

# COTTON HARVEST AID

## Cotton Alliance Research Progress Report 2011



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## 2011 Cotton Harvest Aid Research Summary

This report summarizes the applied defoliation research studies conducted during 2011. All projects were conducted at the West Side Research and Extension Center. Six 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 new harvest aids and several tank mix combinations were evaluated to validate 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 and financial support by California Cotton Alliance, Arysta LifeScience, FMC, AMVAC, and Nichino America

### HARVEST AIDS TESTED IN THESE STUDIES

<b>Brand Name</b>	<b>Common Chemical Name/Formulation</b>	<b>Company</b>
Adios	<i>Thidiazuron &amp; Diuron</i>	Arysta
AgriDex	<i>Crop Oil Concentrate</i>	Helena
AMV5680		AMVAC
CottonQuik	<i>Ethephon</i>	Dupont
Def 6	<i>Tribufos</i>	Bayer
Defol 7	<i>Sodium Chlorate</i>	Core Agri
ET	<i>Pyraflufen-ethyl</i>	Nichino
Finish 6	<i>Ethephon &amp; Cyclanilide</i>	Bayer
Folex	<i>Tributyl phosphorotrithioate</i>	AMVAC
Ginstar	<i>Thidiazuron &amp; Diuron</i>	Bayer
Gramoxone Inteon	<i>Paraquat</i>	Syngenta
HLNB2-1		AMVAC
HLNB2-3		AMVAC
Induce	<i>Nonionic Surfactants</i>	Helena
Pix Ultra	<i>Mepiquat chloride</i>	Arysta
Prep	<i>Ethephon</i>	Bayer
Roundup WeatherMax	<i>Glyphosate</i>	Monsanto
Shark	<i>Carfentrazone-ethyl</i>	FMC
Temik	<i>Aldicarb</i>	Bayer

## Cotton Harvest Aid Management 2011

### Pages 5-7

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

The 2-Step Approach in Pima (Phytogen 802RF) cotton (*Gossypium hirsutum* L.) was conducted to compare the differences between combinations of Shark (*Carfentrazone-ethyl*) with Ginstar (*Thidiazuron & Diuron*) + Finish (*Ethephon & Cyclanilide*), Roundup Weathermax (*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 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 followed by 30% open boll gave 12 percent higher defoliation, 55-60 percent higher desiccation, and 15 percent higher open boll compared to the Shark treatments. There was no significant difference in lint yield between Ginstar at 5 floz + Finish at 12 oz + Agridex at 1% v/v and Shark treatments; however this treatment reduced micronaire by 5 to- 10 percent.

### Pages 8-9

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

The Ginstar 2-Step Approach in Pima (Phytogen 802RF) cotton (*Gossypium hirsutum* L.), was conducted to compare differences between combinations of Ginstar (*Thidiazuron & Diuron*) plus Finish (*Ethephon & Cyclanilide*), applied at 25% open boll and 40% open boll. The timing of 25% open boll followed by applications at 30% open boll resulted in the possibility to harvest 17 days earlier. There were minor differences in Lint yield or micronaire between the 2 application timings or harvest aid treatment applications.

### Pages 10-11

#### **Pima Defoliation Evaluation Study 3:**

The objective of this study was to evaluate Ginstar (*Thidiazuron & Diuron*) vs Adios (*Thidiazuron & Diuron*) in Pima (Phytogen 802RF) cotton (*Gossypium hirsutum* L.). It took 29 days after the first initial application to achieve defoliation, desiccation, and open boll. There were minor differences between treatments. All treatments gave excellent defoliation, desiccation, and percent open boll.

### Pages 12-14

#### **Pima Defoliation Evaluation Study 4:**

The objective of this study was to evaluate the effectiveness of various harvest aid treatments in Pima (Phytogen 802RF) cotton (*Gossypium hirsutum* L.). There were minor differences between treatments for defoliation, desiccation, and open boll. Defoliation ranged from 75 percent to 85 percent, desiccation ranged from 48 percent to 68 percent, and open boll ranged from 83 percent to 93 percent (Table 1, 2, &3).

### Pages 15-16

#### **Pima Defoliation Evaluation Study 5:**

The Evaluation Study in Pima (Phytogen 802RF) cotton (*Gossypium hirsutum* L.) was conducted to compare Folex (*Tributyl phosphorotrithioate*) as a one shot approach. Defoliation, desiccation and open boll percentages were highest using Folex at 24 floz + Prep (*Ethephon*) at 8 floz. Folex at 24 floz + Prep at 8 floz applied at the 30% open boll gave 17-40 percent higher defoliation, 21-36 percent higher desiccation, and 13-22 percent higher open boll compared to the Folex treatments.

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**Pima Defoliation Evaluation Study 6:**

The Evaluation Study in Pima (Phytogen 802RF) cotton (*Gossypium hirsutum* L.) was conducted to compare new formulations of Folex (*Tributyl phosphorotrithioate*) as a one shot approach with low rates. There were no significant differences between treatments for defoliation, desiccation, and open boll.

