

## **Control of Volunteer Cotton in Corn**

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### **Abstract**

Texas corn producers have found controlling volunteer cotton (i.e. glyphosate tolerant cotton) to be extremely difficult with herbicides that are currently labeled in corn. In years when adequate rainfall is not received during the fall months following cotton harvest, subsequent germination of remaining cotton seed left in the field does not occur until the following season. Often these same fields are planted in corn the following year.

One preemergence and two post emergence studies were conducted at Corpus Christi, Yoakum, Snook, and Etter, Texas to evaluate the efficacy of herbicides on the control of volunteer cotton in corn. Herbicide applications for the two post emergence studies were made at the 1-2 true leaf and at the five-six true leaf stages.

For the Corpus Christi location, the two treatments that provided excellent preemergence control of volunteer cotton included Sharpen @ 3 oz/acre + Guardsman Max @ 3 pts/acre or Integrity @ 16 oz/acre. At Etter, Surestart @ 1.75 pts/acre, Balance Flexx @ 4 oz/acre + Aatrex @ 1 qt/acre, Corvus @ 5 oz/acre, Integrity @ 16 oz/acre, and Sharpen @ 3 oz/acre + Guardsman Max @ 3 pts/acre all provided excellent control. At the Yoakum and Snook locations, none of the treatments provided satisfactory control due to dry soil conditions at planting when the preemergence applications were made.

Halex GT @ 3.6 pts/acre + Aatrex 4L @ 1 qt/acre + NIS @ 0.25% was the only treatment that provided excellent post emergence control of 1-2 true leaf volunteer cotton at all four of the locations. However, depending on the location other treatments provide excellent control of volunteer cotton.

For control of volunteer cotton at the 5-6 true leaf stage, Status @ 10 oz/acre + COC @ 1% v/v + AMS @ 17 lbs/100 gallons was the only treatment that provided excellent control at all four locations. However, depending on the location other treatments provide excellent control of volunteer cotton.

### **Introduction**

Texas corn producers have found controlling volunteer cotton (i.e. glyphosate tolerant cotton) to be extremely difficult with herbicides that are currently labeled in corn. In years when adequate rainfall is not received during the fall months following cotton harvest, subsequent germination of remaining cotton seed left in the field does not occur until the following season. Often these same fields are planted in corn the following year. Volunteer cotton can cause significant problems when left untreated by providing habitat for boll weevil (*Anthonomus grandis* L.) reproduction and delaying the completion of the Texas BWEP. Heavy infestations can cause yield loss and harvest difficulties. HB 1580 requires TDA to assess a fee for hostable cotton in locations other than commercial cotton fields. If hostable cotton plants are detected in corn fields, TDA can assess a fee of \$5/acre/week for cotton not destroyed within 14 days of notice.

Effective herbicide control measures must be found to control volunteer cotton in Texas corn fields.

One preemergence and two post emergence studies were conducted at Corpus Christi, Yoakum, Snook, and Etter, Texas to evaluate the efficacy of herbicides on the control of volunteer cotton in corn. Herbicide applications for the two post emergence studies were made at the 1-2 true leaf and at the five-six true leaf stages. The preemergence studies consisted of eleven different treatments and the two post emergence studies consisted of fifteen to twenty-one different treatments depending on the location. For the preemergence studies, efficacy of herbicides was based on final stand counts and on the percentage of plants that emerged that produced a hostable square (pinhead square). Post emergence studies, evaluations were based on percent control and on percent of surviving plants that produced a hostable square. Statistical analysis was conducted in ARM 7. Mean separations were determined using the LSD test at the 5% probability level.

### **Preemergence Control Results**

Sharpen @ 3 oz/acre + Guardsman Max @ 3 pts/acre and Integrity @ 16 oz/acre were the only two treatments at Corpus Christi that provided excellent control of volunteer cotton (Table 1).

At Etter, Surestart @ 1.75 pts/acre, Balance Flexx @ 4 oz/acre + Aatrex @ 1 qt/acre, Corvus @ 5 oz/acre, Integrity @ 16 oz/acre, and Sharpen @ 3 oz/acre + Guardsman Max @ 3 pts/acre provided excellent control (Table 4).

At the Yoakum and Snook locations, none of the treatments provided satisfactory control due to dry soil conditions at planting when the preemergence applications were made (Tables 2 and 3).

### **Post Emergence Control Results (1-2 True Leaf)**

At Corpus Christi, Halex GT @ 3.6 pts/acre + Aatrex 4L @ 1 qt/acre + NIS @ 0.25% v/v, Buctril @ 12 oz/acre + COC @ 1% v/v, Peak @ 1 oz/acre + Aatrex 4L @ 1 qt/acre + COC @ 1% v/v, Capreno @ 3 oz/acre + COC @ 1% v/v + UAN @ 1.5 qts/acre, and Starane Ultra @ 0.5 pts/acre all provided excellent control of volunteer cotton (Table 5).

