

Williamson County Result Demonstration Report



COTTON HARVEST AID EVALUATION

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SUMMARY:

Twenty-one harvest aid treatments were applied on August 11, 2004 to cotton just west of Thrall. Treatments containing Ginstar generally provided better overall defoliation for the cost. Many other treatments did very well also, but most were slower in their performance which was a function of the relatively cooler than normal weather that persisted for the week following the initiation of the trial. Also, the same treatments did not exhibit regrowth through 10 DAT (days after treatment) as did the desiccant treatments.

OBJECTIVE:

The effectiveness of cotton harvest aids vary from season to season and even within a season based on various environmental factors. The purpose of this study was to evaluate the performance/economics of 21 potential harvest aid treatments under early harvest-season environmental conditions.

MATERIALS & METHODS:

Treatments were applied on August 11, 2004 to a field of DP 444BG/RR that was planted on March 23. Total fertility was 84-28-0-8. The field was located 1 mile west of Thrall at the

intersection of Hwy 79 and CR 421. The cotton was on 38" rows and plots were 4 rows wide and approximately 150 ft. in length. Treatments were applied with a self-propelled sprayer operating at 3 mph. Two 11002 nozzles per row were operated at 50 psi delivering 11 gallons per acre.

RESULTS AND DISCUSSION:

A list of all of the harvest aid treatments applied for this evaluation, including the untreated check are listed in Table 1. Ginstar @ 3 oz/acre provided the highest defoliation rating of all the treatments at 7 DAT (days after treatment) with a rating of 88%. Another surprise was from Gramoxone Max @ 6 oz that provided 72 % defoliation and 20% desiccation at 7 DAT. Besides the untreated control, the Dropp SC @ 2.4 and 3.2 oz/ac had the lowest percent defoliation at 7 DAT at 60%.

The evening the treatments were applied, a relatively strong cool front blew into the region causing morning low temperatures to drop to around 60° F for 6 days and the daily high temperatures were in the 80s compared to upper 90s which is typical for that time of the year. As a result, many of the treatments that are more affected by cool weather, did not perform as usual for that time of the year, such as Dropp. However, one product, Ginstar, which is less affected by temperature performed well. In addition, the treatments which included Aim or ET performed very well compared to what was observed last year.

It is worth noting that at 10 DAT, some of the products such as Dropp SC, Ginstar and Ginstar plus CottonQuick treatments showed very high levels of defoliation.

From an economic analysis viewpoint, the Ginstar @ 3 oz/ac plus Crop Oil Concentrate @ 16 oz provided very good defoliation at 7 DAT and had a cost of only \$5.35 per acre. On the high end of the treatment cost range was the Dropp SC @ 1.6 oz/ac and CottonQuick @ 48 oz/ac which had a price of \$16.34 per acre. It performed very well at dropping leaves and providing some desiccation, but it was a little slower than the Ginstar @ 3 oz/ac.

ACKNOWLEDGMENTS:

Appreciation is expressed to Mr. Billy Carlson for his patience in allowing us to put out this trial. I also want to thank Dr. Robert Lemon, and his assistant, Joel Pigg, for there support of this trial. Also, thanks to Bayer CropScience, and Syngenta and the local ag distributors for their participation in this program.

Trade names of commercial products used in this report are included only for better understanding and clarity. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M University System is implied. Readers should realize that results from one experiment do not represent conclusive evidence that the same response would occur where conditions vary.

Table 1. Cost of Products in Harvest Aid Trial. Billy Carlson, Williamson Co., TX. 2004.

Treatment	Rate	% Defoliation 7 DAT	% Dessication 7 DAT	Total Treatment Cost
Ginstar COC	3 oz/A 16 oz/A	88.0	5.0	\$5.35
Ginstar	4 oz/A	82.0	3.0	\$5.80
Ginstar	6 oz/A	78.0	12.0	\$8.70
Ginstar Finish 6 Pro	3 oz/A 16 oz/A	82.0	0.0	\$12.99
Ginstar CottonQuik	3 oz/A 48 oz/A	75.0	0.0	\$14.91
Dropp SC Ginstar	1.6 oz/A 4.3 oz/A	82.0	5.0	\$12.02
Dropp SC	1.6 oz/A	65.0	0.0	\$5.78
Dropp SC	2.4 oz/A	60.0	0.0	\$8.66
Dropp SC	3.2 oz/A	60.0	0.0	\$11.55
Freefall NIS	0.1 L/A 0.25% V/V	70.0	0.0	\$4.74
Freefall CottonQuik	0.1 LB/A 48 oz/A	80.0	1.0	\$14.50
Untreated		5.0	0.0	N/A
Dropp SC Finish 6 Pro	1.6 oz/A 16 oz/A	70.0	0.0	\$14.42
Dropp SC Prep	1.6 oz/A 16 oz/A	65.0	0.0	\$12.34
Dropp SC CottonQuik	1.6 oz/A 48 oz/A	82.0	0.0	\$16.34
Dropp SC Def	1.6 oz/A 8 oz/A	80.0	5.0	\$8.78
ET Finish 6 Pro COC	1.5 oz/A 16 oz/A 1% V/V	85.0	2.0	\$14.44
Aim Finish 6 Pro NIS	1 oz/A 16 oz/A 0.25% V/V	78.0	0.0	\$14.45
Dropp SC Def	1.6 oz/A 4 oz/A	70.0	3.0	\$7.28
Gramoxone Max NIS	6 oz/A 0.25% V/V	72.0	20.0	\$2.30
Dropp SC Hasten	1.6 oz/A 6 oz/A	65.0	0.0	\$7.58