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

UCCE – WSREC – 2011

Steve Wright, Bob Hutmacher, Lalo Banuelos, Dan Munk, Jon Wrobles,  
Mark Keeley, Walter Martinez, Katie Wilson, Sonia Rios, Travis Avila

The trial was conducted at the Westside Research Center in Five Points. This field was planted with Phytogen 802RF in April of 2011 with a 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 sidedress of Temik (Aldicarb) in June of 2011. The field also received 24 ounces of Pix Ultra (Mepiquat Chloride) in July of 2011. The plots were 65' in length and consisted of four rows with 40" spacing. There were 4 replications.

The first application was applied on September 29, 2011 using a PDF High Clearance Sprayer with a spray volume of 15 gpa, pressure of 40 psi, speed of 4 mph, and 8002 flat fan nozzles. At the time of application the cotton was at 15% open boll, with a temperature of 90°F, and wind factor of 0-1 mph. The second application was applied on October 13, 2011. When the cotton was at 30% open boll, with a temperature of 83°F, and a wind factor of 0-2 mph. Defoliation, desiccation, and open boll percentages were visually recorded at 7, 13, 21, and 27 days after treatment (DAT).

The 2-Step Approach in Pima (Phytogen 802RF) cotton was conducted to compare the differences between combinations of Shark with Ginstar + Finish, Roundup Weathermax and CottonQuik. Defoliation, desiccation and open boll percentages were highest using Ginstar at 5 fl oz + Finish at 12 oz and Agridex 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 followed by 30% open boll gave 12 percent higher defoliation, 55-60 percent higher desiccation, and 15 percent higher open boll compared to the Shark treatments. There was no significant difference in lint yield between Ginstar at 5 fl oz + Finish at 12 oz + Agridex at 1% v/v and Shark treatments; however this treatment reduced micronaire by 5 to 10 percent.

**Table 1.**

Percent Defoliation						
Treatments	Rates/A	Timing	7- Oct	13- Oct	21- Oct	27- Oct
			7 DAT	13 DAT	21 DAT	27 DAT
1. Shark + Agridex	0.5 fl oz + 1% v/v	15% OB				
B. Shark + Ginstar + Agridex	1 fl oz + 8 fl oz + 1% v/v	30% OB	2	2	46	69
2. Shark + Agridex	0.75 fl oz + 1% v/v	15% OB				
B. Shark + Ginstar + Agridex	1 fl oz + 8 fl oz + 1% v/v	30% OB	2	2	45	69
3. Shark + Agridex	1 fl oz + 1% v/v	15% OB				
B. Shark + Ginstar + Agridex	1 fl oz + 8 fl oz + 1% v/v	30% OB	2	3	46	68
4. Shark + Roundup WeatherMax + Agridex	0.5 fl oz + 32 fl oz + 1% v/v	15% OB				
B. Shark + Ginstar + Agridex	1 fl oz + 8 fl oz + 1% v/v	30% OB	2	2	45	69
5. Roundup WeatherMax + Agridex	32 fl oz + 1% v/v	15% OB				
B. Shark + Ginstar + Agridex	1 fl oz + 8 fl oz + 1% v/v	30% OB	2	2	45	68
6. Ginstar + Finish + Agridex	5 fl oz + 12 fl oz + 1% v/v	15% OB				
B. Ginstar + CottonQuik + Agridex	10 fl oz + 3 pts + 1% v/v	30% OB	4	7	53	81
7. Untreated	-----		2	2	13	25

\* 1<sup>st</sup> application September 29<sup>th</sup>

\* 2<sup>nd</sup> application October 13<sup>th</sup>

\* 1<sup>st</sup> shot of Pix for all trials was at 24 fl oz

**Table 2.**

<b>Percent Desiccation</b>						
			<b>7- Oct</b>	<b>13- Oct</b>	<b>21- Oct</b>	<b>27- Oct</b>
<b>Treatments</b>	<b>Rates/A</b>	<b>Timing</b>	<b>7 DAT</b>	<b>13 DAT</b>	<b>21 DAT</b>	<b>27 DAT</b>
1. Shark + Agridex B. Shark + Ginstar + Agridex	0.5 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	1	1	33	41
2. Shark + Agridex B. Shark + Ginstar + Agridex	0.75 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	1	1	28	43
3. Shark + Agridex B. Shark + Ginstar + Agridex	1 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	2	2	30	35
4. Shark + Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	0.5 fl oz + 32 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	1	1	28	40
5. Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	32 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	0	1	28	38
6. Ginstar + Finish + Agridex B. Ginstar + CottonQuik + Agridex	5 fl oz + 12 fl oz + 1% v/v 10 fl oz + 3 pts + 1% v/v	15% OB 30% OB	3	75	94	97
7. Untreated	-----		0	0	0	5

**Table 3.**

<b>Percent Open Boll</b>						
			<b>7- Oct</b>	<b>13- Oct</b>	<b>21- Oct</b>	<b>27- Oct</b>
<b>Treatments</b>	<b>Rates/A</b>	<b>Timing</b>	<b>7 DAT</b>	<b>13 DAT</b>	<b>21 DAT</b>	<b>27 DAT</b>
1. Shark + Agridex B. Shark + Ginstar + Agridex	0.5 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	26	30	64	80
2. Shark + Agridex B. Shark + Ginstar + Agridex	0.75 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	26	30	63	80
3. Shark + Agridex B. Shark + Ginstar + Agridex	1 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	26	30	60	78
4. Shark + Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	0.5 fl oz + 32 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	26	30	65	79
5. Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	32 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	26	30	60	79
6. Ginstar + Finish + Agridex B. Ginstar + CottonQuik + Agridex	5 fl oz + 12 fl oz + 1% v/v 10 fl oz + 3 pts + 1% v/v	15% OB 30% OB	26	35	79	94
7. Untreated	-----		26	30	44	61

