

# COTTON HARVEST AID

## Cotton Alliance Research Progress Report 2010



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## 2010 Cotton Harvest Aid Research Summary

This report summarizes the applied defoliation research studies conducted during 2010. All projects were conducted at the West Side Research and Extension Center. Four studies were conducted on Pima cotton. The objective of these studies was to define the most appropriate conditions for ideal defoliation and crop termination. In addition, it is necessary to evaluate alternative, as well as new materials, to current defoliation programs in a manner to insure optimum performance and minimum impact on fiber quality.

### ACKNOWLEDGMENTS

We gratefully acknowledge the assistance and support provided by the West Side Research and Extension Center in supplying land, labor, and equipment to conduct these studies.

Support to conduct these studies was provided by Cotton Alliance, Arysta LifeScience, FMC, Bayer, Syngenta, BASF, and Nichino America

### HARVEST AIDS TESTED IN THESE STUDIES

<b>Brand Name</b>	<b>Common Chemical Name/Formulation</b>	<b>Company</b>
Adios	1.5 EC <i>Thidiazuron &amp; Diuron</i>	Arysta
Agridex	<i>Crop Oil Concentrate</i>	Helena
AMS	<i>Ammonium Salts</i>	
CottonQuik	2.25 lb/G <i>Ethephon</i>	Dupont
Def 6	6 lb/G <i>Tribufos</i>	Bayer
Defol 7	6 lb/G <i>Sodium Chlorate</i>	Monterey
ET	0.2 EC <i>Pyraflufen-ethyl</i>	Nichino
Finish 6	6.75 lb/G <i>Ethephon &amp; Cyclanilide</i>	Bayer
Ginstar	1.5 EC <i>Thidiazuron &amp; Diuron</i>	Bayer
Gramoxone Inteon	<i>Paraquat</i>	Syngenta
Induce	<i>Nonionic Surfactants</i>	Helena
NAI-1299		
NAI-1298		
Prep	6 lb/G <i>Ethephon</i>	Bayer
Roundup WeatherMax	<i>Glyphosate</i>	Monsanto
Shark	<i>Carfentrazone-ethyl</i>	FMC
Sharpen	<i>Saflufenacil</i>	BASF

## Cotton Harvest Aid Management 2010

### Pages 4-6

#### Defoliation Study Shark (2-Step Approach) Pima 1:

The 2-Step Approach in Pima (Delta Pine 340) was conducted to compare the differences between combinations of Shark (*Carfentrazone-ethyl*) with Ginstar (*Thidiazuron & Diuron*) + Finish (*Ethephon & Cyclanilide*), Roundup (*Glyphosate*) and CottonQuik (*Ethephon*). Defoliation, desiccation and open boll percentages were highest using Ginstar at 5 floz + Finish at 12 oz and Agridex (*Crop Oil Concentrate*) at 1% volume per volume (v/v). Ginstar at 5 floz + Finish at 12 oz + Agridex at 1% v/v followed by Ginstar at 10 floz + CottonQuik at 3 pts + Agridex at 1% v/v applied at the 15% open boll (8 NACB) followed by 45% open boll (6 NACB) gave 20-25 percent higher defoliation, 30-40 percent higher desiccation, and 20-25 percent higher open boll compared to the Shark treatments. Lint yield resulted in 15-25 percent yield increase difference between Ginstar at 5 floz + Finish at 12 oz + Agridex at 1% v/v and Shark treatments; however it did reduce micronaire by 8 to 10 percent.

### Pages 7-8

#### Defoliation Study Ginstar (2-Step Approach) Pima 2:

The 2-Step Approach in Pima (Delta Pine 340), was conducted to compare differences between combinations of Ginstar (*Thidiazuron & Diuron*) plus Finish (*Ethephon & Cyclanilide*), applied at 30% open boll and 40% open boll. The timing of 30% (7 NACB) followed by 40% (6 NACB) resulted in the possibility to harvest 17 days earlier. Lint yield showed some variability and that the early timing of 30% (7 NACB) followed by 40% (6 NACB) reduced the micronaire by 8-10 percent.

