

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

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### **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-CO<sub>2</sub> 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 <sup>2</sup> )	0.3
Palmer amaranth	
Height (inch)	1 to 6
Density (plants/ft <sup>2</sup> )	1.9
Green foxtail	
Height (inch)	3 to 6
Density (plants/ft <sup>2</sup> )	0.5
Kochia	
Height (inch)	4 to 6
Density (plants/ft <sup>2</sup> )	0.3
Quinoa	
Height (inch)	4 to 8
Density (plants/ft <sup>2</sup> )	0.5
Crabgrass	
Height (inch)	3 to 5
Density (plants/ft <sup>2</sup> )	1.9

**Table 2. Diflexx Duo postemergence comparisons in corn.**

Treatment	Rate	Palmer amaranth		Common sunflower		Crabgrass		Corn yield
		8 DAT <sup>a</sup>	78 DAT	8 DAT	78 DAT	8 DAT	78 DAT	
		----- % Visual -----						
oz/a								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

<sup>a</sup> 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. Diflex 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.**