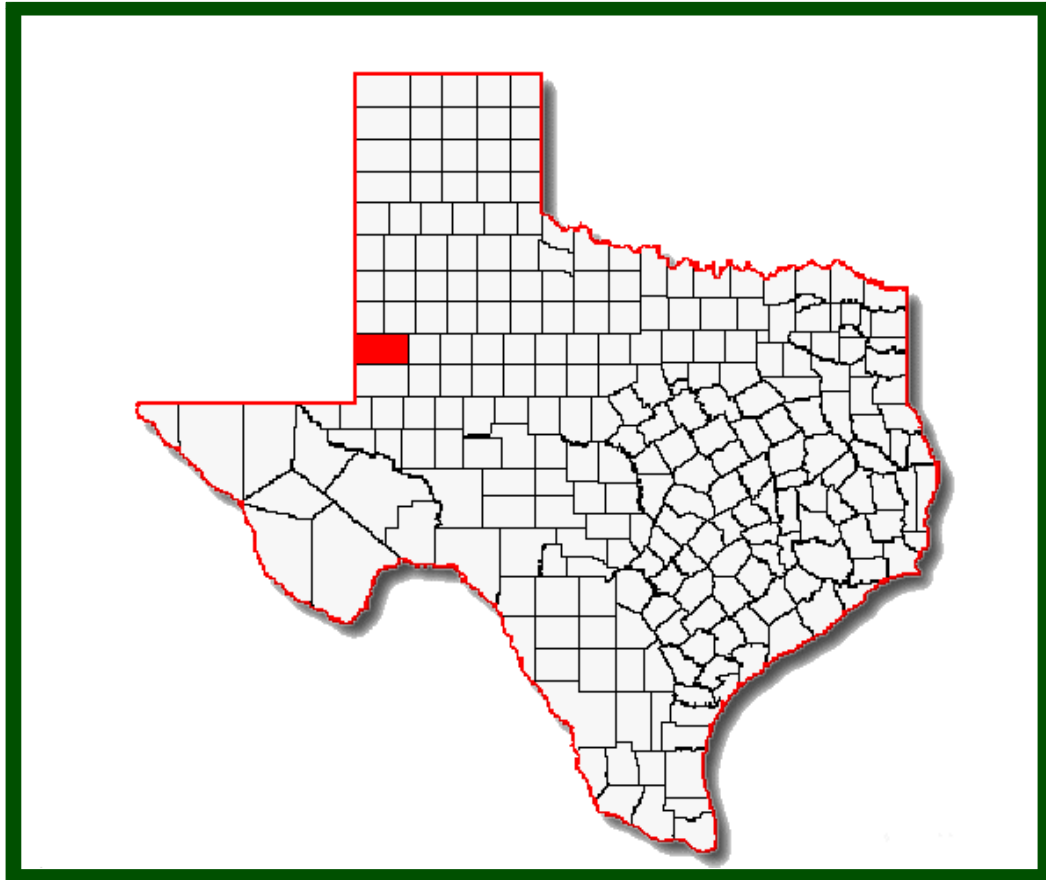


# INTEGRATED PEST MANAGEMENT



## Gaines County IPM Program 2011





**GAINES COUNTY  
INTEGRATED PEST MANAGEMENT PROGRAM**

**2011 ANNUAL REPORT**

**Prepared by**

*Manda G. Anderson*

**Manda G. Anderson**

**Extension Agent – Integrated Pest Management  
Gaines County**

**in cooperation with**

**Texas Pest Management Association**

**and**

**Gaines County IPM/TPMA Steering Committee**



*Partners with Nature*

## Table of Contents

<b>Table of Contents.....</b>	<b>1</b>
<b>Introduction and Acknowledgements.....</b>	<b>2</b>
 <b>Gaines County Integrated Pest Management (IPM) Program</b>	
Relevance.....	5
Response.....	5
Evaluation Results.....	6
Educational Activities.....	9
Funds Leveraged.....	10
Financial Report.....	11
 <b>2011 Gaines County Crop Production Review.....</b>	 <b>12</b>
Seasonal Heat Unit (H.U.) records for cotton (DD60s).....	17
 <b>2011 Research Reports</b>	
The Effect of Fungicide Application Based on a Threshold System Versus Calendar Based Applications for Management of Peanut Pod Rot.....	19
Replicated LESA Irrigated Cotton Variety Research Trial.....	25
Replicated LESA Irrigated Cotton Variety Research Trial Under Full and Limited (15% reduction) Irrigation.....	30
Evaluation of Variety Tolerance and Use of Vydate C-LV for Management of Southern Root-Knot Nematode...	37
Effect of Nematicides and Varieties on Root-knot Nematode Control, Cotton Yield, and Profitability.....	41
Replicated Seeding Rate Research Trial.....	46
Replicated Seeding Rate Research Trial with Four Different Cotton Varieties.....	51
Controlling Populations of Bollworm and Fall Armyworm in Non-Bt Cotton.....	58
Evaluation of Insecticides for Control of Kurtomathrips morrilli in Cotton, 2011.....	66
Evaluation of Miticides for Spider Mite Control in Pre-Bloom Cotton, 2011.....	71
Results of a Two-Year Pink Bollworm Survey in the Southern Plains of Texas and New Mexico.....	74
Bayer CropScience Irrigated CAP Trial (western Gaines County).....	79
Bayer CropScience Irrigation CAP Trial (eastern Gaines County).....	80
Deltapine Irrigated FACT Trial.....	81
 <b>Appendix A (2011 Gaines County IPM Newsletters) .....</b>	 <b>82</b>

## **Introduction**

The Gaines County Integrated Pest Management (IPM) Program is part of the Texas IPM Program and serves as a multi-purpose education effort to provide the Gaines County agriculture industry with up-to-date information on all aspects of IPM. The Gaines County IPM Program is coordinated by Manda Anderson, Extension Agent – IPM, from the Texas AgriLife Extension Office in Seminole. Texas Pest Management Association (TPMA) provides the fiscal operations including paying salary, travel and liability insurance and workers compensation for the scouts as well as bookkeeping services. The local IPM/TPMA Steering Committee (made up of growers, consultants, and agriculture industry representatives) is the fundamental local support unit for the Gaines County IPM Program. This committee met on March 16 and November 17, 2011 to determine local priorities, develop educational programs, identify our target audiences, and develop applied research and result demonstrations to address the local needs. In the fall of 2011, an evaluation instrument (post survey approach) was utilized to measure programmatic impact of the Gaines County IPM Program. Additionally, as a committee, we utilize the results from the evaluation to modify the IPM Program and increase applicability to our target audience.

In 2011 the Gaines County IPM Program ran a survey scouting program which encompassed cotton and peanuts. This survey scouting program was funded by twenty-five business sponsors who brought in over \$11,150. Fifteen fields were scouted throughout the season for pest and beneficial populations, along with crop stage and development. The information gathered from these fields was used to write the Gaines County IPM Newsletter (See Appendix A) that was sent out to over 360 growers, ginners, crop consultants and agriculture industry representatives. The Gaines County IPM Program also was the lead or cooperator on twenty-two research trials to evaluate cotton variety performance, disease management, insect management, insecticide testing, cotton seeding rates, and peanut pod rot thresholds. Results from these trials will be provided to the growers in a book titled “2011 Gaines County, Texas Cotton, Peanut, and Wheat Research Reports.” Additionally, the Gaines County IPM Program had several educational events throughout the season such as presentations at field days and grower meetings, newspaper articles, and newsletters.

### **Acknowledgements and Recognition**

#### **2011 IPM/TPMA Steering Committee**

Shelby Elam	Jack Shanklin
Chuck Rowland	Raymond McPherson
Kurt Brown	Michael Todd
Jud Cheuvront	Weldon Shook
Scott Nolen	Roy Johnson

#### **2011 Gaines County Commissioners Court**

Gaines County Judge	Lance Celander
Commissioner, Precinct 1	Danny Yocom
Commissioner, Precinct 2	Craig Belt
Commissioner, Precinct 3	Blair Tharp
Commissioner, Precinct 4	Biz Houston

### **2011 Gaines County IPM Program Sponsors and Contributors**

Carter & Co. Irrigation Inc.  
Oasis Gin Inc.  
Ocho Gin Company  
TriCounty Producers Gin  
West Texas Agriplex, Inc.  
AG Aero  
Doyle Fincher Farms  
Five Points Gin  
Golden Peanut Company  
Nolen AG Services Inc.  
Crop Plus Insurance Agency  
Western Peanut Growers  
Wylie Implement  
Anderson Welding Pump and Machine  
Baucum Insurance Agency  
Birdsong Peanuts  
Crop Production Services, Inc.

Moore-Haralson Agency PC  
Pioneer Gin  
Ten High Gin Inc.  
Valley Irrigation & Pump Service Inc.  
City Bank-Lubbock  
Commercial State Bank  
McKinzie Insurance  
State Farm Insurance

#### **Contributors:**

Bayer CropScience (provided seed for research)  
All-Tex Seed (provided seed for research)  
Americot, Inc. (provided seed for research)  
Monsanto (provided seed for research)  
Dyna-Grow (provided seed for research)  
Dow AgroSciences (provided seed for research)

### **Producers who planted, maintained, and harvested Research Trials**

Jud Cheuvront  
Marcus Crow  
Shelby Elam  
Delamn Ellison  
Froese Farms  
Louis Grissom  
John Harms  
Otis Johnson

Roy Johnson  
Raymond McPherson  
Tim Neufeld  
Jacob Peters  
Chuck Rowland  
Weldon Shook  
Gregory Upton  
Cody Walters

### **Producers who participated in the IPM Scouting Program**

Marcus Crow  
Doyle Fincher  
Jake Froese  
Peter Froese  
Otis Johnson

Roy Johnson  
Donny Kubecka  
Chuck Rowland  
Glen Shook  
Gregory Upton

### **Field Scout/Research Aides**

Andrew Van Zielst and Michael Green

The field scouts were responsible for the weekly monitoring and reporting of insect populations, disease status and crop development. They were also responsible with helping establish and collect data from research plots. Special appreciation is extended to the field scouts for their dedication.

**Special Thanks to the following Texas AgriLife Extension and Research Faculty  
for their Programming Support, Assistance, and Collaboration Efforts**

Dr. David Ragsdale.....	Head of Entomology Department, College Station
Dr. Chris Sansone.....	Assoc. Head of Entomology Department, San Angelo
Dr. Charles Allen.....	IPM Coordinator, San Angelo
Miles Dabovich.....	District Extension Administrator, Lubbock
Dr. Galen Chandler.....	Regional Program Director, Lubbock
Dr. David Kerns.....	Extension Entomologist, Lubbock
Dr. Pat Porter.....	Extension Entomologist, Lubbock
Dr. Jason Woodward.....	Extension Plant Pathologist, Lubbock
Dr. Terry Wheeler.....	Research Plant Pathologist, Lubbock
Dr. Mark Kelley.....	Extension Agronomist, Lubbock
Dr. Calvin Trostle.....	Extension Agronomist, Lubbock
Dr. Todd Baughman.....	Extension Agronomist, Vernon
Dr. Peter Dotray.....	Extension Weed and Herbicide Science, Lubbock
Dr. Jackie Smith.....	Extension Ag Economist, Lubbock
Jay Yates.....	Extension Risk Management Specialist, Lubbock
Jeff Pate.....	Extension Risk Management Specialist, Lubbock
Dr. Dana Porter.....	Extension Ag Engineering Specialist, Lubbock
Scott Russell.....	Extension Agent - IPM, Terry and Yoakum Counties
Brant Baugh.....	Extension Agent - IPM, Lubbock County
Dustin Patman.....	Extension Agent - IPM, Crosby and Floyd Counties
Warren Multer.....	Extension Agent - IPM, Glasscock, Reagan, & Upton Counties
Tommy Doederlien.....	Extension Agent - IPM, Lynn and Dawson Counties
Terry Millican.....	County Extension Agent – Ag, Seminole
Connie Lambert.....	EA-IPM Secretary, Gaines County, Seminole

**Texas Pest Management Association**

The support and assistance of David Oefinger, Executive Director of Texas Pest Management Association, is greatly appreciated.

# Making a Difference 2011

## 2011 Gaines County Integrated Pest Management (IPM) Program

*Manda Anderson, Extension Agent – IPM, Gaines County*

### Relevance

Gaines County is the number one cotton and peanut producer in the state of Texas, with approximately 342,638 and 20,564 planted acres of cotton and peanuts in 2011, respectively. These producers are being faced with increased crop production cost, increased scarcity of water, increased plant disease prevalence, and on-going insect management issues. Water and economic development are two of the top three critical issues identified by the Texas Community Futures Forum for Gaines County. The number one top agriculture issue is agriculture profitability.

The Texas AgriLife Extension Service Gaines County Integrated Pest Management (IPM) Program is part of the Texas IPM Program and serves as a multi-purpose education effort to provide Gaines County agriculture industry with up-to-date information on all aspects of IPM. The Gaines County IPM Steering Committee consists of eight producers and two agriculture industry representatives, and it serves as the fundamental local support unit for the Gaines County IPM Program. This committee met on 16 March and 17 November 2011.

The Gaines County IPM Program 2011 target audience is cotton and peanut producers, and agriculture industry representatives. By providing education on current crop and pest management tools and techniques, our goal is that the target audience will implement pest management strategies to maintain yields and net profit.

### Response

Based on priorities identified by the Gaines County IPM Program Steering Committee, the following educational programs were developed and successfully implemented in 2011:

- ♦ **2010 Gaines County, Texas Cotton and Peanut Research Reports Book** was compiled and dissemination to cotton gins and local business for distribution to their growers, ginners, and agriculture industry representatives. This book was also posted on the Texas AgriLife Extension Service Gaines County website <http://gaines.agrilife.org>.
- ♦ **Author and Co-Author of 4 posters presented at the 2011 Beltwide Cotton Conference** held in Atlanta, GA 5-7 January.
- ♦ **2010 Gaines County IPM Research Trial Results power point presentation at the SandyLand Ag Conference** held on 22 February. This conference was attended by more than 190 people.
- ♦ **Co-author of a research paper published in Plant Management Network, Plant Health Progress Journal** in March.
- ♦ **Lead organizer of the Alternatives to Temik Meeting** held on 8 April. This workshop was attended by 59 people.
- ♦ **Co-author of a poster presented at the Annual Meeting of the American Peanut Research and Education Society** held in San Antonio, TX on 13 July.
- ♦ **Lead organizer of the Kurtomathrips TurnRow Meeting** held on 24 August. This meeting was attended by 50 people.
- ♦ **Life After Temik Panel Member** at the 59<sup>th</sup> Annual Agricultural Chemicals Conference held in Lubbock, TX on 14 September.
- ♦ **Two Interactive Presentations on Insects for Youth** at the Gaines County Ag and Oil Day 4<sup>th</sup> Grade Educational Event held on 15 September and the Yoakum County Soil and Water Conservation District (SWCD) Jamboree 5<sup>th</sup> Grader Educational Event held on 28 September.

*Educational programs of the Texas AgriLife Extension Service are open to all people without regard to race, color, sex, disability, religion, age, or national origin. The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Courts of Texas Cooperating*

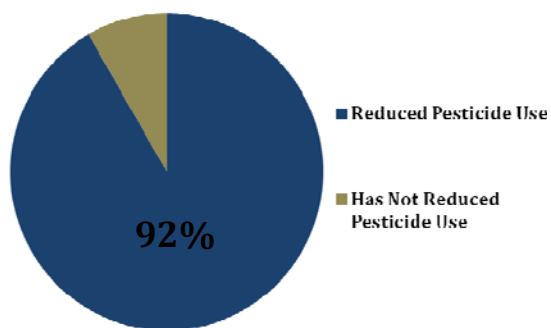
- ◆ **Co-author of 3 power point presentations at the Texas A&M University, Department of Entomology Entomology Science Conference** held in College Station, TX 1-3 November.
- ◆ **Co-Organizer of the *Innovative Farming-Integrating Limited Water Resources into Today's Farming Meeting*** held on 6 December. The Gaines County IPM Program worked closely with the *Llano Estacado Underground Water Conservation District* to organize this meeting.
- ◆ **Gaines County IPM Survey Scouting Program** was utilized to gathered information on pest and beneficial insects, weeds, and cotton and peanut development. The information gathered from the survey scouting program was used to write the Gaines County IPM Newsletter, which is an effective way to distribute the information gathered from the survey scouting program to our target audience.
- ◆ **Gaines County IPM Newsletter** was one of the main educational components. In 2011, **12 editions** were distributed to more than 369 recipients and posted on the Texas AgriLife Extension Gaines County website, <http://gaines.agrilife.org> and the Texas Pest Management Association website, <http://tpma.org>
- ◆ **Participated in 28 of the weekly IPM Radio Programs** on Fox Talk 950. According to the local radio station listener data, there are 50,000 listeners of this program.
- ◆ **Interviewed for 4 newspaper articles published by the Seminole Sentinel and 1 article published by the Odessa American.**
- ◆ **22 on-farm applied research trials** that effectively addressed our local priorities and provide applicable results to our target audience.

An **evaluation instrument** (post survey approach) was utilized to measure programmatic impact of the Gaines County IPM Program. Thirty-one individuals responded to the survey. Of those responding, 12 were producers (39%), 10 were agriculture industry representatives (32%), 6 were agriculture retail representatives (19%), 2 were peanut company representatives (6%), and 1 was a private crop consultant (3%).

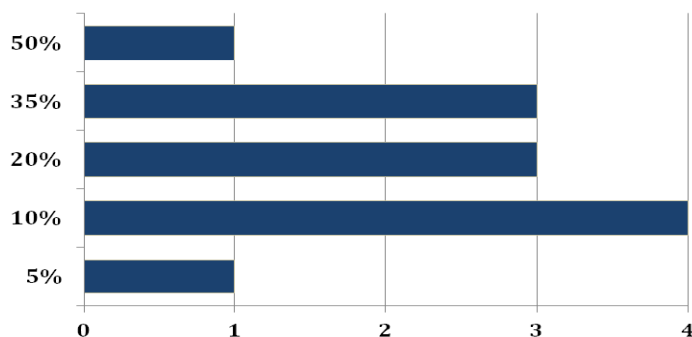
## Results

**(100%) 12 of 12 producers** said they anticipate benefiting economically as a direct result of what they learned from the IPM Program. The average IPM Program value, as indicated by the producers, was **\$37.50 per acre**. The average farm size, as indicated by the producers, was 2912 acres. This would indicate that the IPM Program's value is **\$109,187** for an average size farm.

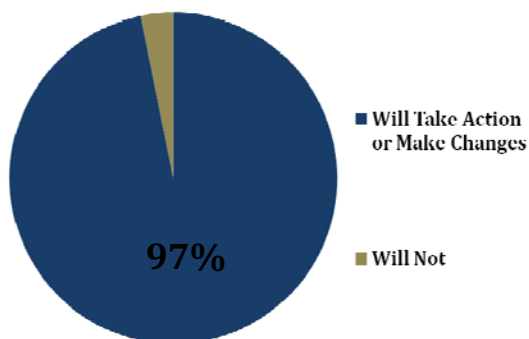
**(100%) 12 of 12 producers** said they selected varieties to plant on their farm based on the results from the Gaines County IPM Program research trials.



**(92%) 11 of 12 producers** said the Gaines County IPM Program research and education activities has resulted in lower pesticide use on their operations in recent years.



**The number of producers who said they had 5, 10, 20, 35 or 50% reduction in pesticide use.**



**(97%) 30 of 31 respondents** said they plan to take action or make changes based on information provided by the Gaines County IPM Program.



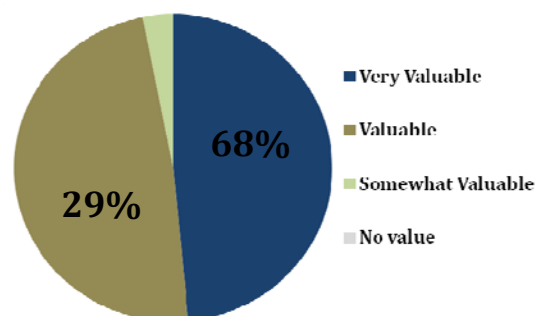
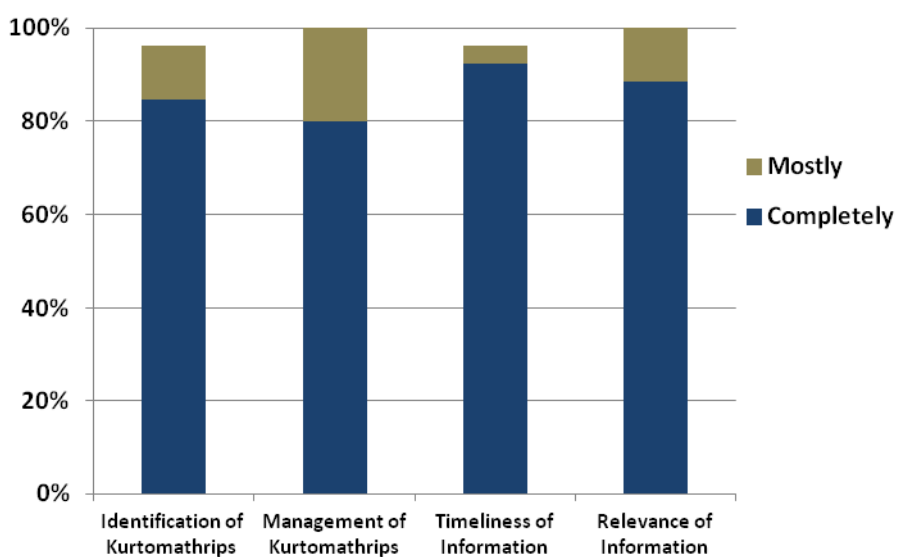
**Table 1. The percentage of respondents who said the Gaines County IPM Newsletter, grower meetings, research trial results, and radio program *mostly* or *completely* increased their knowledge of the following items:**

	# of Responses	Percent
Peanut Disease Identification	22 of 31	71%
Peanut Disease Management	20 of 31	64%
Cotton Disease Identification	26 of 31	84%
Use of Tolerant/Resistant Cotton Varieties to Manage Cotton Diseases	29 of 31	94%
Cotton Insect Identification and Management	26 of 31	84%
Description of Cropping Conditions in the Gaines County IPM Newsletter	24 of 31	77%

This year, Kurtomathrips, a new highly destructive pest, infested a majority of our cotton fields. The Gaines County IPM Program worked closely with producers to provide education on the identification and management of this new pest.

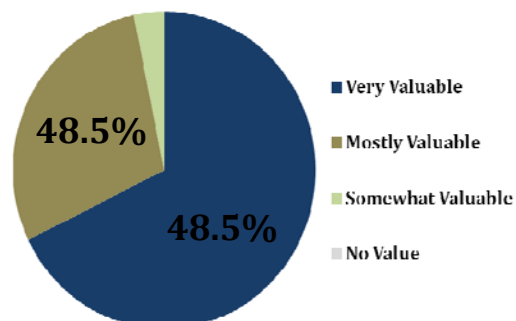
#### Level of satisfaction

The percentage of respondents who indicated they were *mostly* or *completely* satisfied with the following aspects of the Kurtomathrips information provided by the Gaines County IPM Program.



