



## **Result Demonstration/Applied Research Report**

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### **2006 Howard, Martin, and Midland Counties Cotton Harvest Aid Demonstration Cooperators: Blagrave Farm**

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#### **Summary**

Fifteen treatments were applied over the top of cotton on September 14 to prepare for harvest. The plot was established on Blagrave Farm located two miles west and three miles north of Knot, Texas. The chemicals were applied to Deltapine 5690 RR cotton that had 50 percent of its bolls open. Leaf shed was less than one percent when the plot was established. When these plots were evaluated on September 28, 2006 (14 days after the treatments were applied), there was an increase in open bolls, leaf defoliation, and leaf desiccation in the plots where harvest aids were applied.

#### **Objective**

In the Trans-Pecos area of Texas, cotton is usually planted starting in mid-May. Because of this planting date, many producers do not use harvest aids to terminate the cotton. When growing conditions are favorable, most of the cotton in this area is ready for harvest thirty days before the first killing freeze. The delay in harvest reduces the income of farmers due to the loss of lint yield and fiber quality. Even though the cost of several of the harvest aid treatments are expensive, there is usually a product that is economically justified that can be used effectively for crop termination. The intent of this field test is to: 1) determine the effectiveness of harvest aids at defoliating, desiccating, and opening bolls on cotton 2) provide producers the opportunity of observing how effectively the harvest aid materials work, and 3) determine the economic feasibility of using the harvest aid material.

## Materials and Methods

Cooperating County Producers: Blagrave Farm  
Location: 2 miles west and 3 miles north of Knot, Texas

### Crop Production Information:

Variety Planted: Deltapine 5690 RR  
Planting Pattern: 2-in-1-out on 40 inch rows  
Irrigation: None  
Number of Irrigations: None Available

### Harvest Aid Application Information:

Date Applied: September 14, 2006  
Wind Speed: 9.0 to 10.0 miles per hour  
Wind Direction: South  
Air Temperature: 82 to 85<sup>0</sup> Fahrenheit  
Relative Humidity: 68 to 89%  
Carrier: 15.0 gallons of water per acre  
Pressure: 34 pounds per square inch  
Nozzle Size: 11002 extended range flat fan over the top of each row and one 8002 Extended Range nozzle on each side of the row.  
Boom Height: 38 inches  
Cotton Height: 28 inches  
Ground Speed: 4.0 miles per hour  
Application Device: Self propelled rig with 13.33 foot boom  
Plot Size: 13.33 feet X 50 feet  
Test Design: Randomized block design replicated three times

## Plant Information

At the time of application, the upper most cotton bolls were cross-sectioned, the seed coats were dark, and the cotyledons well developed. Cotton height averaged 28 inches and 50 percent of the bolls were open. Overall the plants were healthy and unstressed and leaf defoliation was less than one percent.

## Results and Discussion

The cotton at the time of application was 50 percent open with most of the remaining bolls being mature. The application of the harvest aids did impact boll opening, percent defoliation and percent desiccation. Several factors contributed to the success of the harvest aids applied, these include: 1) The cotton was mature; 2) Chemical coverage was excellent due to gallonage, pressure used, and wind; 3) Air temperatures for the 14 days after application were warm enough to allow for good cotton plant response. Leaf defoliation was higher than the check in all treatments and the increase ranged from 45 to 81 percent on September 28, 2006 (14 days after the treatments were applied). The data collected on September 28 is reported in Table 1. All harvest aids are contact materials and coverage is critical.

Table 1. Martin County Cotton Harvest Aid Test (Blagrave Farm, 2006)  
September 28, 2006 (14 days after treatments were applied)