Other Harvest Aid Product Evaluation Studies

The following sets of data were obtained from the various harvest aid studies conducted at the Stiles Farm Foundation in 2004 with Dr. Robert Lemon, Cotton Specialist, Texas Cooperative Extension.

Variety: Deltapine 424 BG2RR Trial Type: Randomized Complete Block

Plot Width: 4 rows X 38" Plot Length: 40 feet

Reps: 3

Planting Date: April 17, 2004

Percent Open at Application: 75%

Nodes Above Cracked Boll: 5

Plant Height: 38 inches

HU From Application to 7DAT: 166

HU From Application to 14DAT: 289

Rainfall 7 days prior to and after application 2.63 inches

	<u>Initial Application</u>	<u>Sequential (follow-by) (fb) Application</u>
Application Date	8/25/2004	8/31/2004
Time of Day	9:30 a.m.	1:00 p.m.
Application Timing	Preharvest	Preharvest
Application Type	Broadcast	Broadcast
Air Temperature (°F)	83°F	88°F
% Relative Humidity	63%	33%
Wind/Direction	ESE at 9 MPH	NE at 10 MPH
Crop Stage	Preharvest	Preharvest
Application Equipment	Wildcat	Wildcat
Operating Pressure	45	45
Nozzle Types	Turbo TeeJet 11002	Turbo TeeJet 11002
Nozzle Spacing	20 inches	20 inches
Nozzles per Row	3	3
Boom Length (in.)	160 inches	160 inches
Boom Height (in.)	48"	48"
Ground Speed (MPH)	4 MPH	4 MPH
Spray Volume (GPA)	11 GPA	11 GPA

Cotton Harvest Aid Product Evaluation

Percent Defoliation and Desiccation at 6 DAT and 14 DAT, Percent Total, Terminal and Basal Regrowth 14 DAT. Stiles Farm Foundation, Williamson Co., TX. 2004

Treatment	Rate	% Defol. ^{1,2}	% Dessic. ³	% Defol. ^{1,2}	% Dessic. ³	%	%	%
		8-31-04	8-31-04	9-8-04	9-8-04	Regrowth	Terminal	Basal
		6 DAT	6 DAT	14 DAT	14 DAT	Regrowth	Regrow	Regrow
Aim NIS fb Aim fb NIS	1 oz./ac. 0.25% V/V 1 oz/ac. 0.25% V/V	81.0 bc	0.0 a	92.0 ab	0.0 b	30.0 de	38.3 b	45.0 c
Aim Prep NIS	1 oz/ac 16 oz/a 0.25 % V/V	84.0 abc	0.0 a	88.0 bc	0.0 b	75.0 a	70.0 a	78.3 a
Aim Prep NIS fb Aim fb NIS	0.75 oz/ac 16 oz/ac 0.25 % V/V 1 oz/ac 0.25 % V/V	83.7 abc	0.0 a	93.3 a	0.0 b	27.7 de	15.0 cd	35.0 c
Aim Prep NIS fb Aim fb NIS	1 oz/ac 16 oz/ac 0.25 % V/V 1 oz/ac 0.25 % V/V	82.3 abc	0.0 a	93.3 a	0.3 ab	25.0 e	11.7 d	36.7 c
Aim Dropp WP NIS	1 oz/ac 0.1 lb/ac 0.25 % V/V	78.3 c	0.0 a	85.3 c	0.0 b	58.3 b	63.3 a	78.3 a
Untreated		20.0	0.0	30.0	0.0	0.0	0.0	0.0
Aim Dropp WP NIS. fb Aim fb NIS	0.75 oz/ac 0.1 lb/ac 0.25 % V/V 1 oz/ac 0.25 % V/V	80.0 bc	0.0 a	94.0 a	0.7 a	21.7 e	28.3 bcd	38.3 c
Aim Dropp WP Prep NIS	0.5 oz/ac 0.1 lb/ac 16 oz/ac 0.25 % V/V	85.0 abc	0.0 a	91.3 ab	0.0 b	41.7 cd	31.7 bcd	53.3 bc
Def Dropp WP Prep NIS	4 oz/ac 0.1 lb/ac 16 oz/ac 0.25 % V/V	90.0 a	0.0 a	94.0 a	0.3 ab	41.7 cd	36.7 bc	55.0 bc
Def Prep NIS	16 oz/ac 21 oz/ac 0.25 % V/V	86.0 abc	0.0 a	90.0 abc	0.0 b	60.0 ab	50.0 ab	73.3 ab
Dropp WP Prep NIS	0.2 lb/ac 21 oz/ac 0.25 % V/V	87.7 ab	0.0 a	91.7 ab	0.0 b	46.7 bc	36.7 bc	48.3 c
LSD (P=.10)		8.13	0.00	4.68	0.50	15.71	22.55	20.76
P=0.10, LSD)		0.358	0.00	0.599	0.193	0.193	0.106	0.638