**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% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	38.7	34.0	1733	4.1	1
2. Shark + Agridex B. Shark + Ginstar + Agridex	0.75 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	38.6	33.5	1737	4.2	0
3. Shark + Agridex B. Shark + Ginstar + Agridex	1 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	39.0	34.2	1850	4.0	0
4. Shark + Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	0.5 fl oz + 32 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	39.4	35.0	1831	4.1	0
5. Roundup WeatherMax + Agridex B. Shark + Ginstar + Agridex	32 fl oz + 1% v/v 1 fl oz + 8 fl oz + 1% v/v	15% OB 30% OB	39.1	34.6	1786	4.1	0
6. Ginstar + Finish + Agridex B. Ginstar + CottonQuik + Agridex	5 fl oz + 12 fl oz + 1% v/v 10 fl oz + 3 pts + 1% v/v	15% OB 30% OB	39.7	34.4	1772	3.8	1
7. Untreated	-----		38.3	33.1	1592	4.1	1
<b>LSD .05</b>			<b>NS</b>	<b>NS</b>	<b>211.29</b>	<b>0.18</b>	
<b>%CV</b>			<b>2.11</b>	<b>3.71</b>	<b>8.09</b>	<b>3.11</b>	

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

UCCE – WSREC – 2011

Steve Wright, Bob Hutmacher, Lalo Banuelos, Dan Munk, Jon Wrobles,  
Mark Keeley, Walter Martinez, Katie Wilson, Sonia Rios, Travis Avila

The trial was conducted at the Westside Research Center in Five Points. This field was planted with Phytogen 802RF in April 2011 with a 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 sidedress of Temik in June 2011. The field also received 24 ounces of Pix Ultra in July 2011. The plots were 65' in length and consisted of four rows with 40" spacing. There were 4 replications.

The first application was applied on October 3, 2011 using a PDF High Clearance Sprayer when the cotton was at 25% open boll, with a temperature of 74°F and wind factor of 2 to 5 mph. The second application applied on October 13, 2011 when the cotton was at 30% open boll, using a PDF High Clearance Sprayer with a temperature of 83°F and a wind factor of 0 to 2 mph. The first application was applied on October 17, 2011 when the cotton was at 40% open boll, with a temperature of 78°F and a wind factor of 2 to 4 mph. The second application was applied October 27, 2011 when the cotton was 55% open boll, with a temperature of 57°F and a wind factor of 0 to 2 mph. Defoliation, desiccation, and open boll percentages were visually recorded at 7, 14, and 21 days after treatment (DAT).

The Ginstar 2-Step Approach in Pima (Phytogen 802RF), was conducted to compare differences between combinations of Ginstar plus Finish, applied at 25% open boll and 40% open boll. The timing of 25% open boll followed by applications at 30% open boll resulted in the possibility to harvest 17 days earlier. There were minor differences in lint yield or micronaire between the 2 application timings or harvest aid treatment applications.

**Table 1.**

			Percent Defoliation				Percent Desiccation			
			10-Oct	17-Oct	24-Oct	1-Nov	10-Oct	17-Oct	24-Oct	1-Nov
Treatments	Rates/A	Timing	7DAT	28 DAT	21DAT	28 DAT	7DAT	28 DAT	21DAT	28 DAT
1. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	25% OB								
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	30% OB	2	56	80	88	1	51	59	74
2. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	25% OB								
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	30% OB	2	58	80	88	1	51	63	73
3. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt	25% OB								
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	30% OB	2	55	80	89	1	56	63	74
4. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt	25% OB								
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	30% OB	2	55	80	85	1	49	59	73
5. Ginstar + Agridex	6 fl oz + 1 pt	25% OB								
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	30% OB	2	58	80	88	1	48	66	74
			<b>24-Oct</b>	<b>1-Nov</b>	<b>8-Nov</b>		<b>24-Oct</b>	<b>1-Nov</b>	<b>8-Nov</b>	
6. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	40% OB								
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	55% OB	60	75	86		24	51	71	
7. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	40% OB								
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	55% OB	61	75	86		30	53	75	
8. 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	55% OB	55	74	86		28	50	75	
9. 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	55% OB	59	75	86		30	53	75	
10. Ginstar + Agridex	6 fl oz + 1 pt	40% OB								
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	55% OB	53	73	85		24	46	75	
11. Untreated	----		48	61	70		14	10	24	

\* 1<sup>st</sup> application at 25% (13 NACB) applied on Oct. 3<sup>rd</sup> followed by 30% (11 NACB) applied on Oct. 13<sup>th</sup>.

\* 1<sup>st</sup> application at 40% (10 NACB) applied on Oct. 17<sup>th</sup> followed by 55% (8 NACB) applied on Oct. 27<sup>th</sup>.