(97%) 30 of 31 respondents said the Texas AgriLife Extension unbiased research trials were *mostly valuable* or *very valuable* to their operations.

(97%) 30 of 31 respondents said the information provided by the Gaines County IPM Program was *valuable* or *very valuable* to their operations.



**Table 2. The percentage of respondents who said the following items were *mostly valuable* or *very valuable* to their operations:**

	# of Responses	Percent
Gaines County IPM Newsletter	30 of 31	97%
2010 Gaines County, Texas Cotton and Peanut Research Reports Book	27 of 29	93%
Alternatives to Temik Meeting held on 8 April	18 of 22	82%
Kurtomathrips Turn Row Meeting held on 24 August	21 of 22	95%
IPM Radio Program on Fox Talk 950 AM	15 of 20	75%

**Results indicate that Gaines County producers, agriculture industry & retail, peanut companies, and crop consultants highly value the information provided by the Gaines County IPM Program.**

### The following are testimonials from clientele:

"The new thrips problem. VERY timely info and treatment protocol."

"Someone being just a phone call away if you need some help with a problem."

"Keep going with the good work for the producer to maximize their production."

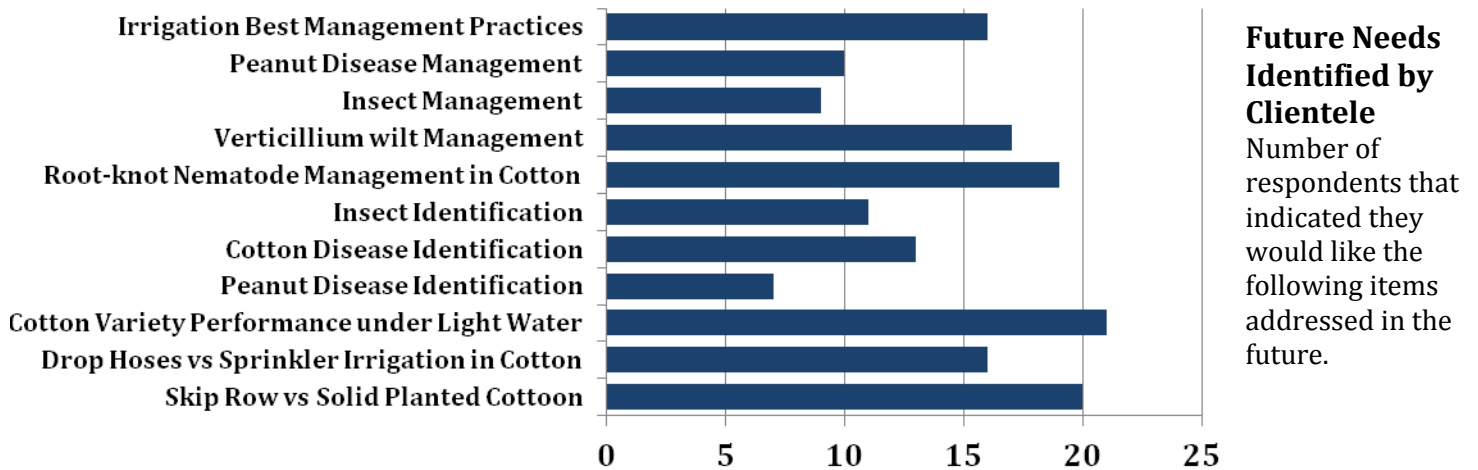
"It's great to have someone dedicated to the job available at a moment's notice."

"Let's hope and pray that 2012 will bring us some rain. Manda thank you for your help."

"Thanks for the time and effort you put forward in making this IPM Program what it is...Very Helpful in farming practices."

"I appreciate the fact I am kept informed on all areas that affect me and my crop. Manda has done a great job learning the facts or researching areas of insect and disease manageability."

"I appreciate the knowledge of choosing another chemical replacing Temik."



The results of this survey will be published in the 2011 Gaines County IPM Annual Report which is distributed to the Gaines County IPM Steering Committee, the Gaines County IPM Program Sponsors, and stakeholders. Future programming efforts will be based on these results and input provided by the Gaines County IPM Steering Committee. The Steering Committee assists in the interpretation and marketing of the Gaines County IPM Program to key stakeholders, producers, agribusinesses, and the Commissioners Court.

### Acknowledgements

Texas AgriLife Extension and Research faculty: Dr. Jason Woodward, Dr. Terry Wheeler, Dr. David Kerns, Dr. Mark Kelley, Dr. Dana Porter, Dr. Todd Baughman, Dr. Jackie Smith, Jay Yates, Jeff Pate, Dr. Calvin Trostle, Dr. Peter Dotray, Dr. Charles Allen, Dr. Chris Sansone, Dr. David Ragsdale, Scott Russell, Monti Vandiver, Brant Baugh, Dustin Patman, Kerry Siders, Tommy Doederlein, Terry Millican, Lois Wise, and Amanda Howard.

We would also like to thank the following producers for planting, maintaining and harvesting the Gaines County IPM Program on-farm applied research trials: Jud Chevront, Marcus Crow, Shelby Elam, Delman Ellison, Gerardo Froese, Jacob Froese, Louis Grissom, John Harms, Roy Johnson, Otis Johnson, Raymond McPherson, Tim Neufeld, Jacob Peters, Chuck Rowland, Weldon Shook, Gregory Upton, and Cody Walters.

We also appreciate the support of the following businesses who sponsored and the 2011 Gaines County IPM Program: Carter & Co. Irrigation Inc., Oasis Gin Inc., Ocho Gin Company, TriCounty Producers Coop, West Texas AgriPlex, AG Aero, Doyle Fincher Farms, Five Points Gin, Golden Peanut Company, Nolen AG Services Inc., Crop Plus Insurance Agency, Western Peanut Growers, Wylie Implement, Anderson Welding Pump and Machine, Baucum Insurance Agency, Birdsong Peanuts, Crop Production Services, Inc., Moore-Haralson Agency PC, Pioneer Gin, Ten High Gin Inc., Valley Irrigation & Pump Service Inc., Commercial State Bank, City Bank Lubbock, McKinzie Insurance, State Farm Insurance.

Special thanks to the following individuals whose support and dedication made the Gaines County IPM Program a success: Connie Lambert-IPM Secretary; Andrew Van Zielst and Michael Green-Gaines County IPM Program summer scouts; Gaines County Judge-Lance Celandier; and the County Commissioners: Danny Yocom-Precinct 1; Craig Belt-Precinct 2; Blair Tharp-Precinct 3; Biz Houston-Precinct 4.

## Educational Activities

### Newsletters

No. Issues Written.....	12
No. Non-Extension Clientele on Mailing List.....	118
No. Non-Extension Clientele on E-mail List.....	251
Total Non-Extension Clientele.....	369

Radio Programs.....	28
---------------------	----

Articles in National Trade Journals.....	5
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Peer Review Publications.....	1
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Published Abstracts or Proceedings.....	4
---	---

Education Articles Published on website.....	13
--	----

Scientific Presentations/Posters.....	7
---------------------------------------	---

### Newspaper Articles

No. Prepared.....	5
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No. Newspaper Carrying.....	5
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Farm Visits.....	495
------------------	-----

Scouts Trained.....	2
---------------------	---

CEU Credits Offered.....	13
--------------------------	----

Pest Management Steering Committee Meetings.....	2
--	---

### Presentations Made

County Meetings.....	2
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Field Days/Tours.....	2
-----------------------	---

Regional Meetings.....	1
------------------------	---

Schools.....	2
--------------	---

No. Applied Research/Demonstration Projects.....	22
--	----

No. Involving Cotton.....	19
---------------------------	----

No. Involving Peanut.....	3
---------------------------	---

No. Direct Ag. Contacts.....	12,150
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Other Direct Contacts.....	596
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## **Funds Leveraged**

### Grants and Contracts

No. Grants as Cooperator/Collaborator.....	2
No. Dollars Received for Your Use.....	\$22,950
No. Dollars Received for Scouting Program.....	\$11,150
Support Dollars you Generated to Support other Educational Efforts.....	\$4,940
Retail Value of “In-Kind” Contributions.....	\$28,642
Total Dollars Generated for Your Program.....	<b>\$67,682</b>

**GAINES COUNTY IPM PROGRAM  
FINANCIAL REPORT 2011**

Balance from 2010	28,170.82
<b>2010 INCOME</b>	
2011 Survey Scouting Program	11,150.00
2011 Research Funds	22,950.00
Miscellaneous Income	68.55
Events	4,940.00
Interest	2.93
Total Income	<u>39,111.48</u>
<b>2010 EXPENSES</b>	
Administrative Fees	5,160.00
Advertising for Scout	65.40
Dues & Subscriptions	417.35
Micellaneous Expenses	100.00
Membership Paid	2,280.00
Postage	242.90
Scout Payroll	7,588.44
Travel	178.51
Travel-IPM E-A	2,557.02
Travel-Scout	580.28
Payroll Tax Expenses	610.14
Equipment lease/ Purchases	2,276.77
Telephone	2,088.39
Conferences & Meetings	2,752.93
Extension Cost Recovery Fee	720.00
Auto Expenses	500.77
Research/Demo Project	961.00
Supplies/Research Demo Project	393.26
Office Supplies	238.70
Public relations	221.72
Bank/UBS Service Fee	6.50
Total Expenses	<u>29,940.08</u>
<b>Balance as of December 31, 2011</b>	<b>37,342.22</b>



## 2011 Gaines County Crop Production Review

The 2011 growing season was a very humbling experience for the agriculture industry as a whole. The 2011 cotton and peanut crop visually demonstrated how important Mother Nature is in the production of crops. Consecutive days of extreme temperatures, low humidity, and no precipitation were a major limiting factor in the crops performance overall. These extreme environmental conditions prevented the crops from reaching their full potential. Limited pumping capacities and the buildup of salts further exacerbated the issues at hand. To my knowledge, no dry-land fields emerged. We were further humbled when a new rare thrips species, *Kurtomathrips morrilli*, hit area cotton fields in late July and August. This pest, unlike most other pests, thrived on drought stressed cotton. Essentially the perfect storm was created in favor of this pest. Dry, hot conditions along with irrigation termination or another stress, such as boll fill, resulted in the *Kurthomathrips* populations exploding in the fields. The *Kurtomathrips* would go from a minimally noticeable population to a population capable of defoliating plants within a week's worth of time. Below is a recap of the 2011 growing season.

**Prior to the planting, we received notice that Temik was no longer going to be produced.** This news caught everyone off guard and several producers scramble to acquire Temik for their 2011 crop.

A majority of the peanut and cotton fields where planted in **late April and throughout the month of May**. Producers had to plant into dry soil (or pre-irrigated soil), since we had not received any significant rainfall since July of 2010. In late May, we started seeing damaged cotton seedlings in some cotton fields. Birds and wireworms ([Figure 1](#)) were the main culprits. Control options are very limited for both of these pests after the cotton has been planted. However, differentiating between the two was important if producers were considering a replant. Wireworm control had to be applied at planting.



*Figure 1. Wireworm*

In **early June**, cotton stages ranged from seed in the ground to squaring, with a majority of the cotton sitting at 2-4 true leaves. It was a hard year to get a stand established or keep a stand established due to the soil drying out before the pivot could get around the field. Some growers had to replant their fields due to the wind damage and droughty conditions that resulted in poor emergence. *Figure 2* shows some of the damage that resulted from the May 24 wind storm. Growers needed to be sure to differentiate between sand blasted cotton



*Figure 2.* Sand blasted cotyledons



*Figure 3.* Stunted cotton plants due to root-knot nematode populations

and thrips damage. Thrips damage had been relatively light. Peanuts were struggling due to the windy dry conditions as well. However, they seemed to be holding up a little better than the cotton. We were starting to see a few blooms in the fields. A heavy spider mite infestation was observed in a field northwest of Seagraves and a very light population was observed in a field in far western Gaines County. Root-knot Nematodes had already started to take their toll on cotton. We had observed stunting association with root-knot nematode infestations (*Figure 3*). Weeds were one of our biggest pests at this time. The weeds were competing with the crop for the little bit of moisture that was in the soil. We saw several fields that had stunted plants and plants that were struggling due to weed competition. The low humidity and drought made weed control very difficult.

Another severe wind storm came through Gaines County on Sunday, **June 12**. This wind storm brought only 4/100 inch of rain to Seminole and caused significant wind damage in some fields. It was very rare to walk into a field that didn't have any

wind damage. Cotton stages ranged from seed in the ground to squaring, with a majority of the cotton sitting at 3 to 5 true leaf stage. It takes approximately 526 Heat Units (H.U.) from planting to squaring. Cotton that was planted on May 15 had accumulated 608 H.U. However, not all of this cotton was squaring due to the excessive drought, wind storms, plants inability to cool themselves, the pivot unable to keep up with the water demands, and the extreme temperatures. The plants were less efficient at utilizing H.U. under the hot conditions because they did not have the moisture needed to cool themselves. Spider mite populations were on the decline in cotton fields. Additionally, we were finding on average 0-1 spider mites per leaf in peanut fields that had significant spider mite populations previously.



The hot dry windy weather continued **throughout June**. By late June, cotton stages ranged from 3 true leaves to 14 true leaves, with a majority of the crop at the 6 to 7 true leaf stage and starting to square. Several irrigated cotton fields were short and had shortened internodes due to the compounding stresses that the plants had been under since emergence. Fruit size also seemed to be smaller than usual and developing at a slower pace. However, there were some irrigated cotton fields that looked good. These fields likely had a larger irrigating capacity and/or had a thicker wheat or rye cover crop that reduced wind damage. Peanuts were blooming, starting to set pegs and we were starting to see a few small pods. Pest populations remained very low at this point. The hot dry weather seemed to be our biggest persistent pest. Nematode damage roots and stunted plants continue to be seen in several fields. We were also seeing light populations of leaf miners and spider mites in some fields.

**July 12 & 13** brought scattered showers to Gaines County. We received 0.06 inches in Seminole, 0.10 inches west of Seminole, 0.9 inches south of Seminole, 0.05 to 1 inch near Higginbotham, and as much as 2 inches in the far SE part of Gaines County. Prior to this, our last significant rainfall had occurred between June 27 and July 12, **2010**. Therefore, this week's showers didn't make a dent in our drought. Cotton stages ranged from 6 true leaves in replanted cotton to blooming. Square set was ranging from 90 to 100%. Blooming cotton was ranging from 5 to 11 Nodes Above White Flower (NAWF), with several fields at 7 NAWF. Those fields which started blooming at 5 NAWF were considered cutout and most of the carbohydrates produced by the plant from there on out would be committed to boll development. Lack of rainfall and 100+ degree temperatures were the major contributing factors to a reduction in plant growth (stunted plants & reduced canopy) and production (small fruit). Most peanuts were blooming and some fields had pegs and small pods. However, overall there were significantly fewer pegs and pods as compared to last year at this time. The high temperatures, drought, and low humidity had reduced the plants ability to set pegs. The peanut crop appeared to be behind where we typically were this time of year. Water demand was starting to increase with both cotton and peanuts blooming and setting cotton bolls and peanut pods. Producers were having a hard time keeping up with the water demands of the plants. The high water demands, depleted sub soil moisture, and continued hot dry weather was starting to force some producers to consider diverting irrigation in hopes of salvaging at least some of their crops. Producers were having to decide which field had the highest likelihood of surviving the drought, and if they had the ability to divert water from one field to another field. Additionally, we found a few small bollworms in peanut fields. However, this light population was not causing any economic damage to our peanut fields. We were also finding an occasional spider mite population. On the disease side of things, the hot dry weather and water stress had brought on a very unusual pest. Charcoal rot, caused by *Macrophomina phaseolina*, was found in a cotton field west of Seminole. The first evidence of the charcoal rot was



plants wilting, followed by chlorosis and shedding of the leaves and death of the seedling or plant. A gray lesion was seen spreading up from the root and crown to the stem. There are no fungicides labeled for the control of Charcoal rot.

**By the end of July** we still had not received any relief from the drought. Surprisingly, our cotton square retention had remained high under those droughty conditions, with most fields averaging between 90 to 100% square retention. However, we were starting to see some natural shedding of fruit (squares and bolls). This natural shedding process was helping the plants to adjust their fruit load, which allowed the plants to shift all of its efforts into maturing the retained fruit and producing harvestable bolls. Blooming cotton was ranging from 3 to 9 Nodes Above White Flower (NAWF), with several fields at 5-7 NAWF. We were starting to see a few more pegs and pods in our peanut fields. Irrigation was still struggling to keep up with the plant water demands. We were picking up a few bollworms in non-Bt cotton and peanuts. But all populations were below economic thresholds. Several fields were unattractive to bollworms since they had already reached cutout and there was very little lush growth. Spider mites continue to be found in a couple of fields. These populations seemed to be holding steady and not increasing or decreasing. On July 22 we found a very unusual and destructive thrips species, *Kurtomathrips morrilli* (Figure 4), in a cotton field approximately 5 miles west of Seminole.



**Figure 4. Pest - An immature Kurtomathrips (top) and an adult Kurtomathrips (bottom) (photo courtesy of Dr. David Kerns)**

**As we headed into August**, there was still no relief from the drought in sight. Several more cotton fields had reached cutout (cutout = 5 NAWF). Nodes Above White Flower (NAWF) was ranging from 1 to 7, with several fields at 3-6 NAWF. Peanuts were continuing to bloom, set pegs, and form pods. We were starting to see an increase in pegging and the formation of small pods. We were also starting to see a small limb crop developing, instead of just a root crop. We had accumulated approximately 20% more heat units in 2011 as compared to 2010 for the time period between May 1 to August 3. We were still picking up light populations of bollworms, fall armyworms, and beet armyworms in our peanut fields and non-Bt cotton fields. But all populations were well below economic thresholds. Beneficial insects, like spider mite destroyers and six spotted thrips, were starting to clean up some of the spider mite populations. *Kurtomathrips* had been identified in 2 more fields in Gaines County. One field was approximately 8 miles west of Seminole and the other field was in far northwestern Gaines County. *Kurtomathrips* had also been reported in Lubbock County and far northwestern Yoakum County. At this point we realized that this pest was widely distributed and could be found in any field. The highest populations tended to be in areas of the field that had a skippy stand, drought stressed, and/or suffering due to

other factors. Pod rot was starting to show up in some peanut fields. We were picking up pod rot caused by *Rhizoctonia* and *Pythium*.

**During the second week of August** we saw a few cracked bolls and open cotton bolls in a couple of fields. We continued to pick up some more *Rhizoctonia* and *Pythium* pod rot in peanut fields. The only pests of real concern at this time were *Kurtomathrips*, and worms in peanuts & grazing crops. We found as many as 18 beet armyworms and fall armyworms per foot of row in one field, with the field averaging between 8 and 13 worms per foot of row. The lack of canopy in some peanut fields had greatly reduced the growers ability to increase the humidity within the canopy, which resulted in less flowers being pollinated. Additionally, we were running out of time for blooms to produce pods that would be mature and ready to be harvested before our first freeze.

**By late August** *Kurtomathrips* had been identified in several other fields in Gaines County. This was a widespread pest. *Kurtomathrips* had also been reported in Terry, Yoakum, Hockley, Lubbock, Garza, Dawson, Hale, and Borden Counties. Small areas of infestation fields were quickly spreading throughout the whole field when a stress event occurred. We were also finding bollworms, fall armyworms, and beet armyworms in non-Bt cotton and peanuts. We treated two non-Bt cotton fields near the Texas/New Mexico state line. Southern Blight had been confirmed in a couple of peanut fields.

Growers started to apply defoliants on some cotton fields during the **first week of September**. Peanut harvest had been pushed back, in order to mature the later set crop. We observed some salt damage in a couple of peanut fields. *Kurtomathrips* were still being reported throughout Gaines County and the Southern High Plains.

A majority of the crop was harvest in late October and November.

**Seasonal Heat Unit (H.U.) records for cotton (DD60s), National Climatic Data Center**

						Avg. Monthly H.U.						Avg. Monthly Accumulated H.U.
Month	07	08	09	10	11		07	08	09	10	11	
May	194	319	310	308	362	299	194	319	310	308	362	299
June	427	626	549	645	748	599	621	945	859	953	1110	898
July	513	586	613	533	756	600	1134	1531	1472	1486	1866	1498
August	588	536	619	623	792	632	1722	2067	2091	2109	2658	2129
September	417	260	295	443	379	359	2139	2327	2386	2552	3037	2488
October	201	105	118	140	174	148	2340	2432	2504	2692	3211	2636
November	24	16	6	2	20	14	2364	2448	2510	2694	3231	2649

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Agriculture and Natural Resources



# 2011 Research Reports



## **The Effect of Fungicide Applications based on a Threshold System versus Calendar Based Applications for Management of Peanut Pod Rot.**

**Gaines and Terry Counties**  
**Cooperators: Gary Jackson and Otis Johnson**

Terry Wheeler, Texas AgriLife Research, Lubbock  
Scott Russell, Texas AgriLife Extension Service, Brownfield  
Manda Anderson, Texas AgriLife Extension Service, Seminole  
Jason Woodward, Texas AgriLife Extension Service, Lubbock

### **Summary:**

Fungicides were applied in two peanut fields to manage pod rot based either on the experience of the producers (calendar applications), without input from field scouting; or on a threshold of pod rot of 1-2% (low), 3-4% (moderate) or 5-6% (high). Plots were scouted for pod rot from the time of early pod formation through the end of the season. Both sites started with primarily *Pythium* pod rot, which was low in incidence and generally didn't show up until August or September. *Rhizoctonia* pod rot was also found in both fields, and it became the dominant problem in one field in September and into early October. Pod rot tended to be lower in plots where applications were made earlier based on producer experience (calendar applications) and before pod rot had been found, than delaying application for a low threshold to trigger. Yield was similar across all treatments in both fields. In the field with lower pod rot (Virginia type peanuts), grade factors were similar across all treatments, and most treatments returned similar profit per acre (value/acre minus chemical costs). The exception was plots treated twice with Ridomil Gold SL + Provost, which had higher chemical costs and resulted in less profit/acre. In the Runner field, which had slightly more pod rot, the grade and value of the crop/ton was higher with calendar applications that had Abound FL applied twice, and deductions were less with this treatment. However, when chemical costs were included, all treatments gave similar profitability.

### **Objective:**

This project is designed to evaluate if chemical treatments for peanut pod rot can increase net returns (profit) if made based on a disease threshold rather than by calendar dates. To achieve this goal, we must identify what threshold is better for timing of fungicides than calendar treatments. This was the third and final year of the study, however only the data for 2011 is reported here.

