

Mesotrione premixes with paraquat and glyphosate for horseweed. Wait, Jim D. and William G. Johnson. The objective of this study was to evaluate horseweed control with mesotrione premixes with paraquat, 2,4-D ester and glyphosate in no-till corn. This study was conducted at the Bradford Research and Extension Center near Columbia, MO. The soil was a Mexico silt loam with a pH of 5.9 and 2.3% organic matter. Pioneer 33B28 was planted 1.5-inch deep on May 30 in 30-inch rows. Treatments were arranged in a randomized complete block design with four replications of 5 by 35 feet plots. Herbicide applications were made with a CO₂ backpack sprayer equipped with XR8002 flat fan nozzles. Application data is listed below:

Date	May 10
Application	4-6" weeds
Temperature (F)	
air	75
soil	70
Soil moisture	dry
Wind (mph)	4
Cloud cover	55
Relative humidity (%)	80
Precipitation after application	
week 1 (inch)	2.96
week 2 (inch)	0.53
Corn	
stage	-
height (inch)	-
Horseweed	
leaf no.	2
height (inch)	4.5
infestation (sq. ft.)	1

No crop injury was observed at either rating. Mesotrione & s-metolachlor provided horseweed control $\geq 90\%$ when tank mixed with 2, 4-D ester, paraquat, 2, 4-D ester + paraquat, and paraquat + atrazine. Mesotrione & s-metolachlor at 1.66 & 0.17lb/a + paraquat, or the addition of glyphosate provided $\leq 80\%$ control. Mesotrione & s-metolachlor & atrazine provided $> 94\%$ with all tank mixes except mesotrione & s-metolachlor & atrazine 1.67 & 0.63 & 0.17lb/a + glyphosate with 78% control. Mesotrione & acetochlor + glyphosate provided 54%, acetochlor & atrazine & glyphosate provided 81% and atrazine & s-metolachlor + paraquat + 2,4-D ester provided 93% control of horseweed. (Department of Agronomy, University of Missouri-Columbia)

Table. Mesotrione premixes with paraquat and glyphosate for horseweed. (Wait and Johnson)

Application	Rate (lb/A) ^a	App Time	ERICA		ZEAMX	
			6-7	7-1	6-7	7-1
			-----%-----			
Untreated			0	0	0	0
Mesotrione & s-metolachlor + paraquat + NIS ^b	1.66 & 0.17 + 0.62 + 0.25%	4-6" weeds	92	80	0	0
Mesotrione & s-metolachlor + paraquat + NIS	1.98 & 0.2 + 0.62 + 0.25%	4-6" weeds	100	96	0	0
Mesotrione & s-metolachlor + glyphosate ^c + AMS ^d	1.66 & 0.17 + 0.56 + 1.07	4-6" weeds	79	53	0	0
Mesotrione & s-metolachlor + glyphosate + AMS	1.98 & 0.2 + 0.56 + 1.07	4-6" weeds	80	53	0	0
Mesotrione & s-metolachlor + paraquat + 2,4-D ester + NIS	1.66 & 0.17 + 0.62 + 0.5 + 0.25%	4-6" weeds	100	98	0	0
Mesotrione & s-metolachlor + paraquat + 2,4-D ester + NIS	1.98 & 0.2 + 0.62 + 0.5 + 0.25%	4-6" weeds	100	100	0	0
Mesotrione & s-metolachlor + atrazine + paraquat + NIS	1.67 & 0.63 & 0.17 + 0.62 + 0.25%	4-6" weeds	99	94	0	0
Mesotrione & s-metolachlor + atrazine + paraquat + NIS	2.01 & 0.75 & 0.2 + 0.62 + 0.25%	4-6" weeds	99	95	0	0
Mesotrione & s-metolachlor + atrazine + glyphosate + AMS	1.67 & 0.63 & 0.2 + 0.56 + 1.0	4-6" weeds	96	78	0	0
Mesotrione & s-metolachlor + atrazine + glyphosate + AMS	2.01 & 0.75 & 0.2 + 0.56 + 1.0	4-6" weeds	100	96	0	0
Mesotrione & s-metolachlor + atrazine + paraquat + 2,4-D ester + NIS	1.67 & 0.63 & 0.17 + 0.62 + 0.5 + 0.25%	4-6" weeds	100	100	0	0
Mesotrione & s-metolachlor + atrazine + paraquat + 2,4-D ester + NIS	2.01 & 0.75 & 0.2 + 0.62 + 0.5 + 0.25%	4-6" weeds	100	100	0	0
Mesotrione & acetochlor + glyphosate + AMS	2.0 & 0.19 + 0.56 + 1.0	4-6" weeds	78	54	0	0
Acetochlor & atrazine & glyphosate ^e + AMS	2.0 & 1.5 & 0.56 + 1.0	4-6" weeds	92	81	0	0
Atrazine & s-metolachlor ^f + paraquat + 2,4-D ester + NIS	1.628 & 1.26 + 0.62 + 0.5 + 0.25%	4-6" weeds	99	93	0	0

continued

Table. Mesotrione premixes with paraquat and glyphosate for horseweed. (Wait and Johnson) Continued

Application	Rate (lb/A) ^a	App Time	ERICA		ZEAMX	
			6-7	7-1	6-7	7-1
Mesotrione & s-metolachlor + paraquat + atrazine + NIS	1.66 & 0.17 + 0.62 + 1.5 + 0.25%	4-6" weeds	99	98	0	0
Mesotrione & s-metolachlor + paraquat + atrazine + NIS	1.98 & 0.2 + 0.62 + 1.5 + 0.25%	4-6" weeds	98	97	0	0
Mesotrione & s-metolachlor + 2,4-D ester + COC ^g	1.66 & 0.17 + 0.5 + 1.0%	4-6" weeds	99	98	0	0
Mesotrione & s-metolachlor + 2,4-D ester + COC	1.98 & 0.2 + 0.5 + 1.0%	4-6" weeds	94	90	0	0
Mesotrione & s-metolachlor & atrazine + 2,4-D ester + COC	1.67 & 0.63 & 0.17 + 0.5 + 1.0%	4-6" weeds	100	100	0	0
Mesotrione & s-metolachlor & atrazine + 2,4-D ester + COC	2.01 & 0.75 & 0.2 + 0.5 + 1.0%	4-6" weeds	100	100	0	0
LSD (0.05)			9.7	17.2	0.0	0.0

^aGlyphosate rates are expressed in lb acid equivalent/acre

^bNIS = Astute, non-ionic surfactant from MFA Crop Advantage

^cDiammonium salt = Touchdown IQ 5L from Syngenta Ag. Products

^dAMS = ammonium sulfate from MFA Crop Advantage

^eAcetochlor & atrazine & glyphosate = Fieldmaster from Monsanto

^fAtrazine & s-metochlor = Bicep II Magnum from Syngenta Ag. Products

^gCOC = Relay, crop oil concentrate from MFA Crop Advantage