Eight of the fifteen treatments at Yoakum provided excellent control of volunteer cotton. The treatments were: Aatrex 4L @ 1 qt/acre + COC @ 1% v/v, Peak @ 1 oz/acre + Aatrex 4L @ 1 qt/acre + COC @ 1% v/v, Halex GT @ 3.6 pts/acre + Aatrex 4L @ 1 qt/acre + NIS @ 0.25% v/v, Starane Ultra @ 0.4 pts/acre, Laudis @ 3 oz/acre + MSO @ 1% v/v + UAN @ 1.5 qts/acre, Buctril @ 12 oz/acre + COC @ 1% v/v, Cadet @ 0.6 oz/acre + COC @ 1% v/v, and Status @ 5 oz/acre + COC @ 1% v/v + AMS @ 17 lbs/100 gallons (Table 6).

For the Snook location, excellent control was provided by the following treatments: Gramoxone @ 24 oz/acre + NIS @ 0.25% v/v, Huskie @ 16 oz/acre + NIS @ 0.25% v/v, Ignite @ 29 oz/acre, Sharpen @ 1.5 oz/acre + COC @ 1% v/v, Halex GT @ 57.6 oz/acre + Aatrex 4L @ 32 oz/acre + NIS @ 0.25% v/v, Laudis @ 3 oz/acre + MSO @ 1% v/v + UAN @ 48 oz/acre, and Status @ 5 oz/acre + NIS @ 0.25% v/v + AMS @ 17 lbs/100 gallons (Table 7).

At the Etter location, all of the treatments provided excellent control with the exception of the following three: Laudis @ 3 oz/acre + MSO @ 1% v/v + UAN @ 1.5 qts/acre, ET @ 2 oz/acre + NIS @ 0.25% v/v, and Aatrex 4L @ 1 qt/acre + COC @ 1 qt/acre (Table 8).

### **Post Emergence Control Results (5-6 True Leaf)**

Two treatments at the Corpus Christi location provided excellent control of volunteer cotton. The treatments were: Starane Ultra @ 0.7 pts/acre and Status @ 10 oz/acre + COC @ 2 pts/acre + AMS @ 17 lbs/100 gallons (Table 9).

At Yoakum, Halex GT @ 3.6 pts/acre + Aatrex 4L @ 1 qt/acre + NIS @ 0.25% v/v, Python @ 1.5 oz/acre + COC @ 1% v/v, and Status @ 10 oz/acre + COC @ 2 pts/acre + AMS @ 17 lbs/100 gallons all provided excellent control (Table 10).

Treatments that provided the best control at Snook included: 2,4-D amine @ 16 oz/acre, Starane Ultra @ 6.4 oz/acre, Status @ 10 oz/acre + COC @ 1% v/v + AMS @ 17 lbs/100 gallons, and Status @ 5 oz/acre (Table 11).

For the Etter location, all of the treatments provided excellent control with the exception of the following six treatments: Peak @ 1 oz/acre + Aatrex 4L @ 1qt/acre + COC @ 1% v/v, Halex GT @ 3.6 pts/acre + Aatrex 4L @ 1 qt/acre + NIS @ 0.25% v/v, Aatrex 4L @ 1 qt/acre + COC @ 1 qt/acre, Gramoxone Inteon @ 24 oz/acre + NIS @ 0.25% v/v, Layby Pro @ 32 oz/acre + COC @ 1 qt/acre, Sharpen @ 1.5 oz/acre + COC @ 1 qt/acre, and Affinity Broadspec @ 1 oz/acre + COC @ 1 qt/acre (Table 12).

### **Conclusions**

For the Corpus Christi location, the two treatments that provided excellent preemergence control of volunteer cotton included Sharpen @ 3 oz/acre + Guardsman Max @ 3 pts/acre or Integrity treatment @ 16 oz/acre. At Etter, Surestart @ 1.75 pts/acre, Balance Flexx @ 4 oz/acre + Aatrex @ 1 qt/acre, Corvus @ 5 oz/acre, Integrity @ 16 oz/acre, and Sharpen @ 3 oz/acre + Guardsman Max @ 3 pts/acre all provided excellent control. At the Yoakum and Snook locations, none of the treatments provided satisfactory control due to dry soil conditions at planting when the preemergence applications were made.

Halex GT @ 3.6 pts/acre + Aatrex 4L @ 1 qt/acre + NIS @ 0.25% was the only treatment that provided excellent post emergence control of 1-2 true leaf volunteer cotton at all four of the locations. However, depending on the location other treatments provide excellent control of volunteer cotton.

For control of volunteer cotton at the 5-6 true leaf stage, Status @ 10 oz/acre + COC @ 1% v/v + AMS @ 17 lbs/100 gallons was the only treatment the only treatment that provided excellent control at all four locations. However, depending on the location other treatments provide excellent control of volunteer cotton.

