Weed Control in Specialty Crops

Weed control in grain sorghum. Waltz, Aaron L., Alex R. Martin, and Kevin T. Horky. A field study was conducted to evaluate PRE, sequential PRE/POST, and postemergent weed control in conventionally-tilled grain sorghum. A randomized complete block design with three replications per treatment was utilized. The study was conducted on a Sharpsburg/Crete silty clay loam with 2.7% organic matter and a pH of 6.7. Seedbed preparation consisted of disking one week prior to planting and one field cultivation the day of planting. Individual plots consisted of six 30-inch rows, each 30 feet long. 'DeKalb DK53' grain sorghum was planted June 5 at 9 lbs/acre. Treatments were applied with a tractor-mounted sprayer traveling 3.0 mph. Application, crop, weed, and environmental data are presented below:

Date	June 5	June 26
Treatment	PRE	EPOST
Sprayer		
gpa	15	15
psi	30	30
Temperature (°F)		
Air	63	73
Soil (4 inch)	68	68
Soil Moisture	Adequate	Adequate
Wind (mph)	5	10
Sky (% cloudy)	100	0
Relative Humidity (%)	75	42
Precip. after appl.		
Week 1 (inch)	3.27	0.36
Week 2 (inch)	0.12	0.12
Grain Sorghum		
Leaf no.	--	3
Height (inch)	--	5
Common sunflower		
Leaf no.	--	2-3
Height (inch)	--	2
Infestation (m^2)	--	1
Velvetleaf		
Leaf no.	--	3-4
Height (inch)	--	2-4
Infestation (m^2)	--	50
Pigweed species		
Leaf no.	--	5-7
Height (inch)	--	1-2
Infestation (m^2)	--	10
Annual grasses		
Leaf no.	--	3
Height (inch)	--	2-3
Infestation (m^2)	--	1

Summary comments: Precipitation was good until mid July, then conditions were dry. Pigweed species include mostly Palmer amaranth, with little common waterhemp. Grass species include green and giant foxtail with little fall panicum and large crabgrass. The PRE only and EPOST treatments typically resulted in poor velvetleaf control. The sequential treatments generally gave good weed control. Results of the study are summarized in the following table (Dept. of Agronomy and Horticulture, University of Nebraska-Lincoln).

Table. Weed control in grain sorghum. (Waltz, Martin, and Horky)

Treatment	Application Rate	Timing	Injury 7/7	-----HELAN----- 6/26	7/7	7/21	-----ABUTH----- 6/26	7/7	7/21	-----AMASS[a]----- 6/26	7/7	7/21	-----GGGAN[b]----- 6/26	7/7	7/21
	(lb/A)		(%)	(% control)											
S-metolachlor&CGA-154281&	1.26	PRE	0	90	80	40	78	60	13	100	100	97	98	93	92
atrazine	1.63														
S-metolachlor&CGA-154281&	1.26	PRE/	0	97	100	100	87	95	87	100	100	100	100	98	97
atrazine/	1.63														
prosulfuron+	0.018	EPOST													
atrazine+	0.75														
COC[c]	1 qt														
S-metolachlor&CGA-154281/	1.24	PRE/	3	0	70	30	17	85	85	100	100	100	100	93	95
carfentrazone+	0.008	EPOST													
atrazine+	1.0														
NIS[d]	0.25% v/v														
S-metolachlor&CGA-154281/	1.24	PRE/	5	0	98	93	13	93	77	100	100	98	100	97	97
carfentrazone+	0.008	EPOST													
atrazine+	1.0														
2,4-D[e] +	0.24														
NIS	0.25% v/v														
S-metolachlor&CGA-154281/	1.63	PRE/	0	0	87	50	7	73	50	100	100	100	100	90	90
metsulfuron+	0.004	EPOST													
2,4-D[e]	0.29														
S-metolachlor&CGA-154281/	1.63	PRE/	7	0	67	50	13	73	17	100	100	100	98	93	93
metsulfuron	0.004	EPOST													
Fluroxypyr	0.126	EPOST	0	.	60	30	.	73	82	.	70	77	.	0	0
Fluroxypyr+	0.126	EPOST	0	.	80	90	.	83	77	.	80	77	.	0	0
2,4-D[e]	0.24														
Dimethenamid-P&	0.85	PRE	0	90	57	50	82	50	10	100	100	100	97	93	88
atrazine	1.65														
Dimethenamid-P&	0.85	PRE/	0	90	100	100	85	93	72	100	98	98	100	97	90
atrazine/	1.65														
prosulfuron+	0.018	EPOST													
dicamba+	0.125														
NIS	0.25% v/v														
Dimethenamid-P&	0.64	PRE/	0	87	100	100	78	93	70	100	100	100	98	97	97
atrazine/	1.24														
prosulfuron+	0.018	EPOST													
atrazine+	0.5														
COC	1 qt														
Dimethenamid-P&	0.64	PRE/	0	97	100	100	82	92	70	100	100	100	100	100	98
atrazine/	1.24														
quinclorac+	0.25	EPOST													
atrazine+	0.5														
MSO[g]+	1.5 pt														
AMS[h]	2.5														
Quinclorac+	0.25	EPOST	10	.	100	100	.	77	63	.	97	95	.	93	80
dicamba+	0.25														
MSO+	1.5														
AMS	2.5														
Quinclorac+	0.25	EPOST	5	.	100	100	.	92	77	.	100	92	.	82	67
dicamba&	0.275														
atrazine+	0.53														
MSO+	1.5														
AMS	2.5														
Quinclorac+	0.25	EPOST	0	.	100	100	.	77	60	.	93	87	.	87	68
atrazine+	1.0														
MSO+	1.5														
AMS	2.5														
Atrazine+	2.0	EPOST	0	.	100	100	.	83	63	.	93	88	.	70	70
MSO	1.5														
Atrazine+	1.25	EPOST	0	.	100	100	.	95	95	.	97	98	.	63	60
2,4-D[f] +	0.25														
MSO	1.5														
Weedy Check			0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (p=0.05)			7	15	32	43	9	26	17	0	6	8	3	14	21

[a]AMASS = mostly Palmer amaranth with little common waterhemp

[b]GGGAN = green and giant foxtail with little fall panicum and large crabgrass

[c]COC = 'Prime Oil' by Agriliance

[d]NIS = 'Preference' by Agriliance

[e]2,4-D = '2,4-D Amine' by Agriliance

[f]2,4-D = '2,4-D LV6' by Agriliance

[g]MSO = 'Destiny' by Agriliance

[h]AMS = 'N-Pa-K' by Agriliance