### Pages 9-10

#### Pima Defoliation Evaluation-3:

The objective of this study was to evaluate the effectiveness of various harvest aid treatments in Pima (Delta Pine 340) cotton (*Gossypium barbadense* L.) with several tank mix combinations using ET. It took 21 days after the first initial application to achieve excellent defoliation, desiccation, and open boll. There were minor differences between treatments.

### Pages 11-12

#### Pima Defoliation Evaluation-4:

The objective of this study was to evaluate the effectiveness of various harvest aid treatments in Pima (Delta Pine 350) cotton (*Gossypium barbadense* L.). There were minor differences between treatments for defoliation, desiccation, and open boll. The higher rates of Sharpen (1 fl oz and 2 fl oz) froze cotton bolls resulting in open boll percentage lower than the lowest rate of Sharpen (0.5 fl oz) and the untreated check.

## Defoliation Study Shark (2-Step Approach) Pima 1

UCCE – WSREC – 2010

Steve Wright, Bob Hutmacher, Lalo Banuelos, Dan Munk, Jon Wrobles,  
Walter Martinez, Tony Garcia, Matt Mills, Jaime Changala, Nancy Loza

The trial was conducted at the Westside Research Center in Five Points. This field was planted with Pima Delta Pine 340 on May 3, 2010 with seed rate of 18 lbs/A. The field was irrigated three times using pressure bomb readings to better manage plant vigor. In addition, the field received 140 lbs of nitrogen plus 14 lbs of Temik on June 9, 2010. The field also received 16 ounces of Pix Ultra on July 29. The plot sizes were 4-40” rows x 65’ and 4 replications.

The first application was applied on October 1, 2010 using a PDF High Clearance Sprayer with a volume of 20 gpa, pressure of 50 psi, speed of 5mph and 8003 flat fan nozzles. The cotton was at 15% open boll (8NACB), with a temperature of 91°F and wind factor of 5-8 mph. The second application was applied on October 19, 2010 with a volume of 15 gpa, pressure of 40 psi, speed of 4mph and 8002 flat fan nozzles. The cotton was at 45% open boll (6NACB), with a temperature of 80°F and a wind factor of 0-1 mph. The third application was applied on October 29, 2010 with a volume of 15 gpa, pressure of 40 psi, speed of 4mph and 8002 flat fan nozzles. The cotton was at 75% open boll, with a temperature of 78°F and a wind factor of 0-3 mph. Defoliation, desiccation, and open boll percentages were visually recorded at 7, 14, 21, and 27 days after treatment (DAT).

The 2-Step Approach in Pima (Delta Pine 340) was conducted to compare the differences between combinations of Shark (*Carfentrazone-ethyl*) with Ginstar (*Thidiazuron & Diuron*) + Finish (*Ethephon & Cyclanilide*), Roundup (*Glyphosate*) and CottonQuik (*Ethephon*). Defoliation, desiccation and open boll percentages were highest using Ginstar at 5 fl oz + Finish at 12 oz and Agridex (*Crop Oil Concentrate*) at 1% volume per volume (v/v). Ginstar at 5 fl oz + Finish at 12 oz + Agridex at 1% v/v followed by Ginstar at 10 fl oz + CottonQuik at 3 pts + Agridex at 1% v/v applied at the 15% open boll (8 NACB) followed by 45% open boll (6 NACB) gave 20-25 percent higher defoliation, 30-40 percent higher desiccation, and 20-25 percent higher open boll compared to the Shark treatments. Lint yield resulted in 15-25 percent yield increase difference between Ginstar at 5 fl oz + Finish at 12 oz + Agridex at 1% v/v and Shark treatments; however it did reduce micronaire by 8 to 10 percent.