**Table 1.** Preemergence control of volunteer cotton, Texas AgriLife Research & Extension Center, Corpus Christi, Texas, 2010.

Treatment	Rate/Acre	No. plants/35 ft. (23 DAT)	No. plants/35 ft. (37 DAT)	% plants at PHS or > (37 DAT)	% plants at PHS or > (51 DAT)
Sharpen + G-Max	3 oz. + 3 pts.	0.0 d	0.5 e	0.0 d	0.0 b
Integrity	16 oz.	0.8 d	2.5 e	0.0 d	0.0 b
Balance Flexx + Atrex 4L	4 oz. + 1 qt.	16.0 d	16.0 e	0.0 d	25.0 b
Aatrex 4L	2 qt.	49.0 c	49.0 cd	15.7 cd	93.8 a
Surestart	1.75 pts.	53.5 bc	40.5 d	0.0 d	21.1 b
Evik	3 lbs.	53.8 bc	56.3 bcd	67.9 ab	100 a
Corvus	5 oz.	54.8 bc	48.0 cd	10.0 d	82.5 a
Valor	3 oz.	60.8 bc	59.8 bc	75.0 ab	100 a
Lumax	2.5 qts.	64.0 abc	63.0 abc	45.0 bc	100 a
Aatrex 4L	1 qt.	70.5 ab	69.5 ab	67.9 ab	100 a
Untreated Check	---	78.0 a	78.0 a	100.0 a	100 a
CV	---	25.95	25.33	69.27	28.65
LSD (P=0.05)	---	17.07	16.06	34.69	27.16
P>F	---	0.0001	0.0001	0.0001	0.0001

Means followed by the same letter do not significantly differ (P=.05).

**Table 2.** Preemergence control of volunteer cotton, Texas AgriLife Research, Yoakum Texas, 2010.

Treatment	Rate/Acre	No. plants/3 ft. (27 DAT)	No. plants/3 ft. (61 DAT)	% plants at PHS or > (61 DAT)
Lumax	2.5 qts.	11.0 a	11.3 a	96.0 a
Evik	3.0 lbs.	9.0 a	8.7 a	96.7 a
Surestart	1.75 pts.	12.0 a	10.7 a	96.3 a
Balance Flexx + Aatrex 4L	4 oz. + 1 qt.	9.7 a	10.0 a	89.3 a
Corvus	5.0 oz.	12.3 a	13.3 a	100.0 a
Integrity	16.0 oz.	10.7 a	9.3 a	87.7 a
Sharpen + Glyphosate Max	3 oz. + 3 pts.	11.0 a	13.3 a	91.7 a
Aatrex 4L	32 oz.	13.7 a	15.3 a	100.0 a
Aatrex 4L	64 oz.	8.7 a	10.7 a	97.3 a
Valor	3 oz.	10.0 a	10.0 a	93.0 a
Untreated Check	---	10.0 a	10.0 a	100.0 a
CV	---	28.5	34.57	8.72
LSD (P=0.05)	---	NS	NS	NS
P>F	---	0.6881	0.6086	0.6235

Means followed by the same letter do not significantly differ (P=.05).

**Table 3.** Pre-emergence control of volunteer cotton, Texas AgriLife Research & Extension Center, Snook, Texas, 2010.

Treatment Name and Rate/Acre	% Control (28 DAT)	Injury-Survivor (28 DAT)	Stand Count 4 feet/row (28 DAT)	% Control (58 DAT)	% Hostable (58 DAT)
Sharpen @ 3 oz + G-Max @ 48 oz	85 a	50 bc	7 a	60 a	100 a
Integrity @ 16 oz	78.3 a	63.3 ab	3.3 a	63.3 a	100 a
SureStart @ 28 oz	61.7 ab	70 a	9.5 a	53.3 a	100 a
Corvus @ 5 oz	33.3 bc	40 cd	12.3 a	23.3 b	100 a
Atazine @ 64 oz	23.3 cd	36.7 cd	10.5 a	23.3 b	100 a
Evik @ 3 lbs	10 cd	6.7 fg	9.8 a	13.3 b	100 a
Lumax @ 80 pz	6.7 cd	20 ef	12.2 a	20 b	100 a
Balance Flexx @ 4 oz + Atrazine 4L @ 32 oz	6.7 cd	26.7 de	11.8 a	6.7 b	100 a
Atrazine @ 32 oz	0 d	26.7 de	12.8 a	13.3 b	100 a
Valor @ 3 oz	0 d	0 g	11.2 a	10 b	100 a
Untreated Check	0 d	0 g	14.8 a	0 b	100 a
CV	65.4	31.05	36.33	61.37	0.0
LSD	30.89	16.35	6.49	27.24	0.0
P>F	0.0001	0.0001	0.087	0.0004	1.0

Means followed by same letter do not significantly differ (P=.05, LSD).