### **Materials and Methods:**

The two test sites were setup similarly, with seven treatments replicated four times at each site. Plot size was four rows wide (36-inch centers) and 1,000 feet in length. Calendar applications were made

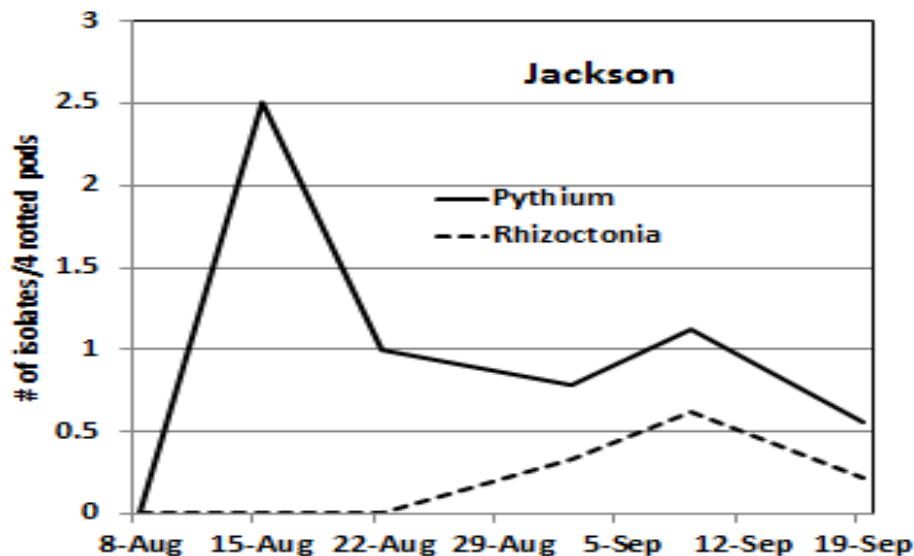
based on the experience of the producer, without regard to scouting and disease occurrence in the field. The treatments were: calendar applications with Abound FL; calendar applications with Abound FL rotated with a combination of Ridomil Gold + Provost; calendar applications with Ridomil Gold + Provost; threshold applications with Abound FL made when pod rot reached at least 1% in scouted plots (low threshold); applications with Abound FL made when pod rot reached at least 3% in scouted plots (moderate threshold); applications with Abound FL made when pod rot reached at least 5% in scouted plots (high threshold); and no fungicide applied (untreated for pod rot). All other field practices were the same for each treatment.

Plots were scouted weekly at five locations per plot. Scouting was conducted by digging 1.5 feet of row length per location and examining all pods for symptoms of pod rot; locations were selected randomly within the plot. The Jackson field was planted April 22 to Virginia market type peanuts; the Johnson field was planted April 29 to runner market type peanuts.

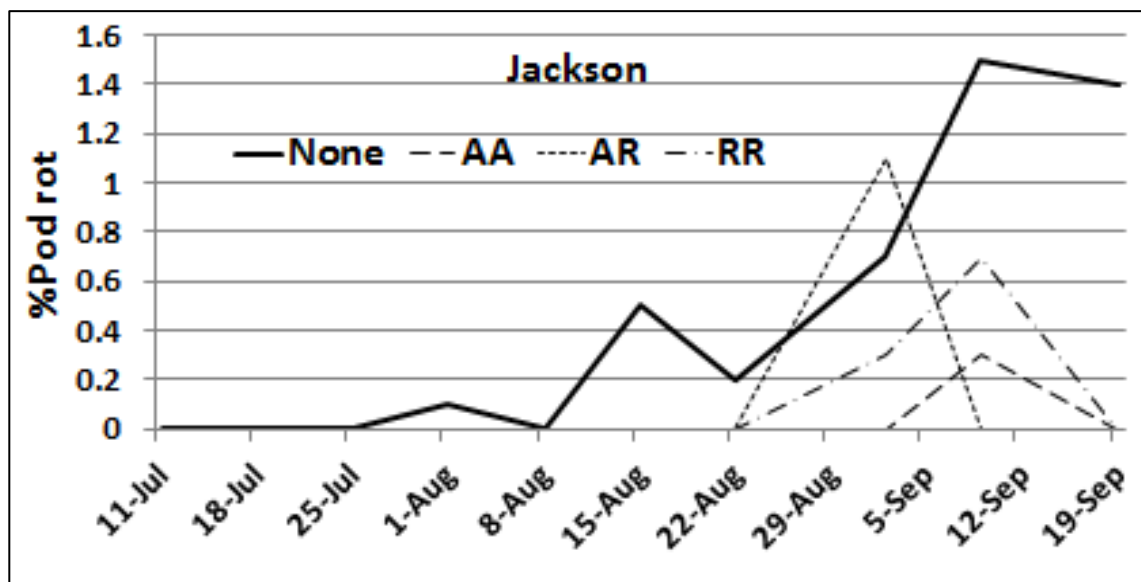
Each field was dug and inverted as the producer determined. Sites were harvested with a four-row peanut thrasher and the contents of each plot was dumped into a trailer on load cells and weighed to determine yield per acre. Three grade subsamples were taken from each harvested plot and these were graded to determine percent sound mature kernels, percent sound splits, percent damaged kernels, percent other kernels, percent foreign matter, and with the Virginia peanut field, percent extra-large kernels. Peanut values were calculated from yield and grade based upon USDA-Farm Service Agency (FSA) peanut loan schedules for the crop year and the appropriate market type of peanut. Chemical costs were calculated as an average price from three area chemical distributors.

## **Results and Discussion:**

**Jackson field:** The calendar based applications were made on July 22 and August 28 . One low threshold based application was made on September 10 after pod rot averaged 1.5% in the untreated check on September 9. Pod rot averaged over the entire season was similar across all treatments (including the untreated check), and the pods had a low incidence of *Pythium* spp. and a very low incidence of *Rhizoctonia*. *Pythium* spp. was isolated from rotted pods starting on August 15, while the first isolates of *Rhizoctonia* were found on September 2 (Fig. 1). Pod rot was < 1% all season for calendar applications of Abound FL (AA) and Ridomil Gold EC+ Provost (RR) (Fig. 2). There was considerable damage to pods by soil dwelling pests during the season, but the scouts did not call it pod rot, unless there were symptoms of rot in the absence of pest feeding damage. There were no differences between calendar, threshold, or no fungicide treatments with respect to peanut grade, percent damaged kernels, percent extra-large kernels, value of the peanuts/ton, yield, yield x value/ton (Table 1); but the plots treated with Ridomil Gold + Provost returned less (\$557/acre) than did all other treatments with Abound FL, Abound FL rotated with Ridomil Gold + Provost, or the untreated check (average of all other treatments was \$652/acre).



**Figure 1.** Number of isolations of *Pythium* and *Rhizoctonia* spp. at the Jackson field over time, when 4 or fewer rotted pods/sample were examined. Averaged across all fungicide treatments, since there were no differences between fungicide treatments.



**Figure 2.** Percent pod rot over time for various fungicide application strategies at the Jackson field. None=no fungicides for pod rot applied; AA = 2 applications with Abound FL (calendar timed); AR = 1 application with Abound FL and one with Ridomil Gold SL + Provost (calendar timed); and RR = 2 applications with Ridomil Gold SL + Provost (calendar timed).

**Table 1.** Effect of treatments on pod rot, kernel grades, and yield at the Jackson field.

Trt <sup>1</sup>	Yield Lbs/a	Value \$/ton <sup>2</sup>	Value (\$)/acre <sup>2</sup>	Minus Chem Costs (\$/acre) <sup>3</sup>	Grade	% DK <sup>2</sup>	% ELK <sup>2</sup>	%Pod rot	Pyth <sup>4</sup>	Rhiz <sup>4</sup>
A/A	3,983	349	694.32	644 a	67	0.7	49	0	0	0
A/RP	3,938	350	689.23	624 a	68	0.8	49	0.1	0	0.005
RP/RP	3,675	347	637.53	557 b	67	1.0	50	0.1	0.05	0.005
Low	3,978	352	700.95	676 a	68	0.8	52	0.4	0.04	0.013
None	3,803	348	662.46	662 a	68	1.0	48	0.4	0.01	0
Prob.>t	0.36	0.70	0.25	0.015	0.72	0.52	0.42	0.24	0.09	0.62

<sup>1</sup>A=Abound FL; RP = Ridomil Gold + Provost; Low=low threshold; None indicates no fungicides sprayed.

<sup>2</sup>Value/ton was calculated at  $(\$4.947 \times \text{Grade}) + (\$1.40 \times \% \text{Other kernels}) + (\$0.35 \times \% \text{Extra large kernels (ELK)})$  – deduction from damaged kernels (DK). Value/acre was calculated by multiplying value/ton x the number of tons/acre.

<sup>3</sup>The chemical (Chem) costs per acre were calculated at: \$6.51/oz for Ridomil Gold SL, \$1.91/oz for Abound FL, and \$2.21/oz for Provost. Rates applied (banded in 20 inches) for Abound FL (A) were 24.8 oz/acre; Ridomil Gold SL (R) at 8 oz/acre, and Provost at 10.7 oz/acre.

<sup>4</sup>Pyth = isolation frequency for *Pythium* spp. from rotted pods, and Rhiz=isolation frequency for *Rhizoctonia* spp. from rotted pods. Generally pods selected for isolation had relatively new lesions.

**Johnson field (Virginia market type peanuts):** The calendar based application was made on August 10. A low threshold application was made on September 1 and October 3, and a moderate threshold application was made on October 3. *Pythium* pod rot was present in August, but *Rhizoctonia* pod rot began to dominate later in the season (Fig. 3). Pod rot remained above 1% for untreated plots from August 31 until October 12, except for one sampling date (Fig. 4). Plots treated with the moderate threshold and no fungicides had more *Rhizoctonia* pod rot than did plots treated with Abound FL based on a calendar application or Ridomil+Provost based on a calendar application (Table 2). The percent of pod rot averaged across all sampling dates was higher for plots treated with the moderate threshold (average of 1.8%) than all other treatments, including the untreated checks; the average percent pod rot ranged from 0.5 to 1.0% (Table 2). Plots treated with Abound FL, based on the calendar, had a higher grade (73%) than did plots treated with the low or moderate threshold (69% grade) (Table 2). The percent damaged kernels and deductions for damaged kernels were higher for the low, moderate, and untreated plots than for the calendar treated plots. The value/ton for peanuts was highest in plots treated by the calendar with Abound FL once during the season (\$353/ton) and lowest for plots with the low and moderate thresholds (\$333 and \$331/ton, respectively). Yield was similar



across all treatments, as was the final value of the treatments (\$/acre) after subtracting chemical costs.

**Table 2.** Effect of treatments on pod rot, kernel grades, and yield at the Johnson field.

Trt <sup>1</sup>	Yield Lbs/a	Value <sup>2</sup>	Value <sup>2</sup> (\$)/a	Minus <sup>3</sup> Chem Costs (\$/a)	Grade	% DK <sup>2</sup>	Ded <sup>2</sup> DK (\$/ton)	% Pod Rot	Pyt <sup>4</sup>	Rhiz <sup>4</sup>
A	3,474	353 a <sup>5</sup>	619	593	73 a	1.0 b	0.43 c	0.5 b	0.03	0.08 c
RP	3,664	345 ab	635	594	70 ab	1.1 b	1.13 bc	0.6 b	0.07	0.16 abc
Low	3,717	333 b	619	567	69 b	1.9 a	3.50 ab	1.0 b	0.04	0.27 a
Mod	3,213	331 b	512	486	69 b	2.3 a	5.53 a	1.8 a	0.04	0.17 ab
None	3,327	339 ab	564	564	71 ab	2.0 a	3.42 ab	0.8 b	0.06	0.06 c
Prob. >t	0.71	0.015	0.46	0.59	0.041	0.001	0.0003	0.0001	0.69	0.002

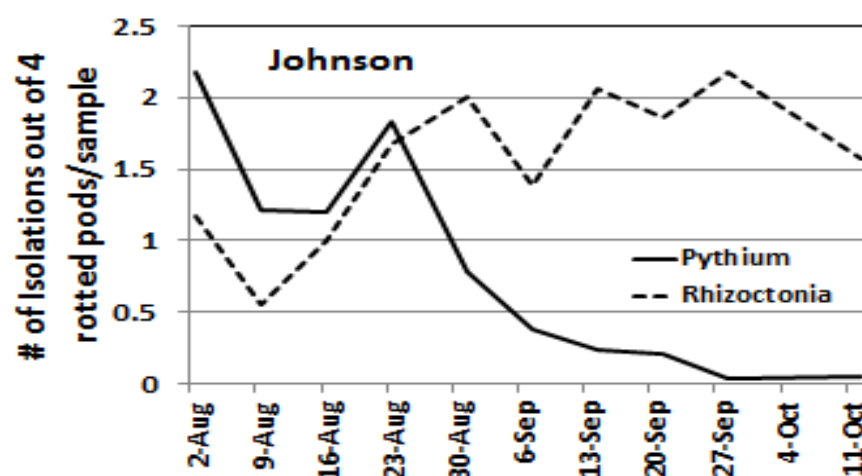
<sup>1</sup>A=Abound FL; RP = Ridomil Gold + Provost; Low=low threshold; None indicates no fungicides sprayed.

<sup>2</sup>Value/ton was calculated at  $(\$4.85 \times \text{Grade}) + (\$1.40 \times \% \text{Other kernels})$  – deduction from damaged kernels (DK) and sound splits. Value/acre was calculated by multiplying value/ton x the number of tons/acre.

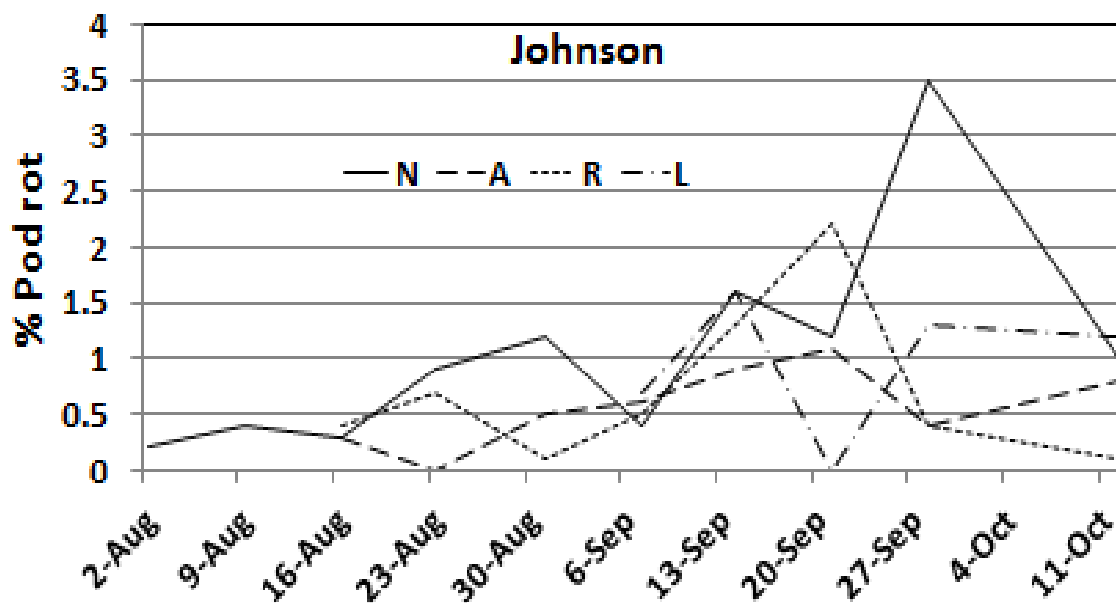
<sup>3</sup>The chemical (Chem) costs per acre were calculated at: \$6.51/oz for Ridomil Gold SL, \$1.91/oz for Abound FL, and \$2.21/oz for Provost. Rates applied (banded in 20 inches) for Abound FL (A) were 24.8 oz/acre; Ridomil Gold SL (R) at 8 oz/acre, and Provost at 10.7 oz/acre.

<sup>4</sup>Pyt = isolation frequency for *Pythium* spp. from rotted pods, and Rhiz = isolation frequency for *Rhizoctonia* spp. from rotted pods. Generally pods selected for isolation had relatively new lesions.

<sup>5</sup>Differences between treatments that are significant at a Probability  $\leq 0.05$  have different letters.



**Figure 3.** Number of isolations of *Pythium* and *Rhizoctonia* spp. at the Johnson field over time, when 4 or fewer rotted pods/sample were examined.



**Figure 4.** Percent pod rot over time for various fungicide application strategies at the Johnson field. N=no fungicides for pod rot applied; A = 1 application with Abound FL (calendar timed); R = 1 application with Ridomil Gold SL + Provost (calendar timed); L = 2 applications with Abound FL timed when % pod rot reached 1% (1 Sept.) and again on 3 October.

#### Acknowledgments:

Special thanks are extended to Mr. Gary Jackson and Mr. Otis Johnson for their cooperating with us on this project. Funding for this research was provided by the Texas Peanut Producers Board. Thanks are also expressed to Syngenta and Bayer Crop Science for providing chemical for fungicide treatments.

#### Disclaimer:

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 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.



## **Replicated LESA Irrigated Cotton Variety Research Trial**

**Cooperator: Froese Farms**

**Manda Anderson, Extension Agent - IPM**  
**Dr. Mark Kelley, Extension Agronomist - Cotton**

### **Gaines County**

#### **Summary**

Significant differences were observed for all yield, economic, and HVI fiber quality parameters measured. Lint turnout ranged from a low of 26.1% and a high of 31.8% for NexGen 4010B2RF and FiberMax 9170B2F, respectively. Lint yield varied with a low of 337 lb/acre (NexGen 4010B2RF) and a high of 456 (PhytoGen 499WRF). Lint loan values ranged from a low of \$0.4875/lb (Deltapine 174RF) to a high of \$0.5268/lb (NexGen 4010B2RF). Net value/acre among varieties ranged from a high of \$232.22 (PhytoGen 499WRF) to a low of \$165.93 (FiberMax 2989GLB2), a difference of \$66.29. Micronaire values ranged from a low of 4.3 for NexGen 4012B2RF to a high of 4.9 for Deltapine 1044B2RF and FiberMax 2989GLB2. Staple averaged 32.4 across all varieties with a low of 31.6 for All-Tex EdgeB2RF and a high of 33.3 for NexGen 4010B2RF and FiberMax 2484B2F. Percent uniformity ranged from a high of 81.2% for NexGen 4010B2RF to a low of 78.0% for All-Tex EdgeB2RF. Strength values averaged 28.6 g/tex with a high of 31.3 g/tex for PhytoGen 499WRF and a low of 26.6 g/tex for All-Tex DineroB2RF. These data indicate that differences can be obtained in terms of net value/acre due to variety and technology selection. However, the environmental conditions prior to and during the growing season were a major limiting factor in the varieties performance overall.

#### **Objective**

The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton variety under irrigated production in Gaines County.

#### **Materials and Methods**

Varieties: All-Tex EdgeB2RF, All-Tex DineroB2RF, Deltapine 1044B2RF, Deltapine 174RF, FiberMax 2484B2F, FiberMax 2989GLB2, FiberMax 9170B2F, NexGen 4010B2RF, NexGen 4012B2RF, PhytoGen 367WRF, PhytoGen 499WRF, Stoneville 4288B2F

Experimental design: Randomized complete block with 3 replications

Seeding rate: 2.5 seeds/row-ft in 36-inch row spacing  
 Plot size: 8 rows by variable length of field (455ft to 2426ft long)  
 Planting date: 13-May

Irrigation:	This location was under a LESA center pivot.
Harvest:	Plots were harvested on 10-October using a commercial picker harvester. Harvest material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin Turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber Analysis:	Lint samples were submitted to the Fiber and Biopolymer Research Institute at Texas Tech University for HVI analysis, and USDA Commodity Credit Corporation (CCC) Loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on \$3.00 per cwt. of bur cotton and seed value/acre was based on \$300/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (2.5 seed/row-ft) for the 36 row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: <a href="http://www.plainscotton.org/Seed/PCGseed10.xls">http://www.plainscotton.org/Seed/PCGseed10.xls</a>

## **Results and Discussion**

Significant differences were observed for all yield, economic, and HVI fiber quality parameters measured (Tables 1 and 2). Lint turnout ranged from a low of 26.1% and a high of 31.8% for NexGen 4010B2RF and FiberMax 9170B2F, respectively. Seed turnout ranged from a high of 50.2% for All-Tex EdgeB2F to a low of 42.4% for PhytoGen 499WRF. Bur cotton yields averaged 1263 lb/acre with a high of 1527 lb/acre for Deltapine 1044B2RF, and a low of 1119 lb/acre for FiberMax 2989GLB2. Lint yield varied with a low of 337 lb/acre (NexGen 4010B2RF) and a high of 456 (PhytoGen 499WRF). Lint loan values ranged from a low of \$0.4875/lb (Deltapine 174RF) to a high of \$0.5268/lb (NexGen 4010B2RF). After adding lint and seed value, total value/acre for varieties ranged from a low of \$251.48 for FiberMax 2989GLB2 to a high of \$326.70 for PhytoGen 499WRF. When subtracting ginning, seed and technology fee costs, the net value/acre among varieties ranged from a high of \$232.22 (PhytoGen 499WRF) to a low of \$165.93 (FiberMax 2989GLB2), a difference of \$66.29.

Micronaire values ranged from a low of 4.3 for NexGen 4012B2RF to a high of 4.9 for Deltapine 1044B2RF and FiberMax 2989GLB2. Staple averaged 32.4 across all varieties with a low of 31.6 for All-Tex EdgeB2RF and a high of 33.3 for NexGen 4010B2RF and FiberMax 2484B2F. Percent uniformity ranged from a high of 81.2% for NexGen 4010B2RF to a low of 78.0% for All-Tex EdgeB2RF. Strength values averaged 28.6 g/tex with a high of 31.3 g/tex for PhytoGen 499WRF and a low of 26.6 g/tex for All-Tex DineroB2RF. Elongation ranged from a high of

10.5% for Deltapine 1044B2RF to a low of 7.1% for FiberMax 2989GLB2. Leaf grades ranged from 1 to 3, with a test average of 2.2. Values for reflectance (Rd) and yellowness (+b) averaged 77.6 and 10.1, respectively.

### **Conclusions**

These data indicate that differences can be obtained in terms of net value/acre due to variety and technology selection. During the 2011 growing season Gaines County experienced above normal temperatures and very little rainfall. The environmental conditions prior to and during the growing season were a limiting factor in the varieties performance overall. It should be noted that no inclement weather was encountered at this location prior to harvest and therefore, no pre-harvest losses were observed. Additional multi-site and multi-year applied research is needed to evaluate varieties and technology across a series of environments.

### **Acknowledgements**

Appreciation is expressed to Froese Farms for the use of his land, equipment and labor for this demonstration.

