Evaluation of postemergence applied AE F 130360 01 with various tank-mixture combinations for crop phytotoxicity and weed control in corn, Ames, IA, 2002. Owen, Micheal D.K., James F. Lux, and Damian D. Franzenburg. The purpose of this study was to evaluate postemergence applied AE F 130360 01 with various rates of tank-mix partners for crop phytotoxicity and weed efficacy. The soil was a Canisteo, Clarion, Webster, Hayden-Storden clay loam with a pH 7.05 and 4.0% organic matter. The experimental design was a randomized complete block with three replications and plots were 10 by 25 ft. The 2001 crop was soybean. Tillage included a fall chisel plowing and spring field cultivation. Fertilization included 125 lb/A actual N applied as urea. Crop residue on the soil surface was 12% at planting. "Pioneer hybrid 34B23" corn was planted 1.5 inches deep on May 7, at 27,700 seeds/A in 30-inch rows. Early postemergence (EPOST) and mid-postemergence (MPOST) treatments were applied on May 30, and June 5, respectively, at 20 gpa and 30 psi using flat fan nozzles. Conditions on May 30 were: air temperature 33 C, soil temperature at the 4-inch depth 23 C, 4 mph wind, 30% cloud cover, 63% relative humidity. Corn growth was V3 and 3 inches tall. Weed species, size and number per ft^2 in the untreated control included: giant and yellow foxtail one to four leaves, 1 to 2 inches tall, zero to fifteen plants; velvetleaf one to four leaves, 0.5 to 2 inches tall, zero to five plants; common waterhemp cotyledon to four leaves, 0.5 to 1 inch tall, zero to twenty-five plants; common lambsquarters cotyledon to two leaves, 0.25 to 1 inch tall, zero to one plant; Pennsylvania smartweed two to four leaves, 0.5 to 2 inches tall, zero to two plants. Conditions on June 5 were: air temperature 23 C, soil temperature at the 4-inch depth 19 C, 1 mph wind, 80% cloud cover, 64% relative humidity. Corn growth was V4 and 7 inches tall. Weed species, size and number per ft^2 in the untreated control included: giant and yellow foxtail one to four leaves, 1 to 4 inches tall, sixty plants; velvetleaf one to six leaves, 0.5 to 6 inches tall, zero to fifteen plants; common waterhemp numerous leaves, 2 to 6 inches tall, zero to fifteen plants; common lambsquarters numerous leaves, 1 to 3 inches tall, zero to ten plants; Pennsylvania smartweed numerous leaves, 2 to 6 inches tall, zero to one plant. May rainfall included: 0.45, 0.01, 0.07, 2.60, 0.12, 0.19, 0.23, 0.09, 0.66 inches on May 1, 2, 5, 11, 15, 16, 23, 24, and 25, respectively. Total rainfall for May was 4.42 inches. June rainfall included: 0.54, 0.83, 1.41, 0.01, and 0.01 inches on June 2, 11, 12, 13, and 20, respectively. Total rainfall for June was 2.8 inches. July rainfall included: 4.8 inches and 0.46 inches from July 1 through 15 and 16 through 31, respectively. Total rainfall for July was 5.26 inches. Rainfall total for August was 4.89 inches.

Significant differences in corn stand between herbicide treatments were observed on July 22. These differences, however, were attributable to planter malfunction and not the herbicides. Corn injury was observed from EPOST and MPOST applied treatments when observed on three different dates. EPOST applications of AE F 130360 01 plus flufenacet and MPOST applied AE F 130360 01 plus dicamba & San 1269H (higher rates), AE F 130360 01 plus mesotrione, and AE F 130360 01 plus flumetsulam & clopyralid resulted in 10% or more corn injury when observed June 8 and 14, nine days after their application. MPOST applied AE F 130360 01 alone resulted in 8% corn injury. Giant foxtail and yellow foxtail control was generally good to excellent with all AE F 130360 01 EPOST and MPOST applied treatments when observed on July 11. Nicosulfuron & rimsulfuron applied MPOST also provided excellent control of these species on July 11. MPOST applied treatments of dicamba &San 1269H and mesotrione applied alone did not provide acceptable giant and yellow foxtail control on July 11, but gave excellent control of the broadleaf species evaluated. MPOST applied AE F 130360 01 in tank-mixture with dicamba & San 1269H or mesotrione achieved good to excellent control of velvetleaf, common lambsquarters, and Pennsylvania smartweed when observed on July 11. Lowest rates of dicamba & San 1269H or mesotrione in tank-mixture with AE F 130360 01 achieved similar control of these species, as did the highest rates. There appeared to be a rate response, however, for common waterhemp control on July 11. The highest rates achieved the best control. EPOST applied AE F 130360 01 plus flufenacet provided good to excellent common waterhemp and Pennsylvania smartweed control on July 11, but unacceptable velvetleaf and common waterhemp. (Dept. of Agronomy, Iowa State University, Ames)