Harvest Aid Chemicals Applied (4 rows of each)	Rate Applied Per Acre	Cost of Harvest Aid Per Acre	% Open Bolls	% Defoliation	% Desiccation
Gramoxone Inteon + Induce	5.0 oz. + 9.6 oz.	\$1.10 + \$1.50	73.3 de	50.0 h	1.7 gh
Gramoxone Inteon + Induce	10.0 oz. + 9.6 oz.	\$2.20 + \$1.50	76.7 cd	76.7 cde	15.7 de
Gramoxone Inteon + Induce	20.0 oz. + 9.6 oz.	\$4.40 + \$1.50	85.0 a	57.0 g	38.3 a
Aim + Prep + Herbimax (C.O.C.)	0.75 oz. + 16 oz. + 19.2 oz.	\$3.17 + \$4.75 + \$1.39	83.3 ab	77.0 bcde	13.0 e
ET + Prep + Herbimax (C.O.C.)	1.5 oz. + 16 oz. + 19.2 oz.	\$3.75 + \$4.75 + \$1.39	80.0 abc	77.7 bcd	11.7 ef
Ginstar	5.0 oz.	\$7.40	76.7 cd	65.7 f	21.7 c
FirstPick + Ginstar + Induce	48.0 oz. + 3.0 oz. + 9.6 oz.	\$9.00 + \$4.44 + \$1.50	85.0 a	81.0 abc	10.7 ef
Check	-	-	70.0 e	5.0 i	0.0 h
Def + Prep + Induce	16.0 oz. + 16.0 oz. + 9.6 oz.	\$6.25 + \$4.75 + \$1.50	83.3 ab	71.7 e	3.3 gh
Firestorm + Induce	16.0 oz. + 9.6 oz.	\$4.33 + \$1.50	85.0 a	73.3 de	20.0 cd
FirstPick + Ginstar + Induce	32.0 oz. + 3.0 oz. + 9.6 oz.	\$6.00 + \$4.44 + \$1.50	80.0 abc	84.0 a	11.0 ef
Finish 6 Pro + Ginstar + Induce	24.0 oz. + 3.0 oz. + 9.6 oz.	\$12.94 + \$4.44 + \$1.50	78.3 bc	82.7 ab	6.3 fg
Finish 6 Pro + Def + Induce	24.0 oz. + 5.0 oz. + 9.6 oz.	\$12.94 + \$1.95 + \$1.50	82.3 ab	86.0 a	4.0 gh
Gramoxone Inteon + Prep + Induce	5.0 oz. + 21 oz. + 9.6 oz.	\$1.10 + \$6.23 + \$1.50	76.7 cd	78.0 bcd	2.0 gh
Blizzard + Prep + Herbimax (C.O.C.)	0.6 oz. + 16 oz. + 19.2 oz.	\$6.00 + \$4.75 + \$1.39	80.0 abc	60.0 g	30.7 b
Resource + Prep + Herbimax (C.O.C.)	8.0 oz. + 16 oz. + 19.2 oz.	\$9.50 + \$4.75 + \$1.39	80.0 abc	81.7 abc	10.7 ef

NOTE: In Table 1 the individual or combination of letter a, b, c, d, e, f, g, h or i shown beside the number are to indicate statistical significance. There is no statistical difference between numbers that have the same letter (even when there appears to be a large difference in results between the materials applied). Also, to account for 100 percent of the leaves you would add the percent defoliation plus the percent dessication and subtract from 100. The difference represents the number of original green leaves still remaining on the plant.

In this test regrowth was a problem in plots where harvest aids were applied that do not impact juvenile leaves that were growing rapidly after the older leaves were removed. Some of the materials applied are known to be better at desiccating or removing juvenile growth; these include Aim, Blizzard, ET, Ginstar, and Resource. Please note that a crop oil concentrate was used in tank mixes that contained Aim, Blizzard, ET, and Resource. For maximum performance with these products C.O.C. is an important part of the tank mix.

Increased boll opening was noted in all treatments except where the lowest rate of Gramoxone Inteon was used. In the Aim, Blizzard, ET, Ginstar, and Resource plots an abscission layer between the petiole and the main stem had formed but the leaves were still loosely attached.

### Economic Analysis

This test can be used to document the results obtained from the use of harvest aids. If the same treatments are consistently at the top of the list for several years, then producers may want to incorporate those treatments into their cotton production program. Several of the treatments were in the 6 to 11 dollar per acre range and the use of these treatments should result in increased profits for producers. It is important to remember that a higher lint yield is not the only way of increasing profit from the use of a harvest aid. Other factors include: timely harvest, improved fiber quality, improved harvesting efficiency, and higher percent lint turnout at the gin.

### **Acknowledgments**

I want to take this opportunity to thank Blagrove Farm for their help in plot establishment and management.

I would also like to thank the companies that provided the chemicals for this harvest aid test. These include:

- Bayer CropScience who provided the Def, Finish 6 Pro, Ginstar, and Prep
- Chemtura who provided the Blizzard and Firestorm
- DuPont who provided the FirstPick
- FMC Corporation who provided the Aim
- Helena Chemical Company who provided the Induce
- Nichino America who provided the ET
- Syngenta Crop Protection, Inc. who provided the Gramoxone Inteon
- Tri-State Chemical DBA United Agra Products (UAP) who provided the C.O.C. (Herbimax)
- Valent USA Corporation who provided the Resource

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