Table 1. Harvest results from the Cotton Variety Trial Under Center Pivot Irrigation, Froese Farms, Seminole, TX, 2011.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value
	----- % -----		----- lb/acre -----			\$/lb				----- \$/acre -----		
PhytoGen 499WRF	30.2	42.4	1507	456	639	0.5063	230.79	95.91	326.70	45.21	49.27	232.22 a
Deltapine 1044B2RF	28.3	44.0	1527	432	672	0.5005	216.44	100.76	317.19	45.82	46.81	224.56 a
PhytoGen 367WRF	29.6	44.1	1413	419	623	0.4943	207.04	93.52	300.56	42.38	49.27	208.90 ab
NexGen 4012B2RF	30.1	49.7	1212	365	602	0.5032	183.76	90.27	274.02	36.35	43.80	193.87 bc
Deltapine 174RF	30.6	43.1	1266	388	546	0.4875	188.95	81.96	270.91	37.99	41.03	191.89 bc
FiberMax 9170B2F	31.8	49.5	1151	366	570	0.5135	188.02	85.46	273.48	34.52	49.78	189.18 bcd
FiberMax 2484B2F	31.4	48.1	1126	354	542	0.5252	185.99	81.27	267.26	33.79	49.78	183.69 bcd
NexGen 4010B2RF	26.1	45.5	1292	337	588	0.5268	177.55	88.19	265.74	38.77	43.80	183.17 cd
All-Tex Edge B2RF	29.4	50.2	1196	352	600	0.4892	172.00	90.04	262.04	35.88	46.44	179.72 cd
All-Tex Dinero B2RF	31.2	49.5	1128	352	558	0.4982	175.48	83.76	259.24	33.84	46.44	178.96 cd
Stoneville 4288B2F	28.2	47.3	1216	343	575	0.4963	170.05	86.21	256.26	36.48	49.78	170.01 cd
FiberMax 2989GLB2	30.5	48.6	1119	341	545	0.4975	169.81	81.68	251.48	33.58	51.98	165.93 d
Test average	29.8	46.8	1263	375	588	0.5032	188.82	88.25	277.07	37.88	47.35	191.84
CV, %	3.1	2.1	6.3	6.4	6.3	2.4	6.4	6.3	6.3	6.3	--	7.9
OSL	<0.0001	<0.0001	<0.0001	<0.0001	0.0045	0.0061	<0.0001	0.0046	0.0002	<0.0001	--	0.0004
LSD	1.6	1.7	134	41	63	0.0200	20.36	9.39	29.71	4.02	--	25.69

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.00/cwt ginning cost.

\$300/ton for seed.

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 2. HVI fiber property results from the Cotton Variety Trial Under Center Pivot Irrigation, Froese Farms, Seminole, TX, 2010.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32 <sup>nds</sup> inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
All-Tex Dinero B2RF	4.4	32.0	79.3	26.6	8.6	1.3	78.6	9.9	1.3	1.3
All-Tex Edge B2RF	4.5	31.6	78.0	26.9	8.2	3.7	77.8	9.2	2.3	1.0
Deltapine 1044B2RF	4.9	32.4	79.3	30.7	10.5	2.7	77.6	10.3	1.3	2.0
Deltapine 174RF	4.8	31.7	78.2	27.0	8.7	2.3	76.0	10.5	2.0	2.0
FiberMax 2484B2F	4.5	33.3	79.4	28.7	7.9	1.7	79.8	9.4	1.0	1.0
FiberMax 2989GLB2	4.9	32.9	79.4	28.5	7.1	1.7	77.7	10.0	1.7	1.7
FiberMax 9170B2F	4.5	32.6	79.4	28.0	8.2	1.3	80.4	9.4	1.0	1.0
NexGen 4010B2RF	4.4	33.3	81.2	31.2	9.0	2.3	76.6	10.5	2.0	2.0
NexGen 4012B2RF	4.3	32.6	79.7	27.8	7.6	2.3	77.1	10.1	1.7	2.0
PhytoGen 367WRF	4.4	31.9	78.4	28.5	9.9	1.7	76.3	10.9	1.3	2.0
PhytoGen 499WRF	4.6	32.3	80.5	31.3	10.4	3.0	77.0	10.3	1.7	2.0
Stoneville 4288B2F	4.6	32.1	79.6	27.7	8.8	2.3	76.6	10.4	2.0	2.0
Test average	4.6	32.4	79.4	28.6	8.7	2.2	77.6	10.1	1.6	1.7
CV, %	1.5	1.7	1.0	3.4	2.4	38.6	0.9	1.5	--	--
OSL	<0.0001	0.0113	0.0019	<0.0001	<0.0001	0.0709†	<0.0001	<0.0001	--	--
LSD	0.1	1.0	1.3	1.6	0.4	1.2	1.2	0.3	--	--

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, †indicates significance at the 0.10 level.



## **Replicated LESA Irrigated Cotton Variety Research Trial Under Full and Limited (15% reduction) Irrigation**

**Cooperator: Shelby Elam Farms**

**Manda Anderson, Extension Agent – IPM  
Dr. Dana Porter, Extension Ag Engineering Specialist  
Dr. Mark Kelley, Extension Agronomist - Cotton**

### **Gaines County**

#### **Summary**

There was no significant interaction between varieties and irrigation levels for the yield and economic parameters measured, which indicates that the response was consistent with all varieties and irrigations levels. Focusing solely on varieties, seed turnout and lint loan value were the only yield & economic parameters that were significantly different. When looking solely at irrigation level, all of the yield and economic parameters measured, except for lint turnout and lint loan value, were significantly different. Full irrigation had a seed turnout of 51.4%, whereas limited irrigation seed turnout was 53.2%. Full irrigated had a bur cotton yield of 1280 lb/acre & limited irrigation was 978 lb/acre. Full irrigation lint yield was 419 lb/acre, and the lint yield for the limited irrigation was 315 lb/acre. After adding lint and seed value, total value/acre was \$302.63 for the full irrigation and \$227.97 for the limited irrigation. When subtracting ginning, seed and technology fee costs, the net value/acre was \$201.97 (full irrigation) and \$136.37 (limited irrigation), a difference of \$65.60.

Focusing solely on variety, all of the HVI fiber quality parameters, except for staple and uniformity, were significantly different. Micronaire values ranged from a low of 3.6 for NexGen 4012B2RF to a high of 4.2 for Deltapine 1044B2RF. Focusing solely on irrigation level, micronaire, elongation, and (+b), were the only HVI fiber quality parameters that were significantly different.

During the 2011 growing season Gaines County experienced above normal temperatures and very little rainfall. The environmental conditions prior to and during the growing season were a limiting factor in the varieties performance overall.

#### **Objective**

The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of transgenic cotton variety under full and limited (15% reduction) irrigated production in Gaines County.



## **Materials and Methods**

Varieties: All-Tex DineroB2RF, Deltapine 1044B2RF, FiberMax 2484B2F, NexGen 4012B2RF, PhytoGen 367WRF, Stoneville 5458B2F

Irrigation: This location was under a LESA center pivot.  
There were two irrigations levels evaluated in the trial.

- Full irrigation
- Limited irrigation (approximately a 15% reduction).

Experimental design: Randomized complete block with 3 replications

Seeding rate: 3.5 seeds/row-ft in 40-inch row spacing

Plot size: 4 rows by variable length (402ft to 834ft long)

Planting date: 12-May

Harvest: Plots were harvested on 23-September using a commercial stripper harvester. Harvest material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.

Gin Turnout: Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.

Fiber Analysis: Lint samples were submitted to the Fiber and Biopolymer Research Institute at Texas Tech University for HVI analysis, and USDA Commodity Credit Corporation (CCC) Loan values were determined for each variety by plot.

Ginning cost and seed values: Ginning costs were based on \$3.00 per cwt. of bur cotton and seed value/acre was based on \$300/ton. Ginning costs did not include checkoff.

Seed and technology fees: Seed and technology costs were calculated using the appropriate seeding rate (3.5 seed/row-ft) for the 40 row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: <http://www.plainscotton.org/Seed/PCGseed10.xls>

## **Results and Discussion**

There was no significant interaction between varieties and irrigation levels for the yield and economic parameters measured, which indicates that the response was consistent with all varieties and irrigations levels (Table 1 & 2).

Focusing solely on varieties, seed turnout and lint loan value were the only yield & economic parameters that were significantly different (Table 1). Seed turnout ranged from a high of 53.6 for All-Tex DineroB2RF to a low of 50.2 for Phytogen 367WRF. Lint loan value ranged from a low of \$0.4738/lb (NexGen 4012B2RF) to a high of \$0.5017/lb for FiberMax 2484B2F.

Focusing solely on irrigation level, all of the yield and economic parameters measured, except for lint turnout and lint loan value, were significantly different (Tables 2). Full irrigation had a seed turnout of 51.4%, whereas limited irrigation seed turnout was 53.2%. Full irrigated had a bur cotton yield of 1280 lb/acre & limited irrigation was 978 lb/acre. Full irrigation lint yield was 419 lb/acre, and the lint yield for the limited irrigation was 315 lb/acre. Seed yield was 651 lb/acre for full irrigation and 513 lb/acre for limited irrigation. After adding lint and seed value, total value/acre was \$302.63 for the full irrigation and \$227.97 for the limited irrigation. When subtracting ginning, seed and technology fee costs, the net value/acre was \$201.97 (full irrigation) and \$136.37 (limited irrigation), a difference of \$65.60.

Focusing solely on variety, all of the HVI fiber quality parameters, except for staple and uniformity, were significantly different (Table 3). Micronaire values ranged from a low of 3.6 for NexGen 4012B2RF to a high of 4.2 for Deltapine 1044B2F. Strength values averaged 25.9 g/tex with a high of 28.0 g/tex for Deltapine 1044B2F and a low of 24.4 g/tex for All-Tex DineroB2RF. Elongation ranged from a high of 9.1% for Deltapine 1044B2RF to a low of 6.5% for NexGen 4012B2RF. Values for reflectance (Rd) and yellowness (+b) averaged 77.6 and 10.5, respectively.

Focusing solely on irrigation level, micronaire, elongation, and (+b), were the only HVI fiber quality parameters that were significantly different (Table 4). The full irrigation micronaire was 4.1, whereas the limited irrigation micronaire was 3.8. Full irrigation had an elongation of 8.0% and limited irrigation had an elongation of 7.5%.

### **Conclusions**

These data indicate that substantial differences can be obtained in terms of net value/acre due to irrigation level, but not due to variety selection. During the 2011 growing season Gaines County experienced above normal temperatures and very little rainfall. The environmental conditions prior to and during the growing season were a limiting factor in the varieties performance overall. Additional multi-site and multi-year applied research is needed to evaluate varieties and irrigation levels across a series of environments.

### **Acknowledgements**

Appreciation is expressed to Shelby Elam for the use of his land, equipment and labor for this demonstration.

Table 1. Harvest results by variety, Shelby Elam Farms, Seminole, TX, 2011.

Variety	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value
	----- % -----		----- lb/acre -----			\$/lb				\$/acre		
FiberMax 2484B2F	33.0	50.6	1086	360	549	0.5017	180.45	82.30	262.75	32.57	65.05	165.12
Stoneville 5458B2RF	32.1	52.7	1139	358	588	0.4788	171.71	88.16	259.87	34.17	65.05	160.65
Deltapine 1044B2RF	33.3	53.2	1173	391	622	0.4922	192.50	93.34	285.84	35.19	61.17	189.48
PhytoGen 367WRF	33.2	50.2	1183	393	594	0.4793	189.08	89.04	278.11	35.50	64.39	178.23
NexGen 4012B2RF	32.0	53.4	1045	336	558	0.4738	159.91	83.62	243.53	31.34	57.23	154.95
All-Tex Dinero B2RF	33.2	53.6	1146	363	582	0.4809	174.34	87.34	261.68	34.38	60.69	166.61
Test average	32.8	52.3	1129	367	582	0.4845	178.00	87.30	265.30	33.86	62.26	169.17
OSL	0.2606	0.0233	0.9640	0.9201	0.9746	0.0506	0.8634	0.9747	0.9339	0.9638	--	0.9429
LSD	NS	2.4	NS	NS	NS	0.0187	NS	NS	NS	NS	--	NS

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.00/cwt ginning cost.

\$300/ton for seed.

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 2. Harvest results by irrigation level, Shelby Elam Farms, Seminole, TX, 2011.

Irrigation Level	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value
	----- % -----		----- lb/acre -----			\$/lb				\$/acre		
Full	33.0	51.4	1280	419	651	0.4895	204.94	97.69	302.63	38.39	62.26	201.97 a
Limited (15% reduction)	32.6	53.2	978	315	513	0.4794	151.06	76.91	227.97	29.33	62.26	136.37 b
Test average	32.8	52.3	1129	367	582	0.4845	178.00	87.30	265.30	33.86	62.26	169.17
OSL	0.3943	0.0130	0.0065	0.0053	0.0177	0.0666	0.0029	0.0178	0.0054	0.0064	--	0.0053
LSD	NS	1.4	208	69	112	NS	33.37	16.83	50.17	6.24	--	43.96

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.00/cwt ginning cost.

\$300/ton for seed.

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 3. HVI fiber property results by variety, Shelby Elam Farms, Seminole, TX, 2011.

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Rd	+b
	units	32 <sup>nds</sup> inch	%	g/tex	%	reflectance	yellowness
FiberMax 2484B2F	3.9	32.0	78.5	26.4	7.0	80.3	9.9
Stoneville 5458B2RF	4.1	30.9	78.0	25.5	7.7	74.8	11.0
Deltapine 1044B2RF	4.2	31.1	78.4	28.0	9.1	77.8	10.6
PhytoGen 367WRF	3.8	31.3	78.5	26.2	8.5	76.0	11.1
NexGen 4012B2RF	3.6	30.9	78.0	24.8	6.5	77.9	10.3
All-Tex Dinero B2RF	4.0	31.4	77.8	24.4	7.6	78.7	10.3
Test average	3.9	31.3	78.2	25.9	7.7	77.6	10.5
OSL	<0.0001	0.1010	0.3981	0.0003	<0.0001	<0.0001	<0.0001
LSD	0.1	NS	NS	1.4	0.5	0.6	0.2

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level.

**Table 4. HVI fiber property results by irrigation level, Shelby Elam Farms, Seminole, TX, 2011.**

<b>Irrigation Level</b>	<b>Micronaire</b>	<b>Staple</b>	<b>Uniformity</b>	<b>Strength</b>	<b>Elongation</b>	<b>Rd</b>	<b>+b</b>
	<b>units</b>	<b>32<sup>nds</sup> inch</b>	<b>%</b>	<b>g/tex</b>	<b>%</b>	<b>reflectance</b>	<b>yellowness</b>
<b>Full</b>	<b>4.1</b>	<b>31.5</b>	<b>78.4</b>	<b>26.2</b>	<b>8.0</b>	<b>77.5</b>	<b>10.4</b>
<b>Limited (15% reduction)</b>	<b>3.8</b>	<b>31.1</b>	<b>78.0</b>	<b>25.6</b>	<b>7.5</b>	<b>77.6</b>	<b>10.6</b>
<b>Test average</b>	<b>3.9</b>	<b>31.3</b>	<b>78.2</b>	<b>25.9</b>	<b>7.7</b>	<b>77.6</b>	<b>10.5</b>
<b>OSL</b>	<b>&lt;0.0001</b>	<b>0.0824</b>	<b>0.0763</b>	<b>0.1501</b>	<b>0.0013</b>	<b>0.5829</b>	<b>0.0187</b>
<b>LSD</b>	<b>0.1</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0.3</b>	<b>NS</b>	<b>0.1</b>

**OSL - observed significance level, or probability of a greater F value.**

**LSD - least significant difference at the 0.05 level.**



## **Evaluation of Variety Tolerance and Use of Vydate C-LV for Management of Southern Root-knot Nematodes**

**Cooperator: Raymond McPherson Farms**

**Manda Anderson, Extension Agent - IPM**  
**Dr. Terry Wheeler, Research Plant Pathologist**  
**Dr. Jason Woodward, Extension Plant Pathologist**

### **Gaines County**

#### **Summary**

The southern root-knot nematode, *Meloidogyne incognita*, is an economically important parasite of cotton in Gaines County, Texas. The objectives of this research were to evaluate the performance of Stoneville (ST) 4288B2RF and Fibermax (FM) 9180 B2F with and without three foliar applications of Vydate C-LV applied at weekly intervals starting at three true leaves. *M. incognita* gall counts and nematode egg counts per 500cm<sup>3</sup> soil provided further information on the impact of root-knot nematodes. Plots were machine harvested and yield, gin turnout, fiber quality, and economics of treatments were determined. Root galls caused by *M. incognita*, were decreased with the use of Vydate C-LV on ST 4288B2RF. In contrast, galling was increased with the use of Vydate C-LV on FM 9180B2RF. Root-knot nematode egg density was affected by variety, but was not affected by chemical treatments. Yield was primarily affected by variety, with ST 4288B2RF greatly out yielding FM 9180B2F. Yield was not affected by foliar applications of Vydate C-LV. Net value was approximately \$113/acre higher when ST 4288B2RF was planted rather than FM 9180B2F. Based on these results, planting partially resistant varieties was the most economical and effective method in the management of root-knot nematodes.

#### **Objective**

The southern root-knot nematode, *Meloidogyne incognita*, is an economically important parasite of cotton in Gaines County, Texas. Higher populations of this pest tend to occur in sandier fields that have had consecutive cotton crops and very little rotation to a non-host, such as peanut (Kirkpatrick, 2001). Management decisions are dependent upon the level nematode infestation and the estimated nematode-induced yield loss (Kirkpatrick, 2001). Planting partially resistant or tolerant varieties is one of the most effective tools in managing this pest (Zhou et al., 2003). Foliar applications of Vydate C-LV have been recommended for the suppression of nematodes. Therefore, cotton production may be optimized by planting partially resistant cotton varieties in conjunction with the use of Vydate C-LV. The objectives of this study were to evaluate root-knot nematode galling and egg production on two cotton varieties with and without foliar applications of Vydate C-LV and to compare net returns between varieties, use of Vydate C-LV, and their interaction.

## **Materials and Methods**

The on-farm trial was conducted in Gaines County, TX in 2011 in a field with the 5 year crop history of cotton. The field's soil was 93% sand, 3% silt, and 4% clay. The trial was planted on 19 May. Plots had 40-inch row spacing and were center-pivot irrigated. Plots were 8-rows wide by 400 ft. in length and were arranged in a randomized complete block design with three replications. See Table 1 for a complete list of treatments. The number of adult and immature thrips were counted by visually inspecting 10 whole plants per plot on 7 June and 14 June. The number of galls caused by *M. incognita* were counted by visually inspecting 10 plant roots per plot on 28 June. Soil samples were taken on 12 July to determine *M. incognita* populations per 500cm<sup>3</sup> of soil. The trial was harvested on 9 November. All plots were weighed separately using a Lee weigh wagon. Burr cotton grab samples were taken from each plot. All grab samples were weighed and ginned using a sample gin with a lint cleaner, burr extractor and stick machine. Ginned lint was weighed and lint and seed turnouts were calculated. Lint and seed yields were determined by multiplying the respective turn-out by field plot weights. Lint samples were collected for fiber quality analysis. Fiber analysis was conducted by the Texas Tech University Fiber & Biopolymer Research Institute, and CCC lint loan values were determined for each plot. Thirty-five cents was added to the loan values for each plot to represent average loan values that cotton sold for this year. Total value was calculated by multiplying lint loan value by lint yield. Net value was determined by subtracting chemical cost from the total value.

*Table 1.* Treatments

ST 4288B2RF <sup>1</sup> Untreated
ST 4288B2RF & 17 oz Vydate C-LV*
FM 9180B2F Untreated
FM 9180B2F & 17 oz Vydate C-LV*

\*Vydate C-LV was applied in a band at a rate of 17 oz per acre on 7 June, 15 June, and 24 June.

## **Results and Discussion**

FM 9180B2RF with foliar applications of Vydate C-LV had a higher number of galls (47.5) than ST 4288B2RF with foliar applications of Vydate C-LV (26.6) ( $P = 0.07$ ). There was a significant interaction between variety and use of Vydate C-LV for root galls caused by *M. incognita*. Gallings decreased with foliar applications of Vydate C-LV on ST 4288B2RF as compared to the untreated check (*Table 2*). In contrast, foliar applications of Vydate C-LV resulted in a significantly higher number of galls on FM 9180B2RF as compared to the untreated check. Thrips were not a limiting factor since treatments never had more than 0.025 thrips/plant (data not shown).



Table 2. Average number of root galls caused by *Meloidogyne incognita* on 28 June by variety and Vydate C-LV\*.

Variety	Treatment	Average No. of Galls
FM 9180B2F	Untreated	39.6 b
FM 9180B2F	Vydate C-LV	47.5 a
		$P = 0.04$
ST 4288B2RF	Untreated	34.8 a
ST 4288B2RF	Vydate C-LV	26.6 b
		$P = 0.03$
*Means within the same column with the same letter are not significantly different.		

FM 9180B2RF had a higher number of root-knot nematode eggs than ST 4288B2RF (Table 3). Foliar applications of Vydate C-LV had no significant effect on root-knot nematode eggs. There was no significant interaction between variety and chemical, indicating that the response was consistent with both varieties. Thus data were pulled over varieties.

Table 3. Average number *Meloidogyne incognita* per 500 cm<sup>3</sup> soil on 12 July by variety\*.

Variety	Average No. of root-knot nematode eggs
FM 9180B2RF	7800 a
ST 4288B2RF	4720 b
	<i>P</i> = 0.03
*Means within the same column with the same letter are not significantly different.	

Vydate C-LV foliar applications had no significant impacts on lint yield and total value per acre (Table 4). ST 4288B2RF had a higher lint yield than FM 9180B2RF, which resulted in a higher total value per acre.

Table 4. Harvest results by variety and treatment\*.

Variety	Treatment	Lint Turnout	Seed Turnout	Loan Value	Lint Yield	Total Value (Loan Value X Lint Yield)
		-----%-----		-----lb/acre-----		\$/acre
FM 9180B2F	Untreated	29.3	49.7 a	0.8892 a	384 b	334.42 b
FM 9180B2F	Vydate C-LV	30.0	50.9 b	0.8998 a	384 b	339.96 b
ST 4288B2RF	Untreated	28.3	47.6 a	0.8920 a	500 a	453.21 a
ST 4288B2RF	Vydate C-LV	29.0	47.8 b	0.8558 b	526 a	459.99 a
		NS	P = 0.0001	P = 0.0068	P = 0.0154	P = 0.0001

\*Means within the same column with the same letter are not significantly different.

### Conclusions

Use of Vydate C-LV showed mixed results in the reduction of root-knot nematode galls on the partially resistant (ST 4288B2RF) and susceptible cotton (FM 9180B2RF) varieties early season. However, at harvest, the differences in galling observed early-season in the treated and untreated plots did not result in differences of yield. Three applications of 17 oz of Vydate C-LV were applied starting at the 2<sup>nd</sup> true leaf stage. Each Vydate C-LV application cost approximately \$10.89 per acre, for a total cost of \$32.67 per acre. If treatment cost were subtracted from the Total Value in Table 4, there would be a net loss for those plots treated with Vydate C-LV.

*Meloidogyne incognita* significantly impacted variety performance. Planting a partially resistant variety resulted in a lower number of root-knot nematode eggs mid season and a higher yield at the end of the season. Based on this trial, planting a partially resistant variety is the most economical and effective method in the management of nematodes.

