

## Control of Volunteer Cotton in Corn

Jake Robinson and Brent Bean<sup>1</sup>

### Introduction

With the increase of both Roundup Ready and Liberty Link corn and cotton, control of volunteer cotton in corn has become more difficult. In the summer of 2010 three studies were initiated to investigate the effectiveness of various herbicides in the control of volunteer cotton. Studies were supported with a grant from the Texas Corn Producers Board. Most treatments tested are labeled for use in corn either applied preplant, pre-emergence or post-emergence. Check herbicide label for restrictions. Three application timings were evaluated, these were: pre-emergence, post-emergence applied to 1-2 leaf cotton, and post-emergence applied to 5-6 leaf cotton. Plots were evaluated for number of live plants and number of plants with pin head squares. Included in these treatments are some older herbicides such as 2,4-D, Atrazine, and Buctril as well as newer products. A repeat of this trial is planned for 2011.

### Materials and Methods

Studies were located at the North Plains Research Field Lab near Etter, TX. Cotton was planted on raised beds with a Roundup Ready Flex variety. Plots were two 30 inch rows x 30 feet and each treatment was replicated 3 times. Treatments were applied with a back pack sprayer. All herbicides were applied in water at a spray volume of 10 gallons/ac. The effectiveness of each herbicide treatment was determined by counting live plants per 20-ft of row. In addition, the number of plants with pin-head squares was also determined. A visual evaluation of control was also taken in the post-emergence studies.

### Results

#### Preemergence

SureStart, Balance Flexx + Atrazine, Corvus, Integrity, and Sharpen + Guardsman Max all gave complete control of cotton two months after treatment (Table 1). The poorest control was achieved with Atrazine, Valor, and Evik. Other treatments applied and their control can be found in the Appendix in Table 4.

**Table 1. Pre treatments that provided 100% control of cotton.**

Herbicide	Company	Use Rate	Rotation Restrictions
SureStart	Dow Agro Sciences	1.75 pints/A	26 months- Cotton 12 months- Sorghum
Balance Flexx + Atrazine	Bayer	4 fl oz/A + 1 quart/A	18 months- Cotton 6 months- Sorghum
Corvus	Bayer	5 fl oz/A	17 months- Cotton
Integrity	BASF	16 fl oz/A	Following Spring- Cotton
Sharpen + Guardsman Max	BASF	3 fl oz/A + 3 pints/A	Following Spring- Cotton

<sup>1</sup> Texas AgriLife Research Assistant and Texas AgriLife Extension Service Agronomist, b-bean@tamu.edu.

### **Post emergence 1-2 leaf Cotton**

Treatments that provided 100 % control when applied to 1-2 lf cotton 11 days after treatment were Buctril, Cadet, Gramoxone Inteon, Huskie, Ignite, Layby Pro, and Sharpen (Table 2). At 61 days after application Halex GT + Atrazine, Starane Ultra, SureStart, Python, Capreno, Status, 2,4-D Amine, and Affinity Broadspec had also reached 100 % control. Peak + Atrazine achieved near 100 % control at this last rating. No regrowth was observed. For a complete list of treatments along with their control, see Appendix Table 5.

**Table 2. Post treatments to 1- 2 leaf cotton that provided 100% control.**

<b>Herbicide</b>	<b>Company</b>	<b>Use Rate</b>	<b>Rotation Restrictions</b>
Halex GT + Atrazine	Syngenta	3.6 pints/A+1 quart/A	Following Spring- Cotton
Starane Ultra	Dow Agro Sciences	0.4 pints/A	120 days- Cotton
SureStart	Dow Agro Sciences	1.75 pints/A	26 months- Cotton 12 months- Sorghum
Python	Dow Agro Sciences	1 oz wt/A	18 months- Cotton 12 months- Sorghum
Capreno	Bayer	3 fl oz/A	4 months- Wheat 10 months- Cotton, Sorghum
Buctril	Various	12 fl oz/A	1 month- Cotton
Cadet	FMC	0.6 fl oz/A	None
Status	BASF	5 oz wt/A	120 days- Cotton
2,4-D Amine	Various	16 fl oz/A	Following Spring- Cotton
Gramoxone Inteon	Syngenta	24 fl oz/A	None
Huskie	Bayer	16 fl oz/A	Unknown
Ignite	Bayer	29 fl oz/A	None
Layby Pro	Nova Source NOT LABELED for corn use	32 fl oz/A	4 months- Cotton, Corn 8 months- Sorghum 12 months- Wheat
Sharpen	BASF	1.5 fl oz/A	42 days- Cotton
Affinity Broadspec	DuPont	1 oz wt/A	14 days- Cotton, Corn, Sorghum

### **Post Emergence 5-6 leaf Cotton**

As expected with larger plants, control was more difficult to achieve at the 5-6 leaf stage than at the 1-2 leaf stage. Only Buctril, Huskie, and Ignite completely controlled cotton at 28 or 53 days after treatment. Laudis, Capreno, and a high and low rate of Status averaged less than one plant per 20 row-ft. Atrazine, Gramoxone Inteon, and Layby Pro provided almost no reduction the number of cotton plants per 20-ft of row. For a complete list of treatments along with their control, see Appendix Table 6.

