

Weed Control in Specialty Crops

Evaluation of preemergence weed control programs in grain sorghum. Horky, Kevin T. and Alex R. Martin. A field study was conducted to evaluate the efficacy of weed control programs in grain sorghum. A randomized complete block design with three replications per treatment was utilized. The study was conducted on a Sharpsburg silty clay loam with 3.1% organic matter and a pH of 6.6. Individual plots consisted of six 30-inch rows, each 30 feet long. 'Dekalb DK53' grain sorghum was planted May 27 at a rate of 9 pounds per acre. Treatments were applied with a tractor-mounted sprayer traveling 3.0 mph. EPP treatments were applied 8 days before planting, and POST treatments were applied 34 days after planting. Application, crop, weed, and environmental data are presented below:

Date	May 19	May 27	June 30
Treatment	EPP	PRE	POST
Sprayer			
gpa	15	15	15
psi	30	30	30
Temperature (°C)			
air	24	18	30
soil (4 inch)	15	16	23
Soil Moisture	adequate	adequate	adequate
Wind (mph)	4	7	1
Sky (% cloudy)	5	30	0
Relative humidity (%)	39	46	41
Precip. After appl. (inches)			
week 1	0.1	2.14	0.06
week 2	1.42	1.6	0
Sorghum			
stage	--	--	V4
height (cm)	--	--	35
Velvetleaf			
height (cm)	--	--	15
infestation (m2)	--	--	4
Common sunflower			
height (cm)	--	--	15
infestation (m2)	--	--	5
Palmer amaranth			
height (cm)	--	--	13
infestation (m2)	--	--	5
Green foxtail			
height (cm)	--	--	10
infestation (m2)	--	--	2

Summary comments: Higher rates of mesotrione EPP and PRE caused initial grain sorghum chlorosis which rapidly decreased. Mesotrione injury was not reflected in sorghum yield. Results of the study are summarized in the following table. (Dept. of Agronomy and Horticulture, University of Nebraska-Lincoln)

Evaluation of preemergence weed control programs in grain sorghum (Horky and Martin).

Treatment	Application		----ABUTH----		----HELAN----		---AMAPA----		----SETVI----		-----SORVU-----			Stand Loss	YIELD
	Rate	Timing	6/30	7/14	6/30	7/14	6/30	7/14	6/30	7/14	6/9	6/17	7/7	6/17	10/17
	(lb/a)		-----% Weed Control-----								-----% Chlorosis-----			%	(bu/ac)
S-metolachlor& atrazine& mesotrione& benoxacor	1.68 0.63 0.168	EPP	95	95	91	91	96	96	96	96	6	0	0	0	104
S-metolachlor& atrazine& mesotrione& benoxacor	3.35 1.25 0.335	EPP	98	98	99	99	99	99	98	98	27	1	0	0	113
S-metolachlor& atrazine& mesotrione& benoxacor	1.31 1.31 0.168	EPP	98	98	99	99	99	99	99	99	5	0	0	0	117
S-metolachlor& atrazine& mesotrione& benoxacor	2.61 2.61 0.336	EPP	99	99	96	96	99	99	99	99	22	1	0	0	118
S-metolachlor& atrazine& benoxacor	1.26 1.63	EPP	63	86	82	93	92	96	95	95	0	0	0	0	100
S-metolachlor& atrazine& benoxacor	2.52 3.26	EPP	80	99	73	96	92	95	95	95	0	0	0	0	112
S-metolachlor& atrazine& mesotrione& benoxacor	1.68 0.63 0.168	PRE	99	99	96	96	99	99	99	99	8	1	0	10	118
S-metolachlor& atrazine& mesotrione& benoxacor	3.35 1.25 0.168	PRE	99	99	98	98	99	99	99	99	30	3	0	7	124
S-metolachlor& atrazine& mesotrione& benoxacor	1.31 1.31 0.168	PRE	99	99	99	99	99	99	99	99	5	1	0	0	97
S-metolachlor& atrazine& mesotrione& benoxacor	2.61 2.61 0.336	PRE	99	99	99	99	99	99	99	99	43	4	0	13	121
S-metolachlor& atrazine& benoxacor	1.26 1.63	PRE	65	99	88	95	96	98	93	93	0	0	0	0	102
S-metolachlor& atrazine& benoxacor	2.52 3.26	PRE	83	93	91	96	98	98	99	99	0	0	0	0	101

(continued)

Evaluation of preemergence weed control programs in grain sorghum (Horky and Martin), continued.

Treatment	Application		----ABUTH----		----HELAN----		---AMAPA----		----SETVI-----		-----SORVU-----			Stand Loss	YIELD
	Rate	Timing	6/30	7/14	6/30	7/14	6/30	7/14	6/30	7/14	6/9	6/17	7/7	6/17	10/17
	(lb/a)		-----% Weed Control-----								-----% Chlorosis-----			%	(bu/ac)
S-metolachlor& benoxacor/ fluoxypyr+ atrazine+ COC ¹	1.63 0.126 1.1 1% v/v	PRE/ POST	48	96	78	96	95	98	60	43	0	0	0	0	109
Mesotrione+ NIS ²	0.063 0.25% v/v	POST	0	95	0	98	0	96	0	35	0	0	20	0	86
LSD (P=.05)			17	12	9	6	5	3	6	10	14	4	2	11	27

¹COC = 'Prime Oil' by Agrilience

²NIS = 'Preference' by Agrilience