The environmental conditions prior to and during the growing season were a limiting factor in the varieties performance overall. Above normal temperatures and lack of rainfall during the growing season possibly confounded the year end results. Continued evaluation of the use of Vydate C-LV under various conditions is needed in order to further understand its impact on root-knot nematode management.

### Acknowledgements

Special thanks to Raymond McPherson for planting and harvesting this trial.



## **Effect of Nematicides and Varieties on Root-knot Nematode Control, Cotton Yield, and Profitability**

**Cooperator: Otis Johnson Farms and Duane Cookston Farms**

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### **Introduction**

The loss of Temik 15G for nematode and thrips management in cotton will be costly to the Southern High Plains of Texas, where root-knot nematode infests over 40% of the acreage, primarily in the lighter textured soils (Wheeler et al. 2000, Starr et al., 1993). Cotton lint losses for this region, in the absence of nematode control, are estimated at 26% (Orr and Robinson, 1984).

Existing tools for managing root-knot nematodes include:

- 1) Varieties with partial resistance to root-knot nematodes (Stoneville (ST) 5458B2F, ST 4288B2F, Phytogen (PHY) 367WRF, and Deltapine 174RF).
- 2) Chemical
  - a. Fumigation with Telone (Dow AgroSciences) and Vapam (AMVAC);
  - b. Seed treatment nematicides (Aeris (Bayer CropScience), Avicta Complete Cotton or Duo (Syngenta), Poncho/Votivo (Bayer CropScience), and N-Hibit (Plant Health Care Inc.)).
  - c. Post-emergence, banded applications: Vydate CLV (Dupont)

The problem is that producers could use Temik 15G in almost any situation with root-knot nematode and improve their profitability. It is likely that in the absence of Temik 15G, a combination of other tools will be necessary. On the plus side, it may be possible to improve profitability in the presence of root-knot nematode, using some other options, which up to now had not been greatly tested. On the negative side, we know very little about many of the combination of varieties with seed treatment nematicides and/or Vydate CLV. The objective of this project was to explore combinations of tools to manage root-knot nematode.

## **Materials and Methods**

### **Seminole Site:**

Susceptible variety: Fibermax (FM) 9160B2F; Partially resistant variety: ST 5458B2F

Cost of each variety: \$82.61/acre to plant 58,080 seed/acre.

Fumigation date: 4 May

Date Vydate C-LV was applied: 22 June

Planting date: 9 May; replanted 31 May

Harvest date: 11 November

Plot size: 35 ft. long, 4-rows wide, 36 inch centers, with 6 replications/variety-chemical combination.

Stand counts: 23 June

Dig roots for gall rating: 5 July

Sample soil to determine root-knot nematode density: 22 August

### **Chemical Treatments and Cost**

<b>Treatment</b>	<b>Treatment</b>
Untreated	\$0.00
Cruiser	\$8.10/acre
Avicta complete cotton	\$17.95/acre
Cruiser + Vydate CLV at 17 oz/acre banded	\$14.41/acre
Avicta Complete Cotton + Vydate CLV at 17 oz/acre banded	\$24.26/acre
Temik 15G at 5 lbs/acre	\$21.25/acre
Cruiser + Telone II at 3 gal/acre	\$82.80

### **Whiteface Site:**

Susceptible variety: Fibermax (FM) 9160B2F; Partially resistant variety: PHY 367WRF

Cost of each variety: \$74.35/acre and \$73.59 to plant 52,272 seed/acre of FM 9160B2F and PHY 367WRF, respectively.

Fumigation date: 13 May

Date Vydate C-LV was applied: 9 June

Planting date: 13 May

Harvest date: 25 October

Plot size: 35 ft. long, 4-rows wide, 40 inch centers, with 6 replications/variety-chemical combination.

Stand counts: 17 June

Dig roots for gall rating: 27 June

Sample soil to determine root-knot nematode density: 18 August

### **Chemical Treatments and Cost**

<b>Treatment</b>	<b>Cost</b>
Untreated	\$0.00
Cruiser	\$8.10/acre
Avicta complete cotton	\$16.20/acre
Cruiser + Vydate CLV at 17 oz/acre banded	\$13.65/acre
Avicta Complete Cotton + Vydate CLV at 17 oz/acre banded	\$21.75/acre
Temik 15G at 5 lbs/acre	\$17.50/acre
Cruiser + Telone II at 3 gal/acre	\$82.80

## **Results and Discussion**

At the Seminole site, Temik 15G and Telone II both appeared to have superior nematode control compared with the nematicide seed treatments, based on root galling (Table 1). Vydate CLV applications would have been applied after the initiation of root galling, so root galling is not an effective measure of Vydate efficacy. The partial resistance to root-knot nematode associated with ST 5458B2F appeared to be effective, based on the nematode population density in late August (8,147 root-knot/500 cm<sup>3</sup> soil) relative to that of the susceptible variety FM 9160B2F (23,777 root-knot/500 cm<sup>3</sup> soil). Though root-knot nematode reproduction was reduced on ST 5458B2F, the root-knot nematode density is still considered high for cotton and likely resulted in some loss of yield. The early season advantage of reduced galling caused by Temik 15G and Telone II applications was lost by late August, where root-knot nematode density was similar across all chemical treatments (Table 1). This is typical for Temik 15G, since its effects are temporary and it does not necessarily kill the nematodes, but more likely causes a temporary paralysis that is overcome as the concentration of aldicarb diminishes. However, Telone II should kill a substantial number of nematodes if application is done under good environmental conditions, and reduction of nematode density throughout the summer would have been expected. The recovery of the nematode population density in Telone treated plots, indicates that application was not overall successful. It is likely that the irrigation being applied at that time of year did not allow good movement of the fumigant throughout the bed profile. The dry conditions this spring meant that sufficient soil moisture did not exist to make applications until just before planting when the center pivot was running extensively. More successful applications are typically done when rainfall or irrigation is used, then the soil is allowed to dry for several days to a week, and then the application made, then a light irrigation to seal the soil, and then dry conditions for around one wk. to maximize the gas movement of the product. This spring was very difficult to get good applications of Telone II from a watering standpoint.

The lint yield weight was multiplied by the loan value plus \$0.35, which more adequately reflects the equity of cotton prices at this time. Then the cost of the variety (same for both at Seminole) and chemicals were subtracted from this value. Using ST 5458B2F resulted in an average of \$144/acre more than planting FM 9160B2F. If planting the susceptible variety FM 9160B2F, then the most profitable treatment was using Cruiser treated seed and making an application of Vydate CLV at 17 oz/acre banded. When planting ST 5458B2F, the most profitable treatment was using AVICTA Complete Cotton with an application of Vydate CLV at 17 oz/acre, banded. Using Vydate CLV with Cruiser treated seed (i.e. no at-plant nematicide) resulted in the second most profitable situation with ST 5458B2F. So, in general, using ST 5458B2F and Vydate CLV made the most money at the Seminole site. The use of Avicta Complete Cotton without Vydate CLV, Temik 15G, or Telone II did not significantly improve profitability in ST 5458B2F over the nontreated check. With the susceptible cultivar FM 9160B2F, none of the chemical treatments significantly improved yield over the nontreated check.

**Table 1. Effect of chemical treatments on root galls caused by root-knot nematode, nematode population density, yield, and value/acre at a field near Seminole in 2011.**

Chemical Treatment <sup>1</sup>	Galls/Root	RK <sup>2</sup> /500 cm <sup>3</sup> soil	Yield Lbs of lint/acre		Yield x Loan value <sup>4</sup> -(Chemical+Variety Costs (\$/sacre))	
			FM <sup>3</sup>	ST	FM	ST
None	13.8 a	17,385 a	835 abZ <sup>5</sup>	880 cZ	671 abZ	657 bZ
Cruiser (C)	12.8 a	12,315 a	760 bY	1,015 abcZ	603 bY	815 aZ
Avicta (A)	11.6 a	21,330 a	782 abZ	918 bcZ	597 bZ	678 bZ
C+Vydate	13.2 a	16,095 a	913 aZ	1,048 abZ	736 aZ	829 aZ
A+Vydate	13.1 a	18,240 a	742 bY	1,111 aZ	561 bY	848 aZ
Temik 15G	6.1 b	14,670 a	756 bY	1,016 abcZ	562 bY	760 aZ
Telone II	5.3 b	11,700 a	839 abY	1,029 abcZ	568 bY	719 bZ

<sup>1</sup>Vydate CLV was applied at 17 oz/acre banded around the 3-4 leaf stage; Temik 15G was applied at planting at 5 lbs/acre; Telone II was applied 4 days before planting at 3 gal/acre.

<sup>2</sup>RK is root-knot nematode, sampled on 22 August.

<sup>3</sup>FM is Flibermax 9160B2F and ST is Stoneville 5458B2F.

<sup>4</sup>Loan value was increased by \$35/lb to reflect current prices more accurately.

<sup>5</sup>The letters a,b,c were used to indicate which chemical treatments were significantly different ( $P \leq 0.05$ ), within a column. The letters Z and Y were used to indicate which varieties were significantly different, within a chemical treatment.

The Whiteface site was planted with PHY 367WRF as the partially resistant variety and FM 9160B2F was the susceptible variety. Stand was lower for Telone II treated plots than almost all other treatments. This product was applied just before planting, and apparently did not get sealed in properly. It resulted in poorer stands (Table 2) and no reduction in root galling or nematode reproduction (Table 2). Root galling was relatively low at this site, except for that associated with Cruiser + Vydate CLV treatment (Table 2). Root-knot nematode population density varied widely from plot to plot, with no consistent differences between varieties (FM 9160B2F averaged 6,364 root-knot/500 cm<sup>3</sup> soil and PHY 367WRF averaged 4,264 root-knot/500 cm<sup>3</sup> soil,  $P=0.29$ ) or chemical treatments (Table 2). In general, PHY 367WRF did not express any sign of being root-knot nematode resistant at this site, though it has performed well and reduced root-knot nematode populations at many other sites. This experiment was essentially reduced to looking at chemical treatments, not at the combination of chemicals and nematode resistant varieties.

There was no effect of chemicals on yield for either variety, but when loan value and chemical costs were factored in, then profitability was improved for varieties treated with Avicta Complete Cotton, Cruiser alone, or Temik 15G compared to fumigation with Telone II. None of the treatments improved profitability over the nontreated check (Table 2).

**Table 2. Effect of chemical treatments on root galls caused by root-knot nematode, nematode population density, yield, and value/acre for a site near Whiteface.**

Chemical Treatment <sup>1</sup>	Plants/ Ft. row	Galls/ Root	RK <sup>2</sup> /500 cm <sup>3</sup> soil	Yield Lbs of lint/acre		Yield x Loan value <sup>4</sup> -(Chemical+Variety Costs (\$/sacre))		
				FM <sup>3</sup>	PHY	FM	PHY	Average
None	2.25 ab <sup>5</sup>	4.18 b	8,307	1,235	1,033	1,056	872	964 ab
Cruiser (C))	2.44 ab	3.43 b	5,000	1,196	1,255	1,012	1,067	1,040 a
Avicta (A)	2.62 a	4.94 b	2,590	1,259	1,217	1,062	1,024	1,043 a
C+Vydate	2.61 ab	8.97 a	5,163	1,151	1,142	965	958	962 ab
A+Vydate	2.18 b	3.37 b	5,268	1,178	1,141	982	949	966 ab
Temik 15G	2.40 ab	3.18 b	938	1,259	1,216	1,061	1,022	1,042 a
Telone II	2.07 b	4.01 b	9,930	1,117	1,094	865	846	855 b

<sup>1</sup>Vydate CLV was applied at 17 oz/acre banded around the 3-4 leaf stage; Temik 15G was applied at planting at 5 lbs/acre; Telone II was applied on the same day as planting at 3 gal/acre.

<sup>2</sup>RK is root-knot nematode, sampled on 22 August.

<sup>3</sup>FM is Fibermax 9160B2F and PHY is Phytogen 367WRF.

<sup>4</sup>Loan value was increased by \$35/lb to reflect current prices more accurately.

<sup>5</sup>The letters a,b,c were used to indicate which chemical treatments were significantly different ( $P \leq 0.05$ ), within a column.

## **Conclusions**

At one site, there was a tremendous economic advantage for using ST 5458B2F over a susceptible variety. The combination of the partially resistant variety and Vydate CLV application resulted in the highest yields and profitability. However, at the second site, the variety with partial nematode resistance did not reduce the nematode reproduction or outyield the susceptible variety. None of the chemical treatments at this site appeared to improve yield or profitability over doing nothing. Clearly more information needs to be collected on combinations of tools to manage root-knot nematode.

## **Literature Cited**

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## **Disclaimer:**

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 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.



## **Replicated Seeding Rate Research Trial**

**Cooperator: Weldon Shook Farms**

**Manda Anderson, Extension Agent - IPM**  
**Dr. Mark Kelley, Extension Agronomist - Cotton**

### **Gaines County**

#### **Summary**

Significant differences were observed for a few of the yield and economic parameters. There were no differences in the HVI fiber quality parameters measured. After adding lint value and seed value, there was no difference in total value/acre for the different seeding rates. When subtracting ginning, seed and technology fee costs, the net value/acre among seeding rates ranged from a high of \$434.86 (2 seed/ft) to a low of \$407.61 (3.5 seed/ft), a difference of \$27.20. Seed and technology cost ranged from a high of \$64.39 (3.5 seed/ft) to a low of \$36.79 (2 seed/ft), a difference of \$27.60. Seed and technology fee costs greatly influenced which seeding rates had the highest net values in the end. These data indicate that very little differences can be obtained in terms of total value per acre. However, differences in seed and technology fees gave way to differences in net value per acre. During the 2011 growing season Gaines County experienced above normal temperatures and very little rainfall. The environmental conditions prior to and during the growing season were a limiting factor in the seeding rates performance overall.

#### **Objective**

The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of four seeding rates under irrigated production in Gaines County.

#### **Materials and Methods**

Variety: PhytoGen 367WRF

Experimental design: Randomized complete block with 3 replications

Seeding rates:        2 seeds/row-ft in 40-inch row spacing  
                              2.5 seeds/row-ft in 40-inch row spacing  
                              3 seeds/row-ft in 40-inch row spacing  
                              3.5 seeds/row-ft in 40-inch row spacing

Plot size:                8 rows by variable length of the field (1627ft to 2091ft long)

Planting date:         10-May



Irrigation:	This location was under a LESA center pivot.
Harvest:	Plots were harvested on 14-November using a commercial stripper harvester. Harvest material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin Turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnouts.
Fiber Analysis:	Lint samples were submitted to the Fiber and Biopolymer Research Institute at Texas Tech University for HVI analysis, and USDA Commodity Credit Corporation (CCC) Loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on \$3.00 per cwt. of bur cotton and seed value/acre was based on \$300/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (2, 2.5, 3, or 3.5 seed/row-ft) for the 40 row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: <a href="http://www.plainscotton.org/Seed/PCGseed10.xls">http://www.plainscotton.org/Seed/PCGseed10.xls</a>

## **Results and Discussion**

Significant differences were observed for a few of the yield and economic parameters (Tables 1). Seed yield ranged from a low of 1072 lb/acre (2 seed/ft) to a high of 1141 (3 seed/ft). Seed yield was indicative of seed values, with 2 seed/ft having the lowest seed value (\$160.80) and 3 seed/ft having the highest seed value (\$171.14). After adding lint value and seed value, there was no difference in total value per acre for the different seeding rates. When subtracting ginning, seed and technology fee costs, the net value per acre among seeding rates ranged from a high of \$434.86 (2 seed/ft) to a low of \$407.61 (3.5 seed/ft), a difference of \$27.20. Seed and technology cost ranged from a high of \$64.39 (3.5 seed/ft) to a low of \$36.79 (2 seed/ft), a difference of \$27.60. Seed and technology fee costs greatly influenced which seeding rates had the highest net values in the end. There were no differences in the HVI fiber quality parameters measured (Tables 2).

## **Conclusions**

These data indicate that very little differences can be obtained in terms of total value per acre. However, differences in seed and technology fees gave way to differences in net value per acre. During the 2011 growing season Gaines County experienced above normal temperatures and very little rainfall. The environmental conditions prior to and during the growing season were a limiting factor in the seeding rates performance overall. It should be noted that no inclement weather was encountered at this location prior to harvest and therefore, no pre-harvest losses

were observed. Additional multi-site and multi-year applied research is needed to evaluate seeding rates across a series of environments.

### **Acknowledgements**

Appreciation is expressed to Weldon Shook for the use of his land, equipment and labor for this demonstration.

Table 1. Harvest results from the Cotton Seeding Rate Trial, Weldon Shook Farm, Seminole, TX, 2011.

Entry	Lint turnout	Seed turnout	Bur cotton yield	Lint yield	Seed yield	Lint loan value	Lint value	Seed value	Total value	Ginning cost	Seed/technology cost	Net value
	----- % -----		----- lb/acre -----			\$/lb				----- \$/acre -----		
PhytoGen 367WRF (2 seed/ft)	30.7	44.8	2393	734	1072	0.5212	382.65	160.80	543.45	71.80	36.79	434.86 a
PhytoGen 367WRF (2.5 seed/ft)	30.3	45.8	2406	729	1102	0.5288	385.64	165.36	551.00	72.19	45.99	432.81 a
PhytoGen 367WRF (3 seed/ft)	30.5	46.2	2469	752	1141	0.5088	382.77	171.14	553.91	74.08	55.19	424.64 a
PhytoGen 367WRF (3.5 seed/ft)	30.7	45.5	2447	752	1114	0.5030	378.37	167.04	545.41	73.41	64.39	407.61 b
Test average	30.5	45.6	2429	742	1107	0.5155	382.36	166.09	548.44	72.87	50.59	424.98
CV, %	3.0	2.4	1.7	1.7	1.7	3.1	1.7	1.7	1.7	1.7	--	1.9
OSL	0.9172	0.5047	0.1880	0.1383	0.0210	0.2922	0.6225	0.0220	0.5339	0.1890	--	0.0218
LSD	NS	NS	NS	NS	37	NS	NS	5.60	NS	NS	--	16.19

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, NS - not significant.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.00/cwt ginning cost.

\$300/ton for seed.

Value for lint based on CCC loan value from grab samples and FBRI HVI results.

Table 2. HVI fiber property results from the Cotton Seeding Rate Trial, Weldon Shook Farm, Seminole, TX, 2010.

Entry	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b	Color grade	
	units	32 <sup>nds</sup> inch	%	g/tex	%	grade	reflectance	yellowness	color 1	color 2
PhytoGen 367WRF (2 seed/ft)	4.2	33.0	79.5	28.8	9.4	1.3	78.3	9.2	2.0	1.0
PhytoGen 367WRF (2.5 seed/ft)	4.3	33.2	79.6	29.6	9.2	1.3	79.0	9.0	2.0	1.0
PhytoGen 367WRF (3 seed/ft)	4.2	32.6	78.3	28.8	9.3	1.0	78.3	9.2	2.0	1.0
PhytoGen 367WRF (3.5 seed/ft)	4.1	32.3	78.0	27.9	9.4	1.3	79.1	9.5	2.0	1.0
Test average	4.2	32.8	78.8	28.8	9.3	1.3	78.7	9.2	2.0	1.0
CV, %	2.8	1.4	1.4	3.0	1.4	40.0	1.3	2.5	--	--
OSL	0.4321	0.2161	0.2584	0.2145	0.5830	0.8022	0.7326	0.2471	--	--
LSD	NS	NS	NS	NS	NS	NS	NS	NS	--	--

CV - coefficient of variation.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level, NS - not significant



## **Replicated Seeding Rate Research Trial with Four Different Cotton Varieties**

**Cooperator: Chevront Farms**

**Manda Anderson, Extension Agent - IPM**  
**Dr. Mark Kelley, Extension Agronomist - Cotton**

### **Gaines County**

#### **Summary**

There was no significant interaction between varieties and seeding rates for lint turnout, seed turnout, bur cotton yields, lint loan values, and ginning costs, which indicates that the response was consistent with all seeding rates. Lint turn out ranged from a high of 29.8% for FM 9170B2RF to a low of 28.7% for DP 1044B2RF. Lint loan values ranged from a low of \$0.4907/lb (ST 5458B2RF) to a high of \$0.5426/lb (FiberMax 9170B2F). There was a significant interaction between varieties and seeding rates for lint yield, seed yield, lint value, seed value, total value, seed and technology costs, and net value, which indicates that the response was not consistent with all seeding rates. FiberMax 9170B2RF at a seeding rate of 2 seed/ft had the highest lint yield (1052 lb/acre), seed yield (1625 lb/acre), lint value (\$569.31 per acre), seed value (\$243.70 per acre), total value (\$813.01 per acre), and net value (\$681.84 per acre). ST 5458B2RF had the lowest loan value (\$0.4907/lb), and this contributed to ST 5458B2RF at seeding rates of 2.5 and 3.5 seed/ft having the lowest lint values per acre. After adding lint and seed value, and subtracting ginning, seed and technology fee costs, the net value/acre ranged from a high of \$681.84 (FiberMax 9170B2F at a seeding rate of 2 seed/ft) to a low of \$466.43 (Phytogen 367WRF at a seeding rate of 3.5 seed/ft), a difference of \$215.41. There was no significant interaction between varieties and seeding rates for the HVI fiber quality parameters measured. Focusing solely on varieties, all of the HVI fiber quality parameters, except for leaf, were significantly different. Focusing solely on seeding rates, micronaire was the only HVI fiber quality parameter that was significantly different.

#### **Objective**

The objective of this project was to compare agronomic characteristics, yields, gin turnout, fiber quality, and economic returns of four transgenic cotton varieties in combination with four seeding rates under irrigated production in Gaines County.

#### **Materials and Methods**

Varieties: Deltapine 1044B2RF, FiberMax 9170B2F, PhytoGen 367WRF, Stoneville 5458B2F

Experimental design: Randomized complete block with 3 replications

Seeding rates:	2 seeds/row-ft in 36-inch row spacing 2.5 seeds/row-ft in 36-inch row spacing 3 seeds/row-ft in 36-inch row spacing 3.5 seeds/row-ft in 36-inch row spacing
Plot size:	6 rows by variable length of the field (655ft to 2449ft long)
Planting date:	6-May
Irrigation:	This location was under a LESA center pivot.
Harvest:	Plots were harvested on 6 & 7-October using a commercial stripper harvester. Harvest material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.
Gin Turnout:	Grab samples were taken by plot and ginned at the Texas AgriLife Research and Extension Center at Lubbock to determine gin turnovers.
Fiber Analysis:	Lint samples were submitted to the Fiber and Biopolymer Research Institute at Texas Tech University for HVI analysis, and USDA Commodity Credit Corporation (CCC) Loan values were determined for each variety by plot.
Ginning cost and seed values:	Ginning costs were based on \$3.00 per cwt. of bur cotton and seed value/acre was based on \$300/ton. Ginning costs did not include checkoff.
Seed and technology fees:	Seed and technology costs were calculated using the appropriate seeding rate (2, 2.5, 3, or 3.5 seed/row-ft) for the 36 row spacing and entries using the online Plains Cotton Growers Seed Cost Comparison Worksheet available at: <a href="http://www.plainscotton.org/Seed/PCGseed10.xls">http://www.plainscotton.org/Seed/PCGseed10.xls</a>

## **Results and Discussion**

There was no significant interaction between varieties and seeding rates for lint turnout, seed turnout, bur cotton yields, lint loan values, and ginning costs, which indicates that the response was consistent with all seeding rates (Table 1). Lint turn out ranged from a high of 29.8% for FM 9170B2RF to a low of 28.7% for DP 1044B2RF. Seed turn out ranged from a high of 45.8 for DP 1044B2RF to a low of 44.3 for Phytogen 367WRF. Bur cotton yields averaged 2953 lb/acre with a high of 3084 lb/acre for DP 1044B2RF, and a low of 2856 lb/acre for FM 9170B2RF. Lint loan values ranged from a low of \$0.4907/lb (ST 5458B2RF) to a high of \$0.5426/lb (FiberMax 9170B2F).