**Table 4.** Pre-emergence control of volunteer cotton, Texas AgriLife Research & Extension Center, Etter, Texas, 2010.

Treatment Name	Stand Count 20 feet/row (40 DAT)	Stand Count 20 feet/row (59 DAT)	no. plants with squares 20 feet/row (59 DAT)
Untreated	17.00 a	20.33 a	19.00 a
Lumax @ 2.5 qt	6.00 cde	5.67 cd	3.00 cd
Evik @ 3.0 lb	9.33 bcd	8.67 c	4.00 c
SureStart @ 1.75 pt	0.00 e	0.00 d	0.00 d
Balance Flexx @ 4 oz + Atrazine @ 1 qt	0.67 e	0.00 d	0.00 d
Corvus @ 5 oz	2.33 de	0.33 d	0.00 d
Integrity @ 16 oz	0.00 e	0.00 d	0.00 d
Sharpen @ 3 oz + Guardsman max @ 3 pt	0.00 e	0.00 d	0.00 d
Valor @ 3 oz	12.00 abc	9.67 bc	5.33 bc
Atrazine @32 oz	16.33 ab	15.67 ab	7.67 b
Atrazine @ 64 oz	11.00 abc	8.00 c	2.67 cd
CV	61.97	65.0	55.76
LSD	7.164	6.878	3.597
P>F	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

**Table 5.** Control of 1-2 true leaf volunteer cotton, Texas AgriLife Research & Extension Center, Corpus Christi, Texas, 2010.

Treatment/Rate Per Acre	% Control (13 DAT)	% Control (45 DAT)	% Control (60 DAT)	% plants at PHS or > (60 DAT)
Halex GT @ 3.6 pts. + Aatrex 4L @ 1 qt. + NIS @ 0.25% V/V	100 a	100 a	100 a	0.0 c
Buctril @ 12 oz. + COC @ 1% V/V	99.8 a	99.8 a	99.8 a	0.0 c
Aim @ 1 oz + COC @ 1% V/V	87.5 ab	90.0 ab	90.0 abc	50.0 b
Cadet @ 0.6 oz. + COC @ 1% V/V	78.5 abc	81.0 abc	81.0 cd	50.0 b
ET @ 2 oz. + NIS @ 0.25% V/V	73.8 abc	73.8 bcd	73.8 d	100 a
Laudis @ 3 oz. + MSO @ 1% V/V + UAN @ 1.5 qts.	72.5 bc	97.5 a	97.5 ab	25.0 bc
Peak @ 1 oz. + Aatrex 4L @ 1 qt. + COC @ 1% V/V	53.8 c	99.5 a	99.5 ab	0.0 c
Aatrex 4L @ 1 qt. + COC @ 1% V/V	11.3 d	11.3 f	11.3 f	100 a
Capreno @ 3 oz. + COC @ 1% V/V + UAN @ 1.5 qts.	10.0 d	100 a	100 a	0.0 c
Python @ 1 oz + COC @ 1 pt.	2.5 d	87.5 ab	87.5 a-d	41.68 bc
Starane Ultra @ 0.4 pts.	1.3 d	98.8 a	99.5 ab	0.0 c
Status @ 5 oz.	0.5 d	61.3 cde	83.8 bcd	62.5 ab
SureStart @ 1.75 pts.	0.0 d	45.0 e	57.5 e	60.2 ab
2,4-D amine @ 16 oz.	0.0 d	55.0 de	80.0 cd	50.9 b
Untreated Check	0.0 d	0.0 f	0.0 f	100 a
CV	46.75	20.46	14.41	72.21
LSD (P=.05)	26.33	21.44	15.94	44.04
P>F	0.0001	0.0001	0.0001	0.0001

Means followed by the same letter do not significantly differ (P=.05).



