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Status Compared to Standards for Early Postemergence Efficacy in Corn

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Summary

The addition of Status herbicide to Halex GT generally increased the control of kochia, Palmer amaranth, and johnsongrass compared to Halex GT alone. The tank mixture of Status plus Zidua SC with or without Callisto was as effective as Resicore, Halex GT plus Status, Acuron GT plus Status, and Callisto plus Sequence and Status on kochia and Palmer amaranth. Diflexx Duo plus atrazine controlled kochia and Palmer amaranth similarly to the Status tank mixtures, but was less effective on johnsongrass. Grain yields increased 9- to 14-fold with all herbicide-treated corn relative to the untreated controls.

Introduction

A key method of managing herbicide resistant weeds is to combine herbicides with different modes of action. The goal of this approach is to overcome weeds that may have one resistance mechanism with an herbicide from a different chemical family. Status herbicide combines dicamba and diflufenzopyr, which controls weeds by mimicking auxins and inhibiting their transport within the plants. The objective of the trial was to combine Status with various other herbicides for early postemergence weed control in corn.

Experimental Procedures

An experiment evaluated Status herbicide combined with other herbicides for early postemergence weed control in corn. Herbicides were applied using a compressed-CO₂ backpack sprayer delivering 19.4 gpa at 32 psi and 3.0 mph. Application, environmental, and plant information is shown in Table 1. Plots were 10 by 35 ft, and arranged in a randomized complete block design replicated four times. Soil was Beeler silt loam having 2.4% organic matter, pH of 7.5, and cation exchange capacity (CEC) of 17.8. Visual weed control was determined on July 1 and August 6, 2024. These dates were 28 and 64 days after herbicide application (DAT). Corn yields were determined on October 17, 2024 by mechanically harvesting the center two rows of each plot and adjusting grain moistures to 15.5%.

Results and Discussion

Early season kochia control was 95% or more with all treatments except Halex GT and Acuron GT at 28 DAT (Table 2). By 64 DAT, kochia control exceeded 90% with all herbicides except with Halex GT, Acuron GT, or Diflexx Duo plus atrazine. The addition of Status improved kochia control compared to Halex GT alone, but not when added to Acuron GT. Status with Zidua SC, Halex GT, Acuron GT, or Sequence

provided 94 to 96% Palmer amaranth control at 28 DAT, and was similar to Resicore plus glyphosate or Diflexx Duo plus atrazine. Palmer amaranth control increased 11% when Status was added to Halex GT or Acuron GT. At 64 DAT, Palmer amaranth was controlled 74 to 80% with Halex GT, Acuron GT, or Diflexx Duo plus atrazine, whereas Status-containing treatments provided 85 to 90% control. Most treatments provided 90% or more johnsongrass control at 28 DAT; Diflexx Duo plus atrazine did not. Treatments containing Status plus Zidua SC, Halex GT, or Acuron GT were the most effective for controlling johnsongrass at 64 DAT (86 to 91%). Corn receiving herbicide treatments yielded 90 to 148 bu/a more grain than the nontreated checks (10.1 bu/a). However, yields were best when Resicore, Diflexx Duo plus atrazine, Status plus Halex GT, or Status plus Zidua and Callisto were applied (133 to 158 bu/a).

Acknowledgments

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Table 1. Application, environmental, and plant information for the Status corn trial

Application date	June 3, 2024
Air temperature (F)	76
Relative humidity (%)	60
Soil temperature (F)	70
Wind speed (mph)	2 to 5
Wind direction	South
Soil moisture	Wet
Corn	
Height (in.)	4 to 7
Leaves (no.)	2 to 4
Kochia	
Height (in.)	3 to 6
Density (plants/ft ²)	0.3
Palmer amaranth	
Height (in.)	1 to 7
Density (plants/ft ²)	5
Johnsongrass	
Height (in.)	2 to 5
Density (plants/ft ²)	0.5

Table 2. Weed control and crop yield in the early postemergence Status corn experiment

Treatment ¹	Rate	Kochia		Palmer amaranth		Johnsongrass		Grain yield
		28 DAT ²	64 DAT	28 DAT	64 DAT	28 DAT	64 DAT	
	oz/a	----- % Visual -----						bu/a
Untreated control	---	---	---	---	---	---	---	10.1
Status	5.0	95	93	96	88	97	89	100.3
Zidua SC	2.5							
Glyphosate	30							
COC	1.0%							
AMS	1.0%							
Status	5.0	98	94	96	90	96	91	154.7
Zidua SC	2.5							
Callisto	3.0							
Glyphosate	30							
COC	1.0%							
AMS	1.0%							
Halex GT	60	89	84	84	74	90	78	123.9
NIS	0.25%							
AMS	1.0%							
Acuron GT	60	91	88	85	79	93	83	124.1
COC	1.0%							
AMS	1.0%							
Resicore	50	99	91	93	83	93	85	156.8
Glyphosate	30							
COC	1.0%							
AMS	1.0%							
Halex GT	60	99	95	95	85	96	86	133.1
Status	5.0							
NIS	0.25%							
AMS	1.0%							
Acuron GT	60	95	94	96	86	93	89	117.9
Status	5.0							
COC	1.0%							
AMS	1.0%							
Callisto	3.0	99	96	94	88	90	83	121.1
Sequence	32							
Status	5.0							
COC	1.0%							
AMS	1.0%							
Diflexx Duo	24	95	89	90	80	88	80	157.7
Atrazine	16							
Glyphosate	30							
COC	1.0%							
AMS	1.0%							
LSD (0.05)		6	7	6	8	6	5	33.2

¹ COC is crop oil concentrate, AMS is ammonium sulfate, NIS is nonionic surfactant.² DAT is days after treatment.