There was a significant interaction between varieties and seeding rates for lint yield, seed yield, lint value, seed value, total value, seed and technology costs, and net value, which indicates that the response was not consistent with all seeding rates (Table 2). FiberMax 9170B2RF at a

seeding rate of 2 seed/ft had the highest lint yield (1052 lb/acre), seed yield (1625 lb/acre), lint value (\$569.31 per acre), seed value (\$243.70 per acre), total value (\$813.01 per acre), and net value (\$681.84 per acre). FiberMax 9170B2RF at a seeding rate of 3 seed/ft had the lowest lint yield (800 lb/acre) and total value (\$622.29). FiberMax at a seeding rate of 3.5 seed/ft had the lowest seed yield (1236 lb/acre) and seed value (\$185.40). In *Table 1* ST 5458B2RF had the lowest loan value (\$0.4907/lb), and this contributed to ST 5458B2RF at seeding rates of 2.5 and 3.5 seed/ft having the lowest lint values per acre. After adding lint and seed value, and subtracting ginning, seed and technology fee costs, the net value/acre ranged from a high of \$681.84 (FiberMax 9170B2F at a seeding rate of 2 seed/ft) to a low of \$466.43 (Phytogen 367WRF at a seeding rate of 3.5 seed/ft), a difference of \$215.41.

There was no significant interaction between varieties and seeding rates for the HVI fiber quality parameters measured (Table 3 & 4). Focusing solely on varieties, there were several differences observed in HVI fiber quality parameters (Table 3). Micronaire values ranged from a low of 4.7 for FiberMax 9170B2RF to a high of 5.2 for Stoneville 5458B2F and Deltapine 1044B2RF. Staple averaged 33.6 across all varieties with a low of 33.0 for Stoneville 5458B2RF and a high of 34.1 for Deltapine 1044B2RF. Percent uniformity ranged from a high of 81.1% for Deltapine 1044B2RF to a low of 79.9% for Stoneville 5458B2RF. Strength values averaged 30.7 g/tex with a high of 32.0 g/tex for Deltapine 1044B2RF and a low of 29.9 g/tex for Phytogen 367WRF. Elongation ranged from a high of 10.3% for Deltapine 1044B2RF to a low of 7.9% for FiberMax 9170B2F. Values for reflectance (Rd) and yellowness (+b) averaged 78.4 and 9.9, respectively.

Focusing solely on seeding rates, micronaire was the only HVI fiber quality parameter that was significantly different (Table 4). 2 seed/ft had a micronaire of 4.9, which the other seeding rates had a micronaire of 5.0.

## **Conclusions**

These data indicate that substantial differences can be obtained in terms of net value/acre due to the combination of different varieties with various seeding rates. Several difference in HVI properties were observed when we solely looked at variety performance. Whereas, micronaire was the only HVI parameter that we observed as being different among seeding rates. During the 2011 growing season Gaines County experienced above normal temperatures and very little rainfall. The environmental conditions prior to and during the growing season were a limiting factor in the varieties performance overall. It should be noted that no inclement weather was encountered at this location prior to harvest and therefore, no pre-harvest losses were observed. Additional multi-site and multi-year applied research is needed to evaluate varieties and seeding rates across a series of environments.

## **Acknowledgements**

Appreciation is expressed to Cheuvront Farms for the use of his land, equipment and labor for this demonstration.

Table 1. Harvest results that had a significant difference between varieties, Cheuvront Farms, Seminole, TX, 2011.

Variety	Lint turnout	Seed turnout	Bur cotton yield	Lint loan value	Ginning cost
	----- % -----		lb/acre	\$/lb	\$/acre
FM 9170B2RF	29.8	45.7	2856	0.5426	85.68
DP 1044B2RF	28.7	45.8	3084	0.5248	92.53
PHY 367WRF	29.7	44.3	2884	0.5202	86.51
ST 5458B2RF	29.4	45.6	2987	0.4907	89.60
Test average	29.4	45.3	2953	0.5196	88.58
OSL	0.0459	0.0364	0.0126	<0.0001	0.0126
LSD	0.9	1.2	146	0.0098	4.37

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level.

Note: some columns may not add up due to rounding error.

Assumes:

\$3.00/cwt ginning cost.

Value for lint based on CCC loan value from grab samples and FBRI HVI results.



Table 2. Harvest results with a significant interaction between varieties and seeding rate, Cheuvront Farms, Seminole, TX, 2011.

Variety	Seeding Rate	Lint yield	Seed yield	Lint value	Seed value	Total value	Seed/technology cost	Net value	
		----- lb/acre -----		----- \$/acre -----					
FM 9170B2RF	2 seed/ft	1052	1625	569.31	243.70	813.01	41.30	681.84	a
DP 1044B2RF	2.5 seed/ft	910	1440	476.52	216.01	692.53	48.55	549.48	b
DP 1044B2RF	3.5 seed/ft	905	1450	479.23	217.50	696.73	67.97	534.63	bc
FM 9170B2RF	2.5 seed/ft	862	1345	460.29	201.69	661.98	51.63	523.76	bcd
ST 5458B2RF	2 seed/ft	897	1381	445.73	207.20	652.93	41.30	523.14	bcd
DP 1044B2RF	2 seed/ft	840	1346	445.20	201.89	647.10	38.84	518.03	bcd
DP 1044B2RF	3 seed/ft	881	1415	454.58	212.23	666.82	58.26	517.29	bcde
PHY 367WRF	2 seed/ft	848	1256	445.50	188.42	633.92	40.88	507.32	cdef
PHY 367WRF	3 seed/ft	883	1298	461.87	194.66	656.53	61.32	506.56	cdef
PHY 367WRF	2.5 seed/ft	850	1274	444.50	191.13	635.63	51.10	499.61	cdefg
ST 5458B2RF	3 seed/ft	900	1412	434.60	211.78	646.38	61.95	493.30	defg
FM 9170B2RF	3.5 seed/ft	841	1236	463.76	185.40	649.16	72.28	492.05	defg
ST 5458B2RF	2.5 seed/ft	866	1347	426.93	202.04	628.96	51.63	487.69	defg
FM 9170B2RF	3 seed/ft	800	1248	435.15	187.13	622.29	61.95	478.90	efg
ST 5458B2RF	3.5 seed/ft	876	1354	429.25	203.05	632.31	72.28	470.90	fg
PHY 367WRF	3.5 seed/ft	851	1275	433.40	191.33	624.74	71.55	466.43	g
Test average		879	1356	457	203	660	56	515.68	
OSL		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	<0.0001	
LSD		60	93	31.14	13.98	45.10	--	38.46	

For net value/acre, means within a column with the same letter are not significantly different at the 0.05 probability level.

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level.

Note: some columns may not add up due to rounding error.

Table 3. HVI fiber property results by variety, Chevront Farms, Seminole, TX, 2011.

Variety	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b
	units	32 <sup>nds</sup> inch	%	g/tex	%	grade	reflectance	yellowness
FM 9170B2RF	4.7	33.9	80.0	30.4	7.9	1.8	80.1	9.1
DP 1044B2RF	5.2	34.1	81.1	32.0	10.3	1.5	79.1	9.9
PHY 367WRF	4.8	33.2	80.3	29.9	9.7	1.8	78.0	10.0
ST 5458B2RF	5.2	33.0	79.9	30.4	8.8	1.8	76.4	10.4
Test average	5.0	33.6	80.3	30.7	9.2	1.7	78.4	9.9
OSL	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.6874	<0.0001	<0.0001
LSD	0.9	3.8	0.5	0.7	0.2	NS	0.7	0.2

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level.

Table 4. HVI fiber property results by seeding rate, Cheuvront Farms, Seminole, TX, 2011.

Seeding Rate	Micronaire	Staple	Uniformity	Strength	Elongation	Leaf	Rd	+b
	units	32 <sup>nds</sup> inch	%	g/tex	%	grade	reflectance	yellowness
2 seed/ft	4.9	33.7	80.5	30.9	9.1	1.8	78.6	9.9
2.5 seed/ft	5.0	33.5	80.2	30.6	9.3	1.6	78.4	9.9
3 seed/ft	5.0	33.5	80.6	30.8	9.2	1.9	78.5	9.9
3.5 seed/ft	5.0	33.5	80.2	30.4	9.1	1.7	78.3	9.9
Test average	5.0	33.6	80.3	30.7	9.2	1.7	78.4	9.9
OSL	0.0174	0.4736	0.2122	0.5190	0.3419	0.7511	0.7667	0.9822
LSD	0.1	NS	NS	NS	NS	NS	NS	NS

OSL - observed significance level, or probability of a greater F value.

LSD - least significant difference at the 0.05 level.



## **Controlling Populations of Bollworm and Fall Armyworm in Non-Bt Cotton**

**Cooperators: Monty Henson, Glen Shook  
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Extension Entomologist-Cotton, EA-IPM Gaines County, EA-IPM Lubbock  
County, EA-IPM Crosby/Floyd Counties and EA-IPM Terry/Yoakum Counties**

### **Gaines and Terry Counties**

#### **Summary:**

Non-Bt cotton comprises approximately 50% of the cotton acreage planted in the Texas High Plains. Damage caused by bollworms, *Helioverpa zea*, and fall armyworms, *Spodoptera fugiperda*, often result in significant yield loss. Prior to August, populations are predominantly bollworms, but by mid-August populations are often mixed with both species. Pyrethroids used to control bollworms work well but are weak on controlling fall armyworms. Armyworm materials also tend to be weak on bollworms.

Over the past six years there has been an increase in fall armyworm numbers in the Texas High Plains. It is often difficult to differentiate between bollworms and fall armyworms when they are small; therefore, deciding on the appropriate insecticide to use comes into question

#### **Objective:**

The objective of this study was to evaluate the efficacy of new insecticidal chemistries on mixed populations of bollworms and fall armyworms in non-Bt cotton.

#### **Materials and Methods:**

Three tests were conducted in 2010-2011 in the Texas High Plains. All test locations were center pivot irrigated. The first test was conducted in 2010 in Loop, TX. The tests in 2011 were conducted in Brownfield, TX and Hobbs, NM, respectively. The 2010 Loop, TX test was planted on 7 May. The 2011 Brownfield, TX was planted on 15 May. Both were planted using 40-inch row spacing. The Hobbs, NM test was planted on 24 May using 36-inch row spacing. In all tests, plots were 4 rows wide x

50 ft long. Plots were arranged in a randomized complete block design with 4 replicates.

Treatment lists for Loop and Brownfield, TX can be found in Tables 1 and 2, and the treatment list for Hobbs, NM can be found in Table 3.

All treatments were applied with a CO<sub>2</sub> pressurized hand boom, which was calibrated to deliver 10 gallons/acre. The boom consisted of 2 hollow cone TX-6 nozzles per row, spaced at 20 inches. Worm populations were counted by making whole plant inspections on 10 plants per plot. Due to lower worm numbers in the Brownfield test, 20 plants per plot were counted.

All count data were analyzed using PROC MIXED. The means were separated using an F protected LSD ( $P \leq 0.05$ ).

## **Results and Discussion:**

Prior to application in 2010, August 17 pre-treatment counts of total larvae did not significantly differ between treatments. The worm population for this test was estimated to be ~70% bollworms (Figure 1).

At 7-DAT, all of the treatments had fewer medium and large bollworms than the untreated, with the exception of Belt at the lower rate (2.0 fl-oz/acre). There were no differences among the other treatments. Belt is thought to be more efficacious toward fall armyworms than bollworms. As expected, at its lowest labeled rate, Belt did not provide effective bollworm control (Figure 2).

Against fall armyworms, the only treatment that differed from the untreated was the tank mix of Mustang Max + Belt. Pyrethroids are generally considered weak against fall armyworms. Belt is known to have activity toward fall armyworms, but activity in cotton is uncertain. In this test Belt at the low rate (2.0 fl-oz/acre) failed to achieve adequate control (Figure 3).

In Brownfield, TX 2011, prior to application, July 27 pre-treatment counts of total larvae did not significantly differ between treatments. The worm population in this test was comprised of all bollworms. Due to the low infestation, 20 plants per plot were sampled. In 2010, at the low labeled rate (2.0 fl-oz/acre), Belt did not show adequate control of bollworms or fall armyworms. In 2011, Belt was added to the treatment list using the high labeled rate (3.0 fl-oz/acre). At 7-DAT, Blackhawk at the low and high rates and Belt at the high rate did not significantly differ from the untreated check. However, Benevia at the low, medium, and high rates, and the standard pyrethroid Ammo were significantly different from the untreated check. As mentioned above, Belt did not perform well at the low rate; however, the high rate of Belt did not perform as expected on controlling bollworms (Figure 4).

In Hobbs, NM 2011, prior to application, August 18 pre-treatment counts of total larvae showed no significant differences between treatments. The worm population at this test site was estimated to ~60% fall armyworms (Figure 5).

At 11-DAT, all treatments had fewer medium and large bollworms than the untreated check. Although Belt did significantly differ from the untreated check, it still did not provide adequate control of bollworms. However, Prevathon and Mustang Max demonstrated good control against bollworms (Figure 6).

Against fall armyworms, the only treatment to differ from the untreated check was Prevathon. As expected, pyrethroids tend to be weaker toward fall armyworms than bollworms. However, Belt at the high rate (3.0 fl-oz/acre) did not provide proper control of fall armyworms (Figure 7). Based on these data, Belt should be mixed with a pyrethroid when targeting mixed populations of bollworms and fall armyworms in cotton.

**Acknowledgments:**

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<b>Table 1. Insecticide treatments and rates. Loop, TX. 2010</b>		
Treatment	Active ingredient	Rate (product/Ac)
1) Untreated	--	--
2) Mustang Max 0.83 EC	Zeta-cypermethrin	2.6 fl-oz
3) Mustang Max 0.83 EC	Zeta-cypermethrin	3.6 fl-oz
4) Karate 1 EC	Lambda-cyhalothrin	5.12 fl-oz
5) Holster 2.5 EC	Cypermethrin	5.0 fl-oz
6) Belt 4 SC	Flubendiamide	2.0 fl-oz
7) Mustang Max + Belt	Zeta-cypermethrin + Flubendiamide	2.6 fl-oz + 2.0 fl-oz
<sup>all</sup> treatments included Dyne-Amic at 0.25% v/v		

<b>Table 2. Insecticide treatments and rates. Brownfield, TX. 2011</b>		
Treatment	Active ingredient	Rate (product/Ac)
1) Untreated	--	--
2) Blackhawk 36 WG	Spinosad	2.5 oz
3) Blackhawk 36 WG	Spinosad	3.3 oz
4) Belt 4 SC	Flubendiamide	3.0 fl-oz
5) Benevia 10 OD	Cyantraniliprole	6.75 fl-oz
6) Benevia 10 OD	Cyantraniliprole	10.1 fl-oz
7) Benevia 10 OD	Cyantraniliprole	13.5 fl-oz
8) Ammo 2.5 EC	Cypermethrin	5.0 fl-oz
<sup>a</sup> Blackhawk, Belt and Ammo included Dyne-Amic at 0.25% v/v, Benevia included Penetrator Plus at 2% v/v		

Table 3. Insecticide treatments and rates. Hobbs, NM. 2011		
Treatment	Active ingredient	Rate (product/Ac)
1) Untreated	--	--
2) Belt 4 SC	Flubendiamide	3.0 fl-oz
3) Prevathon 0.43 SC	Chlorantranilipyrrole	27.0 fl-oz
4) Mustang Max 0.83 EC	Zeta-cypermethrin	3.6 fl-oz
<sup>a</sup> No adjuvants included		

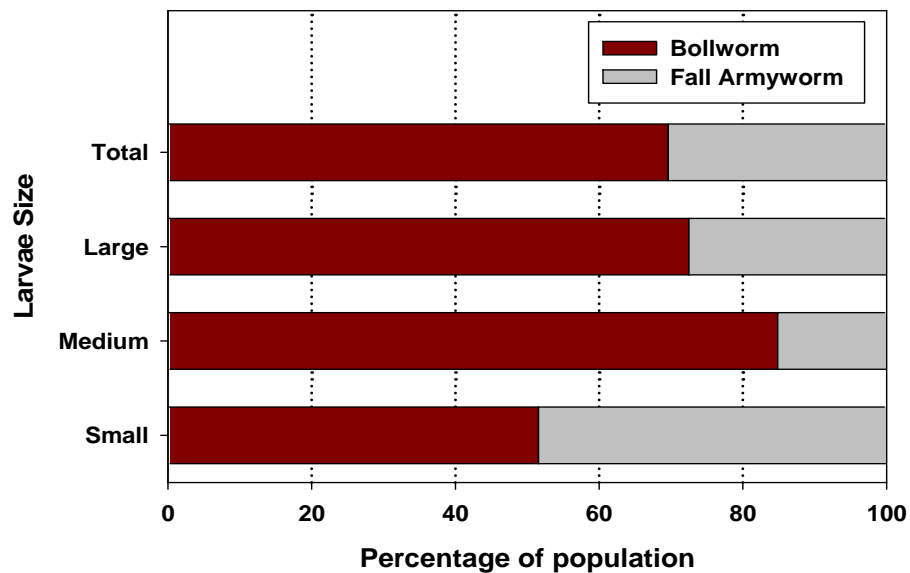


Figure 1. Percentage of population. Loop, TX 2010



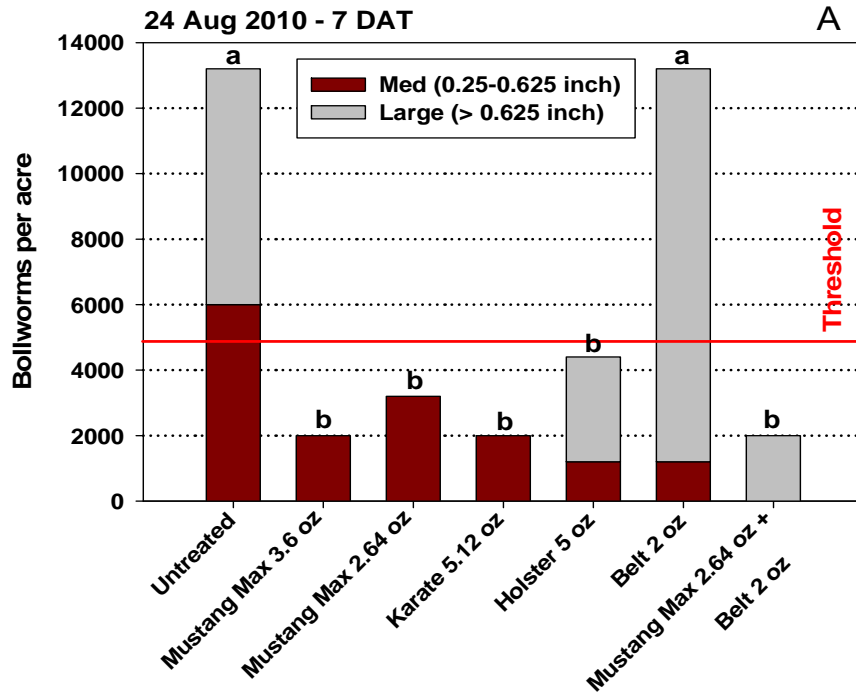


Figure 2. Number of bollworms per acre at 7-DAT. Loop, TX 2010. Bars capped the same letter are not significantly different.

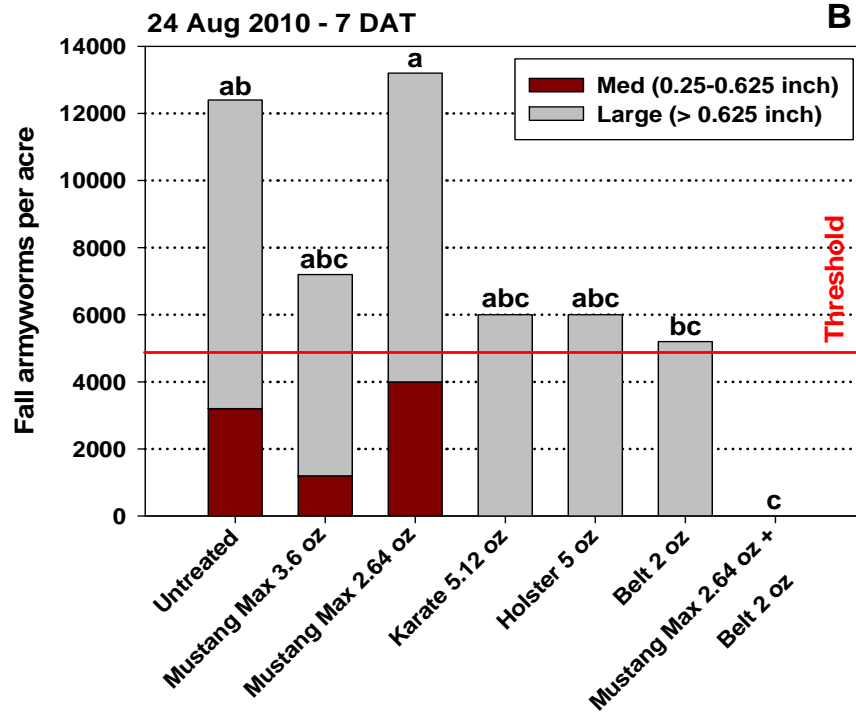


Figure 3. Number of fall armyworms at 7-DAT. Loop, TX 2010. Bars capped by the same letter are not significantly different

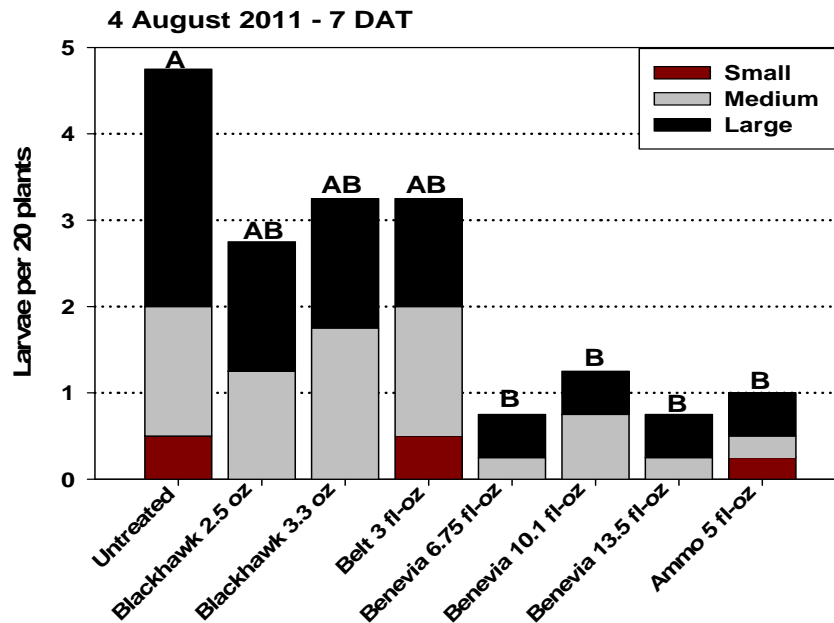


Figure 4. Number of larvae per 20 plants at 7-DAT. Brownfield, TX 2011. Bars capped by the same letter are not significantly different

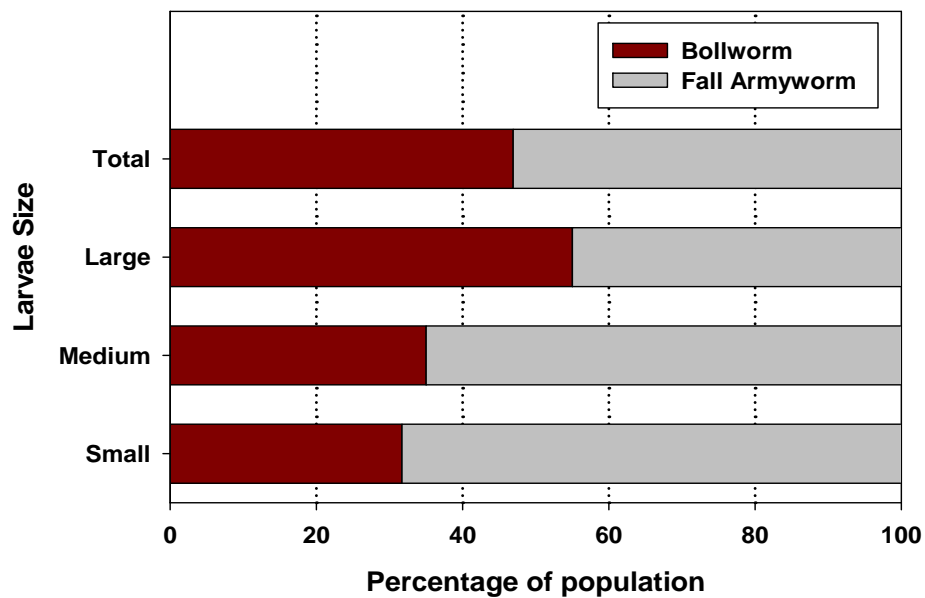


Figure 5. Percentage of population. Hobbs, NM 2011.