**Table 6.** Control of 1-2 true leaf volunteer cotton, Texas AgriLife Research, Yoakum, Texas, 2010.

Treatment/Rate Per Acre	% Control (14 DAT)	% Control (46 DAT)	% Control (60 DAT)	% plants @ PHS or > (60 DAT)
Aatrex 4L @ 1 qt. + COC @ 1% V/V	100 a	95 a	94 abc	0.0 c
Peak @ 1 oz. + Aatrex 4L @ 1 qt. + COC @ 1% V/V	100 a	98 a	97 ab	0.0 c
Halex GT @ 3.6 pts. + Aatrex 4L @ 1 qt. + NIS @ 0.25% V/V	100 a	99 a	99 a	0.0 c
Starane Ultra @ 0.4 pts.	90 ab	96 a	97 ab	3.3 c
SureStart @ 1.75 pts.	91 ab	85 a	78 cd	58.3 ab
Python @ 1 oz + COC @ 1 pt.	93 ab	96 a	92 abc	33.3 bc
Laudis @ 3 oz. + MSO @ 1% V/V + UAN @ 1.5 qts.	100 a	98 a	97 ab	0.0 c
Capreno @ 3 oz. + COC @ 1% V/V + UAN @ 1.5 qts.	91 ab	92 a	82 bcd	33.2 bc
Buctril @ 12 oz. + COC @ 1% V/V	100 a	99 a	99 ab	0.0 c
Aim @ 1 oz + COC @ 1% V/V	100 a	98 a	98 ab	26.7 bc
Cadet @ 0.6 oz. + COC @ 1% V/V	100 a	98 a	98 ab	0.0 c
ET @ 2 oz. + NIS @ 0.25% V/V	100 a	94 a	93 abc	33.3 bc
Status @ 5 oz. + COC @ 1% V/V + AMS @ 17 lb/100 gal.	92 ab	96 a	94 abc	0.0 c
2,4-D amine @ 16 oz. + NIS @ 0.25% V/V	94 ab	96 a	94 abc	23.6 bc
Untreated Check	0 c	0 c	0 f	100 a
CV	5.63	9.15	9.73	115.51
LSD (P=0.05)	8.5	13.4	13.9	45.60
P>F	0.0001	0.0001	0.0001	0.0001

Means followed by the same letter do not significantly differ (P=.05).

**Table 7.** Control of 1-2 true leaf volunteer cotton, Texas AgriLife Research & Extension Center, Snook, Texas, 2010.

Treatment/Rate Per Acre	% Control (16 DAT)	% Control (70 DAT)	Hostable Plants 15 feet/row (70 DAT)	Total Plants 15 ft/row (70 DAT)
Gramoxone @ 24 oz + NIS @ 0.25 % v/v	100 a	97.3 abc	0.7 f	0.7 g
Huskie @ 16 oz + NIS @ 0.25 % v/v	100 a	99.7 a	0 f	0 g
Ignite @ 29 oz	100 a	98.7 a	0 f	0 g
Sharpen @ 1.5 oz + COC @ 1% v/v	100 a	97 abc	0.3 f	0.7 g
Halex GT @ 57.6 oz + Aatrex @ 32 oz + NIS @ 0.25 % v/v	99.3 ab	98 ab	0.3 f	0.7 g
Laudis @ 3 oz + MSO @ 1% v/v + UAN @ 48 oz	99 ab	99.7 a	0.3 f	0.3 g
Cadet @ 0.6 oz + COC @ 1% v/v	98.3 abc	79 ef	9.7 de	10 def
AIM @ 1 oz + COC @ 1% v/v	97.7 abc	91.7 a-e	3 ef	3 fg
2,4-D amine @ 16 oz + NIS @ 0.25 % v/v	95 abc	93 a-d	2 ef	3.7 fg
Python @ 1 oz + COC @ 1% v/v	94.3 abc	80 def	15.3 cd	18.3 bcd
Buctril @ 12 oz + COC @ 1% v/v	94.3 abc	84.7 b-f	7.7 def	7.7 efg
Layby Pro @ 32 oz + COC @ 1% v/v	94 abc	84.7 b-f	7.7 def	7.7 efg
Affinity Broadspec @ 1 oz + COC @ 1% v/v	92.3 abc	77.3 f	22 bc	24.7b
Status @ 5 oz + NIS @ 0.25 % v/v + AMS @ 17 lbs/100 gallons	92 abc	99.3 a	0 f	0 g
ET @ 2 oz + NIS @ 0.25 % v/v	89.3 abc	60 g	15 cd	15.3 cde
Starane Ultra @ 3 oz	89 abc	82.7 def	8 def	8.3 efg

Capreno @ 3 oz + COC @ 1% v/v + UAN @ 48 oz	88 bc	76 f	24 b	25.7 b
Peak @ 1 oz + Aatrex @ 32 oz + COC @ 1% v/v	87.3 c	92.3 a-e	6 ef	8 efg
SureStart @ 28 oz	73.3 d	23.3 i	39 a	40.7 a
Atrazine @ 32 oz + COC @ 1% v/v	71.7 d	38.3 h	20 bc	20 bc
Untreated Check	0 e	0 j	45.7 a	46.7 a
CV	8.1	10.47	45.36	46.42
LSD (P=0.5)	11.8	13.59	8.08	8.83
P>F	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ P=.05, LSD).