¹ Percent Defoliation

² Means within a column followed by same letter are not significantly different (LSD, P=0.05).

³ Percent Dessication

Dupont Boll Opener Study

Percent Defoliation and Desiccation and Overall Performance 6 DAT and 14 DAT, Percent Total, Terminal and Basal Regrowth 14 DAT. Stiles Farm Foundation, Williamson Co., TX. 2004

Treatment	Rate	% Defol. ^{1,2} 8-30-04 6 DAT	% Dessic. ³ 8-30-04 6 DAT	% Overall Perform. 8-30-04 6 DAT	% Defol. 9-8-04 14 DAT	% Dessic. 9-8-04 14 DAT	% Overall Perform. 9-8-04 14 DAT	% Regrowth	% Terminal Regrowth	% Basal Regrowth
Ginstar Prep	3 oz/ac 16 oz/ac	92.0 ab	3.0 b	92.7 a	93.0 ab	2.0 bc	92.3 ab	33.3 a	10.0 a	33.3 a
Ginstar Prep	3 oz/ac 21 oz/ac	91.0 ab	3.0 b	91.0 a	93.0 ab	3.0 ab	91.0 ab	38.3 a	6.7 a	30.0 a
Ginstar CottonQuik	3 oz/ac 42 oz/ac	92.7 ab	2.3 b	93.3 a	94.0 a	1.3 bc	92.7 ab	31.7 a	8.3 a	33.3 a
Ginstar CottonQuik	3 oz/ac 56 oz/ac	90.3 ab	3.7 b	89.0 ab	92.7 ab	3.0 ab	91.3 ab	33.3 a	8.3 a	30.0 a
Untreated		46.7	0.0	0.0	46.7	0.0	0.0	0.0	0.0	0.0
Ginstar Dupont Experimental	3 oz/ac 42 oz/ac	89.3 b	4.0 b	90.0 ab	91.3 bc	1.7 bc	90.0 b	38.3 a	13.3 a	36.7 a
Ginstar Dupont Experimental	3 oz/ac 56 oz/ac	85.3 c	8.7 a	84.3 b	89.3 c	4.7 a	86.0 c	35.0 a	10.0 a	33.3 a
Ginstar Finish 6 Pro	3 oz/ac 16 oz/ac	91.7 ab	1.7 b	91.3 a	94.0 a	1.7 bc	92.3 ab	35.0 a	11.7 a	38.3 a
Ginstar Finish 6 Pro	3 oz/ac 21 oz/ac	91.7 ab	2.3 b	91.3 a	93.3 ab	1.7 bc	92.0 ab	33.3 a	10.0 a	31.7 a
Ginstar	3 oz/ac	93.3 a	1.0 b	94.0 a	94.7 a	1.0 c	93.7 a	38.3 a	16.7 a	31.7 a
LSD (P=.05)		3.83	3.24	6.04	2.19	1.96	3.37	10.39	10.45	8.93
(P=0.05, LSD)		0.51	0.486	0.318	0.884	0.37	0.707	0.511	0.81	0.318

¹ Percent Defoliation

² Means within a column followed by same letter are not significantly different (LSD, P=0.05).