**Table 1.**

Percent Defoliation						
			8- Oct	15- Oct	22- Oct	28- Oct
Treatments	Rates/A	Timing	7 DAT	14 DAT	21 DAT	27 DAT
1. Shark + Agridex	0.5 fl oz + 1	15% OB				
B. Shark + Ginstar + Agridex	1 fl oz + 8 fl oz + 1	45% OB	3	6	11	26
2. Shark + Agridex	0.75 fl oz + 1	15% OB				
B. Shark + Ginstar + Agridex	1 fl oz + 8 fl oz + 1	45% OB	3	8	18	28
3. Shark + Agridex	1 fl oz + 1	15% OB				
B. Shark + Ginstar + Agridex	1 fl oz + 8 fl oz + 1	45% OB	4	9	16	25
4. Shark + Roundup WeatherMax + Agridex	0.5 fl oz + 32 fl oz + 1	15% OB				
B. Shark + Ginstar + Agridex	1 fl oz + 8 fl oz + 1	45% OB	4	9	20	38
5. Roundup WeatherMax + Agridex	32 fl oz + 1	15% OB				
B. Shark + Ginstar + Agridex	1 fl oz + 8 fl oz + 1	45% OB	3	10	20	33
6. Ginstar + Finish + Agridex	5 fl oz + 12 fl oz + 1	15% OB				
B. Ginstar + CottonQuik + Agridex	10 fl oz + 3 pts + 1	45% OB	6	18	35	58
7. Untreated	-----		2	5	6	16
<b>LSD .05</b>			<b>1.65</b>	<b>4.89</b>	<b>8.62</b>	<b>13.32</b>
<b>% CV</b>			<b>30.54</b>	<b>36.04</b>	<b>32.20</b>	<b>28.21</b>

\* 1<sup>st</sup> application October 1<sup>st</sup>

\* 2<sup>nd</sup> application October 19<sup>th</sup>

\* 3<sup>rd</sup> application with paraquat + sodium chlorate at 75% open boll was needed before the November 4<sup>th</sup> harvest.

**Table 2.**

<b>Percent Desiccation</b>						
			<b>8-Oct</b>	<b>15-Oct</b>	<b>22-Oct</b>	<b>28-Oct</b>
<b>Treatments</b>	<b>Rates/A</b>	<b>Timing</b>	<b>7 DAT</b>	<b>14 DAT</b>	<b>21 DAT</b>	<b>27 DAT</b>
1. Shark + Agridex B. Shark + Ginstar + Agridex	0.5 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	3	7	19	33
2. Shark + Agridex B. Shark + Ginstar + Agridex	0.75 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	4	10	20	29
3. Shark + Agridex B. Shark + Ginstar + Agridex	1 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	5	14	18	28
4. Shark + Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	0.5 fl oz + 32 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	5	19	29	40
5. Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	32 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	3	15	26	41
6. Ginstar + Finish + Agridex B. Ginstar + CottonQuik + Agridex	5 fl oz + 12 fl oz + 1 10 fl oz + 3 pts + 1	15% OB 45% OB	9	53	70	80
7. Untreated	-----		1	5	5	5
<b>LSD .05</b>			<b>2.33</b>	<b>6.31</b>	<b>11.80</b>	<b>13.97</b>
<b>% CV</b>			<b>39.08</b>	<b>23.85</b>	<b>29.74</b>	<b>25.65</b>

\* Agridex (COC) measured as 1% volume per volume (v/v).

\* 15% Open Boll (8 NACB) and 45% Open Boll (6 NACB)

**Table 3.**

<b>Percent Open Boll</b>						
			<b>8-Oct</b>	<b>15-Oct</b>	<b>22-Oct</b>	<b>28-Oct</b>
<b>Treatments</b>	<b>Rates/A</b>	<b>Timing</b>	<b>7 DAT</b>	<b>14 DAT</b>	<b>21 DAT</b>	<b>27 DAT</b>
1. Shark + Agridex B. Shark + Ginstar + Agridex	0.5 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	20	33	51	63
2. Shark + Agridex B. Shark + Ginstar + Agridex	0.75 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	21	36	51	64
3. Shark + Agridex B. Shark + Ginstar + Agridex	1 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	20	39	54	64
4. Shark + Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	0.5 fl oz + 32 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	21	41	59	70
5. Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	32 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	20	38	55	66
6. Ginstar + Finish + Agridex B. Ginstar + CottonQuik + Agridex	5 fl oz + 12 fl oz + 1 10 fl oz + 3 pts + 1	15% OB 45% OB	23	49	65	89
7. Untreated	-----		20	30	48	58
<b>LSD .05</b>			<b>1.82</b>	<b>8.34</b>	<b>8.39</b>	<b>8.97</b>
<b>% CV</b>			<b>5.97</b>	<b>14.83</b>	<b>10.34</b>	<b>8.95</b>