**Table 8.** Control of 1-2 true leaf volunteer cotton, Texas AgriLife Research & Extension Center, Etter, Texas, 2010.

Treatment/Rate Acre	stand count 20 ft/ row (11 DAT)	% control (11 DAT)	stand count 20 ft/row (61 DAT)	% control (61 DAT)	no. plants @ phs/20 ft (61 DAT)
Untreated	15.00 ab	0.00 f	15.00 a	0.00 c	14.00 a
Peak @ 1oz + Aatrex @ 1 qt + COC @ 1% v/v	3.00 ef	91.67 a-d	0.67 cd	93.33 a	0.33 c
Halex GT @ 3.6 pt + Aatrex @ 1 qt + NIS @ 0.25% v/v	0.67 ef	98.33 ab	0.00 d	100.00 a	0.00 c
Starane Ultra @ 0.4 pt	21.33 a	86.67 a-e	0.00 d	100.00 a	0.00 c
Surestart @ 1.75 pt	11.67 bc	83.33 cde	0.00 d	100.00 a	0.00 c
Python @ 1 oz + COC @ 1% v/v	9.67 bcd	76.67 e	0.00 d	100.00 a	0.00 c
Laudis @ 3 oz + MSO @1% v/v + UAN @ 1.5 qt	10.67 bcd	78.33 de	1.67 c	56.67 b	0.67 c

Capreno @ 3 oz + COC @ 1% v/v + UAN @ 1.5 qt	6.50 cde	90.00 a-e	0.00 d	100.0 a	0.00 c
Buctril @ 12 oz + COC @ 1% v/v	0.00 f	100.00 a	0.00 d	100.0 a	0.00 c
Aim @ 1 oz + COC @ 1% v/v	0.67 e	96.67 abc	0.33 cd	93.33 a	0.00 c
Cadet @ 0.6 oz + COC @ 1% v/v	0.00 f	100.0 a	0.00 d	100.00 a	0.00 c
ET @ 2 oz + NIS @ 0.25% v/v	1.50 ef	92.50 abc	0.50 cd	55.00 b	0.50 c
Aatrex @ 1 qt + COC @ 1 qt	7.00 cde	78.33 de	4.00 b	50.00 b	1.67 b
Status @ 5 oz + COC @ 1 qt + AMS @ 17 lb	4.67 def	93.33 abc	0.00 d	100.0 a	0.00 c
2,4-D amine @ 16 oz	7.00 cde	95.00 abc	0.00 d	100.0 a	0.00 c
Gramoxone Inteon @ 24 oz + NIS @ 0.25% v/v	0.00 f	100.0 a	0.00 d	100.0 a	0.00 c
Huskie @ 16 oz + NIS @ 0.25% v/v	0.00 f	100.0 a	0.00 d	100.0 a	0.00 c
Ignite @ 29 oz	0.00 f	100.0 a	0.00 d	100.0 a	0.00 c
Layby Pro @ 32 oz + COC @ 1% v/v	0.00 f	100.0 a	0.00 d	100.0 a	0.00 c
Sharpen @ 1.5 oz + COC @ 1% v/v	0.00 f	100.0 a	0.00 d	100.0 a	0.00 c
Affinity Broadspec @ 1 oz + COC @ 1% v/v	6.33 c-f	85.00 b-e	0.00 d	100.0 a	0.00 c
CV	76.63	9.34	89.76	18.38	56.68
LSD (P=0.5)	6.363	13.541	1.563	26.701	0.765
P>F	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ P=.05, LSD).

**Table 9.** Control of 5-6 true leaf volunteer cotton, Texas AgriLife Research & Extension Center, Corpus Christi, Texas, 2010.

Treatment/Rate Per Acre	% Control (13 DAT)	% Control (36 DAT)	% Control (61 DAT)	% plants @ PHS or > (61 DAT)
Aim @ 1.5 oz + COC @ 1% V/V	87.8 a	87.3 ab	87.3 ab	75.0 ab
Buctril @ 16 oz. + COC @ 1% V/V	71.3 b	81.0 b	81.0 b	50.0 bc
Cadet @ 0.9 oz. + COC @ 1% V/V	31.5 c	35.0 c	35.0 c	100 a
2,4-D amine @ 1 qt.	3.8 d	98.8 a	98.8 a	25.0 cd
Peak @ 1 oz. + Aatrex @ 1 qt + COC @ 1% V/V	2.5 d	3.8 e	3.8 e	100 a
Halex GT @ 3.6 pts. + Aatrex 4L @ 1 qt. + NIS @ 0.25% V/V	1.3 d	41.3 c	41.3 c	87.5 ab
Starane Ultra @ 0.7 pt.	0.0 d	100 a	100 a	0.0 d
SureStart @ 2 pts.	0.0 d	5.0 de	5.0 de	100 a
Python @ 1.5 oz. + COC @ 1% V/V	0.0 d	10.0 de	10.0 de	100 a
Laudis @ 3 oz. + MSO @ 1% V/V + UAN @ 1.5 qts.	0.0 d	41.3 c	41.3 c	100 a
Capreno @ 3 oz. + COC @ 1% V/V + UAN @ 1.5 qts.	0.0 d	18.8 d	18.8 d	91.7 a
Status @ 5 oz. + COC @ 2 pts. + 17 lbs/100 gal.	0.0 d	98.5 a	98.5 a	25.0 cd
Status @ 10 oz. + COC @ 2 pts. + AMS @ 17 lbs/100 gal.	0.0 d	99.8 a	99.8 a	0.0 d
Aatrex @ 2 qts.	0.0 d	0.0 e	0.0 e	100 a
Untreated Check	0.0 d	0.0 e	0.0 e	100 a
CV	72.79	20.29	20.29	40.99
LSD (P=0.05)	13.73	13.93	13.93	41.2
P>F	0.0001	0.0001	0.0001	0.0001

Means followed by the same letter do not significantly differ (P=.05).