³ Percent Dessication

⁴ Overall Performance

2004 Beltwide Harvest Aid Evaluation

Percent Defoliation and Desiccation, Overall Performance, Number of Open, Green, Total and Percent Open Bolls 6 DAT. Stiles Farm Foundation, Williamson Co., TX. 2004

Treatment	Rate	% Defol. ^{1,2} 8-31-04 6 DAT	% Dessic. ³ 8-31-04 6 DAT	%Overall Perform. ⁴ 8-31-04 6 DAT	# Open Bolls 8-31-04 6 DAT	# Green Bolls 8-31-04 6 DAT	Total # Bolls 8-31-04 6 DAT	% Open Bolls 8-31-04 6 DAT
Def Prep Dropp SC	12 oz/ac 21 oz/ac 1.6 oz/ac	65.3 b	2.7 a	52.7 a	92.7 a	3.7 a	96 a	96 a
Harvade Def Prep COC	8 oz/ac 12 oz/ac 21 oz/ac 1 % V/V	90.0 ab	2.7 a	87.3 a	88.7 a	4.7 a	93 a	95 a
Prep Dropp SC	21 oz/ac 1.6 oz/ac	85.3 ab	0.7 a	84.7 a	83.7 a	3.7 a	87 a	96 a
Def Prep	12 oz/ac 21 oz/ac	92.3 a	0.7 a	91.7 a	80.7 a	2.7 a	83 a	97 a
Resource Prep COC fb Resource fb COC	8 oz/ac 16 oz/ac 1 % V/V 6 oz/ac 1 % V/V	84.3 ab	3.3 a	83.7 a	87.0 a	3.3 a	90 a	96 a
Untreated		69.7	5.0	54.7	82.7	7.3	90	91
Aim Prep Dropp SC NIS fb Aim fb NIS	0.5 oz/ac 16 oz/ac 1.6 oz/ac 0.25 % V/V 1 oz/ac 0.25% V/V	90.3 ab	1.0 a	89.3 a	85.3 a	3.7 a	89 a	96 a
Def Prep Dropp SC	8 oz/ac 21 oz/ac 1.6 oz/ac	75.0 ab	0.0 a	61.7 a	92.0 a	2.7 a	95 a	97 a
Dropp SC Ginstar	1.6 oz/ac 4.2 oz/ac	89.0 ab	5.3 a	86.3 a	94.3 a	3.7 a	98 a	96 a
Ginstar	6 oz/ac	91.7 ab	3.3 a	88.3 a	83.3 a	4.3 a	88 a	95 a
LSD (P=.05)		26.52	6.13	42.32	14.48	5.27	17.5	5.3
(P=0.05, LSD)		0.001	0.089	0.001	0.067	0.71	0.142	0.474

¹ Percent Defoliation

² Means within a column followed by same letter are not significantly different (LSD, P=0.05).

³ Percent Dessication

⁴ Overall Performance

2004 Beltwide Harvest Aid Evaluation (Continued)

Percent Defoliation and Desiccation, Overall Performance, Percent Open Bolls, and Percent Terminal and Basal Regrowth 14 DAT. Stiles Farm Foundation, Williamson Co., TX. 2004

Treatment	Rate	% Defol. ^{1,2} 9-8-04 14 DAT	% Dessic. ³ 9-8-04 14 DAT	Overall Perform. ⁴ 9-8-04 14 DAT	% Open Boll 9-8-04 14 DAT	% Term. ⁵ Regrowth	% Basal Regrowth
Def Prep Dropp SC	12 oz/ac 21 oz/ac 1.6 oz/ac	91.3 bcd	4.0 a	88.0 d	100.0 a	10.0 e	38.3 c
Harvade Def Prep COC	8 oz/ac 12 oz/ac 21 oz/ac 1 % V/V	92.3 a-d	3.3 a	89.0 cd	100.0 a	11.7 e	41.7 c
Prep Dropp SC	21 oz/ac 1.6 oz/ac	89.3 d	0.0 c	87.7 d	100.0 a	50.0 a	73.3 a
Def Prep	12 oz/ac 21 oz/ac	93.7 abc	0.0 c	92.0 a-d	100.0 a	43.3 ab	68.3 ab
Resource Prep COC fb Resource fb COC	8 oz/ac 16 oz/ac 1 % V/V 6 oz/ac 1 % V/V	90.7 cd	0.3 bc	90.3 bcd	100.0 a	31.7 bc	53.3 abc
Untreated		40.0	0.0	0.0	99.7 a	0.0	0.0
Aim Prep Dropp SC NIS fb Aim fb NIS	0.5 oz/ac 16 oz/ac 1.6 oz/ac 0.25 % V/V 1 oz/ac 0.25% V/V	95.7 a	0.7 bc	95.0 a	100.0 a	15.0 cde	38.3 c
Def Prep Dropp SC	8 oz/ac 21 oz/ac 1.6 oz/ac	94.0 abc	1.0 bc	92.0 a-d	100.0 a	30.0 bcd	56.7 abc
Dropp SC Ginstar	1.6 oz/ac 4.2 oz/ac	94.7 abc	1.3 bc	93.7 ab	100.0 a	20.0 cde	46.7 bc
Ginstar	6 oz/ac	95.0 ab	1.7 b	92.7 abc	100.0 a	13.3 de	35.0 c
LSD (P=.05)		4.03	1.36	4.63	0.00	18.07	13.34
(P=0.05, LSD)		0.052	0.721	0.19	0.032	0.156	0.142