**Table 4.**

<b>Treatments</b>	<b>Rates/A</b>	<b>Timing</b>	<b>Lint %</b>	<b>Gin T.O. %</b>	<b>Lint Yield Lbs/A</b>	<b>Mic</b>	<b>Regrowth top &amp; bottom</b>
1. Shark + Agridex B. Shark + Ginstar + Agridex	0.5 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	37.5	32.4	942 B	4.2	0
2. Shark + Agridex B. Shark + Ginstar + Agridex	0.75 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	37.7	31.4	886 B	4.1	0
3. Shark + Agridex B. Shark + Ginstar + Agridex	1 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	37.4	32.3	940 B	4.2	0
4. Shark + Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	0.5 fl oz + 32 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	37.7	33.1	979 B	4.2	0
5. Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	32 fl oz + 1 1 fl oz + 8 fl oz + 1	15% OB 45% OB	37.6	32.6	877 B	4.0	0
6. Ginstar + Finish + Agridex B. Ginstar + CottonQuik + Agridex	5 fl oz + 12 fl oz + 1 10 fl oz + 3 pts + 1	15% OB 45% OB	38.0	33.7	1163A	3.7	0
7. Untreated	-----		37.5	32.0	735 B	4.2	0
<b>LSD .05</b>			<b>NS</b>	<b>1.22</b>	<b>125.31</b>	<b>0.08</b>	
<b>% CV</b>			<b>1.72</b>	<b>2.54</b>	<b>9.08</b>	<b>3.93</b>	

## Defoliation Study Ginstar (2-Step Approach) Pima 2

UCCE – WSREC – 2010

Steve Wright, Bob Hutmacher, Lalo Banuelos, Dan Munk, Jon Wroble,  
Walter Martinez, Tony Garcia, Matt Mills, Jaime Changala, Nancy Loza

The trial was conducted at the Westside Research Center in Five Points. This field was planted with Pima Delta Pine 340 on May 3, 2010 with seed rate of 18 lbs/A. The field was irrigated three times using pressure bomb readings to better manage plant vigor. In addition, the field received 140 lbs of nitrogen plus 14 lbs of Temik on June 9, 2010. The field also received 16 ounces of Pix Ultra on July 29. The plot sizes were 4-40" rows x 65', 4 replications, with a volume of 15 gpa, pressure of 40 psi, speed of 4 mph and 8002 flat fan nozzles.

The first application was applied on October 13, 2010 using a PDF High Clearance Sprayer when the cotton was at 30% open boll (7 NACB), with temperature of 78°F and wind factor of 0-1 mph. The second application applied on October 19, 2010 when the cotton was at 40% open boll (6 NACB), using a PDF High Clearance Sprayer with temperature of 80°F with a wind factor of 0-1 mph. The first application was applied on October 19, 2010 when the cotton was at 40% open boll (6 NACB), with a temperature of 80°F and a wind factor of 0-1 mph. The second application was applied October 26, 2010 when the cotton was 50% open boll (5 NACB), with a temperature of 65°F and a wind factor of 10-15 mph. Defoliation, desiccation, and open boll percentages were visually recorded at 7, 14, and 21 days after treatment (DAT).