**Table 10.** Control of 5-6 true leaf volunteer cotton, Texas AgriLife Research, Yoakum, Texas, 2010.

Treatment/Rate Per Acre	% Control (13 DAT)	% Control (46 DAT)	% Control (61 DAT)	% plants @ PHS or > (61 DAT)
Aatrex 4L @ 2 qts. + COC @ 1% V/V	43 g	23 e	28 e	97.9 ab
Peak @ 1 oz. + Aatrex @ 1 qt + COC @ 1% V/V	89 ab	78 b	85 c	61.1 abc
Halex GT @ 3.6 pts. + Aatrex 4L @ 1 qt. + NIS @ 0.25% V/V	98 a	98 a	99 a	0.0 d
Starane Ultra @ 0.7 pt.	72 ef	91 ab	93 abc	44 bcd
SureStart @ 2 pts.	65 f	63 c	75 d	28.1 cd
Python @ 1.5 oz. + COC @ 1% V/V	78 cde	95 ab	98 a	0.0 d
Laudis @ 3 oz. + MSO @ 1% V/V + UAN @ 1.5 qts.	83 bcd	95 ab	95 ab	11.1 cd
Capreno @ 3 oz. + COC @ 1% V/V + UAN @ 1.5 qts.	84 bc	93 ab	95 ab	30.0 cd
Buctril @ 16 oz. + COC @ 1% V/V	93 ab	85 ab	91 abc	66.7 abc
Status @ 5 oz. + COC @ 2 pts. + 17 lbs/100 gal.	73 def	96 a	98 a	33.3 cd
Status @ 10 oz. + COC @ 2 pts. + AMS @ 17 lbs/100 gal.	70 ef	99 a	99 a	0.0 d
Aim @ 1.0 oz + COC @ 1% V/V	99 a	97 a	97 a	33.3 cd
Cadet @ 0.9 oz. + COC @ 1% V/V + UAN @ 1.5 qts.	93 ab	83 ab	86 bc	55.6 a-d
2,4-D amine @ 1 qt. + NIS @ 0.25% V/V	73 def	97 a	99 a	19.0 cd

Untreated Check	0 h	0 f	0 f	100 a
CV	7.22	10.91	6.47	87.0
LSD (P=0.05)	9.4	14.5	8.9	48.83
P>F	0.0001	0.0001	0.0001	0.0001

Means followed by the same letter do not significantly differ (P=.05).

**Table 11.** Control of 5-6 true leaf volunteer cotton, Texas AgriLife Research & Extension Center, Snook, Texas, 2010.

Treatment/Rate Per Acre	% Control (15 DAT)	% Control (65 DAT)	Plant 15 ft/row Hostable (65 DAT)	Total Plants 15/ft rwo (65 DAT)
Ignite @ 29 oz	96 a	60 def	13 ef	13.5 fg
Huskie @ 16 oz + NIS @ 0.25% V/V	94 ab	72.5 b-e	23.7 cde	27 def
Halex GT @ 57.6 oz + Aatrex @ 32 oz + NIS @ 0.25% V/V	93 ab	46.7 f	29.3 bc	31.7 bcd
2,4-D, amine @ 16 oz	93 ab	93 abc	4 f	5 g
Sharpen @ 1.5 oz + COC @ 1% V/V	92 ab	46.7 f	28.5 bcd	29.5 cde
Starane Ultra @ 6.4 oz	91.3 ab	95 ab	3.7 f	4.3 g
Status @ 10 oz + COC @ 1% V/V +AMS @ 17 lb/100 gal	91 ab	97.7 a	1.7 f	1.7 g
Peak @ 1 oz + Aatrex @ 32 oz + COC @ 1% V/V	90.7 ab	56.7 ef	34.3 abc	37 a-d
Laudis @ 3 oz + MSO @ 1 % v/v + UAN @ 48 oz	89.7 abc	55 ef	36 abc	37.7 a-d
Gramoxone @ 24 oz + NIS @ 0.25% V/V	89.3 abc	71.7 cde	15 def	15.7 efg
Capreno @ 3 oz + COC @ 1% V/V + UAN @ 48 oz	88.3 a-d	56.7 ef	23.7 cde	29 cde