¹ Percent Defoliation

² Means within a column followed by same letter are not significantly different (LSD, P=0.05).

³ Percent Dessication

⁴ Overall Performance

⁵ Terminal

Cotton Harvest Aid Additive Study

Percent Defoliation and Desiccation at 6 DAT and 14 DAT, Percent Regrowth 14 and 19 DAT. Stiles Farm Foundation, Williamson Co., TX. 2004

Treatment	Rate	% Defoliation 8-30-04 6 DAT ¹	% Dessication 8-30-04 6 DAT	% Defoliation 9-8-04 14 DAT	% Dessication 9-8-04 14 DAT	% Regrowth 9-8-04 14 DAT	% Regrowth 9-13-04 19 DAT
Ginstar	3 oz/ac	91.0 abc	0.0 d	93.3 abc	0.0 b	56.7 a-d	71.7 a-e
Preference Ginstar	0.25 % V/V 3 oz/ac	90.7 abc	0.0 d	93.0 abc	0.0 b	53.3 a-d	75.0 a-d
Rivet Ginstar	4 oz/ac 3 oz/ac	93.7 a	2.3 a	95.3 ab	0.3 b	45.0 cde	65.0 cde
Superb Ginstar	2.5 pt/100 gal 3 oz/ac	94.7 a	1.0 a-d	96.3 a	0.0 b	41.7 de	61.7 de
Class Act Ginstar	1.25 gal/100 gal 3 oz/ac	92.3 ab	1.3 a-d	94.7 ab	0.0 b	58.3 abc	81.7 abc
Untreated		21.7	0.0	26.7	0.0	0.0	0.0
Kinetic Ginstar	1 oz/ac 3 oz/ac	90.0 abc	0.7 bcd	93.0 abc	0.3 b	46.7 cde	63.3 cde
HM 9743 Ginstar	1 % V/V 3 oz/ac	88.0 bcd	1.7 abc	90.7 bcd	0.3 b	55.0 a-d	75.0 a-d
Induce Ginstar	0.25 % V/V 3 oz/ac	83.7 d	0.0 d	86.7 d	0.0 b	68.3 a	86.7 a
Dynamic Ginstar	4 oz/ac 3 oz/ac	92.7 ab	1.7 abc	94.7 ab	0.3 b	48.3 cde	68.3 a-e
Ginstar	3 oz/ac	92.3 ab	0.3 cd	94.7 ab	0.0 b	49.0 cde	76.7 a-d
L1 700 Ginstar	0.25 % V/V 3 oz/ac	89.7 abc	0.3 cd	92.3 abc	0.0 b	51.7 bcd	76.7 a-d
Phase Ginstar	4 oz/ac 3 oz/ac	86.7 cd	1.7 abc	89.7 cd	0.3 b	46.7 cde	65.0 cde
Untreated		20.0	0.0	30.0	0.0	0.0	0.0
R 11 Ginstar	0.25 % V/V 3 oz/ac	89.7 abc	0.0 d	93.0 abc	0.0 b	65.0 ab	85.0 ab
ROC Ginstar	1 % V/V 3 oz/ac	90.7 abc	2.0 ab	93.3 abc	1.0 a	48.3 cde	66.7 b-e
Hasten Ginstar	8 oz/ac 3 oz/ac	94.0 a	1.7 abc	96.0 a	0.3 b	35.0 e	53.3 e
Syltac Ginstar	4 oz/ac 3 oz/ac	89.7 abc	0.7 bcd	92.3 abc	0.3 b	51.7 bcd	68.3 a-e
Untreated		25.0	0.0	30.0	0.0	0.0	0.0
Ginstar	3 oz/ac	92.7 ab	0.0 d	94.7 ab	0.0 b	48.3 cde	71.7 a-e
LSD (P=.05)		5.25	1.62	4.96	0.63	15.57	18.88
(P=0.05, LSD)		0.321	0.483	0.067	1.00	0.852	0.781

¹ Means within a column followed by same letter are not significantly different (LSD, P=0.05).