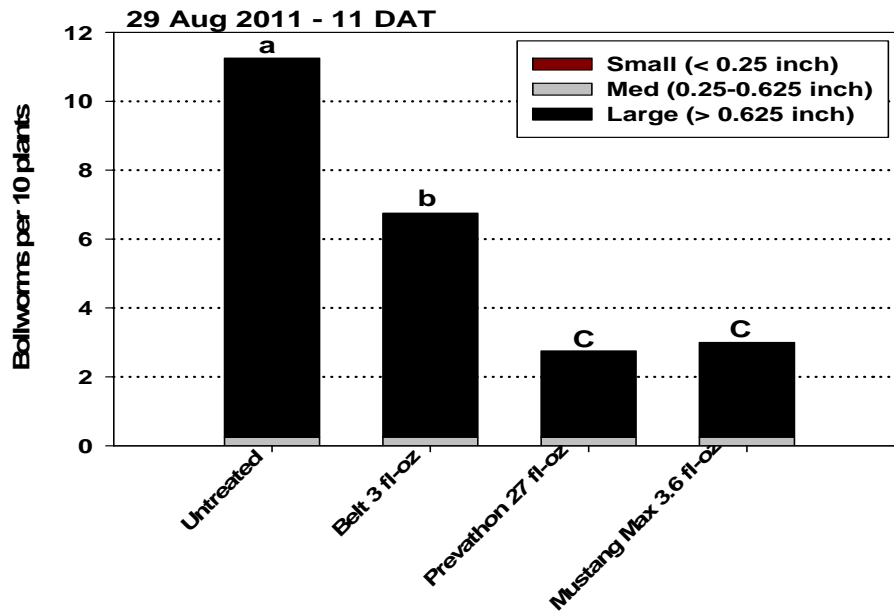


Figure 6. Number of bollworms per 10 plants at 7-DAT. Hobbs, NM 2011. Bars capped by the same letter are not significantly different.

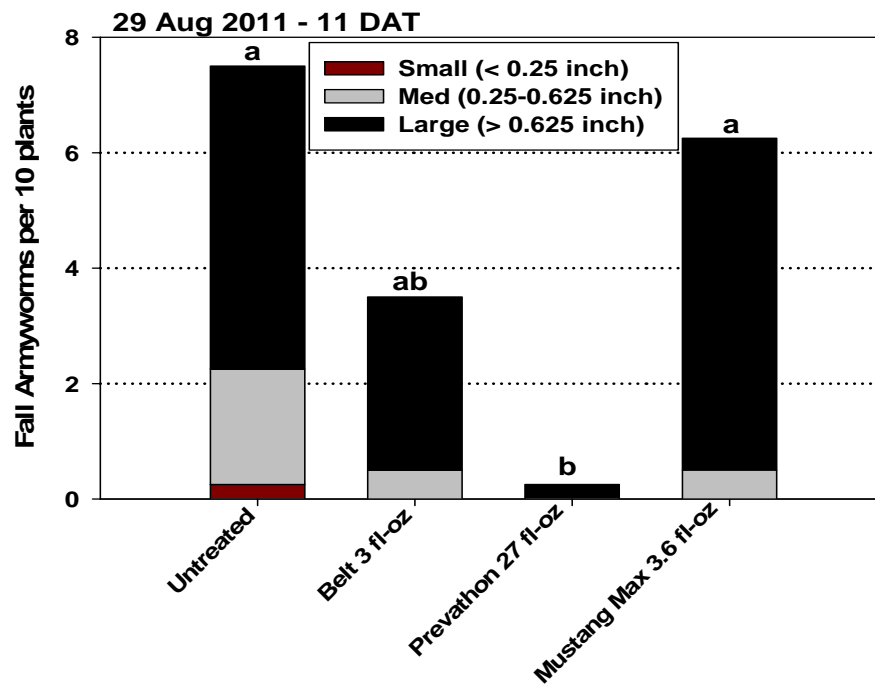


Figure 7. Number of fall armyworms per 10 plants at 7-DAT. Hobbs, NM 2011. Bars capped by the same letter are not significantly different.



## **Evaluation of Insecticides for Control of Kurtomathrips Morrilli in Cotton, 2011**

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### **Gaines County**

#### **Summary:**

*Kurtomathrips morrilli* is an unusual thrips that occasionally attacks and severely damages cotton in the southwestern United States, but there is very little information available regarding this pest. In 2011, the south plains region of Texas was severely impacted by a drought which may have been a key factor resulting in an outbreak of *K. morrilli*. This outbreak encompassed an estimated 330,000 acres of cotton, approximately 83,000 acres of which received insecticide applications. The outbreak resulted in the loss of about 24 million pounds of cotton lint, resulting in over \$20 million in yield loss and control costs. Water-deficit stressed cotton appeared to be most severely affected by *K. morrilli*, while cool temperatures and precipitation appeared to naturally mediate the outbreak. Insecticide efficacy tests determined that the neonicotinoid insecticides, Intruder (acetamiprid), Trimax Pro (imidacloprid) and Centric (thiamethoxam), and the organophosphate Orthene (acephate) were highly effective in mediating *K. morrilli* infestations. The mostly commonly used insecticides in the 2011 outbreak were imidacloprid, primarily generic brands, and acephate. These were the insecticides of choice primarily because they were inexpensive, yet effective.

#### **Objective:**

The objective of this study was to evaluate the efficacy of insecticides towards Kurtomathrips Morrilli in cotton.

## Materials and Methods:

Three tests were conducted in a commercial cotton fields grown near Seminole, TX. The fields were on 36 or 40-inch rows, and were irrigated using a pivot irrigation system. All three tests were planted with the same variety, Phytogen 367WRF. All the tests were RCB designs with four replications. Plots were 4-rows wide × 50 ft in length. Insecticides were applied with a CO<sub>2</sub> pressurized hand-boom sprayer calibrated to deliver 10 gpa through TX-6 hollow cone nozzles (2 per row) at 40 psi. Insecticides were applied to all four rows of each plot.

Treatments were evaluated by collecting 5 or 10 leaves into 1-pt jars containing a 30% isopropyl alcohol solution. The jars were returned to the laboratory where the thrips were vacuum filtered onto filter paper and then counted using a stereo dissecting scope. On two tests, the middle two rows of each plot were harvested using a mechanized cotton stripper with integrated scales. Grab samples were ginned for turn out and quality. Data were analyzed using ANOVA and means were separated using an F-protected LSD ( $P \leq 0.05$ ).

## Results and Discussion:

At test site 1, the thrips population was very high averaging 136 thrips per leaf prior to spraying on 25 Jul (Table 1). At 3 days after treatment (DAT), the thrips numbers were highly variable among treatments and there were no significant differences. However, for immature and total thrips at 7 DAT, Intruder had the fewest thrips, but did not differ from Orthene or Trimax Pro. Neither Radiant nor Tracer differed from the untreated. By 9 Aug the thrips population had declined across the entire test and all the insecticide treatments had fewer thrips than the untreated.

At test site 2, the thrips population was averaging about 23 thrips per leaf when the test was initiated on 17 Aug (Table 2). At 7, 12, and 21 DAT, all of the products and rates evaluated had fewer thrips than the untreated, but there were no differences among the insecticides. Significant differences in yield were detected in this test. Centric at 1.8 oz had the highest yield but was not statistically better than either rate of Intruder, the low rate of Centric or the high rates of Orthene or Trimax Pro. Both rates of Centric and Intruder were the only insecticide treatments that yielded significantly more than the untreated.

At test site 3, the thrips population was averaging 16.75 thrips per leaf on 26 Aug prior to the insecticide applications, and there were no statistical differences among treatments at this time (Table 3). At 7 DAT, Vydate at 17 fl-oz had fewer immature and total thrips than the untreated but did not differ from Vydate at 8.5 fl-oz. By 14 DAT, the thrips population had increased in the untreated and both rates of Vydate had fewer immature and total thrips than the untreated. Vydate does have some activity on these thrips, but the level of activity does not appear to be as good as what was observed from some of

the other insecticides in the other tests. No differences in yield were detected among treatments in test 3.

**Acknowledgments:**

Plains Cotton Improvement Program and Dupont Crop Protection

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Test 1.

		Thrips per 5 leaves											
Treatment/ formulation	Rate amt product/acre	25 Jul (pre-treatment)			28 Jul (3 DAT)			1 Aug (7 DAT)			9 Aug (15 DAT)		
		immatures	adults	total	immatures	adults	total	immatures	adults	total	immatures	adults	total
Untreated	--	377.75a	167.50a	545.25a	293.75a	51.25a	345.00a	334.00a	61.25a	395.25a	139.00a	56.00a	195.00a
Trimax Pro	1.8 fl-oz	665.00a	110.50a	775.50a	90.00a	5.25a	95.25a	55.50cd	5.75a	61.25bc	21.25b	22.00b	43.25b
Orthene 97	8 oz	424.50a	61.00a	485.50a	145.25a	13.00a	158.25a	45.50cd	9.00a	54.50c	10.75b	13.75b	24.50b
Intruder 70WP	1.0 oz	716.00a	136.50a	852.50a	77.75a	10.50a	88.25a	23.00d	1.75a	24.75c	0.50b	1.75b	2.25b
Radiant 1SC	6.0 fl-oz	545.00a	113.75a	658.75a	154.75a	14.50a	169.25a	177.50bc	14.50a	192.00bc	2.25b	4.00b	6.25b
Tracer 4SC	2.5 fl-oz	509.25a	242.25a	751.50a	227.25a	17.75a	245.00a	230.00ab	18.75a	248.75ab	15.50b	18.50b	34.00b

Values in a column followed by the same letter are not significantly different based on an F-protected LSD ( $P \leq 0.05$ ).

Test 2.

Treatment/ formulation	Rate amt product/acr e	Thrips per 10 leaves									7 Nov		
		17 Aug (pre-treatment)			24 Aug (7 DAT)			30 Aug (12 DAT)			8 Sep (21 DAT)		
		imm	adults	total	imm	adults	total	imm	adults	total	imm	adults	total
Untreated	--	172.00a	51.25a	223.25a	217.00a	57.75a	274.75a	227.00a	52.25a	279.00a	53.00a	30.00a	83.00a
Trimax Pro	1.2 fl-oz	154.88a	225.71a	380.60a	42.25b	10.00b	52.25b	13.00b	15.75b	29.00b	2.00b	2.25b	4.25b
Trimax Pro	1.8 fl-oz	158.25a	29.75a	188.00a	22.75b	6.75b	29.50b	1.00b	3.00b	4.00b	0.50b	2.50b	3.00b
Orthene 97	4 oz	54.25a	38.25a	92.50a	13.50b	6.50b	20.00b	0.75b	3.50b	4.00b	1.00b	0.50b	1.50b
Orthene 97	8 oz	168.88a	51.05a	219.93a	13.00b	13.00b	26.00b	4.75b	15.50b	20.00b	1.00b	2.25b	3.25b
Intruder 70WP	0.6 oz	204.50a	57.25a	261.75a	13.00b	12.50b	25.50b	0.00b	0.50b	1.00b	0.75b	0.75b	1.50b
Intruder 70WP	1.0 oz	154.50a	41.75a	196.25a	15.75b	14.75b	30.50b	0.75b	7.00b	8.00b	1.25b	0.25b	1.50b
Centric 40WG	1.8 oz	171.00a	41.75a	212.75a	30.50b	24.00b	54.50b	0.75b	6.50b	7.00b	1.00b	3.25b	4.25b
Centric 40WG	2.5 oz	175.00a	66.00a	241.00a	12.50b	10.00b	22.50b	0.75b	4.25b	5.00b	1.00b	0.25b	1.25b

Values in a column followed by the same letter are not significantly different based on an F-protected LSD ( $P \leq 0.05$ ).

Test 3.

		26 Aug (pre-treatment)			Thrips per 10 leaves 1 Sep (7 DAT)			8 Sep (14 DAT)			10 Oct Yield
Treatment/ formulation	Rate amt product/acre	imm	adults	total	imm	adults	total	imm	adults	total	lint- lbs/ac
Untreated	--	290.50a	381.25a	381.25a	295.00a	102.00a	397.00a	409.00a	173.50a	582.50a	639.25a
Vydate C-LV	8.5 fl-oz	214.50a	293.50a	293.50a	159.25ab	27.25a	186.50ab	141.50b	23.75a	165.25b	713.76a
Vydate C-LV	17 fl-oz	194.25a	314.25a	314.25a	48.25a	11.25a	59.50b	63.75b	20.50a	84.25b	688.09a

Values in a column followed by the same letter are not significantly different based on an F-protected LSD ( $P \leq 0.05$ ).





## **Evaluation of Miticides for Spider Mite Control in Pre-Bloom Cotton, 2011**

**Cooperators: Ben Neudorf, Consultant**

**David Kerns, Manda Anderson, Tommy Doederlein,  
Scott Russell and Bo Kesey  
Extension Entomologist-Cotton, EA-IPM Gaines County, EA-IPM  
Dawson/Lynn Counties, EA-IPM Terry/Yoakum Counties and Extension  
Program Specialist-Cotton**

**Terry County**

### **Summary:**

Low use rates of Epi-Mek (4 fl-oz), Oberon (3 fl-oz) and Onager (8 fl-oz) were evaluated for control of spider mites in pre-bloom cotton. Note: Onager is not labeled for use in cotton in Texas. None of these rates provided acceptable control. Higher rates should be utilized. Athena at 8 fl-oz and Brigade at the high use rate of 6.4 fl-oz provided good control. The experimental miticide GWN-1708 appears promising for mite control in cotton.

### **Objective:**

The objective of this study was to investigate the efficacy of miticides at mitigating spider mite outbreaks in pre-bloom cotton.

### **Materials and Methods:**

This test was conducted in a commercial cotton field grown near Welch, TX. The field was on 40-inch rows, and was irrigated using a pivot irrigation system. The test was a RCB design with four replications. Plots were 4-rows wide × 50 ft in length. Miticides were applied with a CO<sub>2</sub> pressurized hand-boom sprayer calibrated to deliver 10 gpa through TX-6 hollow cone nozzles (2 per row) at 40 psi.

Insecticides were applied to all four rows of each plot on 24 Jun. A pre-treatment count was made on 23 Jun. Post treatment evaluations were made at 3, 6 and 13 days after treatment (DAT).

Treatments were evaluated by collecting 20, 3-4 node leaves per plot and returning these to the laboratory where the mites were removed onto a liquid detergent coated glass plate with a mite brush. Mite eggs, larvae and adults were counted from the entire glass plate. Data were analyzed using ANOVA and means were separated using an F-protected LSD ( $P \leq 0.05$ ).

### **Results and Discussion:**

On 23 Jun, prior to miticide application, the mite population was moderate averaging 4.86 motiles per leaf across all treatments, and there were no significant differences among treatments for any mite stage (Table 1).

At 3 DAT, None of the miticides differed from the untreated in eggs, larvae, or adults, but there were differences for motiles (larvae + adults). Brigade, GWN-1708, GWN-1708 + Onager and Athena all have fewer motiles than the untreated and Epi-Mek.

Results were similar at 6 DAT but these same treatments also had fewer motiles than Onager (Table 2). Additionally, Onager had significantly more adults and motiles than the untreated, and Epi-Mek had more adults than the untreated. The rates used for Onager and Epi-Mek are considered low. Oberon, GWN-1708 and GWN-1708 + Onager had fewer larvae than the untreated.

By 13 DAT the mite population had declined across the entire study area and no significant differences were detected.

### **Acknowledgments:**

This project was funded in part by Gowan Company and FMC and the Plains Cotton Improvement Program.

### **Disclaimer Clause:**

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.

Treatment/ formulation <sup>a</sup>	Rate amt product/acre	Mites per 20 leaves							
		23 Jun (pre-treatment)				27 Jun (3 DAT)			
		eggs	larvae	adults	motiles	eggs	larvae	adults	motiles
Untreated	--	145.50a	40.75a	31.25a	72.00a	37.50a	71.50a	30.00ab	101.50ab
Brigade 2EC	6.4 fl-oz	89.50a	44.50a	22.75a	67.25a	7.75a	14.50a	9.25b	23.75c
Oberon 4SC	3 fl-oz	70.25a	78.50a	27.75a	106.25a	6.75a	54.75a	26.50ab	81.25abc
Epi-Mek 0.15EC	4 fl-oz	59.00a	45.00a	23.50a	68.50a	33.50a	110.00a	42.25a	152.25a
GWN-1708 20SC	24 fl-oz	72.25a	63.75a	39.25a	103.00a	30.75a	37.75a	13.00b	50.75bc
GWN-1708 20SC + Onager 1EC	10 fl-oz + 4 fl-oz	120.00a	92.75a	48.50a	141.25a	11.25a	19.00a	12.75b	31.75bc
Onager 1EC	8 fl-oz	107.25a	80.75a	39.25a	120.00a	11.68a	47.73a	45.82a	93.69abc
Athena	8 fl-oz	48.50a	61.25a	37.5a	98.75a	8.25a	24.50a	9.75b	34.25bc

Values in a column followed by the same letter are not significantly different based on an F-protected LSD ( $P \leq 0.05$ ).

<sup>a</sup>All treatments included Dyne-Amic non-ionic surfactant at 0.375% v/v.

Table 2.

Treatment/ formulation <sup>a</sup>	Rate amt product/acre	Mites per 20 leaves							
		30 Jun (6 DAT) <sup>a</sup>				7 Jul (13 DAT) <sup>a</sup>			
		eggs	larvae	adults	motiles	eggs	larvae	adults	motiles
Untreated	--	1.00a	21.50ab	12.00bc	33.50b	0.25a	1.50a	9.25a	10.75a
Brigade 2EC	6.4 fl-oz	0.25a	9.50bc	6.00c	15.50c	1.25a	0.75a	2.25a	3.00a
Oberon 4SC	3 fl-oz	1.75a	6.75c	7.00c	13.75c	2.00a	1.00a	3.25a	4.25a
Epi-Mek 0.15EC	4 fl-oz	0.25a	26.50a	20.25b	46.75b	0.00a	0.25a	0.75a	1.00a
GWN-1708 20SC	24 fl-oz	0.25a	5.25c	4.50c	9.75c	0.50a	1.00a	2.50a	3.50a
GWN-1708 20SC + Onager 1EC	10 fl-oz + 4 fl-oz	0.75a	3.00c	4.50c	7.50c	0.00a	0.00a	2.00a	2.00a
Onager 1EC	8 fl-oz	0.57a	31.43a	37.89a	69.32a	1.04a	0.36a	3.02a	3.37a
Athena	8 fl-oz	0.75a	10.50bc	5.00c	15.50c	0.25a	1.00a	1.75a	2.75a

Values in a column followed by the same letter are not significantly different based on an F-protected LSD ( $P \leq 0.05$ ).

<sup>a</sup>All treatments included Dyne-Amic non-ionic surfactant at 0.375% v/v.



## **Results of a Two-Year Pink Bollworm Survey in the Southern Plains of Texas and New Mexico**

**Dr. Jane Pierce, New Mexico State University, Artesia, NM**  
**Warren Multer, Extension Agent – IPM, Glasscock, Reagan, & Upton Counties**  
**Tommy Doederlein, Extension Agent – IPM, Dawson & Lynn Counties**  
**Manda Anderson, Extension Agent – IPM, Gaines County**  
**Scott Russell, Extension Agent – IPM, Terry & Yoakum Counties**  
**Dr. Charles Allen, Texas State IPM Coordinator**  
**Dr. Rick Zink, USDA, APHIS, CPHST**  
**Dr. Michelle Waters, USDA, APHIS, CPHST**

### **Summary**

Cotton producing areas in the Southern Plains Region of Texas and New Mexico were surveyed using delta sticky traps baited with gossyplure, the sex pheromone for pink bollworm (PBW). Non-cotton producing areas south of these areas were also surveyed for moths potentially moving into the El Paso/Trans Pecos Pink Bollworm Eradication zone. Cotton producing counties surveyed were, Chaves and Eddy Counties in New Mexico and Dawson, Gaines, Glasscock, Martin, Midland, Terry, Upton and Yoakum counties in Texas. The counties surveyed have experienced PBW infestations in the recent past and 1.3 million acres of cotton planted in them annually.

