

Simulated mesotrione drift on soybean. Urbana, Illinois, 2002. Sprague, Christy L., Ryan F. Hasty, David J. Alderks, and Douglas J. Maxwell. The objective of this research was to determine if any detrimental effects would occur from mesotrione or mesotrione plus atrazine drift on soybean. The study was established at the University of Illinois Crop Sciences Research and Education Center, Urbana. The soil was a Drummer silty-clay loam with a pH of 6.4 and 5.3% organic matter. Pioneer 93B53 soybean was planted 1.5 inches deep on June 1 in 30 inch rows. Treatments were arranged in randomized complete blocks with three replications of plots 10 by 30 feet. Herbicides were applied with a CO₂ backpack sprayer delivering 20 gpa and equipped with 8003 flat fan nozzles. A blanket application of 1.6 lb/A s-metolachlor and 0.032 lb/A cloransulam was applied preemergence on July 1st to maintain weed free plots. Application information is listed below:

Date	July 1
Application	post
Temperature (F)	
Air	86
Soil	83
Soil Moisture	Dry
Wind (mph)	4W
Sky Cover (%)	0
Precip. after application	
Week 1 (inch)	0.02
Week 2 (inch)	0.00
Relative humidity (%)	65
Soybean	
Leaf no.	2
Height (inch)	8

Applications from the postemergence labeled rates of mesotrione and mesotrione + atrazine down to 1/256X the labeled rates showed a dose response effect on soybean injury. Injury ranged from 5 to 55%, 15 days after treatment (DAT) and 1 to 48%, 35 DAT with mesotrione and 8 to 92%, 15 DAT and 1 to 81%, 35 DAT with mesotrione + atrazine. By 35 DAT, injury from mesotrione and mesotrione + atrazine rates less than 1/4X and 1/8X, respectively was less than 10%. Injury at the 1X, 1/2X, and 1/4X rates of mesotrione were 48, 27, and 17%, respectively. Injury was 81, 68, 38, and 15% for the 1X, 1/2X, 1/4X, and 1/8X rates of mesotrione + atrazine, respectively. Treatments that showed significant injury 35 DAT did equate to significant soybean yield reductions. (Dept. of Crop Sciences, University of Illinois, Urbana).

Table. Simulated mesotrione drift on soybean. Urbana, Illinois, 2002. (Sprague, Hasty, Alderks, and Maxwell).

Treatment	Appl Rate (lb/A)	Time	Glxma 7-16 % inj	Glxma 8-5 % inj	Yield 10-14 Bu/A
Mesotrione	0.000367	post	0	0	65.2
+Herbimax+28%N	0.0039%+0.0097%				
Mesotrione	0.000735	post	0	0	69.8
+Herbimax+28%N	0.0078%+0.019%				
Mesotrione	0.00147	post	0	0	65.4
+Herbimax+28%N	0.0156%+0.039%				
Mesotrione	0.0029	post	0	0	63.7
+Herbimax+28%N	0.0313%+0.078%				
Mesotrione	0.00588	post	5	1	63.0
+Herbimax+28%N	0.0625%+0.156%				
Mesotrione	0.0118	post	15	7	63.6
+Herbimax+28%N	0.125%+0.313%				
Mesotrione	0.0235	post	23	17	59.8
+Herbimax+28%N	0.25%+0.625%				
Mesotrione	0.047	post	35	27	54.7
+Herbimax+28%N	0.50%+1.25%				
Mesotrione	0.094	post	55	48	44.5
+Herbimax+28%N	1.0%+2.5%				
Check	-	-	0	0	67.8
Mesotrione+atrazine	0.000367+0.00098	post	0	0	66.1
+Herbimax+28%N	0.0039%+0.0097%				
Mesotrione+atrazine	0.000735+0.00195	post	0	0	69.6
+Herbimax+28%N	0.0078%+0.019%				
Mesotrione+atrazine	0.00147+0.00391	post	0	0	67.8
+Herbimax+28%N	0.0156%+0.039%				
Mesotrione+atrazine	0.0029+0.00781	post	0	0	71.3
+Herbimax+28%N	0.0313%+0.078%				
Mesotrione+atrazine	0.00588+0.0156	post	8	1	62.3
+Herbimax+28%N	0.0625%+0.156%				
Mesotrione+atrazine	0.0118+0.0313	post	18	3	61.7
+Herbimax+28%N	0.125%+0.313%				
Mesotrione+atrazine	0.0235+0.0625	post	29	15	55.1
+Herbimax+28%N	0.25%+0.625%				
Mesotrione+atrazine	0.047+0.125	post	60	38	40.5
+Herbimax+28%N	0.50%+1.25%				
Mesotrione+atrazine	0.094+0.25	post	84	68	23.6
+Herbimax+28%N	1.0%+2.5%				
Mesotrione+atrazine	0.094+1.0	post	92	81	13.1
+Herbimax+28%N	1.0%+2.5%				
LSD (0.05)			7	8	7