\* Harvested November 8<sup>th</sup>



**Table 2.**

			Percent Open Boll				Regrowth	
			10-Oct	17-Oct	24-Oct	1-Nov	21 DAT	
Treatments	Rates/A	Timing	7DAT	28 DAT	21 DAT	28 DAT	Top	Bottom
1. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	25% OB						
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	30% OB	30	64	90	96	0	1
2. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	25% OB						
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	30% OB	30	65	90	95	0	2
3. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt	25% OB						
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	30% OB	30	65	90	96	0	0
4. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt	25% OB						
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	30% OB	30	64	90	96	1	2
5. Ginstar + Agridex	6 fl oz + 1 pt	25% OB						
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	30% OB	30	66	91	96	0	1
			24-Oct	1-Nov	8-Nov			
6. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	40% OB						
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	55% OB	66	83	94		0	3
7. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	40% OB						
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	55% OB	69	84	94		0	2
8. 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	55% OB	65	78	92		1	2
9. 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	55% OB	63	83	93		1	4
10. Ginstar + Agridex	6 fl oz + 1 pt	40% OB						
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	55% OB	65	79	92		0	1
11. Untreated	-----		59	78	85		3	4

**Table 3.**

Treatments	Rates/A	Timing	Lint %	Gin T.O. %	Lint Yield Lbs/A	Mic
1. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	25% OB				
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	30% OB	38.8	34.1	1694	4.0
2. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	25% OB				
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	30% OB	38.9	34.2	1723	4.1
3. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt	25% OB				
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	30% OB	39.3	35.3	1653	3.9
4. Ginstar + Finish + Agridex	6 fl oz + 12 fl oz + 1 pt	25% OB				
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	30% OB	39.2	34.7	1680	4.0
5. Ginstar + Agridex	6 fl oz + 1 pt	25% OB				
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	30% OB	39.2	34.3	1594	3.9
6. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	40% OB				
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	55% OB	38.9	34.4	1720	4.2
7. Ginstar + Finish + Agridex	4 fl oz + 12 fl oz + 1 pt	40% OB				
B. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt	55% OB	38.9	34.2	1651	4.2
8. 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	55% OB	38.9	34.4	1691	4.1
9. 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	55% OB	38.9	34.3	1721	4.0
10. Ginstar + Agridex	6 fl oz + 1 pt	40% OB				
B. Ginstar + Finish + Agridex	8 fl oz + 20 fl oz + 1 pt	55% OB	38.7	33.9	1708	4.0
11. Untreated	-----		38.6	33.3	1633	4.3
<b>LSD .05</b>			<b>NS</b>	<b>0.85</b>	<b>139.43</b>	<b>0.19</b>
<b>% CV</b>			<b>1.01</b>	<b>1.72</b>	<b>5.75</b>	<b>3.30</b>

### Pima Defoliation Evaluation Study 3

UCCE – WSREC – 2011

Steve Wright, Bob Hutmacher, Lalo Banuelos, Dan Munk, Jon Wrobles,  
Mark Keeley, Walter Martinez, Katie Wilson, Sonia Rios, Travis Avila

The trial was conducted at the Westside Research Center in Five Points. This field was planted with Phytogen 802RF in April 2011 with a 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 sidedress of Temik in June 2011. The field also received 24 ounces of Pix Ultra on July 2011. The plots were 65' in length and consisted of four rows with 40" spacing. There were 4 replications.

The first application was applied on October 3, 2011 using a PDF High Clearance Sprayer when the cotton was at 25% open boll, with temperature of 80°F and wind factor of 1 to 3 mph. The second application was applied on October 13, 2011 using a PDF High Clearance Sprayer when the cotton was at 30% open boll, with an ambient temperature of 83°F with wind factor of 0 to 2 mph. Defoliation, desiccation, and open boll percentages were visually recorded at 7, 14, 21, and 29 days after treatment (DAT).

The objective of this study was to evaluate Ginstar vs Adios. It took 29 days after the first initial application to achieve defoliation, desiccation, and open boll. There were minor differences between treatments. All treatments gave excellent defoliation, desiccation, and percent open boll.

**Table 1.**

<b>Percent Defoliation</b>					
		<b>10-Oct</b>	<b>17-Oct</b>	<b>24-Oct</b>	<b>1-Nov</b>
<b>Treatments</b>	<b>Rates/A</b>	<b>7 DAT</b>	<b>14 DAT</b>	<b>21 DAT</b>	<b>29 DAT</b>
1. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	2	56	78	88
2. Ginstar + CottonQuik + Agridex	10 fl oz + 3 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	3	54	79	89
3. Adios + CottonQuik + Agridex	10 fl oz + 3 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	2	53	79	89
4. Adios + Prep + Agridex	10 fl oz + 2 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	2	55	79	86
5. Adios + Prep + Agridex	13 fl oz + 2 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	2	53	79	88
6. Def + Prep + Agridex	2 pts + 2 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	2	39	78	88
7. Ginstar + Prep + Agridex	10 fl oz + 2 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	2	53	79	89
8. Untreated		2	5	34	51