Table 1. Evaluation of postemergence applied AE F 130360 01 with various tank-mixture combinations for crop phytotoxicity and weed control in corn, Ames, IA, 2002 (Owen, Lux, and Franzenburg).

Treatment	Rate	Appl. time	Corn[a] stand	Corn injury 6/8/02	Corn injury 6/14/02	Corn injury 6/21/02	SETFA 6/21/02	SETLU 6/21/02	ABUTH 6/21/02	AMATA 6/21/02	CHEAL 6/21/02	POLPY 6/21/02
	(lb/A)			---------- (%) ----------			---------- (% weed control) ----------					
Untreated	-	-	21	0	0	0	0	0	0	0	0	0
AE F 130360 01+	0.0656+	MPOST	14	0	8	7	99	93	95	55	85	62
MSO[b]+28% UAN[c]	1.5+2.0	MPOST										
AE F 130360 01+	0.0656+	MPOST	18	0	8	5	99	96	96	90	90	98
dicamba&San 1269H+	0.031&0.013+	MPOST										
MSO+28% UAN	1.5+2.0	MPOST										
AE F 130360 01+	0.0656+	MPOST	21	0	10	8	99	95	95	90	93	95
dicamba&San 1269H+	0.062&0.025+	MPOST										
MSO+28% UAN	1.5+2.0	MPOST										
AE F 130360 01+	0.0656+	MPOST	20	0	12	7	99	96	95	95	95	99
dicamba&San 1269H+	0.125&0.05+	MPOST										
MSO+28% UAN	1.5+2.0	MPOST										
Dicamba&San 1269H+	0.125&0.05+	MPOST	18	0	7	10	63	67	98	93	96	98
MSO+28% UAN	1.5+2.0	MPOST										
AE F 130360 01+	0.0656+	MPOST	21	0	10	5	99	95	99	92	99	99
mesotrione+	0.047+	MPOST										
MSO+28% UAN	1.5+2.0	MPOST										
AE F 130360 01+	0.0656+	MPOST	19	0	10	7	99	95	99	92	99	98
mesotrione+	0.0625+	MPOST										
MSO+28% UAN	1.5+2.0	MPOST										
AE F 130360 01+	0.0656+	MPOST	19	0	12	8	99	95	99	92	99	99
mesotrione+	0.094+	MPOST										
MSO+28% UAN	1.5+2.0	MPOST										
Mesotrione+	0.094+	MPOST	16	0	2	0	45	40	99	95	99	99
MSO+28% UAN	1.5+2.0	MPOST										
AE F 130360 01+	0.0656+	EPOST	17	10	2	2	99	99	78	43	96	96
flufenacet+	0.15+	EPOST										
MSO+28% UAN	1.5+2.0	EPOST										
AE F 130360 01+	0.0656+	EPOST	22	10	0	0	99	99	75	58	95	90
flufenacet+	0.225+	EPOST										
MSO+28% UAN	1.5+2.0	EPOST										
AE F 130360 01+	0.0656+	EPOST	22	10	2	0	99	99	80	82	95	85
flufenacet+	0.3+	EPOST										
MSO+28% UAN	1.5+2.0	EPOST										
AE F 130360 01+	0.0656+	MPOST	23	0	7	5	99	95	96	65	85	99
halosulfuron+	0.0315+	MPOST										
MSO+28% UAN	1.5+2.0	MPOST										
AE F 130360 01+	0.0656+	MPOST	18	0	12	10	99	93	99	78	92	99
flumetsulam&clopyralid+	0.035&0.093+	MPOST										
MSO+28% UAN	1.5+2.0	MPOST										
Nicosulfuron&rimsulfuron+	0.023&0.012+	MPOST	21	0	7	7	99	98	98	95	98	99
mesotrione+	0.047+	MPOST										
COC[d]+28% UAN	1.0+2.0	MPOST										
LSD (P=.05)			7	0	5	4	5	6	4	15	5	5

[a] Corn stand per 17.5 row feet on July 22.

