Nonionic surfactant	0.25%							
Ammonium sulfate	1%							
Armezon	0.57	100	98	98	100	97	94	168.3
Outlook	14							
Glyphosate	32							
Atrazine	16							
Ammonium sulfate	1%							
Armezon	0.57	99	100	97	100	98	88	156.9
Status	3.0							
Glyphosate	32							
Atrazine	16							
Ammonium sulfate	1%							
Degree Xtra	3.0 qt	100	100	100	100	98	93	164.8
Diflexx Duo	32							
Glyphosate	32							
Ammonium sulfate	1%							
Bicep II Magnum	1.6 qt	100	100	100	100	98	93	171.7
Diflexx Duo	32							
Glyphosate	32							
Ammonium sulfate	1%							
LSD (0.05)		NS	6	2	NS	NS	7	25.4

^a DAT = days after herbicide treatment. Weed control determined on June 7 and August 16, 2017. Corn yields determined on October 18, 2017.

Figure 1. Untreated control.

Figure 2. Diflexx Duo 32 oz/a + glyphosate 32 oz/a + atrazine 16 oz/a and ammonium sulfate 1% applied postemergence, 24 days after treatment.

Figure 3. Diflexx Duo 24 oz/a + glyphosate 32 oz/a + atrazine 16 oz/a and ammonium sulfate 1% applied postemergence, 24 days after treatment.

Figure 4. Diflexx Duo 24 oz/a + Liberty 32 oz/a + atrazine 16 oz/a and ammonium sulfate 1% applied postemergence, 24 days after treatment.

Figure 5. Bicep II Magnum 1.6 qt/a + Diflexx Duo 32 oz/a + glyphosate 32 oz/a and ammonium sulfate 1% applied postemergence, 24 days after treatment.