The 2-Step Approach in Pima (Delta Pine 340), was conducted to compare differences between combinations of Ginstar (*Thidiazuron & Diuron*) plus Finish (*Ethephon & Cyclanilide*), applied at 30% open boll and 40% open boll. The timing of 30% (7 NACB) followed by 40% (6 NACB) resulted in the possibility to harvest 17 days earlier. Lint yield showed some variability 1080 to 1301 pounds and that the early timing of 30% (7 NACB) followed by 40% (6 NACB) reduced the micronaire by 8-10 percent.

**Table 1.**

			Percent Defoliation			Percent Desiccation		
			19-Oct	26-Oct	2-Nov	19-Oct	26-Oct	2-Nov
Treatments	Rates/A	Timing	7	14	21	7	14	21
			DAT	DAT	DAT	DAT	DAT	DAT
1. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	30% OB						
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	40% OB	11	38	84	10	76	89
2. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	30% OB						
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	40% OB	10	35	84	10	73	84
3. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt	30% OB						
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	40% OB	11	35	84	14	74	89
4. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt	30% OB						
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	40% OB	11	40	84	19	81	88
5. Ginstar + Agridex	6 fl oz + 1 pt	30% OB						
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	40% OB	9	36	84	8	78	93
			26-Oct	2-Nov	19-Nov	26-Oct	2-Nov	19-Nov
6. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt	40% OB						
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	50% OB	11	64	81	21	58	85
7. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt	40% OB						
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	50% OB	10	60	81	28	51	86
8. Ginstar + Agridex	6 fl oz + 1 pt	40% OB						
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	50% OB	7	48	80	13	39	83
9. Untreated	-----		7	26	44	6	13	6
<b>LSD .05</b>			<b>NS</b>	<b>5.19</b>	<b>5.06</b>	<b>5.97</b>	<b>7.51</b>	<b>4.27</b>
<b>% CV</b>			<b>27.76</b>	<b>8.40</b>	<b>4.42</b>	<b>28.91</b>	<b>8.56</b>	<b>3.72</b>

\* 30% (7 NACB)

\* 50% (5 NACB)

\* 40% (6 NACB)

\* Harvested November 9<sup>th</sup>

**Table 2.**

			Percent Open Boll			Regrowth	
			19-Oct	26-Oct	2-Nov	2-Nov	
Treatments	Rates/A	Timing	7	14	21	Top	Bottom
			DAT	DAT	DAT		
1. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt 8 fl oz + 20 fl oz + 1 pt	30% OB 40% OB	28	59	94	0	0
2. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt 10 fl oz + 20 fl oz + 1 pt	30% OB 40% OB	34	56	87	0	0
3. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt 8 fl oz + 20 fl oz + 1 pt	30% OB 40% OB	30	60	94	0	0
4. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt 10 fl oz + 20 fl oz + 1 pt	30% OB 40% OB	29	58	90	0	0
5. Ginstar + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 1 pt 8 fl oz + 20 fl oz + 1 pt	30% OB 40% OB	28	56	91	0	0
			<b>26-Oct</b>	<b>2-Nov</b>	<b>19-Nov</b>	<b>9-Nov</b>	
6. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt 8 fl oz + 20 fl oz + 1 pt	40% OB 50% OB	30	74	93	0	0
7. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt 10 fl oz + 20 fl oz + 1 pt	40% OB 50% OB	33	79	94	0	0
8. Ginstar + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 1 pt 8 fl oz + 20 fl oz + 1 pt	40% OB 50% OB	29	66	88	0	0
9. Untreated	-----		28	64	77	0	0
<b>LSD .05</b>			<b>4.85</b>	<b>5.38</b>	<b>3.76</b>		
<b>% CV</b>			<b>11.23</b>	<b>5.81</b>	<b>2.88</b>		