**Table 2.**

<b>Percent Desiccation</b>					
		<b>10-Oct</b>	<b>17-Oct</b>	<b>24-Oct</b>	<b>1-Nov</b>
		<b>7 DAT</b>	<b>14 DAT</b>	<b>21 DAT</b>	<b>29 DAT</b>
<b>Treatments</b>	<b>Rates/A</b>				
1. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	1	56	55	65
2. Ginstar + CottonQuik + Agridex	10 fl oz + 3 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	1	65	58	65
3. Adios + CottonQuik + Agridex	10 fl oz + 3 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	1	59	60	65
4. Adios + Prep + Agridex	10 fl oz + 2 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	1	59	55	60
5. Adios + Prep + Agridex	13 fl oz + 2 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	1	54	54	59
6. Def + Prep + Agridex	2 pts + 2 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	1	69	53	60
7. Ginstar + Prep + Agridex	10 fl oz + 2 pts + 1 pt				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	1	74	58	65
8. Untreated		0	1	10	11

**Table 3.**

		<b>Percent Open Boll</b>				<b>Regrowth</b>	
		<b>10-Oct</b>	<b>17-Oct</b>	<b>24-Oct</b>	<b>1-Nov</b>	<b>21 DAT</b>	
		<b>7 DAT</b>	<b>14 DAT</b>	<b>21 DAT</b>	<b>29 DAT</b>	<b>Top</b>	<b>Bottom</b>
<b>Treatments</b>	<b>Rates/A</b>						
1. Ginstar + Finish + Agridex	10 fl oz + 20 fl oz + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	30	68	94	98	1	3
2. Ginstar + CottonQuik + Agridex	10 fl oz + 3 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	30	75	95	98	1	3
3. Adios + CottonQuik + Agridex	10 fl oz + 3 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	30	69	95	98	0	2
4. Adios + Prep + Agridex	10 fl oz + 2 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	30	69	93	96	1	2
5. Adios + Prep + Agridex	13 fl oz + 2 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	30	65	91	96	1	2
6. Def + Prep + Agridex	2 pts + 2 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	30	59	93	96	4	4
7. Ginstar + Prep + Agridex	10 fl oz + 2 pts + 1 pt						
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 1 pt + 1 pt	30	68	94	98	0	1
8. Untreated		30	45	66	81	1	1

## Pima Defoliation Evaluation Study 4

UCCE – WSREC – 2011

Steve Wright, Bob Hutmacher, Lalo Banuelos, Dan Munk, Jon Wrobles,  
Mark Keeley, Walter Martinez, Katie Wilson, Sonia Rios, Travis Avila

The trial was conducted at the Westside Research Center in Five Points. This field was planted with Phytogen 802RF in April 2011 with a 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 sidedress of Temik in June 2011. The field also received 24 ounces of Pix Ultra on July 2011. The plots were 65' in length and consisted of four rows with 40" spacing. There were 4 replications.

The first application was applied on October 3, 2011 using a PDF High Clearance Sprayer when the cotton was at 25% open boll, with temperature of 80°F and wind factor of 1 to 3 mph. The second application was applied on October 13, 2011 using a PDF High Clearance Sprayer when the cotton was at 30% open boll, with temperature of 83°F with wind factor of 0 to 2 mph. Defoliation, desiccation, and open boll percentages were visually recorded at 7, 14, 21, and 29 days after treatment (DAT).

The objective of this study was to evaluate the effectiveness of various harvest aid treatments in Pima (Phytogen 802RF) cotton (*Gossypium hirsutum* L.). There were minor differences between treatments for defoliation, desiccation, and open boll. Defoliation ranged from 75 percent to 85 percent, desiccation ranged from 48 percent to 68 percent, and open boll ranged from 83 percent to 93 percent (Table 1, 2, & 3).

**Table 1.**

<b>Percent Defoliation</b>					
<b>Treatments</b>	<b>Rates/A</b>	<b>10-Oct</b>	<b>17-Oct</b>	<b>24-Oct</b>	<b>1-Nov</b>
		<b>7 DAT</b>	<b>14 DAT</b>	<b>21 DAT</b>	<b>29 DAT</b>
1. Ginstar + Finish + Induce	6 fl oz + 20 fl oz + 0.25% v/v				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 16 fl oz + 0.25% v/v	2	65	73	78
2. ET + Ginstar + Induce	2 fl oz + 6 fl oz + 0.25% v/v				
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 16 fl oz + 0.25% v/v	2	63	72	77
3. ET + Ginstar + Induce	2 fl oz + 6 fl oz + 0.25% v/v				
B. ET + Ginstar + Induce	2.75 fl oz + 8 fl oz + 0.25% v/v	2	62	70	75
4. ET + Prep + Induce	2 fl oz + 2 pts + 0.25% v/v				
B. ET + Ginstar + Induce	2.75 fl oz + 8 fl oz + 0.25% v/v	2	57	72	78
5. ET + Prep + Induce	2 fl oz + 2 pts + 0.25% v/v				
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 16 fl oz + 0.25% v/v	2	57	70	80
6. Shark + Ginstar + Induce	1 fl oz + 6 fl oz + 0.25% v/v				
B. Shark + Gramoxone Inteon + Induce	1.6 fl oz + 16 fl oz + 0.25% v/v	2	67	73	78
7. Shark + Ginstar + Induce	1 fl oz + 6 fl oz + 0.25% v/v				
B. Shark + Ginstar + Induce	1.6 fl oz + 8 fl oz + 0.25% v/v	2	60	70	78
8. Shark + Prep + Induce	1 fl oz + 2 pts + 0.25% v/v				
B. Shark + Ginstar + Induce	1.6 fl oz + 8 fl oz + 0.25% v/v	2	63	70	78
9. Shark + Prep + Induce	1 fl oz + 2 pts + 0.25% v/v				
B. Shark + Gramoxone Inteon + Induce	1.6 fl oz + 16 fl oz + 0.25% v/v	2	57	68	78
10. Folex + Prep + Roundup Weathermax + Agridex	2.5 pts + 1.33 pts + 1 qt + 1 pt				
B. ET + Gramoxone Inteon + Induce	2.75 oz + 24 oz + 1 qt/100 gal	2	58	70	78
11. Folex + Prep + Roundup Weathermax + Agridex	2.5 pts + 2.67 pts + 1 qt + 1 pt				
B. ET + Gramoxone Inteon + Induce	2.75 oz + 24 oz + 1 qt/100 gal	2	65	72	78