[b] MSO = methylated seed oil from Loveland Industries, Inc. Rate in pt/A.

[c] 28% UAN = mixtures of urea and ammonium nitrate. Rate in quart/A.

[d] COC = Riverside/Terra Prime oil, a petroleum base oil additive with a 17% emulsifier. Rate in qt/A.

Table 2. Evaluation of postemergence applied AE F 130360 01 with various tank-mixture combinations for crop phytotoxicity and weed control in corn, Ames, IA, 2002 (Owen, Lux, and Franzenburg).

Treatment	Rate	Appl. time	Corn inj. 7/11/02	SETFA 7/11/02	SETLU 7/11/02	ABUTH 7/11/02	AMATA 7/11/02	CHEAL 7/11/02	POLPY 7/11/02
	(lb/A)		----- (%) -----	---------- (% weed control) ----------					
Untreated	-	-	0	0	0	0	0	0	0
AE F 130360 01+	0.0656+	MPOST	0	93	88	92	33	87	57
MSO[a]+28% UAN[b]	1.5+2.0	MPOST							
AE F 130360 01+	0.0656+	MPOST	0	90	85	88	78	90	98
dicamba&San 1269H+	0.031&0.013+	MPOST							
MSO+28% UAN	1.5+2.0	MPOST							
AE F 130360 01+	0.0656+	MPOST	0	93	85	95	78	93	95
dicamba&San 1269H+	0.062&0.025+	MPOST							
MSO+28% UAN	1.5+2.0	MPOST							
AE F 130360 01+	0.0656+	MPOST	0	93	90	92	92	96	99
dicamba&San 1269H+	0.125&0.05+	MPOST							
MSO+28% UAN	1.5+2.0	MPOST							
Dicamba&San 1269H+	0.125&0.05+	MPOST	0	52	50	98	93	99	99
MSO+28% UAN	1.5+2.0	MPOST							
AE F 130360 01+	0.0656+	MPOST	0	90	83	99	85	96	96
mesotrione+	0.047+	MPOST							
MSO+28% UAN	1.5+2.0	MPOST							
AE F 130360 01+	0.0656+	MPOST	0	87	82	99	88	96	96
mesotrione+	0.0625+	MPOST							
MSO+28% UAN	1.5+2.0	MPOST							
AE F 130360 01+	0.0656+	MPOST	0	87	80	99	92	98	93
mesotrione+	0.094+	MPOST							
MSO+28% UAN	1.5+2.0	MPOST							
Mesotrione+	0.094+	MPOST	0	23	23	99	99	99	99
MSO+28% UAN	1.5+2.0	MPOST							
AE F 130360 01+	0.0656+	EPOST	0	96	96	65	33	98	96
flufenacet+	0.15+	EPOST							
MSO+28% UAN	1.5+2.0	EPOST							
AE F 130360 01+	0.0656+	EPOST	0	99	99	65	48	95	87
flufenacet+	0.225+	EPOST							
MSO+28% UAN	1.5+2.0	EPOST							
AE F 130360 01+	0.0656+	EPOST	0	96	96	65	73	95	86
flufenacet+	0.3+	EPOST							
MSO+28% UAN	1.5+2.0	EPOST							
AE F 130360 01+	0.0656+	MPOST	0	95	93	96	55	88	98
halosulfuron+	0.0315+	MPOST							
MSO+28% UAN	1.5+2.0	MPOST							
AE F 130360 01+	0.0656+	MPOST	0	95	90	98	57	95	99
flumetsulam&clopyralid+	0.035&0.093+	MPOST							
MSO+28% UAN	1.5+2.0	MPOST							
Nicosulfuron&rimsulfuron+	0.023&0.012+	MPOST	0	93	90	95	92	98	95
mesotrione+	0.047+	MPOST							
COC[c]+28% UAN	1.0+2.0	MPOST							
LSD (P=.05)			0	7	8	9	23	5	11

[a] MSO = methylated seed oil from Loveland Industries, Inc. Rate in pt/A.

[b] 28% UAN = mixtures of urea and ammonium nitrate. Rate in quart/A.

[c] COC = Riverside/Terra Prime oil, a petroleum base oil additive with a 17% emulsifier. Rate in qt/A.