**Table 3.**

Treatments	Rates/A	Timing	Lint %	Gin T.O. %	Lint Yield Lbs/A	Mic
1. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt 8 fl oz + 20 fl oz + 1 pt	30% OB 40% OB	37.0	32.9	1301A	3.8
2. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt 10 fl oz + 20 fl oz + 1 pt	30% OB 40% OB	37.1	32.4	1198AB	3.9
3. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt 8 fl oz + 20 fl oz + 1 pt	30% OB 40% OB	37.5	32.9	1177AB	3.8
4. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt 10 fl oz + 20 fl oz + 1 pt	30% OB 40% OB	37.9	32.6	1269A	3.8
5. Ginstar + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 1 pt 8 fl oz + 20 fl oz + 1 pt	30% OB 40% OB	37.2	32.7	1224AB	3.8
6. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt 8 fl oz + 20 fl oz + 1 pt	40% OB 50% OB	37.3	32.2	1201AB	4.0
7. Ginstar + Finish + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt 10 fl oz + 20 fl oz + 1 pt	40% OB 50% OB	36.6	32.0	1274A	3.9
8. Ginstar + Agridex B. Ginstar + Finish + Agridex	6 fl oz + 1 pt 8 fl oz + 20 fl oz + 1 pt	40% OB 50% OB	37.8	30.9	1080 B	4.2
9. Untreated	-----		38.1	28.8	891 C	4.3
<b>LSD .05</b>			<b>NS</b>	<b>NS</b>	<b>151.00</b>	<b>0.19</b>
<b>% CV</b>			<b>12.00</b>	<b>11.88</b>	<b>8.70</b>	<b>3.43</b>



### Pima Defoliation Evaluation-3

UCCE – WSREC – 2010

Steve Wright, Bob Hutmacher, Lalo Banuelos, Dan Munk, Jon Wroble,  
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The trial was conducted at the Westside Research Center in Five Points. This field was planted with Pima Delta Pine 340 on May 3, 2010 with seed rate of 18 lbs/A. The field was irrigated three times using pressure bomb readings to better manage plant vigor. In addition, the field received 140 lbs of nitrogen plus 14 lbs of Temik on June 9, 2010. The field also received 16 ounces of Pix Ultra on July 29. The plot sizes were 4-40” rows x 65’, 3 replications, with a volume of 15 gpa, pressure of 40 psi, speed of 4 mph and 8002 flat fan nozzles.

The first application was applied on October 12, 2010 using a PDF High Clearance Sprayer when the cotton was at 40% open boll (6 NACB), with temperature of 80°F and wind factor of 4-7 mph. The second application was applied on October 19, 2010 using a PDF High Clearance Sprayer when the cotton was at 50% open boll (5 NACB), with temperature of 80°F with wind factor of 0-1 mph. Defoliation, desiccation, and open boll percentages were visually recorded at 7, 14, and 21 days after treatment (DAT).

The objective of this study was to evaluate tank mix combinations using ET. It took 21 days after the first initial application to achieve excellent defoliation, desiccation, and open boll. There were minor differences between treatments. All treatments gave excellent defoliation, desiccation, and percent open boll.

**Table 1.**

		Percent Defoliation			Percent Desiccation		
		19 Oct	26 Oct	2 Nov	19 Oct	26 Oct	2 Nov
		7 DAT	14 DAT	21 DAT	7 DAT	14 DAT	21 DAT
Treatments	Rates/A						
1. ET + Ginstar + Agridex	2 fl oz + 10 fl oz + 1 pt						
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	28	72	85	33	85	83
2. ET + Ginstar + Agridex	2 fl oz + 10 fl oz + 1 pt						
B. ET + Ginstar + Agridex	2.75 fl oz + 6 fl oz + 1 pt	32	73	89	48	91	90
3. ET + Ginstar + CottonQuik + Agridex	2 fl oz + 10 fl oz + 3 pts + 1 pt						
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	22	72	87	32	90	92
4. NAI-1299 + Prep + Agridex	4.8 fl oz + 2 pts + 1 pt						
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	38	73	83	43	93	90
5. NAI-1299 + Prep + Agridex	5.98 fl oz + 2 pts + 1 pt						
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	30	72	83	32	92	91
6. NAI-1299 + Prep + Agridex	7.17 fl oz + 2 pts + 1 pt						
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	32	72	80	35	90	87
7. NAI-1298 + Prep + Agridex	1.3 fl oz + 2 pts + 1 pt						
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	33	73	87	30	90	90
8. NAI-1298 + Prep + Agridex	1.63 fl oz + 2 pts + 1 pt						
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	32	70	83	38	90	82
9. NAI-1298 + Prep + Agridex	1.94 fl oz + 2 pts + 1 pt						
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	32	72	83	37	90	89
10. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt						
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	30	73	85	27	92	95
11. ET + Prep + Agridex	1 fl oz + 2 pts + 1 pt	31	71	83	46	95	95