No PBW moths were caught in any of the areas surveyed except for a relatively small area in southern Midland County. Nine fields in this area caught PBW moths in summer trapping (May-August). A total of 119 moths were caught during this time. Seventy-two percent of the moths caught were caught on two “epicenter” fields of non-Bt, organic cotton. Fall trapping, September through early November detected PBW activity in the same area. Six fields caught a total of 728 PBW moths. The two non-Bt, organic “epicenter” fields accounted for a total of 704 moths, 97% of the total fall capture. Since most of the fields in the region are planted to Bt cotton, it is likely that only two fields, less than 100 acres, had reproducing populations of pink bollworms in this region (1.3 million acres of cotton) in 2011.

### **Introduction**

Pink bollworm (PBW) is one of the world’s most important cotton pests. Losses to PBW prior to the availability of Bt cotton and the initiation of the eradication program were estimated at \$32 million per year (NCC 2001).

PBW eradication began in the El Paso/Trans Pecos (EP/TP) zone in Texas in 2001 and is nearing completion. It is threatened by PBW migration from the southern plains of Texas and New Mexico, areas not in eradication programs.

The Pecos Work Unit (east side of the EP/TP zone), caught no wild PBW moths in 2007 or 2008. In 2009, 669 wild moths were caught on Bt cotton fields between late September and the end of November. The question was, “Where did these moths come from?”

When PBW reproduction occurs and background populations are low, fall trap captures normally occur in “hot spots” indicating the locations of infested fields. The 2009 wild PBW moth captures in the EP/TP zone were distributed over a large land area and were not indicative of one or more infested fields within the work unit. Data from a few traps in the southern plains outside the EP/TP zone in 2009 suggested that reproducing PBW infestations may have been present in Midland County - 60 to 80 miles from cotton fields in the Pecos Work Unit.

The primary objective of this project was to investigate the correlation of cultural practices on PBW presence in southern plains cotton fields. A second objective was to investigate patterns of PBW movement from infested fields into the EP/TP zone. Data from these studies will be used to develop a model of pink bollworm populations in the southern plains region. The model will provide opportunities for the cotton industry to develop and implement areawide control programs which can intelligently target available resources to the fields which are likely sources of PBW reproduction and spread.

Trapping was conducted in 2010 and in the spring and summer of 2011. Results were as follows. In fall 2010 trapping, no PBW moths were caught in the Pecos Valley of New Mexico or the trap line to the south of this area. A single PBW moth was caught in Gaines County, TX and none were caught on the trap line south of Gaines County. Seven PBW moths were caught in Martin County. Three were caught on a single field – a Bt cotton field in southern Martin County. Four other fields caught a single PBW moth. Two were Bt and two were non-Bt. On Martin County fields where PBW moths were caught, captures occurred on a single week of trap inspection.

In Midland, Glasscock and Upton Counties, 11 fields caught PBW moths. A total of 1,434 moths were caught during the fall of 2010. Of these, 1,222 moths (85%) were caught on two non Bt, fields in organic production. Over 99% of the moths captured were caught within 5 miles of the two organic, “epicenter” fields.

In the spring of 2011, traps were run on the Midland, Glasscock and Upton County fields which had caught PBW moths the previous fall. Nine of these fields (90%) caught moths. A total of 119 moths were caught. Again, the majority of the moth catches were on the two non-Bt, organic, “epicenter” fields. One hundred and three moths (86%) were caught on them. One hundred and eleven moths (93%) were caught within five miles of these “epicenter” fields.

## **Materials and Methods**

From mid-September to early November, 2011, a trapping study was conducted in five areas of the southern plains. Trapping was conducted in the Pecos Valley NM, Gaines County TX, Terry/Yoakum Counties TX, Dawson/Martin Counties TX and Midland/ Glasscock/Upton Counties TX; cotton producing areas bordering or near the EP/TP zone on the north and east sides. Delta Sticky Traps baited with gossypure impregnated rubber septa were deployed, geo-referenced and serviced weekly. The protocol was to trap 10 Bt fields and 10 non-Bt fields – one trap per field - in each of the five areas. Cultural data collected on each field included: producer name, trap number, latitude, longitude, elevation, planting date, variety, acres, irrigation status/type and intensity, Bt transgenic, fall/winter tillage, whether the field was planted in killed wheat, winter irrigation, lbs. nitrogen (N) fertilizer/ac, and proximity to previous year non-Bt cotton.

Three highway trap line loops - with traps placed at five mile intervals - were established. Traps were geo-referenced and each trap line extended from the outside the EP/TP zone - near its boundary - into the zone. Data recorded as traps were inspected included: date of trap service, number of PBW moths caught and trap number. Highway loop trap lines were established 1. south of Carlsbad, NM; 2. south of Seminole, TX (the Kermit trap line) and 3. south of the Midland-Odessa, TX (the Crane trap line).

In the Pecos Valley NM production area, 20 cotton fields were trapped, including ten Bt and ten non-Bt fields. All fields were irrigated and tilled in the fall/winter of 2010-11. None of the fields were grown in

killed wheat cover or received winter irrigation. The Carlsbad trap line had 21 traps. The trap line ran south from Carlsbad NM to Orla TX, west to the Guadalupe Mountains and White City NM and northeast to Carlsbad.

In Gaines County TX, 20 fields were trapped of which ten were Bt and ten were non-Bt. All fields were center pivot irrigated. The Kermit trap line had 36 traps. It began in Seminole, TX and ran south to Gardendale TX (8 miles north of Odessa), west to Kermit TX, and north to Hobbs NM.

In Terry and Yoakum Counties TX, 20 fields were trapped. Nine were Bt and eleven were non-Bt. All fields were irrigated and all but 6 were planted row-till on killed wheat cover crops.

In western Martin and southwestern Dawson Counties 20 fields were trapped. All were center pivot irrigated Bt cotton fields. All fields received fall/winter tillage.

In Midland, Glasscock and Upton Counties 19 fields were trapped. Sixteen were Bt and three were non-Bt fields. Sixteen fields were drip irrigated and three were pivot irrigated. Fourteen fields received fall winter tillage and all fields received winter irrigation. The Crane trap line had 19 traps. It started north of Rankin TX and ran south to Rankin, northwest to Crane TX, north to Odessa TX and northeast to Midland TX.

## Results and Discussion

Total trap captures are shown in Figure 1. No PBW moths were caught during fall trapping in four of the five areas trapped (Figure 1.).

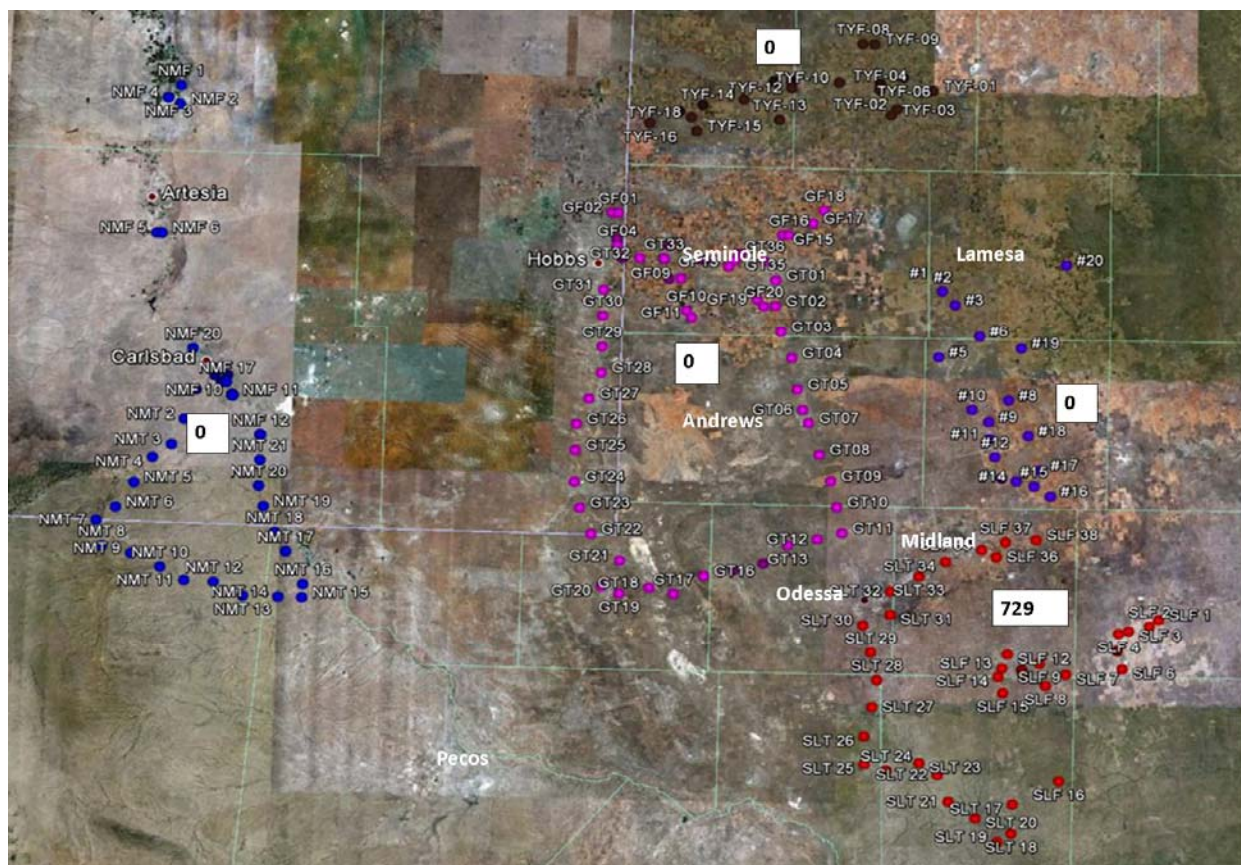
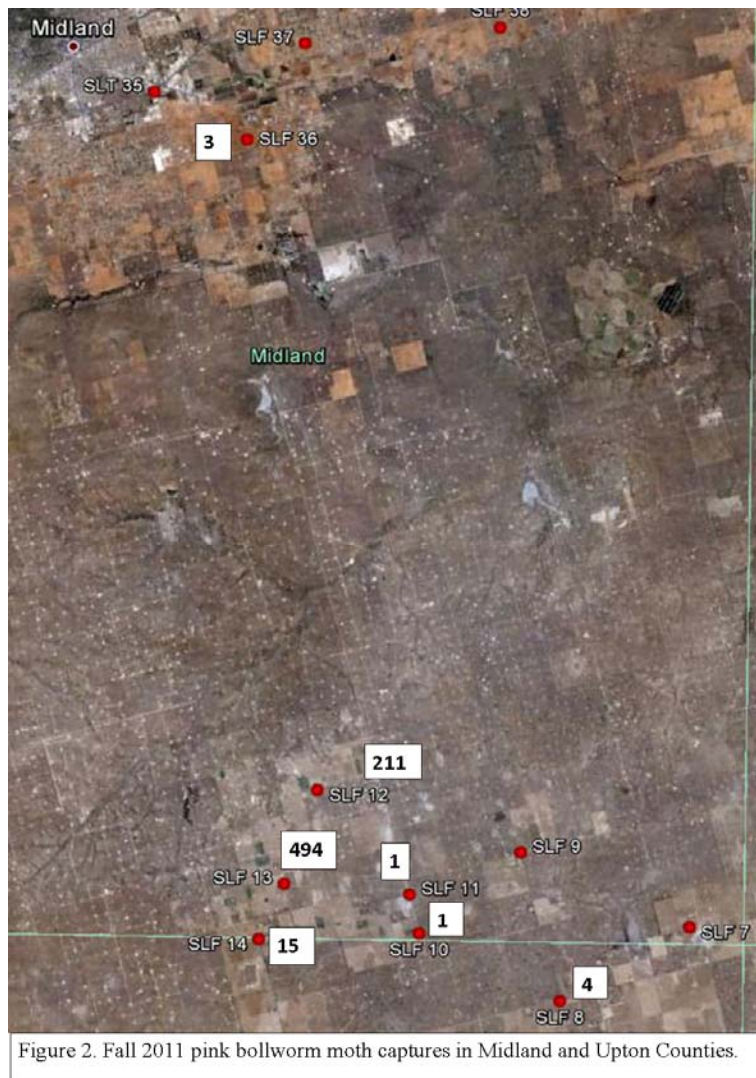


Figure 1. Southern Plains region of Texas and New Mexico showing pink bollworm trap locations and pink bollworm trap captures during the fall of 2011.



No PBW moths were trapped in Pecos Valley, NM trapping the blue spots on the west side of Figure 1. None were caught in the Terry and Yoakum Counties, TX, shown as the brown spots at the top of Figure 1. None were caught in Gaines County trapping, the pink spots in the center of Figure 1. And, none were caught in fall trapping in Dawson and Martin counties, the blue spots to the right side of Figure 1. However, 728 PBW moths were caught from seven fields near the Midland/Upton county line. These are shown on Figure 1 as the red spots in the lower left on the map.

Individual trap captures are shown in Figure 2. Fields which had non-Bt cotton were, from the top, SLF 36 (in which a few rows of non-Bt cotton were planted in a variety trial), SLF 12 (organic production), SLF 13 (organic production) and SLF 10 (organic production). No PBW moths were caught on SLF 10.



A total of seven fields caught PBW moths. Three PBW moths were caught on field SLF 36, two hundred eleven were caught on SLF 12, Four hundred ninety-three were caught on field SLF 13, fifteen were caught on field SLF 14, one was caught on SLF 11 and 4 were caught on SLF 8. Moth capture was highest during the last two weeks of September and the first three weeks of October.

The two fields which caught the highest number of PBW moths were SLF 12 and SLF 13. These fields are non-Bt cotton grown using organic production practices. Field SLF 10 was also a non-Bt field, but no PBW moths were caught on it.

## **Conclusions**

A total of 728 PBW moths were caught during the fall 2011 PBW trapping study in the southern plains region. Well over 99 percent of came from four fields within a five mile radius of SLF 13. Ninety-seven percent of the PBW moths captured came from SLF 12 and SLF 13, two organic, non-Bt, “epicenter” cotton fields. These fields almost certainly had reproduction in them and appeared to be the epicenter of the population in the area.

This study and previous studies suggest reproducing populations of PBW are no longer widely spread throughout the region. The data from the fall 2011 study suggests reproducing populations may be limited to only ~100 acres of non-Bt organic cotton, the “epicenter” fields, in southern Midland County. Preliminary plans are being made to eradicate this population in 2012.

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**Bayer CropScience Irrigated CAP Trial  
Seminole, TX - 2011**

**Cooperator: Jud Chevront**

**Manda Anderson, Extension Agent - IPM, Gaines County**

**Planted: 17-May  
Harvested: 4-November**

**Table 1. Harvest results from the Bayer CropScience Irrigated CAP Trial (1 replication), Jud Chevront Farms , Seminole, TX, 2011.**

<b>Variety</b>	<b>Lint Yield (lbs/A)</b>	<b>Yield Rank</b>	<b>Percent Turnout</b>	<b>Mic</b>	<b>Staple</b>	<b>Strength</b>	<b>Unif</b>	<b>Elong.</b>	<b>Color</b>	<b>Leaf</b>	<b>Loan Value (¢/lb)</b>	<b>Value / A (\$/A)</b>
FM 1740B2F-PV	2,536.6	1	0.373	3.6	38.08	27.6	83.8	6.5	21.0	2.0	57.30	\$1,453
ST 5458B2RF	2,423.6	2	0.368	4.5	37.44	32.7	84.3	6.8	21.0	2.0	57.75	\$1,400
FM 1740B2F	2,394.8	5	0.368	3.8	38.72	29.6	85.7	7.0	21.0	2.0	57.90	\$1,387
ST 5288B2F	2,414.2	3	0.373	3.9	37.76	27.5	82.9	7.8	21.0	2.0	57.35	\$1,385
ST 4288B2F	2,354.5	7	0.346	4.0	38.72	29.8	85.8	7.0	21.0	2.0	57.90	\$1,363
FM 9170B2F	2,411.0	4	0.371	3.1	39.36	30.8	84.1	6.8	21.0	2.0	54.40	\$1,312
FM 9160B2F	2,221.6	9	0.360	3.6	38.72	32.0	85.6	6.7	21.0	2.0	57.95	\$1,287
FM 2484B2F	2,387.4	6	0.359	3.2	40.32	28.6	82.7	6.5	21.0	2.0	53.85	\$1,286
FM 2989GLB2	2,324.7	8	0.356	3.1	38.08	30.5	83.4	6.5	21.0	2.0	54.30	\$1,262
BX 1262B2F	2,184.1	10	0.358	3.4	39.04	28.9	84.2	7.8	21.0	2.0	55.55	\$1,213
BX 1261B2F	2,053.5	13	0.358	3.6	38.40	29.5	83.8	6.8	21.0	2.0	57.55	\$1,182
BX 1264B2F	2,073.1	12	0.336	3.4	39.04	28.3	85.3	7.0	21.0	2.0	55.65	\$1,154
BCSX 1150B2F	1,976.1	14	0.349	4.2	38.72	31.9	85.0	7.9	21.0	2.0	58.00	\$1,146
FM 9180B2F	2,108.9	11	0.336	3.2	39.04	29.6	84.2	6.7	21.0	2.0	54.20	\$1,143

Loan Value calculated from 2011 CCC Loan Schedule using uniform color grade of 21 and uniform leaf grade of 2.

PV = Poncho/VOTIVO



**Bayer CropScience Irrigated CAP Trial  
Seminole, TX - 2011**

**Cooperator: Delman Ellison**

**Manda Anderson, Extension Agent - IPM, Gaines County**

**Planted: 25-May**

**Harvested: 28-November**

**Table 1. Harvest results from the Bayer CropScience Irrigated CAP Trial (1 replication), Delman Ellison Farms , Seminole, TX, 2011.**

<b>Variety</b>	<b>Lint Yield (lbs/A)</b>	<b>Yield Rank</b>	<b>Percent Turnout</b>	<b>Mic</b>	<b>Staple</b>	<b>Strength</b>	<b>Unif</b>	<b>Elong.</b>	<b>Color</b>	<b>Leaf</b>	<b>Loan Value (¢/lb)</b>	<b>Value / A (\$/A)</b>
ST 5288B2F	697.6	1	0.345	4.6	34.88	28.9	80.7	6.5	21.0	2.0	56.10	\$391
ST 5458B2RF	563.6	2	0.326	4.4	34.88	33.3	82.3	6.7	21.0	2.0	56.55	\$319
BX 1262B2F	547.9	5	0.324	4.0	36.16	32.4	81.7	7.1	21.0	2.0	57.45	\$315
ST 5458B2RF-PV	549.8	3	0.326	4.7	34.88	32.6	81.1	6.7	21.0	2.0	56.55	\$311
FM 9170B2F	530.0	6	0.307	4.3	37.44	31.4	83.6	5.7	21.0	2.0	57.75	\$306
FM 2484B2F	515.9	7	0.330	4.3	37.44	33.1	83.3	6.1	21.0	2.0	57.65	\$297
BX 1264B2F	548.6	4	0.302	3.0	35.84	32.9	82.1	6.5	21.0	2.0	53.95	\$296
ST 4288B2F	509.6	8	0.290	4.3	35.20	30.9	81.9	6.5	21.0	2.0	56.55	\$288
BX 1261B2F	493.0	9	0.310	3.9	34.88	31.2	82.4	7.1	21.0	2.0	56.70	\$280
FM 2989GLB2	472.5	10	0.314	3.9	36.16	35.7	82.1	5.9	21.0	2.0	57.45	\$271
FM 9160B2F	460.2	12	0.336	3.9	36.48	32.0	83.4	5.7	21.0	2.0	57.80	\$266
FM 1740B2F	469.4	11	0.313	3.8	33.92	30.8	81.4	6.4	21.0	2.0	54.70	\$257
FM 9180B2F	408.5	13	0.313	3.4	35.52	32.6	81.1	6.1	21.0	2.0	55.55	\$227

Loan Value calculated from 2011 CCC Loan Schedule using uniform color grade of 21 and uniform leaf grade of 2.

PV = Poncho/VOTIVO



**Deltapine Irrigated FACT Trial  
Seminole, TX - 2011**

**Cooperator: Tim Neufeld**

**Manda Anderson, Extension Agent - IPM, Gaines County**

**Planted: 12-May  
Harvested: 31-October**

**Table 1. Harvest results from the Deltapine Irrigated FACT Trial (1 replication), Tim Neufeld Farms , Seminole, TX, 2011.**

Brand	Variety	Crop Value (\$/Acre)	Lint Yield (\$/Acre)	Loan Price per Lb	Staple (32nds)	Length (inches)	Strenght (g/tex)	Micronaire	% Lint	% Uniformity
Delta Pine	DP 1252 B2RF *	\$ 954.73	1725	0.5535	34.9	1.09	28.0	4.8	42.4	82.8
Monsanto	11R159B2R2	\$ 921.76	1646	0.5600	35.5	1.11	30.0	4.9	40.9	80.8
Delta Pine	DP 1032 B2RF	\$ 905.31	1642	0.5515	34.6	1.08	27.8	4.9	45.6	80.9
Monsanto	11R150B2R2	\$ 892.61	1686	0.5295	34.6	1.08	27.0	5.1	44.3	81.8
Monsanto	11R140B2R2	\$ 875.81	1629	0.5375	35.8	1.12	29.1	5.1	42.9	83.1
Monsanto	10R051B2R2	\$ 850.69	1658	0.5130	34.2	1.07	26.8	5.0	43.3	82.1
Monsanto	11R154B2R2	\$ 838.43	1626	0.5155	33.6	1.05	29.7	5.0	40.9	80.1
Monsanto	11R124B2R2	\$ 838.29	1520	0.5515	34.6	1.08	27.9	5.0	41.3	81.8
Monsanto	11R136B2R2	\$ 829.02	1548	0.5355	35.8	1.12	29.0	5.1	41.4	81.8
Monsanto	11R135B2R2	\$ 792.51	1497	0.5295	34.6	1.08	26.7	5.2	41.9	81.5
FiberMax	FM 9170 B2F	\$ 791.64	1414	0.5600	36.5	1.14	30.1	4.8	39.4	82.1
Delta Pine	DP 1044 B2RF	\$ 777.48	1516	0.5130	34.2	1.07	27.9	5.1	38.5	81.2
Delta Pine	DP 0912 B2RF	\$ 748.11	1486	0.5035	33.9	1.06	27.6	5.4	40.8	83.3
<b>TEST AVERAGE</b>		<b>\$ 847.41</b>	<b>1584</b>	<b>0.5349</b>	<b>34.8</b>	<b>1.09</b>	<b>28.3</b>	<b>5.0</b>	<b>41.8</b>	<b>81.8</b>

\* Indicates variety that has been advanced into commercial production. Key: 10R013B2R2 = DP 1212 B2RF; 10R011B2R2 = DP 1219 B2RF; 10R052B2R2 = DP 1252 B2RF

Value Calculation based on \$0.52/Lb(+/-) discounts/premiums from the 2011 USDA Loan Chart (Ranked by Value \$/A). All plots were assigned a base color (31) and leaf grade (3).

Entries listed as "Monsanto" brand are experimental varieties, and not for sale.

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