12. Ginstar + Prep + Agridex	8 oz + 1.33 pts + 1 pt				
B. ET + Prep + Induce	2.75 oz + 1.33 pts + 1 qt/100 gal	2	67	78	85
13. Ginstar + Prep + Agridex	8 oz + 1.33 pts + 1 pt				
B. Ginstar + ET + Prep + Induce	6 oz + 2.75 oz + 1.33 pts + 1 qt/100 gal	2	67	77	85
14. Ginstar + Prep + Agridex	8 oz + 2.67 pts + 1 pt				
B. ET + Gramoxone Inteon + Induce	2.75 oz + 24 oz + 1 qt/100 gal	2	68	75	83
15. Untreated	-----	2	5	23	37

**Table 2.**

<b>Percent Desiccation</b>					
		<b>10-Oct</b>	<b>17-Oct</b>	<b>24-Oct</b>	<b>1-Nov</b>
<b>Treatments</b>	<b>Rates/A</b>	<b>7 DAT</b>	<b>14 DAT</b>	<b>21 DAT</b>	<b>29 DAT</b>
1. Ginstar + Finish + Induce	6 fl oz + 20 fl oz + 0.25% v/v				
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 16 fl oz + 0.25% v/v	1	65	52	58
2. ET + Ginstar + Induce	2 fl oz + 6 fl oz + 0.25% v/v				
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 16 fl oz + 0.25% v/v	17	65	58	57
3. ET + Ginstar + Induce	2 fl oz + 6 fl oz + 0.25% v/v				
B. ET + Ginstar + Induce	2.75 fl oz + 8 fl oz + 0.25% v/v	13	60	50	50
4. ET + Prep + Induce	2 fl oz + 2 pts + 0.25% v/v				
B. ET + Ginstar + Induce	2.75 fl oz + 8 fl oz + 0.25% v/v	8	55	47	48
5. ET + Prep + Induce	2 fl oz + 2 pts + 0.25% v/v				
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 16 fl oz + 0.25% v/v	9	63	53	48
6. Shark + Ginstar + Induce	1 fl oz + 6 fl oz + 0.25% v/v				
B. Shark + Gramoxone Inteon + Induce	1.6 fl oz + 16 fl oz + 0.25% v/v	6	63	50	55
7. Shark + Ginstar + Induce	1 fl oz + 6 fl oz + 0.25% v/v				
B. Shark + Ginstar + Induce	1.6 fl oz + 8 fl oz + 0.25% v/v	2	55	43	53
8. Shark + Prep + Induce	1 fl oz + 2 pts + 0.25% v/v				
B. Shark + Ginstar + Induce	1.6 fl oz + 8 fl oz + 0.25% v/v	2	60	43	58
9. Shark + Prep + Induce	1 fl oz + 2 pts + 0.25% v/v				
B. Shark + Gramoxone Inteon + Induce	1.6 fl oz + 16 fl oz + 0.25% v/v	1	62	40	58
10. Folex + Prep + Roundup Weathermax + Agridex	2.5 pts + 1.33 pts + 1 qt + 1 pt				
B. ET + Gramoxone Inteon + Induce	2.75 oz + 24 oz + 1 qt/100 gal	1	70	55	65
11. Folex + Prep + Roundup Weathermax + Agridex	2.5 pts + 2.67 pts + 1 qt + 1 pt				
B. ET + Gramoxone Inteon + Induce	2.75 oz + 24 oz + 1 qt/100 gal	1	70	50	57
12. Ginstar + Prep + Agridex	8 oz + 1.33 pts + 1 pt				
B. ET + Prep + Induce	2.75 oz + 1.33 pts + 1 qt/100 gal	1	62	52	57
13. Ginstar + Prep + Agridex	8 oz + 1.33 pts + 1 pt				
B. Ginstar + ET + Prep + Induce	6 oz + 2.75 oz + 1.33 pts + 1 qt/100 gal	1	63	57	68
14. Ginstar + Prep + Agridex	8 oz + 2.67 pts + 1 pt				
B. ET + Gramoxone Inteon + Induce	2.75 oz + 24 oz + 1 qt/100 gal	1	68	55	55
15. Untreated	-----	0	2	7	7