B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt						
12. Untreated	-----	5	9	28	3	5	8
<b>LSD .05</b>		<b>10.87</b>	<b>4.67</b>	<b>4.27</b>	<b>NS</b>	<b>7.22</b>	<b>7.66</b>
<b>% CV</b>		<b>22.41</b>	<b>4.13</b>	<b>3.16</b>	<b>38.73</b>	<b>5.11</b>	<b>5.48</b>

\* 40% (6 NACB)

\* 50% (5 NACB)

**Table 2.**

Treatments	Rates/A	Percent Open Boll			Regrowth	
		19 Oct	26 Oct	2 Nov	2-Nov (21 DAT)	
		7 DAT	14 DAT	21 DAT	Top	Bottom
1. ET + Ginstar + Agridex	2 fl oz + 10 fl oz + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	32	75	89	0	0
2. ET + Ginstar + Agridex	2 fl oz + 10 fl oz + 1 pt					
B. ET + Ginstar + Agridex	2.75 fl oz + 6 fl oz + 1 pt	37	73	89	0	0
3. ET + Ginstar + CottonQuik + Agridex	2 fl oz + 10 fl oz + 3 pts + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	32	78	92	0	0
4. NAI-1299 + Prep + Agridex	4.8 fl oz + 2 pts + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	50	82	96	0	0
5. NAI-1299 + Prep + Agridex	5.98 fl oz + 2 pts + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	37	80	96	0	0
6. NAI-1299 + Prep + Agridex	7.17 fl oz + 2 pts + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	38	77	91	0	0
7. NAI-1298 + Prep + Agridex	1.3 fl oz + 2 pts + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	50	80	94	0	0
8. NAI-1298 + Prep + Agridex	1.63 fl oz + 2 pts + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	48	80	94	0	0
9. NAI-1298 + Prep + Agridex	1.94 fl oz + 2 pts + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	47	75	96	0	0
10. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	40	82	97	0	0
11. ET + Prep + Agridex	1 fl oz + 2 pts + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 1 pt + 1 pt	41	79	96	0	0
12. Untreated	-----	20	33	68	0	0
<b>LSD .05</b>		<b>19.76</b>	<b>8.33</b>	<b>4.10</b>		
<b>% CV</b>		<b>29.84</b>	<b>6.60</b>	<b>2.64</b>		

## Pima Defoliation Evaluation-4

UCCE – WSREC – 2010

Steve Wright, Bob Hutmacher, Lalo Banuelos, Dan Munk, Jon Wroble,  
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The trial was conducted at the Westside Research Center in Five Points. This field was planted with Pima Delta Pine 350 on May 10, 2010 with seed rate of 18 lbs/A. The field was irrigated three times using pressure bomb readings to better manage plant vigor. In addition, the field received 140 lbs of nitrogen plus 14 lbs of Temik on June 9, 2010. The field also received 16 ounces of Pix Ultra on July 29. The plot sizes were 4-40' rows x 65', 3 replications, with a volume of 15 gpa, pressure of 40 psi, speed of 4 mph and 8002 flat fan nozzles.

The first application was applied on October 12, 2010 using a PDF High Clearance Sprayer when the cotton was at 40% open boll (6 NACB), with temperature of 93°F and wind factor of 2-5 mph. The second application was applied on October 19, 2010 using a PDF High Clearance Sprayer when the cotton was at 50% open boll (5 NACB), with temperature of 79°F with wind factor of 0-2 mph. Defoliation, desiccation, and open boll percentages were visually recorded at 7, 14, and 21 days after treatment (DAT).

