

Optimum GAT Corn Herbicide Programs (S0915)

A field study was initiated near Clay Center, Nebraska at the South Central Agriculture Laboratory to compare weed control and crop response in Optimum GAT programs. The experimental design was a randomized complete block with four replications. Plots were 10 feet wide and 30 feet long and were located on a silt loam soil with an organic matter content of 2.5% and pH of 6.5. Trial area was disked and field cultivated prior to planting. GAT corn was planted at 29,600 seeds/A on May 7 and emerged on May 18. Herbicides were applied PRE on May 7, EPOST on June 3, and MPOST on June 8. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 15 gallons of water per acre at 30 PSI. Preemergence treatments were applied with TurboTee 110015 flat spray nozzles and POST treatments were applied with AIXR 110015 flat spray nozzles. The environmental conditions at the time of herbicide application are given in Table 1. Rainfall in the amount of 0.62 inch was received twenty-five days after PRE application. . Rainfall received 10 days before and 10 days after herbicide applications is listed in Table 2. Plots received 13.97 inches of rain and 8.25 inches of irrigation water applied by lateral-move overhead sprinklers during growing season.

There was no crop injury observed from preemergence herbicide treatments. In treatments that received only a postemergence herbicide and treatment 9 (Dual PRE at 1 pt/A), the corn appeared slightly stunted (e.g., delayed growth from weed competition) for two weeks after postemergence herbicides were applied. The effect was gone by 21 DAT.

Weed species present consisted of giant foxtail (SETFA), lambsquarters (CHEAL), and common waterhemp (AMATA) at average densities of 2, 16, 15 plants per square foot.

The weed control from all the treatments that included postemergence herbicide applications was excellent. Weed control from the preemergence only treatments was fair. (Table 3A & 3B)

Crop was destroyed prior to tassel emergence on July 15.

Table 1. Environmental conditions at the time of herbicide application.

Appl. Date	Air Temperature (F)	Humidity (%)	Wind Speed & direction (mph)	Time of day	Application Timing	Weed and Corn Heights (in)			
						SETFA	CHEAL	AMATA	CORN
May 7	76	26	4 N	7:40 pm	PRE	NA	NA	NA	NA
June 3	66	35	8 NE	1:33 pm	EPOST	3.0	2.0	3.0	9.5
June 8	65	59	6 NNW	1:28 pm	MPOST	4.0	4.0	5.0	12.0

Table 2. Rainfall received 10 days before and after herbicide application.

Appl. Date (May 7)	Amount (in)		Appl. Date (June 3)	Amount (in)		Appl. Date (June 8)	Amount (in)
Apr. 28	0.05		May 26	0.17		June 1	0.62
Apr 29	0.49		June 1	0.62		June 2	0.22
Apr 30	0.17		June 5	0.16		June 5	0.16
May 3	0.26		June 6	0.52		June 6	0.52
May 8	0.25		June 9	0.16		June 9	0.16
May 10	0.11		June 10	0.06		June 10	0.06
May 13	0.03		June 12	0.30		June 12	0.30
May 15	0.03					June 14	0.11
						June 15	2.41

Table 3A. Optimum GAT corn herbicide programs

Trt No.	Treatment Name	Rate		Appl Code	SETFA	ABUTH	AMATA	CHEAL	SETFA	ABUTH	AMATA	CHEAL	ZEAMX
		Rate	Unit		6/2/2009	6/2/2009	6/2/2009	6/2/2009	6/22/2009	6/22/2009	6/22/2009	6/22/2009	6/22/2009
					%	%	%	%	%	%	%	%	0-100
					26 DA-A	26 DA-A	26 DA-A	26 DA-A	14 DA-C	14 DA-C	14 DA-C	14 DA-C	14 DA-C
7	RESOLVE	1.3	OZ/A	A	30	99	98	100	98	98	99	99	1.7
7	CLASSIC	1.3	OZ/A	A									
7	MESOTRIONE	4.2	OZ/A	A									
7	ATRAZINE 90 DF	22.2	OZ/A	A									
7	TOUCHDOWN TOTAL	24	FL OZ/A	C									
7	AMS	13.3	LB AI/100 GAL	C									
8	RESOLVE	1.3	OZ/A	A	0	98	97	100	99	99	99	99	5
8	CLASSIC	1.3	OZ/A	A									
8	CALLISTO	4.28	FL OZ/A	A									
8	BICEP II MAGNUM	1.4	QT/A	A									
8	TOUCHDOWN TOTAL	24	FL OZ/A	C									
8	AMS	13.3	LB AI/100 GAL	C									
9	DUAL II MAGNUM	1	PT/A	A	0	0	73	94	99	99	99	99	5
9	RESOLVE	1	OZ/A	C									
9	EXPRESS	0.38	OZ/A	C									
9	CALLISTO	2.5	FL OZ/A	C									
9	TOUCHDOWN TOTAL	24	FL OZ/A	C									
9	ATRAZINE 90 DF	1.11	LB/A	C									
9	AMS	13.3	LB AI/100 GAL	C									
10	UNTREATED				0	0	0	0	0	0	0	0	1.7
LSD (P=.05)					53.8	11.8	13	2.3	13.84	15.66	7.68	8.63	9.33

Table 3B. Optimum GAT corn herbicide programs

Trt No.	Treatment Name	Rate		Appl Code	ZEAMX	SETFA	ABUTH	AMATA	CHEAL	SETFA	ABUTH	AMATA	CHEAL
		Rate	Unit		6/29/2009	6/29/2009	6/29/2009	6/29/2009	6/29/2009	7/15/2009	7/15/2009	7/15/2009	7/15/2009
					PHYSTU	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
					%	%	%	%	%	%	%	%	%
					21 DA-C	21 DA-C	21 DA-C	21 DA-C	21 DA-C	37 DA-C	37 DA-C	37 DA-C	37 DA-C
7	RESOLVE	1.3	OZ/A	A	0	100	100	100	100	98	99	100	100
7	CLASSIC	1.3	OZ/A	A									
7	MESOTRIONE	4.2	OZ/A	A									
7	ATRAZINE 90 DF	22.2	OZ/A	A									
7	TOUCHDOWN TOTAL	24	FL OZ/A	C									
7	AMS	13.3	LB AI/100 GAL	C									
8	RESOLVE	1.3	OZ/A	A	0	100	100	100	100	100	100	100	100
8	CLASSIC	1.3	OZ/A	A									
8	CALLISTO	4.28	FL OZ/A	A									
8	BICEP II MAGNUM	1.4	QT/A	A									
8	TOUCHDOWN TOTAL	24	FL OZ/A	C									
8	AMS	13.3	LB AI/100 GAL	C									
9	DUAL II MAGNUM	1	PT/A	A	0	100	100	100	100	100	100	100	100
9	RESOLVE	1	OZ/A	C									
9	EXPRESS	0.38	OZ/A	C									
9	CALLISTO	2.5	FL OZ/A	C									
9	TOUCHDOWN TOTAL	24	FL OZ/A	C									
9	ATRAZINE 90 DF	1.11	LB/A	C									
9	AMS	13.3	LB AI/100 GAL	C									
10	UNTREATED				1.7	0	0	0	0	7	7	74	12
LSD (P=.05)					2.44	44.66	17.74	12.52	2.37	45.02	15.17	8.04	4.92