**Table 3.**

Percent Desiccation						21 DAT
Treatments	Rates/A	10-Oct	17-Oct	24-Oct	1-Nov	Regrowth Top/ Bottom
		7 DAT	14 DAT	21 DAT	29 DAT	
1. Ginstar + Finish + Induce	6 fl oz + 20 fl oz + 0.25% v/v					
B. Defol 7 + Gramoxone Inteon + Induce	3 qt + 16 fl oz + 0.25% v/v	30	52	80	91	2
2. ET + Ginstar + Induce	2 fl oz + 6 fl oz + 0.25% v/v					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 16 fl oz + 0.25% v/v	30	45	78	89	0
3. ET + Ginstar + Induce	2 fl oz + 6 fl oz + 0.25% v/v					
B. ET + Ginstar + Induce	2.75 fl oz + 8 fl oz + 0.25% v/v	30	43	72	83	0
4. ET + Prep + Induce	2 fl oz + 2 pts + 0.25% v/v					
B. ET + Ginstar + Induce	2.75 fl oz + 8 fl oz + 0.25% v/v	30	47	72	81	1
5. ET + Prep + Induce	2 fl oz + 2 pts + 0.25% v/v					
B. ET + Gramoxone Inteon + Induce	2.75 fl oz + 16 fl oz + 0.25% v/v	30	50	75	83	1
6. Shark + Ginstar + Induce	1 fl oz + 6 fl oz + 0.25% v/v					
B. Shark + Gramoxone Inteon + Induce	1.6 fl oz + 16 fl oz + 0.25% v/v	30	48	80	89	0
7. Shark + Ginstar + Induce	1 fl oz + 6 fl oz + 0.25% v/v					
B. Shark + Ginstar + Induce	1.6 fl oz + 8 fl oz + 0.25% v/v	30	47	75	86	1
8. Shark + Prep + Induce	1 fl oz + 2 pts + 0.25% v/v					
B. Shark + Ginstar + Induce	1.6 fl oz + 8 fl oz + 0.25% v/v	30	47	73	89	1
9. Shark + Prep + Induce	1 fl oz + 2 pts + 0.25% v/v					
B. Shark + Gramoxone Inteon + Induce	1.6 fl oz + 16 fl oz + 0.25% v/v	30	47	72	87	0
10. Folex + Prep + Roundup Weathermax + Agridex	2.5 pts + 1.33 pts + 1 qt + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 oz + 24 oz + 1 qt/100 gal	30	48	75	91	0
11. Folex + Prep + Roundup Weathermax + Agridex	2.5 pts + 2.67 pts + 1 qt + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 oz + 24 oz + 1 qt/100 gal	30	47	77	89	1
12. Ginstar + Prep + Agridex	8 oz + 1.33 pts + 1 pt					
B. ET + Prep + Induce	2.75 oz + 1.33 pts + 1 qt/100 gal	30	52	85	93	0
13. Ginstar + Prep + Agridex	8 oz + 1.33 pts + 1 pt					
B. Ginstar + ET + Prep + Induce	6 oz + 2.75 oz + 1.33 pts + 1 qt/100 gal	30	48	83	93	1
14. Ginstar + Prep + Agridex	8 oz + 2.67 pts + 1 pt					
B. ET + Gramoxone Inteon + Induce	2.75 oz + 24 oz + 1 qt/100 gal	30	52	85	91	1
15. Untreated	----	30	35	57	68	0

## Pima Defoliation Evaluation Study 5

UCCE – WSREC – 2011

Steve Wright, Bob Hutmacher, Lalo Banuelos, Dan Munk, Jon Wrobles,  
Mark Keeley, Walter Martinez, Katie Wilson, Sonia Rios, Travis Avila

The trial was conducted at the Westside Research Center in Five Points. This field was planted with Phytogen 802RF in April 2011 with a 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 sidedress of Temik in June 2011. The field also received 24 ounces of Pix Ultra in July 2011. The plots were 65' in length and consisted of four rows with 40" spacing. There were 4 replications.

The application was applied on October 11, 2011 using a PDF High Clearance Sprayer with a volume of 15 gpa, pressure of 40 psi, speed of 4 mph and 8002 flat fan nozzles. The cotton was at 30% open boll, with an ambient temperature of 74°F and wind factor of 0 to 1 mph. Defoliation, desiccation, and open boll percentages were visually recorded at 6, 13, and 21 days after treatment (DAT).

The Evaluation Study in Pima (Phytogen 802RF) cotton was conducted to compare Folex (*Tributyl phosphorotrithioate*) as a one shot approach. Defoliation, desiccation and open boll percentages were highest using Folex at 24 floz + Prep at 8 floz. Folex at 24 floz + Prep at 8 floz applied at the 30% open boll gave 17 to 40 percent higher defoliation, 21 to 36 percent higher desiccation, and 13 to 22 percent higher open boll compared to the Folex treatments.