Affinity Broadspec @ 1 oz + COC @ 1% V/V	88.3 a-d	71.7 cde	24.3 cde	30 cde
Status @ 5 oz	86 b-e	93.3 abc	4.7 f	5.7 g
SureStart @ 28 oz	80.7 c-f	58.3 def	37 abc	39.3 a-d
Layby Pro @ 32 oz + COC @ 1% V/V	79.3 def	38.3 fg	40.3 ab	42.7 abc
Python @ 1 oz+ COC @ 1% V/V	78.3 ef	80.7 a-d	39.7 ab	42.3 abc
Butril @ 12 oz + COC @ 1% V/V	78.3 ef	20 gh	36.7 abc	38 a-d
Atrazine @ 32 oz + COC @ 1% V/V	75 f	20 gh	37 abc	37.7 a-d
Cadet @ 0.6 oz + COC @ 1% V/V	71.7 f	21.7 gh	45.7 a	47 a
Untreated Check	0 g	0 h	44.5 a	45.5 ab
CV	6.94	24.81	31.13	31.73
LSD (P=0.05)	9.4	22.82	13.77	14.98
P>F	0.0001	0.0001	0.0001	0.0001

Means followed by the same letter do not significantly differ (P=.05).

**Table 12.** Control of 5-6 true leaf volunteer cotton, Texas AgriLife Research & Extension Center, Etter, Texas, 2010.

Treatment/ Rate Acre	stand count/ 20 feet/row (28 DAT)	% injury (28 DAT)	stand count/ 20 feet/row (53 DAT)	% injury (53 DAT)	no. plants @ phs 20 ft/row (53 DAT)
Untreated	14.0 abc	0.0 h	14.0 ab	0.0 g	13.3 a
Peak @ 1 oz + Aatrex @ 1 qt + COC @ 1% v/v	16.0 ab	80.0 de	12.0 ab	83.3 cd	2.0 d
Halex GT @ 3.6 pt + Aatrex @ 1 qt + NIS @ 0.25% v/v	9.7 cde	81.7 d	8.7 bc	73.3 d	4.0 bcd



Starane Ultra @ 0.7 pt	7.7 def	93.3 abc	1.3 d	96.7 ab	0.0 d
Sure Start @ 2 pt	15.7 abc	86.7 bcd	12.7 ab	86.7 bc	3.0 cd
Python @ 1.5 oz + COC @ 1% v/v	14.0 abc	88.3 bcd	12.3 ab	90.0 abc	0.3 d
Laudis @ 3 oz + MSO @ 1% v/v + UAN @ 1.5 qt	1.7 fg	95.0 ab	0.7 d	98.3 ab	0.0 d
Capreno @ 3 oz + COC @ 1% v/v + UAN @ 1.5 qt	3.3 fg	95.0 ab	0.7 d	96.7 ab	0.0 d
Buctril @ 16 oz + COC @ 1% v/v	0.0 g	100.0 a	0.0 d	100.0 a	0.0 d
Status @ 5 oz + COC @ 2 pt + AMS @ 17 lb/100 gal	10.0 b-e	93.3 abc	3.7 cd	96.7 ab	0.0 d
Status @ 10 oz + COC @ 2 pt + AMS @ 17 lb/100 gal	4.3 efg	95.0 ab	0.3 d	98.3 ab	0.0 d
Aim @ 1.5 oz + COC @ 1% v/v	0.3 g	96.7 ab	1.0 d	90.0 abc	0.0 d
Cadet @ 0.9 oz + COC @ 1% v/v	2.7 fg	93.3 abc	2.3 d	93.3 abc	0.3 d
2,4-D amine @ 1 qt	4.3 efg	93.3 abc	3.0 cd	93.3 abc	0.0 d
Aatrex @ 1 qt + COC @ 1 qt	16.0 ab	16.7 g	16.3 a	10.0 g	13.3 a
Gramoxone Inteon @ 24 oz + NIS @ 0.25% v/v	12.7 a-d	50.0 f	12.0 ab	30.0 f	8.3 b
Huskie @ 16 oz + NIS @ 0.25% v/v	0.0 g	100.0 a	0.0 d	100.0 a	0.0 d
Ignite @ 29 oz	0.0 g	100.0 a	0.0 d	100.0 a	0.0 d
Layby Pro @ 32 oz + COC @ 1 qt	15.7 abc	70.0 e	14.7 a	56.7 e	6.7 bc

Sharpen @ 1.5 oz + COC @ 1 qt	2.7 fg	83.3 cd	2.3 d	83.3 cd	1.0 d
Affinity Broadspec @ 1 oz + COC @ 1 qt	16.7 a	90.0 a-d	15.7 a	88.3 abc	1.3 d
CV	46.66	7.9	54.75	10.17	104.17
LSD (P=0.05)	6.14	10.57	5.75	13.30	4.39
P>F	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by the same letter do not significantly differ (P=.05).