The objective of this study was to evaluate the effectiveness of various harvest aid treatments in Pima (Delta Pine 350) cotton (*Gossypium hirsutum* L.). There were minor differences between treatments for defoliation, desiccation, and open boll. The higher rates of Sharpen (1 fl oz and 2 fl oz) froze cotton bolls resulting in open boll percentage lower than the lowest rate of Sharpen (0.5 fl oz) and the untreated check.

**Table 1.**

Treatments	Rates/A	Percent Defoliation			Percent Desiccation		
		19 Oct	26 Oct	2 Nov	19 Oct	26 Oct	2 Nov
		7 DAT	14 DAT	21 DAT	7 DAT	14 DAT	21 DAT
1. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	32	72	85	47	85	90
2. Ginstar + CottonQuik + Agridex	10 fl oz + 3 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	30	75	87	55	85	92
3. Adios + CottonQuik + Agridex	10 fl oz + 3 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	32	72	83	53	85	93
4. Adios + Prep + Agridex	10 fl oz + 2 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	30	73	85	38	83	89
5. Adios + Prep + Agridex	13 fl oz + 2 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	25	68	85	30	78	91
6. Def + Prep + Agridex	2 pts + 2 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	27	75	83	32	85	90
7. Ginstar + Prep + Agridex	10 fl oz + 2 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	30	73	85	43	83	90
8. Sharpen + AMS + Agridex	.5 oz + 8.5 lb/100 gal + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	20	73	88	28	82	85
9. Sharpen + AMS + Agridex	1 oz + 8.5 lb/100 gal + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	23	73	87	50	83	80
10. Sharpen + AMS + Agridex	2 oz + 8.5 lb/100 gal + 1 pt	25	75	85	50	83	82

B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt						
11. Untreated	-----	5	68	82	4	80	80
<b>LSD .05</b>		<b>9.33</b>	<b>NS</b>	<b>3.48</b>	<b>21.51</b>	<b>NS</b>	<b>5.51</b>
<b>% CV</b>		<b>21.36</b>	<b>3.90</b>	<b>2.40</b>	<b>32.04</b>	<b>3.64</b>	<b>3.68</b>

\* 40% (6 NACB)

\* 50% (5 NACB)

**Table 2.**

<b>Percent Open Boll</b>				
		<b>19 Oct</b>	<b>26 Oct</b>	<b>2 Nov</b>
<b>Treatments</b>	<b>Rates/A</b>	<b>7 DAT</b>	<b>14 DAT</b>	<b>21 DAT</b>
1. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt			
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	42	79	90
2. Ginstar + CottonQuik + Agridex	10 fl oz + 3 pts + 1 pt			
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	42	77	90
3. Adios + CottonQuik + Agridex	10 fl oz + 3 pts + 1 pt			
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	38	76	92
4. Adios + Prep + Agridex	10 fl oz + 2 pts + 1 pt			
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	43	78	86
5. Adios + Prep + Agridex	13 fl oz + 2 pts + 1 pt			
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	33	73	88
6. Def + Prep + Agridex	2 pts + 2 pts + 1 pt			
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	38	80	87
7. Ginstar + Prep + Agridex	10 fl oz + 2 pts + 1 pt			
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	42	77	94
8. Sharpen + AMS + Agridex	.5 oz + 8.5 lb/100 gal + 1 pt			
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	38	77	87
9. Sharpen + AMS + Agridex	1 oz + 8.5 lb/100 gal + 1 pt			
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	38	77	83
10. Sharpen + AMS + Agridex	2 oz + 8.5 lb/100 gal + 1 pt			
B. Defol 7 + Gramoxone Inteon + Induce	1.6 qts + 1 pt + 1 pt	40	78	79
11. Untreated	-----	25	75	83
<b>LSD .05</b>		<b>NS</b>	<b>NS</b>	<b>5.40</b>
<b>% CV</b>		<b>13.20</b>	<b>4.75</b>	<b>3.63</b>