**Table 3. Post emergence treatments to 5-6 leaf cotton that provided 100% control.**

<b>Herbicide</b>	<b>Company</b>	<b>Use Rate</b>	<b>Rotation Restrictions</b>
Buctril	Various	16 fl oz/A	1 month- Cotton
Huskie	Bayer	16 fl oz/A	Unknown
Ignite	Bayer	29 fl oz/A	None
Laudis	Bayer	3 fl oz/A	10 months- Cotton, Sorghum
Capreno	Bayer	3 fl oz/A	4 months- Wheat 10 months- Cotton, Sorghum
Status	BASF	5 or 10 oz wt/A	30 days after 1 inch of rainfall or irrigation- Cotton, Sorghum

## APPENDIX

**Table 4. Pre-emergence cotton control with various herbicides.**

Treatment	Rate, Product/ac	Days after Treatment Application		
		40	59	59
		Plants per 20 ft of Row	Plants per 20 ft of Row	Plants with Pin-head Squares per 20 ft of Row
Untreated		17.0	20.3	19.0
Lumax	2.5 qt	6.0	5.7	3.0
Evik	3 lbs	9.3	8.7	4.0
SureStart	1.75 pts	0.0	0.0	0.0
Balance Flexx Atrazine	4 fl oz 1 qt/A	0.7	0.0	0.0
Corvus	5 fl oz	2.3	0.3	0.0
Integrity	16 fl oz	0.0	0.0	0.0
Sharpen Guardsman Max	3 fl oz 3 pt	0.0	0.0	0.0
Valor	3 oz	12.0	9.7	5.3
Atrazine	32 fl oz	16.3	15.7	7.7
Atrazine	64 fl oz	11.0	8.0	2.7

**Table 5. Post emergence cotton control with various herbicide treatments applied to 1-2 leaf cotton.**

Treatment	Rate, Product/ac	11 Days after Treatment		61 Days after Treatment		
		Plants per 20 ft of Row	% Visual Control	Plants per 20 ft of Row	% Visual Control	Number of Plants with Pin-head Squares
Untreated		15.0	0.0	15.0	0.0	14.0
Peak Atrazine	1 oz 1 qt	3.0	91.7	0.7	93.3	0.3
Halex GT Atrazine	3.6 pt 1 qt	0.7	98.3	0.0	100.0	0.0
Starane Ultra	0.4 pt	21.3	86.7	0.0	100.0	0.0
SureStart	1.75 pt	11.7	83.3	0.0	100.0	0.0
Python	1 oz	9.7	76.7	0.0	100.0	0.0
Laudis	3 fl oz	10.7	78.3	1.7	56.7	0.7
Capreno	3 fl oz	6.7	90.6	0.0	100.0	0.0
Buctril	12 fl oz	0.0	100.0	0.0	100.0	0.0
Aim	1 fl oz	0.7	96.7	0.3	93.3	0.0
Cadet	0.6 fl oz	0.0	100.0	0.0	100.0	0.0
ET	2 fl oz	1.1	91.2	0.5	53.1	0.5
Atrazine	1 qt	7.0	78.3	4.0	50.0	1.7
Status	5 oz	4.7	93.3	0.0	100.0	0.0
2,4-D Amine	16 fl oz	1.0	95.0	0.0	100.0	0.0
Gramoxone Inteon	24 fl oz	0.0	100.0	0.0	100.0	0.0
Huskie	16 fl oz	0.0	100.0	0.0	100.0	0.0
Ignite	29 fl oz	0.0	100.0	0.0	100.0	0.0
Layby Pro	32 fl oz	0.0	100.0	0.0	100.0	0.0
Sharpen	1.5 fl oz	0.0	100.0	0.0	100.0	0.0
Affinity Broadspec	1 oz	6.3	85.0	0.0	100.0	0.0

**APPENDIX Cont.**

**Table 6. Post emergence cotton control with various herbicide treatments applied to 5-6 leaf cotton.**

Treatment	Rate, Product/ac	28 Days after Treatment		53 Days after Treatment		
		Plants per 20 ft of Row	% Visual Control	Plants per 20 ft of Row	% Visual Control	Number of Plants with Pin-head Squares
Untreated		14.0	0.0	14.0	0.0	13.3
Peak Atrazine	1 oz 1 qt	16.0	80.0	12.0	83.3	2.0
Halex GT Atrazine	3.6 pt 1 qt	9.7	81.7	8.7	73.3	4.0
Starane Ultra	0.7 pt	7.7	93.3	1.3	96.7	0.0
SureStart	2 pt	15.7	86.7	12.7	86.7	3.0
Python	1.5 oz	14.0	88.3	12.3	90.0	0.3
Laudis	3 fl oz	1.7	95.0	0.7	98.3	0.0
Capreno	3 fl oz	3.3	95.0	0.7	96.7	0.0
Buctril	16 fl oz	0.0	100.0	0.0	100.0	0.0
Status	5 oz	10.0	93.3	3.7	96.7	0.0
Status	10 oz	4.3	95.0	0.3	98.3	0.0
Aim	1.5 fl oz	0.3	96.7	1.0	90.0	0.0
Cadet	0.9 fl oz	2.7	93.3	2.3	93.3	0.3
2,4-D Amine	1 qt	4.3	93.3	3.0	93.3	0.0
Atrazine	1 qt	16.0	16.7	16.3	10.0	13.3
Gramoxone Inteon	24 fl oz	12.7	50.0	12.0	30.0	8.3
Huskie	16 fl oz	0.0	100.0	0.0	100.0	0.0
Ignite	29 fl oz	0.0	100.0	0.0	100.0	0.0
Layby Pro	32 fl oz	15.7	70.0	14.7	56.7	6.7
Sharpen	1.5 fl oz	2.7	83.3	2.3	83.3	1.0
Affinity Broadspec	1.0 fl oz	16.7	90.0	15.7	88.3	1.3