**Table 1.**

<b>Percent Defoliation</b>				
		<b>6 DAT</b>	<b>13 DAT</b>	<b>21 DAT</b>
<b>Product</b>	<b>Rate/A</b>	<b>17-Oct</b>	<b>24-Oct</b>	<b>1-Nov</b>
1. AMV5680	16 Fl oz	3	22	38
2. AMV5680	64 Fl oz	3	25	40
3. AMV5680	128 Fl oz	7	27	42
4. AMV5680 + Folex	16 Fl oz + 24 Fl oz	2	20	30
5. AMV5680 + Folex	32 Fl oz + 24 Fl oz	2	18	37
6. AMV5680 + Folex	64 Fl oz + 24 Fl oz	2	22	30
7. Folex + Prep	24 Fl oz + 8 Fl oz	7	33	53
8. Untreated		2	17	30

**Table 2.**

<b>Percent Desiccation</b>				
		<b>6 DAT</b>	<b>13 DAT</b>	<b>21 DAT</b>
<b>Product</b>	<b>Rate/A</b>	<b>17-Oct</b>	<b>24-Oct</b>	<b>1-Nov</b>
1. AMV5680	16 Fl oz	3	5	7
2. AMV5680	64 Fl oz	3	10	12
3. AMV5680	128 Fl oz	7	10	13
4. AMV5680 + Folex	16 Fl oz + 24 Fl oz	2	7	8
5. AMV5680 + Folex	32 Fl oz + 24 Fl oz	2	6	8
6. AMV5680 + Folex	64 Fl oz + 24 Fl oz	2	7	7
7. Folex + Prep	24 Fl oz + 8 Fl oz	7	17	22
8. Untreated		1	6	7

**Table 3.**

<b>Percent Open Boll</b>				
		<b>6 DAT</b>	<b>13 DAT</b>	<b>21 DAT</b>
<b>Product</b>	<b>Rate/A</b>	<b>17-Oct</b>	<b>24-Oct</b>	<b>1-Nov</b>
1. AMV5680	16 Fl oz	37	47	60
2. AMV5680	64 Fl oz	38	50	63
3. AMV5680	128 Fl oz	38	53	66
4. AMV5680 + Folex	16 Fl oz + 24 Fl oz	37	47	59
5. AMV5680 + Folex	32 Fl oz + 24 Fl oz	35	48	63
6. AMV5680 + Folex	64 Fl oz + 24 Fl oz	35	48	62
7. Folex + Prep	24 Fl oz + 8 Fl oz	38	55	68
8. Untreated		35	43	62



## Pima Defoliation Evaluation Study 6

UCCE – WSREC – 2011

Steve Wright, Bob Hutmacher, Lalo Banuelos, Dan Munk, Jon Wrobles,  
Mark Keeley, Walter Martinez, Katie Wilson, Sonia Rios, Travis Avila

The trial was conducted at the Westside Research Center in Five Points. This field was planted with Phytogen 802RF in April 2011 with a 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 sidedress of Temik in June 2011. The field also received 24 ounces of Pix Ultra in July 2011. The plots were 65' in length and consisted of four rows with 40" spacing. There were 4 replications.

The application was applied on October 11, 2011 using a PDF High Clearance Sprayer with a volume of 15 gpa, pressure of 40 psi, speed of 4 mph, and 8002 flat fan nozzles. The cotton was at 30% open boll, with an ambient temperature of 74°F and wind factor of 0 to 1 mph. Defoliation, desiccation, and open boll percentages were visually recorded at 6, 13, and 21 days after treatment (DAT).

The Evaluation Study in Pima (Phytogen 802RF) cotton was conducted to compare new formulations of Folex (*Tributyl phosphorotriothioate*) as a one shot approach with low rates. There were no significant differences between treatments for defoliation, desiccation, and open boll.

**Table 1.**

<b>Percent Defoliation</b>				
		<b>6 DAT</b>	<b>13 DAT</b>	<b>21 DAT</b>
<b>Product</b>	<b>Rate/A</b>	<b>17-Oct</b>	<b>24-Oct</b>	<b>1-Nov</b>
1. HLN2-1	1 pt	1	18	30
2. HLN2-1	1.5 pts	1	17	28
3. HLN2-3	1 pt	2	18	30
4. HLN2-3	1.5 pts	2	20	30
5. HLN2-1 + Induce	1.5 pts + 0.25% v/v	2	20	32
6. Folex	1 pt	2	18	30
7. Folex	1.5 pts	2	18	30
8. Untreated		2	17	30

**Table 2.**

<b>Percent Desiccation</b>				
		<b>6 DAT</b>	<b>13 DAT</b>	<b>21 DAT</b>
<b>Product</b>	<b>Rate/A</b>	<b>17-Oct</b>	<b>24-Oct</b>	<b>1-Nov</b>
1. HLN2-1	1 pt	1	7	8
2. HLN2-1	1.5 pts	1	5	8
3. HLN2-3	1 pt	2	7	8
4. HLN2-3	1.5 pts	1	7	7
5. HLN2-1 + Induce	1.5 pts + 0.25% v/v	1	8	7
6. Folex	1 pt	1	7	7
7. Folex	1.5 pts	1	7	8
8. Untreated		1	6	7

**Table 3.**

<b>Percent Open Boll</b>				
		<b>6 DAT</b>	<b>13 DAT</b>	<b>21 DAT</b>
<b>Product</b>	<b>Rate/A</b>	<b>17-Oct</b>	<b>24-Oct</b>	<b>1-Nov</b>
1. HLNB2-1	1 pt	35	47	62
2. HLNB2-1	1.5 pts	35	45	60
3. HLNB2-3	1 pt	37	47	65
4. HLNB2-3	1.5 pts	35	45	62
5. HLNB2-1 + Induce	1.5 pts + 0.25% v/v	35	48	62
6. Folex	1 pt	35	47	60
7. Folex	1.5 pts	35	48	64
8. Untreated		35	43	62